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STID 1130

HUMAN HEALTH RISK ASSESSMENT FOR THE PROPERTY LOCATED AT 2470 98TH AVENUE, OAKLAND, CALIFORNIA

August 11, 1998

Project No. 98-2280

Prepared for

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EXECUTIVE SUMMARY

SOMA Environmental Engineering, Inc. has prepared this report on behalf of Mrs. Ghofrani, the owner of the site. The site is located at 2740 98th Avenue in Oakland, California.

Reportedly, in May 1989, an unknown amount of waste oil was accidentally released into the soil on the subject site. Subsequently, numerous investigative studies at on- and off-site areas were conducted. These investigations included drilling of shallow soil borings, installation of groundwater monitoring wells and analytical testing of soil and groundwater samples. The purpose of this report is to evaluate:

(1) the adverse health effect of petroleum chemicals in soil and groundwater on the current and future occupants of the site as well as the off-site residents;

(2) the stability/mobility of the current dissolved phase benzene, toluene, ethylbenzene and xylene (BTEX) plumes; and finally

(3) the beneficial uses of the groundwater beneath the site and the surrounding areas.

ASTM-RBCA (E1739-95 Standard) Tier I and Tier II studies were conducted to develop the site-specific target levels (SSTLs) of chemicals in order to compare them with the current chemical concentration in the soil and groundwater.

Based on the results of our investigation, data review, risk assessment and fate transport modeling, and according to the Regional Board Supplemental Instructions dated December 8, 1995, the site falls into the "Low-Risk" Petroleum Release Site Category for the following reasons:

1) The sources of petroleum, namely the spilled waste oil and the collection pipe into which the waste oil had leached, were removed from the site by 1993.

2) No wells in the vicinity of the site were impacted by the spill. Based on the record search conducted by BBL, no drinking water wells exist within a 1 mile radius of the site.

3) Historical benzene concentration in on-site monitoring wells indicate that during recent years the concentration of BTEX in groundwater monitoring wells has decreased and still shows a decreasing trend; and

4) Based on the results of ASTM-RBCA study, the site poses no significant health risk to the on-site workers as well as the off-site residents via inhalation of vapors in indoor air. The results of our evaluation indicate that the current soil and groundwater BTEX concentrations are less than the calculated site specific target levels.

Based on our evaluation of the soil and groundwater contamination, no further remediation efforts are necessary at the site.

1.0 Introduction

This report has been prepared by SOMA Environmental Engineering, Inc. (SOMA) on behalf of Mrs. Ghofrani, the owner of the property located at 2740 98th Avenue at the intersection of Stanley Avenue and 98th Avenue in Oakland, California, (the "Site"), see Figure 1.

Reportedly, in May 1989, an accidental release of waste oil from an underground storage tank occurred at the Site. Subsequently, field investigative studies were conducted on-site. These investigations included drilling of shallow soil borings, installation of groundwater monitoring wells and analytical testing of soil and groundwater samples.

The objective of this report was to utilize the available data including the results of the groundwater monitoring data to perform a risk based corrective action (RBCA) study at the project Site. In addition, SOMA hired BBL of Solano Beach, California to search and locate hazardous waste sites, drinking water wells and other sensitive receptors within one-mile radius of the Site. The results of Tier I and Tier II ASTM-RBCA evaluation will reveal the risk-based screening levels (RBSLs) and the site-specific target levels (SSTLs) of soil and groundwater that is protective of human health and the environment.

1.1 Background

Four underground storage tanks are located under the property. Three of the tanks are made of fiberglass and are used for storing gasoline. One tank is metallic and is used to store waste oil. Based on the Phase I report conducted by NORTHWEST ENVIROCON Environmental Consulting, the three underground gasoline storage tanks were installed in July of 1975. Mrs. Ghofrani, the current property owner, claims that the previous property owner installed these tanks due to the discovery of a petroleum leak from the underground tanks prior to 1975. According to Mrs. Ghofrani, the previous property owner claims to have remediated the alleged petroleum spill. In addition, an accidental spill, in May of 1989, introduced an unknown amount of waste oil into the soil and groundwater. The waste oil drained into the exposed soil, ~~leached onto/into a collection~~ pipe that emptied into Stanley Avenue and drained down for approximately fifty feet. Since then, extensive groundwater and soil sampling has been conducted by Soil Tech Engineering, Inc. to evaluate the extent of soil and groundwater contamination beneath the Site. A summary of their results will be presented in the next sections.

1.1.1 Extent and Nature of Soil Contamination

In May of 1989, U.S. Waste Oil Group removed the waste oil and collected 3 topsoil samples for total oil and grease (TOG) analysis at the Brown and Caldwell Laboratories. The pipe was removed by E & G Construction in 1993 in order to get access to the impacted soil and groundwater in the area of the spill. Eight shallow soil samples (up to 3.5 ft bgs) and 3 deep soil samples (between 12-13 ft bgs) were collected. The results of laboratory analysis on soil samples reported TPH-gasoline concentrations ranging between 310 mg/kg and 2,900 mg/kg. In July of 1993, three confirmation samples (A-1, B-1 and C-1) were collected and analyzed for TPH-g. The results of laboratory analysis have shown the TPH-g levels between 0-15 mg/kg.

Soil Tech Engineering, Inc. (Soil Tech) conducted extensive soil investigations at the site between 1994 and 1996. This section summarizes the results of the soil investigation and extent of petroleum impacted soils beneath the Site. Figure 1 presents the locations of the soil borings and groundwater monitoring wells used in conducting soil investigation.

In 1994, Soil Tech Engineering, Inc. drilled four soil borings (B1-B4) on the Site. Soil borings B-1 and B-3 are located approximately 6 ft. west and north of the snack bar respectively. B-2 and B-4 are situated along western boundary of the Site, adjacent to 98th Avenue. In general, soil samples were collected at 5 and 9 foot depths, except soil boring B-1 in which an extra sample was collected at 15 foot depth. The soil samples were tested for traces of total petroleum hydrocarbons as gasoline (TPH –g), benzene, toluene, ethylbenzene, and total xylenes (BTEX). The soil samples collected from borings B1-B4 showed concentrations of TPH-g and BTEX ranging between none detected (ND) and 1,500 ppm, and ND and 50 mg/kg respectively. Generally, BTEX and TPH-g concentrations at B-1 were one to three orders of magnitude larger than those found at comparable depths at other soil boring locations. Benzene concentrations at B-1 were in the range of 0.038 –2.4 mg/kg.

In 1995, Soil Tech installed four groundwater monitoring wells (STMW-1 to STMW-3 and W-4) at the Site. Figure 1 shows the location of groundwater monitoring wells. During well installation soil samples were collected and analyzed for petroleum hydrocarbons and BTEX. No petroleum chemicals were detected in the soil samples collected from the borings.

In 1996, three additional groundwater monitoring wells (STMW-4, STMW-5 and STMW–6) were installed by Soil Tech Engineering, Inc. in the vicinity of the snack bar, see Figure 1. STMW-4 was located 7ft. southwest of the snack bar near boring B-1. Well STMW-5 was located 6-7 ft. from the mechanic shop and approximately 10-ft. from the snack bar. Well STMW-6 was installed approximately 14 ft. east of the mechanic shop. Soil samples were collected from depths ranging between 3 and 30 feet and were analyzed for TPH–g, and BTEX. TPH-g and BTEX concentrations in soil samples collected from STMW-4 through STMW-6 were reported in the range of ND and 57 mg/kg and ND and 0.11 mg/kg respectively. Benzene concentrations at STMW-4 were in the range of ND and 0.11 mg/kg. The reported TPH-diesel concentration at STMW-6 was 29 mg/kg, while the total oil and grease (TOG) concentration was 76 mg/kg.

1.1.2 Extent and Nature of Groundwater Contamination

Groundwater sampling and monitoring has been conducted by Soil Tech from 1994 through 1997. The locations of groundwater monitoring wells are presented in Figure 1. Based on the groundwater monitoring data, the groundwater contamination plume was limited to an area located west to southwest of the snack bar.

In 1994, the grab groundwater samples collected from boring B-1 contained TPH-g and BTEX levels up to 990 mg/l and 49 mg/l respectively. Reportedly, the maximum benzene concentration was 11.0 mg/l. During the 1996–1997

groundwater monitoring events, the maximum concentrations of BTEX and TPH-g were reported at groundwater monitoring well STMW-4, located near soil boring B-1 on the southwest side of the snack bar. However, the contaminant concentrations reported at STMW-4 in 1996-1997 were considerably lower than those reported at B-1 in 1994. From 1996 to 1997, TPH-g and BTEX concentrations at STMW-4 ranged between ND and 19 mg/l and ND to 0.19 mg/l respectively. Benzene concentrations were reported between ND to 0.06 mg/l. 0.016 mg/l.

Groundwater samples collected from other groundwater monitoring wells such as STMW-1 through STMW-3, STMW-5 and W-4 showed very low to ND levels of contamination. TPH-g and BTEX were not detected at STMW-1 and STMW-2, near 98th Avenue from 1995 to1997. The results of the laboratory analysis of the groundwater samples collected during 1996 and 1997 from STMW-6 and W-4, both collected within 20 ft. east of the snack bar and mechanic shop, also showed non-detectable levels of TPH-g and BTEX. The maximum concentration of TPH-g and BTEX during the 1996 monitoring events at STMW-5 was 0.58 and 0.19 ppm respectively. In 1997, TPH-g and BTEX concentrations were below the detection limit at STMW-5.

2.0 Risk Based Corrective Action (RBCA)

This RBCA report will analyze the on-site specific target contaminant levels beyond which may result in adverse health effects of office/construction workers on the site. Based on historical site chemical data, the chemicals of concern are benzene, ethylbenzene, toluene and xylenes.

2.1 Site Conceptual Model

The conceptual model was developed for the Site based on the results of previous and recent Site investigations. The CSM synthesizes site characterization data (geology, hydrogeology, contaminant distribution, migration pathways and potential human receptors) to provide a framework for selecting

pathways for quantitative analysis in conducting ASTM-RBCA analysis. The CSM is shown graphically in Figure 3.

The primary source of chemical contamination is identified at the point of accidental release of gasoline from the on-site underground storage tank. Secondary sources of contamination include the dissolved groundwater plume, affected subsurface soils and saturated sediments. Potential transport mechanisms from subsurface soils are by volatilization and atmospheric dispersion. Potential transport mechanisms from dissolved water plume are by volatilization and entering into the closed spaces. The chemicals of concern (COC) such as BTEX, detected in groundwater, can volatilize and travel by diffusion toward the land surface and enter into commercial buildings or ambient air. At these exposure points, they may cause adverse health effects to the commercial/construction workers via exposure route of inhalation. Presently, the on-site Snack Bar and Mechanic Shop have been identified as the points of exposure (POE). The full time Snack Bar/Mechanic Shop workers and construction workers have been evaluated as the receptors to potential exposure from the Site's contaminants.

Soil and saturated sediments may serve as a secondary source of contamination to future construction workers. There is a potential threat to the future construction workers that may be exposed to the COCs present in wet soils in the saturated zone or by direct exposure to groundwater if the soil is excavated to depths below the water table. The COCs in the wet soils will come in contact with construction workers through exposure routes of volatilization, incidental ingestion and dermal contact. The chemicals in the freely exposed groundwater will come in contact with the construction workers through the exposure route of volatilization and dermal contact.

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Reportedly, no drinking water well is located within a one-mile radius of the Site (BBL 1997). Appendix II presents BBL (1997) report.

2.2 Identification of Exposure Pathways and Potential Receptors

Based on the historical soil and groundwater data, the area affected by the petroleum spill is believed to contain borings B-1, B-2, B-4 and well STMW-1 (see Figure 1). The area is estimated to be 1,200 sq. ft, approximately 60 ft in length and 20 ft. in width, see Figure 2.

According to the CSM (see Figure 3), the exposed population/receptor to the on-site contamination are the current on-site retail/office workers

For the on-site office/retail workers, both the contaminated soils and groundwater are the source of chemicals. It appears that the only exposure pathway at the on-site area is the inhalation of volatile emissions from soil and groundwater. A hypothetical worker was therefore evaluated with potential exposure to the on-site contaminants from inhalation of volatile emissions from soil and groundwater. In addition, a construction worker scenario was also assumed in the RBCA evaluation.

2.3 Exposure Point Concentrations

Tables 4 – 11-b of this report include historical soil and groundwater chemical data. The 95 percent upper confidence limit (95% UCL) concentration of chemicals were used as a representative of the current exposure point concentrations in the groundwater and soil at the on- site areas. Due to the input requirements of the RBCA program, surface soils (categorized as above 3.3 ft. bgs.) and subsurface soils (categorized as below 3.3 ft. bgs.) were considered separately when calculating the 95% UCL. For statistical analysis purposes, samples in which contaminant levels were non-detectable were assigned values of one-half of the detection limit. In cases where the number of data points were less than six, the maximum contaminant concentration was used instead of the 95% UCL. Off-site soils were assumed to be clean.

2.4 Calculation of Risk Based Screening Levels

To evaluate the risk based screening levels (RBSLs) in soil and groundwater, ASTM-RBCA model was utilized. The model is an Excel spreadsheet model designed to perform risk-based corrective action calculations for selected exposure pathways. SOMA compiled critical information regarding source conditions (soil and groundwater chemical data and parameters), exposure pathways, transport mechanisms and potential receptors to the RBCA spreadsheet. The evaluation was conducted in two different steps; the first step involved using default soil, groundwater and exposure parameters to evaluate risk-based screening levels (RBSLs). The second step involved using site-specific parameters to calculate site-specific target levels (SSTLs). The first step is called Tier I and the second step is called Tier II analysis respectively.

2.4 Tier I Analysis

RBSLs evaluation was performed based on the exposure pathways identified in the CSM. To evaluate the RBSLs, the ASTM-RBCA model was run using generic and default soil, groundwater and exposure parameters. The default soil, groundwater and exposure parameters used in Tier I analysis are presented in Tables 1 - 3. The Tier I analysis also takes into account the construction worker whom may be exposed to the Site's contaminants via inhalation, ingestion and dermal contact. In conducting Tier I analysis the following scenarios were considered:

1) Soil and groundwater RBSLs were calculated assuming that the on-site retail/office workers will be exposed to the Site's contaminants in soil and groundwater through the inhalation of the indoor air.

2) All parameters used for RBSL calculations were based on the conservative assumptions. Conservative values for soil parameters were assumed in modeling the soil-to- air volatilization. The soil parameters include physical

soil properties and the dimensions of the affected soil zone. Tables 1-3 presents the conservative input values in conducting Tier I analysis.

2.5 Tier II Analysis

The purpose of Tier II analysis is to determine the Site Specific Target Levels (SSTLs). Generally, SSTL values will result in significantly higher cleanup levels (lower remediation costs) than the RBSL values calculated in Tier I. To determine SSTL values, SOMA compiled additional site data as needed to identify site specific parameters for soil and groundwater. The Tier 2 goals are consistent with US EPA recommended practices.

In general, the Tier II analysis is almost similar to the Tier I analysis. The only difference between the Tier II and the Tier I analysis is the use of site-specific soil, groundwater and exposure parameters in the former. In conducting Tier II the same scenario as discussed previously was considered. Soil and groundwater SSTLs were calculated for the on-site assuming that the on-site retail/office workers will be exposed to Site's contaminants through the inhalation of the indoor air.

All parameters used for SSTLs calculations were based on site-specific parameters. An accepted target risk value (defined by the US EPA) of $1X10^{-6}$ was used. During this time, the complete exposure pathway of the residential employee was assumed to be inhalation of volatile organic compounds (VOCs) from groundwater through the diffusion process into the indoor and outdoor air. Tables 1 - 3 present the site-specific input values used in conducting Tier II analysis.

