



July 9, 2003

Job No.: 0459,001.03

Mr. Dick Cochran
C&C Property Management
499 Embarcadero, Post 3, Box 16
Oakland, CA 94606

Alameda County
JUL 11 2003
Environmental Health

Workplan:
Soil and Groundwater Investigation
Salle's Paint & Auto Body
1049 9th Avenue
Oakland, CA

Fuel Leak Case No.: RO0000308

Dear Mr. Cochran:

Please accept this as Edd Clark & Associates, Inc.'s (EC&A's) workplan for a soil and groundwater investigation in the vicinity of the former underground storage tank (UST) for waste oil at 1049 9th Avenue (site) in Oakland, California (Plate 1). In their letter dated April 25, 2003, the Alameda County Environmental Health Services (ACEHS) requested a workplan to delineate the lateral and vertical extent of soil contamination in the source area. In addition, the ACEHS requested a Preferential Pathway Survey be performed in the site vicinity. A copy of this workplan will be submitted to the ACEHS for their review and approval.

PROPOSED SCOPE OF WORK

Work proposed for the soil and groundwater investigation includes the following activities:

- Acquiring a soil boring permit from the Alameda County Water District (ACWD) and an encroachment permit from the City of Oakland Public Works Agency (OPWA) for proposed borings PB-1, PB-2 and PB-3;
- Advancing three exploratory soil borings (PB-1, PB-2 and PB-3);
- Collecting soil and grab-groundwater samples from the borings for laboratory analysis;
- Measuring water levels in monitoring wells MW-1, MW-2 and MW-3;
- Collecting a groundwater sample from MW-1 (the closest monitoring well to the former waste-oil UST location) and submitting it for laboratory analysis;
- Identifying all domestic water-wells located within a quarter-mile radius of the site;
- Performing a Preferential Pathway Survey in the site vicinity; and
- Preparing a report summarizing the work performed and presenting conclusions and recommendations regarding site conditions.

BACKGROUND

Site Description

The site is owned by C&C Property Management Trust (C&C), and has been occupied by Salle's Paint & Body Shop (Salle's) since approximately 1981. Except for a small parking area of the west, the site is entirely occupied by a large building that fronts on the sidewalks on the east and north and the property line on the south. The former USTs for gasoline and waste oil were located under the sidewalks on the northeast and southeast sides, respectively.

UST Removals

UST for Gasoline

On December 29, 1993, the 1000-gallon UST for gasoline was removed from beneath the sidewalk by Walker's Hydraulics Inc. (Walker's) of Concord, California. The gasoline UST was located on the East 11th Street side of the shop about 50 ft northwest of the corner of 9th Avenue and 11th Street and about 150 ft north of the waste-oil UST. Five soil samples were collected from the excavation and one composite sample was collected from the soil stockpile. Low to non-detect (ND) concentrations of petroleum hydrocarbons were detected in the samples.

UST for Waste Oil

On July 20, 1994, Walker's removed a 280-gallon UST for waste oil from the site (Plate 2). Two soil samples were collected from the excavation and a four-into-one composite sample was collected from the stockpiled soil. Analytical results for the excavation soil samples are summarized in Table 1.

Monitoring Well Installation and Groundwater Monitoring

On September 8, 2000, Harris & Lee Environmental Sciences (H&L) of Santa Rosa, California, installed monitoring wells MW-1, MW-2 and MW-3 at the site (Plate 2). The wells were drilled to approximately 20 feet (ft) below ground surface (bgs). Soil samples collected from the well borings at depths of 6 ft, 11 ft and 16 ft bgs were analyzed for total petroleum hydrocarbons (TPH) as gasoline (g), TPH as diesel (d), benzene, toluene, ethylbenzene and xylenes (BTEX), Oil & Grease (O&G), methyl tert-butyl ether (MTBE), halogenated volatile organic compounds (HVOCs) and semi-volatile organics (SVOCs). None of the analytes were detected in soil samples collected for that investigation. Analytical results for soil samples collected from the well borings are summarized in Table 2.

Groundwater samples were collected from MW-2 and MW-3 in September 2000 and March 2001, and from MW-1 in September 2000, and March, May and September 2001. None of the analytes tested for were detected in MW-2 and MW-3. In MW-1, TPHg, TPHd (probably weathered gasoline), BTEX compounds and chlorobenzene were detected; concentrations of those analytes have declined since groundwater monitoring commenced.

Analytical results for groundwater samples from monitoring wells are summarized in Table 3. Groundwater elevation data is presented in Table 4.

HYDROGEOLOGY

The site is situated at an elevation of 18 ft above Mean Sea Level (MSL) in an area of apartment buildings and small businesses. The Oakland Inner Harbor (part of San Francisco Bay) lies 1100 ft to the south. Late Pleistocene age alluvial fan deposits of the Temescal Formation underlie the site. These materials have moderate permeability and consist primarily of interfingering lenses of clayey gravel and sand-silt-clay mixtures.

From September 2000 to September 2001, the depth to static groundwater in MW-1, which is located on the downgradient side of the former waste-oil UST location, ranged from 9.35 ft to 11.65 ft below top-of-casing (TOC). The water table gradient ranged from 0.019 ft/ft to 0.033 ft/ft; the gradient ranged from S77°W to S35°E. Groundwater elevation data is presented in Table 4. The gradient in September 2001 was S30°E and 0.031 ft/ft, respectively (Plate 3).

