Chevron U.S.A. Products Company
2410 Camino Ramon, San Ramon, California • Phone (510) 842-9500
Mail Address: P.O. Box 5004, San Ramon, CA 94583-0804

Operations

March 11, 1993

3812

Ms. Jennifer Eberle
Alameda County Health Care Services
80 Swan Way, Room 200
Oakland, CA 94621

Re: Former Chevron Service Station #9-0020
1633 Harrison, Oakland

Dear Ms. Eberle:

Enclosed we are forwarding the Additional Environmental Assessment Report dated February 18, 1993, prepared by our consultant Groundwater Technology, Inc. (GTI) for the above referenced site. As indicated in the report, two (2) borings were advanced and completed into ground water monitoring wells designated MW-15 and MW-16. These wells were installed to delineate the extent of the hydrocarbon plume in the down-gradient direction.

Both soil and ground water samples collected were analyzed for total petroleum hydrocarbons as gasoline (TPH-G) and BTEX. All samples reported concentrations of these constituents below method detection limits. Groundwater samples were also collected from the existing wells at this time. Benzene was detected in monitor wells MW-7, MW-9 and MW-13 only at concentrations of 810, 380 and 1,400 ppb, respectively. Depth to groundwater was measured at approximately 20-feet below grade, and the direction of flow is to the east with a gradient between 0.003 and 0.004 ft/ft.

The remediation system is scheduled for startup upon receipt of the vapor abatement equipment. The equipment is scheduled for delivery in May, 1993. All necessary permits have been applied for and other associated equipment has been purchased.

If you have any questions or comments, please do not hesitate to contact me at (510) 842-9581.

Very truly yours,
CHEVRON U.S.A. PRODUCTS COMPANY

Nancy Vukelich
Site Assessment and Remediation Engineer

Enclosure

cc: Mr. Rich Hiett, RWQCB-Bay Area
Mr. Kent O'Brien, Geraghty & Miller
Ms. B.C. Owen
Mr. L.E. Jones, 225/1510
File (9-0020A4)

3812

GROUNDWATER TECHNOLOGY, INC.

4057 Port Chicago Highway, Concord, CA 94520 (415) 671-2387
FAX: (415) 685-9148

ADDITIONAL ENVIRONMENTAL ASSESSMENT REPORT
CHEVRON SERVICE STATION NO. 9-0020
1633 HARRISON STREET
OAKLAND, CALIFORNIA

020202779

FEBRUARY 18, 1993

Prepared for:
Ms. Nancy Vukelich
Chevron U.S.A. Products Company
2410 Camino Ramon
San Ramon, California 94583-0804

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For:
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Vice President, General Manager
West Region

R2779A1.TW

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ENVIRONMENTAL ASSESSMENT REPORT
FORMER CHEVRON SERVICE STATION NO. 9-0020
1633 HARRISON STREET
OAKLAND, CALIFORNIA

FEBRUARY 18, 1993

1.0 INTRODUCTION

This report summarizes the environmental assessment work conducted by Groundwater Technology, Inc. at the Chevron U.S.A. Products Company (Chevron) Service Station No. 9-0020 located at 1633 Harrison Street in Oakland, California (Figure 1). The objective of this work was to further evaluate the lateral extent of dissolved petroleum hydrocarbons at the referenced site by drilling two off-site groundwater monitoring wells. The assessment work completed during November and December 1992 included drilling two 2-inch-diameter off-site monitoring wells, sampling soil and groundwater, analyzing the collected samples, evaluating the data, and preparing this report.

2.0 BACKGROUND

The site is located in East Alameda County, East Oakland, on the southwest corner of the intersection of 17th Street and Harrison Street (Figure 2). Commercial buildings surround the downtown site. The aboveground structures of the former station, including the pump island foundations, have been removed. Documentation of the removal of underground storage tanks and structures was not available to Groundwater Technology at the time of this site assessment. Currently, the site is used for an automobile parking lot. The surface elevation at the site is approximately 30 feet above mean sea level. The site is approximately 0.3 mile west of Lake Merritt.

Previous investigations and observations are summarized below:

- On October 26 and 27, 1988, Western Geologic Resources Inc. (WGR) supervised the drilling of groundwater monitoring wells MW-1, MW-2, and MW-3 (WGR, January 1989). Monitoring wells MW-1 and MW-2 are approximately 29 feet deep and MW-3 is approximately 32 feet deep.

- **Concentrations of halogenated hydrocarbons (halocarbons) were detected** in the groundwater samples collected from monitoring wells MW-1, MW-2, and MW-3.
- From April 11 through 19, 1989, WGR supervised the drilling of eight soil borings. Five of the soil borings were converted to groundwater monitoring wells MW-4, MW-5, MW-6, MW-7, and MW-8 (WGR, June 1989).
- From June 18 through 21, 1990, WGR installed off-site groundwater monitoring wells MW-9, MW-10, MW-11, and MW-12 (WGR, July 1990).
- On October 3, 1991, Pacific Environmental Group, Inc. (PEG) installed off-site groundwater monitoring wells MW-13 and MW-14 (PEG, January 1992).

Data from groundwater monitoring and sampling performed by Groundwater Technology **on June 15, 1992**, indicates a **groundwater flow direction toward the east.** Analytical results of groundwater samples collected on June 15, 1992, reported total petroleum hydrocarbons-as-gasoline (TPH-G) and benzene, toluene, ethylbenzene, and xylenes (BTEX) concentrations below method detection limits (MDLs) in monitoring wells MW-1, MW-2, MW-4, MW-5, MW-6, MW-8, MW-10, and MW-12. The highest TPH-G concentrations were reported at 10,000 parts per billion (ppb) and 4,500 ppb in samples from monitoring wells MW-7 and MW-9, respectively (Groundwater Technology, July 1992).

3.0 WORK SCOPE

3.1 Site-Specific Health and Safety Plan and Permitting

Groundwater Technology prepared a site-specific Health and Safety Plan required by the Occupational Health and Safety Administration Standard "Hazardous Waste Operations and Emergency Response" guidelines (29 CFR 1910.120). The site-specific Health and Safety Plan was prepared by Groundwater Technology after a review of site conditions and existing available site-specific health and safety plans for the site. The Health and Safety Plan was reviewed and signed by all Groundwater Technology personnel and subcontractors before working at the site.

Groundwater Technology reviewed the site history and site information with Chevron representatives before beginning work at the site. Drilling permits to install the monitoring wells were obtained from Alameda County Flood Control and Water Conservation District Zone 7 Water Agency.

Encroachment permits were obtained from the City of Oakland Public Works Department. Copies of the permits are included in Appendix A.

3.2 Soil Borings

On November 11 and December 8, 1992, Groundwater Technology supervised the drilling of two off-site groundwater monitoring wells (MW-15 and MW-16) using a truck-mounted drill rig equipped with 8.5-inch hollow-stem augers. Off-site monitoring wells MW-15 and MW-16 were drilled to 30 feet below grade on November 11 and December 8, 1992. The augers were steam cleaned between each monitoring well installation. A Groundwater Technology field geologist, under the supervision of a California Registered Geologist, logged the materials encountered during drilling of the soil boring for monitoring wells MW-15 and MW-16 using the Unified Soil Classification System.

The steam cleaning water was stored in labeled 55-gallon drums pending disposal. The soil cuttings generated during the drilling activities were placed in 55-gallon drums. Soil cuttings were characterized, profiled, and transported to City of Mountain View Public Landfill in Mountain View, California on January 13, 1993. Water generated from steam cleaning, purging, and sampling activities was removed and transported to the Chevron Terminal in Richmond.

3.3 Soil Sampling

On November 11 and December 8, 1992, soil samples were collected at 5-foot intervals during drilling of the soil borings for monitoring wells MW-15 and MW-16. Soil samples were collected using a 2-inch-outside-diameter split-spoon sampler, lined with three 2-inch-diameter by 6-inch-long brass sample tubes. At each sample point, the sampler was driven 18 inches ahead of the hollow-stem augers into undisturbed soil. One sample from every 5-foot interval was sealed with aluminum foil, capped, taped, labeled, placed on ice in an insulated container, and delivered to a California-certified laboratory. All sampling was performed according to Groundwater Technology Standard Operating Procedures, which are included in Appendix B.

Two soil samples were collected from each of the borings drilled for the installation of monitoring wells MW-15 and MW-16 and were submitted to a California-certified laboratory for BTEX and TPH-G

analyses using Environmental Protection Agency (EPA) Methods 5030/8020 and modified EPA Method 8015. The soil sample collected at the water table from monitoring wells MW-15 and MW-16 were analyzed for total organic carbon (TOC) using EPA Method 9060, as requested by Chevron.

3.4 Monitoring Well Installation

Monitoring well MW-15 was constructed of 13 feet of 2-inch-diameter Schedule 40 polyvinyl chloride (PVC) casing with flush threads and 15 feet of 0.02-inch-slot well screen. Monitoring well MW-16 was constructed of 15 feet of 2-inch-diameter, Schedule 40 PVC casing with flush threads and 15 feet of 0.02-inch-slot well screen. A sand filter pack was placed around the well screen in monitoring wells MW-15 and MW-16 to approximately 2 feet above the slotted well screen. Monitoring wells MW-15 and MW-16 were completed with 2 feet of hydrated bentonite and a neat-cement seal to grade. The wellheads were protected by a locking cap and a traffic-rated street box with a water-tight bolted lid. Well construction details are included with the drill logs (Appendix C). The top-of-casing elevation of the monitoring wells was surveyed to a chiseled square on top of the curb at the southwest corner of 17th and Harrison Streets by a professional licensed surveyor.

3.5 Monitoring Well Development

Groundwater monitoring wells MW-15 and MW-16 were developed on November 13 and December 16, 1992, respectively. Both groundwater monitoring wells were developed by surging and bailing groundwater using a PVC bailer. This technique promotes a uniform sand filter pack, removes fine-grain sediments from the well screen and filter pack, and improves the hydraulic communication between the well and aquifer. The groundwater from each well was bailed until the fine-grain sediments were removed.

3.6 Groundwater Monitoring

On December 16, 1992, each monitoring well was monitored to measure the depth to groundwater and the thickness of separate-phase hydrocarbons if present. The water levels were measured using an INTERFACE PROBE™ Well Monitoring System, which consists of a dual optical sensor and

electrical conductivity probe that distinguishes between water and petroleum products. Separate-phase hydrocarbons were not detected in the monitoring wells.

3.7 Groundwater Sampling

On December 16, 1992, the monitoring wells were purged and groundwater samples collected from monitoring wells MW-1 through MW-15. Monitoring well MW-16 was purged and sampled on December 21, 1992. Field data sheets filled out during purging activities noted the temperature, conductivity, and pH of the purge water. Dissolved oxygen content was also measured in the field after purging was completed. Copies of the field data sheets containing the amount of water purged, temperature, conductivity, pH, and dissolved oxygen content are presented in Appendix D. Immediately before collecting each water sample, a distilled water rinsate blank was collected from the Teflon® sampler as a quality control check on the cleanliness of the sampler. A trip/lab blank was also prepared for quality control. Each sample was acidified, labeled, placed on ice in an insulated container, and delivered to a California-certified laboratory. The samples were accompanied by a chain-of-custody record during transport. Each sample was analyzed for BTEX and TPH-G using EPA Methods 5030/8020 and modified EPA Method 8015. Water generated during the purging and sampling process was stored in Department of Transportation-approved steel drums. The water was then pumped into a portable water tank and transported for recycling to the Chevron Refinery in Richmond, California.

4.0 SITE CONDITIONS

4.1 Analytical Results for Soil

Soil samples were collected at 20 and 30 feet below grade from the boring for monitoring well MW-15 and at 10 and 20 feet below grade from the boring for well MW-16 on November 11 and December 8, 1992. The samples were analyzed for BTEX and TPH-G concentrations, and laboratory analytical results reported concentrations below MDLs.

The soil samples collected at 20 feet below grade in monitoring wells MW-15 and MW-16 were also analyzed for TOC using EPA Method 9060. The analytical results reported 120 parts per million

(ppm) and 60 ppm of TOC in the samples from monitoring wells MW-15 and MW-16, respectively. Results of the soil analyses are summarized in Table 1 and laboratory reports are included in Appendix E. At Chevron's request, the analytical results were also reported as percentages, which were 0.012 percent for well MW-15 and 0.006 percent for well MW-16.

what about VOCs?

4.2 Analytical Results for Groundwater

Analytical results for groundwater samples collected on December 16 and 21, 1992, reported detectable BTEX and TPH-G concentrations in samples collected from monitoring wells MW-4, MW-7, MW-9, and MW-13. The highest concentrations of TPH-G (87,000 parts per billion [ppb]) and benzene (1,400 ppb) were reported in the samples collected from monitoring well MW-13. Analytical results of the December 16 and 21, 1992, sampling events are illustrated in Figures 3 and 4, respectively. The groundwater sample analytical results are summarized in Table 2. Historical groundwater analytical results for halogenated volatile organics are presented in Table 3. Copies of the laboratory reports for samples collected on December 16 and 21, 1992, are included in Appendix E.

Table 3

Stet

4.3 Hydrogeology

The site is located on the Bay Plain in West Alameda County separated from the older nonwater-bearing bedrocks of the East Bay hills by the Hayward Fault. The alluvial sediments in the Bay Plain consist of a mixture of gravels, sands, and clays that are Pliocene-Pleistocene to late Pleistocene in age and were deposited on the alluvial cones west of the foothills. Groundwater in these sediments can be either confined or unconfined. The major groundwater-producing area in the East Bay region of Alameda County is the Bay Plain. Regional groundwater flow is generally to the southwest and toward San Francisco Bay (Western Alameda County Water Resources, 1984).

The materials encountered during drilling consisted of silty clays, sandy clays and sands. Groundwater levels measured at the site on December 16, 1992, ranged from 19.58 feet below grade in monitoring well MW-16 to 21.47 feet below grade in well MW-2. A potentiometric surface map (Figure 5) was prepared using the water level data collected on December 16, 1992. Figure 5 shows

a easterly groundwater flow direction with a gradient between 0.003 and 0.004 foot per foot (ft/ft). Groundwater level data are presented in Table 2.

4.4 Database Review

Groundwater Technology requested Environmental Risk Information and Imaging Services (EIIRS) to conduct a database search of sites within a 1-mile radius of 1633 Harrison Street to locate other possible sources of contamination. At the request of Chevron, the ERIIS findings from the file review of database records have been condensed and only the information pertinent to the immediate vicinity of the site is presented. Sanborn Fire Insurance Maps for the years 1911, 1950, and 1952 are included in Appendix F. A digital map illustrating the locations of Federal- and State-reported hazardous waste and toxic chemical sites is included in Appendix F. According to the ERIIS Map, there are five leaking underground storage tank (LUST) sites within two blocks of the subject site. The closest LUST site is Harrison Street Garage at 1432 Harrison Street, south of the Chevron site. The ERIIS map also shows four facilities that have registered hazardous waste activities under the Resource Conservation and Recovery Act (RCRIS).

According to the ERIIS report, the LUST sites are:

MAP ID	FACILITY	LOCATION	PROBLEM
4761	Chevron	1633 Harrison Street	Tank Leak
4692	Chevron	301 14th Street	Tank Leak
4746	Harrison Street Garage	1432 Harrison Street	Tank Leak
3112	Kaiser Regional/Parking	1901 Franklin Street	Tank Leak
4101	PG&E	1919 Webster Street	Tank Leak

According to the ERIIS report, the RCRIS sites are:

MAP ID/ EPA ID NO.	FACILITY	LOCATION	WASTE CODES REPORTED
1198 CAD 981980030	AT&T, Oakland Main	1587/1601 Franklin Street	
2168 CAD 982039125	Roy's Auto Body	1432 Harrison Street	F003, F005

Table continues next page

MAP ID/ EPA ID NO.	FACILITY	LOCATION	WASTE CODES REPORTED
5663 CAT 080015431	Pacific Bell	1519 Franklin Street	D002, D004
5664 CAT 080015449	Pacific Bell	1587 Franklin Street	D002, D004

The hazardous waste codes, as summarized in the ERIIS report, are:

D002: A solid waste that exhibits the characteristic of corrosivity but is not listed as a hazardous waste in 40 CFR, Part 261, Subpart B.
D004: Arsenic. Maximum concentration is 5.0 milligrams per liter.
F003: Spent non-halogenated solvents; Xylenes, acetone, ethyl acetate, ethylbenzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, and cyclohexanone. All spent solvent mixtures containing before use one or more of the above halogenated solvents and a total of 10 percent or more of those solvents listed in F001, F002, F004, and F005.
F005: Spent non-halogenated solvents; Toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane. All spent solvents mixture containing before use a total of 10 percent of one or more of the non-halogenated solvents listed above or listed in F001, F002, or F004.

5.0 SUMMARY

- On November 11 and December 8, 1992, Groundwater Technology supervised the drilling of off-site groundwater monitoring wells MW-15 and MW-16 using a mobile B-51 drilling rig. The soil borings for these monitoring wells were extended to 30 feet below grade. The materials encountered during drilling consisted of silty clays, sandy clays, and sands.

- Analytical results of soil samples collected during drilling activities for off-site monitoring wells MW-15 and MW-16 reported TPH-G and BTEX concentrations below MDLs. Results of analysis for TOCs reported concentrations of 120 ppb and 60 ppb in the samples collected at 20 feet below grade from the borings for monitoring wells MW-15 and MW-16, respectively. At the request of Chevron, the analytical results were also reported as percentages, which were 0.012 percent for well MW-15 and 0.006 percent for well MW-16.

- On December 16, 1992, groundwater levels were measured in each of the monitoring wells at the site and monitoring well MW-16 was developed. The depth to water ranged from 19.58 to 22.05 feet below grade. Analysis of the monitoring data indicated a groundwater flow direction toward the east with a gradient between 0.003 and 0.004 ft/ft.

- On December 16, 1992, all wells except well MW-16 were sampled. Well MW-16 was sampled on December 21, 1992. Analytical results of the groundwater samples collected from off-site monitoring well MW-13 reported the highest TPH-G and benzene concentrations at 87,000 ppb and 1,400 ppb, respectively.

- A database search by ERIIS for a 1-mile radius of the site reported 67 leaking underground storage tanks.

6.0 REFERENCES

Groundwater Technology Inc., Groundwater Monitoring and Sampling Activities, Chevron Service Station No. 9-0020, 1633 Harrison Street, Oakland, California, July 27, 1992.

Pacific Environmental Group, Inc., Former Chevron U.S.A. Station No. 9-0020, 1633 Harrison Street, Oakland, California, January 14, 1992.

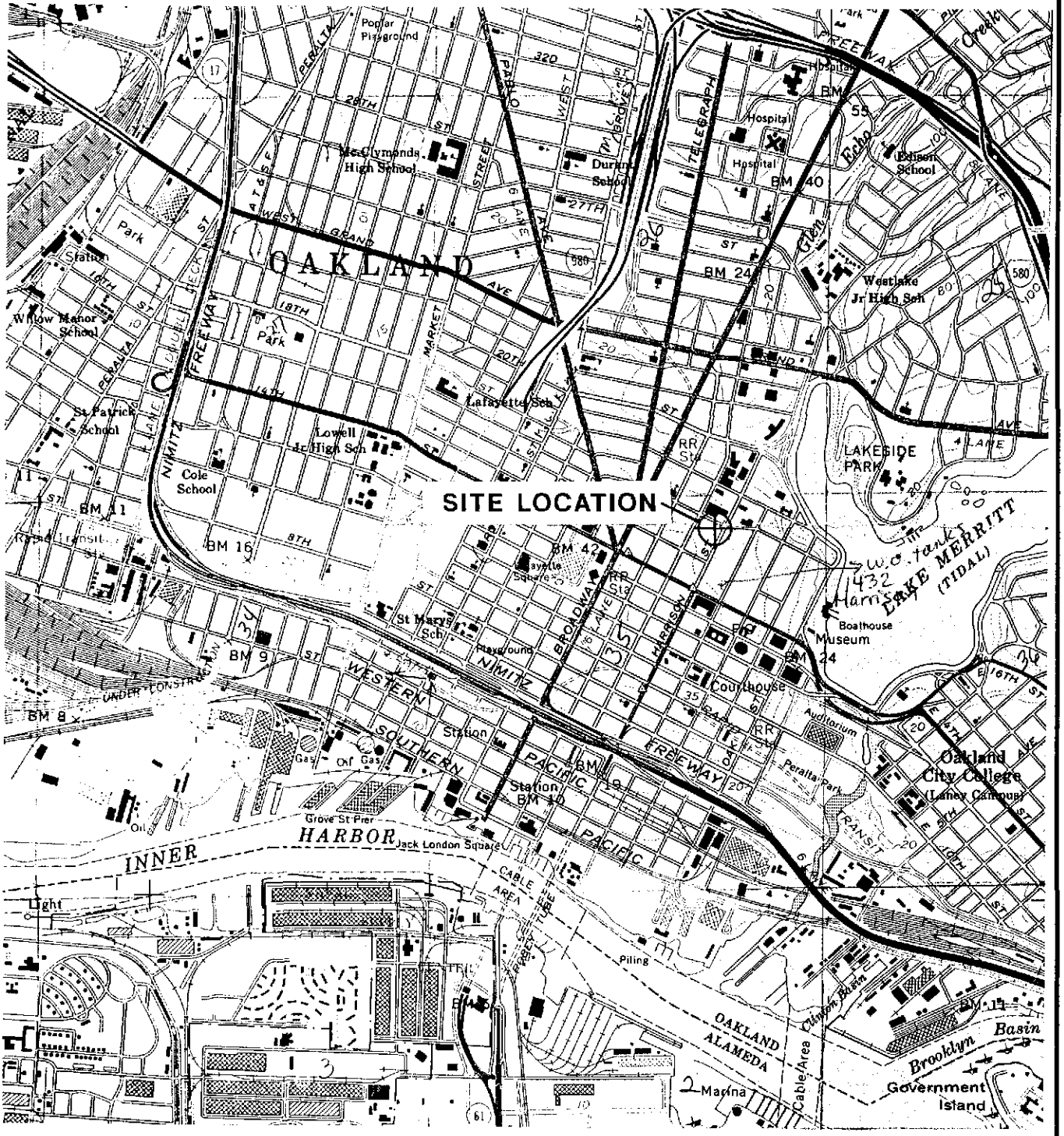
Western Alameda County Water Resources, Alameda County Flood Control and Conservation District, Groundwater in the San Leandro and San Lorenzo Alluvial Cones of the East Bay Plain of Alameda County, 1984.

Western Geologic Resources, Inc., Former Chevron Service Station No. 9-0020, 17th and Harrison, Oakland, California, WGR No. 1-012.01, January 24, 1989.

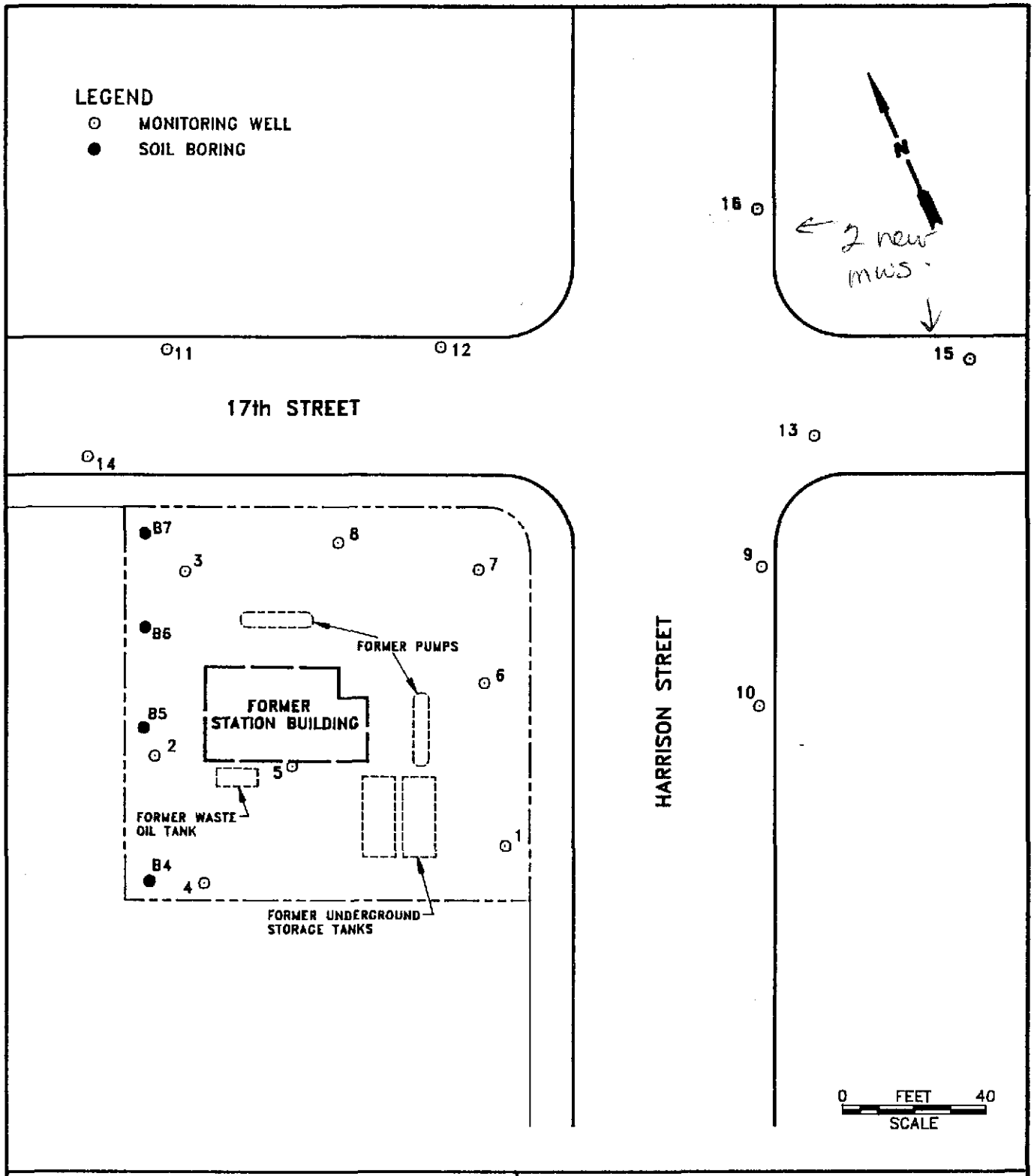
Western Geologic Resources, Inc., Subsurface Investigation, Former Chevron Service Station No. 9-0020, 17th and Harrison, Oakland, California, June 1989.

Western Geologic Resources, Inc., Off-Site Subsurface Investigation, Former Chevron Service Station No. 9-0020, 17th and Harrison, Oakland, California, July 1990.