3.6 Comparison of RBSLs and SSTLs with Site Contaminants Levels

The calculated RBSLs are the threshold concentrations of chemicals in soil and groundwater beyond which the adverse health effects can be expected in the exposed population. Generally, if the observed soil and groundwater chemical

concentrations become less than the calculated RBSLs, no soil or groundwater remediation is required. However, due to the conservative nature of the assumptions involved in the RBSL calculations, if the observed soil or groundwater chemical concentration exceeds the RBSLs the soil and or groundwater remediation is not necessarily required. To better define the soil and groundwater cleanup levels, more refined RBSL values were employed in the Tier II analysis. The refinement was achieved by using the site-specific soil, groundwater and exposure parameters. The calculated clean-up levels using the Tier II analysis is called site-specific target levels (SSTLs). The calculated SSTLs are considered to be protective of human health and the environment. In order to decide if the present and future chemical concentration in soil and groundwater beneath the Site are protective of human health, they were compared against the calculated RBSLs and SSTLs. Table 12 presents such a comparison and indicates whether or not the soil and groundwater remediation beneath the Site is warranted.

3.0 Results

The results of the SOMA investigation indicate that no risk exists to the health of both the construction and on-site retail worker. The results of the Tier I analysis are presented in Table 12. According to these results, existing contaminant levels at the site are below the RBSL values calculated by the RBCA program for both the groundwater and surface soil scenarios. Subsurface analysis, however, indicated that current benzene concentrations exceed the RBSL.

Tier II analysis, using the site–specific parameters found in Table 1 - 3, was performed to determine whether remediation of the contaminated on-site subsurface soils was warranted. The results of the Tier II analysis are presented in Table 12. Tier II analysis revealed that the current contamination levels of the subsurface soils as well as the groundwater and surface soils are below the SSTLs. As discussed earlier, the SSTLs are the threshold level concentration of chemicals beyond which an adverse health effect in the exposed human receptors can be expected. Therefore, current site contamination levels do not and will not pose a potential health risk to on-site retail or construction workers. Furthermore, as shown in Figures 4 and 5, contaminant levels in groundwater appear to be decreasing with time. Therefore, since the plume of groundwater BTEX concentration is shrinking it will not pose a threat to human health or the environment in the future.

The health risk to the off-site residents by the on-site contamination was assumed negligible for two reasons. First, the contaminant plume is contained within the boundaries of the property and thus denies a direct exposure pathway between off-site residents and the contaminated soil and groundwater. Secondly, based on the results of the RBCA analysis, on-site workers were not at risk and the risk to off-site residents would be equivalent if not less than the risk posed to on-site workers.

4.0 Conclusion

Based on the California Regional Water Quality Control Board's Interim Guidance Document dated December 8, 1995 the Site fits into the "Low-Risk" Petroleum Release Site Category for the following reasons:

1) The spilled waste oil and collection pipes were removed in 1989 and 1993, respectively. Therefore, the source of petroleum no longer exists at the Site.
2) No wells in the vicinity of the Site were impacted by the spill. Based on the record search conducted by BBL, no drinking water wells exist within a 1 mile radius of the site.
3) The existing plume of groundwater is not an expanding plume. As revealed by the data, the concentration of BTEX, especially benzene, follows a decreasing pattern.
4) Based on the results of the ASTM-RBCA study, under current and future conditions the Site poses no significant health risk to on-site workers as well as off-site residents. The SSTL values are above the existing contaminant concentrations.

Therefore, the subject property meets the requirements of a "Low-Risk" Petroleum Release Site. We thereby request the Alameda County Department of Environmental Health to grant permission for site closure.

5.0 References

Soil Tech Engineering, April, 1994. "Preliminary Site Assessment at Freeway Station and Service Property Located at 2740 98th Avenue Oakland, California."

Soil Tech Engineering, March, 1995. "Environmental Site Assessment of Contaminated Soil and groundwater for the Property Located at 2740 98th Avenue, Oakland, California."

Soil Tech Engineering, October, 1996. "Additional Subsurface Investigation for the property located at 2740 98th Avenue, Oakland, California."

Soil Tech Engineering, Nov. 14, 1997. "Quarterly Groundwater Monitoring and Sampling at the Property Located at 1740 98th Avenue."

Regional Board Supplemental Instructions to State Water Board, December 8, 1995 "Interim Guidance on required Cleanup at Low-Risk Fuel Sites"

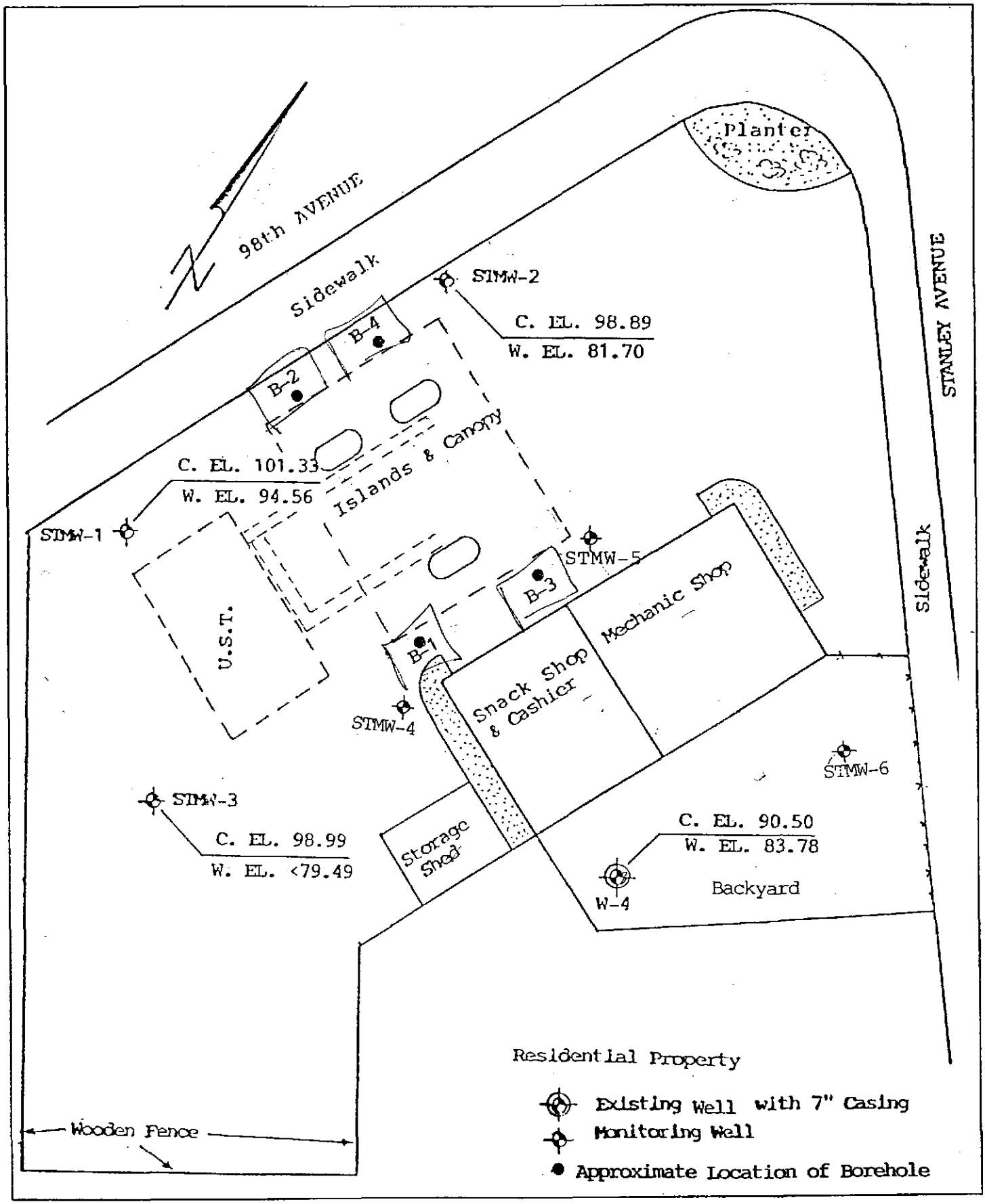

Figure 1: Location of Soil Borings and Groundwater Monitoring Wells

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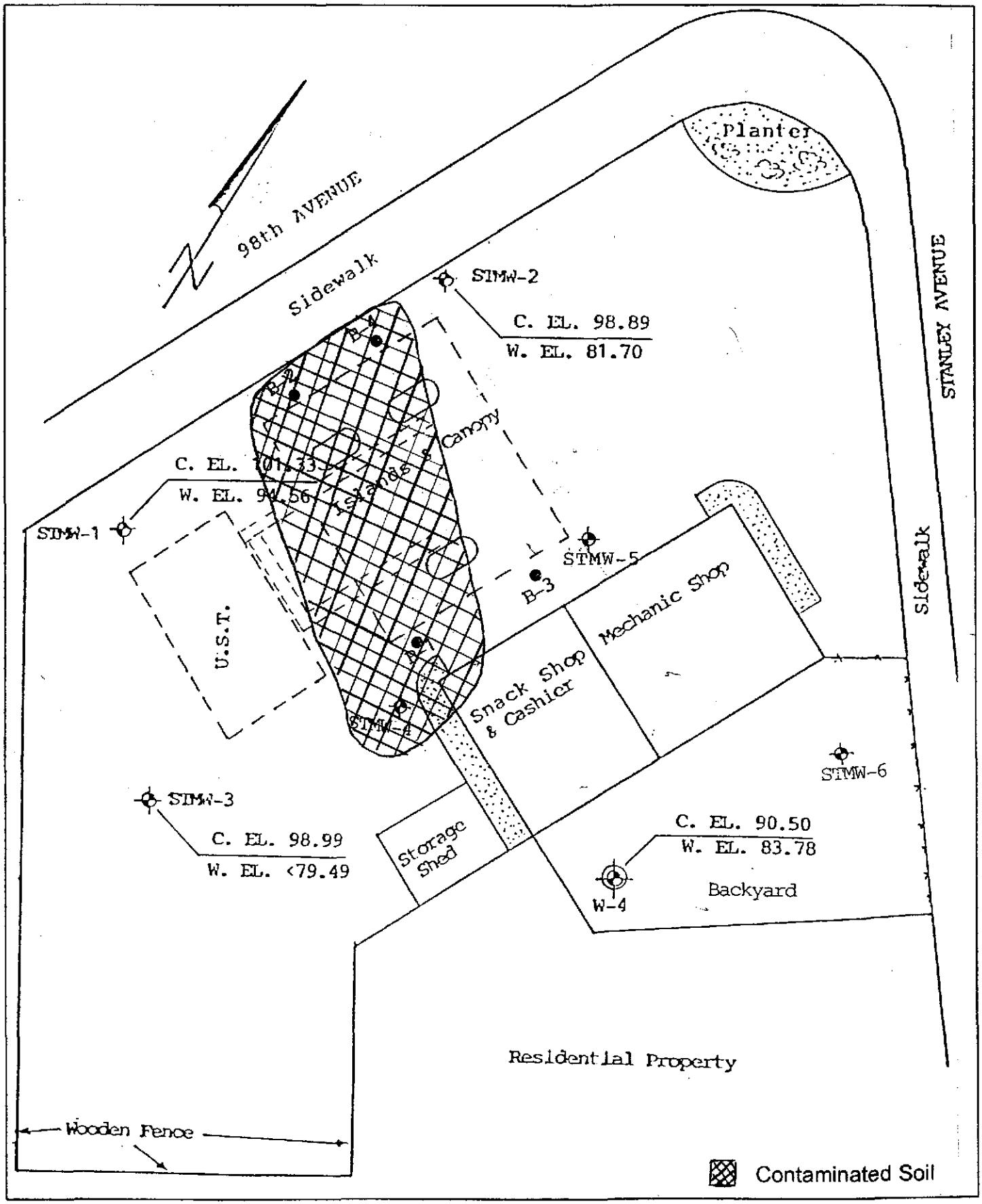

Figure 2: Approximate Configuration of Soil Contamination Plume

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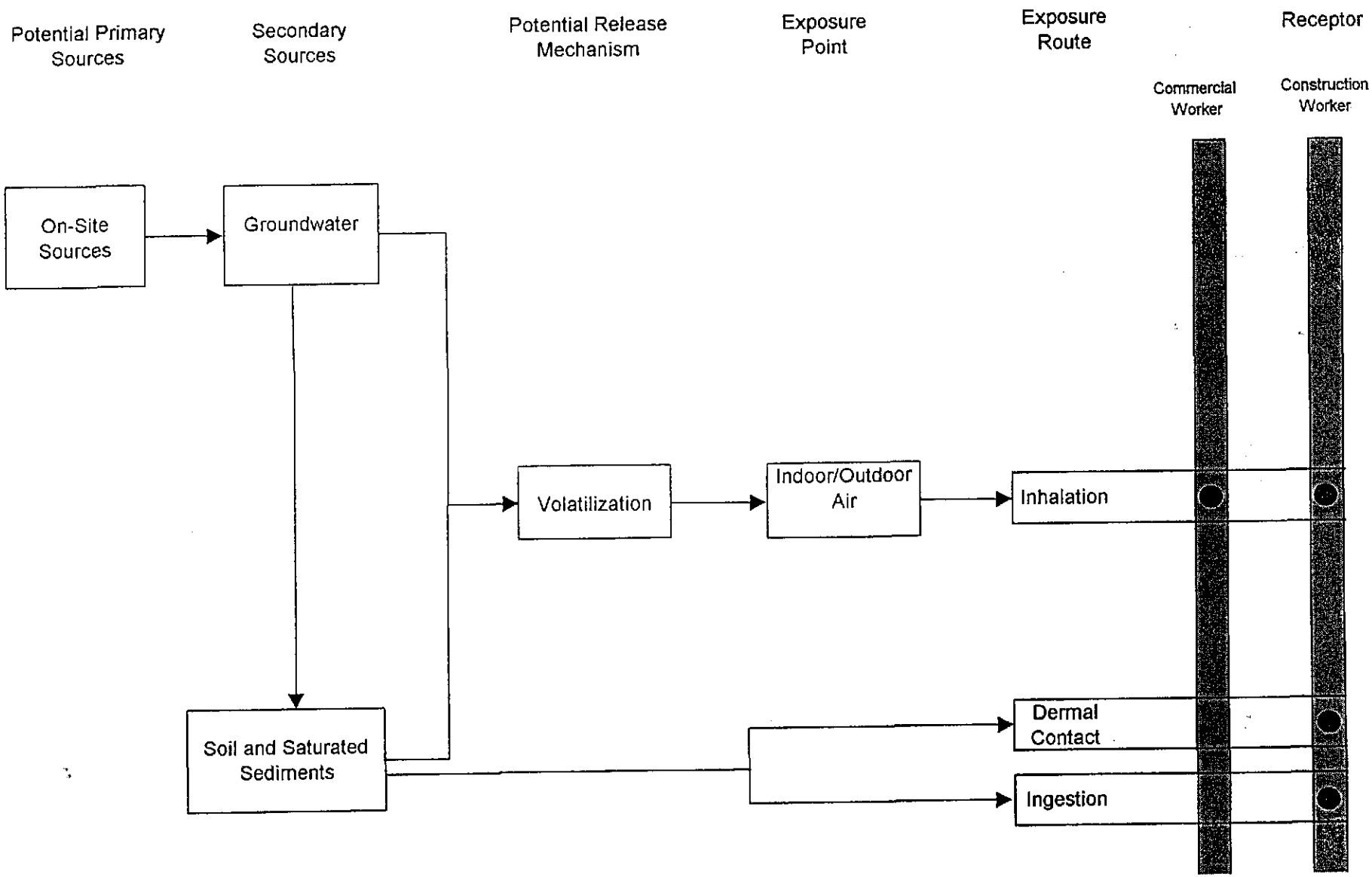