PROPOSED SOIL AND GROUNDWATER INVESTIGATION

To attempt to delineate the lateral and vertical extent of fuel hydrocarbon- (FHC-) impacted soil and groundwater in the vicinity of the former UST for waste oil, EC&A proposes to drill three soil borings to approximately 20 ft bgs and collect soil and grab-groundwater samples from the borings. In addition, EC&A personnel will perform a Preferential Pathway Survey to locate potential migration pathways and conduits and determine the probability of the FHC-plume encountering preferential pathways and conduits that could spread contamination. The proposed scope of work will be performed in the following tasks:

Task 1 - Acquire Permits

EC&A will prepare and submit a soil boring permit application to the ACWD and an encroachment permit from the OPWA for proposed borings PB-1, PB-2 and PB-3. Underground utilities will be located and marked by a private locator service. In addition, Underground Service Alert will be notified at least 48 hours prior to field work as required by law. The ACEHS will also be notified at least 48 hours prior to field work.

Task 2 - Soil Borings

To further assess the extent of FHC-impacted soil and groundwater in the vicinity of the former UST for waste oil, three soil borings will be drilled to a depth of approximately 20 ft bgs. Borings PB-1, PB-2 and PB-3 will be drilled using 4-inch-diameter, solid-stem augers for the purpose of collecting soil and grab-groundwater samples (Plate 2). PB-4 will be drilled using a limited-access rig.

Boring PB-1 will be drilled through the former waste-oil UST location to evaluate native soil quality directly below the excavated area. PB-2 and PB-3 will be drilled about 5 to 10 ft from the southeast and northeast sides, respectively, of the former waste oil UST location. PB-4 will be drilled inside the shop building on northwest side of the former UST using a limited-access rig to sample the remote-fill location. Soil samples were collected from the southwest side of the former UST location when MW-1 was installed in September 2000 (Table 2).

Drilling will be performed under the technical direction of an EC&A field geologist who will classify the soils encountered, maintain a continuous log of the lithology, and assist in collecting soil samples. All field work will be performed under the supervision of a California-registered geologist. EC&A personnel will field screen the breathing zone and soil samples for organic vapors with a photoionization detector (PID).

Soil Boring Soil Sampling Procedures

Soil samples will be collected from each boring at a minimum of every 5 ft, at any change in lithology, any obviously contaminated soil, and/or at the soil/groundwater interface. The soil samples will be collected using a split-spoon sampling apparatus containing 2-inch-diameter by 6-inch-long brass liners. When a boring is advanced to the selected sampling depth, the drill rods will be withdrawn from the boring and the sampler will be lowered into the bottom of the hole and driven approximately 18 inches into soil ahead of the auger with a 140-pound, drill-rig-operated hammer. Soil samples submitted for laboratory analyses will be capped, labeled, logged on a chain-of-custody form and placed on ice for transport to a State-certified laboratory. The results of the analyses of the samples will be electronically submitted to the State GeoTracker Internet Database in accordance with State Water Resources Control Board (SWRCB) requirements.

Soil Boring Grab-groundwater Sampling Procedures

A grab-groundwater sample will be collected from each of the exploratory borings. The borings will be sampled by lowering a new disposable bailer directly into the borehole or into new temporary well screen which has been placed in the boring without sandpack. Groundwater will be transferred to the appropriate laboratory-supplied, sterile sample containers, labeled, logged on a chain-of-custody form and placed on ice for transport to a State-certified laboratory. The results of the analyses of the samples will be electronically submitted to the State GeoTracker Internet Database in accordance with SWRCB requirements.

Soil Boring Abandonment

Following sample collection, the borings will be filled with bentonite chips and hydrated in 1-ft lifts as necessary. The remainder of the borings will be capped with asphalt or cement depending on the location.

Equipment Decontamination

In order to minimize the possibility of cross contamination, all down-hole drilling and sampling equipment will be decontaminated prior to use. Down-hole drilling equipment will be pressure

washed between borings. Soil and water sampling equipment will be washed in a low-phosphorous soap solution and double rinsed with tap water before samples are collected.

Waste Storage

Soil from the borings and water from equipment decontamination will be placed in DOT 17-H 55-gallon drums. Drummed waste disposal will be based on the results of the investigation.

Task 3 - Groundwater Monitoring

The groundwater level in each of the three monitoring wells will be measured to the nearest 0.01 ft with a water-level meter. Groundwater-level measurements will be recorded after the well caps are removed and groundwater in the wells allowed to equilibrate for a minimum of 15 minutes. Prior to sampling, each monitoring well will be checked for the presence of free-floating product. If product is not observed, a minimum of three well volumes will be removed from monitoring well MW-1 with a submersible pump. Water pH, temperature and electric conductivity will be recorded during purging at intervals of approximately one well volume. A water sample will be collected after water parameters have stabilized and the water level has returned to a minimum of 80% of the initially recorded water level.

The groundwater sample from MW-1 will be collected in a Voss single-sample disposable bailer fitted with a disposable bottom-emptying device to minimize water degassing. The sample will be transferred to properly labeled, laboratory-supplied, sterile sample containers. The sample will be labeled, logged on a chain-of-custody form and placed on ice for transport to a State-certified laboratory. A Groundwater Field Log presenting water parameter measurements, purge volumes and other field measurements will be recorded for the sample.

Task 4 - Sample Analysis

EC&A anticipates that three soil samples from each boring will be submitted for laboratory analysis. One sample will be analyzed from approximately 10 ft bgs, the approximate soil/groundwater interface, the others from approximately 15 ft bgs and 20 ft bgs to evaluate the depth of contamination. One grab-groundwater sample from each boring will be submitted for laboratory analysis. One groundwater sample from MW-1 will be collected for chemical analysis.

Soil and groundwater samples collected from the borings and well MW-1 will be analyzed by EPA Methods 8015/8021 for TPHg, TPHd and BTEX, by EPA Method 5520 for O&G, by EPA Method 8260 for volatile organic compounds (VOCs) including fuel oxygenates and the lead scavengers 1,2-dibromoethane (EDB) and 1,2-dichloroethane (1,2-DCA) and by EPA Method 8270 for semi-volatile organic compounds (SVOCs).