FIGURES



GROUNDWATER TECHNOLOGY 4057 PORT CHICAGO HWY CONCORD, CA 94520 (510) 671-2387	N	SCALE: 0 FEET 2000	**SITE LOCATION MAP**
		CLIENT: CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION No. 9-0020	DATE: 1/15/93
		LOCATION: 1633 HARRISON STREET OAKLAND, CALIFORNIA	FIGURE: 1

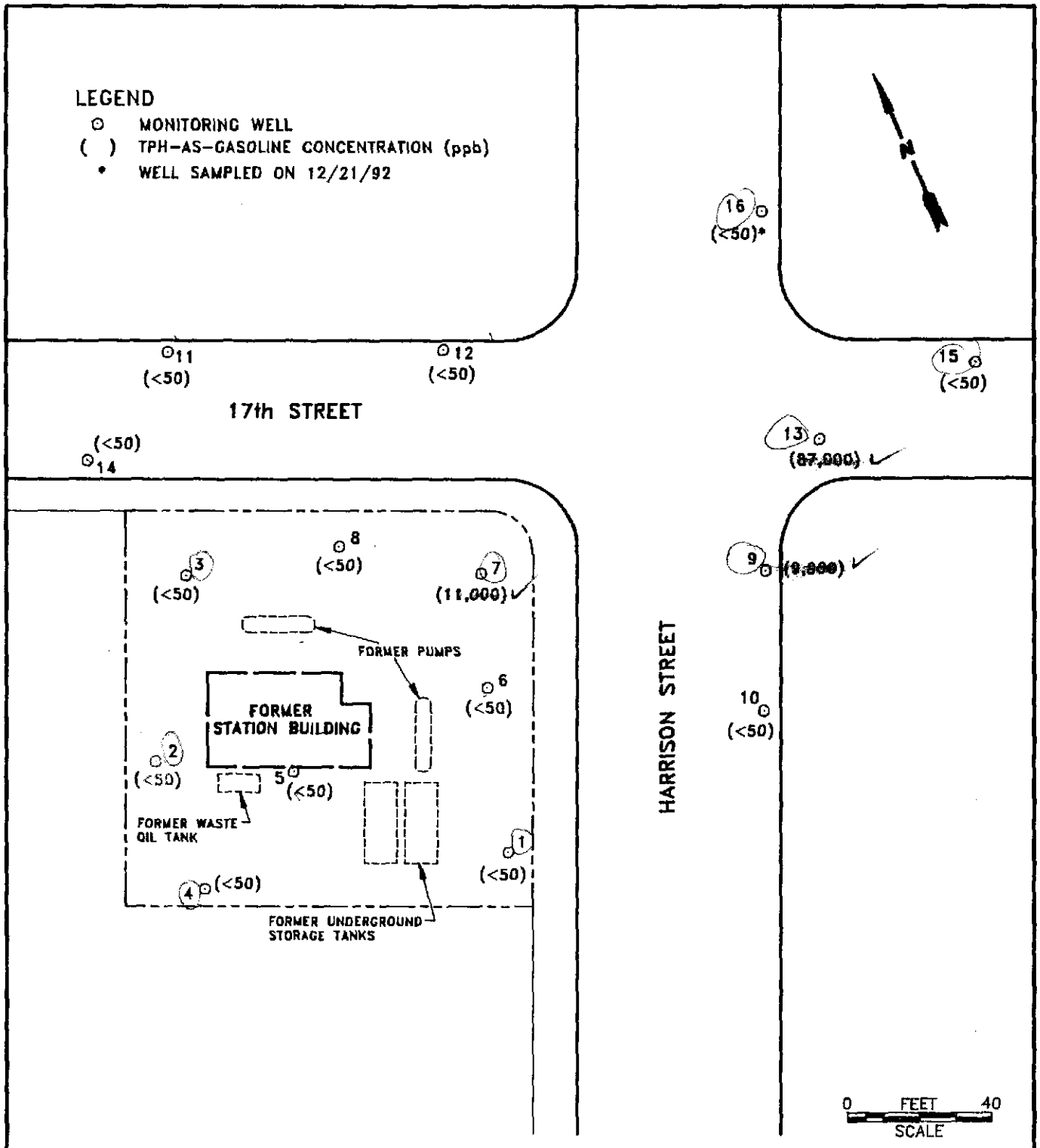


GROUNDWATER TECHNOLOGY
4057 PORT CHICAGO HWY.
CONCORD, CA 94520
(510) 671-2387

SITE PLAN

CLIENT:	LOCATION:	REV. NO.:	DATE:
CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION No. 9-0020	1633 HARRISON STREET OAKLAND, CALIFORNIA	0	1/15/93

PM	PE/RG	DESIGNED	DETAILED	ACAD FILE:	PROJECT NO.:	FIGURE:
JAW	DRK	TW	ML	SP193	020302499	2

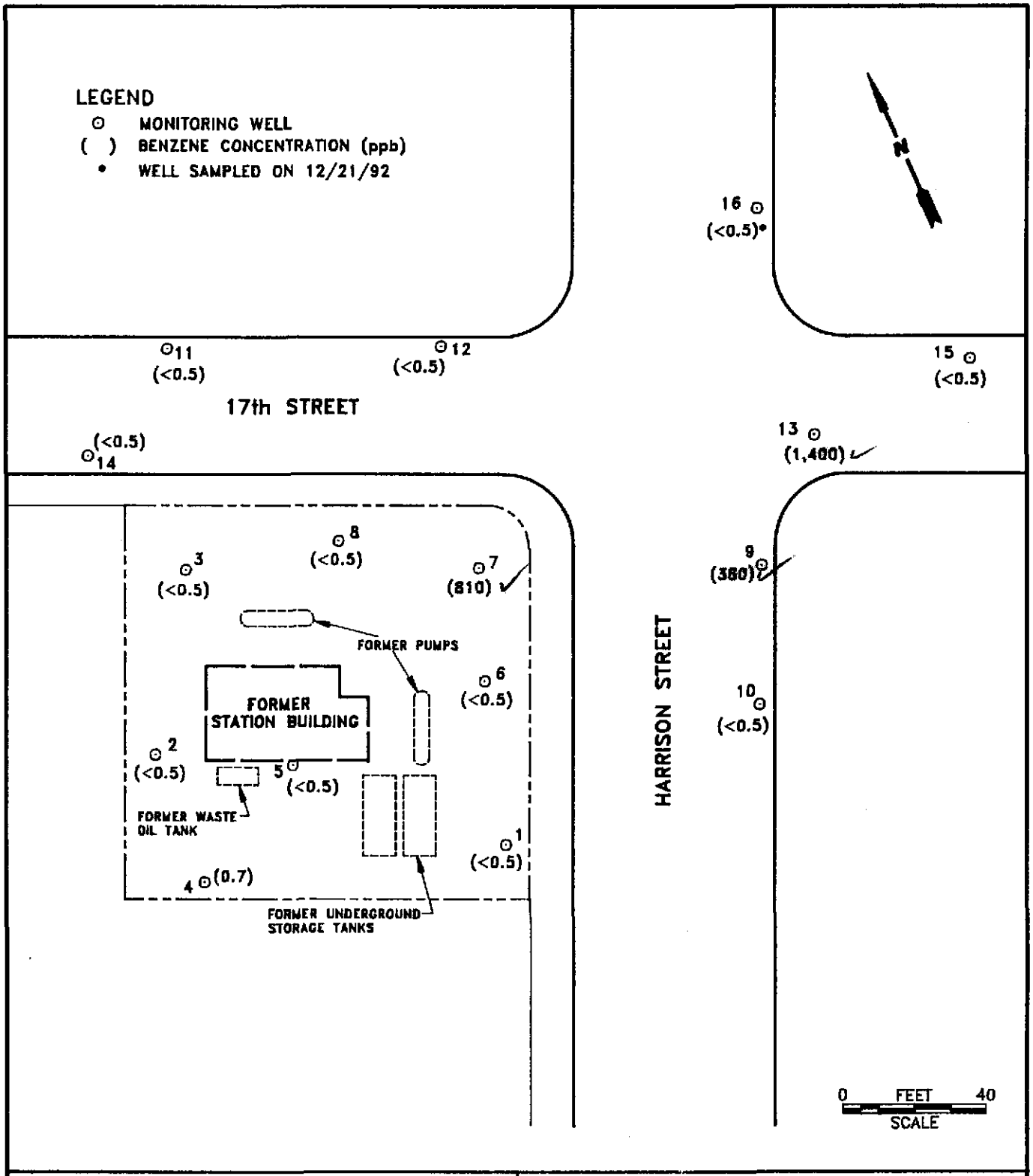


GROUNDWATER TECHNOLOGY
4057 PORT CHICAGO HWY.
CONCORD, CA 94520
(510) 671-2387

DISSOLVED TPH-AS-GASOLINE CONCENTRATION MAP (12/16/92)

CLIENT:	LOCATION:	REV. NO.:	DATE:
CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION No. 9-0020	1633 HARRISON STREET OAKLAND, CALIFORNIA	0	1/15/93

PM	PE/RG	DESIGNED	DETAILED	ACAD FILE:	PROJECT NO.:	FIGURE:
IAW	DRK	TW	ML	TPHD1692/SP193	020302499	3



GROUNDWATER TECHNOLOGY
4057 PORT CHICAGO HWY.
CONCORD, CA 94520
(510) 671-2387

DISSOLVED BENZENE CONCENTRATION MAP (12/16/92)

CLIENT:	LOCATION:	REV. NO.:	DATE:
CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION No. 9-0020	1633 HARRISON STREET OAKLAND, CALIFORNIA	0	1/15/93

PM	PE/RG	DESIGNED	DETAILED	ACAD FILE:	PROJECT NO.:	FIGURE:
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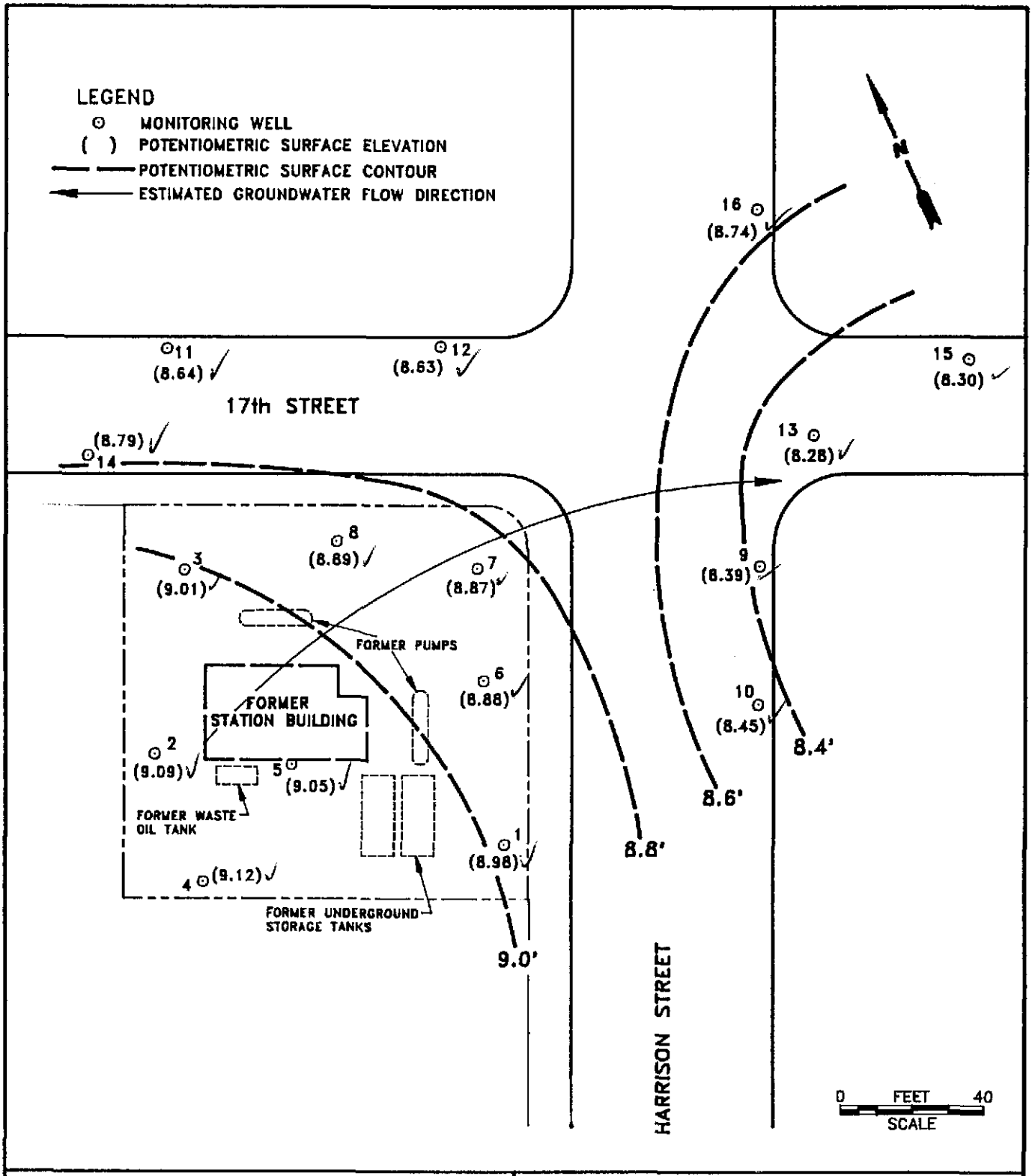

GROUNDWATER TECHNOLOGY
4057 PORT CHICAGO HWY.
CONCORD, CA 94520
(510) 671-2387

POTENTIOMETRIC SURFACE MAP (12/16/92)

CLIENT:	LOCATION:	REV. NO.:	DATE:
CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION No. 9-0020	1633 HARRISON STREET OAKLAND, CALIFORNIA	0	1/15/93

PM	PE/RG	DESIGNED	DETAILED	ACAD FILE:	PROJECT NO.:	FIGURE:
JAW	ORK	TW	ML	PSMD1692/SP193	020302499	5

TABLES

TABLE 1
ANALYTICAL RESULTS OF SOIL SAMPLES
COLLECTED ON NOVEMBER 11 AND DECEMBER 8, 1992
(Concentrations in parts per million)

DATE	SAMPLE ID	SAMPLE DEPTH (feet)	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TPH-AS-GASOLINE	TOTAL ORGANIC CARBON
11/11/92	MW-15	20	<0.005	<0.005	<0.005	<0.005	<1	120
		30	<0.005	<0.005	<0.005	<0.005	<1	--
12/08/92	MW-16	10	<0.005	<0.005	<0.005	<0.005	<1	--
		20	<0.005	<0.005	<0.005	<0.005	<1	60

TPH = Total petroleum hydrocarbons

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GROUNDWATER TECHNOLOGY

TABLE 2
HISTORICAL GROUNDWATER ANALYTICAL RESULTS AND MONITORING DATA
CHEVRON SERVICE STATION NO. 9-0020
1633 HARRISON STREET, OAKLAND, CALIFORNIA
CONCENTRATIONS SHOWN IN PART PER BILLION (ppb), µg/L

WELL ID/ ELEVATION	DATE	TPH-AS-GASOLINE	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TOG	DTW (ft.)	SPT (ft.)	GWE (ft.)
MW-1	11/03/88	<1,000[1]	<1.0	<1.0	<1.0	<1.0	—	20.40	0.0	9.42
	02/02/89	—	—	—	—	—	—	20.71	0.0	9.11
29.82	02/10/89	<100	<0.2	<0.2	<0.2	<0.4	—	—	—	—
	04/23/89	—	—	—	—	—	—	20.34	0.0	9.48
	04/24/89	<50	<0.5	<1.0	<1.0	<1.0	<3,000	—	—	—
	07/28/89	<50	<0.1	<0.5	<0.2	<0.5	<3,000	20.58	0.0	9.24
	10/30/89	<500	<0.3	<0.3	<0.3	<0.6	—	20.52	0.0	9.30
	01/09/90	<50	<0.3	<0.3	<0.3	<0.6	—	20.77	0.0	9.05
	04/18/90	<50	<0.3	<0.3	<0.3	<0.6	—	20.95	0.0	8.87
	06/22/90	—	—	—	—	—	—	21.00	0.0	8.82
	08/09/90	<50	<0.3	<0.3	<0.3	<0.6	—	20.94	0.0	8.88
	11/13/90	<50	<0.5	<0.5	<0.5	<0.5	—	20.98	0.0	8.84
	05/15/91	<50	<0.5	<0.5	<0.5	<0.5	—	20.64	0.0	9.18
	08/27/91	110[2]	<0.5	<0.5	<0.5	<0.5	—	20.79	0.0	9.03
	11/15/91	<50	<0.5	<0.5	<0.5	<0.5	—	20.75	0.0	9.07
	02/20/92	<50	0.5	0.6	<0.5	0.9	—	20.90	0.0	8.92
	06/15/92	<50	<0.5	<0.5	<0.5	<0.5	—	20.64	0.0	9.18
29.82	**12/16/92**	<50	<0.5	<0.5	<0.5	<0.5	—	20.84	0.0	8.98

R2779A1.TW

GROUNDWATER TECHNOLOGY

TABLE 2
HISTORICAL GROUNDWATER ANALYTICAL RESULTS AND MONITORING DATA
CHEVRON SERVICE STATION NO. 9-0020
1633 HARRISON STREET, OAKLAND, CALIFORNIA
CONCENTRATIONS SHOWN IN PART PER BILLION (ppb), µg/L

WELL ID/ ELEVATION	DATE	TPH-AS-GASOLINE	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TOG	DTW (ft.)	SPT (ft.)	GWE (ft.)
MW-2	11/03/88	<1,000[1]	<1.0	<1.0	<1.0	<1.0	—	20.89	0.0	9.70
	02/02/89	—	—	—	—	—	—	21.21	0.0	9.38
30.59	02/10/89	<100	<0.2	<0.2	<0.2	<0.4	—	—	—	—
	04/23/89	—	—	—	—	—	—	20.82	0.0	9.77
	04/24/89	<50	<0.5	<1.0	<1.0	<1.0	<3,000	—	—	—
	07/28/89	<100	<0.2	<1.0	<0.2	<0.4	<3,000	21.02	0.0	9.57
	10/30/89	<500	<0.3	<0.3	<0.3	<0.6	—	20.96	0.0	9.63
	01/09/90	<50	<0.3	<0.3	<0.3	<0.6	—	21.25	0.0	9.34
	04/18/90	<50	<0.3	<0.3	<0.3	<0.6	—	21.53	0.0	9.06
	06/22/92	—	—	—	—	—	—	21.57	0.0	9.02
	08/09/90	<50	<0.3	<0.3	<0.3	<0.6	—	21.55	0.0	9.04
	11/13/90	<50	<0.5	0.8	<0.5	0.9	—	21.54	0.0	9.05
	05/15/91	83[2]	<0.5	<0.5	<0.5	<0.5	—	21.15	0.0	9.44
	08/27/91	97[2]	<0.5	<0.5	<0.5	<0.5	—	21.27	0.0	9.32
	11/15/91	<50	0.5	1.5	0.8	3.6	—	21.30	0.0	9.29
	02/20/92	<50	<0.5	<0.5	<0.5	<0.5	—	21.43	0.0	9.13
	06/15/92	<50	<0.5	<0.5	<0.5	<0.5	—	21.18	0.0	9.41
30.56	12/16/92	<50	<0.5	<0.5	<0.5	<0.5	—	21.47	0.0	9.09

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GROUNDWATER TECHNOLOGY

TABLE 2
HISTORICAL GROUNDWATER ANALYTICAL RESULTS AND MONITORING DATA
CHEVRON SERVICE STATION NO. 9-0020
1633 HARRISON STREET, OAKLAND, CALIFORNIA
CONCENTRATIONS SHOWN IN PART PER BILLION (ppb), µg/L

WELL ID/ ELEVATION	DATE	TPH-AS-GASOLINE	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TOG	DTW (ft.)	SPT (ft.)	GWE (ft.)
MW-3	11/03/88	<1,000[1]	<1.0	<1.0	<1.0	<1.0	—	20.54	0.0	9.55
	02/02/89	—	—	—	—	—	—	20.85	0.0	9.24
30.09	02/10/89	<100	<0.2	<0.2	<0.2	<0.4	—	—	—	—
	04/23/89	—	—	—	—	—	—	20.43	0.0	9.66
	04/24/92	<50	<0.5	<1.0	<1.0	<1.0	<3,000	—	—	—
	07/28/89	<100	<0.2	<1.0	<0.2	<0.4	<3,000	20.64	0.0	9.45
	10/30/89	<500	<0.3	<0.3	<0.3	<0.6	—	20.61	0.0	9.48
	01/09/90	<50	<0.3	<0.3	<0.3	<0.6	—	20.88	0.0	9.21
	04/18/90	<50	<0.3	<0.3	<0.3	<0.6	—	21.15	0.0	8.94
	06/22/90	—	—	—	—	—	—	21.20	0.0	8.89
	08/09/90	<50	<0.3	<0.3	<0.3	<0.6	—	21.18	0.0	8.91
	11/13/90	51[2]	<0.5	<0.5	<0.5	<0.5	—	21.15	0.0	8.94
	05/15/91	85[2]	<0.5	<0.5	<0.5	<0.5	—	20.91	0.0	9.18
	08/27/91	91[2]	<0.5	<0.5	<0.5	<0.5	—	20.89	0.0	9.20
	11/15/91	<50	<0.5	0.7	<0.5	1.3	—	21.02	0.0	9.07
	02/02/92	<50	<0.5	<0.5	<0.5	0.9	—	21.07	0.0	9.02
	06/15/92	50[2]	<0.5	<0.5	<0.5	<0.5	—	20.82	0.0	9.27
30.08	12/16/92	<50	<0.5	<0.5	<0.5	<0.5	—	21.07	0.0	9.01

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GROUNDWATER TECHNOLOGY

TABLE 2
HISTORICAL GROUNDWATER ANALYTICAL RESULTS AND MONITORING DATA
CHEVRON SERVICE STATION NO. 9-0020
1633 HARRISON STREET, OAKLAND, CALIFORNIA
CONCENTRATIONS SHOWN IN PART PER BILLION (ppb), µg/L

WELL ID/ ELEVATION	DATE	TPH-AS-GASOLINE	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TOG	DTW (ft.)	SPT (ft.)	GWE (ft.)
MW-4	04/23/89	—	—	—	—	—	—	21.33	0.0	9.84
	04/24/89	<50	<0.5	<1.0	<1.0	<1.0	<3,000	—	—	—
31.17	07/28/89	<50	<0.1	<0.5	<0.1	<0.2	<3,000	21.58	0.0	9.59
	10/30/89	<500	<0.3	<0.3	<0.3	<0.6	—	21.54	0.0	9.63
	01/09/90	<50	<0.3	<0.3	<0.3	<0.6	—	21.82	0.0	9.35
	04/18/90	<50	<0.3	<0.3	<0.3	<0.6	—	22.09	0.0	9.08
	06/22/90	—	—	—	—	—	—	22.12	0.0	9.05
	08/09/90	<50	<0.3	<0.3	<0.3	<0.6	—	22.11	0.0	9.06
	11/13/90	<50	<0.5	1	0.5	1	—	22.10	0.0	9.07
	05/15/91	<50	<0.5	<0.5	<0.5	<0.5	—	21.71	0.0	9.46
	08/27/91	<50	<0.5	<0.5	<0.5	<0.5	—	21.87	0.0	9.30
	11/15/91	97	<0.5	0.9	<0.5	1.9	—	21.80	0.0	9.37
	02/20/92	<50	<0.5	<0.5	<0.5	<0.5	—	21.99	0.0	9.18
	06/15/92	<50	<0.5	<0.5	<0.5	<0.5	—	21.74	0.0	9.43
31.17	12/16/92	<50	0.7	0.5	0.5	1.3	—	22.05	0.0	9.12
MW-5	04/23/89	—	—	—	—	—	—	20.62	0.0	9.66
	04/24/89	<50	<0.5	<1.0	<1.0	<1.0	<3,000	—	0.0	—
	07/28/89	<100	<0.2	<1.0	<0.2	<0.4	<3,000	20.86	0.0	9.42
30.28	10/30/89	<500	<0.3	<0.3	<0.3	<0.6	—	20.82	0.0	9.46
	01/09/90	<50	<0.3	<0.3	<0.3	<0.6	—	21.07	0.0	9.21
	04/18/90	<50	<0.3	<0.3	<0.3	<0.6	—	21.35	0.0	8.93
	06/22/90	—	—	—	—	—	—	21.38	0.0	8.90
	08/09/90	<50	<0.3	<0.3	<0.3	<0.6	—	21.36	0.0	8.92
	11/13/90	<50	<0.5	1	<0.5	1	—	21.35	0.0	8.93
	05/15/91	<50	<0.5	<0.5	<0.5	<0.5	—	21.29	0.0	8.99
	08/27/91	94	3.0	5.0	1.5	5.5	—	21.11	0.0	9.17
	11/15/91	<50	0.9	1.7	<0.5	2.2	—	21.18	0.0	9.10
	02/20/92	<50	<0.5	<0.5	<0.5	<0.5	—	21.25	0.0	9.03
	06/15/92	<50	<0.5	<0.5	<0.5	<0.5	—	21.00	0.0	9.28
30.28	12/16/92	<50	<0.5	<0.5	<0.5	<0.5	—	21.23	0.0	9.05

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GROUNDWATER TECHNOLOGY

TABLE 2
HISTORICAL GROUNDWATER ANALYTICAL RESULTS AND MONITORING DATA
CHEVRON SERVICE STATION NO. 9-0020
1633 HARRISON STREET, OAKLAND, CALIFORNIA
CONCENTRATIONS SHOWN IN PART PER BILLION (ppb), µg/L

WELL ID/ ELEVATION	DATE	TPH-AS-GASOLINE	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TOG	DTW (ft.)	SPT (ft.)	GWE (ft.)
MW-6	04/23/89	---	---	---	---	---	---	20.05	0.0	9.41
	04/24/89	<50	<0.5	<1.0	<1.0	<1.0	<3	---	---	---
	07/28/89	<100	<0.2	<1.0	<0.2	<0.4	<3	20.30	0.0	9.16
29.46	10/30/89	<500	<0.3	<0.3	<0.3	<0.6	---	20.32	0.0	9.14
	01/09/90	<50	<0.3	<0.3	<0.3	<0.6	---	20.51	0.0	8.95
	04/18/90	<50	<0.3	<0.3	<0.3	<0.6	---	20.72	0.0	8.74
	06/22/90	---	---	---	---	---	---	20.77	0.0	8.69
	08/09/90	<50	<0.3	<0.3	<0.3	<0.6	---	20.74	0.0	8.72
	11/13/90	<50	3	5	0.5	2	---	20.75	0.0	8.71
	05/15/91	<50	<0.5	<0.5	<0.5	<0.5	---	20.61	0.0	8.85
	08/27/91	180	6.1	12	3.8	14	---	20.53	0.0	8.93
	11/15/91	<50	<0.5	0.6	<0.5	<0.5	---	20.53	0.0	8.93
	02/20/92	<50	0.9	1.1	<0.5	1.4	---	20.69	0.0	8.77
	06/15/92	<50	<0.5	<0.5	<0.5	<0.5	---	20.38	0.0	9.08
29.45	12/16/92	<50	<0.5	<0.5	<0.5	<0.5	---	20.57	0.0	8.88

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GROUNDWATER TECHNOLOGY

TABLE 2
HISTORICAL GROUNDWATER ANALYTICAL RESULTS AND MONITORING DATA
CHEVRON SERVICE STATION NO. 9-0020
1633 HARRISON STREET, OAKLAND, CALIFORNIA
CONCENTRATIONS SHOWN IN PART PER BILLION (ppb), µg/L

WELL ID/ ELEVATION	DATE	TPH-AS-GASOLINE	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TOG	DTW (ft.)	SPT (ft.)	GWE (ft.)
MW-7	04/23/89	—	—	—	—	—	—	18.99	0.0	10.02
	04/24/89	8,400[3]	100	260	160	1,300	3[4]	—	—	—
29.01	07/28/89	7,000[3]	230	90	70	440	<3,000	19.94	0.0	9.07
(D)	07/28/89	6,000[3]	280	180	58	430	—	—	—	—
	10/30/89	10,000[3]	570	55	160	400	—	19.97	0.0	9.04
(D)	10/30/89	9,900[3]	520	82	180	410	—	—	—	—
	01/09/90	3,400[3]	290	72	9	200	—	20.15	0.0	8.86
	04/18/90	6,800[3]	350	140	110	400	—	20.37	0.0	8.64
	06/22/90	—	—	—	—	—	—	20.40	0.0	8.61
	08/09/90	11,000[3]	360	130	14	660	—	20.38	0.0	8.63
	11/13/90	6,500	230	110	97	460	—	20.41	0.0	8.60
	05/15/91	4,600	180	55	46	300	—	20.47	0.0	8.54
	08/27/91	7,000	220	53	63	340	—	20.14	0.0	8.87
	11/15/91	3,300	150	19	4.9	200	—	20.22	0.0	8.79
	02/20/92	5,200	520	150	100	380	—	20.32	0.0	8.69
	06/15/92	10,000	760	430	320	1,100	—	19.98	0.0	9.03
29.01	12/16/92	11,000	810	350	280	1,100	—	20.14	0.0	8.87