Figure 3: Conceptual Site Model

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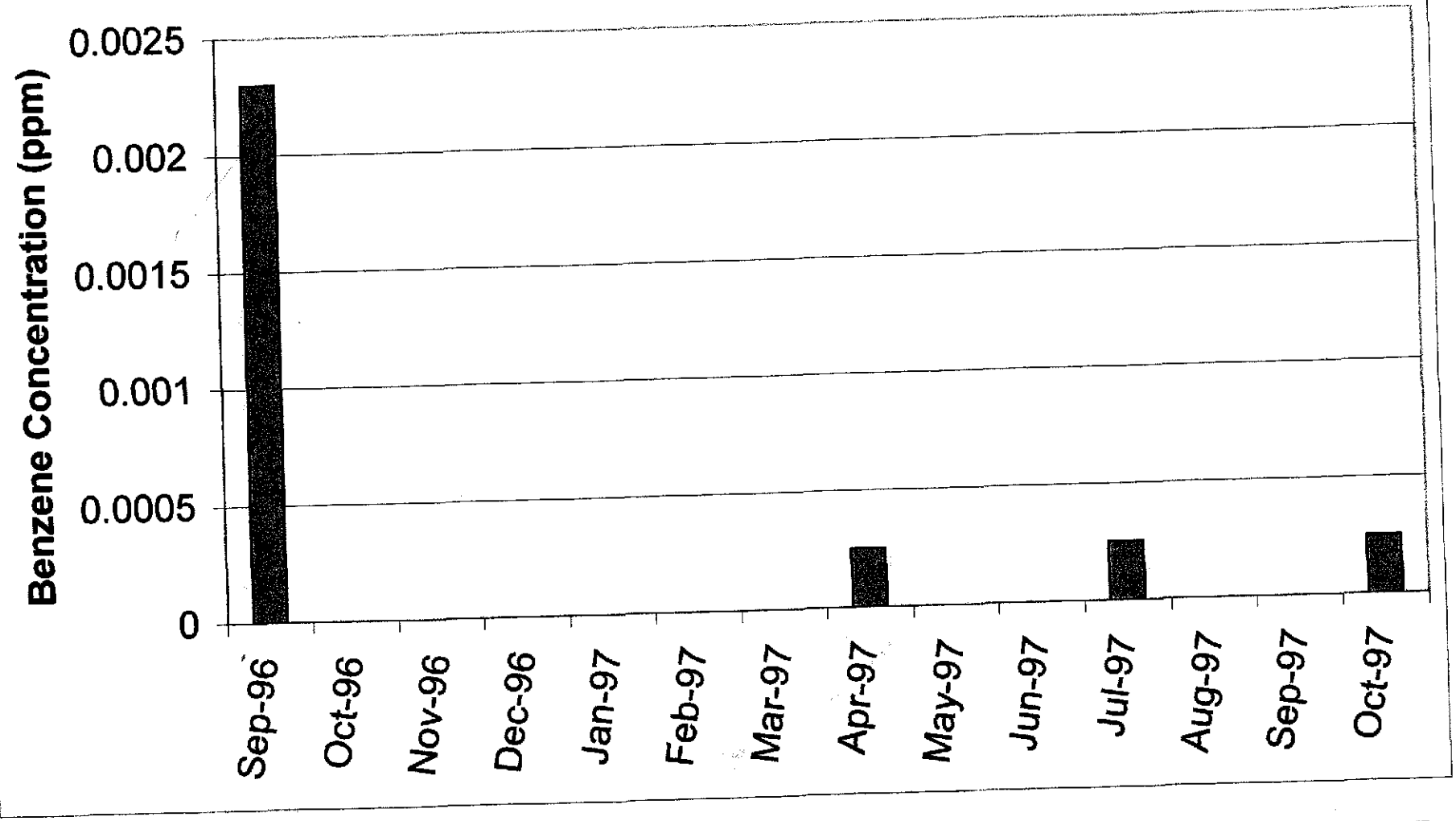
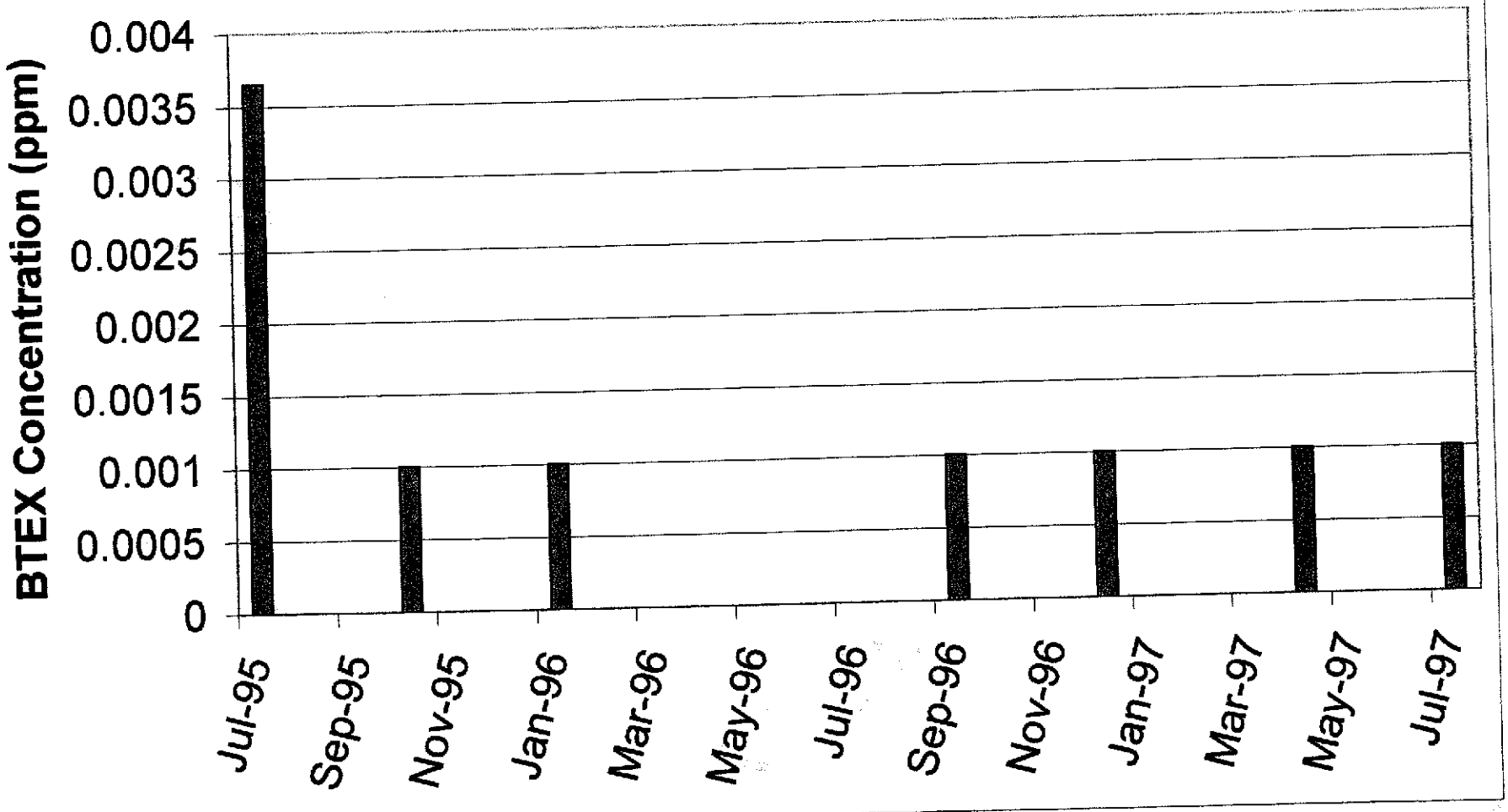
Figure 4: Benzene Concentration at Groundwater Monitoring Well STMW-5 vs. Time



Note: ND = 0.00025 ppm (i.e. 1/2 of the detection limit)

Figure 5: BTEX Concentration at Groundwater Monitoring Well W-4 vs. Time



Note: ND = 0.001 ppm (i.e. sum of 1/2 of the detection limits of each BTEX chemical)

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Table 1: Soil & Groundwater Parameters Used in Conducting RBCA for On-Site Commercial Scenario

Soil /Groundwater Parameters	Tier 1	Tier 2
Vadose Zone Thickness (cm.)	300	610
Capillary Zone Thickness (cm.)	5	5
Depth to Groundwater (cm.)	300	610
Thickness of Affected Subsurface Soils (cm.)	200	150
Depth to Top of Affected Subsurface Soils (cm.)	100	210
Depth to Base of Affected Subsurface Soils (cm.)	300	360
Contaminated Soil Area (cm.^2)	2200000	1100000
Length of Affected Soil Parallel to Wind Direction (cm.)	1500	1200
Length of Affected Soil Parallel to Groundwater Flow Direction (cm.)	1500	1500
Soil Density (g/cm^3)	1.7	1.7
Soil pH	6.5	6.5
Fraction of Organic Carbon	0.01	0.05
Porosity	0.38	0.4
Volumetric Water Content (capillary fringe)	0.342	0.362
Volumetric Water Content (vadose zone)	0.12	0.25
Volumetric Air Content (capillary fringe)	0.038	0.038
Volumetric Air Content (vadose zone)	0.26	0.15

Table 2
Exposure Parameters Used in Conducting RBCA
Tier 1/Tier 2 for On-Site Commercial Scenario

Exposure Parameters	Commercial Chronic
Averaging Time for Carcinogens (yr.)	70
Averaging Time for Non-Carcinogens (yr.)	25
Body Weight (kg)	70
Exposure duration (yr.)	25
Exposure Frequency (d/yr.)	250
Dermal Exposure Frequency (d/yr.)	250
Skin Surface Area (cm^2)	5800
Ingestion Rate of Water (L/d)	1
Ingestion Rate of Soil (mg/d)	50
Inhalation Rate Indoor (m^3/d)	20
Inhalation Rate Outdoor (m^3/d)	20

Table 3
Building Parameters Used in Conducting RBCA
for On-Site Commercial Scenario

Bulding Parameters	Tier 1/Tier 2
Building Volume/ Area Ratio (cm)	300
Building Air Exchange Rate (1/s)	0.00023
Foundation Crack Thickness (cm)	15
Foundation rack Fraction	0.0005

Question
0.001
.005

Table 4
Groundwater Analytical Results at Well STMW-1

Date	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	Xylenes (ppm)
2/23/95	<.0005	<.0005	<.0005	<.0005
7/26/95	<.0005	<.0005	<.0005	<.0005
10/19/95	<.0005	<.0005	<.0005	<.0005
1/31/96	<.0005	<.0005	<.0005	<.0005
9/9/96	<.0005	<.0005	<.0005	<.0005
12/17/96	<.0005	<.0005	<.0005	<.0005
4/21/97	<.0005	<.0005	<.0005	<.0005
7/22/97	<.0005	<.0005	<.0005	<.0005
10/30/97	<.0005	<.0005	<.0005	<.0005
SD	0	0	0	0
Count	9	9	9	9
T-Value	2.306	2.306	2.306	2.306
95% UCL	0.00025	0.00025	0.00025	0.00025
Average	0.00025	0.00025	0.00025	0.00025

Table 5
Groundwater Analytical Results at Well STMW-2

Date	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	Xylenes (ppm)
2/23/95	<.0005	<.0005	<.0005	<.0005
7/26/95	<.0005	<.0005	<.0005	<.0005
4/21/97	<.0005	<.0005	<.0005	<.0005
SD	0	0	0	0
Count	3	3	3	3
Max	0.00025	0.00025	0.00025	0.00025
Average	0.00025	0.00025	0.00025	0.00025

Table 6
Groundwater Analytical Results at Well W-4

Date	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	Xylenes (ppm)
7/26/95	<.0005	0.0006	0.0007	0.0021
10/19/95	<.0005	<.0005	<.0005	<.0005
1/31/96	<.0005	<.0005	<.0005	<.0005
9/9/96	<.0005	<.0005	<.0005	<.0005
12/17/96	<.0005	<.0005	<.0005	<.0005
4/21/97	<.0005	<.0005	<.0005	<.0005
7/22/97	<.0005	<.0005	<.0005	<.0005
SD	0	0.00013229	0.000170084	0.0006992
Count	7	7	7	7
T-Value	2.447	2.447	2.447	2.447
95% UCL	0.00025	0.00042235	0.000471593	0.001161
Average	0.00025	0.0003	0.000314286	0.0005143

Table 7
Groundwater Analytical Results at Well STMW-4

Date	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	Xylenes (ppm)
9/9/96	0.016	0.03	0.044	0.19
12/17/97	0.0007	0.00011	0.0011	0.0023
4/21/97	0.0068	0.0008	0.0022	0.0045
7/22/97	<.0005	<.0005	<.0005	<.0005
10/30/97	<.0005	<.0005	<.0005	<.0005
SD	0.006849361	0.01326141	0.019269192	0.0841727
Count	5	5	5	5
T-Value	3.182	3.182	3.182	3.182
Maximum	0.016	0.03	0.044	0.19
Average	0.0048	0.006282	0.00956	0.03946

Table 8
Groundwater Analytical Results at Well STMW-5

Date	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	Xylenes (ppm)
9/9/96	0.0023	0.0022	0.018	0.013
4/21/97	<.0005	<.0005	<.0005	<.0005
7/22/97	<.0005	<.0005	<.0005	<.0005
10/30/97	<.0005	<.0005	<.0005	<.0005
SD	0.001025	0.000975	0.008875	0.006375
Count	4	4	4	4
Maximum	0.0023	0.0022	0.018	0.013
Average	0.0007625	0.0007375	0.0046875	0.0034375

Table 9
Groundwater Analytical Results at Well STMW-6

Date	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	Xylenes (ppm)
9/9/96	<.0005	<.0005	<.0005	<.0005
12/17/96	<.0005	<.0005	<.0005	<.0005
4/21/97	<.0005	<.0005	<.0005	<.0005
7/22/97	<.0005	<.0005	<.0005	<.0005
10/30/97	<.0005	<.0005	<.0005	<.0005
SD	0	0	0	0
Count	5	5	5	5
T-Value	2.776	2.776	2.776	2.776
Maximum	0.00025	0.00025	0.00025	0.00025
Average	0.00025	0.00025	0.00025	0.00025

Table 10
Site-wide 95% UCL Concentrations in Groundwater

Well Name	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	Xylenes (ppm)
STMW-1	<.0005	<.0005	<.0005	<.0005
STMW-2	<.0005	<.0005	<.0005	<.0005
W-4	<.0005	0.000422	0.000471593	0.00116099
STMW-4	0.016	0.03	0.044	0.19
STMW-5	0.0023	0.0022	0.018	0.013
STMW-6	<.0005	<.0005	<.0005	<.0005
SD	0.00631599	0.011997	0.017855362	0.07651464
Count	6	6	6	6
T-Value	2.571	2.571	2.571	2.571
95% UCL	0.00984596	0.018154	0.029279083	0.11446208
Average	0.00321667	0.005562	0.010586932	0.03415183

Table 11-a.