Task 5 - Preferential Pathway Survey

EC&A will prepare and submit maps showing the location and depth of all identified utility lines and trenches, including sewers, storm drains, pipelines, trench backfill, etc., located within and near

the site and plume area. The probability of the contaminants encountering a given preferential pathway and conduits that could spread the contamination will be evaluated.

Additionally, EC&A will attempt to identify all domestic water-wells located within a quarter-mile radius of the site. The location of the wells will be plotted on a map, and well construction details, where available, will be provided for each well identified.

Task 6 - Report Preparation

Following receipt of soil and groundwater analytical results and completion of the Preferential Pathway Survey, EC&A will prepare a written report summarizing the work performed and presenting conclusions and recommendations regarding site conditions.

SITE SAFETY PLAN

Field work will be performed in accordance with the attached Site Safety Plan (SSP). The SSP identifies the chemicals that may be encountered during the investigation, describes precautionary measures to be taken when in the presence of these chemicals and contains a map to the nearest medical facility (Appendix A).

SCHEDULE

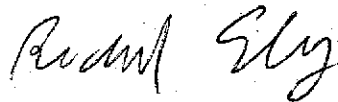
EC&A anticipates that work will commence within one month following the review and approval of this workplan by the ACEHS, and the acquisition of the appropriate permits.

LIMITATIONS

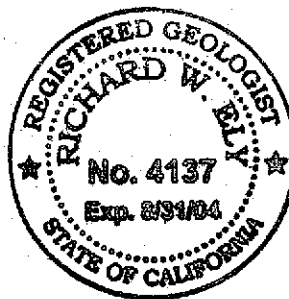
The conclusions presented in this report are professional opinions based on the information presented herein, which includes data generated by others. Whereas EC&A does not guarantee the accuracy of data supplied by third parties, we reserve the right to use this data in formulating our professional opinions. This report is intended only for the indicated purpose and project site. Conclusions and recommendations presented herein apply to site conditions existing at the time of our study. Changes in the conditions of the site property can occur with time because of natural processes or the works of man on the site or adjacent properties. In addition, changes in applicable standards can also occur as the result of legislation or from the broadening of knowledge. Accordingly, the findings of this report may be invalidated, wholly or in part, by changes beyond our control.

Thank you for allowing EC&A the opportunity to provide environmental services for you. Please call if you have any questions.

Sincerely,



Richard Ely, R.G. # 4137
Senior Geologist



Attachments: Plate 1 - Site Location Map
Plate 2 - Site Plan
Plate 3 - Groundwater Elevation Map, 18 September 2001

Table 1 - Analytical Results - Soil Samples for UST for Waste Oil Removal -
July 20, 1994

Table 2 - Analytical Results - Soil Samples from Borings

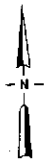
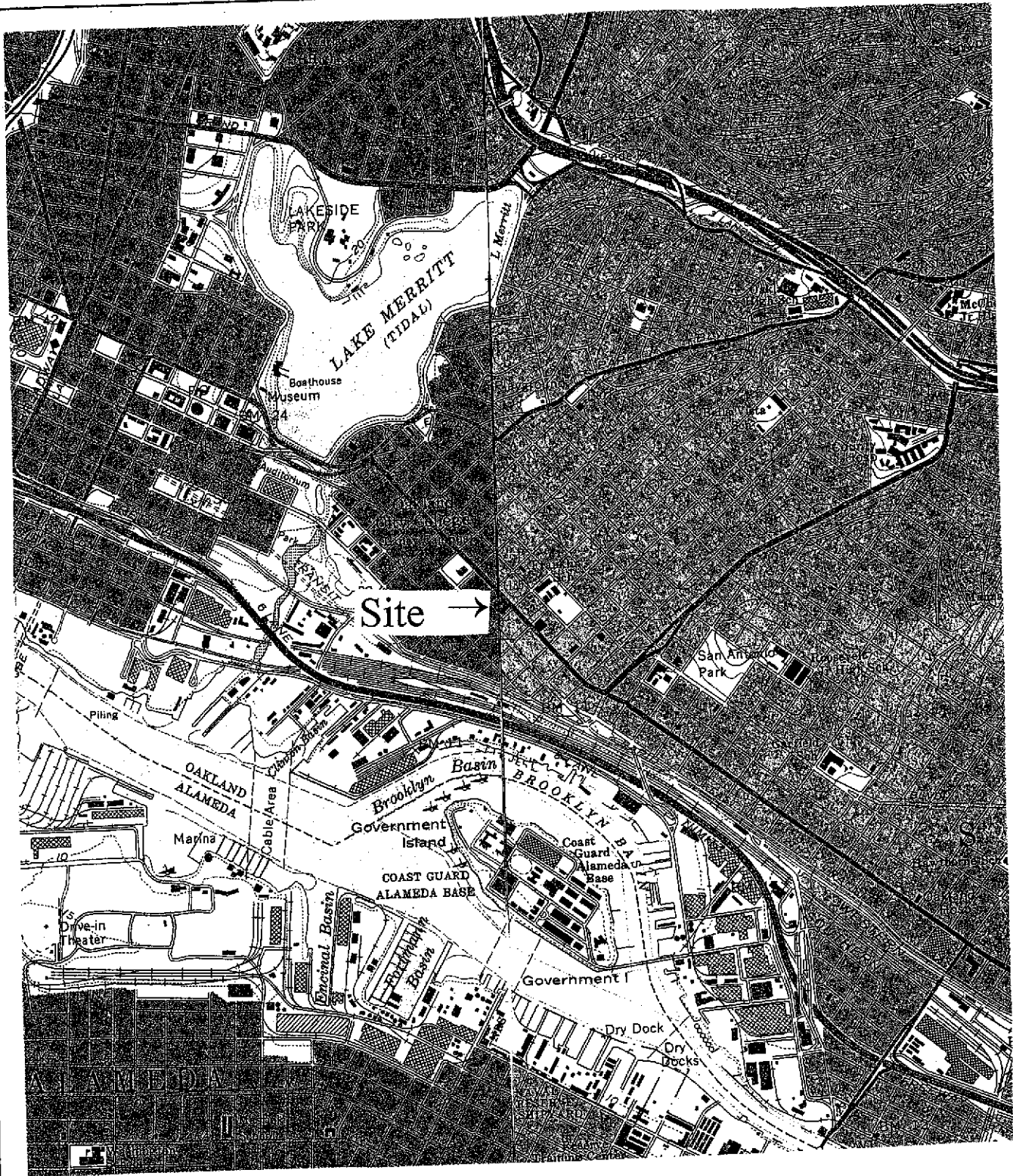
Table 3 - Analytical Results - Groundwater Samples from Monitoring Wells