TABLE 2
HISTORICAL GROUNDWATER ANALYTICAL RESULTS AND MONITORING DATA
CHEVRON SERVICE STATION NO. 9-0020
1633 HARRISON STREET, OAKLAND, CALIFORNIA
CONCENTRATIONS SHOWN IN PART PER BILLION (ppb), µg/L

WELL ID/ ELEVATION	DATE	TPH-AS-GASOLINE	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TOG	DTW (ft.)	SPT (ft.)	GWE (ft.)
MW-8	04/23/89	---	---	---	---	---	---	20.14	0.0	9.43
	04/24/89	<50	<0.5	<1.0	<1.0	<1.0	3,000	---	---	---
29.57	04/24/89	<50	<0.5	<1.0	<1.0	<1.0	---	---	---	---
	07/28/89	<100	<0.2	<1.0	<0.2	<0.4	<3,000	20.37	0.0	9.20
	10/30/89	<500	<0.3	<0.3	<0.3	<0.6	---	20.32	0.0	9.25
	01/09/90	<50	<0.3	<0.3	<0.3	<0.6	---	20.60	0.0	8.97
	04/18/90	<50	<0.3	<0.3	<0.3	<0.6	---	20.87	0.0	8.70
	06/22/90	---	---	---	---	---	---	20.34	0.0	9.23
	08/09/90	<50	<0.3	<0.3	<0.3	<0.6	---	20.89	0.0	8.68
	11/13/90	<50	<0.5	0.8	<0.5	2	---	20.86	0.0	8.71
	05/15/91	<50	<0.5	<0.5	<0.5	<0.5	---	20.49	0.0	9.08
	08/27/91	73[2]	<0.5	<0.5	<0.5	<0.5	---	20.60	0.0	8.97
	11/15/91	<50	<0.5	0.7	<0.5	2.1	---	20.62	0.0	8.95
	02/20/92	<50	<0.5	<0.5	<0.5	<0.5	---	20.80	0.0	8.77
	06/15/92	<50	<0.5	<0.5	<0.5	<0.5	---	20.48	0.0	9.09
29.57	12/16/92	<50	<0.5	<0.5	<0.5	<0.5	---	20.68	0.0	8.89
MW-9	06/22/90	5,700[3]	47	31	280	530	<1,000	20.80	0.0	7.87
	08/09/90	8,000[3]	<0.3	17	210	480	---	20.74	0.0	7.93
	11/13/90	6,400	<3	20	240	450	---	20.78	0.0	7.89
28.67	05/15/91	5,700	2	16	190	390	---	20.48	0.0	8.19
	08/27/91	6,700	<3	31	180	350	---	20.55	0.0	8.12
	11/15/91	4,000	8.8	26	150	280	---	20.57	0.0	8.10
	02/20/92	3,400	13	30	230	460	---	21.77	0.0	6.90
	06/15/92	4,500	19	72	280	560	---	20.37	0.0	8.30
28.68	12/16/92	9,900	380	220	380	1,300	---	20.29	0.0	8.39

TABLE 2
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CHEVRON SERVICE STATION NO. 9-0020
1633 HARRISON STREET, OAKLAND, CALIFORNIA
CONCENTRATIONS SHOWN IN PART PER BILLION (ppb), µg/L

WELL ID/ ELEVATION	DATE	TPH-AS-GASOLINE	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TOG	DTW (ft.)	SPT (ft.)	GWE (ft.)
MW-10	06/22/90	<50[3]	<0.5	<0.5	<0.5	<0.5	<1,000	20.48	0.0	8.12
	08/09/90	<50	<0.3	<0.3	<0.3	<0.6	---	20.45	0.0	8.15
	11/13/90	<50	<0.5	2	0.5	2	---	20.47	0.0	8.13
28.60	05/15/91	<50	<0.5	<0.5	<0.5	<0.5	---	20.15	0.0	8.45
	08/27/91	<50	<0.5	<0.5	<0.5	<0.5	---	20.27	0.0	8.33
	11/15/91	<50	<0.5	<0.5	<0.5	<0.5	---	20.33	0.0	8.27
	02/20/92	<50	2.0	2.2	<0.5	2.1	---	21.45	0.0	7.15
	06/15/92	<50	<0.5	<0.5	<0.5	<0.5	---	21.30	0.0	7.30
28.62	12/16/92	<50	<0.5	<0.5	<0.5	<0.5	---	20.17	0.0	8.45
MW-11	06/22/90	<50[3]	<0.5	<0.5	<0.5	<0.5	<1,000	21.03	0.0	8.34
	08/09/90	<50	<0.3	<0.3	<0.3	<0.6	---	21.02	0.0	8.35
29.37	11/13/90	76	0.6	1	0.9	4	---	20.93	0.0	8.44
	05/15/91	78[2]	<0.5	<0.5	<0.5	<0.5	---	20.61	0.0	8.76
	08/27/91	110[2]	<0.5	<0.5	<0.5	<0.5	---	20.70	0.0	8.67
	11/15/91	<50	<0.5	<0.5	<0.5	<0.5	---	20.68	0.0	8.69
	02/20/92	<50	1.9	2.1	1.0	4.4	---	21.91	0.0	7.46
	06/15/92	---	---	---	---	---	---	20.56	0.0	8.81
29.39	12/16/92	<50	<0.5	<0.5	<0.5	<0.5	---	20.75	0.0	8.64
MW-12	06/22/90	<50[3]	<0.5	<0.5	<0.5	<0.5	<1,000	20.45	0.0	7.98
	08/09/90	<50	<0.3	<0.3	<0.3	<0.6	---	20.43	0.0	8.00
28.43	11/13/90	<50	<0.5	<0.5	<0.5	<0.5	---	20.45	0.0	7.98
	05/15/91	<50	<0.5	<0.5	<0.5	<0.5	---	20.07	0.0	8.36
	08/27/91	56[2]	<0.5	<0.5	<0.5	<0.5	---	20.15	0.0	8.28
	11/15/91	<50	<0.5	<0.5	<0.5	<0.5	---	20.25	0.0	8.18
	02/20/92	<50	2.5	3.1	0.7	3.0	---	21.37	0.0	7.06
	06/15/92	<50	<0.5	<0.5	<0.5	<0.5	---	19.90	0.0	8.53
28.43	12/16/92	<50	<0.5	<0.5	<0.5	<0.5	---	19.80	0.0	8.63

TABLE 2
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CHEVRON SERVICE STATION NO. 9-0020
1633 HARRISON STREET, OAKLAND, CALIFORNIA
CONCENTRATIONS SHOWN IN PART PER BILLION (ppb), µg/L

WELL ID/ ELEVATION	DATE	TPH-AS-GASOLINE	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TOG	DTW (ft.)	SPT (ft.)	GWE (ft.)
MW-13	11/15/91	3,100	68	40	110	270	—	21.07	0.0	7.56
	02/20/92	3,100	120	50	240	400	—	22.17	0.0	6.46
28.63	06/15/92	3,200	35	33	210	300	—	20.67	0.0	7.96
28.62	12/16/92	87,000	1,400	540	2,400	11,000	—	20.34	0.0	8.28
MW-14	11/15/91	<50	<0.5	<0.5	<0.5	<0.5	—	20.33	0.0	9.13
	02/20/92	<50	1.3	1.8	1.1	5.2	—	21.41	0.0	8.05
29.46	06/15/92	—	—	—	—	—	—	—	—	—
29.45	12/16/92	<50	<0.5	<0.5	<0.5	<0.5	—	20.66	0.0	8.79
MW-15	12/16/92	<50	<0.5	<0.5	<0.5	<0.5	—	19.74	0.0	8.30
28.04										
MW-16	12/21/92	<50	<0.5	<0.5	<0.5	<0.5	—	19.58	0.0	8.74
28.32										

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GROUNDWATER TECHNOLOGY

TABLE 2
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CHEVRON SERVICE STATION NO. 9-0020
1633 HARRISON STREET, OAKLAND, CALIFORNIA
CONCENTRATIONS SHOWN IN PART PER BILLION (ppb), µg/L

WELL ID/ ELEVATION	DATE	TPH-AS-GASOLINE	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TOG	DTW (ft.)	SPT (ft.)	GWE (ft.)
TRIP BLANK	11/03/88	—	<1.0	<1.0	<1.0	<1.0	—	—	—	—
	02/10/89	<50	<0.1	<0.1	<0.1	<0.2	—	—	—	—
	04/24/89	<50	<0.5	<0.5	<1.0	<1.0	—	—	—	—
	07/28/89	<50	<0.1	<0.1	<0.1	<0.2	—	—	—	—
	10/30/89	<500	<0.3	<0.3	<0.3	<0.6	—	—	—	—
	01/09/90	<50	<0.3	<0.3	<0.3	<0.6	—	—	—	—
	04/18/90	<50	<0.3	<0.3	<0.3	<0.6	—	—	—	—
	06/22/90	<50	<0.5	<0.5	<0.5	<0.5	—	—	—	—
	08/09/90	<50	<0.3	<0.3	<0.3	<0.6	—	—	—	—
	11/13/90	<50	<0.5	<0.5	<0.5	<0.5	—	—	—	—
	05/15/91	<50	<0.5	<0.5	<0.5	<0.5	—	—	—	—
	08/27/91	<50	<0.5	<0.5	<0.5	<0.5	—	—	—	—
	11/15/91	<50	<0.5	<0.5	<0.5	<0.5	—	—	—	—
	02/20/92	<50	<0.5	<0.5	<0.5	<0.5	—	—	—	—
	06/15/92	<50	<0.5	<0.5	<0.5	<0.5	—	—	—	—
	12/16/92	<50	<0.5	<0.5	<0.5	<0.5	—	—	—	—

All elevation are given as feet above mean sea level.
Concentrations shown in parts per billion.

DTW = Depth to water
SPT = Separate-phase hydrocarbon thickness
GWE = Groundwater elevation in feet above mean sea level relative to a City of Oakland benchmark
TOG = Total oil and grease
— = Not applicable/not sampled/not measured
(D) = Duplicate analysis
1 = Analyzed for total fuel hydrocarbons
2 = Laboratory reported that peaks did not match typical gasoline pattern
3 = Fuel characterized as gasoline
4 = Acetone and 2-butanone were detected at 5 ppb and 160 ppb, respectively

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TABLE 3
HISTORICAL GROUNDWATER ANALYTICAL RESULTS FOR HALOGENATED VOLATILE ORGANICS
CHEVRON SERVICE STATION NO. 9-0020
1633 HARRISON STREET, OAKLAND, CALIFORNIA

WELL ID	DATE	CARBON TET.	CHLORO FORM	PCE	TCE	1,2,- DCE	t-1,2- DCE	c-1,2- DCE	TCA	1,2 - DCA	1,2 - DCP	MC	OTHER[a] HVOC'S
MW-1	11/03/88	18.0	7.0	<1.0	<1.0	---	<1.0	---	<1.0	<1.0	---	---	---
	02/10/89	17.0	6.0	<0.2	<0.2	---	<0.2	<0.2	<0.2	<0.2	---	---	---
	04/24/89	16.0	6.0	<1.0	<1.0	<1.0	---	---	<1.0	<1.0	---	---	---
	07/28/89	20.0	6.4	<0.1	<0.1	---	<0.1	<0.1	0.3	<0.1	---	---	---
	10/30/89	11.0	4.9	<0.5	<0.5	<0.5	---	---	<0.5	<0.5	---	---	---
	01/09/90	24.0	7.2	<0.5	<0.5	<0.5	---	---	<0.5	<0.5	---	---	---
	04/18/90	23.0	5.5	<0.5	<0.5	<0.5	---	---	1.4	<0.5	<0.5	<0.5	---
	08/09/90	32.0	11.0	0.76	<0.5	<0.5	---	---	<0.5	<0.5	<0.5	<0.5	---
	11/13/90	24	7	0.7	<0.5	---	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	---
	05/15/91	15	5	<0.5	<0.5	---	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND
	08/27/91	18	4.2	<0.5	<0.5	---	---	<0.5	<0.5	<0.5	<0.5	<0.5	ND
	11/15/91	21	7.9	<0.5	<0.5	---	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND
	02/20/92	24	7.5	<0.5	<0.5	---	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND
	06/15/92	10	3.2	<0.5	<0.5	---	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND
MW-2	11/03/88	3.0	2.0	34.0	3.0	---	10.0	---	<1.0	<1.0	---	---	---
	02/10/89	1.4	1.0	17.2	<0.2	---	<0.2	6.3	<0.2	<0.2	---	---	---
	04/24/89	2.0	2.0	38.0	3.0	9.0	---	---	<1.0	<1.0	---	---	---
	07/28/89	3.7	2.0	46.0	2.6	---	<0.2	<0.2	<0.2	<0.2	---	---	---
	10/30/89	1.4	2.6	53.0	1.1	14.0	---	---	<0.5	<0.5	---	---	---
	01/09/90	3.6	3.9	78.0	5.3	16.0	---	---	<0.5	<0.5	---	---	---
	04/18/90	1.5	2.7	130.0	3.9	19.0	---	---	<0.5	<0.5	<0.5	<0.5	---
	08/09/90	2.1	2.1	74.0	6.1	15.0	---	---	<0.5	<0.5	<0.5	<0.5	---
	11/13/90	<0.5	2	40	4	---	<0.5	10	<0.5	<0.5	<0.5	<0.5	---
	05/15/91	2	2	56	6	---	<0.5	15	<0.5	<0.5	<0.5	<0.5	ND
	08/27/91	1.1	0.9	46	3.9	---	---	8.0	<0.5	<0.5	<0.5	<0.5	ND
	11/15/91	0.6	1.1	58	3.1	---	<0.5	6.3	<0.5	<0.5	<0.5	<0.5	ND
	02/20/92	11	<2.5	62	3.1	---	<2.5	4.3	<2.5	<2.5	<2.5	<2.5	ND
	06/15/92	<0.5	1.2	45	3.1	---	<0.5	4.8	<0.5	<0.5	<0.5	<0.5	ND

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TABLE 3
HISTORICAL GROUNDWATER ANALYTICAL RESULTS FOR HALOGENATED VOLATILE ORGANICS
CHEVRON SERVICE STATION NO. 9-0020
1633 HARRISON STREET, OAKLAND, CALIFORNIA

WELL ID	DATE	CARBON TET.	CHLORO FORM	PCE	TCE	1,2,- DCE	t-1,2- DCE	c-1,2- DCE	TCA	1,2 - DCA	1,2 - DCP	MC	OTHER[a] HVOC'S
MW-3	11/03/88	8.0	6.0	84.0	3.0	---	5.0	---	<1.0	<1.0	---	---	---
	02/10/89	5.8	4.0	53.0	1.9	---	<0.2	9.0	<0.2	<0.2	---	---	---
	04/24/89	7.0	6.0	110.0	3.0	11.0	---	---	<1.0	<1.0	---	---	---
	07/28/89	8.6	5.0	49.0	2.1	---	<0.2	11.0	<0.2	<0.1	---	---	---
	10/30/89	5.6	5.3	62.0	0.77	8.2	---	---	<0.5	<0.5	---	---	---
	01/09/90	8.6	6.1	81.0	3.8	8.7	---	---	<0.5	<0.5	---	---	---
	04/18/90	7.6	5.8	120.0	2.4	11.0	---	---	<0.5	<0.5	<0.5	<0.5	---
	08/09/90	11.0	6.7	81.0	5.1	11.0	---	---	<0.5	<0.5	<0.5	<0.5	---
	11/13/90	7	5	43	4	---	<0.5	9	<0.5	<0.5	<0.5	<0.5	---
	05/15/91	6	4	46	3	---	<0.5	8	<0.5	<0.5	<0.5	<0.5	ND
	08/27/91	5.5	3.8	43	2.6	---	---	8.1	<0.5	<0.5	<0.5	<0.5	c,d,e,f
	11/15/91	6.3	5.0	67	3.4	---	0.8	7.4	0.9	<0.5	<0.5	<0.5	ND
	02/20/92	2.8	4.0	96	3.0	---	<2.5	6.1	<2.5	<2.5	<2.5	<0.5	ND
	06/15/92	5.0	3.9	86	2.9	---	<0.5	7.5	<0.5	<0.5	<0.5	<0.5	ND
MW-4	04/24/89	35.0	11.0	<1.0	<1.0	<1.0	---	---	<1.0	<1.0	---	---	---
	07/28/89	32.0	9.3	<0.1	<0.1	---	<0.1	<0.1	<0.1	<0.1	---	---	---
	10/30/89	32.0	8.5	<0.5	<0.5	<0.5	---	---	<0.5	<0.5	---	---	---
	01/09/90	36.0	9.8	<0.5	<0.5	<0.5	---	---	<0.5	<0.5	---	---	---
	04/18/90	41.0	9.5	<0.5	<0.5	<0.5	---	---	<0.5	<0.5	<0.5	<0.5	---
	08/09/90	38.0	11.0	<0.5	<0.5	<0.5	---	---	<0.5	<0.5	<0.5	<0.5	---
	11/13/90	40	11	<0.5	<0.5	---	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	---
	05/15/91	35	10	<0.5	<0.5	---	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND
	08/27/91	28	6.1	<0.5	<0.5	---	---	<0.5	<0.5	<0.5	<0.5	<0.5	ND
	11/15/91	23	9.1	<0.5	<0.5	---	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND
	02/20/92	400	140	<0.5	<0.5	---	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND
	06/15/92	38	11	<0.5	<0.5	---	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND

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GROUNDWATER TECHNOLOGY

TABLE 3
HISTORICAL GROUNDWATER ANALYTICAL RESULTS FOR HALOGENATED VOLATILE ORGANICS
CHEVRON SERVICE STATION NO. 9-0020
1633 HARRISON STREET, OAKLAND, CALIFORNIA

WELL ID	DATE	CARBON TET.	CHLORO FORM	PCE	TCE	1,2,- DCE	t-1,2- DCE	c-1,2- DCE	TCA	1,2 - DCA	1,2 - DCP	MC	OTHER[a] HVOC'S
MW-5	04/24/89	4.0	5.0	4.0	<1.0	2.0	—	—	<1.0	<1.0	—	—	—
	07/28/89	5.6	4.0	5.3	0.3	—	0.2	2.3	0.5	<0.2	—	—	—
	10/30/89	2.9	2.0	2.7	<0.5	0.86	—	—	<0.5	<0.5	—	—	—
	01/09/90	8.2	4.6	7.8	0.6	3.1	—	—	<0.5	<0.5	—	—	—
	04/18/90	6.3	2.8	2.6	<0.5	1.7	—	—	<0.5	<0.5	<0.5	<0.5	—
	08/09/90	11.0	4.8	6.0	<0.5	2.3	—	—	<0.5	<0.5	<0.5	<0.5	—
	11/13/90	7	3	5	<0.5	—	<0.5	1	<0.5	<0.5	<0.5	<0.5	—
	05/15/91	4	2	3	<0.5	—	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	ND
	08/27/91	3.3	1.1	2.3	<0.5	—	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	11/15/91	5.7	2.8	5.5	<0.5	—	<0.5	1.7	<0.5	<0.5	<0.5	<0.5	ND
	02/20/92	4.0	2.0	3.9	<0.5	—	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	ND
	06/15/92	4.0	2.0	5.0	<0.5	—	<0.5	1.4	<0.5	<0.5	<0.5	<0.5	ND
MW-6	04/24/89	13.0	7.0	<1.0	<1.0	<1.0	—	—	<1.0	<1.0	—	—	—
	07/28/89	9.6	4.0	<0.2	<0.2	—	<0.2	<0.2	0.5	0.6	—	—	—
	10/30/89	8.2	3.6	<0.5	<0.5	<0.5	—	—	<0.5	<0.5	—	—	—
	01/09/90	10.0	4.2	<0.5	<0.5	<0.5	—	—	<0.5	1.8	—	—	—
	04/18/90	11.0	3.8	<0.5	<0.5	<0.5	—	—	<0.5	<0.5	<0.5	<0.5	—
	08/09/90	20.0	6.6	<0.5	<0.5	<0.5	—	—	<0.5	<0.5	<0.5	<0.5	—
	11/13/90	15	5	<0.5	<0.5	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	—
	05/15/91	11	4	<0.5	<0.5	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND
	08/27/91	8.0	2.2	2.4	<0.5	—	—	<0.5	<0.5	<0.5	<0.5	<0.5	ND
	11/15/91	13	5.4	<0.5	<0.5	—	<0.5	<0.5	<0.5	0.8	<0.5	<0.5	ND
	02/20/92	11	4.0	<0.5	<0.5	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND
	06/15/92	9.6	4.2	<0.5	<0.5	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND

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GROUNDWATER TECHNOLOGY

TABLE 3
HISTORICAL GROUNDWATER ANALYTICAL RESULTS FOR HALOGENATED VOLATILE ORGANICS
CHEVRON SERVICE STATION NO. 9-0020
1633 HARRISON STREET, OAKLAND, CALIFORNIA

WELL ID	DATE	CARBON TET.	CHLORO FORM	PCE	TCE	1,2,- DCE	t-1,2- DCE	c-1,2- DCE	TCA	1,2 - DCA	1,2 - DCP	MC	OTHER[a] HVOC'S
MW-7	04/24/89	3.0	9.0	<1.0	<1.0	<1.0	—	—	<1.0	<1.0	—	—	—
	07/28/89	<2.0	<10.0	<2.0	<2.0	—	<2.0	<2.0	<10.0	6.0	—	—	—
	07/28/89[b]	<5.0	<20.0	<5.0	<5.0	—	<5.0	<0.5	<5.0	<5.0	—	—	—
	10/30/89	<1.0	3.9	<1.0	<1.0	<1.0	—	—	<1.0	6.4	—	—	—
	10/30/89[b]	<1.0	3.1	<1.0	<1.0	<1.0	—	—	<1.0	6.2	—	—	—
	01/09/90	<0.5	3.0	<0.5	<0.5	<0.5	—	—	<0.5	8.4	—	—	—
	04/18/90	<0.5	3.2	<0.5	<0.5	<0.5	—	—	<0.5	7.7	0.6	0.6	—
	08/09/90	3.3	7.7	<0.5	<0.5	<0.5	—	—	<0.5	8.4	<0.5	1.8	—
	11/13/90	0.6	3	<0.5	<0.5	—	<0.5	<0.5	<0.5	4	<0.5	<0.5	—
	05/15/91	2	2	<0.5	<0.5	—	<0.5	<0.5	<0.5	3	<0.5	<0.5	ND
	08/27/91	0.7	2.8	<0.5	<0.5	—	—	<0.5	<0.5	2.7	<0.5	<0.5	ND
	11/15/91	0.8	2.7	<0.5	<0.5	—	<0.5	<0.5	<0.5	3.1	<0.5	0.8	ND
	02/20/92	2.2	1.9	<0.5	<0.5	—	<0.5	<0.5	<0.5	3.3	<0.5	<0.5	ND
	06/15/92	1.1	1.8	<0.5	<0.5	—	<0.5	<0.5	<0.5	4.5	<0.5	<0.5	ND
MW-8	04/24/89	2.0	3.0	6.0	<1.0	4.0	—	—	<1.0	<1.0	—	—	—
	04/24/89[b]	2.0	2.0	6.0	<1.0	3.0	—	—	<1.0	<1.0	—	—	—
	07/28/89	2.3	2.0	5.6	<0.2	—	<0.2	3.8	<0.2	<0.2	—	—	—
	10/30/89	2.5	2.6	8.0	<0.5	5.5	—	—	<0.5	<0.5	—	—	—
	01/09/90	4.9	3.9	19.0	0.9	6.6	—	—	<0.5	<0.5	—	—	—
	04/18/90	3.8	2.8	17.0	0.6	5.7	—	—	<0.5	<0.5	<0.5	<0.5	—
	08/09/90	5.3	4.4	27.0	1.2	9.2	—	—	<0.5	<0.5	<0.5	<0.5	—
	11/13/90	3	2	21	0.7	—	<0.5	6	<0.5	<0.5	<0.5	<0.5	—
	05/15/91	2	2	30	0.9	—	<0.5	6	<0.5	<0.5	<0.5	<0.5	ND
	08/27/91	1.4	1.1	32	1.0	—	—	4.7	<0.5	<0.5	<0.5	<0.5	ND
	11/15/91	1.5	1.9	50	<0.5	—	<0.5	5.8	<0.5	<0.5	2.0	<0.5	ND
	02/20/92	1.3	2.3	68	2.4	—	<0.5	7.6	<0.5	<0.5	<0.5	<0.5	ND
	06/15/92	0.7	1.9	46	1.6	—	<0.5	5.6	<0.5	—	<0.5	<0.5	ND

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TABLE 3
HISTORICAL GROUNDWATER ANALYTICAL RESULTS FOR HALOGENATED VOLATILE ORGANICS
CHEVRON SERVICE STATION NO. 9-0020
1633 HARRISON STREET, OAKLAND, CALIFORNIA

WELL ID	DATE	CARBON TET.	CHLORO FORM	PCE	TCE	1,2,- DCE	t-1,2- DCE	c-1,2- DCE	TCA	1,2 - DCA	1,2 - DCP	MC	OTHER[a] HVOC'S
MW-9	06/22/90	<0.5	<0.5	<0.5	<0.5	---	<0.5	---	<0.5	<0.5	<0.5	<0.5	---
	08/09/90	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	<0.5	0.71	<0.5	<0.5	---
	11/13/90	<0.5	<0.5	<0.5	<0.5	---	<0.5	<0.5	<0.5	1	<0.5	<0.5	---
	05/15/91	<0.5	<0.5	<0.5	<0.5	---	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	ND
	08/27/91	<0.5	<0.5	<0.5	<0.5	---	---	<0.5	<0.5	<0.5	<0.5	<0.5	ND
	11/15/91	<0.5	<0.5	<0.5	<0.5	---	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	ND
	02/20/92	<0.5	<0.5	<0.5	<0.5	---	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND
	06/15/92	<0.5	<0.5	<0.5	<0.5	---	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND
MW-10	06/22/90	9.6	8.9	<0.5	<0.5	---	<0.5	---	<0.5	<0.5	<0.5	<0.5	---
	08/09/90	11.0	7.8	<0.5	<0.5	<0.5	---	---	<0.5	<0.5	<0.5	<0.5	---
	11/13/90	5	4	<0.5	<0.5	---	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	---
	05/15/91	5	4	<0.5	<0.5	---	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND
	08/27/91	6.9	3.4	<0.5	<0.5	---	---	<0.5	<0.5	<0.5	<0.5	<0.5	ND
	11/15/91	2.7	3.3	<0.5	<0.5	---	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND
	02/20/92	3.3	3.4	3.0	<0.5	---	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND
	06/15/92	4.5	2.9	<0.5	<0.5	---	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND
MW-11	06/22/90	4.6	6.5	73	1.3	---	<0.5	8.9	<0.5	<0.5	<0.5	<0.5	---
	08/09/90	8.1	6.8	84	2.0	4.6	---	---	<0.5	<0.5	<0.5	<0.5	---
	11/13/90	<0.5	<0.5	39	<0.5	---	<0.5	2	5	<0.5	<0.5	<0.5	---
	05/15/91	1	3	7	0.5	---	<0.5	2	<0.5	<0.5	<0.5	<0.5	ND
	08/27/91	4.1	3.3	73	1.0	---	---	2.4	<0.5	<0.5	<0.5	<0.5	ND
	11/15/91	3.3	3.6	64	0.9	---	<0.5	2.3	<0.5	<0.5	<0.5	<0.5	ND
	02/20/92	<2.5	<2.5	62	<2.5	---	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	ND
	06/15/92	---	---	---	---	---	---	---	---	---	---	---	---

