

5900 Hollis St., Suite A Emeryville, California 94608

Telephone: (510) 420-0700

Fax: (510) 420-9170

www.CRAworld.com

TRANSMITTAL						
DATE:	10/1/1	4	RI	FERENCE NO	).:	ACEH CASE RO# 0274 (CRA 311806)
			PR	OJECT NAMI	<b>E:</b>	Chevron 93322
To:	Mr. Ma	ırk Detterman				
	Alamed	da County Enviro	nmental Healt	า		
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	Alamed	da, CA 94502				Alameda County Environmental Health at 4:02 pm, Oct 02, 2
	-	CASE RO# 0274				
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	equested Your Use		<u> </u>	ew and Comn		
COMME Please find		ed the report refer	enced above as	s you reques	ted.	
Please cor	ntact Nat	e Lee regarding t	ne report, 925-8	49-1003.		
Copy to:		Alexis Fischer				
Complete	d by: <u>(</u>	Celina Hernandez [Please		Signed:	(	Edin Hers

Filing: Correspondence File



**Alexis Fischer** Project Manager Marketing Business Unit Chevron Environmental Management Company 6101 Bollinger Canyon Road San Ramon, CA 94583 Tel (925) 790-6441 Fax (925) 549-1441 afischer@chevron.com

Alameda County Environmental Health (ACEH) 1131 Harbor Bay Parkway, Suite 250 Alameda, CA 94502-6577

Re: Chevron Service Station No. 93322

7225 Bancroft Avenue

Oakland, CA

ACEH CASE RO# 0274

I have reviewed the attached report titled Focused Site Conceptual Model and Data Gap Investigation Work Plan.

The information in this report is accurate to the best of my knowledge and all local Agency/Regional Board guidelines have been followed. This report was prepared by Conestoga-Rovers & Associates, upon whose assistance and advice I have relied.

This letter is submitted pursuant to the requirements of California Water Code Section 13267(b)(1) and the regulating implementation entitled Appendix A pertaining thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge.

Sincerely,

Alexis Fischer Project Manager

Attachment: Focused Site Conceptual Model and Data Gap Investigation Work Plan



# FOCUSED SITE CONCEPTUAL MODEL AND DATA GAP INVESTIGATION WORK PLAN

FORMER CHEVRON SERVICE STATION 93322
7225 BANCROFT AVENUE
OAKLAND, CALIFORNIA
ACEH CASE RO# 0274

# **Prepared for:**

Mr. Mark Detterman Alameda County Environmental Health Services 1131 Harbor Bay Parkway, Suite 250 Alameda, California 94502-6577

> Prepared by: Conestoga-Rovers & Associates

5900 Hollis Street, Suite A Emeryville, California U.S.A. 94608

Office: (510) 420-0700 Fax: (510) 420-9170

web: http://www.CRAworld.com

OCTOBER 1, 2014 REF. NO. 311806 (23)



# FOCUSED SITE CONCEPTUAL MODEL AND DATA GAP INVESTIGATION WORK PLAN

FORMER CHEVRON SERVICE STATION 93322
7225 BANCROFT AVENUE
OAKLAND, CALIFORNIA
ACEH CASE RO# 0274



Celina Hernandez, PG 8931

Prepared by: Conestoga-Rovers & Associates

5900 Hollis Street, Suite A Emeryville, California U.S.A. 94608

Office: (510) 420-0700 Fax: (510) 420-9170

web: http://www.CRAworld.com

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#### Section 1.0 Introduction

Conestoga-Rovers & Associates (CRA) prepared this *Focused Site Conceptual Model and Data Gap Investigation Work Plan* (Work Plan) for the site referenced above on behalf of Chevron Environmental Management Company (EMC). In a letter dated April 7, 2014 (Appendix A), Alameda County Environmental Health Services (ACEH) requested preparation of a Revised Data Gap Investigation Work Plan, supported by a focused Site Conceptual Model (SCM) that addresses several technical comments. The purpose of this report is to provide a SCM using all available data, address ACEH's technical comments, identify data gaps required to make remedial and closure decisions, and present a work plan to address the identified data gaps. Presented below are the site background, site geology, SCM, CRA's conclusions and recommendations, and the Work Plan.

#### Section 2.0 Site Background

#### 2.1 Site Description

The site is a former Chevron service station located at 7225 Bancroft Avenue at the intersection of Bancroft Avenue and 73<sup>rd</sup> Avenue in Oakland, California (Figure 1). The site is currently an active Valero branded service station, consisting of three 10,000-gallon single walled fiberglass underground storage tanks (USTs), five dispenser islands, a small kiosk building, and an additional building housing restrooms (Figure 2). Chevron owned the property and operated a service station there from approximately 1961 through September 2000, when they sold the property to Malwa Petroleum Sales, LLC (Malwa). Malwa sold the property to the current owners, Mike and Dean Najdawi in July 2001.

Sanborn maps and historical aerial photographs<sup>1</sup> (Appendix B) indicate the same station configuration from initial construction in the 1960s to at least 1986. A 1987<sup>2</sup> historical aerial photograph shows the current station configuration; therefore, sometime between 1981 and 1987 the current station configuration was constructed. In 1996, Chevron upgraded the dispenser and product piping. Chevron records indicate the current USTs were installed in 1981. In 1981, no regulations existed that required soil or groundwater sampling to document conditions associated with the fuel system. These tanks represent at least the second generation of USTs at the site. In 1976, the station consisted of one 2,000 gallon UST, one 5,000-gallon UST, one 7,500-gallon UST, two dispenser islands, and a station building as indicated by a 1976 as-built site plan. The 1976 as-built site plan references a used-oil tank of unknown size located within the station building (east side) and this section of the building was removed by 1981<sup>2</sup>.

Surrounding land use is mixed residential and commercial, consisting primarily of homes to the northwest, southwest, and south. Eastmont Mall is located to the northeast across Bancroft Avenue. A

Additional historical aerial photographs were reviewed on the website http://www.historicaerials.com



The EDR Aerial Photo Decade Package and Certified Sanborn Map Report, Environmental Data Resources, Inc., July 2, 2007.

Union 76 branded service station is located across Bancroft Avenue to the northeast. From at least 1925 to 1960, based on review of Sanborn maps and historical aerial photographs (Appendix B), the area northeast of the site and what is currently the Eastmont Mall was a former General Motors Company (Chevrolet) assembly plant and railroad tracks associated with the assembly plant. In 1959, Bancroft Avenue was reconstructed by narrowing to the present day configuration (Figure 2). During this reconstruction the site property to the east was extended along the former road (Bancroft Avenue). By 1966, the assembly plant was demolished, a small mall and a gas station were present, and the railroad tracks were removed.

An active gas station site (ACEH Case Number 0356, former BP service station) is located northeast of the site. The primary contaminant of concerns (COCs) in soil and groundwater are total petroleum hydrocarbons as gasoline (TPHg) and benzene. The highest TPHg and benzene concentrations in soil were detected at the southwest corner of the site in MW-4 at 6,000 milligrams per kilogram (mg/kg) and 34 mg/kg, respectively.<sup>3</sup> Groundwater monitoring and sampling at the former BP station has continued since January 1992. Current groundwater flow direction and gradient is variable, but groundwater appears to primarily flow to the northeast with an average gradient of 0.015.<sup>4</sup> The highest hydrocarbon concentrations in groundwater are located on the southwest corner of the former BP station at well DPE-5. Offsite BP well MW-8 (crossgradient) and MW-9 (upgradient) have no detectable hydrocarbon concentrations (Appendix C).

#### 2.2 Previous Environmental Work

The site has been an open environmental case since 1996 under ACEH jurisdiction (Fuel Leak Case Number RO0000274 and GeoTracker Global ID T0600102079). To date, a total of ten monitoring wells have been installed, five soil borings have been advanced, four soil vapor probes have been installed, and twelve confirmatory samples have been collected (Figure 2). Groundwater monitoring and sampling began in 1998. Remedial activities have consisted of over-excavation during product piping removal and replacement, and surfactant injection and extraction from wells MW-1 and MW-7. A summary of previous environmental investigation and remediation is included in Appendix C.

#### 2.3 Site Geology

The site is located within the Oakland sub-area of the East Bay Plain groundwater basin. <sup>5</sup> This basin encompasses approximately 115 square miles and is bounded by San Pablo Bay to the north, Alameda County to the south, the Hayward Fault to the east, and the San Francisco Bay to the west. Sediments beneath the site are likely Holocene and late Pleistocene alluvial fans interbedded with the Yerba Beuna Mud Member<sup>4</sup>. Locally, the site is underlain primarily by interbedded clay, silt, and gravel. Fine-grained

East Bay Plain Groundwater Basin Beneficial Use Evaluation Report, Alameda and Contra Costa Counties, CA prepared by the California Regional Water Quality Control Board San Francisco Bay, August 4, 1999



<sup>3</sup> Site Conceptual Model, Antea Group, March 14, 2014

Semi-Annual Summary Report, October 2013 through March 2014, Antea Group, May 1, 2014

soils consisting of clay to sandy clay exist between the surface and 11-15 fbg. Clayey gravel grading to sandy gravel underlies the clay layer to approximately 34 feet below grade (fbg). A 5-foot thick, discontinuous silt unit was observed during installation of wells MW-3 through MW-6 from 20-25 fbg, along the northwestern area of the property. Boring logs are included in Appendix D and geologic cross-sections are presented as Figures 3 through 5.