Table 4 - Groundwater Elevation Data

Appendix A - Site Safety Plan

cc: Mr. Don Hwang, Alameda County Environmental Health Services

0495 S&GW workplan



0 2000 feet

From USGS 1:24,000 Topographic map series, Oakland West & East Quadrangles

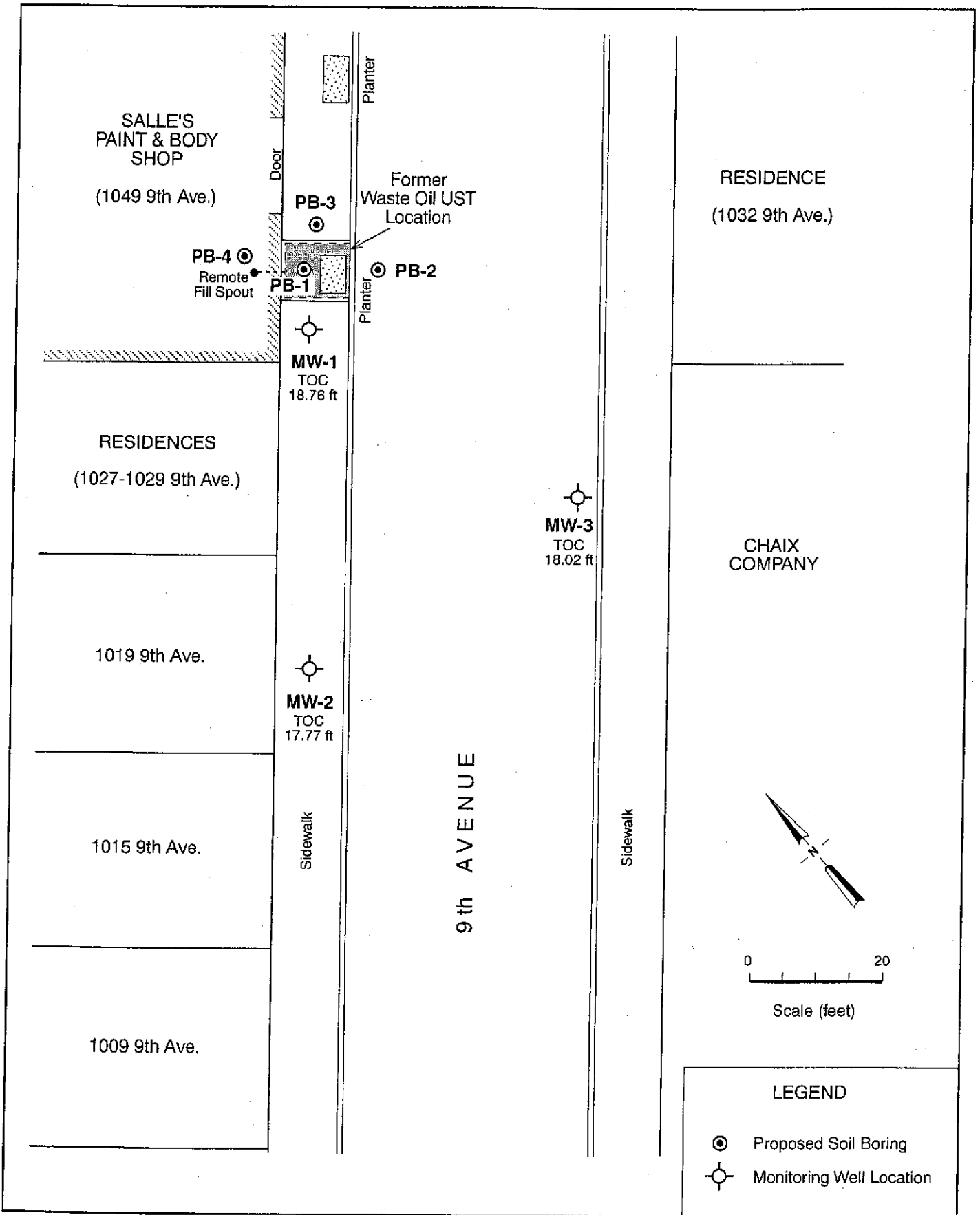
EDD CLARK & ASSOCIATES, INC.
 ENVIRONMENTAL CONSULTANTS

SITE LOCATION MAP
 1049 9th Avenue
 Oakland, California

PLATE
 1

JOB NUMBER	0459, 001.03	REVIEWED BY	EC&A, Richard Ely	DATE	June 2003	REVISED	SHEET NO. 1 of 1
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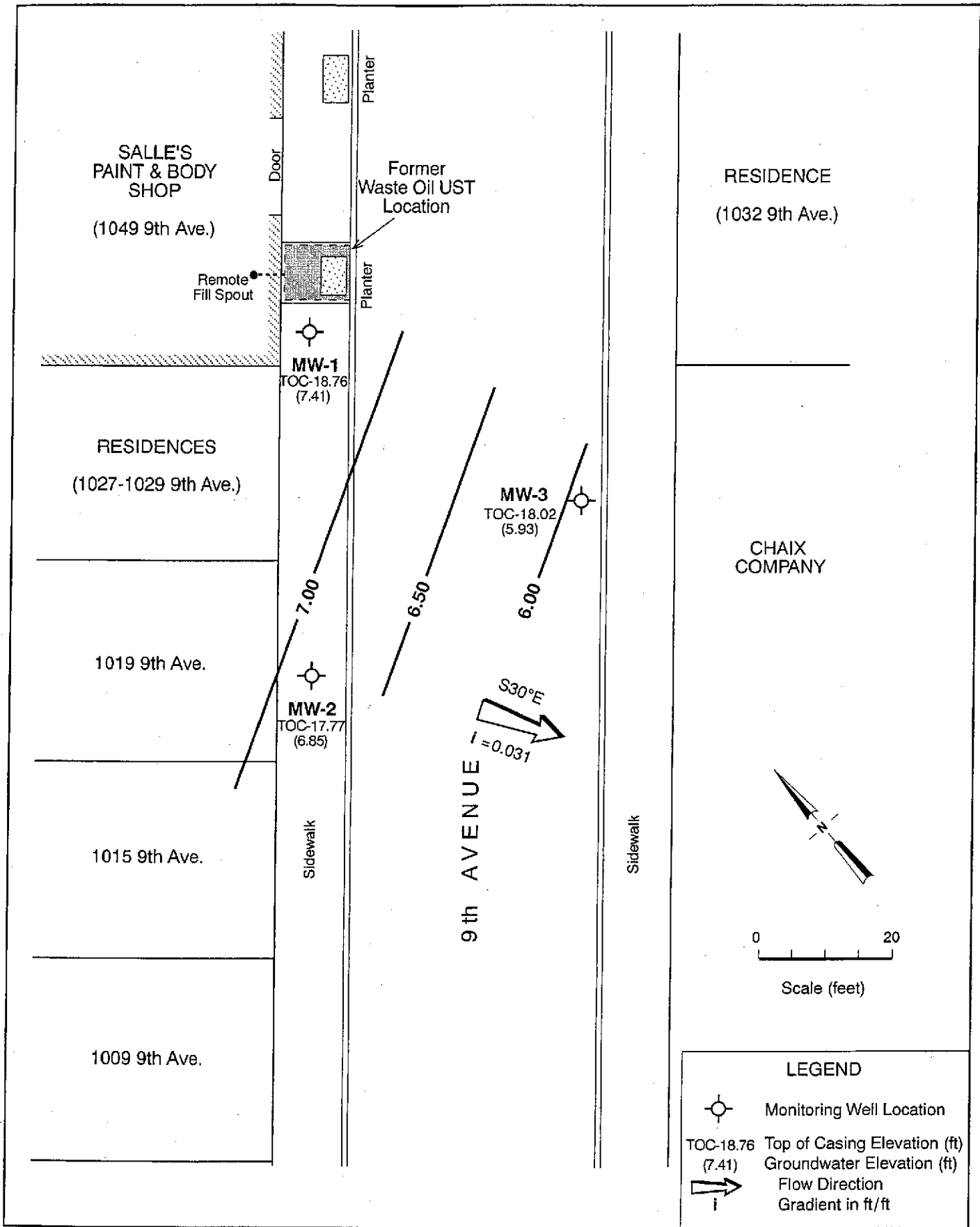
EDD CLARK & ASSOCIATES, INC.
 ENVIRONMENTAL CONSULTANTS

SITE PLAN
 1049 9th Avenue
 Oakland, California

PLATE

2

JOB NUMBER	0459, 001.03	REVIEWED BY	EC&A, Richard Ely	DATE	October 2000	REVISED	June 2003	SHEET NO.	1 of 1
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TRACE #383/RG/24-Jun03

EDD CLARK & ASSOCIATES, INC.
ENVIRONMENTAL CONSULTANTS

GROUNDWATER ELEVATION MAP,

18 September 2001

1049 9th Avenue
Oakland, California

PLATE

3

JOB NUMBER	0459, 001.03	REVIEWED BY	EC&A, Richard Ely	DATE	April 2001	REVISED	June 2003	SHEET NO.	1 of 1