Results of Laboratory Analysis of Subsurface Soil Samples

Well Name	Date	Depth (ft.)	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	Xylenes (ppm)
B1	3/28/94	5	<.005	0.038	<.005	<.005
B1	3/28/94	9	2.4	5	9.1	50
B1	3/28/94	15	0.27	2	1.9	8.4
B2	3/28/94	5	0.086	<.005	<.005	0.014
B2	3/28/94	9	0.35	0.032	0.046	0.037
B3	3/28/94	5	<.005	<.005	<.005	<.005
B3	3/28/94	9	<.005	<.005	<.005	<.005
B4	3/28/94	5	0.15	0.01	0.011	0.027
B4	3/28/94	9	0.14	0.22	0.053	0.14
STMW-1	2/10/95	6	<.005	<.005	<.005	<.005
STMW-1	2/10/95	9	<.005	<.005	<.005	<.005
STMW-2	2/10/95	6	<.005	<.005	<.005	<.005
STMW-2	2/10/95	10.5	<.005	<.005	<.005	<.005
STMW-2	2/10/95	16	<.005	<.005	<.005	<.005
STMW-3	2/10/95	6	<.005	<.005	<.005	<.005
STMW-4	9/9/96	5	0.011	0.005	0.0064	0.015
STMW-4	9/9/96	10	0.11	0.067	0.065	0.058
STMW-4	9/9/96	15	<.005	<.005	<.005	<.005
STMW-4	9/9/96	20	<.005	<.005	<.005	<.005
STMW-4	9/9/96	25	<.005	<.005	<.005	<.005
STMW-4	9/9/96	30	<.005	<.005	<.005	<.005
STMW-5	9/9/96	5	<.005	<.005	<.005	<.005
STMW-5	9/9/96	10	<.005	<.005	<.005	<.005
STMW-5	9/9/96	15	<.005	<.005	<.005	<.005
STMW-5	9/9/96	20	<.005	<.005	<.005	<.005
STMW-5	9/9/96	25	<.005	<.005	<.005	<.005
STMW-6	9/9/96	5	<.005	<.005	<.005	<.005
STMW-6	9/9/96	10	<.005	<.005	<.005	<.005
STMW-6	9/9/96	15	<.005	<.005	<.005	<.005
STMW-6	9/9/96	20	<.005	<.005	<.005	<.005
SD			0.43912	0.96877	1.683787056	9.201854
Count			30	30	30	30
T-Value			2.045	2.045	2.045	2.045
95% UCL			0.28302	0.609271	1.003295824	5.393843
Average			0.11907	0.247567	0.37463	1.9582

Table 11-b.
Results of Laboratory Analysis of Surface Soil Samples

Well Name	Date	Depth (ft)	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	Xylenes (ppm)
STMW-6	9/9/96	3	0.0053	<.005	0.055	0.015

Table 12
Comparison Between Site-Specific Target Levels and
Actual Soil and Groundwater Chemical Data
for the On-Site Commercial Scenario

Chemicals of Concern	RBSL			SSTL			Measured 95% UCL		
	Surface Soil (mg/kg)	Subsurface Soils (mg/kg)	Groundwater (mg/kg)	Surface Soil (mg/kg)	Subsurface Soil (mg/kg)	Groundwater (mg/kg)	Surface Soil (mg/kg)	Subsurface Soil (mg/kg)	Groundwater (mg/kg)
Benzene	110	0.079	0.074	110	0.042	0.3	0.0053	0.28	0.0098
Toluene	>Res	93	85	>Res	1500	330	0.025	0.61	0.018
Ethylbenzene	>Res	>Res	>Sol	>Res	>Res	>Sol	0.055	1	0.029
Xylenes	>Res	>Res	>Sol	>Res	>Res	>Sol	0.015	5.4	0.11

INTRODUCTION

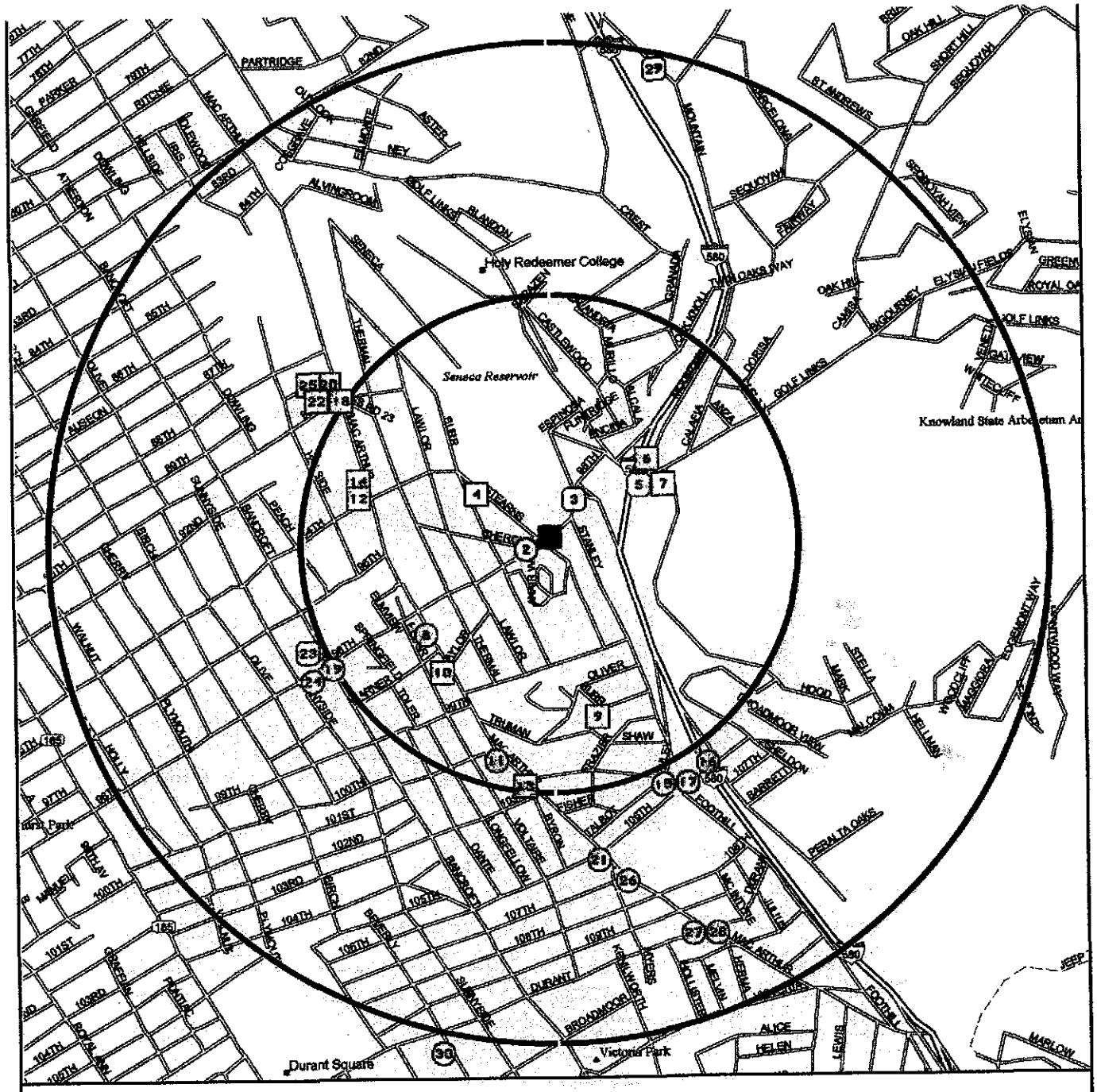
This document, prepared on the request of SOMA ENVRONMENTAL ENGINEERING, reports the findings of BBL's investigation of environmental concerns in the vicinity of 2740 98th Ave,oakland.
It is divided in the following segments:

Map - showing the location of the identified sites relative to the subject site. A total of 29 separate sites were identified.

Summary - listing the identified sites by street names.

Final Report - describing the sources investigated and the resulting findings:

- Federal sources		
National Priority List	no sites	within 1 mile radius.
CERCLIS	no sites	within 1 mile radius.
NFRAP	3 sites	within 1 mile radius.
Federal Facilities	no sites	within 1 mile radius.
Emergency Response Notification System	6 sites	within half of a mile.
Site Enforcement Tracking System	1 site	within 1 mile radius.
Enforcement Docket System (DOCKET/CDETS)	no sites	within half of a mile.
C-Docket	no sites	within half of a mile.
RCRA Violators List	no sites	within 1 mile radius.
Federal Enforcement Dockets	no sites	within 1 mile radius.
- California State sources		
Annual Work Plan	1 site	within 1 mile radius.
CALSITES	1 site	within 1 mile radius.
CALSITES - No Further Action	1 site	within half of a mile.
Cortese	no sites	within 1 mile radius.
Leaking Underground Storage Tanks	10 sites	within 1 mile radius.
Solid Waste Information System	no sites	within 1 mile radius.
Well Investigation Program	no sites	within 1 mile radius.
Drinking Water Program	no sites	within 1 mile radius.
- Regional sources		
Toxic Releases	no sites	within 1 mile radius.
Toxic Pits	no sites	within 1 mile radius.
Solid Waste Assessment Test - Regional	no sites	within 1 mile radius.
- Operating permits		
RCRA Generators	7 sites	within half of a mile.
RCRA - TSD Facilities	no sites	within 1 mile radius.
SARA Title III,section 313 (TRIS)	no sites	within half of a mile.
Nuclear Regulatory Commission Licensees	no sites	within half of a mile.
PCB Waste Handlers Database	no sites	within half of a mile.
Permit Compliance System (PCS)	no sites	within half of a mile.
AIRS Facility System (AFS)	no sites	within half of a mile.
Section Seven Tracking System	no sites	within half of a mile.
FIFRA/TSCA tracking system	no sites	within half of a mile.
Federal Facilities Information System (FFIS)	no sites	within half of a mile.
Chemicals in Commerce Information System	no sites	within half of a mile.
FINDS EPA Facility Index System	no sites	within half of a mile.
Hazardous Waste Information System	17 sites	within half of a mile.
Underground Storage Tanks	6 sites	within half of a mile.



- ENVIRONMENTAL CONCERNS - HIGH PRIORITY
- ENVIRONMENTAL CONCERNS
- ENVIRONMENTAL CONCERNS - WITH A 'NO FURTHER ACTION' STATUS'
- OPERATING PERMITS ONLY

3.2 inches to 1 mile

APPROXIMATE LOCATION OF IDENTIFIED SITES IN THE VICINITY OF THE SUBJECT SITE
AT 2740 98TH AVE, OAKLAND

1.	ARCO	2740	98TH AVE
2.	UNK	2660	98TH AVE
3.	BP OIL COMPANY	3101	98TH AVE
4.	ROMAN CATH WELFARE CORP	9500	STEARNS AVE
5.	SHELL	9750	GOLF LINKS RD
6.	FRANKS AUTO REPAIR	9765	MOUNTAIN BLVD
7.	OAKLAND ZOO THE	9777	GOLF LINKS RD
8.	UNK	9819	MAC ARTHUR BLVD
9.	CANDYCE SCOTT RESIDENCE	2706	TRUMAN AVE
10.	L & H AUTO RPR	9868	MAC ARTHUR BLVD
11.	LE DAYS EXPERT CLEANING	10016	MAC ARTHUR BLVD
12.	U-SAVE POWER EQUIPTMENT	9370	MAC ARTHUR BLVD
13.	TIRES & BRAKES FOR LESS	10201	MAC ARTHUR BLVD
14.	U SAFE CARDEN CENTER	9317	MAC ARTHUR BLVD
15.	7-ELEVEN STORE 2212-19403/CD	10501	FOOTHILL BLVD
16.	VALLEY SLURRY SEAL		106TH & PERALTA AVE
17.	UNKNOWN		I-580 & 106TH & FOOTHILL BLVD
18.	CHEVRON USA INC SERVICE STATIO	9001	MAC ARTHUR BLVD
19.	BP OIL COMPANY	2220	98TH AVE
20.	BILL & BILLS BODY SHOP	8914	MAC ARTHUR BLVD
21.	ARCO	10600	MAC ARTHUR BLVD
22.	SAL'S CAR WASH	8930	MAC ARTHUR BLVD
23.	UNOCAL	9780	BANCROFT AVE
24.	ELTRA CORP.,PRESTOLITE BATTERY		98TH & BANCROFT AVE
25.	NEALS CLEANERS	8917	MAC ARTHUR BLVD
26.	YOUNG CLEANERS	10700	MAC ARTHUR BLVD
27.	UNOCAL	96	MAC ARTHUR BLVD
28.	BP	100	MAC ARTHUR BLVD
29.	USNAVY OAKLAND NAVAL REGIONAL	8750	MOUNTAIN BLVD
30.	RALPH E. DEROSSETT & RENEE C.	145	BEVERLY AVE

UNKNOWN LOCATIONS

CA TANK LINES, FLEICSHMANS	98TH AVE
LAKE CHABOT LANDFILL	GOLF LINKS RD

AREA LOCATIONS

SAN LEANDRO REGIONAL PLUME	SAN LEANDRO (GROUNDWATER CONTAMINATION)

INDEX OF SITES LISTED BY MAP NUMBERS

ENVIRONMENTAL RECORDS SEARCH FOR
2740 98TH AVE,OAKLAND

Page: 1
Job : SOMA3303
Date: 07-14-1998

ADDRESS		CITY	MAP LOC	DIR	LOCATION	SOU-RCE	STATUS
ENVIRONMENTAL CONCERNS, WITHIN 1/4 MILE OF THE SUBJECT SITE							
2660	98TH AVE	OAKLAND	2	W	UNK	ER	
3101	98TH AVE	OAKLAND	3	NE	BP	LT	9
					BP OIL COMPANY	HW	
					YOUNG H. KIM DBA KIM'S MOBIL	UT	87&93
					YOUNG H. KIM DBA KIM'S MOBIL	UT	87&95
					KIMS MOBIL SERVICE	HW	
					TOSCO NORTHWEST CO NO 11122	RN	
					PETE'S BP AUTO SERVICE	HW	
					TOSCO NORTHWEST CO NO 11122	RN	S
9750	GOLF LINKS RD	OAKLAND	5	NE	SHELL	LT	9
9750	GOLF LINKS RD, /KNOWLAND	OAKLAND	5	NE	SHELL STATION #204-5508-2808	RN	S
9750	GOLF LINKS RD, KNOWLAND	OAKLAND	5	NE	SHELL STATION #204-5508-2808	HW	
9750	GOLF LINKS RD	OAKLAND	5	NE	JOE HOLSWORTH-KNOWLAND PARK SH	UT	87&95
9819	MAC ARTHUR BLVD	OAKLAND	8	SW	UNK	ER	
2740	98TH AVE	OAKLAND	1		ARCO	LT	1
					FREEWAY ARCO	UT	87&95
					FREEWAY ARCO GAS STATION & SER	HW	
	SAN LEANDRO (GROUNDWATER CONTAMINATION)	SAN LEANDRO		S	SAN LEANDRO REGIONAL PLUME	BP	AWP
ENVIRONMENTAL CONCERNS, WITHIN 1/4 - 1/2 MILE OF THE SUBJECT SITE							
10016	MAC ARTHUR BLVD	OAKLAND	11	S	LE DAYS EXPERT CLEANING	AN	RED
10501	FOOTHILL BLVD	OAKLAND	15	SE	7 ELEVEN	LT	3B
					7-ELEVEN STORE 2212-19403/CD	RN	
					7-ELEVEN STORE 2212-19403/CD	HW	
	106TH & PERALTA AVE	OAKLAND	16	SE	VALLEY SLURRY SEAL	ER	
	I-580 & 106TH & FOOTHILL BLVD	OAKLAND	17	SE	UNKNOWN	ER	
2220	98TH AVE	OAKLAND	19	SW	BP MOBIL	LT	5R
					MOBILE OIL #10-MGV	HW	
					MOBIL SERVICE STATION	UT	87&95
					TOSCO NORTHWEST CO NO 11133	RN	
					TOSCO NORTHWEST CO NO 11133	RN	S
					BP OIL COMPANY	HW	
9780	BANCROFT AVE	OAKLAND	23	W	UNOCAL	LT	9
	98TH & BANCROFT AVE	OAKLAND	24	SW	ELTRA CORPORATION - PRESTOLITE	AS	VCP
					ELTRA CORP PRESTOLITE BATTERY	NF	NFA
					ELTRA CORP.,PRESTOLITE BATTERY	HW	
ENVIRONMENTAL CONCERNS, WITHIN 1/2 - 3/4 MILE OF THE SUBJECT SITE							
10600	MAC ARTHUR BLVD	OAKLAND	21	S	ARCO	LT	5C
10700	MAC ARTHUR BLVD	OAKLAND	26	S	YOUNG CLEANERS	LT	1
ENVIRONMENTAL CONCERNS, WITHIN 3/4 - 1 MILE OF THE SUBJECT SITE							
96	MAC ARTHUR BLVD	OAKLAND	27	SE	UNOCAL	LT	1
100	MAC ARTHUR BLVD	OAKLAND	28	SE	BP	LT	3B
8750	MOUNTAIN BLVD	OAKLAND	29	N	USNAVY OAKLAND NAVAL REGIONAL	NF	NFA
145	BEVERLY AVE	SAN LEANDRO	30	S	RALPH E. DEROSSETT & RENEE C.	SE	
SITES WITH UNKNOWN OR NON-SPECIFIC LOCATION							
	98TH AVE	OAKLAND			CA TANK LINES, FLEICSHMANS	ER	
	GOLF LINKS RD	OAKLAND			LAKE CHABOT LANDFILL	NF	NFA
					UNK	ER	