## 2.4 Site Hydrogeology

Groundwater in the East Bay Plain basin is designated as a potential drinking water source; however, groundwater in the basin is not currently used as a municipal drinking water supply due to readily available, high-quality imported surface water. Site topography is relatively flat at an elevation of approximately 40 feet above mean sea level (ft-amsl). Surrounding topography slopes towards the San Francisco Bay, approximately 2 miles west of the site. Depth to groundwater has historically ranged from 4.83 (MW-1) to 21.92 (MW-5) fbg with an average of about 15 fbg. Groundwater flows predominantly to the northwest with a current gradient of 0.03 (Figure 6).

#### Section 3.0 Site Conceptual Model

In a letter dated, April 7, 2014, ACEH requested a focused SCM incorporating all available data; this SCM is presented below. Cumulative soil analytical data is presented in Tables 1 and 2. Cumulative groundwater monitoring and sampling data and grab-groundwater analytical data are presented in Tables 3 and 4, respectively. Well construction details are presented in Table 5 and soil vapor data are presented in Table 6. The distribution of hydrocarbons in soil and groundwater are presented in Figures 3 through 5 and 7 through 17.

#### 3.1 Petroleum Hydrocarbon Source Areas

The potential sources of petroleum hydrocarbons at the site are the 1981 or earlier former dispenser islands near well MW-1, the adjacent existing central dispenser island based on the 1996 soil confirmation samples collected during a piping upgrade, and the former piping elbow mentioned in ACEH's April 7, 2014 letter near the former and existing USTs.

ACEH indicates in their April 7, 2014 letter that a third release has occurred at the site based on elevated ethanol analytical detection limits. No ethanol has been detected at the site and the elevated ethanol detection limits are related to high dissolved concentrations of petroleum hydrocarbons in wells MW-1 and MW-7 creating higher dilution factors that raise the ethanol detection limits. Furthermore, Chevron sold the site in September 2000 prior to the widespread use of ethanol as an oxygenate. If ACEH suspects an ethanol release has occurred then one of the subsequent station operators should be responsible for this assessment.

#### 3.2 Light Non-Aqueous Phase Liquid

Historically, light non-aqueous phase liquid (LNAPL) was observed in monitoring well MW-1 starting in June 1999 and detected intermittently during monitoring and sampling events. The maximum thickness was 0.74 feet measured in February 2006. In 2005, LNAPL in MW-1 was fingerprinted as weathered leaded gasoline, consisting primarily of tetraethyl-lead, which indicates that the source is from an older leaded fuel release likely from the former dispensers prior to 1981 (Appendix E). No measurable LNAPL has been detected in MW-1 since October 2007, after surfactant treatment and extraction. The California State Water Resources Control Board (SWRCB), Leaking Underground Fuel Tank (LUFT) Guidance Manual states that TPHg concentrations at least 100,000  $\mu$ g/L and benzene concentrations at least 29,000 micrograms per liter ( $\mu$ g/L) are indicative of LNAPL. Considering the age of the LNAPL in MW-1 and the potential for weathering, dissolved TPHg and benzene concentrations in MW-1 are indicative of LNAPL trapped in the vicinity soil pore space. However, the LNAPL was removed sufficiently using surfactants that it is no longer mobile as indicated by its absence in well MW-1.

#### 3.3 Distribution of Constituents of Concern

In terms of the State Water Resource Control Board's *Low-Threat Underground Storage Tank Case Closure Policy* (LTCP) criteria (effective August 17, 2012), the primary COCs (risk drivers) in soil between 0 and 10 fbg are TPHg, benzene, ethylbenzene, naphthalene and poly-aromatic hydrocarbons (PAHs); and in groundwater are benzene and MTBE. In soil vapor the primary COCs are benzene, ethylbenzene, naphthalene. Hydrocarbon concentrations in soil and groundwater are shown on Figures 3 through 5 and 7 through 17. The groundwater elevation map is presented as Figure 6. Cumulative soil, groundwater, and soil gas data are presented in Tables 1 through 4 and 6.

### 3.4 Petroleum Hydrocarbon Distribution in Soil

Soil samples were collected between 1996 and 2005 (Tables 1 and 2). Hydrocarbons in soil appear to have originated primarily from the former fuel dispensers and former USTs from at least 1981 as indicated by the soil data. Cross-sections presented as Figure 3 through 5 present the vertical and lateral distribution. Figure 7 through 14 present the distribution of soil in shallow and deep soil between 0 and 30 fbg. Some of the highest hydrocarbon concentrations were detected between 15 and 24 fbg in sand and gravel beneath the groundwater table. The highest TPHg, benzene and ethylbenzene concentrations were detected in saturated soil at approximately 24 fbg at boring SB-5 located downgradient of the USTs: 1,400 mg/kg TPHg (Figure 10), 3.1 mg/kg benzene (Figure 14), and 28 mg/kg ethylbenzene. The highest MTBE concentration was 1.7 mg/kg detected at boring B-2 at 18 fbg. Residual hydrocarbon concentrations in shallow soil (0 to 5 fbg) are generally limited to the vicinity of the former product piping at dispensers at samples P6, P7, and P8 with the highest concentrations of

<sup>&</sup>lt;sup>6</sup> California State Water Resources Control Board (SWRCB), *Leaking Underground Fuel Tank (LUFT) Guidance Manual*, Chapter 13, p. 18 (of Chapter 13).



500 mg/kg TPHg (Figure 7), 4.2 mg/kg benzene (Figure 11), 7.3 mg/kg ethylbenzene, and 1.1 mg/kg MTBE.

Only residual TPHg between 0 to 10 fbg detected in samples P6, P7, and P8 located at the dispenser southwest of well MW-1 exceed 100 mg/kg or greater of TPHg. Benzene concentrations do not exceed the LTCP criteria for commercial/industrial land use or for utility worker exposure between 0 and 10 fbg. Ethylbenzene is below residential, commercial/industrial land use, and utility worker LTCP criteria for soil between 0 and 10 fbg.

Residual hydrocarbons in soil are delineated laterally in all directions except TPHg southwest and southeast of the USTs. Soil is not delineated vertically near the two source areas (former USTs and dispensers) near well MW-1 and boring SB-5 greater than 15 and 24 fbg where the highest hydrocarbons in soil have been detected at other locations.

Other COCs detected onsite in 2000 with the highest concentrations of lead, polycyclic aromatic hydrocarbons (PAHs), pesticides, and polychlorinated biphenyls (PCBs) are presented below:

- 8.2 mg/kg lead in SB-4 at 18 fbg
- 0.58 mg/kg naphthalene in SB-4 at 18 fbg
- 0.86 mg/kg 2-methylnaphthalene (the only PAH detected) in SB-4 at 18 fbg
- 0.00307 mg/kg aldrin (pesticide) in SB-4 at 5 fbg
- 0.00210 mg/kg heptachlor (pesticide) in SB-4 at 5 fbg
- 0.00746 mg/kg delta-benzene hexachloride (pesticide) in SB-5 at 16 fbg
- No PCBs were detected above the laboratory reporting limit of 20 mg/kg

The residual PAH concentration detected was in soil greater than 10 fbg beneath the groundwater table; there is no LTCP criteria for PAHs greater than 10 fbg. The pesticides are unlikely related to site operations and may be due to previous site use.

The extent of hydrocarbons in soil southwest and southeast of the USTs (upgradient of wells MW-2 and MW-7), and the vertical extent of hydrocarbons in soil are not defined near the two source areas. Additional assessment is proposed in the work plan below.

# 3.5 Petroleum Hydrocarbon Distribution in Groundwater

Groundwater monitoring and sampling has been ongoing since 1998. Currently, wells MW-2, MW-3, and MW-7 through MW-10 are sampled semi-annually and all other wells are sampled quarterly. Blaine-Tech Services (Blaine Tech) conducted the most recent groundwater sampling event in March and



June 2014. Grab-groundwater analytical data are presented in Table 3 and cumulative monitoring and sampling data are presented in Table 4. Monitoring well construction details are included in Table 5.

The current extent of dissolved-phase hydrocarbons and hydrocarbon concentration trends are presented below. First and Second Quarter 2014 groundwater analytical results for TPHg, benzene, toluene, ethylbenzene, xylenes, and MTBE are summarized in Table 3.1 below.

TABLE 3.1 – HYDROCARBON CONCENTRATIONS IN GROUNDWATER (March 31, 2014 and June 30, 2014)							
	ТРНд	Benzene	Toluene	Ethylbenzene	Total Xylenes	МТВЕ	
	Concentrations in micrograms per liter (μg/L)						
ESL Table F-1a Drinking Groundwater ESLs	100	1	40	30	20	5	
MW-1 <sup>b</sup>	90,000	12,000	7,400	2,800	14,000	21	
MW-2 <sup>b</sup>	8,200	2	0.6 J	59	9	1	
MW-3 <sup>a</sup>	13,000	1,100	50	350	240	170	
MW-4 <sup>b</sup>	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
MW-5 <sup>b</sup>	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
MW-6 <sup>b</sup>	1,400	100	0.6 J	2	<0.5	14	
MW-7 <sup>b</sup>	28,000	6,300	290	790	3,000	53	
MW-8 <sup>b</sup>	370	2	<0.5	<0.5	<0.5	3	
MW-9 <sup>a</sup>	<50	<0.5	<0.5	<0.5	<0.5	4	
MW-10 <sup>a</sup>	<50	<0.5	<0.5	<0.5	<0.5	0.8 J	

**bold =** concentrations detected at or above ESLs

ESLs = Environmental Screening Levels from *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater* prepared by the California Regional Water Quality Control Board – San Francisco Bay Region, Interim Final November 2007, revised December 2013

The residual dissolved-phase hydrocarbon concentration is centered around well MW-1 near the former dispensers that appear to be the primary source area. The distribution of the dissolved-phase hydrocarbons is illustrated on Figures 15 through 17. The extent of hydrocarbons in groundwater southwest and southeast (upgradient of wells MW-2 and MW-7)) of the site is not defined.