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TABLE 3
HISTORICAL GROUNDWATER ANALYTICAL RESULTS FOR HALOGENATED VOLATILE ORGANICS
CHEVRON SERVICE STATION NO. 9-0020
1633 HARRISON STREET, OAKLAND, CALIFORNIA

WELL ID	DATE	CARBON TET.	CHLORO FORM	PCE	TCE	1,2,- DCE	t-1,2- DCE	c-1,2- DCE	TCA	1,2 - DCA	1,2 - DCP	MC	OTHER[a] HVOC'S
MW-12	06/22/90	6.0	7.3	7.4	<0.5	—	<0.5	13	<0.5	<0.5	<0.5	<0.5	—
	08/09/90	8.0	7.0	6.7	<0.5	5.8	—	—	<0.5	<0.5	<0.5	<0.5	—
	11/13/90	<0.5	<0.5	9	<0.5	—	<0.5	3	3	<0.5	<0.5	<0.5	—
	05/15/91	4	4	10	<0.5	—	<0.5	3	<0.5	<0.5	<0.5	<0.5	ND
	08/27/91	3.1	2.6	10	<0.5	—	—	2.3	<0.5	<0.5	<0.5	<0.5	ND
	11/15/91	1.9	3.5	8.9	<0.5	—	<0.5	5.9	<0.5	<0.5	<0.5	<0.5	ND
	02/20/92	3.3	3.4	3.7	<0.5	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND
	06/15/92	2.2	3.7	13	<0.5	—	<0.5	4.5	<0.5	<0.5	<0.5	<0.5	ND
MW-13	11/15/91	<0.5	<0.5	<0.5	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	[g]
	02/20/92	<0.5	<0.5	<0.5	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND
	06/15/92	<0.5	<0.5	<0.5	—	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND
MW-14	11/15/91	<0.5	5.5	33	<0.5	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND
	02/20/92	<0.5	4.3	38	<0.5	—	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND
	06/15/92	—	—	—	—	—	—	—	—	—	—	—	—

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GROUNDWATER TECHNOLOGY

TABLE 3
HISTORICAL GROUNDWATER ANALYTICAL RESULTS FOR HALOGENATED VOLATILE ORGANICS
CHEVRON SERVICE STATION NO. 9-0020
1633 HARRISON STREET, OAKLAND, CALIFORNIA

WELL ID	DATE	CARBON TET.	CHLORO FORM	PCE	TCE	1,2-DCE	t-1,2-DCE	c-1,2-DCE	TCA	1,2-DCA	1,2-DCP	MC	OTHER[a] HVOC'S
TRIP BLANK	11/03/88	<1.0	<1.0	<1.0	<1.0	---	<1.0	---	<1.0	<1.0	---	---	---
	02/10/89	<0.1	<0.5	<0.1	<0.1	---	<0.1	<0.1	<0.1	<0.1	---	---	---
	04/24/89	<1.0	<1.0	<1.0	<1.0	<1.0	---	---	<1.0	<1.0	---	---	---
	07/28/89	<0.1	<0.5	<0.1	<0.5	<0.1	---	<0.1	<0.1	<0.1	---	---	---
	10/30/89	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	<0.5	<0.5	---	---	---
	01/09/90	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	<0.5	<0.5	---	---	---
	04/18/90	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	<0.5	<0.5	<0.5	<0.5	---
	06/22/90	<0.5	<0.5	<0.5	<0.5	---	<0.5	---	<0.5	<0.5	<0.5	<0.5	---
	08/09/90	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	<0.5	<0.5	<0.5	<0.5	---
	11/13/90	<0.5	<0.5	<0.5	<0.5	---	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	---
	05/15/91	---	---	---	---	---	---	---	---	---	---	---	---
	08/27/91	---	---	---	---	---	---	---	---	---	---	---	---
	11/15/91	<0.5	<0.5	<0.5	<0.5	---	<0.5	<0.5	<0.5	<0.5	<0.5	---	ND
	02/20/92	<0.5	<0.5	<0.5	<0.5	---	<0.5	<0.5	<0.5	<0.5	<0.5	---	ND
	06/15/92	<0.5	<0.5	<0.5	<0.5	---	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND

CARBON TET = Carbon Tetrachloride
PCE = Tetrachloroethene
TCE = Trichloroethene
1,2-DCE = 1,2-Dichloroethene
t-1,2-DCE = trans - 1,2-Dichloroethene
c-1,2-DCE = cis-1,2-Dichloroethene
TCA = 1,1,1-Trichloroethane
1,2-DCA = 1,2-Dichloroethane
1,2-DCP = 1,2-Dichloropropane
MC = Methylene chloride (dichloromethane)

Other HVOC's = Other Halogenated Volatile Organic Compounds
--- = Not applicable/Not analyzed/Not Sampled
ND = Not detected above method detection limit
a = The tabulated analytical results for ground water prior to May 15, 1991 do not specify whether other HVOC's were detected
b = Duplicate analyses
c = Trichlorofluoromethane was detected at 1.4 ppb
d = 1,1-Dichloroethene was detected at 1.3 ppb
e = 1,1-Dichloroethane was detected at 0.5 ppb
f = Chlorobenzene was detected at 0.7 ppb
g = 1,1-Dichloroethane was detected at 0.6 ppb

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GROUNDWATER TECHNOLOGY

APPENDIX A

WELL INSTALLATION PERMITS

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

5997 PARKSIDE DRIVE • PLEASANTON, CALIFORNIA 94588 • (510) 484-2600

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT
1633 Harrison Street
Oakland, California

CLIENT
Name Chevron U.S.A. Products Company
Address P.O. Box 5004 Phone 842-9581
City San Ramon Zip 94583

APPLICANT
Name Groundwater Technology, Inc.
Address 4057 Port Chicago Hwy. Phone 671-2387
City Concord Zip 94520

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	___	General	
Water Supply	___	Contamination	X
Monitoring	X	Well Destruction	___

PROPOSED WATER SUPPLY WELL USE
Domestic ___ Industrial ___ Other None
Municipal ___ Irrigation ___

DRILLING METHOD:
Mud Rotary ___ Air Rotary ___ Auger X
Cable ___ Other ___

DRILLER'S LICENSE NO. 482390

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 2 in. Depth 30 ft.
Surface Seal Depth 10 ft. Number 1

GEOTECHNICAL PROJECTS
Number of Borings ___ Maximum
Hole Diameter ___ in. Depth ___ ft.

ESTIMATED STARTING DATE June 19, 1992
ESTIMATED COMPLETION DATE June 19, 1992

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

APPLICANT'S SIGNATURE Gregg A. Wickland Date 4-30-92

FOR OFFICE USE

PERMIT NUMBER 92286
LOCATION NUMBER

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as t arrive at the Zone 7 office five days prior t proposed starting date.
2. Submit to Zone 7 within 60 days after completio of permitted work the original Department o Water Resources Water Well Drillers Report o equivalent for well projects, or drilling log and location sketch for geotechnical projects.
3. Permit is void if project not begun within 9 days of approval date.

(B.) WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches o cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal an Industrial wells or 20 feet for domestic and Irrigation wells unless a lesser depth i specially approved. Minimum seal depth fo monitoring wells is the maximum depth practicabl or 20 feet.

C. GEOTECHNICAL. Backfill bore hole with compacted cut tings or heavy bentonite and upper two feet with com pacted material. In areas of known or suspecte contamination, tremied cement grout shall be used i place of compacted cuttings.

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

E. WELL DESTRUCTION. See attached.

Approved Wyman Hong Date 1 Jun 92
Wyman Hong

5199

X9201363

CITY OF OAKLAND
PERMIT TO EXCAVATE IN STREETS OR OTHER WORK AS SPECIFIED

EXTA EXC 60.00
EXC 180.00
App Fee 30.00

LOCATION OF WORK: 1633 Harrison St. (Street or Address) BETWEEN 17th (Street/Area) AND 19th (Specify)

PERMISSION TO EXCAVATE IN THE PUBLIC RIGHT-OF-WAY IS HEREBY GRANTED TO:

APPLICANT Groundwater Technology, Inc.

ADDRESS 4057 Port Chicago Hwy, Concord, CA PHONE #: (510) 671-2387

TYPE OF WORK: GAS___ ELECTRIC___ WATER___ TELEPHONE___ CABLE TV___ SEWER___ OTHER Drilling (excavation) (Specify)

NATURE OF WORK: Install Monitoring Well for groundwater assessment

EXCV 180.00
EXCV 70.00 60.00
APPL 30.00
SUBTL 270.00
CHECK 270.00
ITEM 3

X9201363 09-01-92 #2 8369 09:48TM

PERMIT VOID 90 DAYS FROM DATE OF ISSUE UNLESS EXTENSION GRANTED BY DIRECTION OF PUBLIC WORKS.

Approximate Starting Date	DATE	
Approximate Completion Date	DATE	
HOLIDAY RESTRICTION (1 NOV – 1 JAN)	YES ✓	NO
LIMITED OPERATION AREA (7AM – 9AM / 4PM – 6PM)	YES ✓	NO
DATE STREET LAST RESURFACED	DATE 1-78	
SPECIAL PAVING DETAIL REQUIRED	YES	NO X

24-HOUR EMERGENCY PHONE NUMBER _____ PERMIT NOT VALID WITHOUT 24 HOUR NUMBER

Telephone 273-3000 Forty-eight (48) HOURS BEFORE ACTUAL CONSTRUCTION

ATTENTION

State law requires that contractor/owner call Underground Service Alert two working days before excavating to have below ground utilities located. This permit is not valid unless applicant has secured an inquiry identification number issued by Underground Service Alert.

Call Toll Free 800-642-2444 USA ID Number

This permit issued pursuant to all provisions of Chapter 6, Article 2 of the Oakland Municipal Code.

This permit is granted upon the express condition that the permittee shall be responsible for all claims and liabilities arising out of work performed under the permit or arising out of permittee's failure to perform the obligations with respect to street maintenance. The permittee shall, by acceptance of the permit agree to defend, indemnify, and hold harmless the City, its officers and employees, from and against any and all suits, claims or liability by any person for or on account of any bodily injury, illness or death or damage to persons and/or property sustained or arising in the conduct of the work under the permit or in consequence of permittee's failure to perform the obligations with respect to street maintenance.

CONTRACTOR

I hereby affirm that I am licensed under provisions of Chapter 9, Division 3 of the Business and Professions Code, and my license is in full force and effect.

LICENSE # AND CLASS _____ CITY BUSINESS TAX # _____

x Gregg A. Martel Date 9/1/92
Signature of Contractor, Owner or Agent

☐ Agent for ☐ Contractor ☐ Owner

OWNER/BUILDER

I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Sec. 7031.5 Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License Law (Chapter 9 (commencing with Sec. 7000) of Division 3 of the Business and Professions Code) or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than $500):

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale).

☐ I, as owner of the property, am exempt from the sole requirements of the above due to: (1) I am improving my principal place of residence or appurtenances thereto, (2) the work will be performed prior to sale, (3) I have resided in the residence for the 12 months prior to completion of the work, and (4) I have not claimed exemption in this subdivision on more than two structures more than once during any three-year period (Sec. 7044 Business and Professions Code):

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law).

☐ I am exempt under Sec. _____, B&PC for this reason _____

Signature _____ Date _____

WORKER'S COMPENSATION

I hereby affirm that I have a certificate of consent to self-insure or a certificate of Workers' Compensation Insurance, or a certified copy thereof (Sec. 3800, Lab. C.)

Policy # _____ Company Name _____

Certified copy is filed with the city building inspection dept.

Certified copy is filed with the city building inspection dept.

Signature Gregg A. Martel Date 9/1/92

(This section need not be completed if the permit is for one hundred dollars ($100) or less.)

I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws of California.

Signature _____ Date _____

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Workers' Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked.

OFFICIAL USE ONLY
UTILITY COMPANY REPORT

Supervisor _____

Completion Date _____

CITY INSPECTOR'S REPORT

	BACKFILL	PAVING
Initials		
Hours		
Date		
Concrete		
Asphalt		
Sidewalk		
Size of Cut	Sq. Ft.	Inches

Paved by _____ Type _____

Bill No. _____

Charges Backfill _____

Paving _____

Paving Insp. _____

Traffic Signals Replaced _____ Date _____

APPROVED

Engineering Services JWO Date 9-1-92

Permits Date _____

Field Services Date _____

Construction Date _____

Traffic Engineering Date _____

Electrical Engineering Date _____

DIRECTOR OF PUBLIC WORKS

APPROVED BY: JWO Date 9-1-92

EXTENSION GRANTED BY: _____

DATE _____

APPENDIX B

GROUNDWATER TECHNOLOGY'S STANDARD OPERATING PROCEDURES (SOPs)

GROUNDWATER TECHNOLOGY, INC.
STANDARD OPERATING PROCEDURE
CONCERNING GROUNDWATER MONITORING
SOP 8

Groundwater monitoring of wells at the site shall be conducted using an ORS Environmental Equipment (ORS) INTERFACE PROBE™ and SURFACE SAMPLER™. The INTERFACE PROBE™ is a hand-held, battery-operated device for measuring depth to petroleum product and depth to water as measured from an established datum (*i.e.*, top of the well casing which has ben surveyed). Separate-phase hydrocarbon (product) thickness is then calculated by subtracting the depth to product from the depth to water. In addition, water elevations are adjusted for the presence of fuel with the following calculation:

(Product Thickness) (0.8) + (Water Elevation) = Corrected Water Elevation

Note: The factor of 0.8 accounts for the density difference between water and petroleum hydrocarbons.

The INTERFACE PROBE™ consists of a dual-sensing probe which utilizes an optical liquid sensor and electrical conductivity to distinguish between water and petroleum products. A coated steel measuring tape transmits the sensor's signals to the reel assembly where an audible alarm sounds a continuous tone when the sensor is immersed in petroleum product and an oscillating tone when immersed in water. The INTERFACE PROBE™ is accurate to 1/16th inch.

A SURFACE SAMPLER™ shall be used for visual inspection of the groundwater to note sheens (difficult to detect with the INTERFACE PROBE™), odors, microbial action, etc.

The SURFACE SAMPLER™ used consists of a 12-inch-long case acrylic tube with a Delrin ball which closes onto a conical surface creating a seal as the sampler is pulled up. The sampler is calibrated in inches and centimeters for visual inspection of product thickness.

To reduce the potential for cross contamination between wells, the monitorings shall take place in order from the least to the most contaminated wells. Wells containing separate-phase hydrocarbons (free product) should be monitored last. Between each monitoring the equipment shall be washed with laboratory-grade detergent and double rinsed with distilled water.

GROUNDWATER TECHNOLOGY, INC.
STANDARD OPERATING PROCEDURE
CONCERNING WATER SAMPLING METHODOLOGY
SOP 9

Before water sampling, each well shall be purged by pumping a minimum of four well volumes or until the discharge water indicates stabilization of temperature conductivity and pH. If the well is evacuated before four well volumes are removed or stabilization is achieved, the sample should be taken when the water level in the well recovers to 80 percent of its initial level.

Retrieval of the water sample, sample handling and sample preservation shall be conducted according to Standard Operating Procedure 10 concerning "Sampling for Volatiles in Water." The sampling equipment used shall consist of a Teflon® and/or stainless steel samplers which meet U.S. Environmental Protection Agency (EPA) regulations. Glass vials with Teflon® lids should be used to store the collected samples.

To ensure sample integrity, each vial shall be filled with the sampled water in such a way that the water stands above the lip of the vial. The cap should then be quickly placed on the vial and tightened securely. The vial should then be checked to ensure that air bubbles are not present prior to labeling of the sample. Label information should include a sample identification number, job identification, date, time, type of analysis requested, and sampler's name. Chain-of-custody records shall be completed according to Standard Operating Procedure (SOP) 11 concerning chain of custody.

The vials should be immediately placed in high quality coolers for shipment to the laboratory. The coolers should be packed with sufficient ice or freezer packs to ensure that the samples are kept below 4° Celsius (C). To minimize sample degradation the prescribed analysis shall take place within seven days of sample collection unless specially prepared acidified vials are used.

To minimize the potential for cross contamination between wells, all the well development and water sampling equipment which contacts the groundwater shall be cleaned between each sampling. As a second precautionary measure, the wells shall be sampled in order of increasing contaminant concentrations (the least contaminated well first, the most contaminated well last) as established by previous analysis.

STANDARD OPERATING PROCEDURE 10
CONCERNING SAMPLING FOR VOLATILES IN WATER
(DISSOLVED GASOLINE, SOLVENTS, ETC.)
SOP 10

1. Use only vials properly washed and baked.

2. Use clean sampling equipment. Scrub with Alconox or equivalent laboratory detergent and water followed by a thorough water rinse. Complete with a distilled water rinse.

   Sampling equipment which has come into contact with liquid hydrocarbons (free product) should be regarded with suspicion. Such equipment should have tubing and cables replaced and all resilient parts washed with laboratory detergent solution as indicated above. Visible deposits may have to be removed with hexane. Solvent washing should be followed by detergent washing, as indicated above.

   This procedure is valid for volatile organic analysis only. For extractable organics (for example, pesticides, or base neutrals for U.S. Environmental Protection Agency [EPA] Method 625 a final rinse with pesticide-grade isopropyl alcohol), followed by overnight or oven drying will be necessary.

3. Take duplicate samples. Mark on forms as a single sample with two containers to avoid duplication of analyses.

4. Take a site blank using distilled water or known uncontaminated source. This sample will be run at the discretion of the project manager.

5. Fill out labels and forms as much as possible ahead of time. Use an indelible marker.

6. Preservatives are required for some types of samples. Use specially prepared vials marked as indicated below, or use the appropriate field procedure (SOP 12 for acidification). Make note on forms that samples were preserved. Always have extra vials in case of problems. Samples for volatile analyses should be acidified below pH 2 upright. Eye protection, foot protection, and disposable vinyl gloves are required for handling. Samples designated for expedited service and analyzed within seven (7) days of sampling will be acceptable without preservation. Acid-causing burns. Glasses or goggles (not contact lenses) are necessary for protection of the eyes. Flush eyes with water for 15 minutes if contact occurs and seek medical attention. Rinse off hands frequently with water during handling.

   For sampling chlorinated drinking water supplies for chlorinated volatiles, samples shall be preserved with sodium thiosulfate. Use vials labeled "CONTAINS THIOSULFATE." No particular cautions are necessary.

7. Fill vial to overflowing with water, avoiding turbulence and bubbling as much as possible. Water should stand above lip of vial.

8. Carefully, but quickly, slip cap onto vial. Avoid dropping the Teflon® septum from cap by not inverting cap until it is in contact with the vial. Disc should have Teflon® face toward the water. Also avoid touching white Teflon® face with dirty fingers.

9. Tighten cap securely, invert vial, and tap against hand to see there are not bubbles inside.

10. Label vial, using indelible ink, as follows:

    A. Sample I.D. No.
    B. Job I.D. No.
    C. Date and Time
    D. Type of analysis required
    E. Your name

11. Unless the fabric-type label is used, place Scotch™ tape over the label to preserve its integrity.

12. For chain-of-custody reasons, sample vial should be wrapped end-for-end with Scotch™ tape or evidence tape and signed with indelible ink where the end of the tape seals on itself. The septum needs to be covered.

13. Chill samples immediately. Samples to be stored should be kept at 4° Celsius (C) (30° Fahrenheit [F]). Samples received at the laboratory above 10°C (as measured at glass surface by a thermocouple probe), after overnight shipping, will be considered substandard, so use a high quality cooler with sufficient ice or freezer packs.

14. Fill out Chain-of-Custody Manifest and Analysis Request Form (see Chain of Custody Procedures, SOP 11).

GROUNDWATER TECHNOLOGY, INC.
STANDARD OPERATING PROCEDURE
CONCERNING CHAIN OF CUSTODY
SOP 11

1. Samples must be maintained under custody until shipped or delivered to the laboratory. The laboratory will then maintain custody. A sample is under custody if:

    a) It is in your possession
    b) It is in your view after being in your possession
    c) You locked it up after it was in your possession
    d) It is in a designated secure area

2. Custody of samples may be transferred from one person to another. Each transferrer and recipient must date, sign and note the time on the chain-of-custody form.

3. In shipping, the container must be sealed with tape, and bear the sender's signature across the area of bonding at the ends of the tape to prevent undetected tampering. Each sampling jar should be taped and signed as well. Scotch tape works well.

4. Write "sealed by" and sign in the "Remarks" box at the bottom of the form before sealing the box. Place form in a plastic bag and seal it inside the box.

5. The "REMARKS" section of the form is for documenting details such as:

    a) Correlation of sample numbers if samples are split between labs.
    b) QC numbers when lab is logging in the samples.
    c) Sample temperature and condition when received by lab.
    d) Preservation notation.
    e) pH of samples when opened for analysis (if acidified).
    f) Sampling observation or sampling problem.

6. The chain-of-custody form should be included inside the shipping container. A copy should be sent to the project manager.

7. When the samples are received by the lab, the chain-of-custody form will be dated, signed, and the time noted by a laboratory representative. The form will be retained in the laboratory files along with shipping bills and receipts .

8. At the time of receipt of samples by the laboratory, the shipping container will be inspected and the sealing signature will be checked. The samples will be inspected for condition and bubbles, and the temperature of a representative sample container will be measured externally by a thermocouple probe (held tightly between two samples) and recorded. The laboratory QC numbers will be placed on the labels, in the accession log, and on the chain-of-custody form. If samples are acidified, their pH will be measured by narrow range pH paper at the time of opening for analysis. All comments concerning procedures requiring handling of the samples will be dated and initialed on the form by the laboratory person performing the procedure. A copy of the completed chain-of-custody form with the comments on sample integrity will be returned to the sampler.

GROUNDWATER TECHNOLOGY, INC.
STANDARD OPERATING PROCEDURE
CONCERNING SOIL SAMPLING METHODOLOGY
SOP 14

1. Soil samples should be collected and preserved in accordance with Groundwater Technology Standard Operating Procedure (SOP 15) concerning Soil Sample Collection and Handling when Sampling for Volatile Organics. A hollow stem soil auger should be used to drill to the desired sampling depth. A standard 2 inch diameter split spoon sampler 18 inches in length shall be used to collect the samples. The samples are contained in 2 inch diameter by 6 inch long thin walled brass tube liners fitted into the split spoon sampler (three per sampler).

2. The split spoon sampler should be driven the full depth of the spoon into the soil by a 140 pound hammer. The spoon shall then be extracted from the borehole and the brass tube liners containing the soil sample removed from the sampler. The ends of the liner tubes should be immediately covered with aluminum foil, sealed with a teflon or plastic cap, and taped with duct tape. After being properly identified with sample data entered on a standard chain of custody form the samples shall be placed on dry ice (maintained below 4~C) and transported to the laboratory within 24 hours.

3. One of the three soil samples retrieved at each sample depth shall be analyzed in the field using a photoionization detector and/or explosimeter. The purpose of the field analysis is to provide a means to choose samples to be laboratory analyzed for hydrocarbon concentrations and to enable comparisons between the field and laboratory analyses. The soil sample shall be sealed in a plastic bag and allowed to equilibrate with the air surrounding the soil for approximately 10 minutes. One of the two field vapor instruments shall be used to quantify the amount of hydrocarbon released to the air from the soils. The data shall be recorded on the drill logs at the depth corresponding to the sample point.

GROUNDWATER TECHNOLOGY, INC.
STANDARD OPERATING PROCEDURE
CONCERNING SOIL SAMPLE COLLECTION AND
HANDLING WHEN SAMPLING FOR VOLATILE ORGANICS
SOP 15

1. Use a sampling means which maintains the physical integrity of the samples. The project sampling protocol will designate a preferred sampling tool. A split spoon sampler with liners, or similar tube sampler which can be sealed, is best.

2. The samples should be sealed in the liner, with teflon plugs (The "California Sampler") or plastic caps.

3. For sending whole-core samples (above):

   A. Seal ends of liner with teflon plugs or plastic caps, leaving no free air space inside.

   B. Tape with duct tape.

   C. Label the sample with the following information: sample identification, depth, date and time, project number and required analyses.

   D. Place in plastic bag labeled with indelible marker. Use Well #, depth, date, and job #.

   E. Place inside a second bag and place a labelling tag inside outer bag.

   F. Enclose samples in a cooler with sufficient ice or dry ice to maintain samples at 4 degrees C during shipment.

   G. Seal cooler with a lock, or tape with samplers signature so tampering can be detected.

   H. Package cooler in a box with insulating material. Chain of custody forms can be placed in a plastic bag in this outer box.

   I. If dry ice is used, a maximum of 5 pounds is allowed by Federal Express without special documents(documents are easy to obtain but are not necessary for under 5 pounds). Write "ORM-A dry ice", "_____ pounds, for research" on outside packaging and on regular airbill under classification. UPS does not accept dry ice.

   J. Soil cores kept a 4 degrees C are only viable for up to 7 days when aromatic hydrocarbons are involved. The lab should prepare the samples in methanol once in the lab.

4. Good sampling practice would include preparing 1 out of 5 samples to be prepared in duplicates for analysis. These 4 out of 20 samples will be used for the following purposes:

   A. One in every 20 samples should be analyzed as a field replicate to evaluate the precision of the sampling technique. A minimum of 1 sample per data set is suggested.

   B. An additional 1 in 20 samples should be selected by sampler to be prepared in duplicate as alternative to Step (A). Choose a different soil type if available.

C. The remaining 2 in 20 samples should be used by lab for spiking with reference materials for internal QC.

Other QC procedures can be specified at the project manager's discretion. See Table 3-2 (reference 2) attached.

5. Decontamination of equipment in the field requires a detergent wash, with a distilled water rinse.

REFERENCES

1. Soil Sampling Quality Assurance Users Guide, U.S. EPA Environmental Monitoring Systems Laboratory, Las Vegas, NV, EPA 600/4-84-043, May 1984.

2. Preparation of Soil Sampling Protocol. Techniques and Strategies, U.S. EPA, Environmental Monitoring Systems Laboratory, Las Vegas, NV, EPA 600/4-83-020, August 1983 (PB83-206979).

3. Test Methods for Evaluating Solid Waste, U.S. EPA, Office of Solid Waste and Emergency Response, Washington, D.C., SW 846, July 1982.

GROUNDWATER TECHNOLOGY, INC.
STANDARD OPERATING PROCEDURE
CONCERNING OPERATION/CALIBRATION OF
PHOTOIONIZATION ANALYZER
SOP 19

1. The Thermo Environmental Instruments Inc. Model 580B OVM Photoionization Analyzer shall be used, using photoionization, to measure the concentration of trace gases over a range of less than 1 ppm to 2,000 ppm. The specific instrument used for investigations related to hydrocarbon contamination should be calibrated for direct readings in parts per million (ppm) volume/volume of isobutylene. Specifics of the detection principle/theory and functions of various components can be found in the manufactures instruction manual.

2. To assure optimum performance, the photoionization analyzer should be calibrated with a standard gas mixture of known concentration from a pressurized container. A daily procedure for calibration involves bringing the probe and readout close to the calibration gas, cracking the valve on the tank and checking the instrument reading. This provides a useful spot check for the instrument.

3. A procedure conducted weekly for more accurate calibration of the instrument from a pressurized container is to connect one side of a "T" to the pressurized container of calibration gas, another side of the "T" to a rotameter and the third side of the "T" directly to the 8" extension to the photoionization probe (see Figure 2). Crack the valve of the pressurized container until a slight flow is indicated on the rotameter. The instrument draws in the volume of sample required for detection, and the flow in the rotameter indicates an excess of sample. Now adjust the span pot so that the instrument reads the exact value of the calibration gas. (If the instrument span setting is changed, the instrument should be turned back to the standby position and the electronic zero should be readjusted, if necessary).