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**Table 1. Analytical Results - Soil Samples for UST for Waste Oil Removal - July 20, 1994
1049 9th Avenue, Oakland, California**

Sample ID	TPHg	TPHd	O&G	TPH	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	2-methyl naphthalene	Trichloroethene	Tetrachloroethene	Chlorobenzene	Cadmium	Chromium	Nickel	Lead	Zinc
<i>Results reported in mg/kg</i>																		
WO-1-8.5	590 ¹	3400 ²	6000	NA	0.91	2.8	3.0	26	9	12	0.016	0.058	0.48	ND<0.5	42	37	13	23
RF-3	34 ¹	210 ²	770	NA	ND<0.025	0.16	0.093	1.9	ND<3	ND<3	ND<0.005	ND<0.005	ND<0.005	ND<0.5	54	35	16	31
WSP-1 (A-D)	200 ¹	NA	NA	12,000	0.08	0.31	0.52	3.9	NA	NA	NA	NA	NA	ND<0.5	34	31	110	58

TPHg: Total petroleum hydrocarbons as gasoline

TPHd: Total petroleum hydrocarbons as diesel

O&G: Oil and grease

TPH: Total petroleum hydrocarbons

mg/kg: Milligrams per kilogram

ND: Not detected above the respective reporting limit

NA: Not analyzed

1: Does not match typical gasoline pattern. Pattern is typical of mineral spirits

2: Does not match typical diesel pattern. Pattern is typical of a mixture of mineral spirits

Data from Harris & Lee's October 25, 2000 *Soil and Groundwater Investigation Report, Table 1 Excavation Soil Sample Analytical Results*