In the April 7, 2014 letter, ACEH was concerned about a vertical gradient and asked whether well MW-4 is an appropriate downgradient well especially with respect to potential preferential pathways. CRA reviewed Sanborn maps and aerial photos that indicate by 1959, Bancroft Avenue was reconstructed (extended to the east). The location of MW-4 was installed in 1999 and was located where Bancroft Avenue was extended, which was most likely overexcavated and engineered fill placed for the new road

a = sampled March 31, 2014 b = sampled June 30, 2014

J = Estimated Value (the result is ≥the Method Detection Limit and < the Limit of Quantitation)

and sidewalk. However, upon review of the boring logs, the soils logged in MW-4 are consistent with soils logged elsewhere across the site, and there is no distinction between fill or native soil in well MW-4. The dissolved-phase hydrocarbon data does not appear to reflect a manmade or natural preferential pathway. The data is considered valid and represents cross-gradient conditions. To confirm this and specifically address ACEH concerns, CRA will complete a preferential pathway study that will address this and other ACEH concerns with respect to potential conduits.

#### 3.6 Hydrocarbon Concentration Trends

TPHg, benzene, and MTBE concentration trends in groundwater for MW-1, MW-2, MW-3, and MW-6 through MW-9 are illustrated in graphs presented as Appendix F.

Hydrocarbon concentrations in all wells including source area (former dispensers) wells, MW-1 and MW-7 indicate a stable or decreasing trend, with some concentration fluctuations caused by changes in water table. In all wells, current concentrations are below historic high concentrations. Because this is primarily a release of leaded gasoline from several decades ago, it is reasonable to presume that the existing plume has had sufficient time to stabilize and that any concentration fluctuations are due to water table changes.

#### 3.7 Petroleum Hydrocarbon Distribution in Soil Vapor

Soil vapor samples were collected between 2005 and 2008 from soil vapor probes VP-1 through VP-4, screened between 5 to 6.5 fbg, 7.5 to 9 fbg, and 10 to 11.5 fbg. Vapor probes VP-2 and VP-3 are located at the northern property boundary adjacent to the residential homes and VP-1 is located approximately 20 fbg from the northern property boundary. The highest hydrocarbon concentrations detected were in VP-4 at all depths located approximately 6 feet northwest of a source area (former dispensers) well MW-1. The table below presents the maximum concentrations detected at each vapor probe location at a depth of 5 feet where the LTCP direct measurement of soil gas concentrations applies. Cumulative soil vapor sampling data is presented in Table 6.

TABLE 3.2 – MAXIMUM BENZENE AND ETHYLBENZENE CONCENTRATIONS IN SOIL  VAPOR AT 5 FEET DEPTH						
	Benzene	Ethylbenzene				
	μg/m³	μg/m³				
LTCP – Soil Gas – Scenario 4, Oxygen <4% - Residential	<85	<1,100				
LTCP – Soil Gas – Scenario 4, Oxygen <4% - Commercial	<280	<3,600 1,100,000				
LTCP – Soil Gas – Scenario 4, Oxygen >4% - Residential	85,000					
LTCP – Soil Gas – Scenario 4, Oxygen >4% - Commercial	280,000	3,600,000				
VP-1	4.5 (5/23/08; 1.4% oxygen)	<52 (7/18/05; 15% oxygen)				
VP-2	4.5 (5/23/08; 20% oxygen)	<5.5 (5/23/08; 20% oxygen)				
VP-3	220 (8/11/05; no oxygen reading collected)	1,100 (8/11/05; no oxygen reading collected)				
VP-4	150 (8/11/05; no oxygen reading collected)	60 (8/11/05; no oxygen reading collected)				

The oxygen concentration in all probes is typically above 4 percent during most sampling events with only one event at each location below 4 percent. Therefore, although we do not have oxygen readings for the two maximum benzene concentrations detected at VP-3 and VP-4 that could indicate a risk between the residential and commercial scenario if oxygen is <4 percent, it is likely that oxygen concentrations were above 4 percent and the values detected do not pose a risk above residential criteria. They are all below commercial criteria. Based on the preponderance of data collected at these locations, there is no risk above residential standards at any of the 5 foot deep sample locations.

Currently, there are no plans in the near future to change from an active service station (commercial) to residential land use. The site is paved at the surface and there is only one building onsite with a site worker. Below is a table presenting the maximum soil concentrations compared to LTCP direct contact

with soil and outdoor air exposure criteria for commercial land use (applicable to the site). The only potential exposure pathway for vapor intrusion that remains is to the residences to the northwest. Recommendations are presented below.

TABLE 3.4 – LTCP DIRECT CONTACT WITH SOIL AND OUTDOOR AIR EXPOSURE (MAXIMUM SOIL CONCENTRATION)						
LTCP Criteria (Commercial)	Benzene	Ethylbenzene	Naphthalene	PAH		
Direct Contact - 0 to 5 fbg	8.2	89	45	0.68		
Outdoor Air Exposure - 0 to 10 fbg	12	134	45	NA		
Utility Worker - 0 to 10 fbg	14	45	NA	4.5		
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)		
	4.2	7.3				
Site Data: Direct Contact - 0 to 5 fbg	P7@3 fbg	P6@4 fbg	<10	<10		
	8/27/96 8/27/96					
Sita Datas Outdoor Air Evnasuro /	0.016	0.001				
Site Data: Outdoor Air Exposure / Utility Worker - 0 to 10 fbg	MW-7@10 fbg	VP-4@5 fbg	<10	<10		
Othicy Worker - 0 to 10 jbg	7/3/00	4/22/05				

Notes:

Naphthalene was not detected on 9/25/00 for borings SB-4 through SB-6 except at SB-4 @ 18 fbg below the groundwater table

NA = not established or applicable per LTCP

Benzene and ethylbenzene soil concentrations detected between 0 and 10 fbg do not exceed the LTCP criteria for direct contact, commercial outdoor air exposure and utility worker scenarios; therefore, there is no apparent risk to the onsite workers or utility workers. Naphthalene and PAHs were not detected above laboratory reporting limits. Concentrations from borings VP-1 through VP-3 adjacent to the residences are below residential criteria and the adjacent residences are not at risk. To confirm this, CRA proposes to collect one additional round of vapor samples from the shallow probe locations at 5 fbg consistent with the ACEH request and LTCP guidance.

#### 3.8 Petroleum Hydrocarbon Source Remediation

Based on historical reports, in 1981 the fueling system was upgraded by replacing three USTs with three 10,000-gallon gasoline single-walled fiberglass USTs in the same UST pit, removing two dispensers and associated piping and adding five dispensers and associated piping (Figure 2). In addition, during site remodel, Chevron removed a portion of the station building containing a used-oil UST of unknown size. The exact location of the former used-oil UST is unknown. Historical site plans indicate the used-oil UST was located at the east side of the former station building which is currently beneath the canopy and between three dispenser islands. In 1981, no regulations existed that required soil or groundwater

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Historical reports reference three dispensers, site plan from Touchstone Developments, *Product Piping Removal Soil Sampling Report*, dated May 28, 1997 shows five dispensers and the currently the station operates five dispensers.

sampling to document conditions associated with the fuel system or used oil tank. No information regarding total mass of soil removed during the site remodel was found.

In 1996, Gettler-Ryan Inc. (G-R) removed and replaced the product piping. A total of approximately 300 cubic yards of hydrocarbon-bearing soil was removed during product piping replacement.

In September 2007, a surfactant enhanced LNAPL extraction event was conducted to remove LNAPL from well MW-1. A total of 346 gallons of a 5 percent surfactant solution was gravity-fed into MW-1. Surfactant solution was also added to nearby well MW-7 but was not successful due to the small ¾-inch casing diameter. A total of approximately 7 gallons (1 casing volume) of the surfactant solution was gravity-fed into well MW-7. Following application, the surfactant solution was allowed to envelop and emulsify residual LNAPL in the application area smear zone for approximately 24 hours. Afterward approximately 1,200 gallons of groundwater, surfactant, and LNAPL were extracted using a vacuum extraction truck over 3 days (33 hours) and disposed of at a California licensed disposal facility. No LNAPL has been detected since October 2007.

# 3.9 Sensitive Receptors

A sensitive receptor survey was performed in July 1998 by G-R (Appendix G). No municipal or domestic wells were located within 0.5 miles of the station. The San Francisco Bay is approximately 2 miles west of the site. The nearest surface water is Arroyo Creek, located approximately 1,300 feet south of the site (upgradient). No preferential pathway study has been performed to date. CRA has requested records from Department of Water Resources (DWR) and Alameda County Public Works Agency (ACPWA) to complete an updated well survey and will complete a preferential pathway study.

# Section 4.0 Conclusions/Data Gaps and Recommendations

#### 4.1 Conclusions and Data Gaps

The following conclusions can be made based on SCM presented above:

- The highest TPHg concentrations detected in soil have been between 15 and 24 fbg which is beneath the groundwater table with a maximum of 1,400 mg/kg at 24 fbg at SB-5 located 20 feet downgradient of the USTs.
- The horizontal extent of hydrocarbons in soil is not delineated southwest and southeast of the USTs (upgradient wells MW-2 and MW-7). Additional assessment is needed and is proposed below. This will also address concerns expressed by the ACEH about potential preferential pathways in this area.
- The vertical extent of hydrocarbons is not defined in the source areas. Additional assessment is proposed below.