APPENDIX C

DRILL LOGS AND WELL CONSTRUCTION SPECIFICATIONS

Drilling Log

GROUNDWATER TECHNOLOGY

Monitoring Well **MW-15**

Project *CHV/1633 Harrison Street* Owner *Chevron U.S.A. Products Co.*
Location *Oakland, California* Project No. *02020 2779* Date drilled *11/11/92*
Surface Elev. *28.53 ft.* Total Hole Depth *30 ft.* Diameter *8.5 inches*
Top of Casing *28.04 ft.* Water Level Initial *20 ft.* Static *12/16/92 19.74 ft.*
Screen: Dia *2 in.* Length *15 ft.* Type/Size *0.020 in.*
Casing: Dia *2 in.* Length *13 ft.* Type *SCH 40 PVC*
Filter Pack Material *Lapis Lustre #3* Rig/Core Type *Mobile B-53/Split Spoon*
Drilling Company *Kvilhaug Well Drilling* Method *Hollow Stem Auger* Permit # *92286*
Driller *Mike Crocao* Log By *Chip Hurley*
Checked By *David Kleesattel* License No. *RG# 5136*

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						Approximately 1-foot of concrete
2						Reddish brown sandy CLAY, 50% clay, 20% medium sand, 20% fine sand, 10% silt, moist.
4						
6		1	6 10 12		CL	
8						
10		2	22 40 50			Reddish brown clayey SAND, 60% medium sand, 20% clay, 15% fine sand, 5% silt, moist.
12						
14						
16		1	34 40 50		SC	
18						
20		7	25 45 50			▼ Encountered groundwater at 20 feet on 11/11/92
22						
24						

Drilling Log

GROUNDWATER TECHNOLOGY

Monitoring Well **MW-15**

Project *CHV/1633 Harrison Street* Owner *Chevron U.S.A. Products Co.*
Location *Oakland, California* Project No. *02020 2779* Date drilled *11/11/92*

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24						
26		4	7 11 15		SC	Tan silty CLAY, 55% clay, 45% silt, moist.
28					CL	
30		1	5 8 12			End of boring at 30 feet. Installed groundwater monitoring well.
32						
34						
36						
38						
40						
42						
44						
46						
48						
50						
52						
54						
56						

Drilling Log

GROUNDWATER TECHNOLOGY

Monitoring Well **MW-16**

Project CHV/1633 Harrison Street Owner Chevron U.S.A. Products Co.
Location Oakland, California Project No. 02020 2779 Date drilled 12/08/92
Surface Elev. 28.59 ft. Total Hole Depth 31.5 ft. Diameter 8.5 inches
Top of Casing 28.32 ft. Water Level Initial 20 ft. Static 12/16/92 19.74 ft.
Screen: Dia 2 in. Length 15 ft. Type/Size 0.020 in.
Casing: Dia 2 in. Length 15 ft. Type SCH 40 PVC
Filter Pack Material Lapis Lustre #3 Rig/Core Type Mobile B-53/Split Spoon
Drilling Company Kvilhaug Well Drilling Method Hollow Stem Auger Permit # 92286
Driller Rod Fowler Log By Chip Hurley
Checked By David Kleesattel License No. RG# 5136

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	Well Completion	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2 to 24						Approximately 6 inches asphalt and 4 inches concrete
4 to 6		1	27 / 18 / 18		CL	Reddish brown sandy CLAY, 50% clay, 20% coarse sand, 20% fine sand, 10% silt, moist
10 to 12		2	50 / 24			
14 to 16		1	50 / 25		SC	Reddish brown clayey SAND, 60% sand, 30% clay, 10% silt.
20		7	50 / 45			▽ Encountered groundwater at 20 feet on 12/8/92

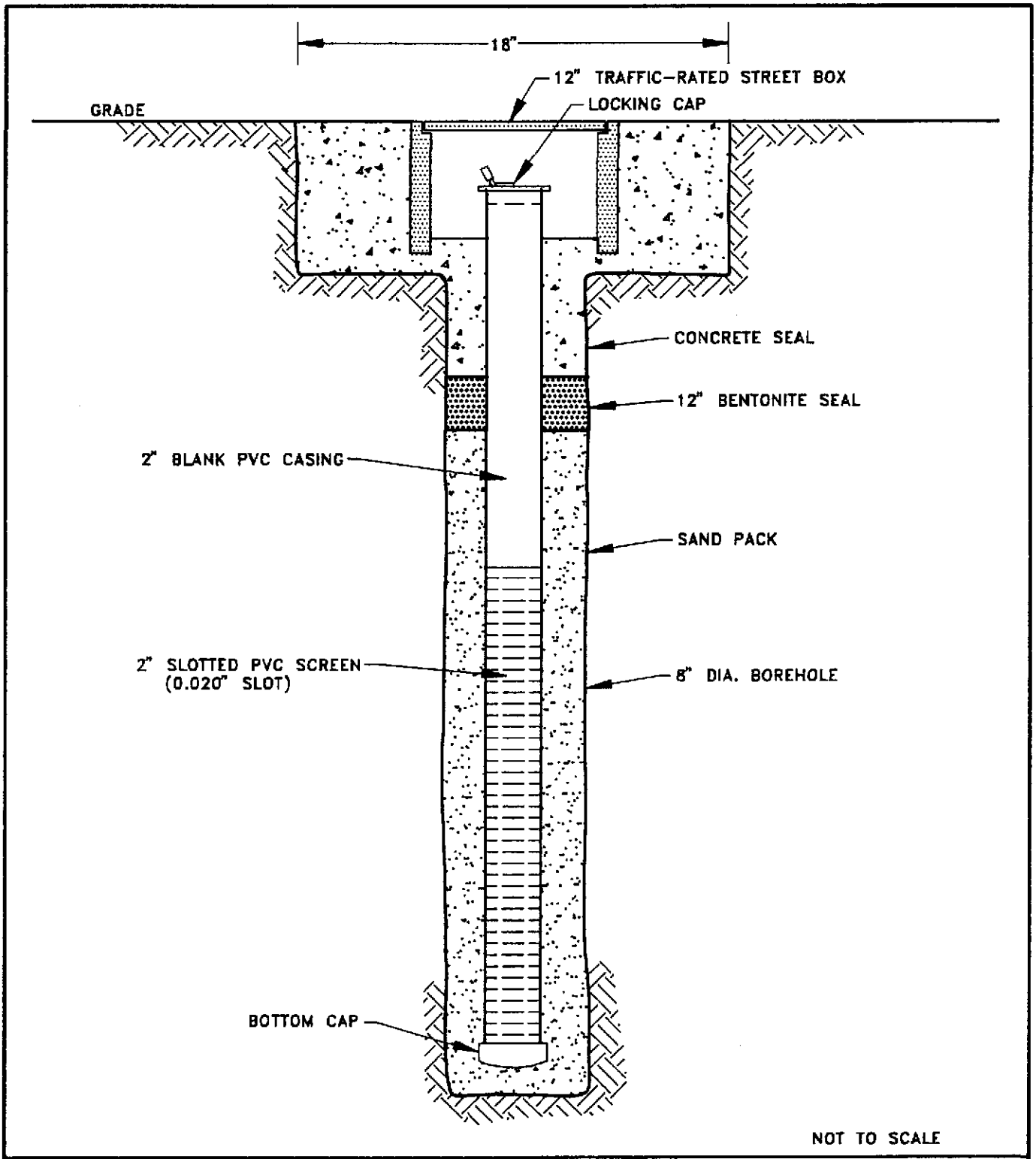
Drilling Log

GROUNDWATER TECHNOLOGY

Monitoring Well **MW-16**

Project *CHV/1633 Harrison Street* Owner *Chevron U.S.A. Products Co.*
Location *Oakland, California* Project No. *02020 2779* Date drilled *12/08/92*

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24					SC	
26		1.4	28 28 30			
28					CL	Gray/brown silty CLAY, 55% clay, 45% silt, wet.
30		0.3	50		SM	Gray silty SAND, 60% sand, 30% silt, 10% clay, saturated.
32						End of boring at 31.5 feet. Installed groundwater monitoring well.
34						
36						
38						
40						
42						
44						
46						
48						
50						
52						
54						
56						



NOT TO SCALE

GROUNDWATER TECHNOLOGY 4057 PORT CHICAGO HWY CONCORD, CA 94520 (510) 671-2387				**TYPICAL MONITORING WELL CONSTRUCTION**		
CLIENT: CHEVRON U.S.A. PRODUCTS CO.				LOCATION:	REV. NO.:	DATE:
PM	PE/RG	DESIGNED	DETAILED: ML	ACAD FILE: FMONWELL	PROJECT NO.:	FIGURE:

APPENDIX D

FIELD DATA SHEETS

TECHNOLOGY, INC.

PROJECT NAME: CTV #33 HARRISON
JOB NUMBER: 020302499
SITE ADDRESS: OAKLAND

PAGE 1 OF 1
PROJECT MANAGER: SANDRA L.
Last Revised: 14 Feb 91

WELL I.D. MW-1
WELL DIA. _____

DTW MEASURMENTS
INITIAL = _____ ft
RECHARGE = _____ ft

CALC. WELL VOLUME = _____ gal
WELL VOLUME = ___ = 16 gal

PURGE METHOD:	PUMP DEPTH ____ ft
___ PERISTALTIC	X HAND BAILED
___ GEAR DRIVE	___ AIR LIFT
___ SUBMERSIBLE	___ OTHER _____

INSTRUMENTS USED:	
X YSI 3650 pH/°C/mmho	___ OMEGA COND.
___ HYDAC pH/°F/umho	___ DRT-15C TURBID.
___ OMEGA pH/°C	___ OTHER _____

TIME	TEMP. ~~°C~~ °F	COND. ___ mmhos ~~mmhos~~	pH	~~TURBID. NTU~~ D.O.	PURGE VOL.	COMMENTS
1:35	18.8	0.79	6.40	2.0	0	
1:37	19.2	0.78	6.22		5	
1:38	19.3	0.78	6.24		10	
					12	Dry
				2.0		

TECHNOLOGY, INC.

PAGE 4 OF

PROJECT NAME: CITY 433 HARRISON
JOB NUMBER: 07030249 99
SITE ADDRESS: OAKLAND

PROJECT MANAGER: SANDRA L.
Last Revised: 14 Feb 91

WELL I.D. MW-2
WELL DIA. _____

DTW MEASURMENTS
INITIAL = _____ ft
RECHARGE = _____ ft

CALC. WELL VOLUME = _____ gal
WELL VOLUME x 3 = 13 gal

PURGE METHOD:	PUMP DEPTH _____ ft	INSTRUMENTS USED:	
__ PERISTALTIC	X HAND BAILED	X YSI 3650 pH/°C/mmho	__ OMEGA COND.
__ GEAR DRIVE	__ AIR LIFT	__ HYDAC pH/°F/umho	__ DRT-15C TURBID.
__ SUBMERSIBLE	__ OTHER _____	__ OMEGA pH/°C	__ OTHER _____

TIME	TEMP. °C / °F	COND. mmhos / ~~mmhos~~	pH	~~TURBD.~~ ~~NTU~~ D.O.	PURGE VOL.	COMMENTS
10:29	17.7	.47	7.32		5	
10:32	18.1	.47	6.71		10	
10:35	18.2	.46	6.70		15	
				2.6		

TECHNOLOGY, INC.

DATE: 12-16-92
PAGE 1 OF 1

PROJECT NAME: CHV #33 HARRISON
JOB NUMBER: 07030249 9
SITE ADDRESS: OAKLAND

PROJECT MANAGER: SANDRA L.
Last Revised: 14 Feb 91

WELL I.D. MW-3
WELL DIA. _____

DTW MEASURMENTS
INITIAL = _____ ft
RECHARGE = _____ ft

CALC. WELL VOLUME = _____ gal
WELL VOLUME x 3 = 21 gal

PURGE METHOD:	PUMP DEPTH ____ ft
___ PERISTALTIC	X HAND BAILED
___ GEAR DRIVE	___ AIR LIFT
___ SUBMERSIBLE	___ OTHER _____

INSTRUMENTS USED:	
X YSI 3450 pH/°C/mmho	___ OMEGA COND.
___ HYDAC pH/°F/umho	___ DRT-15C TURBID.
___ OMEGA pH/°C	✓ OTHER D.O. METER

TIME	TEMP. X °C ___ °F	COND. ___ umhos X mmhos	pH	~~TURBID.~~ ~~NTU~~ D.O.	PURGE VOL.	COMMENTS
	17.9	0.38	7.80		5	
	18.5	0.39	6.73		10	
	18.9	0.39	6.64		15	
	18.3	0.39	6.69		21	
				2.9		

TECHNOLOGY, INC.

PROJECT NAME: CHV #33 HARRISON
JOB NUMBER: 07030249 9
SITE ADDRESS: OAKLAND

PAGE 5 OF
PROJECT MANAGER: SANDRA L.
Last Revised: 14 Feb 91

WELL I.D. MW-4
WELL DIA. _____

DTW MEASURMENTS
INITIAL = _____ ft
RECHARGE = _____ ft

CALC. WELL VOLUME = _____ gal
WELL VOLUME x 3 = 22 gal

PURGE METHOD:
__ PERISTALTIC
__ GEAR DRIVE
__ SUBMERSIBLE

PUMP DEPTH _____ ft
X HAND BAILED
__ AIR LIFT
__ OTHER _____

INSTRUMENTS USED:
X YSI 3450 pH/°C/mmho
__ HYDAC pH/°F/umho
__ OMEGA pH/°C
__ OMEGA COND.
__ DRT-15C TURBID.
__ OTHER _____

TIME	TEMP. X °C __ °F	COND. __ mmhos X mmhos	pH	~~TURBID. NTU~~ D.O.	PURGE VOL.	COMMENTS
10:47	17.7	0.70	6.74		5	
10:49	17.7	0.70	6.59		10	
10:52	17.3	0.69	6.60		15	
10:54	17.7	0.69	6.64		20	
				1.7		

TECHNOLOGY, INC.

DATE: 12-16-92
PAGE 6 OF 6

PROJECT NAME: CHV #633 HARRISON
JOB NUMBER: 07-0302499
SITE ADDRESS: OAKLAND

PROJECT MANAGER: SANDRA L.
Last Revised: 24 Feb 91

WELL I.D. MW-5
WELL DIA. 4

DTW MEASURMENTS
INITIAL = _____ ft
RECHARGE = _____ ft

CALC. WELL VOLUME = _____ gal
WELL VOLUME x 3 = 21 gal

PURGE METHOD:	PUMP DEPTH _____ ft
___ PERISTALTIC	X HAND BAILED
___ GEAR DRIVE	___ AIR LIFT
___ SUBMERSIBLE	___ OTHER _____

INSTRUMENTS USED:	
X YSI 3450 pH/°C/mmho	___ OMEGA COND.
___ HYDAC pH/°F/umho	___ DRT-15C TURBID.
___ OMEGA pH/°C	___ OTHER _____

TIME	TEMP. X °C ___ °F	COND. ___ umhos X mmhos	pH	~~TURBID. NTU~~ D.O.	PURGE VOL.	COMMENTS
11.59	18.9	0.69	7.02		5	
	17.8	0.76	6.96		10	DRY at 10 gal
					15	
					21	
				2.5		

TECHNOLOGY, INC.

PROJECT NAME: CHV #633 HARRISON
303 NUMBER: 070302499
SITE ADDRESS: OAKLAND

PAGE 16 OF
PROJECT MANAGER: SANDRA L.
Last Revised: 14 Feb 91

WELL I.D. MW-6
WELL DIA. _____

DTW MEASURMENTS
INITIAL = _____ ft
RECHARGE = _____ ft

CALC. WELL VOLUME = _____ gal.
WELL VOLUME x ___ = 21 gal.

PURGE METHOD:
___ PERISTALTIC
___ GEAR DRIVE
___ SUBMERSIBLE

PUMP DEPTH _____ ft
X HAND BAILED
___ AIR LIFT
___ OTHER _____

INSTRUMENTS USED:
X YSI 3650 pH/°C/mmho ___ OMEGA COND.
___ HYDAC pH/°F/umho ___ DRT-15C TURBID
___ OMEGA pH/°C ___ OTHER _____

TIME	TEMP. X °C ___ °F	COND. ___ mmhos X mmhos	pH	~~TURBID.~~ ~~NTU~~ D.O.	PURGE VOL.	COMMENTS
1:43	19.3	0.89	6.41		0	rusty color smells like Gas
1:44	19.1	0.83	6.47		5	
1:45	19.0	0.80	6.40		10	
1:46	19.2	0.80	6.42		18	Dry
					21	
				2.5		

TECHNOLOGY, INC.

PROJECT NAME: CITY #33 HARRISON

JOB NUMBER: 07030249 9

SITE ADDRESS: OAKLAND

PAGE 1 OF 1

PROJECT MANAGER: SANDRA L.

Last Revised: 14 Feb 91

WELL I.D. MW-7

WELL DIA. _____

DTW MEASURMENTS

INITIAL = _____ ft

RECHARGE = _____ ft

CALC. WELL VOLUME = _____ gal

WELL VOLUME x ___ = 13 gal

PURGE METHOD:	PUMP DEPTH ____ ft
___ PERISTALTIC	X HAND BAILED
___ GEAR DRIVE	___ AIR LIFT
___ SUBMERSIBLE	___ OTHER _____

INSTRUMENTS USED:	
X YSI 3650 pH/°C/mmho	___ OMEGA COND.
___ HYDAC pH/°F/umho	___ DRT-15C TURBID.
___ OMEGA pH/°C	___ OTHER _____

TIME	TEMP. X °C ___ °F	COND. ___ mmhos X mmhos	pH	~~TURBID.~~ ~~NTU~~ D.O.	PURGE VOL.	COMMENTS
1:47	18.8	0.76	6.42		0	Very strong smell
1:49	19.7	0.78	6.44		5	Gray color
					6	Dry
				2.2		

TECHNOLOGY, INC.

PROJECT NAME: CHV #633 HARRISON
JOB NUMBER: 07030249 9
SITE ADDRESS: OAKLAND

DATE: 12-10-92
PAGE 1 OF 1
PROJECT MANAGER: SANDRA L.
Last Revised: 24 Feb 91

WELL I.D. MW-8
WELL DIA. _____

DTW MEASURMENTS
INITIAL = _____ ft
RECHARGE = _____ ft

CALC. WELL VOLUME = _____ gal
WELL VOLUME x 3 = 10 gal

PURGE METHOD:
__ PERISTALTIC
__ GEAR DRIVE
__ SUBMERSIBLE

PUMP DEPTH _____ ft
X HAND BAILED
__ AIR LIFT
__ OTHER _____

INSTRUMENTS USED:
X YSI 3650 pH/°C/mmho __ OMEGA COND.
__ HYDAC pH/°F/umho __ DRT-15C TURBID.
__ OMEGA pH/°C __ OTHER _____

TIME	TEMP. X °C __ °F	COND. __ mmhos X mmhos	pH	~~TURBID.~~ ~~NTU~~ D.O.	PURGE VOL.	COMMENTS
12:06	19.2	0.56	6.60		2	
	19.4	0.58	6.14		4	
	19.2	0.55	6.21		6	
	19.3	0.52	6.18		8	
	19.6	0.52	6.24		10	DRY AT 10
				2.3		

TECHNOLOGY, INC.

DATE: 12-16-92
PAGE 1 OF 1

PROJECT NAME: CHV #33 HARRISON
JOB NUMBER: 07030249.9
SITE ADDRESS: OAKLAND

PROJECT MANAGER: SANDRA L.
Last Revised: 14 Feb 91

WELL I.D. MW-9A
WELL DIA. _____

DTW MEASURMENTS
INITIAL = _____ ft
RECHARGE = _____ ft

CALC. WELL VOLUME = _____ gal
WELL VOLUME x 3 = 2 gal

PURGE METHOD:	PUMP DEPTH _____ ft	INSTRUMENTS USED:	
__ PERISTALTIC	X HAND BAILED	X YSI 3650 pH/°C/mmho	__ OMEGA COND.
__ GEAR DRIVE	__ AIR LIFT	__ HYDAC pH/°F/umho	__ DRT-15C TURBID.
__ SUBMERSIBLE	__ OTHER _____	__ OMEGA pH/°C	__ OTHER _____

TIME	TEMP. X °C __ °F	COND. __ umhos X mmhos	pH	~~TURBID. NTU~~ D.O.	PURGE VOL.	COMMENTS
1:10	19.1	0.80	6.66		0	STONG ODER
1:12	19.5	0.82	6.61		1	
1:14	19.9	0.84	6.61		2	
				1.7		

TECHNOLOGY, INC.

PROJECT NAME: CHV #33 HARRISON
JOB NUMBER: 07030249 9
SITE ADDRESS: OAKLAND

PAGE 13 OF
PROJECT MANAGER: SANDRA L.
Last Revised: 14 Feb 91

WELL I.D. MW-1D
WELL DIA. _____

DTW MEASURMENTS
INITIAL = _____ ft
RECHARGE = _____ ft

CALC. WELL VOLUME = _____ gal
WELL VOLUME x ___ = 2 gal

PURGE METHOD:
__ PERISTALTIC
__ GEAR DRIVE
__ SUBMERSIBLE

PUMP DEPTH _____ ft
X HAND BAILED
__ AIR LIFT
__ OTHER _____

INSTRUMENTS USED:
X YSI 3650 pH/°C/mmho
__ HYDAC pH/°F/umho
__ OMEGA pH/°C
__ OMEGA COND.
__ DRT-15C TURBID.
__ OTHER _____

TIME	TEMP. °C / °F	COND. mmhos / mmhos	pH	~~TURBID.~~ ~~NTU~~ D.O.	PURGE VOL.	COMMENTS
1:24	19.6	0.74	6.40		0	
1:26	20.3	0.76	6.29		1	
1:29	20.4	0.77	6.21		2	
				2.0		

TECHNOLOGY, INC.

PROJECT NAME: CHV #33 HARRISON

JOB NUMBER: 020302499

SITE ADDRESS: OAKLAND

PAGE __ OF __

PROJECT MANAGER: SANDRA L.

Last Revised: 14 Feb 91

WELL I.D. M-11

WELL DIA. 2

DTW MEASURMENTS

INITIAL = _____ ft

RECHARGE = _____ ft

CALC. WELL VOLUME = _____ gal

WELL VOLUME x 3 = 2 gal

PURGE METHOD:	PUMP DEPTH ____ ft
__ PERISTALTIC	X HAND BAILED
__ GEAR DRIVE	__ AIR LIFT
__ SUBMERSIBLE	__ OTHER _____

INSTRUMENTS USED:	
X YSI 3650 pH/°C/mmho	__ OMEGA COND.
__ HYDAC pH/°F/umho	__ DRT-15C TURBID.
__ OMEGA pH/°C	__ OTHER _____

TIME	TEMP. X °C __ °F	COND. __ mmhos X mmhos	pH	~~TURBID.~~ ~~NTU~~ D.O.	PURGE VOL.	COMMENTS
10:00	18.3	0.42	6.88		0	
	19.1	0.48	6.52		1	
				2.3		

TECHNOLOGY, INC.

PROJECT NAME: CHV #33 HARRISON
JOB NUMBER: 020302499
SITE ADDRESS: OAKLAND

PAGE 8 OF 8
PROJECT MANAGER: SANDRA L.
Last Revised: 14 Feb 91

WELL I.D. MW-12
WELL DIA. _____

DTW MEASURMENTS
INITIAL = _____ ft
RECHARGE = _____ ft

CALC. WELL VOLUME = _____ gal
WELL VOLUME x 3 = 2 gal

PURGE METHOD:	PUMP DEPTH ____ ft	INSTRUMENTS USED:	
___ PERISTALTIC	X HAND BAILED	X YSI 3650 pH/°C/mmho	___ OMEGA COND.
___ GEAR DRIVE	___ AIR LIFT	___ HYDAC pH/°F/umho	___ DRT-15C TURBID.
___ SUBMERSIBLE	___ OTHER _____	___ OMEGA pH/°C	___ OTHER _____

TIME	TEMP. X °C ___ °F	COND. ___ mmhos X mmhos	pH	~~TURBID.~~ ~~NTU~~ D.O.	PURGE VOL.	COMMENTS
12:22	20.0	0.59	6.55		0	
12:23	20.5	0.62	6.43		1	
12:24	20.6	0.63	6.39		2	
				2.3		

TECHNOLOGY, INC.

PROJECT NAME: CHV #33 HARRISON
JOB NUMBER: 07030249 9
SITE ADDRESS: OAKLAND

PAGE 1 OF 1
PROJECT MANAGER: SANDRA L.
Last Revised: 14 Feb 91

WELL I.D. MW-13
WELL DIA. _____

DTW MEASURMENTS
INITIAL = _____ ft
RECHARGE = _____ ft

CALC. WELL VOLUME = _____ gal
WELL VOLUME x ___ = 4 gal

PURGE METHOD:	PUMP DEPTH ____ ft
___ PERISTALTIC	X HAND BAILED
___ GEAR DRIVE	___ AIR LIFT
___ SUBMERSIBLE	___ OTHER _____

INSTRUMENTS USED:	
X YSI 3650 pH/°C/mmho	___ OMEGA COND.
___ HYDAC pH/°F/umho	___ DRT-15C TURBID.
___ OMEGA pH/°C	___ OTHER _____

TIME	TEMP. X °C ___ °F	COND. ___ mmhos X umhos	pH	~~TURBID. NTU~~ D.O.	PURGE VOL.	COMMENTS
12:53	18.1	0.79	6.48		0	Smells of Gas
12:55	19.8	0.82	6.43		1	
12:56	19.8	0.84	6.55		2	
12:59	19.4	0.86	6.68		3	
1:01	19.6	0.87	6.63		4	STRONG ODER
				2.4		

GROUNDWATER TECHNOLOGY, INC.

DATE: 12-16-92
PAGE ___ OF ___

PROJECT NAME: CHV #633 HARRISON
JOB NUMBER: 07030249 9
SITE ADDRESS: OAKLAND

PROJECT MANAGER: SANDRA L.
Last Revised: 24 Feb 91

WELL I.D. M-14
WELL DIA. _____

DTW MEASURMENTS
INITIAL = _____ ft
RECHARGE = _____ ft

CALC. WELL VOLUME = _____ gal
WELL VOLUME x 3 = 2 gal

PURGE METHOD:	PUMP DEPTH ____ ft
___ PERISTALTIC	X HAND BAILED
___ GEAR DRIVE	___ AIR LIFT
___ SUBMERSIBLE	___ OTHER _____

INSTRUMENTS USED:	
X YSI 3450 pH/°C/mmho	___ OMEGA COND.
___ HYDAC pH/°F/umho	___ DRT-15C TURBID.
___ OMEGA pH/°C	___ OTHER _____

TIME	TEMP. X °C ___ °F	COND. ___ mmhos X mmhos	pH	~~TURBID.~~ ~~NTU~~ D.O.	PURGE VOL.	COMMENTS
9.33	17.5	0.31	6.19		0	
	17.8	0.31	6.60		1	
	17.8	0.32	6.58		2	
				2.8		

GROUNDWATER TECHNOLOGY, INC.