**Table 2. Analytical Results - Soil Samples from Borings
1049 9th Avenue, Oakland, California**

Sample ID*	Date	TPHg mg/kg	TPHd mg/kg	O&G mg/kg	BTEX mg/kg	MTBE mg/kg	Chlorinated Solvents mg/kg	SVOCs mg/kg
MW-1-6'	09/08/00	ND<1.0	ND<5.0	ND<10	ND<0.005	ND<0.025	ND<1.0	ND
MW-1-11'	09/08/00	ND<1.0	ND<5.0	ND<10	ND<0.005	ND<0.025	ND<1.0	ND
MW-1-16'	09/08/00	ND<1.0	ND<5.0	ND<10	ND<0.005	ND<0.025	ND<1.0	ND
MW-2-6'	09/08/00	ND<1.0	ND<5.0	ND<10	ND<0.005	ND<0.025	ND<1.0	ND
MW-2-11'	09/08/00	ND<1.0	ND<5.0	ND<10	ND<0.005	ND<0.025	ND<1.0	ND
MW-3-16'	09/08/00	ND<1.0	ND<5.0	ND<10	ND<0.005	ND<0.025	ND<1.0	ND
MW-3-6'	09/08/00	ND<1.0	ND<5.0	ND<10	ND<0.005	ND<0.025	ND<1.0	ND
MW-3-11'	09/08/00	ND<1.0	ND<5.0	ND<10	ND<0.005	ND<0.025	ND<1.0	ND
MW-3-16'	09/08/00	ND<1.0	ND<5.0	ND<10	ND<0.005	ND<0.025	ND<1.0	ND

TPHg: Total petroleum hydrocarbons as gasoline

TPHd: Total petroleum hydrocarbons as diesel

O&G: Oil and grease

BTEX: Benzene, toluene, ethylbenzene and xylenes; reporting limit for xylenes is 0.015 mg/kg

MTBE: Methyl tert-butyl ether

SVOCs: Semi-volatile organics; reporting limits are 0.33 mg/kg and 1.6 mg/kg

mg/kg: Milligrams per kilogram

ND: Not detected above the respective reporting limit

*Second number in Sample ID is sample depth in feet below ground surface

Data from Harris & Lee's October 25, 2000 *Soil and Groundwater Investigation Report, Table 3 Monitoring Well Soil Sample Analytical Results*

**Table 3. Analytical Results - Groundwater Samples from Monitoring Wells
1049 9th Avenue, Oakland, California**

Sample ID	Date	TPHg µg/l	TPHd µg/l	O&G µg/l	Benzene µg/l	Toluene µg/l	Ethyl- benzene µg/l	Xylnes µg/l	MTBE µg/l	Chloro- benzene µg/l	SVOCs µg/l
MW-1	09/29/00	280	ND<100	ND<100	1.4	ND<0.5	2.5	4.5	ND<2.5	1.1	ND
	03/05/01	300	170 ²	NA	1.7	2.1	1.4	2.6	ND<2.5	ND<0.5	NA
	05/31/01	380	70 ²	NA	1.0	4.5	3.5	9.8	ND<2.5	ND<0.5	NA
	09/18/01	250	63	NA	ND<0.5	3.1	3.3	3.4	ND<2.5	0.82	NA
MW-2	09/29/00	ND<50	ND<100	ND<100	ND<0.5	ND<0.5	ND<0.5	ND<1.5	ND<2.5	ND<0.5	ND
	03/05/01	ND<50	ND<50	NA	ND<0.5	ND<0.5	ND<0.5	ND<1.5	ND<2.5	ND<0.5	NA
MW-3	09/29/00	ND<50	ND<100	ND<100	ND<0.5	ND<0.5	ND<0.5	ND<1.5	ND<2.5	ND<0.5	ND
	03/05/01	ND<50	ND<50	NA	ND<0.5	ND<0.5	ND<0.5	ND<1.5	ND<2.5	ND<0.5	NA

TPHg: Total petroleum hydrocarbons as gasoline

TPHd: Total petroleum hydrocarbons as diesel

O&G: Oil and grease

MTBE: Methyl tert-butyl ether

SVOCs: Semi-volatile organics

µg/l: Micrograms per liter

ND: Not detected above the respective reporting limit

NA: Not analyzed

1: Other EPA Method 8010 compounds were ND

2: Weathered gasoline

Data from Harris & Lee's October 25, 2000 *Soil and Groundwater Investigation Report, Table 2 Groundwater Sample Analytical Results*

**Table 4. Groundwater Elevation Data
1049 9th Avenue, Oakland, California**

Sample ID	Date	TOC Elevation feet	DTW feet	Groundwater Elevation feet
MW-1	09/29/00	18.76	11.35	7.41
MW-2		17.77	10.92	6.85
MW-3		18.02	12.09	5.93
Gradient: S30°E, 0.033 ft/ft				
MW-1	03/05/01	18.76	9.35	9.41
MW-2		17.77	9.13	8.64
MW-3		18.02	8.54	9.48
Gradient: S77°W, 0.019 ft/ft				
MW-1	05/31/01	18.76	10.18	8.58
MW-2		17.77	9.83	7.94
MW-3		18.02	10.91	7.11
Gradient: S24°E, 0.031 ft/ft				
MW-1	09/18/01	18.76	11.65	7.11
MW-2		17.77	11.13	6.64
MW-3		18.02	12.50	5.52
Gradient: S35°E, 0.031 ft/ft				

TOC: Top of casing elevation measured relative to mean sea level (msl)

DTW: Depth to water from TOC

Data from Harris & Lee's October 25, 2000 *Soil and Groundwater Investigation Report. Table 1 Groundwater Elevations*

Appendix A

Site Safety Plan

A. GENERAL INFORMATION

Site Location: Salle's Paint & Body Shop, 1049 9th Avenue, Oakland, California

Plan Prepared By: Richard Ely Date: July 9, 2003
Richard Ely

Facility Description: Automotive paint and body shop

Objective(s): Delineate the lateral and vertical extent of soil contamination in the source area.
Background Review: Complete: Preliminary:

Documentation/Summary: Overall Hazard: Serious: Moderate: Low: Unknown:

Unusual Features (power lines, terrain, utilities, etc.): none

STATUS: Active: Inactive: Unknown:

HISTORY: (Agency Action, Complaints, Injuries, etc.) One 1000-gallon UST for gasoline was removed on December 29, 1993, and one 280-gallon UST for waste oil was removed on July 20, 1994. Three monitoring wells were installed on September 8, 2000. Concentrations of TPHg, TPHd, O&G, TPH, BTEX, naphthalene, 2-methylnaphthalene, PCE, TCE, chlorobenzene, chromium, nickel, lead and zinc were detected in soil samples collected during removal of the UST for waste oil.