- Benzene soil concentrations do not exceed LTCP residential criteria for soil between 0 and 10 fbg along the northwest property boundary adjacent to the closest residence. Benzene soil concentrations across the site do not exceed LTCP commercial/industrial criteria for soil between 0 and 10 fbg.
- No LNAPL has been detected since October 2007, indicating LNAPL has been removed to the extent practicable.
- Soil vapor concentrations do not exceed the Scenario 4 LTCP criteria for residential and commercial land use along the property line between the site and the adjacent residences. There appears to be no potential risk to the adjacent residences. However, since the methodologies for soil vapor sampling have changed since 2008, CRA proposes one more round of sampling in the shallow (5 fbg) locations to verify that there is no vapor risk to the residences using the most recent California Department of Toxic Substances Control (DTSC) Advisory-Active Soil Gas Investigations dated April 2012.
- Benzene and ethylbenzene (no naphthalene or PAHs were detected) soil concentrations detected between 0 and 10 fbg do not exceed the LTCP criteria for direct contact, outdoor air exposure and utility worker scenarios; therefore, there is no apparent risk to the onsite workers, utility workers, and the adjacent residences.
- The well survey (sensitive receptor) completed in 1998 did not identify any domestic wells within 0.5 mile radius of the site. ACEH has requested an updated survey and CRA proposes one below.
- A preferential pathway/conduit study has not been completed and one is proposed below.

#### 4.2 Recommendations

Based on the above conclusions and data gaps, the following work scope is recommended and the scope of work is presented in the work plan in Section 5:

- Collect soil data near the UST source area near boring SB-5 to vertically delineate greater than 24 fbg where 1,400 mg/kg of TPHg was detected in 2000. This will also address ACEH's concern regarding a broken pipe near the northwest corner of the USTs identified by ACEH via facsimile in 1996.
- Collect soil and groundwater data southwest and southeast of the USTs (upgradient of wells MW-2 and MW-7).
- Resample the soil shallow (5 fbg) vapor probes closest to the residences.
- Complete an updated sensitive receptor survey to a 1,000 foot radius beyond the site property lines
  using ACPWA and DWR data and identifying other sensitive receptors such as schools, daycares,
  nursing homes, hospitals, etc.
- Complete a preferential pathway survey to evaluate potential conduits for the migration of dissolved hydrocarbons.

## Section 5.0 Work Plan for Additional Subsurface Investigation

To investigate the data gaps identified in the above SCM, CRA proposes advancing at least 5 borings onsite (Figure 18) to approximately 30 fbg or greater if needed for vertical hydrocarbon distribution delineation based on field instruments. We also will resample existing vapor probes VP-1 through VP-4 at 5 fbg. The scope of work for the proposed investigation is discussed below.

#### 5.1 Permits and Inspection

CRA will obtain the necessary permits and coordinate inspections with ACPW.

#### 5.2 Site Specific Health and Safety Plan

CRA will prepare a site-specific health and safety plan to protect site workers. The plan will be reviewed and signed by all site workers and visitors and remain onsite during all field activities.

# 5.3 Utility Location and Clearance

CRA will contact Underground Service Alert (USA) to coordinate location of subsurface utilities no less than 48 hours prior to the start of field activities. CRA will subcontract a licensed geophysicist to confirm the locations of underground utilities using various geophysical equipment. In accordance with Chevron and CRA safety standards, an air knife-assisted vacuum rig or hand auger will be utilized to clear the locations at a depth of 8 fbg.

# 5.4 Sensitive Receptor and Preferential Pathway Survey

To complete the sensitive receptor survey CRA will complete well survey at least a 1,000 foot radius beyond the site property lines using ACPWA and DWR data and identify nearby schools, daycares, nursing homes, hospitals, etc. To complete a preferential pathway survey to evaluate potential conduits for the migration of dissolved hydrocarbons, CRA will subcontract a licensed geophysical surveyor and review public utility maps (when available) to assess the location, size and depth of all subsurface utilities in the vicinity.

#### 5.5 Soil Sampling

Five soil borings are proposed to complete data gaps or further investigate source areas (Figure 18):

- 1 soil boring proposed near SB-5 (former UST source area)
- 1 soil boring near well MW-1 (former dispenser source area)



- 1 soil boring near well MW-7 (former dispenser source area)
- 2 soil borings upgradient of wells MW-2 and MW-7

Soil borings will be advanced using a truck-mounted drill rig equipped with 8-inch diameter hollow-stem augers or direct-push technology with a 3-inch diameter sampler to approximately 30 fbg. CRA will collect soil samples at 3 fbg and at 5-foot intervals after the 5 fbg soil sample to 30 fbg or deeper if needed based on field instruments and observations. Soils will be logged using the ASTM D2488-06 Unified Soil Classification System. Soil samples will be collected from each boring using either a split-spoon sampler lined with clean brass/steel sleeves at the depth interval selected or using a direct-push sampler, lined with polyethylene sampling tubes. Soil samples will be screened using a photo-ionization detector (PID) and all PID measurements will be recorded on the boring log. Samples will be sealed, labeled, logged on a chain-of-custody, placed on ice, and transported to a Chevron and California State-approved laboratory for analysis. After sample collection, the boreholes will be tremie-grouted with neat Portland cement and completed to surface to match existing grade. CRA's standard procedures for soil boring advancement are presented in Appendix H.

#### 5.6 Groundwater Sampling

CRA will collect grab-groundwater samples from the borings upgradient of MW-2 and MW-7 at first encountered groundwater. Groundwater samples will be collected using a micro-bailer or disposable bailer, and the samples will be transferred from the bailer to laboratory-supplied sample containers. Samples will be labeled, logged on a chain-of-custody form, preserved on ice, and transported to a Chevron and California State-approved laboratory for analysis.

#### 5.7 Soil Vapor Sampling

CRA will evaluate the integrity of existing multi-level vapor probes VP-1 through VP-4 and will sample them using the current DTSC Vapor Intrusion Guidance. Soil gas samples will be collected from the 5-6.5 fbg probes. If the integrity of the vapor probes has been compromised, CRA will submit a work plan addendum to replace them. CRA's standard procedures for soil vapor installation and sampling are presented in Appendix H.

#### 5.8 Chemical Analysis

Select soil and groundwater samples will be analyzed for the following:

- TPHg by EPA Method 8015M
- Benzene, toluene, ethylbenzene, and xylene (BTEX) and MTBE by EPA Method 8260B
- 16 priority pollutant Polycyclic Aromatic Hydrocarbons (PAHs) by EPA Method 8270 SIM:
   naphthalene, acenaphthene, acenaphthylene, anthracene, phenanthrene, fluorine, chrysene,

fluoranthene, pyrene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(k)fluoranthene, benzo(a)anthracene, indeno(1,2,3-c,d)pyrene, dibenz(a,h)anthracene, and benzo(g,h,i)perylene

• A fingerprint analysis may be collected, if needed

Soil gas samples will be analyzed for the following:

- TPHg, BTEX, MTBE, and naphthalene by EPA Method TO-15
- Oxygen (O2), carbon dioxide (CO2), nitrogen (N2), methane (CH4), and helium by ASTM D-1946 (GC/TCD)
- Air phase hydrocarbon (APH) fractions (Sp) aromatics C8-C12 by modified TO-15 GC/MS Full Scan
- APH fractions (Sp) aliphatics C5-C12 by modified TO-15 GC/MS Full Scan

#### 5.9 Waste Disposal

Soil cuttings and rinsate water generated will be placed in DOT approved drums, labeled appropriately, and temporarily stored onsite. The waste will be transported by licensed waste haulers to a Chevron-approved California licensed disposal facility following receipt of the analytical profile.

### 5.10 Reporting

Upon completion of field activities and review of the analytical results, CRA will prepare a report incorporating all available data that, at a minimum, will contain:

- Description of the drilling and sampling
- Soil boring logs
- Tabulated soil, grab-groundwater, and soil gas analytical results
- Analytical reports and chain-of-custody forms
- Waste disposal details
- An evaluation of the extent of hydrocarbon in the subsurface
- Conclusions and recommendations based on site conditions with respect to LTCP