DATE: 12-16-92
PAGE 1 OF 1

PROJECT NAME: CHV #633 HARRISON
JOB NUMBER: 070302499
SITE ADDRESS: OAKLAND

PROJECT MANAGER: SANDRA L.
Last Revised: 14 Feb 91

WELL I.D. MW-15
WELL DIA. _____

DTW MEASURMENTS
INITIAL = _____ ft
RECHARGE = _____ ft

CALC. WELL VOLUME = _____ gal
WELL VOLUME x 3 = 3 gal

PURGE METHOD:	PUMP DEPTH ____ ft	INSTRUMENTS USED:	
__ PERISTALTIC	X HAND BAILED	X YSI 3650 pH/°C/mmho	__ OMEGA COND.
__ GEAR DRIVE	__ AIR LIFT	__ HYDAC pH/°F/umho	__ DRT-15C TURBID.
__ SUBMERSIBLE	__ OTHER ____	__ OMEGA pH/°C	__ OTHER ____

TIME	TEMP. X °C __ °F	COND. __ umhos X mmhos	pH	~~TURBID.~~ ~~NTU~~ D.O.	PURGE VOL.	COMMENTS
12:39	18.4	0.56	6.30		0	
12:41	18.8	0.70	6.41		1	
12:42	18.9	0.71	6.42		2	
12:44	18.8	0.67	6.34		3	
				2.6		

APPENDIX E

LABORATORY REPORTS AND CHAIN-OF-CUSTODY RECORDS

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 ▪ Martinez, California 94553 ▪ (510) 229-1512 / fax (510) 229-1526

GROUNDWATER TECHNOLOGY, INC.
Attn: TIM WATCHERS

Project 020202779030503
Reported 11/24/92

TOTAL PETROLEUM HYDROCARBONS

Lab #	Sample Identification	Sampled	Analyzed	Matrix
87149- 4	15-20'	11/11/92	11/13/92	Soil
87149- 6	15-30'	11/11/92	11/13/92	Soil
87149- 7	SP-1	11/11/92	11/16/92	Soil

RESULTS OF ANALYSIS

Laboratory Number:	87149- 4	87149- 6	87149- 7
Gasoline:	ND<1	ND<1	ND<1
Benzene:	ND<.005	ND<.005	ND<.005
Toluene:	ND<.005	ND<.005	ND<.005
Ethyl Benzene:	ND<.005	ND<.005	ND<.005
Xylenes:	ND<.005	ND<.005	ND<.005
Concentration:	mg/kg	mg/kg	mg/kg

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

C E R T I F I C A T E O F A N A L Y S I S

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS

QA/QC INFORMATION
SET: 87149

NA = ANALYSIS NOT REQUESTED
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT
mg/kg = parts per million (ppm)

OIL AND GREASE ANALYSIS By Standard Methods Method 5520F:
Minimum Detection Limit in Soil: 50mg/kg

Modified EPA SW-846 Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Soil: 1mg/kg

EPA SW-846 Method 8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Soil: 1mg/kg

EPA SW-846 Method 8020/BTXE
Minimum Quantitation Limit in Soil: 0.005mg/kg

ANALYTE	SPIKE LEVEL	MS/MSD RECOVERY	RPD	CONTROL LIMIT
Gasoline:	200 ng	108/109	1%	70-130
Benzene:	200 ng	102/101	1%	70-130
Toluene:	200 ng	96/99	3%	70-130
Ethyl Benzene:	200 ng	100/102	2%	70-130
Xylenes:	200 ng	97/99	2%	70-130

Richard Srna, Ph.D.
Laboratory Director

Fax copy of Lab Report and COC to Chevron Contact: ☐ No ☐ Yes 87149

Chain-of-Custody-Record

Chevron U.S.A. Inc.
P.O. BOX 5004
San Ramon, CA 94583
FAX (415)842-9591

Chevron Facility Number: 9-0020
Facility Address: 1633 Harrison
Consultant Project Number: 020202779-080503
Consultant Name: Groundwater Technology Inc
Address: 4057 Port Chicago Hwy
Project Contact (Name): Tim Watchers
(Phone): 510-671-2387 (Fax Number):

Chevron Contact (Name): Ms. Nancy Vukelich
(Phone):
Laboratory Name:
Laboratory Release Number: 4368660
Samples Collected by (Name): Chip Hurley
Collection Date: 11-11-92
Signature:

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil A = Air W = Water C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	BTEX + TPH GAS (8020 + 8015)	TPH Diesel (8015)	Oil and Grease (5520)	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd,Cr,Pb,Zn,Ni (ICAP or AA)	Total Organic carbon EPA 9060	HOLD				Remarks
15-5'	1	1	S	G	9:15Am	ice	Yes										X				
15-10'	2	1			9:32Am												X				
15-15'	3	1			9:41Am												X				Per Tim Watchers phone 11-13-92 900AM
15-20'	4	1			9:55Am			X								X					
15-25'	5	1			10:00Am												X				
15-30'	6	1			10:10Am			X													
SP-1	7	1			10:30Am			X													

Please initial:
Samples Stored in ice. SS
Appropriate containers.
Samples preserved.
VOA's without headspace.
Comments:

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
[signature]	GTF	NOV 12, 1992			
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time 9:00 11/12/92

Turn Around Time (Circle Choice)
24 Hrs.
48 Hrs.
5 Days
(10 Days)
As Contracted

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

NOVEMBER 24,1992

Mr. TIM WATCHER
GROUNDWATER TECHNOLOGY
4057 CHICAGO HWY.
CONCORD, CA 94520

Dear Mr. WATCHER:

Attached are the analytical results requested for samples received on NOVEMBER 12,1992

The cross reference sample identification numbers for the attached reports are as follows:

GTI Identification	Superior I. D.	Subcontractor I.D.
15-20'	87149-4	144244

If you have questions regarding these results please feel free to contact our Senior Chemists at (510) 229-1512.

Sincerely,

Robin Paulsen

Senior Chemist

Ref:

SAMPLE DESCRIPTION: 87149-4
Date Taken: 11/11/1992
Time Taken:
LAB Job No: (-144244)

Parameter	Method	Reporting Limit	Results	Units
Total Organic Carbon	415.1	25	120	mg/Kg

Ref:

QUALITY CONTROL DATA

Parameter	Reporting Limits	Units	Cal Verf Stand % Recovery	Blank Data	Spike % Recovery	Duplicate Spike % Recovery	RPD
TOC	25	mg/Kg	93	ND	98	102	4.0

NET NATIONAL ENVIRONMENTAL TESTING, INC.®

NET Pacific, Inc.
435 Tesconi Circle
Santa Rosa, CA 95401
Tel: (707) 526-7200
Fax: (707) 526-9623

Kristen Carlyon
Superior Analytical
825 Arnold Dr.
Suite 114
Martinez, CA 94553

Date: 11/24/1992
NET Client Acct. No: 64802
NET Pacific Job No: 92.49312
Received: 11/14/1992
Revised: 02/01/1993

Client Reference Information

Sample analysis in support of the project referenced above has been completed and results are presented on following pages. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Approved by:

Jules Skamarack
Laboratory Manager

Enclosure(s)

Ref:

SAMPLE DESCRIPTION: 87149-4
Date Taken: 11/11/1992
Time Taken:
LAB Job No: (-144244)

Parameter	Method	Reporting Limit	Results	Units
Total Organic Carbon	415.1**	25	120	mg/Kg
Total Organic Carbon	415.1**	25	0.012	%

** Comparable to Method 9060.

Ref:

QUALITY CONTROL DATA

Parameter	Reporting Limits	Units	Cal Verf Stand % Recovery	Blank Data	Spike % Recovery	Duplicate Spike % Recovery	RPD
TOC	25	mg/Kg	93	ND	98	102	4.0

NET®

KEY TO ABBREVIATIONS and METHOD REFERENCES

<	:	Less than; When appearing in results column indicates analyte not detected at the value following. This datum supercedes the listed Reporting Limit.
*	:	Reporting Limits are a function of the dilution factor for any given sample. To obtain the actual reporting limits for this sample, multiply the stated Reporting Limits by the dilution factor (but do not multiply reported values).
ICVS	:	Initial Calibration Verification Standard (External Standard).
mean	:	Average; sum of measurements divided by number of measurements.
mg/Kg (ppm)	:	Concentration in units of milligrams of analyte per kilogram of sample, wet-weight basis (parts per million).
mg/L	:	Concentration in units of milligrams of analyte per liter of sample.
mL/L/hr	:	Milliliters per liter per hour.
MPN/100 mL	:	Most probable number of bacteria per one hundred milliliters of sample.
N/A	:	Not applicable.
NA	:	Not analyzed.
ND	:	Not detected; the analyte concentration is less than applicable listed reporting limit.
NTU	:	Nephelometric turbidity units.
RPD	:	Relative percent difference, 100 [Value 1 - Value 2]/mean value.
SNA	:	Standard not available.
ug/Kg (ppb)	:	Concentration in units of micrograms of analyte per kilogram of sample, wet-weight basis (parts per billion).
ug/L	:	Concentration in units of micrograms of analyte per liter of sample.
umhos/cm	:	Micromhos per centimeter.

Method References

Methods 100 through 493: see "Methods for Chemical Analysis of Water & Wastes", U.S. EPA, 600/4-79-020, rev. 1983.

Methods 601 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants" U.S. EPA, 40 CFR, Part 136, rev. 1988.

Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", U.S. EPA SW-846, 3rd edition, 1986.

SM: see "Standard Methods for the Examination of Water & Wastewater, 17th Edition, APHA, 1989.

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

GROUNDWATER TECHNOLOGY, INC.
Attn: TIM WATCHERS

Project 020202779-030503
Reported 12/23/92

TOTAL PETROLEUM HYDROCARBONS

Lab #	Sample Identification	Sampled	Analyzed	Matrix
87381- 2	16-10'	12/08/92	12/21/92	Soil
87381- 4	16-20'	12/08/92	12/21/92	Soil

RESULTS OF ANALYSIS

Laboratory Number:	87381- 2	87381- 4
Gasoline:	ND<1	ND<1
Benzene:	ND<.005	ND<.005
Toluene:	ND<.005	ND<.005
Ethyl Benzene:	ND<.005	ND<.005
Xylenes:	ND<.005	ND<.005
Concentration:	mg/kg	mg/kg

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

C E R T I F I C A T E O F A N A L Y S I S

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS

QA/QC INFORMATION
SET: 87381

NA = ANALYSIS NOT REQUESTED
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT
mg/kg = parts per million (ppm)

OIL AND GREASE ANALYSIS By Standard Methods Method 5520F:
Minimum Detection Limit in Soil: 50mg/kg

Modified EPA SW-846 Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Soil: 1mg/kg

EPA SW-846 Method 8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Soil: 1mg/kg

EPA SW-846 Method 8020/BTXE
Minimum Quantitation Limit in Soil: 0.005mg/kg

ANALYTE	SPIKE LEVEL	MS/MSD RECOVERY	RPD	CONTROL LIMIT
Gasoline:	200 ng	102/103	1%	70-130
Benzene:	200 ng	98/90	9%	70-130
Toluene:	200 ng	95/95	0%	70-130
Ethyl Benzene:	200 ng	99/98	1%	70-130
Xylenes:	600 ng	98/98	0%	70-130

Richard Srna, Ph.D.
Laboratory Director

Fax copy of Lab Report and COC to Chevron Contact: ☐ Yes ☐ No 67381

Chain-of-Custody-Record

Chevron U.S.A. Inc.
P.O. BOX 5004
San Ramon, CA 94583
FAX (415)842-9591

Chevron Facility Number 9-0020
Facility Address 1633 Harrison
Consultant Project Number 020202779-030503
Consultant Name Groundwater Technology Inc.
Address 4057 Port Chicago Hwy
Project Contact (Name) Tim Watchers
(Phone) 510 671-2387 (Fax Number)

Chevron Contact (Name) Ms. Nancy Vukelich
(Phone)
Laboratory Name Superior
Laboratory Release Number 1636 8616 80
Samples Collected by (Name) Chip Hurley
Collection Date 12-8-92
Signature

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil A = Air W = Water C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	BTEX + TPH GAS (8020 + 8015)	TPH Diesel (8015)	Oil and Grease (5520)	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd,Cr,Pb,Zn,Ni (ICAP or AA)	Total Organic Carbon EPA 9060	Hold	Remarks
16-5'	1	1	S	G		ice	Y									X	X	
16-10'	2	1						X										
16-15'	3	1															X	
16-20'	4	1						X										
16-25'	5	1															X	
16-30	6	1															X	

Please Initial:
Samples Stored in ice.
Apropriate containers
Samples preserved
VOA's without headspace
Comments:

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
		12-9-92 12:30			
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Relinquished By (Signature)	Organization	Date	Received For Laboratory By (Signature)		Date/Time 12/9/92 12:30

Turn Around Time (Circle Choice)
24 Hrs.
48 Hrs.
5 Days
10 Days
As Contracted

Clayton
ENVIRONMENTAL
CONSULTANTS

Results of Analysis
for
Chevron U.S.A. Inc./ Groundwater Technology, Inc.

Client Reference: 9-0020/020202779-030503
Clayton Project No. 92121.74

Sample Matrix/Media: SOIL
Analysis Method: EPA 415.1

Date Received: 12/11/92
Date Analyzed: 12/31/92

Lab Number	Sample Identification	Date Sampled	Total Organic Carbon (mg/kg)	Detection Limit (mg/kg)
01A	16-20'	12/08/92	60	30
02A	METHOD BLANK	--	ND	30

ND Not detected at or above limit of detection
< Not detected at or above limit of detection
-- Information not available or not applicable

Chain of Custody and Analysis Request

Section I

page 1 of 1

From: Superior Precision Analytical, Inc.
825 Arnold Drive Suite 114
Martinez, CA 94553
Phone No. (415) 229-1512 Fax No. (415) 229-1525
Contact: SAJID SYED
P.O. No. 87381

Turn Around Time (circle one)
Same Day 72 Hrs
24 Hrs 5 Day
48 Hrs (10 Day)

Superior Precision Analytical, Inc.
P.O. Box 1545
Martinez, California 94553

Work Subcontracted to: Clayton

Section II: Analysis Request 9212174

	Laboratory Sample Identification	S = Soil A = Air W = Water Matrix	8240	8270	8010	8080	TOC	Client Sample Identification	Number of Containers	Preservative (yes or no)	DATE SAMPLED	Sampling Remarks
1	87381-1	S					X	16-5'	(1)	NA	12/8/92	Chevron ☒ Non-Chevron ☐ ** Please Fax Results **
2	-2	S						16-10'				TO GTI
3	-3	S						16-15'				
11 * 4	-4	S						16-20'				* Clayton only *
5	-5	S						16-25'				
6	-6	S					↓	16-30'	↓	↓	↓	
7												
8												
9												
10												
11												
12												

* PLUS CLAYTON 12/11/92 FRIDAY AFTERNOON

Relinquished by / Organization	Date/Time	Received by / Organization	Date/Time	Lab please initial the following:
[signature]	12/10/92 3:40	Tracy Bullock CLAYTON	12/11/92 4:00 PM	Samples Stored in Ice: Yes
Relinquished by / Organization	Date/Time	Received by / Organization	Date/Time	Appropriate Containers: Yes
Relinquished by / Organization	Date/Time	Received by / Organization	Date/Time	Samples Preserved: Yes
				VOAs without Headspace:
				Comments: OK 2½ x Lbc

Fax copy of Lab Report and COC to Chevron Contact: ☐ No

Chain-of-Custody-Record

Chevron U.S.A. Inc.
P.O. BOX 5004
San Ramon, CA 94583
FAX (415)842-9591
921217A

Chevron Facility Number: 9-0020
Facility Address: 1633 Harrison
Consultant Project Number: 020202779-030503
Consultant Name: Groundwater Technology Inc.
Address: 4057 Port Chicago Hwy
Project Contact (Name): Tim Watchers
(Phone): 510 671-2327 (Fax Number):

Chevron Contact (Name): Ms. Nancy Ukelich
(Phone):
Laboratory Name: Superior
Laboratory Release Number: 1636 Blaine
Samples Collected by (Name): Chip Hurley
Collection Date: 12-8-92
Signature:

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil A = Air W = Water C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	BTEX + TPH GAS (8020 + 8015)	TPH Diesel (8015)	Oil and Grease (5520)	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd,Cr,Pb,Zn,Ni (ICAP or AA)	Total Organic Carbon EPA 9060		Hold	Remarks
16-5'	1	1	S	G		ice	Y											X	Spoke with Tim Watchers 12/11/92 → only run TOC on sample #4 (16-20')
16-10'	2	1	↓	↓		↓	↓	X											
16-15'	3	1																X	
16-20'	4	1						X								X			
16-25'	5	1																X	
16-30	6	1	↓	↓		↓	↓											X	

Please Initial:
Samples Stored in ice.
Appropriate containers
Samples preserved
VOA's without headspace
Comments:

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
[signature]	[illegible]	12:30			
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Relinquished By (Signature)	Organization	Date	Received For Laboratory By: (Signature)		Date/Time 12/9/92 12:30

Turn Around Time (Circle Choice)
24 Hrs.
48 Hrs.
5 Days
10 Days
As Contracted

Western Operations

1252 Quarry Lane
P.O. Box 9019
Pleasanton, CA 94566
(510) 426-2600
Fax (510) 426-0106

Clayton
ENVIRONMENTAL
CONSULTANTS

February 10, 1993

Mr. Tim Watchers
GROUNDWATER TECHNOLOGY, INC.
4057 Port Chicago Hwy
Concord, CA 94520

REVISED REPORT
Client Ref. 9-0020/020202779-03050
Clayton Project No. 92121.74

Dear Mr. Watchers:

Attached is our revised analytical laboratory report for the samples received on December 11, 1992 from Superior Analytical Laboratory and originally reported to you on January 4, 1993. Analyses were performed by NET Pacific. On February 4, 1993 we were requested to revise this report to include results as a percentage. Those results are presented in this report. A copy of the Chain-of-Custody form acknowledging receipt of these samples is attached.

Please note that any unused portion of the samples will be disposed of 30 days after the date of this report, unless you have requested otherwise.

We appreciate the opportunity to be of assistance to you. If you have any questions, please contact Suzanne Silvera, Client Services Supervisor, at (510) 426-2657.

Sincerely,

Ronald H. Peters, CIH
Director, Laboratory Services
Western Operations

RHP/tb
Attachments

Clayton
ENVIRONMENTAL
CONSULTANTS

Results of Analysis
for
Chevron U.S.A. Inc./ Groundwater Technology, Inc.

Client Reference: 9-0020/020202779-030503
Clayton Project No. 92121.74

Sample Matrix/Media: SOIL
Analysis Method: EPA 415.1

Date Received: 12/11/92
Date Analyzed: 12/31/92

Lab Number	Sample Identification	Date Sampled	Total Organic Carbon (%)	Detection Limit (%)
01A	16-20'	12/08/92	0.006	0.003
02A	METHOD BLANK	--	ND	0.003

ND Not detected at or above limit of detection
< Not detected at or above limit of detection
-- Information not available or not applicable

Chain of Custody and Analysis Request

page 1 of 1

Section I

From: Superior Precision Analytical, Inc.
825 Arnold Drive Suite 114
Martinez, CA 94553
Phone No. (415) 229-1512 Fax No. (415) 229-1525
Contact: SAJID SYED
P.O. No. 87381

Turn Around Time (circle one)
Same Day 72 Hrs
24 Hrs 5 Day
48 Hrs (10 Day)

Superior Precision Analytical, Inc.
P.O. Box 1545
Martinez, California 94553

Work Subcontracted to: Clayton

Section II: Analysis Request 9212174

	Laboratory Sample Identification	S = Soil A = Air W = Water Matrix	8240	8270	8010	8080	TOC	Client Sample Identification	Number of Containers	Preservative (yes or no)	DATE SAMPLED	Sampling Remarks
1	87381-1	S					X	16-5'	(1)	NA	12/8/92	Chevron ☒ Non-Chevron ☐ ** Please Fax Results **
2	-2	S						16-10'				TO GTI
3	-3	S						16-15'				
4	-4	S						16-20'				* Clayton only test *
5	-5	S						16-25'				
6	-6	S					↓	16-30'	↓	↓	↓	
7												
8												
9												
10												
11												
12												

* Please Clayton 12/11/92 Friday afternoon

Relinquished by	Date/Time	Received by	Date/Time	Lab please initial the following:	
Organization	12/10/92 3:40	Organization CLAYTON	12/11/92 4:00	Samples Stored in Ice	Yes
Relinquished by	Date/Time	Received by	Date/Time	Appropriate Containers	Yes
Organization		Organization		Samples Preserved	
Relinquished by	Date/Time	Received by	Date/Time	VOAs without Headspace	
Organization		Organization		Comments	OK
				2½ x VOC	

Fax copy of Lab Report and COC to Chevron Contact: ☐ No 01301

Chain-of-Custody-Record

Chevron U.S.A. Inc.
P.O. BOX 5004
San Ramon, CA 94583
FAX (415)842-9591
9212174

Chevron Facility Number 9-0020
Facility Address 1633 Harrison
Consultant Project Number 020202779-030503
Consultant Name Groundwater Technology Inc.
Address 4057 Port Chicago Hwy
Project Contact (Name) Tim Watchers
(Phone) 510 671-2327 (Fax Number)

Chevron Contact (Name) Ms. Nancy Tukelich
(Phone)
Laboratory Name Superior
Laboratory Release Number 1636 86 1650
Samples Collected by (Name) Chip Hurley
Collection Date 12-8-92
Signature

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil A = Air W = Water C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	BTEX + TPH GAS (8020 + 8015)	TPH Diesel (8015)	Oil and Grease (5520)	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd,Cr,Pb,Zn,Ni (ICAP or AA)	Total Organic Carbon EPA 9060		HNU	Remarks
16-5'	1	1	S	G		ICE	Y	X										X	Spoke with Tim Watchers 12/11/92 → only run TOC on sample #4 (16-20')
16-10'	2	1	↓	↓		↓	↓												
16-15'	3	1																X	
16-20'	4	1						X											
16-25'	5	1																X	
16-30	6	1	↓	↓		↓	↓											X	

Please Initial:
Samples Stored in ice.
Apropriate containers
Samples preserved
VOA's without headspace
Comments:

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
		12-9-92 12:30			
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time 12:30 12/9/92

Turn Around Time (Circle Choice)
24 Hrs.
48 Hrs.
5 Days
10 Days
As Contracted

Fax copy of Lab Report and COC to Chevron Contact: ☐ No 07351

Chain-of-Custody-Record

Chevron U.S.A. Inc.
P.O. BOX 5004
San Ramon, CA 94583
FAX (415)842-9591

12121.1

Chevron Facility Number 9-0020
Facility Address 1633 Harrison
Consultant Project Number 020020779-030503
Consultant Name Groundwater Technology Inc.
Address 4057 Port Chicago Hwy
Project Contact (Name) Tim Watchers
(Phone) 510 671-2327 (Fax Number)

Chevron Contact (Name) Ms. Nancy Vukelich
(Phone) (510) 842-9581
Laboratory Name Superior
Laboratory Release Number 1636 8161 60
Samples Collected by (Name) Chip Hunley
Collection Date 12-8-92
Signature

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil W = Water A = Air C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	BTEX + TPH GAS (8020 + 8015)	TPH Diesel (8015)	Oil and Grease (5520)	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd,Cr,Pb,Zn,Ni (ICAP or AA)	Total Organic Carbon CPA 9060	Hold	Remarks
16-5'	1	1	S	G		Ice	Y										X	
16-10'	2	1						X										
16-15'	3	1															X	
16-20'	4	1						X										
16-25'	5	1															X	
16-30	6	1															X	

Please Initial:
Samples Stored in ice.
Appropriate containers
Samples preserved
VOA's without headspace
Comments:

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
	12-9-92	12:30			
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Relinquished By (Signature)	Organization	Date	Received For Laboratory By (Signature)		Date/Time 12:30 12/9/92

Turn Around Time (Circle Choice)
24 Hrs.
48 Hrs.
5 Days
10 Days
As Contracted

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

GROUNDWATER TECHNOLOGY, INC.
Attn: Sandra Lindsey

Project 020302499.061004
Reported 01/04/93

TOTAL PETROLEUM HYDROCARBONS

Lab #	Sample Identification	Sampled	Analyzed	Matrix
87466- 1	TB-LB	12/16/92	12/29/92	Water
87466- 2	RBMW1	12/16/92	12/30/92	Water
87466- 3	MW1	12/16/92	12/29/92	Water
87466- 5	MW2	12/16/92	12/29/92	Water
87466- 7	MW4	12/16/92	12/29/92	Water
87466- 9	MW5	12/16/92	12/29/92	Water
87466-11	MW6	12/16/92	12/29/92	Water
87466-13	MW8	12/16/92	12/29/92	Water
87466-15	MW10	12/16/92	12/29/92	Water
87466-17	MW11	12/16/92	12/30/92	Water

RESULTS OF ANALYSIS

Laboratory Number:	87466- 1	87466- 2	87466- 3	87466- 5	87466- 7
Gasoline:	ND<50	ND<50	ND<50	ND<50	ND<50
Benzene:	ND<0.5	ND<0.5	ND<0.5	ND<0.5	0.7
Toluene:	ND<0.5	ND<0.5	ND<0.5	ND<0.5	0.5
Ethyl Benzene:	ND<0.5	ND<0.5	ND<0.5	ND<0.5	0.5
Xylenes:	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.3
Concentration:	ug/L	ug/L	ug/L	ug/L	ug/L

Laboratory Number:	87466- 9	87466-11	87466-13	87466-15	87466-17
Gasoline:	ND<50	ND<50	ND<50	ND<50	ND<50
Benzene:	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
Toluene:	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
Ethyl Benzene:	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
Xylenes:	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
Concentration:	ug/L	ug/L	ug/L	ug/L	ug/L

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 ▪ Martinez, California 94553 ▪ (510) 229-1512 / fax (510) 229-1526

GROUNDWATER TECHNOLOGY, INC.
Attn: Sandra Lindsey

Project 020302499.061004
Reported 01/04/93

TOTAL PETROLEUM HYDROCARBONS

Lab #	Sample Identification	Sampled	Analyzed	Matrix
87466-19	MW12	12/16/92	12/29/92	Water
87466-21	MW14	12/16/92	12/30/92	Water
87466-23	MW3	12/16/92	12/30/92	Water
87466-25	MW-15	12/16/92	12/30/92	Water
87466-27	MW13	12/16/92	12/30/92	Water
87466-29	MW9	12/16/92	12/30/92	Water
87466-31	MW7	12/16/92	12/30/92	Water

RESULTS OF ANALYSIS

Laboratory Number:	87466-19	87466-21	87466-23	87466-25 MW15	87466-27 MW13
Gasoline:	ND<50	ND<50	ND<50	ND<50	87000 ✓
Benzene:	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1400 ✓
Toluene:	ND<0.5	ND<0.5	ND<0.5	ND<0.5	540
Ethyl Benzene:	ND<0.5	ND<0.5	ND<0.5	ND<0.5	2400
Xylenes:	ND<0.5	ND<0.5	ND<0.5	ND<0.5	11000
Concentration:	ug/L	ug/L	ug/L	ug/L	ug/L

Laboratory Number:	87466-29 MW9	87466-31 MW7
Gasoline:	9900 ✓	11000 ✓
Benzene:	380 ✓	810 ✓
Toluene:	220	350
Ethyl Benzene:	380	280
Xylenes:	1300	1100
Concentration:	ug/L	ug/L

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

CERTIFICATE OF ANALYSIS

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS

QA/QC INFORMATION
SET: 87466

NA = ANALYSIS NOT REQUESTED
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT
ug/L = parts per billion (ppb)

OIL AND GREASE ANALYSIS By Standard Methods Method 5520F:
Minimum Detection Limit in Water: 5000ug/L

Modified EPA SW-846 Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Water: 50ug/L

EPA SW-846 Method 8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Water: 50ug/L

EPA SW-846 Method 8020/BTXE
Minimum Quantitation Limit in Water: 0.5ug/L

ANALYTE	SPIKE LEVEL	MS/MSD RECOVERY	RPD	CONTROL LIMIT
Gasoline:	200 ng	97/100	3%	70-130
Benzene:	200 ng	86/91	6%	70-130
Toluene:	200 ng	90/95	5%	70-130
Ethyl Benzene:	200 ng	94/101	7%	70-130
Xylenes:	600 ng	94/100	6%	70-130

Richard Srna, Ph.D.