B. SITE WASTE CHARACTERISTICS/DISPOSAL

Waste Type(s): Liquid: (water) Solid: (soil) Sludge: Gas: (vapors)

Characteristic(s): Corrosive: Ignitable: Radioactive: Volatile:
Toxic: Reactive: Unknown Other (name): Flammable

INVESTIGATION/REMEDATION-DERIVED MATERIAL DISPOSAL: Soil from borings will be placed in DOT 17-H 55-gallon drums. Water from equipment decontamination and monitoring well purge water will be placed in DOT 17-H 55-gallon drums. Drummed waste disposal will be based on the results of the investigation.

C. HAZARD EVALUATION

Chemical Name	Description	Threshold Limit Values (TLVs)		Persons Exposed and Potential Routes of Exposure	Symptoms of Acute Exposure	TLV Basis
		8-hr TLV	Short-term Exposure Limit (STEL)			
Benzene	Carcinogen, aromatic HC	0.5 ppm	2.5 ppm	Inhalation, dermal	Headache, dizziness	Cancer
Toluene	Aromatic HC	50 ppm	—	Inhalation, dermal	Headache, dizziness	Central nervous system (CNS), irritation
Ethylbenzene	Aromatic HC	100 ppm	125 ppm	Inhalation, dermal	Headache, dizziness	Irritation, CNS
Xylenes	Aromatic HC	100 ppm	150 ppm	Inhalation, dermal	Headache, dizziness	Irritation
Gasoline	Flammable liquid	300 ppm	500 ppm	Inhalation, dermal	Headache, dizziness	Irritation, CNS
MTBE	Flammable liquid, Oxygenate	40 ppm	—	Inhalation, skin & ingestion	Headache, dizziness, eye/skin irritation Nausea	Mucus Membrane Irritation, CNS
Diesel Fuel	Flammable liquid	pending	—	Inhalation, dermal	Headache, dizziness, eye/skin irritation	—
Napthalene	Colorless to brown solid, mothball odor	10 ppm	15 ppm	Inhalation, skin & ingestion,	Irritated eyes, confusion, profuse sweating, nausea	Skin, eyes, respiratory system
2-methyl-napthalene	Solid	—	—	Inhalation, skin & ingestion	Similar to napthalene	Similar to napthalene?
PCE	Colorless liquid, chloroform-like odor	100 ppm	300 ppm	Inhalation, skin & ingestion	Irritated eyes, nose, skin & throat	Skin, eyes, respiratory system, liver, kidneys
TCE	Colorless liquid, chloroform-like odor	100 ppm	300 ppm	Inhalation, skin & ingestion	Irritated eyes, nose & skin, vertigo, giddiness, nausea	Skin, eyes, respiratory system, liver, heart
Chloro-benzene	Colorless liquid, almond odor	75 ppm	—	Dermal, inhalation & eyes	Burning eyes, nose, skin & throat	Skin, eyes, CNS, liver, respiratory system
Lead	Gray metal	0.10 mg/m ³	—	Ingestion & inhalation	Weakness, tremor, lassitude, kidney disease, insomnia, weight loss	Eyes, kidney, CNS

D. SITE SAFETY WORKPLAN

Personal Protection:

Level of Protection: A: B: C: D: X

Modifications: Upgrade to level C upon high OVA readings (5 ppm)

Surveillance Equipment and Materials:

Instrument: OVA Action Level: 5 ppm

SITE PROCEDURES: Advance three exploratory soil borings and collect soil and groundwater samples.

HAZARDS: Potential hazards onsite comprise proximity to drilling equipment, exposure to explosive and flammable petroleum vapors and carcinogens.

LEVEL OF PROTECTION: Equipment to protect the body from contact with chemical hazards has been categorized by the Environmental Protection Agency into levels A, B, C, & D. Level A equipment is used when the highest level of protection is needed; Level D equipment is used when minimum protection is needed. The chemical hazard associated with petroleum hydrocarbons is typically low and Level D protection (see equipment list below) is adequate. In case of high levels of contamination, an upgrade to Level C protection equipment may be advised. Level C and D equipment are listed below.

Level C Equipment: NIOSH/MSHA approved air purifying respirator, chemical resistant clothing, chemical resistant inner and outer gloves, chemical resistant boots with steel toe and shank, safety glasses and hard hat.

Level D Equipment: Coveralls, gloves, chemical resistant boots or shoes with steel toe and shank, safety glasses or chemical splash goggles, and hard hat. Tyvex overalls and Solvex or equivalent gloves are recommended.

EQUIPMENT REQUIRED FOR THIS PROJECT: Normal work clothing may be worn with the following additions:

Excavations: Wear neoprene boots if walking in the excavation or in or around waste soils. Wear a hard hat when near excavation equipment.

Drilling: Wear a hard hat when near the drill rig.

Soil Sampling: Chemical-resistant gloves are required when sampling.

Groundwater Sampling: Chemical-resistant gloves are required when sampling.