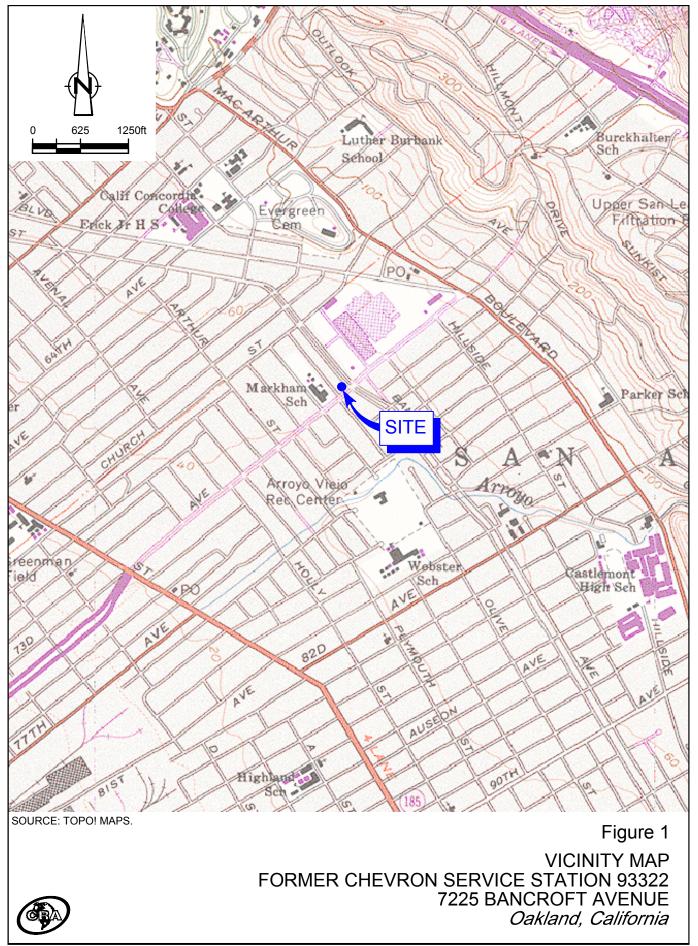
# Section 6.0 Closing

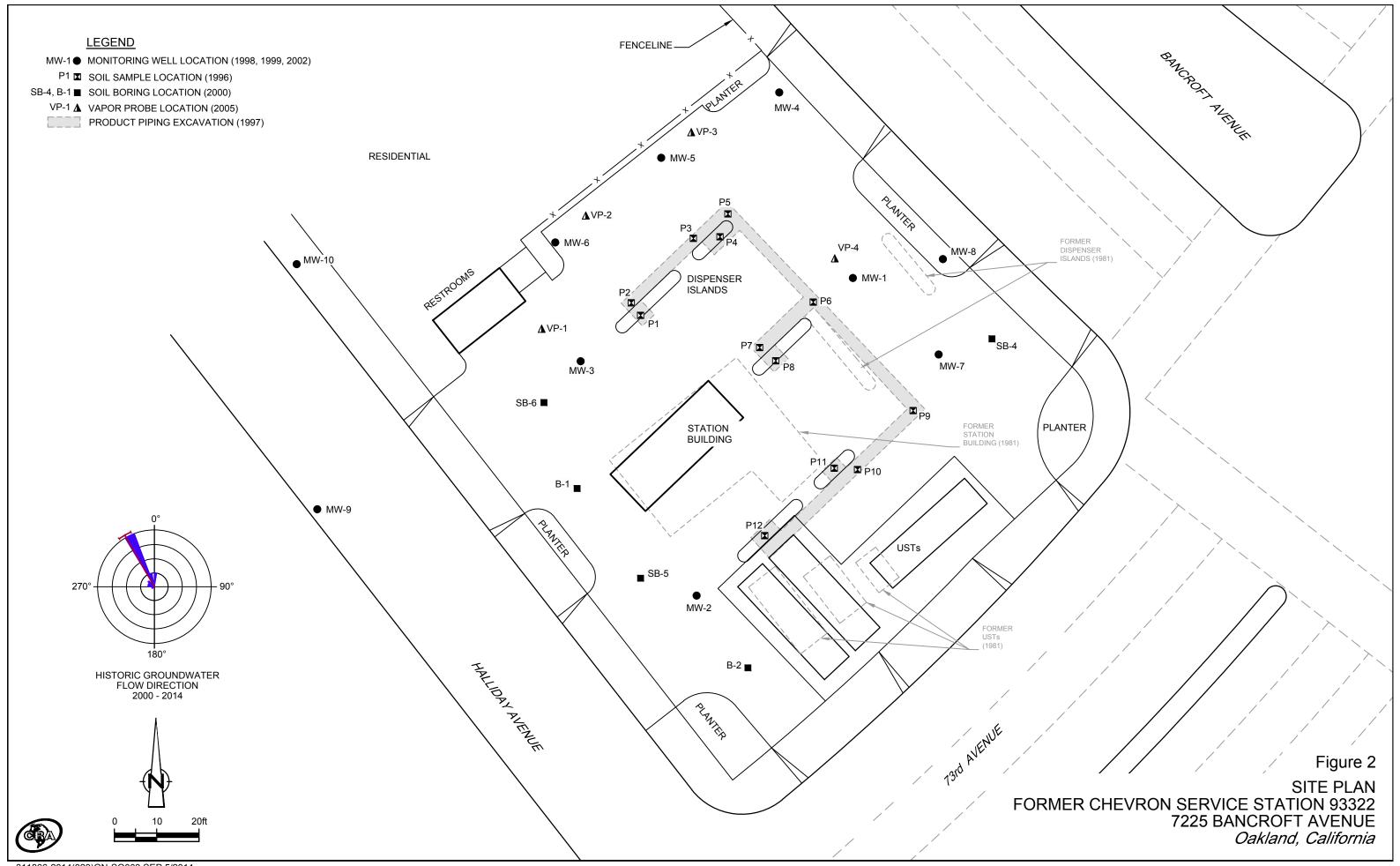
CRA will proceed with the proposed scope of work upon receipt of written approval from ACEH. CRA will then obtain all required drilling permits and schedule the subcontractors at their earliest availability.