OPERATING PERMITS ONLY FOR
2740 98TH AVE,OAKLAND

ADDRESS		CITY	MAP LOC	DIR	LOCATION	SOU-RCE	STATUS
OPERATING PERMITS ONLY, WITHIN 1/4 MILE OF THE SUBJECT SITE							
9500	STEARNS AVE	OAKLAND	4	NW	ROMAN CATH WELFARE CORP	HW	
9765	MOUNTAIN BLVD	OAKLAND	6	NE	FRANKS AUTO REPAIR	HW	
9777	GOLF LINKS RD	OAKLAND	7	E	OAKLAND ZOO THE	HW	
2706	TRUMAN AVE	OAKLAND	9	S	CANDYCE SCOTT RESIDENCE	HW	
9868	MAC ARTHUR BLVD	OAKLAND	10	SW	L & H AUTO RPR	HW	
					SANG UP KIM	HW	
					NAM'S TRANSMISSION	UT	87&93
					L & H AUTO	UT	1995I
OPERATING PERMITS ONLY, WITHIN 1/4 - 1/2 MILE OF THE SUBJECT SITE							
9370	MAC ARTHUR BLVD	OAKLAND	12	W	U-SAVE POWER EQUIPTMENT	HW	
					U-SAVE POWER EQUIPMENT	HW	
9370	MAC ARTHUR BLVD, STE 9	OAKLAND	12	W	U-SAVE POWER EQUIP	HW	
10201	MAC ARTHUR BLVD	OAKLAND	13	S	TIRES & BRAKES FOR LESS	HW	
9317	MAC ARTHUR BLVD	OAKLAND	14	W	U SAFE CARDEN CENTER	HW	
9001	MAC ARTHUR BLVD	OAKLAND	18	NW	CHEVRON USA INC SERVICE STATIO	HW	
					CHEVRON USA INC SERV STA #9389	RN	
8914	MAC ARTHUR BLVD	OAKLAND	20	NW	BILL & BILLS BODY SHOP	RN	S
					BILL & BILLS BODY SHOP	HW	
8930	MAC ARTHUR BLVD	OAKLAND	22	NW	SAL'S CAR WASH	UT	87
OPERATING PERMITS ONLY, WITHIN 1/2 - 3/4 MILE OF THE SUBJECT SITE							
8917	MAC ARTHUR BLVD	OAKLAND	25	NW	NEALS CLEANERS	RN	
					NEALS CLEANERS	HW	

REFERENCED SOURCES

Job : SOMA3303
Date: 07-14-1998

FEDERAL SOURCES

NL NATIONAL PRIORITY LIST (01/28/98)
CC CERCLIS (01/28/98)
NF NFRAP (01/28/98)
FF FEDERAL FACILITIES (01/28/98)
ER EMERGENCY RESPONSE NOTIFICATION SYSTEM (1989-1997)
SE SITE ENFORCEMENT TRACKING SYSTEM (05/21/97)
DO ENFORCEMENT DOCKET SYSTEM (DOCKET/CDETS)
CD C-DOCKET (01/97)
RV RCRA VIOLATORS LIST (01/28/98)
FD FEDERAL ENFORCEMENT DOCKETS

CALIFORNIA STATE SOURCES

BP ANNUAL WORK PLAN (12/07/97)

BKLG	Backlog	DLST	Delisted from the AWP	AWP	Active AWP site
REFRW	Referred to the RWQB	COM	Certified, maint mode	REFRC	Referred to RCRA
CERT	Certified after remediation				

AS CALSITES (12/07/97)

PEARL	Prel Assmnt Low priority	NFA	No Further Action for DTSC	PEARM	Prel Assmnt Medium priority
EPA	EPA is the lead agency	PEARH	Prel Assmnt High priortiy	RCRA	Mitigated under the RCRA
SSR	Site Screening Required	RWQCB	Mitigated under RWQB	HRR	Hazard Ranking Required
CNTY	County lead	PRPR	PRP Search Required	OAL	Other Agency lead

AN CALSITES - NO FURTHER ACTION (12/07/97)

NFA	No Further Action	RED	Closed Case

CS CORTESE (12/96)

WRCBT	Tank leak	DHS3	Cont large well	DHS1	Abandoned haz waste site
DHS5	section 25356	DHS2	Cont small well	CWMB	Disposal site

LT LEAKING UNDERGROUND STORAGE TANKS (12/97)

0	No action	3B	Prel site assmnt underway	7	Remedial action underway
1	Leak being confirmed	5C	Pollution characterization	8	Post remedial action monitoring
3A	Site workplan submitted	5R	Remediation plan	9	Case closed

SS SOLID WASTE INFORMATION SYSTEM (12/97)
WP WELL INVESTIGATION PROGRAM
WQ DRINKING WATER PROGRAM

REGIONAL SOURCES

NT TOXIC RELEASES
TP TOXIC PITS (12/95)
SR SOLID WASTE ASSESSMENT TEST - REGIONAL (08/96)

OPERATING PERMITS

RN RCRA GENERATORS (01/98)

L	Large Generator	T	Transporter	S	Small Generator

TD RCRA - TSD FACILITIES (01/98)

I	Incinerator	D	Land Disposal	T	Storage/Treatment

SA SARA TITLE III,SECTION 313 (TRIS) (01/98)
NC NUCLEAR REGULATORY COMMISSION LICENSEES (01/98)
PB PCB WASTE HANDLERS DATABASE (01/98)
PC PERMIT COMPLIANCE SYSTEM (PCS) (01/98)
AF AIRS FACILITY SYSTEM (AFS) (01/98)
PE SECTION SEVEN TRACKING SYSTEM (01/98)
FT FIFRA/TSCA TRACKING SYSTEM (01/98)
FI FEDERAL FACILITIES INFORMATION SYSTEM (FFIS) (01/98)
CI CHEMICALS IN COMMERCE INFORMATION SYSTEM (01/98)
FN FINDS EPA FACILITY INDEX SYSTEM (01/98)
HW HAZARDOUS WASTE INFORMATION SYSTEM (1984-1996)
UT UNDERGROUND STORAGE TANKS

ENVIRONMENTAL RECORDS SEARCH

LISTED BY SOURCE

INTRODUCTION

BBL has used its best effort but makes no claims as to the completeness or accuracy of the referenced government sources or the completeness of the search. Our records are frequently updated but only as current as their publishing date and may not represent the entire field of known or potential hazardous waste or contaminated sites. To ensure complete coverage of the subject property and surrounding area, sites may be included in the list if there is any doubt as to the location because of discrepancies in map location, zip code, address, or other information in our sources. For additional information call 619 793-0641.

The following government sources have been searched for sites within one mile radius,unless otherwise stated, of the subject location.

FEDERAL SOURCES

NPL National Priority List

EPA has prioritized sites with significant risk to human health and the environment. These sites receive remedial funding under the Comprehensive Environmental Response Conservation and Liability Act (CERCLA).

No listings within 1 mile radius of the subject site.

CERCLIS Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS is a data base used by the EPA to track activities conducted under the Comprehensive Environmental Response and Liability Act CERCLA (1980) and the amendment the Superfund Amendments and Reauthorization Act SARA (1986).

Sites to be included are identified primarily by the reporting requirements of hazardous substances Treatment, Storage and Disposal(TSD) facilities and releases larger than specific Reportable Quantities(RQ), established by EPA.

Using the National Oil and hazardous Substance Pollution Contingency Plan(National Contingency Plan) the EPA set priorities for cleanup.

The EPA rates National Contingency Plan sites according to a quantitative Hazard Ranking System(HRS) based on the potential health risk via any one or more pathways: groundwater,surface water, air, direct contact, and fire/explosion.

The EPA and state agencies seek to identify potentially responsible parties(PRP) and ultimately Responsible Parties(RP) who can be required to finance cleanup activities, either directly or through reimbursement of federal Superfund expenditures.

No listings within 1 mile radius of the subject site.

NFRAP No Further Remedial Action Planned sites (CERCLIS)

As of February 1995, CERCLIS sites designated 'No Further Remedial Action Planned' NFRAP have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the site being placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration.

EPA has removed these NFRAP sites from CERCLIS to lift unintended barriers to the redevelopment of these properties. This policy change is part of EPA's Brownfields Redevelopment Program to help cities, states, private investors and affected citizens promote economic redevelopment of unproductive urban sites.

Site: ELTRA CORP PRESTOLITE BATTERY
Address: 98TH & BANCROFT AVE
City: OAKLAND
Map Loc: 24 - within 1/4 - 1/2 mile SW of the subject
Status: EPA ID#: CAD980637169

Site: LAKE CHABOT LANDFILL
Address: GOLF LINKS RD
City: OAKLAND
Status: EPA ID#: CAD983580960

Site: USNAVY OAKLAND NAVAL REGIONAL
Address: 8750 MOUNTAIN BLVD
City: OAKLAND
Map Loc: 29 - within 3/4 - 1 mile N of the subject
Status: EPA ID#: CA0170027254

FEDFAC Federal Facilities

As part of the CERCLA program, federal facilities with known or suspected environmental problems, the Federal Facilities Hazardous Waste Compliance Docket is tracked separately to comply with a Federal Court order.

No listings within 1 mile radius of the subject site.

ERNS Emergency Response Notification System

The ERNS is a national computer database used to store information on unauthorized releases of oil and hazardous substances. The program is a cooperative effort of the Environmental Protection Agency, the Department of Transportation Research and Special Program Administration's John Volpe National Transportation System Center and the National Response Center.

There are primarily five Federal statutes that require release reporting:the Comprehensive Environmental Response,Compensation and Liability Act (CERCLA) section 103; the Superfund Amendments and Reauthorization Act(SARA) Title III Section 304; the Clean Water Act of 1972(CWA) section 311(b)(3); and the Hazardous Material Transportation Act of 1974(HMTA section 1808(b).

This list has been researched within half of a mile radius of the subject site.

Site: VALLEY SLURRY SEAL
Address: 106TH & PERALTA AVE
City: OAKLAND
Map Loc: 16 - within 1/4 - 1/2 mile SE of the subject
Status: 8800023587 700 GAL of PAVEMENT SLURRY (08/17/1988)

Site: CA TANK LINES, FLEICSHMANS
Address: 98TH AVE
City: OAKLAND
Status: 9000022199 1200 GAL of SULFURIC ACID (07/16/1990)

Site: UNK
Address: 2660 98TH AVE
City: OAKLAND
Map Loc: 2 - within 1/4 mile W of the subject
Status: 8800024582 5 GAL of PERCHLOROETHYLENE (12/01/1988)

Site: UNK
Address: GOLF LINKS RD
City: OAKLAND
Status: 8900014437 2 GAL of CHLORINE (06/14/1989)

Site: UNKNOWN
Address: I-580 & 106TH & FOOTHILL BLVD
City: OAKLAND
Map Loc: 17 - within 1/4 - 1/2 mile SE of the subject
Status: 9100030698 50 LBS of SYNTHETIC YELLOW IRON OXIDE

Site: UNK
Address: 9819 MAC ARTHUR BLVD
City: OAKLAND
Map Loc: 8 - within 1/4 mile SW of the subject
Status: 8900026482 8 BBL of CREOSOTE OR ASPHALT RESIDUES

SETS Site Enforcement Tracking System (SETS)

When expanding Superfund monies at a CERCLA (Comprehensive Environmental Response, Compensation and Liability Act) Site, EPA must conduct a search to identify parties with potential financial responsibility for remediation of uncontrolled hazardous waste sites. EPA regional Superfund Waste Management Staff issue a notice letter to the potentially responsible party (PRP). The status field contains the EPA ID number and name of the site where the actual pollution occurred.

Site: RALPH E. DEROSSETT & RENEE C.
Address: 145 BEVERLY AVE
City: SAN LEANDRO
Map Loc: 30 - within 3/4 - 1 mile S of the subject
Status:

DO Enforcement Docket System (DOCKET)/Consent Decree Tracking System (CDETS)

DOCKET tracks civil judicial cases against environmental polluters, while CDETS processes court settlements, called consent decrees.

No listings within half of a mile radius of the subject site.

CD Criminal Docket System (C-DOCKET)

The Criminal Docket System is a comprehensive automated system for tracking criminal enforcement actions. C-Docket handles data for all environmental statues and ttracks enforcement actions from the initial stages of investigations through conclusion.

No listings within half of a mile radius of the subject site.

RCRA RCRA Violators List (CORRACTS)

The Resource Conservation and Recovery Act of 1976 provides for "cradle to grave" regulation of hazardous wastes. RCRA requires regulation of hazardous waste generators, transporters, and storage/treatment/disposal sites. Evaluation to potential violations, ranging from manifest requirements to hazardous waste discharges, is typically conducted by the US EPA. This data base is also known as Corrective Action Report (CORRACTS)

If enforcement is required, it is typically delegated to a state agency.

No listings within 1 mile radius of the subject site.

FD Federal Enforcement Dockets

The US EPA, Office of Enforcement, maintains a list of sites under enforcement by the US EPA.

No listings within 1 mile radius of the subject site.

CALIFORNIA STATE SOURCES

AW Annual Work Plan (previously known as Bond Expenditure Plan)

The California Health and Safety code, as amended by AB 129, requires the California Environmental Protection Agency to develop a site-specific expenditure plan as the basis for an appropriation of California Hazardous Substance Cleanup Bond Act of 1984 funds.

The Agency is also required to update the report annually and report any significant adjustments to the Legislature on an ongoing basis. The plan identifies California hazardous waste sites targeted for cleanup by responsible parties, the California and the Federal Environmental Protection Agency over the next five years.

Status Codes:	BKLG	Backlog, Potential Annual Work Plan Site
	AWP	Active Annual Work Plan site
	COM	Certified, but still in Operation & Maintenence mode
	CERT	Certified after remediation
	DLST	Delisted from the AWP
	REFRC	Former AWP site referred to RCRA
	REFRW	Former AWP site referred to the Regional Water Quality Board

Site: SAN LEANDRO REGIONAL PLUME
Address: SAN LEANDRO (GROUNDWATER CONTAMINATION)
City: SAN LEANDRO
Status: AWP - Anniual Workplan

CALS CALSITES

The Historical Abandoned Site Survey Program identified certain potential hazardous waste sites. The identification of these sites were generally not made via sampling and site characterization, they were made as a result of file searches and windshield surveys. Some of the sites may have had a site inspection with sampling.