Laboratory Director

Fax copy of Lab Report and COC to Chevron Contact: ☐ Yes ☐ No 87466

Chain-of-Custody-Record

Chevron U.S.A. Inc.
P.O. BOX 5004
San Ramon, CA 94583
FAX (415)842-9591

Chevron Facility Number: 9-0020
Facility Address: 1633 Harrison, Oakland
Consultant Project Number: 020302499.061004
Consultant Name: Groundwater Technology, Inc.
Address: 4057 Port Chicago Hwy, Concord, CA 94520
Project Contact (Name): Ms. Sandra L. Lindsey
(Phone): 671-2387 (Fax Number): 685-9148

Chevron Contact (Name): Ms. Nancy Vukelich
(Phone): 510-842-9581
Laboratory Name: Superior Analytical
Laboratory Release Number: 436-8660
Samples Collected by (Name): Heidi Merino
Collection Date: 12-16-97
Signature:

1 of 4

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil W = Water C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	Analyses To Be Performed: BTEX + TPH GAS (8020 + 8015)	TPH Diesel (8015)	Oil and Grease (5520)	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd,Cr,Pb,Zn,Ni (ICAP or AA)	HOLD					Remarks
TripBlank	1	1	W	G		HCl	Y	X													
BMW1	2	1						X													
MW1	3	3						X													
MW1		2									X										
BMW2	4	1														X					
MW2	5	3						X													
MW2		2									X										
BMW4	6	1																			
MW4	7	3						X													
MW4		2									X										
BMW5	8	1														X					
MW5	9	3						X													
MW5		2	↓	↓		↓	↓				X										

Please Initial: W W SF
Samples Stored in ice. W
Appropriate containers W
Samples preserved W
VOA's without headspace W
Comments:

Analyze but Do not charge Trip Blank

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
[signature]	GTI				
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature): R Nampara		Date/Time: 12-17 9:00

Turn Around Time (Circle Choice)
24 Hrs.
48 Hrs.
5 Days
10 Days
As Contracted

ax copy of Lab Report and COC to Chevron Contact: ☐ No 8746

Chain-of-Custody-Record

hevron U.S.A. Inc.
O. BOX 5004
n Ramon, CA 94583
X (415)842-9591

Chevron Facility Number: 9-0020
Facility Address: 1633 Harrison, Oakland
Consultant Project Number: 020302499.061004
Consultant Name: Groundwater Technology, Inc.
Address: 4057 Port Chicago Hwy, Concord, CA 94520
Project Contact (Name): Ms. Sandra L. Lindsey
(Phone): 671-2387 (Fax Number): 685-9148

Chevron Contact (Name): Ms. Nancy Vukelich
(Phone): 510-842-9581
Laboratory Name: Superior Analytical
Laboratory Release Number: 436-8660
Samples Collected by (Name): [signature]
Collection Date: 12-16-97
Signature: [signature]

2 of 4

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil A = Air W = Water C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	Analyses To Be Performed: BTEX + TPH GAS (8020 + 8015)	TPH Diesel (8015)	Oil and Grease (5520)	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd,Cr,Pb,Zn,Ni (TCAP or AA)					Remarks
MW6	10	1	W	G		HCl										X				
MW6	11	3						X												
MW6		2									X									
BMW8	12	1														X				
MW8	13	3						X												
MW8		2									X									
BMW10	14	1														X				
MW10	15	3						X												
MW10		2									X									
BMW11	16	1																		
MW11	17	3						X												
MW11		2	↓	↓		↓					X									

Please Initial: [signature]
Samples Stored in Ice. [signature]
Appropriate containers [signature]
Samples preserved [signature]
VOA's without headspace [signature]
Comments:

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
[signature]	GTI				
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time
			R. Vanegas		12/17 9:00

Turn Around Time (Circle Choice)
24 Hrs.
48 Hrs.
5 Days
10 Days
As Contracted

Fax copy of Lab Report and COC to Chevron Contact: ☐ No 87460

Chain-of-Custody-Record

Chevron U.S.A. Inc.
P.O. BOX 5004
San Ramon, CA 94583
FAX (415)842-9591

Chevron Facility Number: 9-0020
Facility Address: 1633 Harrison, Oakland
Consultant Project Number: 020302499.061004
Consultant Name: Groundwater Technology, Inc.
Address: 4057 Port Chicago Hwy, Concord, CA 94520
Project Contact (Name): Ms. Sandra L. Lindsey
(Phone) 671-2387 (Fax Number) 685-9148

Chevron Contact (Name): Ms. Nancy Vukelich
(Phone) 510-842-9581
Laboratory Name: Superior Analytical
Laboratory Release Number: 436-8660
Samples Collected by (Name): Nicole MERINO
Collection Date: 12-16-92
Signature:

3 of 4

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil A = Air W = Water C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	Analyses To Be Performed: BTEX + TPH GAS (8020 + 8015)	TPH Diesel (8015)	Oil and Grease (5520)	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd,Cr,Pb,Zn,Ni (TCAP or AA)	HOLD					Remarks
MW12	18	1	W	G		Hcl	Y									X					
MW12	19	3						X													
MW12		2									X										
MW14	20	1														X					
MW14	21	3						X													
MW14		2									X										
MW3	22	1																			
MW3	23	3						X													
MW3	~~23~~	2									X										
MW15	24	1																			
MW15	25	3						X													
MW15		2									X										

Please Initial:
Samples Stored in ice
Appropriate containers
Samples preserved
VOA's without headspace
Comments:

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
	GTI				
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time
			K. Vanpoolis		12-17 9:20

Turn Around Time (Circle Choice)
24 Hrs.
48 Hrs.
5 Days
10 Days
As Contracted

ax copy of Lab Report and COC to Chevron Contact: ☐ Yes ☐ No 87466

Chain-of-Custody-Record

evron U.S.A. Inc.
O. BOX 5004
Ramon, CA 94583
(415)842-9591

Chevron Facility Number: 9-0020
Facility Address: 1633 Harrison, Oakland
Consultant Project Number: 020302499.061004
Consultant Name: Groundwater Technology, Inc.
Address: 4057 Port Chicago Hwy, Concord, CA 94520
Project Contact (Name): Ms. Sandra L. Lindsey
(Phone): 671-2387 (Fax Number): 685-9148

Chevron Contact (Name): Ms. Nancy Vukelich
(Phone): 510-842-9581
Laboratory Name: Superior Analytical
Laboratory Release Number: 436-8660
Samples Collected by (Name): Hector Morales
Collection Date: 12-16-97
Signature:

4 of 4

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil W = Water A = Air C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	Analyses To Be Performed: BTEX + TPH GAS (8020 + 8015)	TPH Diesel (8015)	Oil and Grease (5520)	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd,Cr,Pb,Zn,Ni (ICAP or AA)	HOLD					Remarks
MW13	26	1	W	G		HCl	Y									X					
MW13	27	3						X													
MW13		3									X										
MW9	28	1														X					
MW9	29	3						X													
MW9		2									X										
MW7	30	1																			
MW7	31	3						X													
MW7		2									X										

Please Initial:
Samples Stored in ice.
Appropriate containers
Samples preserved
VOA's without headspace
Comments:

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
[signature]	GTI	12-16-97			
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time
			R. Lameagis		12/17 9:00

Turn Around Time (Circle Choice)
24 Hrs.
48 Hrs.
5 Days
10 Days
As Contracted

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

GROUNDWATER TECHNOLOGY, INC.
Attn: Sandra Lindsey

Project 020302499-061004
Reported 01/04/93

TOTAL PETROLEUM HYDROCARBONS

Lab #	Sample Identification	Sampled	Analyzed	Matrix
87489- 2	MW-16	11/21/92	12/31/92	Water

RESULTS OF ANALYSIS

Laboratory Number: 87489- 2
MW16

Gasoline:	ND<50
Benzene:	ND<0.5
Toluene:	ND<0.5
Ethyl Benzene:	ND<0.5
Xylenes:	ND<0.5
Concentration:	ug/L

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

C E R T I F I C A T E O F A N A L Y S I S

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS

QA/QC INFORMATION
SET: 87489

NA = ANALYSIS NOT REQUESTED
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT
ug/L = parts per billion (ppb)

OIL AND GREASE ANALYSIS By Standard Methods Method 5520F:
Minimum Detection Limit in Water: 5000ug/L

Modified EPA SW-846 Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Water: 50ug/L

EPA SW-846 Method 8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Water: 50ug/L

EPA SW-846 Method 8020/BTXE
Minimum Quantitation Limit in Water: 0.5ug/L

ANALYTE	SPIKE LEVEL	MS/MSD RECOVERY	RPD	CONTROL LIMIT
Gasoline:	200 ng	89/92	3%	70-130
Benzene:	200 ng	87/84	4%	70-130
Toluene:	200 ng	94/90	4%	70-130
Ethyl Benzene:	200 ng	99/96	3%	70-130
Xylenes:	200 ng	97/95	2%	70-130

Richard Srna, Ph.D.
Nancy A. Nilsson for
Laboratory Director

Fax copy of Lab Report and COC to Chevron Contact: ☐ Yes ☐ No 87489

Chain-of-Custody-Record

Chevron U.S.A. Inc.
P.O. BOX 5004
San Ramon, CA 94583
FAX (415)842-9591

Chevron Facility Number 9-0020
Facility Address 1633 HARRISON - OAKLAND
Consultant Project Number 02030 2499-061004
Consultant Name Groundwater Technology
Address 4057 Port Chicago Hwy, Concord, CA
Project Contact (Name) SANDRA L. LINDSEY
(Phone) 671-2387 (Fax Number) 685-9148

Chevron Contact (Name) NANCY VUKELICH
(Phone) 510 842-9581
Laboratory Name SUPERIOR ANALYTICAL
Laboratory Release Number 436-8660
Samples Collected by (Name) [redacted] GREG MASON
Collection Date 12-21-92
Signature

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil A = Air W = Water C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	Analyses To Be Performed: BTEX + TPH GAS (8020 + 8015)	TPH Diesel (8015)	Oil and Grease (5520)	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd,Cr,Pb,Zn,Ni (ICAP or AA)		HOLD				Remarks
RBMW-16		1	W	G		HCl	Yes										X				
MW-16		3	W	G		HCl	Yes	X													
MW-16		[redacted]	W	G		[redacted]	Yes				X										

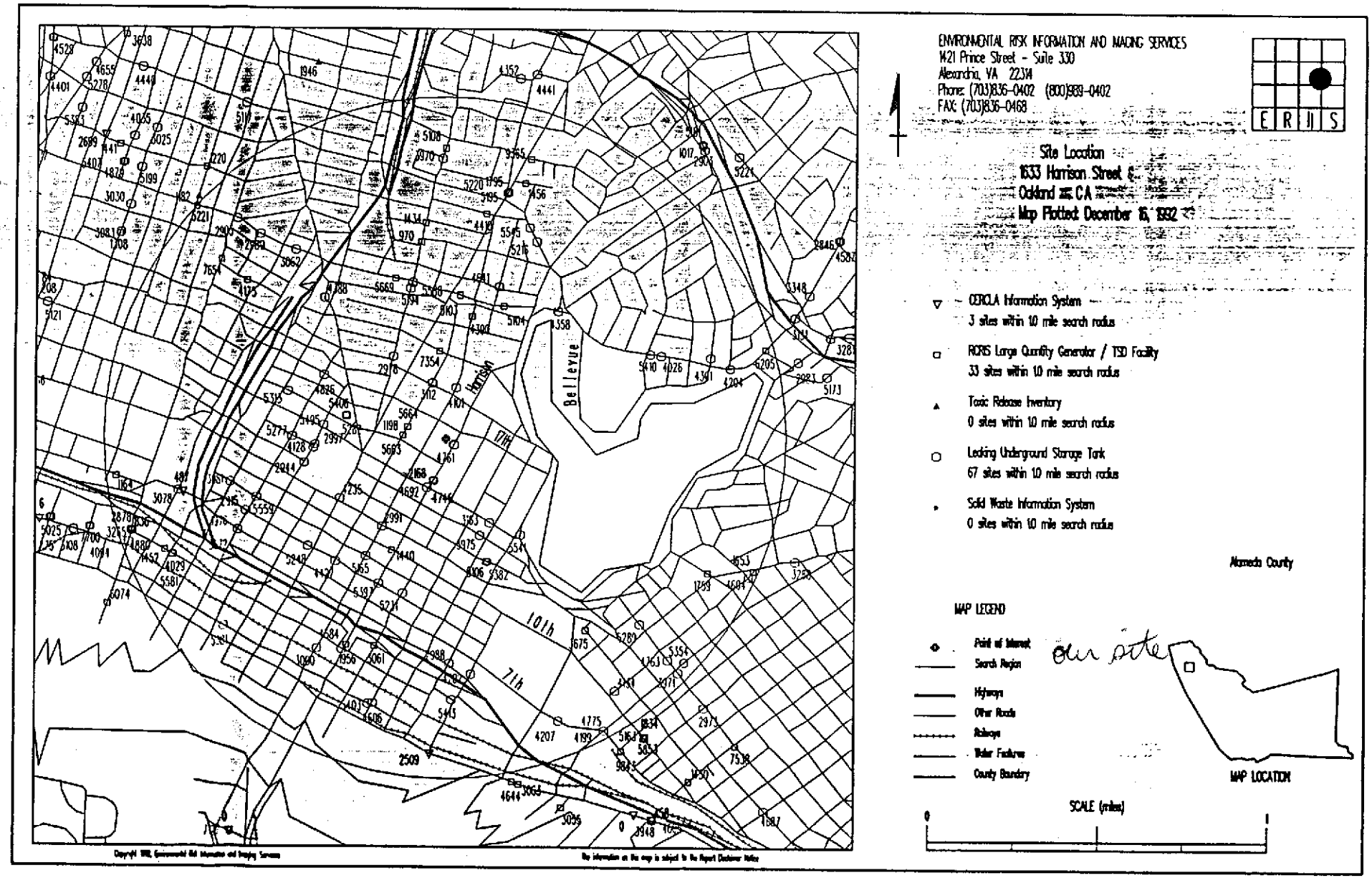
Please Initial:
Samples Stored in Ice: Y
Appropriate containers Y
Samples preserved Y
VOA's without headspace
Comments

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
	GTI	12-22-92			
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time 12/22/92 08:45

Turn Around Time (Circle Choice)
24 Hrs.
48 Hrs.
5 Days
10 Days
As Contracted

APPENDIX F

ENVIRONMENTAL RISK INFORMATION AND IMAGING SERVICES MAPS


ENVIRONMENTAL RISK INFORMATION AND IMAGING SERVICES
1421 Prince Street - Suite 330
Alexandria, VA 22314
Phone: (703)836-0402 (800)989-0402
FAX: (703)836-0468
E R I S
Site Location
1633 Harrison Street &
Oakland CA
Map Plotted: December 16, 1992
CERCLA Information System
3 sites within 1.0 mile search radius
RCRIS Large Quantity Generator / TSD Facility
33 sites within 1.0 mile search radius
Toxic Release Inventory
0 sites within 1.0 mile search radius
Leaking Underground Storage Tank
67 sites within 1.0 mile search radius
Solid Waste Information System
0 sites within 1.0 mile search radius
Alameda County
MAP LEGEND
Point of Interest
Search Region
Highways
Other Roads
Railways
Water Features
County Boundary
our site
MAP LOCATION
SCALE (miles)
0
1
Bellevue
Harrison
10th
11th
7th
880
1633

VI. SANBORN FIRE INSURANCE MAPS

SANBORN FIRE INSURANCE MAPS FOUND FOR:

1633 HARRISON STREET
OAKLAND, CA

JOB NUMBER: 15132

1952
1950
1911

KEY

- Fire proof construction. (OR FIRE RESISTIVE CONSTN)
- Adobe building.
- Stone building
- Concrete, lime, cinder or cement brick
- Hollow concrete or cement block constn
- Concrete or reinforced concrete constn
- Tile building.
- Brick building with frame cornice.
  - " " " stone front.
  - " " " frame side (DIVIDED BY FRAME PARTITION)
- Brick veneered building.
  - " and frame building.
- Frame building, brick lined.
  - " " metal clad.
- Frame building.
- Iron building.
- Tenant building occupied by various manufacturing or occupancies
- Frame building covered with asbestos
- Brick building with brick or metal cornice.
- Fire wall 6 inches above roof.
  - " " 12 " " "
  - " " 18 " " "
  - " " 36 " " "
- Figures 8, 12, 16 indicate thickness of wall in inches.
- Wall without opening and size in inches.
- Wall with openings on floors as designated.
- Opening with single iron or tin clad door.
  - " " double iron " " " doors.
  - " " standard fire doors.
- Openings with wired glass doors.
- Drive or passage way.
- Stable.
- Auto. House or private garage.
- Solid brick with interior walls of C.B. or C.B. and brick mixed.
- Mixed construction of C.B. and brick with one wall of solid brick.
- Mixed construction of C.B. and brick with one wall faced with 4" brick.
- Mixed construction of C.B. and brick throughout.

HAZARD ROAD — DOTS REPRESENT OPENINGS. STEMS INDICATE STORIES. COUNTING FROM LEFT TO RIGHT, LOOKING TOWARD BUILDING

- Window opening in first story.
- Window openings in second and third stories.
- Window openings in second and fourth stories
- Windows with wired glass
- Windows with iron or tin clad shutters
- Window openings tenth to twenty-second stories.

Width of street (BETWEEN BLOCK LINES, NOT CURB LINES.)

- E Open elevator
- FE Frame unclosed elevator.
- ET " " " with traps.
- ESC " " " " self closing traps.
- CBE Concrete block enclosed elevator with traps.
- TESC Tile enclosed elevator with self closing traps.
- BE Brick enclosed elev. with wired glass door.

- Iron chimney (WITH SPARK ARRESTOR)
- Brick chimney.
- (15) Ground elevation.
- 5 Block number.
- VPB Vertical steam boiler.
- GT Gasoline tank.
- (O.U) Open under.
- Vertical pipe or stand pipe.
- AFA Automatic fire alarm.
- IEP Independent electric plant.
- Siamese fire dept. connection
- Single fire dept. connection
- (AS) Automatic sprinklers.
- (AC) Automatic chemical sprinklers.
- (AS) Automatic sprinklers in part of building only. (NOTE UNDER SYMBOL INDICATES PROTECTED PORTION OF BUILDING)
- (NS) Not sprinklered.
- Outside vertical pipe on fire escape.
- (FA) Fire alarm box.
- Single hydrant.
- D.H. Double "
- T.H. Triple "
- Q.H. Quadruple hydrant of the "High Pressure Fire Service".
- (FA) Fire alarm box of the "High Pressure Fire Service"
- Water pipes of the "High Pressure Fire Service"
- " " and hydrants of the "High Pressure Fire Service" as shown on key map.
- 6" W PIPE Water pipes and size in inches.
- 6" H PIPE (PRIVATE) Water pipes of private supply
- House numbers shown nearest to buildings are official or actually up on buildings.
- Old house numbers shown furthest from buildings.

24 Reference to adjoining page.

+ Fire engine house, as shown on key map.

Fire pump.

(36) Under page number refers to corresponding page of previous edition.

TANKS

G.T. ○ Gasoline Tank

4' EARTH DIKE

CRUDE OIL TANKS CAPCY. 100,000 GALS EACH

23 — 24 — 25

1000 GAL. KEROSENE TK. 26

27 2000 GAL. GASOLINE TK.

○ G.T

10,000 GAL STEEL W.T. ELEVD. 70 ABV GRD.

E.

20000 GAL. PRESSURE TANK ELEV'D. 20' ABV ROOF ON STEEL FR.

FUEL OIL LINE

○ Fire Cistern

CISTERN

2

GARAGE
CAPCY. 20 CARS
CONC. FL.
WOOD RAMP TO 2ND REP. 2ND.

1

PRIVATE GARAGE
CAPCY. 10 CARS
CONC. FL.

CODING OF STRUCTURAL UNITS FOR FIREPROOF AND NON-COMBUSTIBLE BUILDINGS

FRAMING

CODE	STRUCTURAL UNIT
A.	Reinforced Concrete Frame.
B.	Reinforced Concrete Joists, Columns, Beams, Trusses, Arches, Masonry Piers.
C.	Protected Steel Frame.
D.	Individually Protected Steel Joists, Columns, Beams, Trusses, Arches.
E.	Indirectly Protected Steel Frame.
F.	Indirectly Protected Steel Joists, Columns, Beams, Trusses, Arches.
G.	Unprotected Steel Frame.
H.	Unprotected Steel Joists, Columns, Beams, Trusses, Arches.
O.	Masonry Bearing Walls.

FLOORS

CODE	STRUCTURAL UNIT
1.	Reinforced Concrete. Reinforced Concrete with Masonry Units. Pre-cast Concrete or Gypsum Slabs or Planks.
2.	Concrete on Metal Lath, Incombustible Form Boards, Paper-backed Wire Fabric, Steel Deck, and Cellular, Ribbed or Corrugated Steel Units.
3.	Open Steel Deck or Grating.

ROOF

CODE	STRUCTURAL UNIT
a.	Reinforced Concrete. Reinforced Concrete with Masonry Units. Reinforced Gypsum Concrete. Pre-cast Concrete or Gypsum Slabs or Planks.
b.	Concrete or Gypsum on Metal Lath, Incombustible Form Boards, Paper-backed Wire Fabric, Steel Deck, and Cellular, Ribbed or Corrugated Steel Units.
c.	Incombustible Composition Boards with or without Insulation. Masonry or Metal Tiles.
d.	Steel Deck, Corrugated Metal or Asbestos Protected Metal with or without Insulation.

LAND USE CODE APPLICABLE TO CHANGES DIAGRAMMED AFTER 5/69

R	RESIDENTIAL	M	MANUFACTURING
RT	RESIDENTIAL - TRANSIENT	P	PUBLIC OR INSTITUTIONAL
C	COMMERCIAL	U	UTILITY
W	WAREHOUSE	T	TRANSPORTATION

NUMERICAL PREFIX INDICATES THE NUMBER OF ESTABLISHMENTS IN EACH CATEGORY

The coding for framing, floor and roof structural units as shown above is used in describing the construction of fire-resistive buildings. In addition, reports for fire-resistive buildings will show the date built and wall construction when other than brick.

F P buildings have masonry floors and roof; concrete and/or directly or indirectly protected steel framing; and clay brick, stone or poured concrete walls.

F P X buildings are F P buildings with inferior walls such as concrete block, cement brick, metal or glass panels, etc.

N C buildings have unprotected steel framing and fire-resistive but non-masonry floors and roof.

FP-1962 (CONC.) A-1-a	A fire-resistive building built in 1962 with concrete walls and reinforced concrete frame, floors and roof.
FPX-1962 (METAL PANELS) E-2-b NONCOMB CEIL'G	A fire-resistive building built in 1962 with metal panel walls, indirectly protected steel frame, concrete floors and roof on metal lath, noncombustible ceilings.
NC-1962 (C. B.) H-2-d	A noncombustible building built in 1962 with concrete block walls; unprotected steel columns and beams; concrete floors on metal lath and steel deck roof.

5-62

SANBORN MAP LEGEND

CODING OF FIRE-RESISTIVE STRUCTURAL UNITS FOR FIREPROOF AND NON-COMBUSTIBLE BUILDINGS

FRAMING

CODE	STRUCTURAL UNIT
A.	Reinforced Concrete Frame.
B.	Reinforced Concrete Joists, Columns, Beams, Trusses, Arches, Masonry Piers.
C.	Protected Steel Frame.
D.	Individually Protected Steel Joists, Columns, Beams, Trusses, Arches.
E.	Indirectly Protected Steel Frame.
F.	Indirectly Protected Steel Joists, Columns, Beams, Trusses, Arches.
G.	Unprotected Steel Frame.
H.	Unprotected Steel Joists, Columns, Beams, Trusses, Arches.
O.	Masonry Bearing Walls only.

FLOORS

CODE	STRUCTURAL UNIT
1.	Reinforced Concrete, Reinforced Concrete with Masonry Units, Pre-cast Concrete or Gypsum Slabs or Planks.
2.	Concrete on Metal Lath, Incombustible Form Boards, Paper-backed Wire Fabric, Steel Deck, or Cellular, Ribbed or Corrugated Steel Units.
3.	Open Steel Deck or Grating.

ROOF

CODE	STRUCTURAL UNIT
a.	Reinforced Concrete, Reinforced Concrete with Masonry Units, Reinforced Gypsum Concrete, Pre-cast Concrete or Gypsum Slabs or Planks.
b.	Concrete or Gypsum on Metal Lath, Incombustible Form Boards, Paper-backed Wire Fabric, Steel Deck, or Cellular, Ribbed or Corrugated Steel Units.
c.	Incombustible Composition Boards with or without Insulation, Masonry or Metal Tiles.
d.	Steel Deck, Corrugated Metal or Asbestos Protected Metal with or without Insulation.

The coding to left, for framing, floor and roof structural units is used in describing the construction of fire-resistive buildings. In addition, reports for fire-resistive buildings will show the date built, wall construction other than brick, and ceilings.

FP - 1962 (CONC) A-1-a — A fireproof building built in 1962 with concrete walls and reinforced concrete frame, floors and roof.

FPX - 1962 (METAL PANELS) B-2-a (NONCOMB. CEILGS) — A fireproof building built in 1962 with metal panel walls, reinforced concrete columns and beams, concrete floors on metal lath and gypsum slab roof; non-combustible ceilings.

NC - 1962 (C. B.) H-2-d — A noncombustible building built in 1962 with concrete block walls; unprotected steel columns, beams and joists; concrete floors on metal lath and steel deck roof.

MASONRY CONSTRUCTION

Important interior and all exterior masonry walls of all non-residential buildings and residential buildings of five or more dwelling units are shown with weighted (——) lines.

Masonry walls of residential buildings of four dwelling units or less are shown with a standard line and the construction is noted on all buildings diagramed after July, 1963.

WALLS

- 8" Brick
- (CONC.) 12" Concrete
- (STONE) 18" & 20" Stone
- (TILE) 12" & 8" Hollow Tile Wall Thicknesses Placed Relative to Respective Floors
- (C. BR) Cinder, Concrete or Cement Brick
- (C. B.) (PILASTD) Hollow Cinder or Concrete Blocks, Pilastered
- (C.BR.F.) Mixed Construction of Concrete Blocks, Brick Faced
- (C.B.& BR.) Mixed Construction of Concrete Blocks & Brick
- (METAL) Masonry Walls, Metal Faced
- (ADOBE) Adobe
- C.B. / TILE / C. BR. Hollow Cinder or Concrete Block Interior Wall Basement to Roof
- TILE / C. BR. Tile Interior Wall Basement to Roof
- C. BR. Cement Brick End Wall

PARTITIONS

- Frame
- TILE TO CEILING — Tile from Foundation to Top Ceiling only
- CONC. 1ST — Concrete 1st Floor only
- C.B. 1ST — Hollow Cinder or Concrete Block 1st Floor only
- BR. 2ND — Brick 2nd Floor only
- TILE 1&3 — Tile 1st & 3rd Floors only

OPENINGS

(Interior)

- Wall with No Openings
- 2 — Wall with Double Standard Fire Doors 1st Floor
- B — Wall with Standard Fire Door Basement
- 1,3 — Wall with Substandard Fire Doors 1st & 3rd Floors
- ALL — Wall with Metal & Wired Glass Fire Doors all Floors
- 1,2,3,4 — Wall with Substandard Fire Doors 1st, 2nd & 3rd Floors & Unprotected Opening 4th Floor
- HALF PROT. — Wall with Small Unprotected Openings only
- ALL — Wall with Unprotected Openings all Floors

(Exterior)

- 1st Floor
- 1st & 2nd Floors
- 3rd Floor
- METAL SHUTTER — 1st & 4th Fl. with Metal Shutter 1st.
- 10th & 22nd only
- 10th to 22nd Fl.
- GL. BLK. — Glass Block
- WIRED GLASS — Wired Glass in Metal Sash 2nd & 3rd Fl.