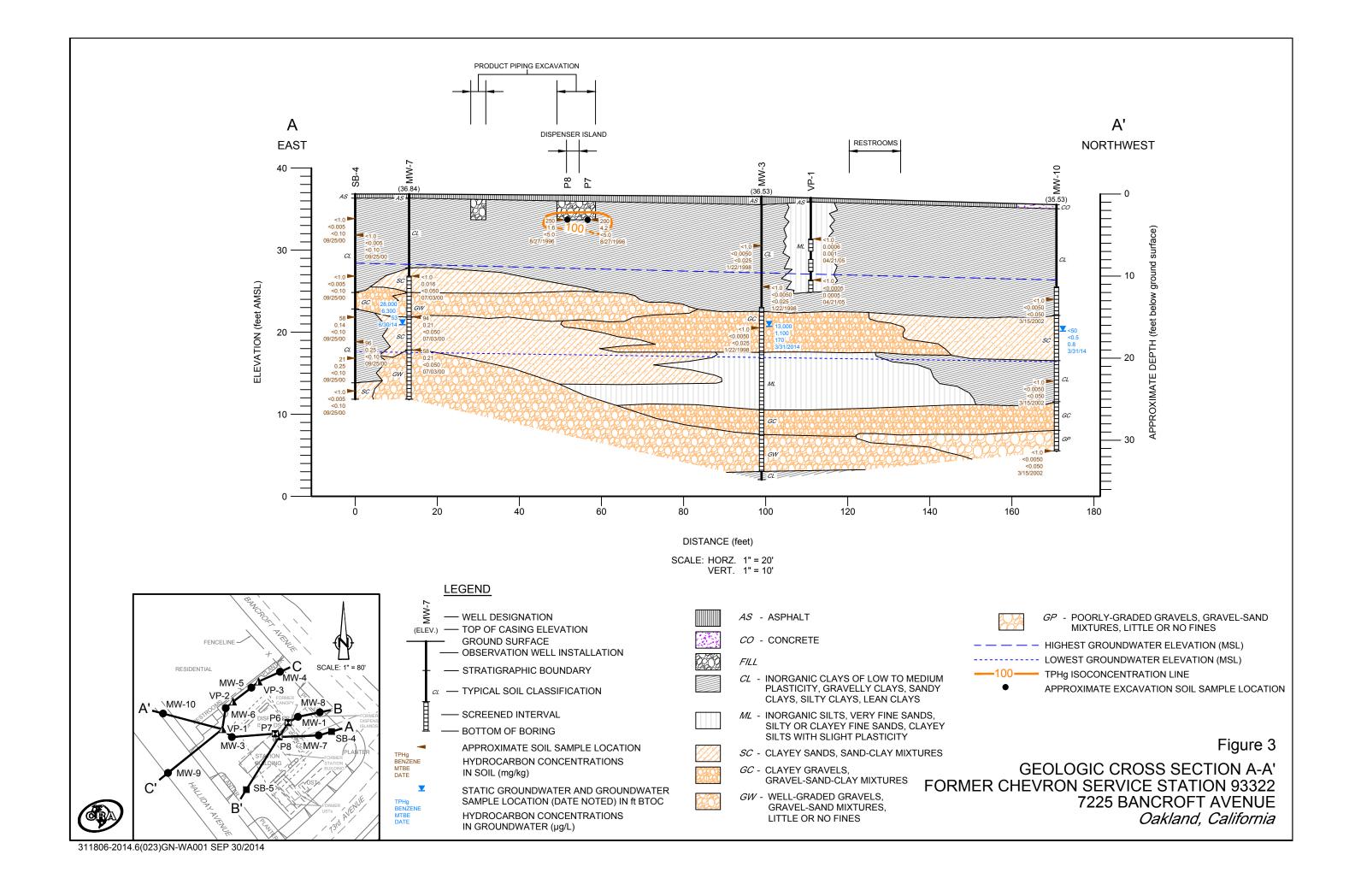


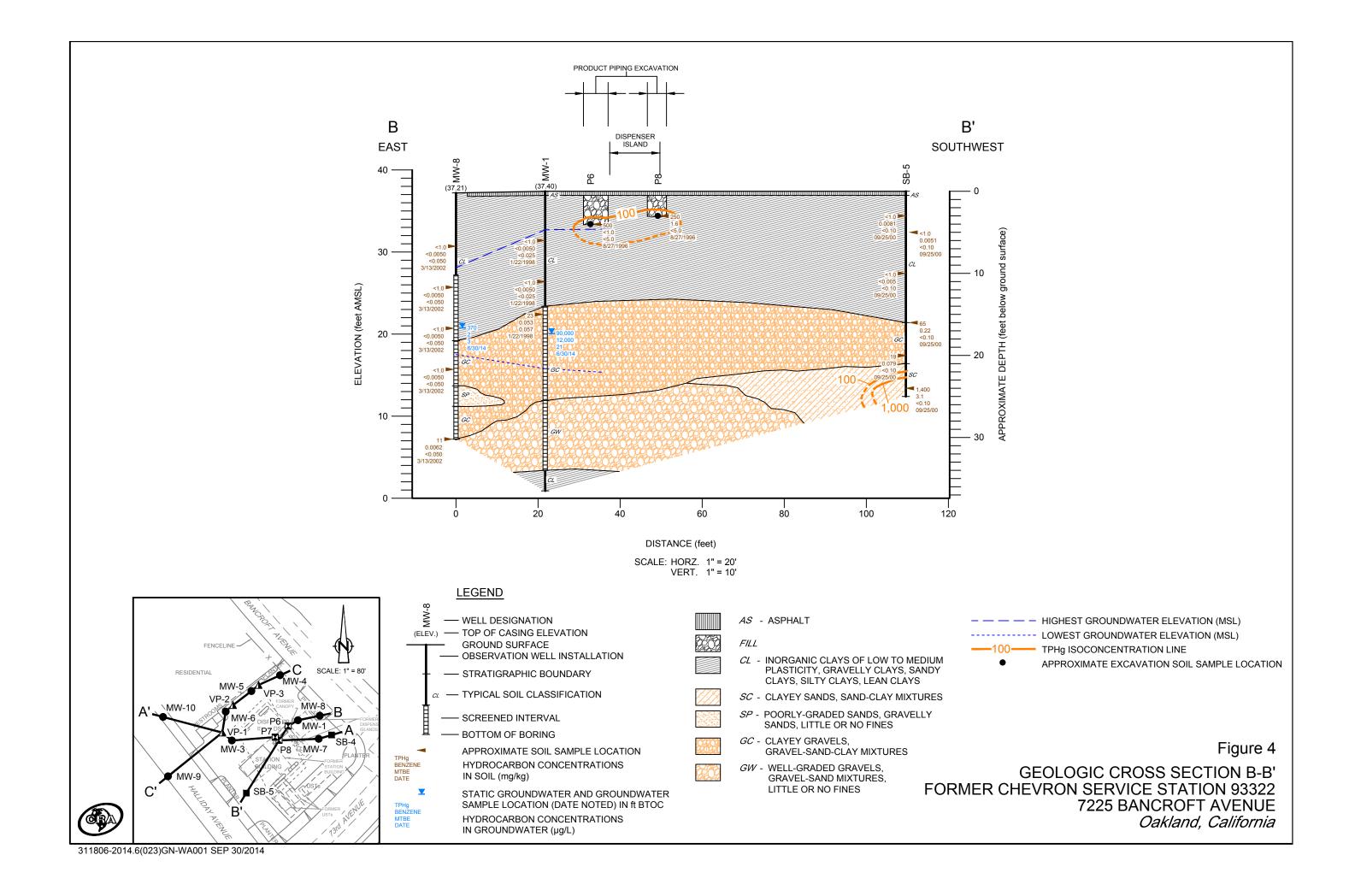
# **Figures**

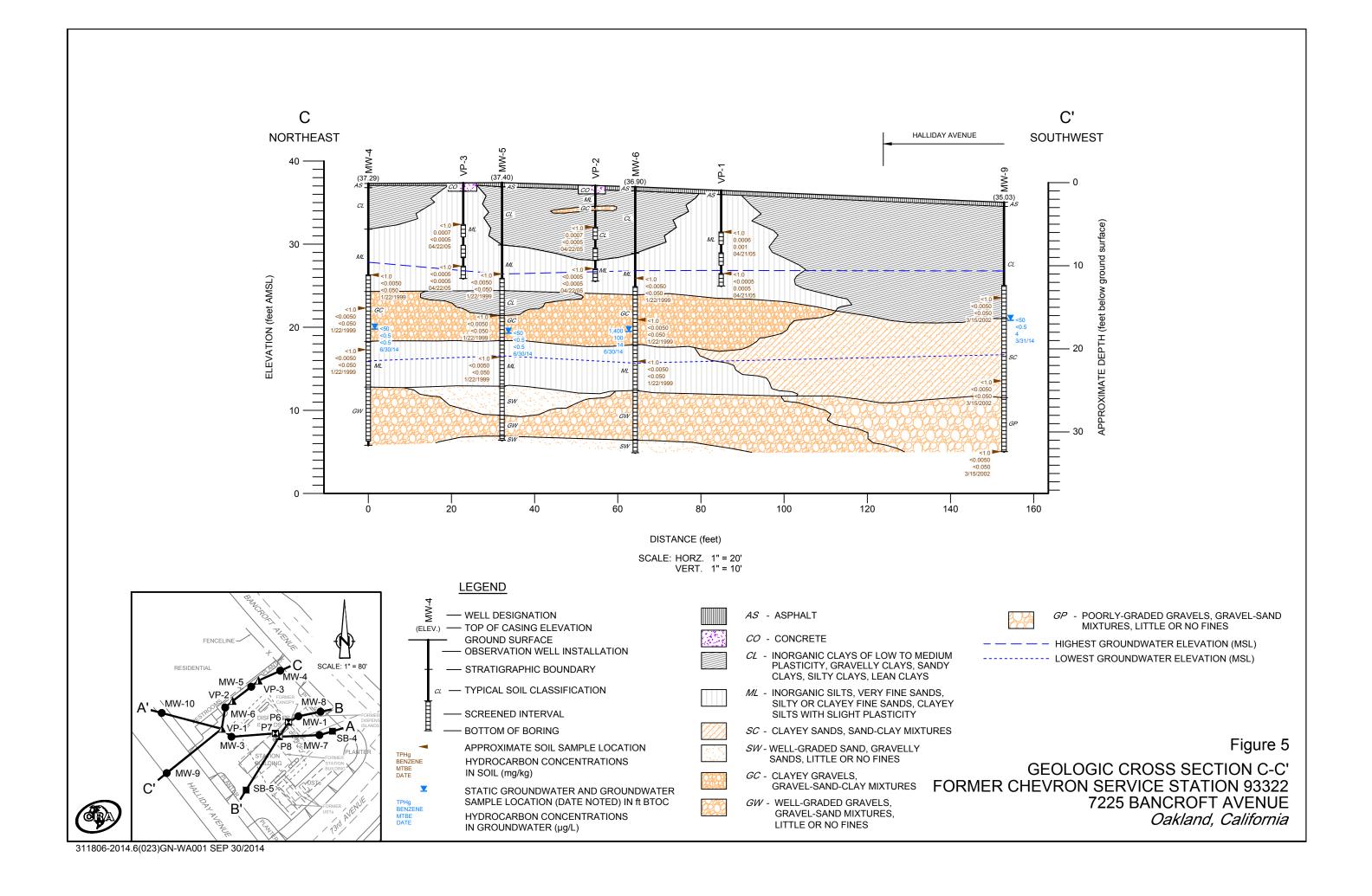