The information has been compiled into this database by the California Environmental Protection Agency, Department of Toxic Substance Control (DTSC) in accordance with Section 25359.6 of the California Health and Safety Code.

This database was previously known as The Abandoned Sites Program Information System ASPIS.

Status Codes:	PEARL	Preliminary Endangerment Assessment Required,Low priority
	PEARM	Preliminary Endangerment Assessment Required,Medium priority
	PEARH	Preliminary Endangerment Assessment Required,High priortiy
SSR	Site Screening Required	
	HRR	Hazard Ranking Required
	PRPR	Potential Responsible Party Search Required
	EPA	EPA is the lead agency
	RCRA	Mitigated under the RCRA permitting program
	RWQCB	Mitigated under the lead of the Regional Water Quality Boar
	CNTY	County lead
	OAL	Other Agency lead

Site: ELTRA CORPORATION - PRESTOLITE
Address: 98TH & BANCROFT AVE
City: OAKLAND
Map Loc: 24 - within 1/4 - 1/2 mile SW of the subject
Status: VCP - Voluntary Cleanup Program

CALS CALSITES - No Further Action

This section includes the sites on the Calsite list which have been flagged for no further action by the California Environmental Protection Agency, Department of Toxic Substance Control (DTSC) in accordance with Section 25359.6 of the California Health and Safety Code.

Status Codes:	NFA	No Further Action for DTSC
	RED	Closed Case marked for removal from list

This list has been researched within half of a mile radius of the subject site.

Site: LE DAYS EXPERT CLEANING
Address: 10016 MAC ARTHUR BLVD
City: OAKLAND
Map Loc: 11 - within 1/4 - 1/2 mile S of the subject
Status: RED - Closed Case - Marked for removal from list

CORTESE State of California Office of Planning and Research

This database is a consolidation of information from various sources. It is maintained by the State Office of Planning and Research and lists potential and confirmed hazardous waste or substances sites.

Facilities that have been reported elsewhere in this report will not be included in the listing below.

Status Codes:	WRCBT	Tank leaks. Compiled by Water Resource Control Board
	DHS1	Abandoned hazardous waste site. Compiled by Toxic Substance Control Div. of DHS
	DHS2	Contaminated public water drinking wells serving less than 200 connections. Compiled by Env. Health Div. of DHS
	DHS3	Contaminated public water drinking wells serving more than 200 connections
	DHS5	Sites pusuant to section 25356 of the Health and Safety Code (see BEP)
	CWMB	Solid waste disposal sites with known migration of hazardous waste

No listings within 1 mile radius of the subject site.

LUST(S) Leaking Underground Storage Tanks - California State

The Leaking Underground Storage Tanks Information System is maintained by the State Water Resource Board pursuant to Section 25295 of the Health and Safety Code.

Status Codes:	0	No action
	1	Leak being confirmed
	3A	Prel site assessment workplan submitted
	3B	Prel site assessment underway
	5C	Pollution characterization
	5R	Remediation plan
	7	Remedial action underway
	8	Post remedial action monitoring
	9	Case closed

Site: BP MOBIL
Address: 2220 98TH AVE
City: OAKLAND
Map Loc: 19 - within 1/4 - 1/2 mile SW of the subject
Status: 5R - Remediation Plan submitted.

Site: ARCO
Address: 2740 98TH AVE
City: OAKLAND
Map Loc: 1 - within 1/4 mile N of the subject
Status: 1 - Leak being confirmed.

Site: BP
Address: 3101 98TH AVE
City: OAKLAND
Map Loc: 3 - within 1/4 mile NE of the subject
Status: 9 - Case Closed.

Site: UNOCAL
Address: 9780 BANCROFT AVE
City: OAKLAND
Map Loc: 23 - within 1/4 - 1/2 mile W of the subject

Status: 9 - Case Closed.

Site: 7 ELEVEN
Address: 10501 FOOTHILL BLVD
City: OAKLAND
Map Loc: 15 - within 1/4 - 1/2 mile SE of the subject
Status: 3B - Prelim Site Assessment underway.

Site: SHELL
Address: 9750 GOLF LINKS RD
City: OAKLAND
Map Loc: 5 - within 1/4 mile NE of the subject
Status: 9 - Case Closed.

Site: UNOCAL
Address: 96 MAC ARTHUR BLVD
City: OAKLAND
Map Loc: 27 - within 3/4 - 1 mile SE of the subject
Status: 1 - Leak being confirmed.

Site: BP
Address: 100 MAC ARTHUR BLVD
City: OAKLAND
Map Loc: 28 - within 3/4 - 1 mile SE of the subject
Status: 3B - Prelim Site Assessment underway.

Site: ARCO
Address: 10600 MAC ARTHUR BLVD
City: OAKLAND
Map Loc: 21 - within 1/2 - 3/4 mile S of the subject
Status: 5C - Pollution characterization.

Site: YOUNG CLEANERS
Address: 10700 MAC ARTHUR BLVD
City: OAKLAND
Map Loc: 26 - within 1/2 - 3/4 mile S of the subject
Status: 1 - Leak being confirmed.

SWIS Solid Waste Information System

As legislated under the Solid Waste Management and Resource Recovery Act of 1972, the California Waste Management Board maintains lists of certain facilities, i.e. Active solid waste disposal sites, Inactive or Closed solid waste disposal sites and Transfer facilities.

No listings within 1 mile radius of the subject site.

WIP Well Investigation Program

The Well Investigation Program (AB1803) identifies groundwater that is already contaminated and empowers the California Department of Health Services and local health officers to order ongoing monitoring programs. The focus of this program is to monitor and protect drinking water.

No listings within 1 mile radius of the subject site.

WQ Drinking Water Program

The California Health and Safety Code section 116275-116300 stipulates that it is the intent of the Legislature to improve laws governing drinking water quality to improve upon the minimum requirements of the federal Safe Drinking Water Act Amendments of 1986, to establish primary drinking water standards that are at least as stringent as those established under the federal Safe Drinking Water Act, and to establish a program under this chapter that is more protective of public health than the minimum federal requirements.

In order to provide for the orderly and efficient delivery of safe drinking water the State Department of Health Services collect information on the quality of public drinking water wells under the California Drinking Program.

Below, the latest and maximum analysis of contaminants are reported (only positive reading are included). MCL is the Maximum Contaminant Level or enforceable drinking water standard. RPHL is the Recommended Public Health Level. Additional information is available from BBL upon request.

No listings within 1 mile radius of the subject site.

REGIONAL SOURCES

NT Toxic Releases

The California Regional Water Quality Control Boards or local Department of Health Services keeps track of toxic releases to the environment. These lists are known as Unauthorized Releases, Spill, Leaks, Investigations and Cleanups (SLIC), Non-Tank Releases, Toxics List or similar, depending on the local agency.

No listings within 1 mile radius of the subject site.

TPC Toxic Pits

The Toxic Pits Clean-Up Act (Katz Bill)places strict limitations on the discharge of liquid hazardous wastes into surface impoundments, toxic ponds, pits and lagoons. Regional Water Quality Control Boards are required to inspect all surface impoundments annually, in addition, every facility was required to file a Hydrogeological Assessment Report. Recent legislation allows the Department of Health Services to exempt facilities that closed on or before December 31, 1985, if a showing is made that no significant environmental risk remains (AB1046).

Special exemption provisions have been created for surface impoundments that receive mining wastes.

No listings within 1 mile radius of the subject site.

SWAT(R) Solid Waste Assessment Test - Regional

This program, provided for under the Calderon legislation (Section 13273 of the Water Code), requires that disposal sites with more than 50,000 cubic yards of waste provide sufficient information to the regional water quality control board to determine whether or not the site has discharged hazardous substances which will impact the environment.

Site operators are required to file Solid Waste Assessment Test reports on a staggered basis. Operators of the 150 highest ranking (Rank 1) sites were required to submit Solid Waste Assessment Tests by July 1, 1987, Rank 2 in 1988 and so on.

Operators submit water quality tests to the Regional Water Quality Control Board, describing surface and groundwater quality and supply; and the geology within 1 mile of the site. Air quality tests are submitted to the local Air Quality Management District or Air Pollution Control District.

This program is currently not funded and thus not updated.

Status Codes: Facilities or sites are ranked within each region on a scale 1-15 according to priority.

No listings within 1 mile radius of the subject site.

OPERATING PERMITS

Various agencies issue operating permits or regulate the handling, movements, storage and disposal of hazardous materials and require mandatory reporting. The inclusion in this section does not imply that an environmental problem exists presently or has in the past.

The sources referenced below have been searched within half a mile radius,unless otherwise stated, of the subject site.

RCRA-G Resource Conservation and Recovery Information System - Generators

The Environmental Protection Agency regulates generators of hazardous material through the Resource Conservation and Recovery Act (RCRA). All hazardous waste generators are required to notify EPA of their existence by submitting the Federal Notification of Regulated Waste Activity Form (EPA Form 8700-12) or a state equivalent form. The notification form provides basic identification information and specific waste activities.

Status Codes: L - Generators who generate at least 1000 kg/mo of non-acutely hazardous waste (or 1 kg/mo of acutely hazardous waste).
S - Generators who generate 100 kg/mo but less than 1000 kg/mo of non-acutely hazardous w
T - Transporter.

Site: TOSCO NORTHWEST CO NO 11133
Address: 2220 98TH AVE
City: OAKLAND
Map Loc: 19 - within 1/4 - 1/2 mile SW of the subject
Status: Permit id#: CA0001190644

Site: TOSCO NORTHWEST CO NO 11133
Address: 2220 98TH AVE
City: OAKLAND
Map Loc: 19 - within 1/4 - 1/2 mile SW of the subject
Status: S - Small Generator
Permit id#: CAR000000158

Site: TOSCO NORTHWEST CO NO 11122
Address: 3101 98TH AVE
City: OAKLAND
Map Loc: 3 - within 1/4 mile NE of the subject
Status: Permit id#: CA0001190669

Site: TOSCO NORTHWEST CO NO 11122
Address: 3101 98TH AVE
City: OAKLAND
Map Loc: 3 - within 1/4 mile NE of the subject
Status: S - Small Generator
Permit id#: CAR000000398

Site: 7-ELEVEN STORE 2212-19403/CD
Address: 10501 FOOTHILL BLVD
City: OAKLAND
Map Loc: 15 - within 1/4 - 1/2 mile SE of the subject
Status: Permit id#: CAD981465719

Site: SHELL STATION #204-5508-2808
Address: 9750 GOLF LINKS RD, /KNOWLAND
City: OAKLAND
Map Loc: 5 - within 1/4 mile NE of the subject
Status: S - Small Generator
Permit id#: CAD981403108

Site: BILL & BILLS BODY SHOP
Address: 8914 MAC ARTHUR BLVD
City: OAKLAND
Map Loc: 20 - within 1/4 - 1/2 mile NW of the subject
Status: S - Small Generator
Permit id#: CAD982478331

Site: NEALS CLEANERS
Address: 8917 MAC ARTHUR BLVD
City: OAKLAND
Map Loc: 25 - within 1/2 - 3/4 mile NW of the subject

Status: Permit id#: CAD981642374

Site: CHEVRON USA INC SERV STA #9389
Address: 9001 MAC ARTHUR BLVD
City: OAKLAND
Map Loc: 18 - within 1/4 - 1/2 mile NW of the subject
Status: Permit id#: CAT080031594

RCRA-D Resource Conservation and Recovery Information System - Treatment, Storage & Disposal

The Environmental Protection Agency regulates the treatment, storage and disposal of hazardous material through the Resource Conservation and Recovery Act (RCRA). All hazardous waste TSD facilities are required to notify EPA of their existence by submitting the Federal Notification of Regulated Waste Activity Form (EPA Form 8700-12) or a state equivalent form as well as part A (EPA form 8700-23) and Part B of their Hazardous Waste Permit Application.

Status Codes:	I	Incinerator
	T	Storage/Treatment facility other than Incinerator
	D	Land Disposal Facility

No listings within 1 mile radius of the subject site.

SARA SARA Title III,section 313 (TRIS)

Title III of the Superfund Amendments and Reauthorization Act,Section 313, also known as Emergency Planning and Community Right-to-Know Act of 1986 requires owners or operators of facilities with more than 10 employees and are listed under Standard Industrial Classification(SIC) Codes 20 through 39 to report the manufacturing, processing or use of more than a threshold of certain chemical or chemical categories listed under section 313. This data base is also known as Toxic Release Information System (TRIS).

Below summary information for the last five year period is reported grouping the releases into air, water, underground injection, land, public offsite treatment (potw) and transportation offsite.

No listings within half of a mile radius of the subject site.

NC Nuclear Regulatory Commission Licensees

The Nuclear Regulatory Commission, Office of Nuclear Material Safety and Safeguards has been mandated (10 CFR Ch 1.42) to protect the public health and safety, the common defense and security, and the environment by licensing, inspection, and environmental impact assessment for all nuclear facilities and activities, and for the import and export of special nuclear material.

No listings within half of a mile radius of the subject site.

PB PCB Waste Handlers Database

The U.S. Environmental Protection Agency tracks generators, transporters, commercial stores and/or brokers and disposers of PCB's in accordance with the Toxic Substance Control Act.

No listings within half of a mile radius of the subject site.

PCS Permit Compliance System

PCS is a database which contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS was developed by The U.S. Environmental Protection Agency to meet the information needs of the NPDES program under the Clean Water Act. PCS tracks permit, compliance, and enforcement states of NPDES facilities.

No listings within half of a mile radius of the subject site.

AFS AIRS Facility System

AFS contains emissions and compliance data on air pollution point sources tracked by the U.S. EPA and state and local environmental regulatory agencies. There are seven "criteria pollutants" for which data must be reported to EPA and stored in AIRS: PM10 (particulate matters less than 10 microns in size), carbon monoxide, sulfur dioxide, nitrogen dioxide, lead, reactive volatile organic compounds (VOC), and ozone.

AFS replaces the former Compliance Data System (CDS), the National Emission Data System (NEDS), and the Storage and Retrieval of Aeromatic Data (SAROAD).

No listings within half of a mile radius of the subject site.

PE Section Seven Tracking System (SSTS)

SSTS evolved from the FIFRA and TSCA Enforcement System (FATES). SSTS tracks the registration of all pesticide producing establishments and tracks annually the types and amounts of pesticides, active ingredients, and devices that are produced, sold or distributed each year.

No listings within half of a mile radius of the subject site.

FIFRA FIFRA/TSCA Tracking System/ National Compliance Database (FTTS/NCDB)

NCDB supports implementation of the Federal Insecticide, Funguside and Rodenticide Control Act (FIFRA) and the Toxic Substance Control Act (TSCA).

No listings within half of a mile radius of the subject site.

FI Federal Facilities Information System (FFIS)

Federal Faclities Informaton System (FFIS) contains a list of all Treatment Storage and Disposal Faclities (TSDs) owned and operated by federal agencies.

No listings within half of a mile radius of the subject site.

CI Chemicals in Commerce Information System (CICIS)

Chemicals in Commerce Information System contains an inventory of chemicals manufactured in commerce or imported for Toxic Substances Control Act regulated commercial purposes. CICIS allows EPA to maintain a comprehensive listing of over 70,000 chemical substances that are manufactured or imported and are regulated under TSCA.

No listings within half of a mile radius of the subject site.

FN FINDS EPA Facility Index System

The U.S. Environmental Protection Agency maintains an index system of all facilities which are regulated or have been assigned an identification number for other purposes.