A First Aid Kit, fire extinguisher, and combustible gas indicator or PID are also required. The combustible gas indicator or PID is to be used to monitor air in breathing zone. Readings above 5 ppm are cause for concern. Continuous reading of 5 ppm or greater above background in the breathing zone requires an upgrade to Level C, including use of half-face respirator. Continuous readings of 50 ppm or greater in the breathing zone requires stopping the work.

The combustible gas indicator or PID is to be used continuously during all drilling activities. If more than 10 percent of the lower explosive limit (LEL) is measured in the drilling area proceed with caution. If more than 50 percent LEL is measured in the drilling area, provide ventilation of the area.

DECONTAMINATION PROCEDURES:

Personal: Remove gloves, wash hands; clean boots in decontamination area.

Equipment: Steam cleaning of all excavation and drilling equipment in the decontamination area. TSP wash of sampler between samples.

FIRST AID: Consultants vehicle has a first aid kit.

WORK LIMITATIONS (time of day, weather, heat/cold, stress): None

E. EMERGENCY INFORMATION

LOCAL RESOURCES:

Ambulance: 911

Poison Control Center: 911

Police: 911

Fire Department: 911

Explosives Unit: 911

Highland Hospital Emergency Room: 510-533-3712

Agency Contact: Don Hwang, Alameda County Environmental Health Services
(510) 567-6746

SITE RESOURCES:

Water Supply: Onsite

Telephone: Onsite

Radio: None

Other:

EMERGENCY CONTACT:

Name: Dick Cochran

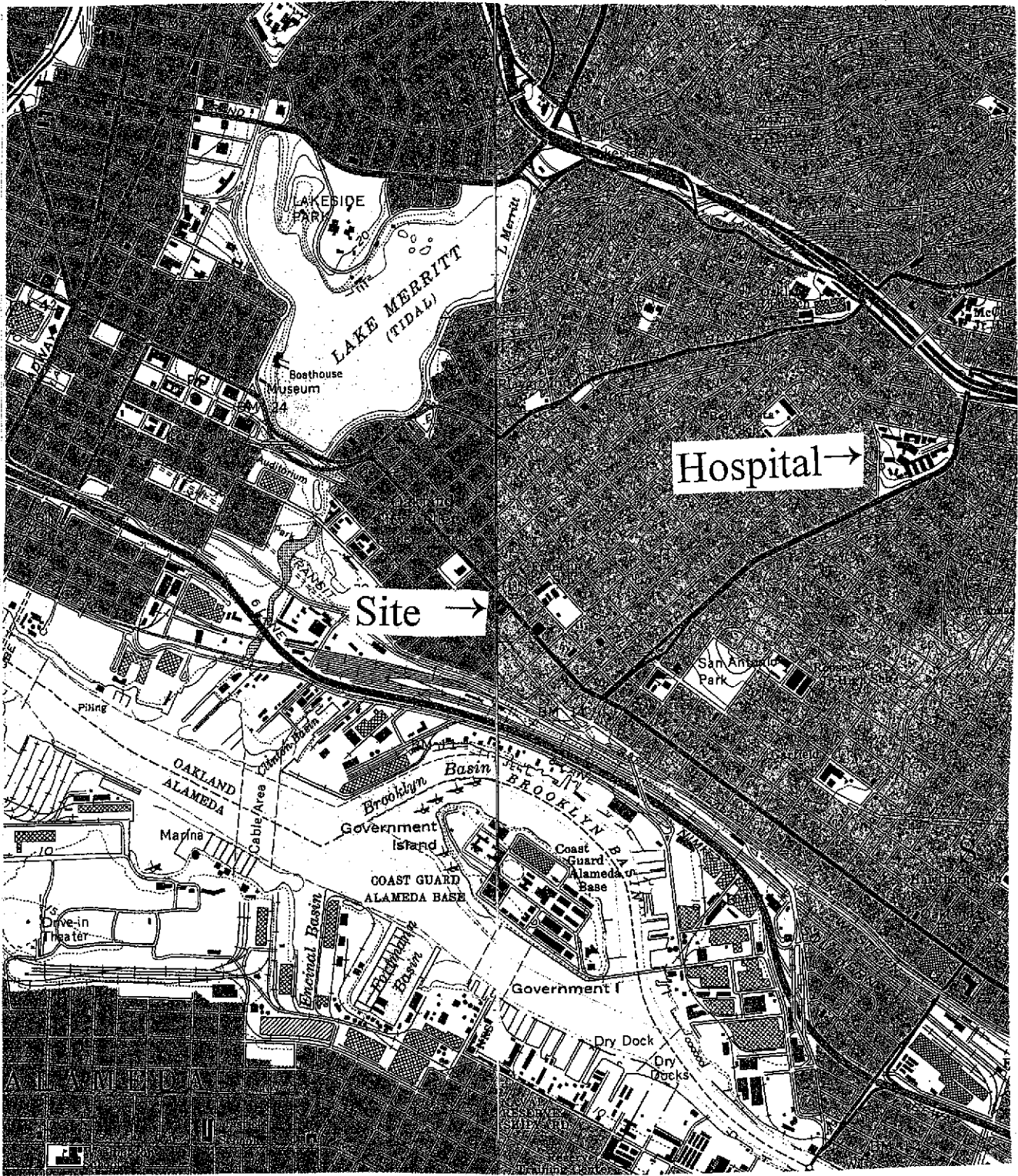
Phone: (510) 834-9816

EMERGENCY ROUTE: See Plate H.

SITE SKETCH: (Work zones, command post, etc.): See Workplan

Signature

Date



EDD CLARK & ASSOCIATES, INC.
 ENVIRONMENTAL CONSULTANTS

Hospital Map
 Highland Hospital
 1411 East 31st Street
 Oakland, California

PLATE
H

JOB NUMBER
 0459,001.03

REVIEWED BY
 R.Ely

DATE
 06/03

REVISED DATE

REVISED DATE