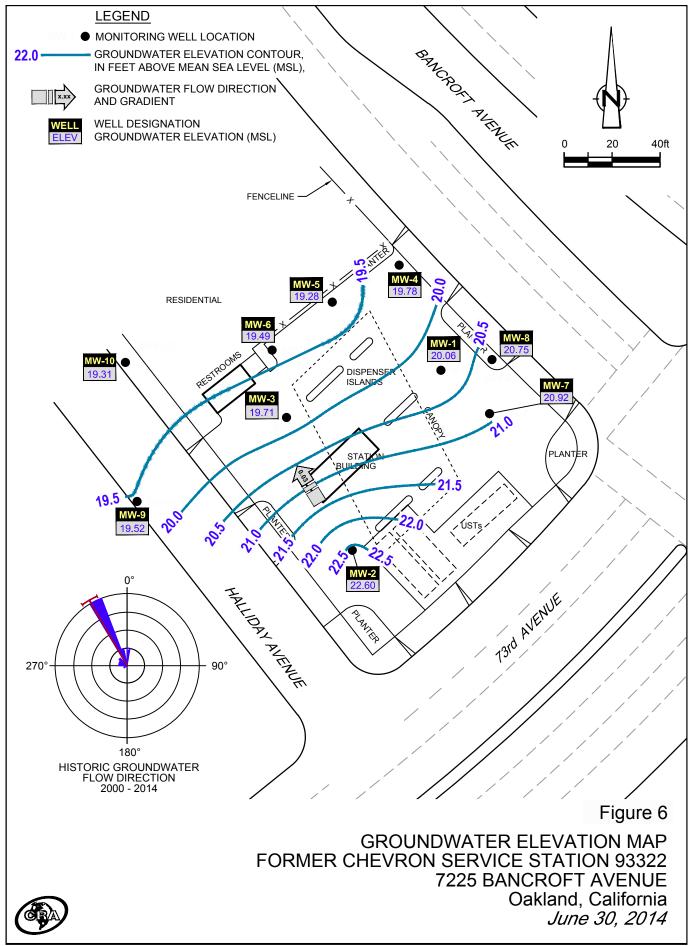


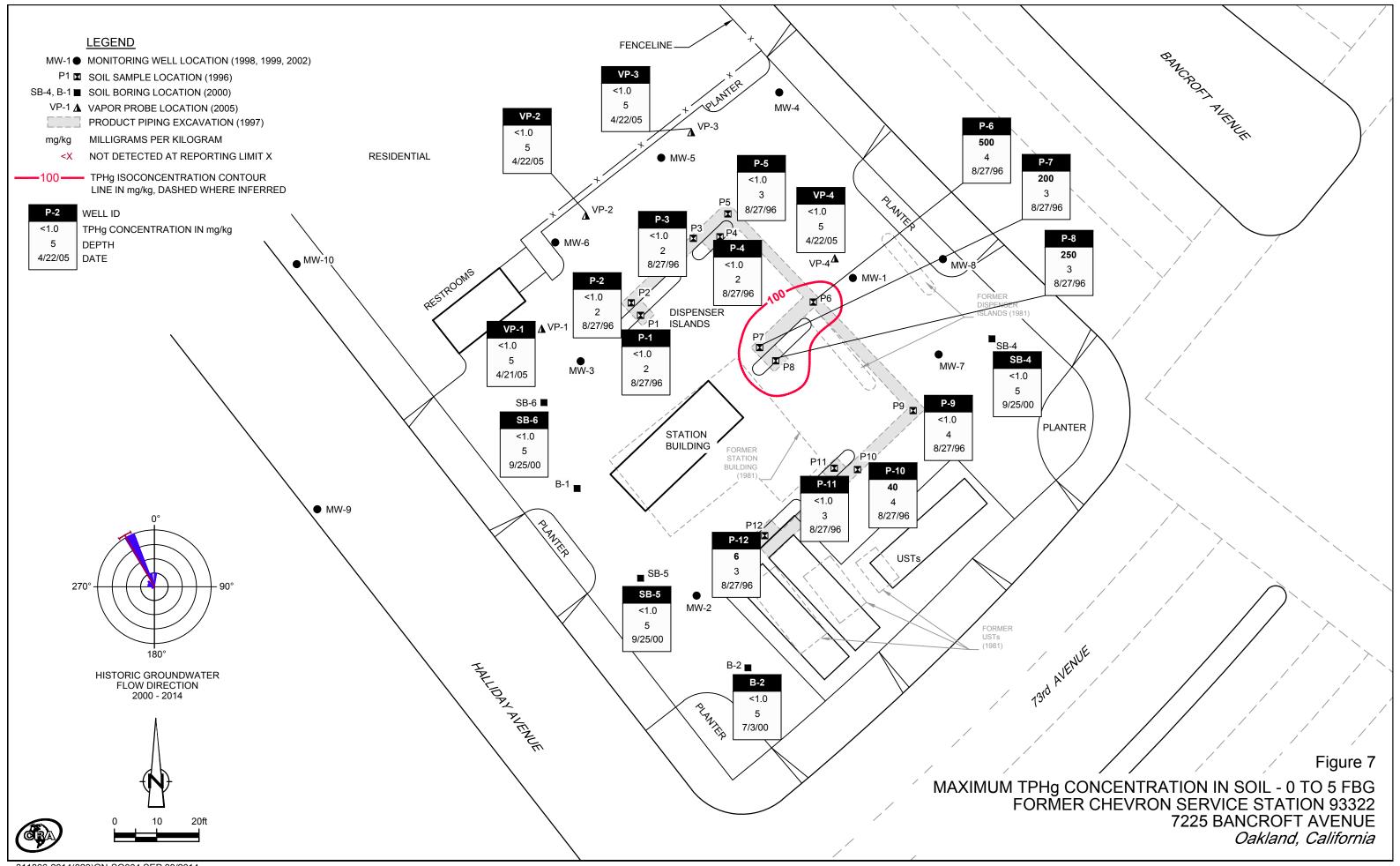


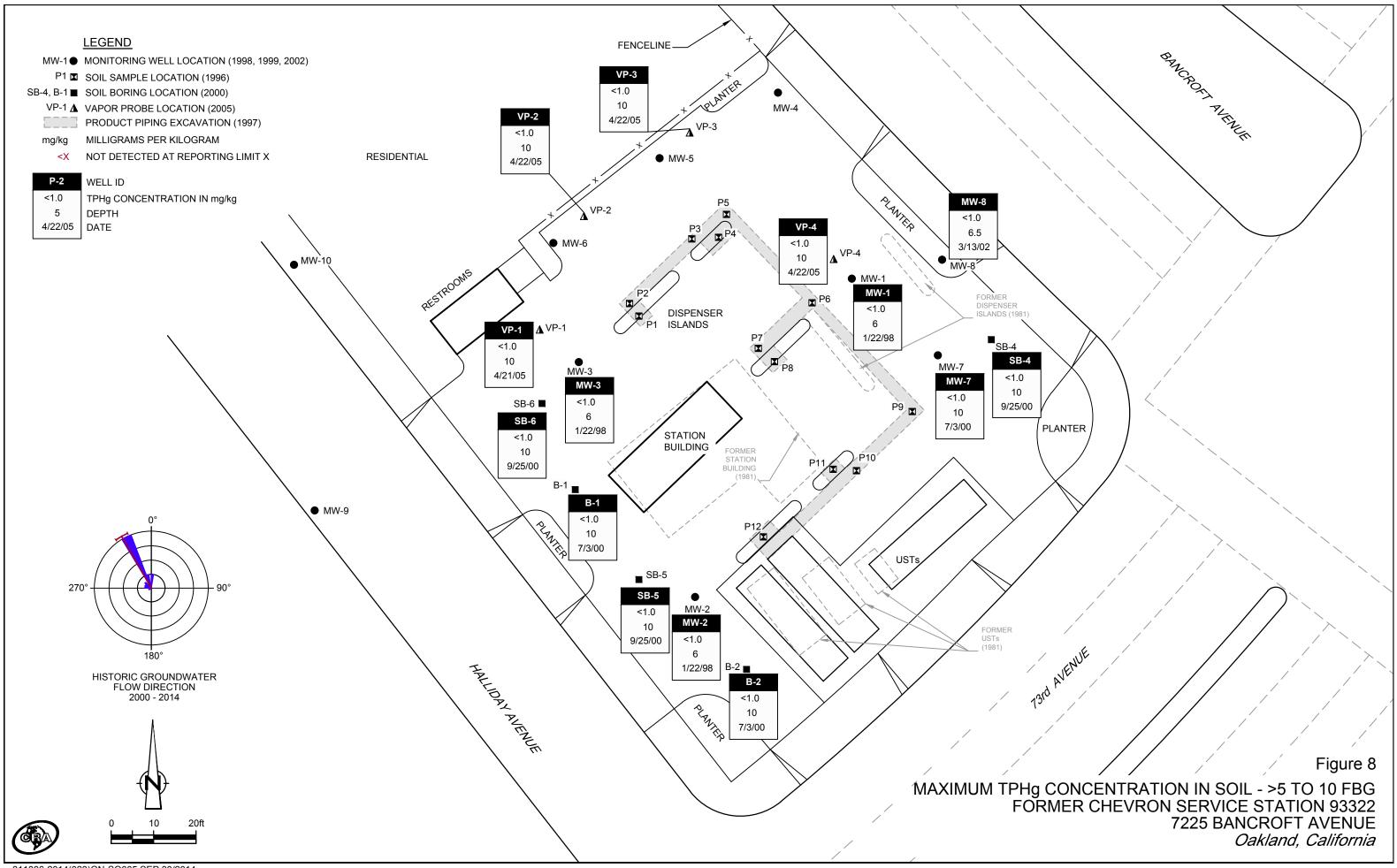