NON-MASONRY CONSTRUCTION

Non-masonry walls are shown with fine (———) lines.
(Wall construction other than wood and stucco on wood frame is noted)

- Wood & Stucco & Cement Plaster, Etc. on Wood Frame
- (VENEER) Brick Veneered on Wood Frame (Other Types of Veneered on Wood Frame Specifically Noted)
- Mixed Masonry & Non-Masonry (Type of Masonry Specifically Noted)
- (BR FILLED) Wood, Brick Lined, Br. Filled or Brick Nogged
- WOOD & GLASS — Wood Sash & Glass
- IR. & GLASS — Metal Sash & Glass
- (IR. CL.) Metal Clad on Wood Frame
- (IRON) Iron Building
- (IR.) WOOD RF. — Iron Building with Wood Roof. (Location of Extensive Wood Areas Specifically noted)
- (ASB. CL.) Asbestos Clad on Wood Frame, Noted in Non-Residential Structures only.
- (M. & GLASS ABV.) Mixed Wall--% of CB [illegible] Metal Sash Above
- (METAL PANELS) Metal Panels
- (C.B.S.) Apron Walls With Wood Sash and Glass
- (M.L. & P. STEEL FR.) Stucco, Cement Plaster, Etc. on Steel Frame
- (CONCRETE STEEL FR.) [illegible]
- (A.P.M. STEEL FR.) Asphalt and/or Asbestos Protected Metal on Steel Frame
- (A.P.M. WOOD FR.) Asphalt and/or Asbestos Protected Metal on Wood Frame
- (GLASS PANELS) Glass Panels

FIRE PROTECTION

- Fire Department Connection
- AS THRU-OUT — Automatic Sprinklers throughout contiguous sections of single risk
- AS — Automatic Sprinklers all floors of building
- AS 1ST ONLY — Automatic Sprinklers in part of building only (Note under Symbol indicates protected portion of building)
- NS — Not Sprinklered
- ACS — Automatic Chemical Sprinklers
- ACS — Chemical Sprinklers in part of building only (Note under Symbol indicates protected portion of building)
- V.P. HYD. — Vertical Pipe or Stand Pipe
- AFA — Automatic Fire Alarm
- WT — Water Tank
- F.E. — Outside Vertical Pipe on fire escape
- FA — Fire Alarm Box Noted "HPFS" on High Pressure Fire Service

- Single Hydrant
- D.H. — Double Hydrant
- T.H. — Triple Hydrant
- Q.H. H.P.F.S. — Quadruple Hydrant of the High Pressure Service
- 20"W.P. (or 8 CL) — Water Pipes of the High Pressure Service
- 12" — Water Pipes of the High Pressure Service as Shown on Key Map
- 6"W.P. / 4"W.P. — Public Water Service
- 6"W.P. (PRIV.) — Private Water Service

VERTICAL OPENINGS

- Skylight lighting top story only
- 3 — Skylight lighting 3 stories
- WG — Skylight with Wired Glass in Metal Sash
- (E) — Open Elevator
- (FE) — Frame Enclosed Elevator
- (ET) — Frame Enclosed Elevator with Traps
- (ESC) — Frame Enclosed Elevator with Self Closing Traps
- (CET) — Concrete Block Enclosed Elevator with Traps
- (TESC) — Tile Enclosed Elevator with Self Closing Traps
- (BE) — Brick Enclosed Elevator with Wired Glass Door
- (H) — Open Hoist
- (HT) — Hoist with Traps
- (H) B'MT. — Open Hoist Basement to 1st
- Stairs

MISCELLANEOUS

- MANSARD 40 FT. — Number of Stories, Height in Feet, Composition Roof Covering
- Parapet 6" above Roof, Frame Cornice, Parapet 12" above Roof
- W. HO. — Parapet 24" above Roof, Occupied by Warehouse, Metal, Slate, Tile or Asbestos Shingle Roof Covering, Parapet 48" above Roof
- S. 2B / 2-D / A in B / RS — 142 — 2 Stories & Basement, 1st Floor Occupied by Store, 2 Residential Units above 1st, Auto in Basement, Drive or Passageway, Wood Shingle Roof
- IR. CH. — Iron Chimney
- IR. CH. S.A. (with Spark Arrestor)
- Brick Chimney
- G.T. — Gasoline Tank
- UP B — Vertical Steam Boiler
- Fire Pump
- Horizontal Steam Boiler
- CURB LINE — Width of Street between Block Lines, not Curb Lines
- 50 / 15 — Ground Elevation
- CURB LINE — 56 / 416 — 2 D — House numbers nearest to Buildings are Official or Actually up on Buildings. Old House Numbers are Farthest from Buildings
- 24 — Reference to Adjoining Page
- 5 — Block Number
- Fire Department as shown on Key Map
- Vac. or V. - Vacant
- Vac. & Op. or V.-O. - Vacant & Open

GLOSSARY

A - B LINES An arbitrary boundary between adjoining sheets.
A. Private garage.
ABV. Above.
A. F. A. Equipped with fire detecting devices which automatically signal a central fire department.
AIR COND. Air cooling system employing ducts through floors.
APRON WALL A masonry wall extending 5' or less above foundation.
ASSOC. RISK Risk not underwritten by Stock Fire Ins. Companies.
BASEMENT A story having its floor below ground & its ceiling at least 4' above ground.
Cook County, Ill.: A floor of a building next below the first floor. Shown by the symbol B following story height. Sub-basements or sub-cellars, (stories below the 1st basement), are shown by the symbol SB following basement symbol.
CHIMNEYS (Applicable to maps in Rocky Mountain & Pacific Coast States):
BC. Brick, stone, concrete brick & concrete chimneys.
C. BL. C. Concrete block chimney.
C. C. Non-standard concrete chimney.
T. C. Tile chimney.
P. C. Patent chimney.
IR. CH. Iron chimneys.
S. P. Stove pipe.
S. P. V. Stove pipe with patent ventilator.

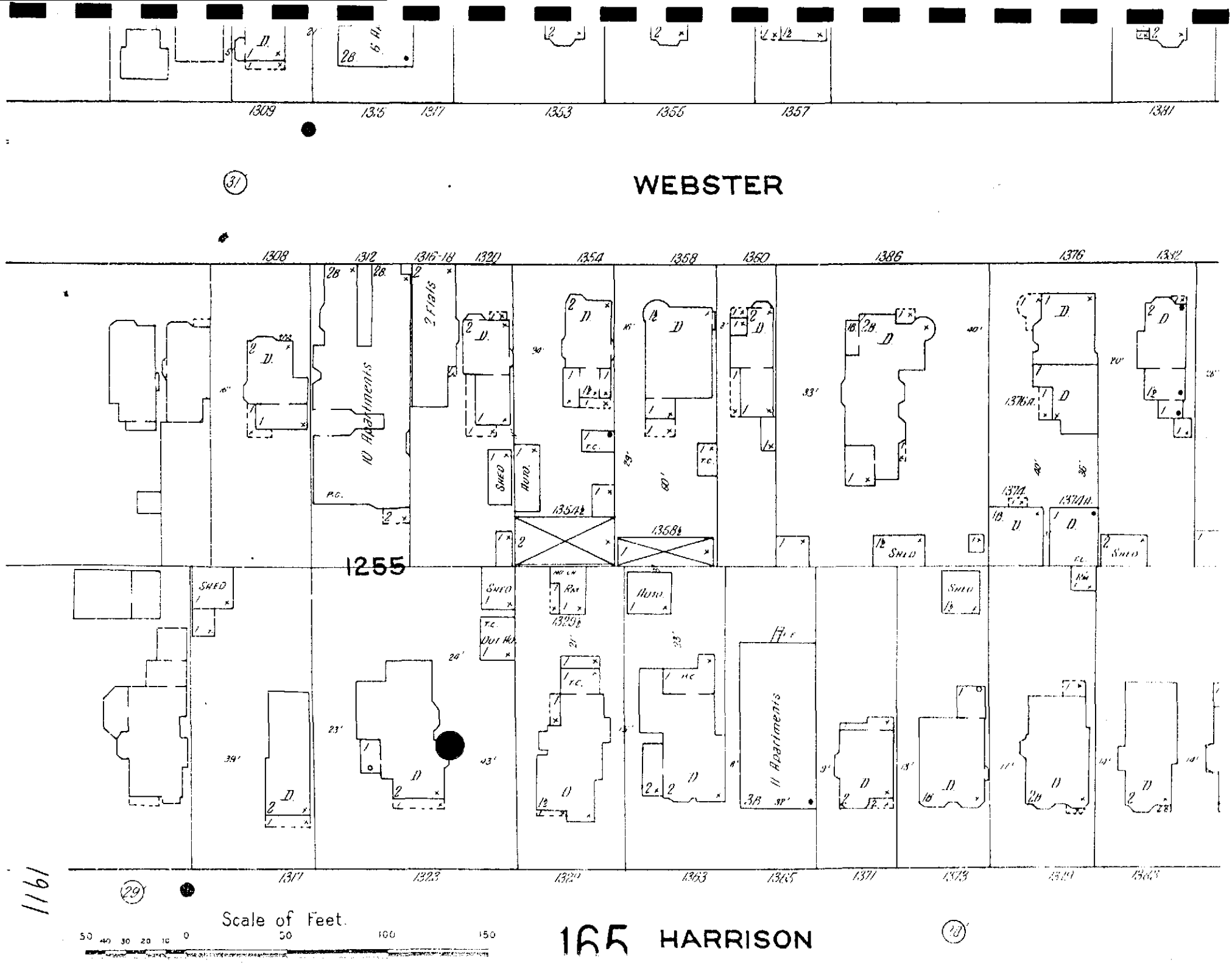
RESIDENTIAL OCCUPANCY SYMBOLS
D. Single family unit or as qualified by a numeral.
F. - APTS. A multi-family residential building corresponding with local Rating Bureau definition in family units per floor, story height, & separation of entrance.
ROOM'G. A residential building normally occupied by a single family but with 10 or more rooms rented for lodging purposes.
EXCEPTIONS: 8 rooms in Arizona, California, Nevada, Utah & Montana; 5 rooms in Oregon & Washington; 4 rooms in Idaho & Hawaii.

FIRE RESISTIVE CONSTRUCTION SYMBOLS
F. P. Approved masonry walls, floors & roof, interior supports of approved masonry, concrete, and/or protected steel.
F. P. X. F. P. qualifications except inferior or sub-standard walls.
N. C. Fire resistive with unprotected structural steel units.
HOLLOW WALL A bonded masonry wall having a continuous air space within.
I. E. P. Independent Electric Plant.
IMPASSABLE Not traversable due to condition of terrain.
LEDGED WALL A masonry bearing wall with extended ledges to support floors.
LOFT Tenanted by industrial occupancies.
M. L. & P. Concrete or plaster applied to metal lath on wood studdings.
M. S. & G. Metal sash & glass.
NOT OPEN Streets appearing on records but not open on ground.
O. L. Windows overlooking the roof above the corresponding floor of an adjoining building.
O. U. Open between ground and first floor.
PILAST'D. Masonry reinforcing columns in walls.
SKYTS. Skylights.
SL. CL. Slate attached to wood siding.
SM. HO. Smoke House.
STABLE Shown by crossing diagonal lines on diagram.
SUSP'D. Suspended ceilings below floor and/or roof beams.
SYST. System.
TRANSF. Transformer.
WD. Wood.

CAUSE FOR APPARENT NON-CONFORMITY WITH ZONE

R		H	
RT	RESIDENTIAL - TRANSIENT	P	PUBLIC OR INSTITUTIONAL
C	COMMERCIAL	U	UTILITY
W	WAREHOUSE	T	TRANSPORTATION

NUMERICAL PREFIX INDICATES THE NUMBER OF ESTABLISHMENTS IN EACH CATEGORY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1317
1353
1356
1357
1361
31
WEBSTER
1308
1312
1316-18
1320
1354
1358
1360
1386
1376
1382
10 Apartments
2 Flats
SHED
Rest.
1255
1376A
1374
1374A
1317
1323
1329
1363
1365
1371
1373
1379
1385
29
Scale of Feet.
50 40 30 20 10 0 50 100 150
165 HARRISON
27
1161

See Volume One

BROADWAY

FRANKLIN

WEBSTER

17TH ST.

18TH ST.

2016

1256

1254

2015

1255

2014

153

165

166

U. S. POST OFFICE
Fire proof Construction

HOTEL ATHENS

Temporary CITY HALL ANNEX
City Offices Ea. Fl.

1ST CHURCH OF CHRIST SCIENTIST

HOME TELEPHONE BLDG

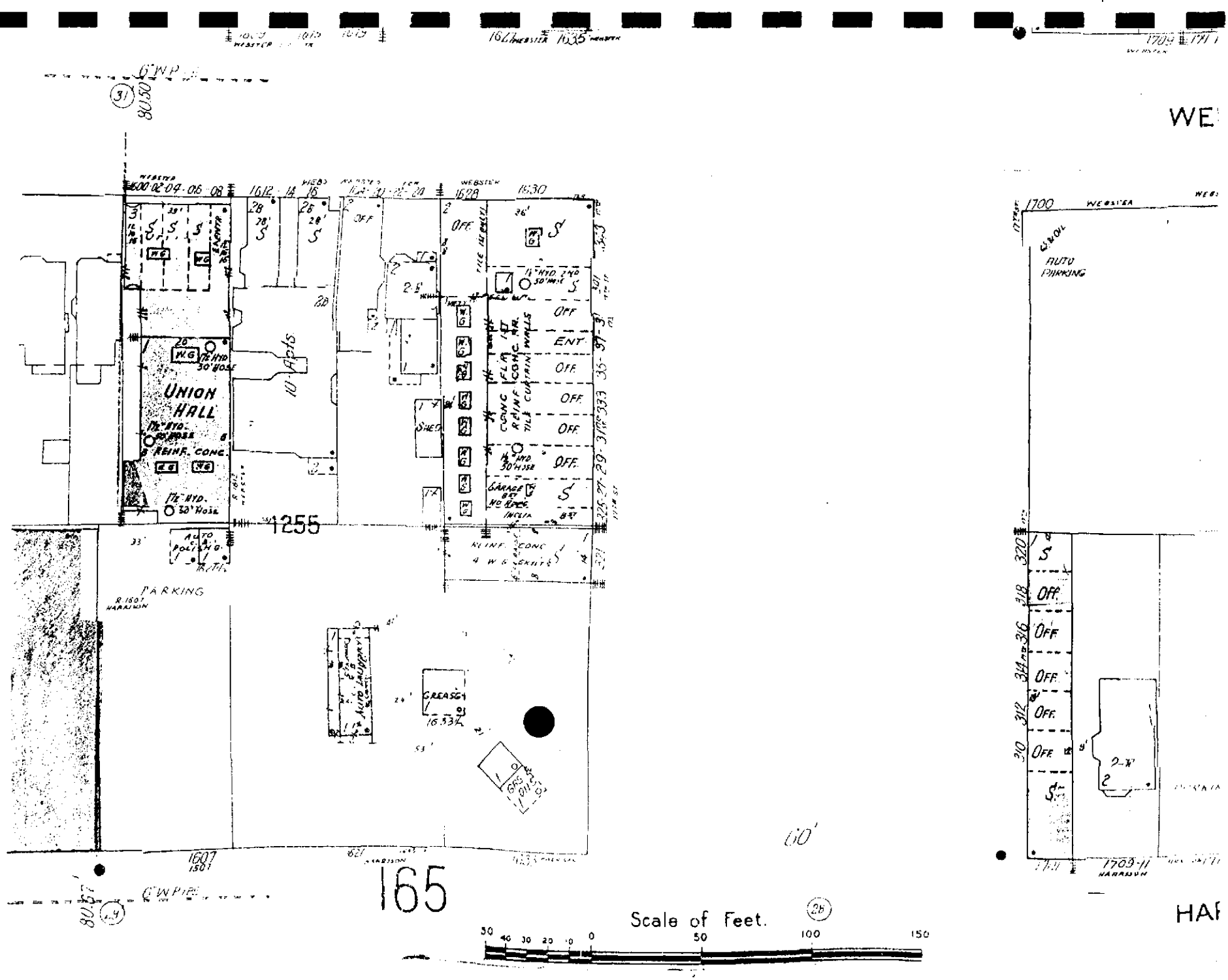
DETENTION HOME

PLATING & POLISHING

NATIONAL GUARD ARTILLERY W. HD.

Scale of Feet.

1911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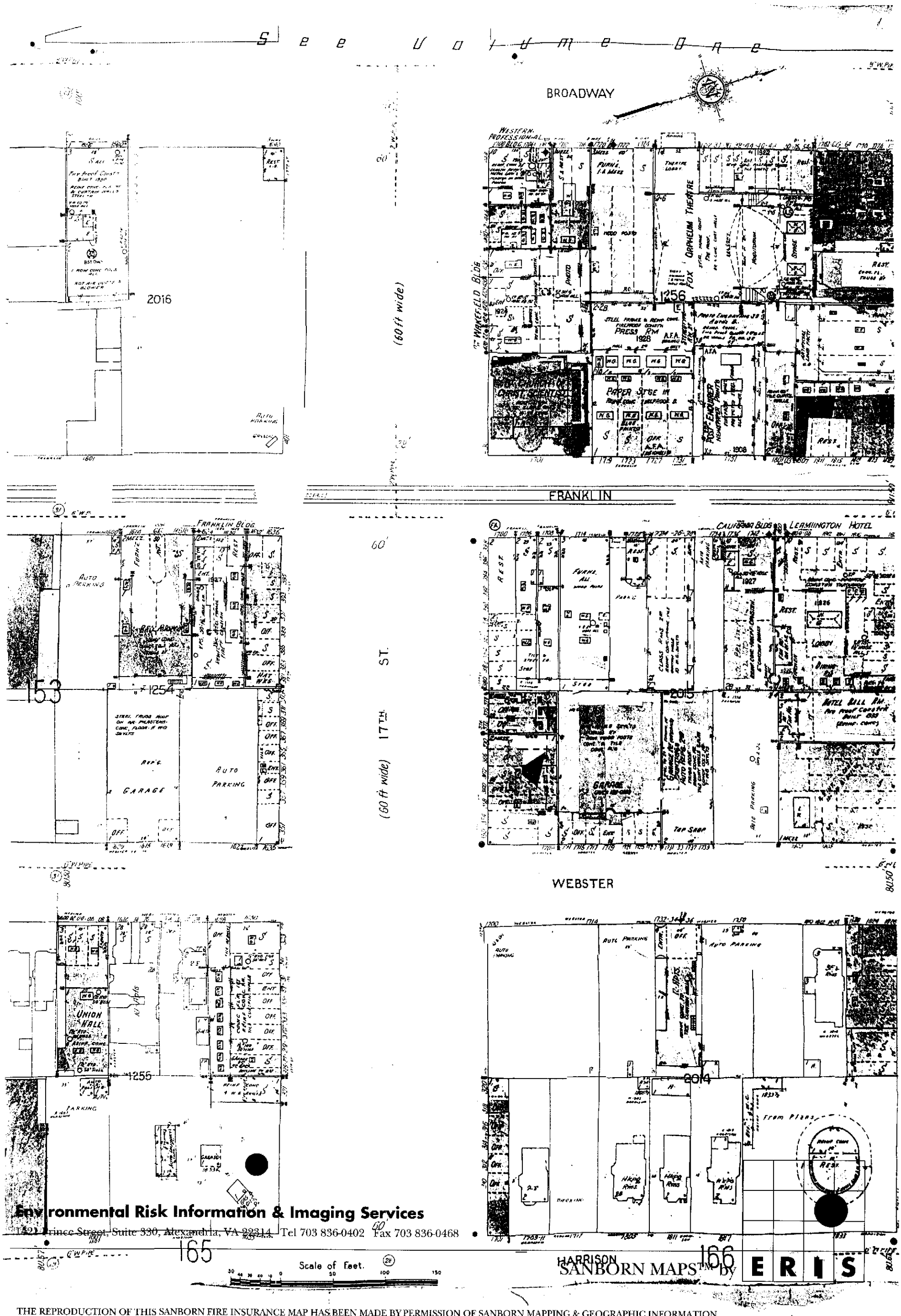
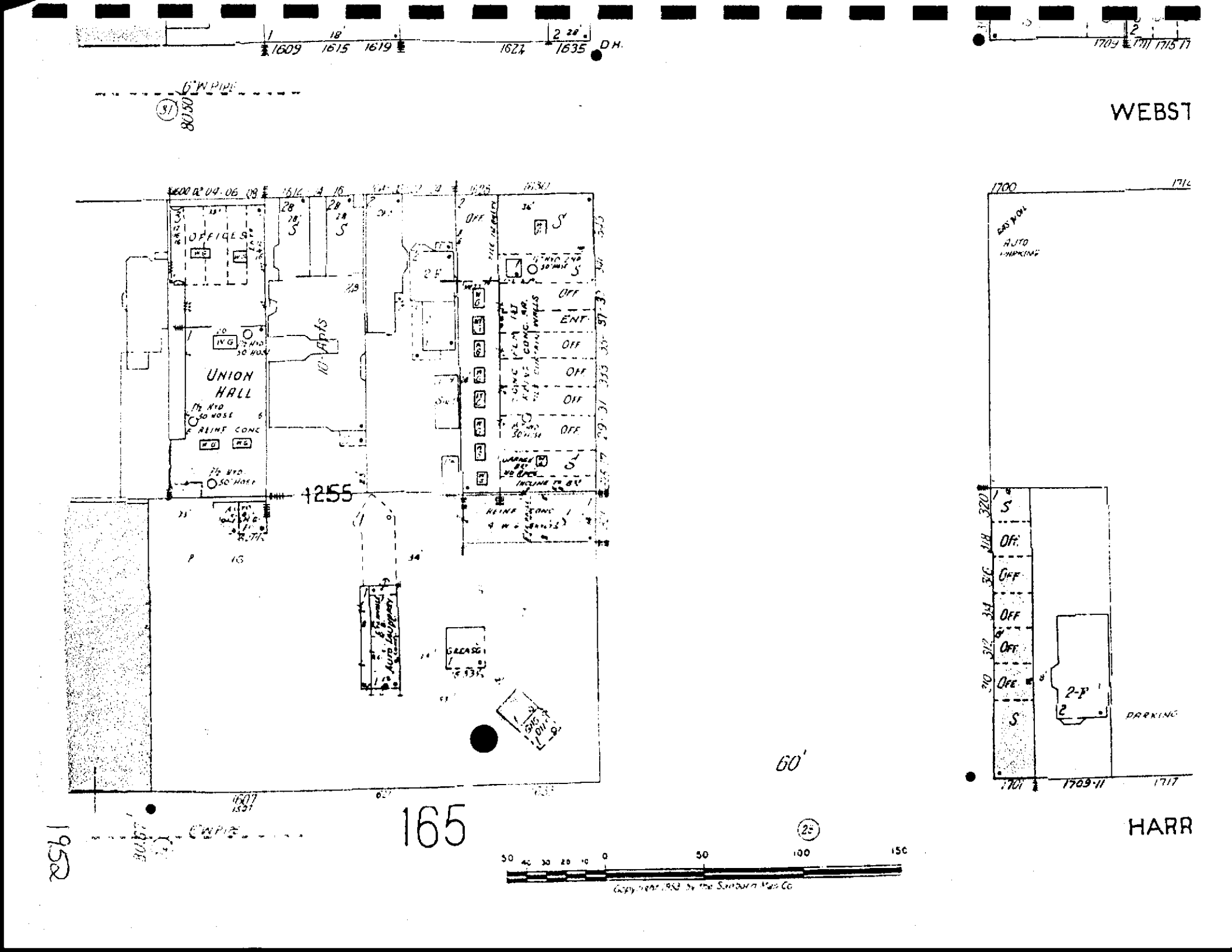
1612
1620
1630
1700
UNION HALL
1255
AUTO PARKING
PARKING
1607
1709-11
HARRISON
165
Scale of Feet.
50 40 30 20 10 0 50 100 150

1960

See Volume One



1950


1609
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1627
1635
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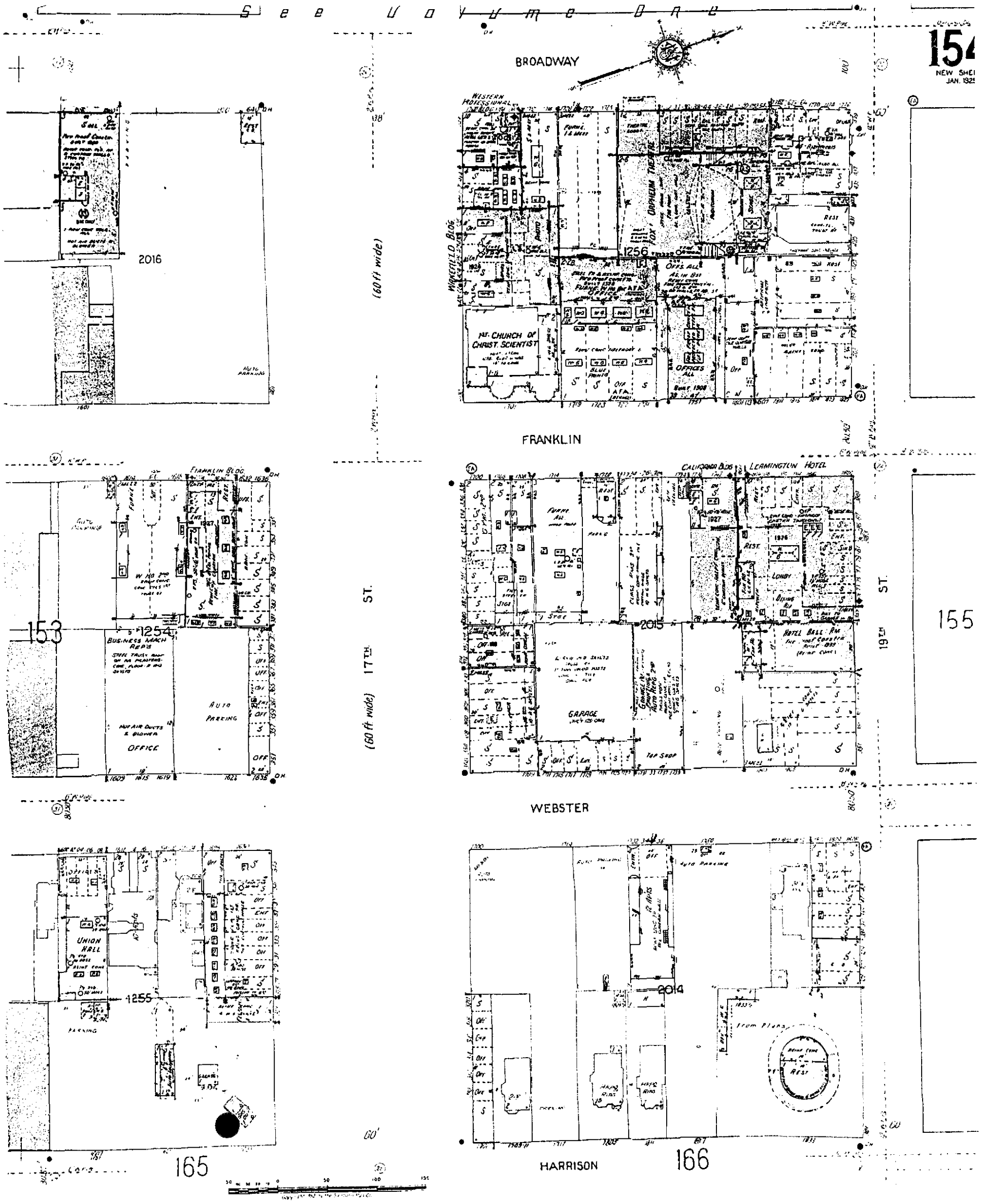
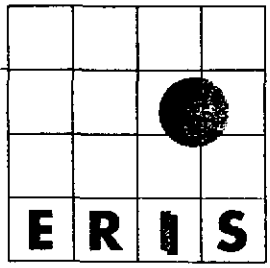
AUTO
UNION
HALL
10 APTS
1255
OFFICES
2 F
OFF
ENT.
AUTO LAUNDRY
GREASE
1709-11
1717
PARKING
60'
165
HARR
1952
50 40 30 20 10 0 50 100 150

See Volume One



1952



VII. TOPOGRAPHICAL MAPS

TOPOGRAPHICAL MAPS FOUND FOR:

1633 HARRISON STREET
OAKLAND, CA

JOB NUMBER: 15132

DATES

1980