Facilities that have been reported elsewhere in this report will not be included in the listing below.

No listings within half of a mile radius of the subject site.

HWIS Hazardous Waste Information System

The Department of Toxic Substance Control, California Environmental Protection Agency, maintains a a data base keeping track of the movement and disposal of hazardous waste. The data is used to support the Tanner legislation, AB 2948.

Status Codes: EPA Facility Permit Number

Site: ELTRA CORP.,PRESTOLITE BATTERY
Address: 98TH & BANCROFT AVE
City: OAKLAND
Map Loc: 24 - within 1/4 - 1/2 mile SW of the subject
Status: EPA ID#: CAD980637169

Site: BP OIL COMPANY
Address: 2220 98TH AVE
City: OAKLAND
Map Loc: 19 - within 1/4 - 1/2 mile SW of the subject
Status: EPA ID#: CAL000039089

Site: MOBILE OIL #10-MGV
Address: 2220 98TH AVE
City: OAKLAND
Map Loc: 19 - within 1/4 - 1/2 mile SW of the subject
Status: EPA ID#: CAC000015792

Site: FREEWAY ARCO GAS STATION & SER
Address: 2740 98TH AVE
City: OAKLAND
Map Loc: 1 - within 1/4 mile N of the subject
Status: EPA ID#: CAL000019843

Site: BP OIL COMPANY
Address: 3101 98TH AVE
City: OAKLAND
Map Loc: 3 - within 1/4 mile NE of the subject
Status: EPA ID#: CAL000035355

Site: KIMS MOBIL SERVICE
Address: 3101 98TH AVE
City: OAKLAND
Map Loc: 3 - within 1/4 mile NE of the subject
Status: EPA ID#: CAL000009281

Site: PETE'S BP AUTO SERVICE
Address: 3101 98TH AVE
City: OAKLAND
Map Loc: 3 - within 1/4 mile NE of the subject
Status: EPA ID#: CAL000082075

Site: 7-ELEVEN STORE 2212-19403/CD
Address: 10501 FOOTHILL BLVD
City: OAKLAND
Map Loc: 15 - within 1/4 - 1/2 mile SE of the subject
Status: EPA ID#: CAD981465719

Site: SHELL STATION #204-5508-2808
Address: 9750 GOLF LINKS RD, KNOWLAND
City: OAKLAND
Map Loc: 5 - within 1/4 mile NE of the subject
Status: EPA ID#: CAD981403108

Site: OAKLAND ZOO THE
Address: 9777 GOLF LINKS RD
City: OAKLAND
Map Loc: 7 - within 1/4 mile E of the subject
Status: EPA ID#: CAL000046093

Site: BILL & BILLS BODY SHOP
Address: 8914 MAC ARTHUR BLVD
City: OAKLAND
Map Loc: 20 - within 1/4 - 1/2 mile NW of the subject
Status: EPA ID#: CAD982478331

Site: NEALS CLEANERS
Address: 8917 MAC ARTHUR BLVD
City: OAKLAND
Map Loc: 25 - within 1/2 - 3/4 mile NW of the subject
Status: EPA ID#: CAD981642374

Site: CHEVRON USA INC SERVICE STATIO
Address: 9001 MAC ARTHUR BLVD
City: OAKLAND
Map Loc: 18 - within 1/4 - 1/2 mile NW of the subject
Status: EPA ID#: CAT080031594

Site: U SAFE CARDEN CENTER
Address: 9317 MAC ARTHUR BLVD
City: OAKLAND
Map Loc: 14 - within 1/4 - 1/2 mile W of the subject
Status: EPA ID#: CAP999001644

Site: U-SAVE POWER EQUIPTMENT
Address: 9370 MAC ARTHUR BLVD
City: OAKLAND
Map Loc: 12 - within 1/4 - 1/2 mile W of the subject
Status: EPA ID#: CAL000010023

Site: U-SAVE POWER EQUIPMENT
Address: 9370 MAC ARTHUR BLVD
City: OAKLAND
Map Loc: 12 - within 1/4 - 1/2 mile W of the subject
Status: EPA ID#: CAL000065635

Site: U-SAVE POWER EQUIP
Address: 9370 MAC ARTHUR BLVD, STE 9
City: OAKLAND
Map Loc: 12 - within 1/4 - 1/2 mile W of the subject
Status: EPA ID#: CAL000018907

Site: L & H AUTO RPR
Address: 9868 MAC ARTHUR BLVD
City: OAKLAND
Map Loc: 10 - within 1/4 mile SW of the subject
Status: EPA ID#: CAL000083042

Site: SANG UP KIM
Address: 9868 MAC ARTHUR BLVD
City: OAKLAND
Map Loc: 10 - within 1/4 mile SW of the subject
Status: EPA ID#: CAC000807568

Site: TIRES & BRAKES FOR LESS
Address: 10201 MAC ARTHUR BLVD
City: OAKLAND
Map Loc: 13 - within 1/4 - 1/2 mile S of the subject
Status: EPA ID#: CAL000080042

Site: FRANKS AUTO REPAIR
Address: 9765 MOUNTAIN BLVD
City: OAKLAND
Map Loc: 6 - within 1/4 mile NE of the subject
Status: EPA ID#: CAL000009099

Site: ROMAN CATH WELFARE CORP
Address: 9500 STEARNS AVE
City: OAKLAND
Map Loc: 4 - within 1/4 mile NW of the subject
Status: EPA ID#: CAC000578528

Site: CANDYCE SCOTT RESIDENCE
Address: 2706 TRUMAN AVE
City: OAKLAND
Map Loc: 9 - within 1/4 mile S of the subject
Status: EPA ID#: CAX000123539

UST Permitted Underground Storage Tanks - State Water Quality Control Board

The Corteses Bill (AB2013), enacted in 1983, required registration of all underground storage tanks (UST) with the State Water Quality Control Board by July 1, 1984. About 176,000 tanks and surface impounds were registered between 1984 and 1987. An amendment (AB 1413) was passed in 1987, effectively removing the State Board from the registration process starting January 1, 1988. The data reflects the information collected by the state between 1984 and 1987 as well as recent time and includes all tanks and surface impounds in use or closed after 1974.

Home and farm heating fuel tanks with capacities of 1,100 gallons or less and "structures such as sumps, separators, storm drains, catch basins, oil field gathering lines, refinery pipelines, lagoons, evaporation ponds, well cellars, separation sumps, lined and unlined pits, sumps and lagoons" except those defined as UST under HSWA or may be regulated to protect water quality under the Porter-Cologne Water Quality Control Act are excluded.

Site: MOBIL SERVICE STATION
Address: 2220 98TH AVE
City: OAKLAND
Map Loc: 19 - within 1/4 - 1/2 mile SW of the subject
Status: 00000039580 (1987&95)

Site: FREEWAY ARCO
Address: 2740 98TH AVE
City: OAKLAND
Map Loc: 1 - within 1/4 mile N of the subject
Status: 00000023464 (1987&95)

Site: YOUNG H. KIM DBA KIM'S MOBIL
Address: 3101 98TH AVE
City: OAKLAND
Map Loc: 3 - within 1/4 mile NE of the subject
Status: 00000039574 (1987&93)

Site: YOUNG H. KIM DBA KIM'S MOBIL
Address: 3101 98TH AVE
City: OAKLAND
Map Loc: 3 - within 1/4 mile NE of the subject
Status: 00000051672 (1987&95)

Site: JOE HOLSWORTH-KNOWLAND PARK SH
Address: 9750 GOLF LINKS RD
City: OAKLAND
Map Loc: 5 - within 1/4 mile NE of the subject
Status: 00000007019 (1987&95)

Site: SAL'S CAR WASH
Address: 8930 MAC ARTHUR BLVD
City: OAKLAND
Map Loc: 22 - within 1/4 - 1/2 mile NW of the subject
Status: 00000033164 (1987)

Site: NAM'S TRANSMISSION
Address: 9868 MAC ARTHUR BLVD
City: OAKLAND
Map Loc: 10 - within 1/4 mile SW of the subject
Status: 00000064288 (1987&93)

Site: L & H AUTO
Address: 9868 MAC ARTHUR BLVD
City: OAKLAND
Map Loc: 10 - within 1/4 mile SW of the subject
Status: CAC000807 (191995l)

APPENDIX II

Output of ASTM RBCA
Tier I and Tier II

RBCA TIER 1/TIER 2 EVALUATION

Output Table 1

Site Name: 2740 98the Street | Job Identification: 2280 | Software: GSI RBCA Spreadsheet
Site Location: Oakland, CA | Date Completed: 7/14/98 | Version: 1.0.1
Completed By: Mansour Sepehr

NOTE: values which differ from Tier 1 default values are shown in bold italics and underlined.

Exposure Parameter	Definition (Units)	Residential Adult	Residential (1-6yrs)	Residential (1-16 yrs)	Commercial/Industrial Chronic	Commercial/Industrial Constrctn
ATc	Averaging time for carcinogens (yr)	70				
ATn	Averaging time for non-carcinogens (yr)	30	6	16	25	1
BW	Body Weight (kg)	70	15	35	70	
ED	Exposure Duration (yr)	30	6	16	25	1
t	Averaging time for vapor flux (yr)	30			25	1
EF	Exposure Frequency (days/yr)	350			250	180
EF.Derm	Exposure Frequency for dermal exposure	350			250	
IRgw	Ingestion Rate of Water (L/day)	2			1	
IRs	Ingestion Rate of Soil (mg/day)	100	200		50	100
IRadj	Adjusted soil ing. rate (mg-yr/kg-d)	1.1E+02			9.4E+01	
IRa.in	Inhalation rate indoor (m^3/day)	15			20	
IRa.out	Inhalation rate outdoor (m^3/day)	20			20	10
SA	Skin surface area (dermal) (cm^2)	5.8E+03		2.0E+03	5.8E+03	5.8E+03
SAadj	Adjusted dermal area (cm^2-yr/kg)	2.1E+03			1.7E+03	
M	Soil to Skin adherence factor	1				
AAFs	Age adjustment on soil ingestion	FALSE			FALSE	
AAFd	Age adjustment on skin surface area	FALSE			***TRUE***	
tox	Use EPA tox data for air (or PEL based)?	TRUE				
gwMCL?	Use MCL as exposure limit in groundwater?	FALSE				

Matrix of Exposed Persons to Complete Exposure Pathways		Residential	Commercial/Industrial Chronic	Commercial/Industrial Constrctn
Outdoor Air Pathways:				
SS.v	Volatiles and Particulates from Surface Soils	FALSE	FALSE	FALSE
S.v	Volatilization from Subsurface Soils	FALSE	TRUE	
GW.v	Volatilization from Groundwater	FALSE	TRUE	
Indoor Air Pathways:				
S.b	Vapors from Subsurface Soils	FALSE	TRUE	
GW.b	Vapors from Groundwater	FALSE	TRUE	
Soil Pathways:				
SS.d	Direct Ingestion and Dermal Contact	FALSE	FALSE	TRUE
Groundwater Pathways:				
GW.i	Groundwater Ingestion	FALSE	FALSE	
S.l	Leaching to Groundwater from all Soils	FALSE	FALSE	

Matrix of Receptor Distance and Location On- or Off-Site		Residential Distance	Residential On-Site	Commercial/Industrial Distance	Commercial/Industrial On-Site
GW	Groundwater receptor (cm)		FALSE		FALSE
S	Inhalation receptor (cm)		FALSE		TRUE

Matrix of Target Risks		Individual	Cumulative
TRab	Target Risk (class A&B carcinogens)	1.0E-06	
TRc	Target Risk (class C carcinogens)	1.0E-05	
THQ	Target Hazard Quotient	1.0E+00	
Opt	Calculation Option (1, 2, or 3)	2	
Tier	RBCA Tier	2	

Surface Parameters	Definition (Units)	Residential	Constrctn
A	Contaminated soil area (cm^2)	***1.1E+06***	1.0E+06
W	Length of affect. soil parallel to wind (cm)	***1.2E+03***	1.0E+03
W.gw	Length of affect. soil parallel to groundwater (cm	1.5E+03	
Uair	Ambient air velocity in mixing zone (cm/s)	2.3E+02	
delta	Air mixing zone height (cm)	2.0E+02	
Lss	Thickness of affected surface soils (cm)	1.0E+02	
Pe	Particulate areal emission rate (g/cm^2/s)	6.9E-14	

Groundwater	Definition (Units)	Value
delta.gw	Groundwater mixing zone depth (cm)	2.0E+02
I	Groundwater infiltration rate (cm/yr)	3.0E+01
Ugw	Groundwater Darcy velocity (cm/yr)	2.5E+03
Ugw.tr	Groundwater seepage velocity (cm/yr)	6.6E+03
Ks	Saturated hydraulic conductivity(cm/s)	
grad	Groundwater gradient (cm/cm)	
Sw	Width of groundwater source zone (cm)	
Sd	Depth of groundwater source zone (cm)	
phi.eff	Effective porosity in water-bearing unit	3.8E-01
foc.sat	Fraction organic carbon in water-bearing unit	1.0E-03
BIO?	Is bioattenuation considered?	FALSE
BC	Biodegradation Capacity (mg/L)	

Soil	Definition (Units)	Value		
hc	Capillary zone thickness (cm)	5.0E+00		
hv	Vadose zone thickness (cm)	***6.1E+02***		
rho	Soil density (g/cm^3)	1.7		
foc	Fraction of organic carbon in vadose zone	***0.05***		
phi	Soil porosity in vadose zone	***0.4***		
Lgw	Depth to groundwater (cm)	***6.1E+02***		
Ls	Depth to top of affected subsurface soil (cm)	***2.1E+02***		
Lsubs	Thickness of affected subsurface soils (cm)	***1.5E+02***		
pH	Soil/groundwater pH	6.5		
		capillary	vadose	foundation
phi.w	Volumetric water content	***0.362***	***0.25***	***0.2***
phi.a	Volumetric air content	0.038	***0.15***	***0.2***

Building	Definition (Units)	Residential	Commercial
Lb	Building volume/area ratio (cm)	2.0E+02	3.0E+02
ER	Building air exchange rate (s^-1)	1.4E-04	2.3E-04
Lcrk	Foundation crack thickness (cm)	1.5E+01	
eta	Foundation crack fraction	***0.005***	

Transport Parameters	Definition (Units)	Residential	Commercial
Groundwater			
ax	Longitudinal dispersivity (cm)		
ay	Transverse dispersivity (cm)		
az	Vertical dispersivity (cm)		
Vapor			
dcy	Transverse dispersion coefficient (cm)		
dcz	Vertical dispersion coefficient (cm)		

RBCA TIER 1/TIER 2 EVALUATION

Output Table 1

Site Name: 2740 98th Avenue | Job Identification: 2280 | Software: GSI RBCA Spreadsheet
Site Location: Oakland, CA | Date Completed: 7/20/98 | Version: 1.0.1
Completed By: Mansour Sepehr

NOTE: values which differ from Tier 1 default values are shown in bold italics and underlined.

Exposure Parameter	Definition (Units)	Residential Adult	Residential (1-6yrs)	Residential (1-16 yrs)	Commercial/Industrial Chronic	Commercial/Industrial Constrctn
ATc	Averaging time for carcinogens (yr)	70				
ATn	Averaging time for non-carcinogens (yr)	30	6	16	25	1
BW	Body Weight (kg)	70	15	35	70	
ED	Exposure Duration (yr)	30	6	16	25	1
t	Averaging time for vapor flux (yr)	30			25	1
EF	Exposure Frequency (days/yr)	350			250	180
EF.Derm	Exposure Frequency for dermal exposure	350			250	
IRgw	Ingestion Rate of Water (L/day)	2			1	
IRs	Ingestion Rate of Soil (mg/day)	100	200		50	100
IRadj	Adjusted soil ing. rate (mg-yr/kg-d)	1.1E+02			9.4E+01	
IRa.in	Inhalation rate indoor (m^3/day)	15			20	
IRa.out	Inhalation rate outdoor (m^3/day)	20			20	10
SA	Skin surface area (dermal) (cm^2)	5.8E+03		2.0E+03	5.8E+03	5.8E+03
SAadj	Adjusted dermal area (cm^2-yr/kg)	2.1E+03			1.7E+03	
M	Soil to Skin adherence factor	1				
AAFs	Age adjustment on soil ingestion	FALSE			FALSE	
AAFd	Age adjustment on skin surface area	FALSE			FALSE	
tox	Use EPA tox data for air (or PEL based)?	TRUE				
gwMCL?	Use MCL as exposure limit in groundwater?	FALSE				

Matrix of Exposed Persons to Complete Exposure Pathways		Residential	Commercial/Industrial Chronic	Commercial/Industrial Constrctn
Outdoor Air Pathways:				
SS.v	Volatiles and Particulates from Surface Soils	FALSE	FALSE	FALSE
S.v	Volatilization from Subsurface Soils	FALSE	TRUE	
GW.v	Volatilization from Groundwater	FALSE	TRUE	
Indoor Air Pathways:				
S.b	Vapors from Subsurface Soils	FALSE	TRUE	
GW.b	Vapors from Groundwater	FALSE	TRUE	
Soil Pathways:				
SS.d	Direct Ingestion and Dermal Contact	FALSE	FALSE	FALSE
Groundwater Pathways:				
GW.i	Groundwater Ingestion	FALSE	FALSE	
S.l	Leaching to Groundwater from all Soils	FALSE	FALSE	

Matrix of Receptor Distance and Location On- or Off-Site		Residential Distance	Residential On-Site	Commercial/Industrial Distance	Commercial/Industrial On-Site
GW	Groundwater receptor (cm)		TRUE		TRUE
S	Inhalation receptor (cm)		TRUE		TRUE

Matrix of Target Risks		Individual	Cumulative
TRab	Target Risk (class A&B carcinogens)	1.0E-06	
TRc	Target Risk (class C carcinogens)	1.0E-05	
THQ	Target Hazard Quotient	1.0E+00	
Opt	Calculation Option (1, 2, or 3)	1	
Tier	RBCA Tier	1	

Surface Parameters	Definition (Units)	Residential	Constrctn
A	Contaminated soil area (cm^2)	2.2E+06	1.0E+06
W	Length of affect. soil parallel to wind (cm)	1.5E+03	1.0E+03
W.gw	Length of affect. soil parallel to groundwater (cm	1.5E+03	
Uair	Ambient air velocity in mixing zone (cm/s)	2.3E+02	
delta	Air mixing zone height (cm)	2.0E+02	
Lss	Thickness of affected surface soils (cm)	1.0E+02	
Pe	Particulate areal emission rate (g/cm^2/s)	6.9E-14	

Groundwater	Definition (Units)	Value
delta.gw	Groundwater mixing zone depth (cm)	2.0E+02
I	Groundwater Infiltration rate (cm/yr)	3.0E+01
Ugw	Groundwater Darcy velocity (cm/yr)	2.5E+03
Ugw.tr	Groundwater seepage velocity (cm/yr)	6.6E+03
Ks	Saturated hydraulic conductivity(cm/s)	
grad	Groundwater gradient (cm/cm)	
Sw	Width of groundwater source zone (cm)	
Sd	Depth of groundwater source zone (cm)	
phi.eff	Effective porosity in water-bearing unit	3.8E-01
foc.sat	Fraction organic carbon in water-bearing unit	1.0E-03
BIO?	Is bioattenuation considered?	FALSE
BC	Biodegradation Capacity (mg/L)	

Soil	Definition (Units)	Value		
hc	Capillary zone thickness (cm)	5.0E+00		
hv	Vadose zone thickness (cm)	3.0E+02		
rho	Soil density (g/cm^3)	1.7		
foc	Fraction of organic carbon in vadose zone	0.01		
phi	Soil porosity in vadose zone	0.38		
Lgw	Depth to groundwater (cm)	3.0E+02		
Ls	Depth to top of affected subsurface soil (cm)	1.0E+02		
Lsubs	Thickness of affected subsurface soils (cm)	2.0E+02		
pH	Soil/groundwater pH	6.5		
		capillary	vadose	foundation
phi.w	Volumetric water content	0.342	0.12	0.12
phi.a	Volumetric air content	0.038	0.26	0.26

Building	Definition (Units)	Residential	Commercial
Lb	Building volume/area ratio (cm)	2.0E+02	3.0E+02
ER	Building air exchange rate (s^-1)	1.4E-04	2.3E-04
Lcrk	Foundation crack thickness (cm)	1.5E+01	
eta	Foundation crack fraction	0.01	

Transport Parameters	Definition (Units)	Residential	Commercial
Groundwater			
ax	Longitudinal dispersivity (cm)		
ay	Transverse dispersivity (cm)		
az	Vertical dispersivity (cm)		
Vapor			
dcy	Transverse dispersion coefficient (cm)		
dcz	Vertical dispersion coefficient (cm)		

Site Name: 2740 98th Street
Site Location: Oakland, CA

Completed By: Mansour Sepehr
Date Completed: 7/20/1998

GROUNDWATER RBSL VALUES

Target Risk (Class A & B) 1.0E-6
Target Risk (Class C) 1.0E-5
Target Hazard Quotient 1.0E+0

☐ MCL exposure limit?
☐ PEL exposure limit?

Calculation Option: 1

RBSL Results For Complete Exposure Pathways ("x" if Complete)

CONSTITUENTS OF CONCERN		Representative Concentration		Groundwater Ingestion			X	Groundwater Volatilization to Indoor Air		X	Groundwater Volatilization to Outdoor Air		Applicable RBSL	RBSL Exceeded ?	Required CRF
CAS No.	Name	(mg/L)	Residential: (on-site)	Commercial: (on-site)	Regulatory(MCL): (on-site)		Residential: (on-site)	Commercial: (on-site)		Residential (on-site)	Commercial: (on-site)	(mg/L	"■" if yes	Only if "yes" left
71-43-2	Benzene	9.8E-3	NA	NA	NA		NA	7.4E-2		NA	1.8E+1	7.4E-2	☐	<1
100-41-4	Ethylbenzene	2.9E-2	NA	NA	NA		NA	>Sol		NA	>Sol	>Sol	☐	<1
108-88-3	Toluene	1.8E-2	NA	NA	NA		NA	8.5E+1		NA	>Sol	8.5E+1	☐	<1
1330-20-7	Xylene (mixed isomers)	1.1E-1	NA	NA	NA		NA	>Sol		NA	>Sol	>Sol	☐	<1

>Sol Indicates risk-based target concentration greater than constituent solubility

Software: GSI RBCA Spreadsheet Serial: 0
Version: 1.0.1

Site Name: 2740 98th Street
Site Location: Oakland, CA

Completed By: Mansour Sepehr
Date Completed: 7/20/1998

SUBSURFACE SOIL RBSL VALUES (> 3.3 FT BGS)

Target Risk (Class A & B) 1.0E-6
Target Risk (Class C) 1.0E-5
Target Hazard Quotient 1.0E+0

☐ MCL exposure limit?
☐ PEL exposure limit?

Calculation Option: 1

RBSL Results For Complete Exposure Pathways ("x" If Complete)

CONSTITUENTS OF CONCERN		Representative Concentration		Soil Leaching to Groundwater			X Soil Volatilization to Indoor Air		X Soil Volatilization to Outdoor Air		Applicable RBSL	RBSL Exceeded ?	Required CRF
CAS No.	Name	(mg/kg)	Residential: (on-site)	Commercial: (on-site)	Regulatory(MCL): (on-site)	Residential: (on-site)	Commercial: (on-site)	Residential: (on-site)	Commercial: (on-site)	(mg/kg)	"■" If yes	Only if "yes" left
71-43-2	Benzene	2.8E-1	NA	NA	NA	NA	7.9E-2	NA	3.4E+1	7.9E-2	■	4.0E+00
100-41-4	Ethylbenzene	1.0E+0	NA	NA	NA	NA	>Res	NA	>Res	>Res	☐	<1
108-88-3	Toluene	6.1E-1	NA	NA	NA	NA	9.3E+1	NA	>Res	9.3E+1	☐	<1
1330-20-7	Xylene (mixed isomers)	5.4E+0	NA	NA	NA	NA	>Res	NA	>Res	>Res	☐	<1

>Res indicates risk-based target concentration greater than constituent residual saturation value

Software: GSI RBCA Spreadsheet Serial: 0
Version: 1.0.1

Site Name: 2740 98th Street
Site Location: Oakland, CA

Completed By: Mansour Sepehr
Date Completed: 7/20/1998

SURFACE SOIL RBSL VALUES (< 3.3 FT BGS)

Target Risk (Class A & B) 1.0E-6
Target Risk (Class C) 1.0E-5
Target Hazard Quotient 1.0E+0

☐ MCL exposure limit?
☐ PEL exposure limit?

Calculation Option: 1

RBSL Results For Complete Exposure Pathways ("x" If Complete)

CONSTITUENTS OF CONCERN		Representative Concentration	Soil Leaching to Groundwater			Ingestion, Inhalation and Dermal Contact		X Construction Worker	Applicable RBSL	RBSL Exceeded ?	Required CRF
CAS No.	Name	(mg/kg)	Residential: (on-site)	Commercial: (on-site)	Regulatory(MCL): (on-site)	Residential: (on-site)	Commercial: (on-site)	Commercial: (on-site)	(mg/kg)	"■" If yes	Only if "yes" left
71-43-2	Benzene	5.3E-3	NA	NA	NA	NA	NA	1.1E+2	1.1E+2	☐	<1
100-41-4	Ethylbenzene	5.5E-2	NA	NA	NA	NA	NA	>Res	>Res	☐	<1
108-88-3	Toluene	2.5E-3	NA	NA	NA	NA	NA	>Res	>Res	☐	<1
1330-20-7	Xylene (mixed isomers)	1.5E-2	NA	NA	NA	NA	NA	>Res	>Res	☐	<1

>Res indicates risk-based target concentration greater than constituent residual saturation value

Software: GSI RBCA Spreadsheet
Version: 1.0.1

Serial: 0

Site Name: 2740 98the Street
Site Location: Oakland, CA

Completed By: Mansour Sepehr
Date Completed: 7/14/1998

SURFACE SOIL SSTL VALUES (< 3.3 FT BGS)

Target Risk (Class A & B) 1.0E-6
Target Risk (Class C) 1.0E-5
Target Hazard Quotient 1.0E+0

☐ MCL exposure limit?
☐ PEL exposure limit?

Calculation Option: 2

SSTL Results For Complete Exposure Pathways ("x" if Complete)

CONSTITUENTS OF CONCERN		Representative Concentration	Soil Leaching to Groundwater			Ingestion, Inhalation and Dermal Contact		X Construction Worker	Applicable SSTL	SSTL Exceeded ?	Required CRF
CAS No.	Name	(mg/kg)	Residential: (on-site)	Commercial: (on-site)	Regulatory(MCL): (on-site)	Residential: (on-site)	Commercial: (on-site)	Commercial: (on-site)	(mg/kg)	"■" If yes	Only if "yes" left
71-43-2	Benzene	5.3E-3	NA	NA	NA	NA	NA	1.1E+2	1.1E+2	☐	<1
100-41-4	Ethylbenzene	5.5E-2	NA	NA	NA	NA	NA	>Res	>Res	☐	<1
108-88-3	Toluene	2.5E-3	NA	NA	NA	NA	NA	>Res	>Res	☐	<1
1330-20-7	Xylene (mixed isomers)	1.5E-2	NA	NA	NA	NA	NA	>Res	>Res	☐	<1

>Res indicates risk-based target concentration greater than constituent residual saturation value

Software: GSI RBCA Spreadsheet
Version: 1.0.1

Serial: G-335-FXX-770

Site Name: 2740 98the Street
Site Location: Oakland, CA

Completed By: Mansour Sepehr
Date Completed: 7/14/1998

SUBSURFACE SOIL SSTL VALUES (> 3.3 FT BGS)

Target Risk (Class A & B) 1.0E-6
Target Risk (Class C) 1.0E-5
Target Hazard Quotient 1.0E+0

☐ MCL exposure limit?
☐ PEL exposure limit?

Calculation Option: 2

SSTL Results For Complete Exposure Pathways ("x" if Complete)

CONSTITUENTS OF CONCERN		Representative Concentration		Soil Leaching to Groundwater			X	Soil Volatilization to Indoor Air		X	Soil Volatilization to Outdoor Air		Applicable SSTL	SSTL Exceeded ?	Required CRF
CAS No.	Name	(mg/kg)	Residential: (on-site)	Commercial: (on-site)	Regulatory(MCL): (on-site)		Residential: (on-site)	Commercial: (on-site)		Residential: (on-site)	Commercial: (on-site)	(mg/kg)	"■" If yes	Only if "yes" left
71-43-2	Benzene	2.8E-1	NA	NA	NA		NA	4.2E-1		NA	5.5E+1	4.2E-1	☐	<1
100-41-4	Ethylbenzene	1.0E+0	NA	NA	NA		NA	>Res		NA	>Res	>Res	☐	<1
108-88-3	Toluene	6.1E-1	NA	NA	NA		NA	1.5E+3		NA	>Res	1.5E+3	☐	<1
1330-20-7	Xylene (mixed isomers)	5.4E+0	NA	NA	NA		NA	>Res		NA	>Res	>Res	☐	<1

>Res indicates risk-based target concentration greater than constituent residual saturation value

Software: GSI RBCA Spreadsheet Serial: G-335-FXX-770
Version: 1.0.1

RBCA SITE ASSESSMENT

Tier 2 Worksheet 9.3

Site Name: 2740 98the Street
Site Location: Oakland, CA

Completed By: Mansour Sepehr
Date Completed: 7/14/1998

GROUNDWATER SSTL VALUES

Target Risk (Class A & B) 1.0E-6
Target Risk (Class C) 1.0E-5
Target Hazard Quotient 1.0E+0

☐ MCL exposure limit?
☐ PEL exposure limit?

Calculation Option: 2

SSTL Results For Complete Exposure Pathways ("x" If Complete)

CONSTITUENTS OF CONCERN		Representative Concentration		Groundwater Ingestion			X	Groundwater Volatilization to Indoor Air		X	Groundwater Volatilization to Outdoor Air		Applicable SSTL	SSTL Exceeded ?	Required CRF
CAS No.	Name	(mg/L)	Residential: (on-site)	Commercial: (on-site)	Regulatory(MCL): (on-site)		Residential: (on-site)	Commercial: (on-site)		Residential (on-site)	Commercial: (on-site)	(mg/L	"■" If yes	Only If "yes" left
71-43-2	Benzene	9.8E-3	NA	NA	NA		NA	3.0E-1		NA	6.7E+1	3.0E-1	☐	<1
100-41-4	Ethylbenzene	2.9E-2	NA	NA	NA		NA	>Sol		NA	>Sol	>Sol	☐	<1
108-88-3	Toluene	1.8E-2	NA	NA	NA		NA	3.3E+2		NA	>Sol	3.3E+2	☐	<1
1330-20-7	Xylene (mixed isomers)	1.1E-1	NA	NA	NA		NA	>Sol		NA	>Sol	>Sol	☐	<1

>Sol Indicates risk-based target concentration greater than constituent solubility

Software: GSI RBCA Spreadsheet
Version: 1.0.1

Serial: G-335-FXX-770