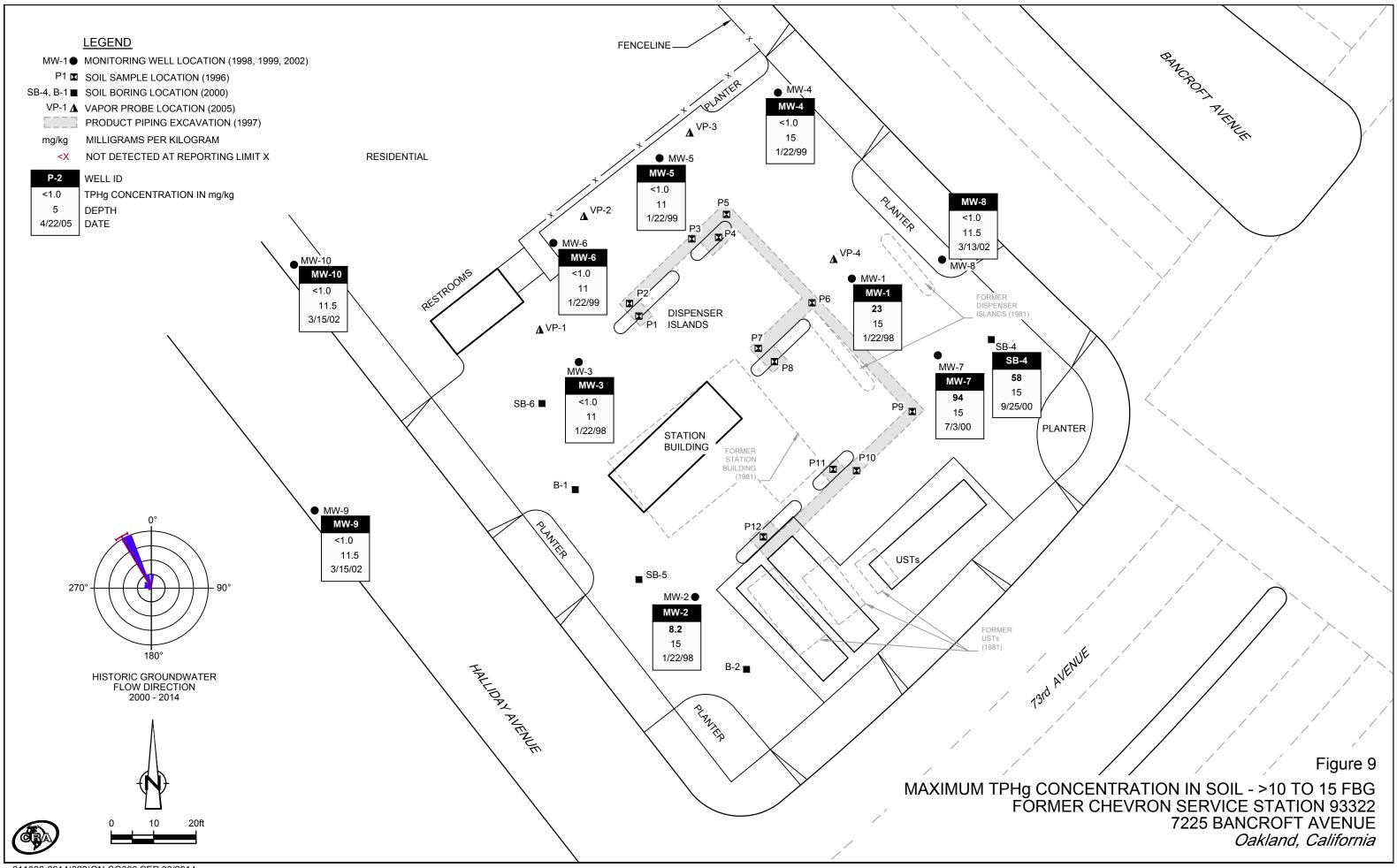


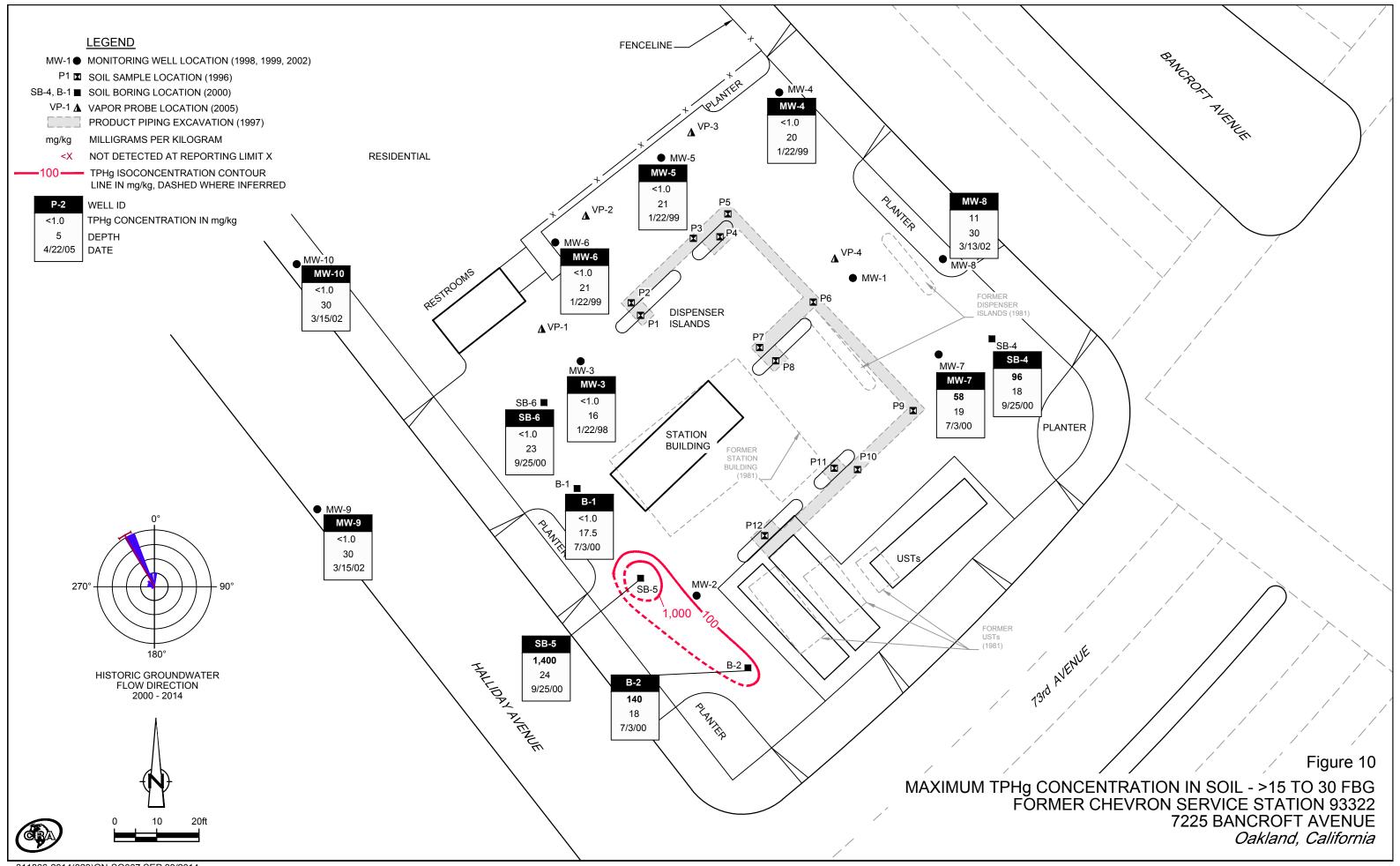


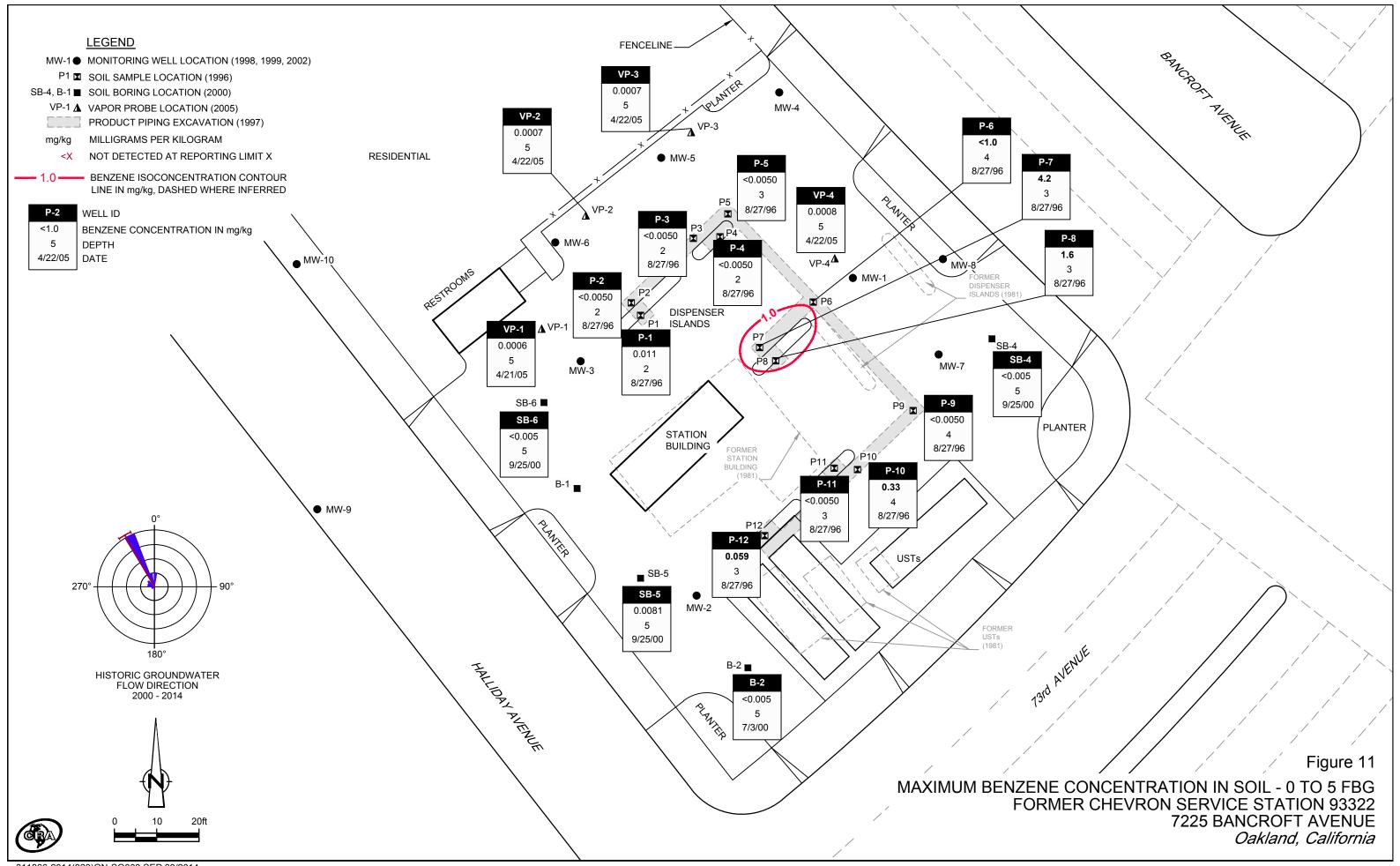


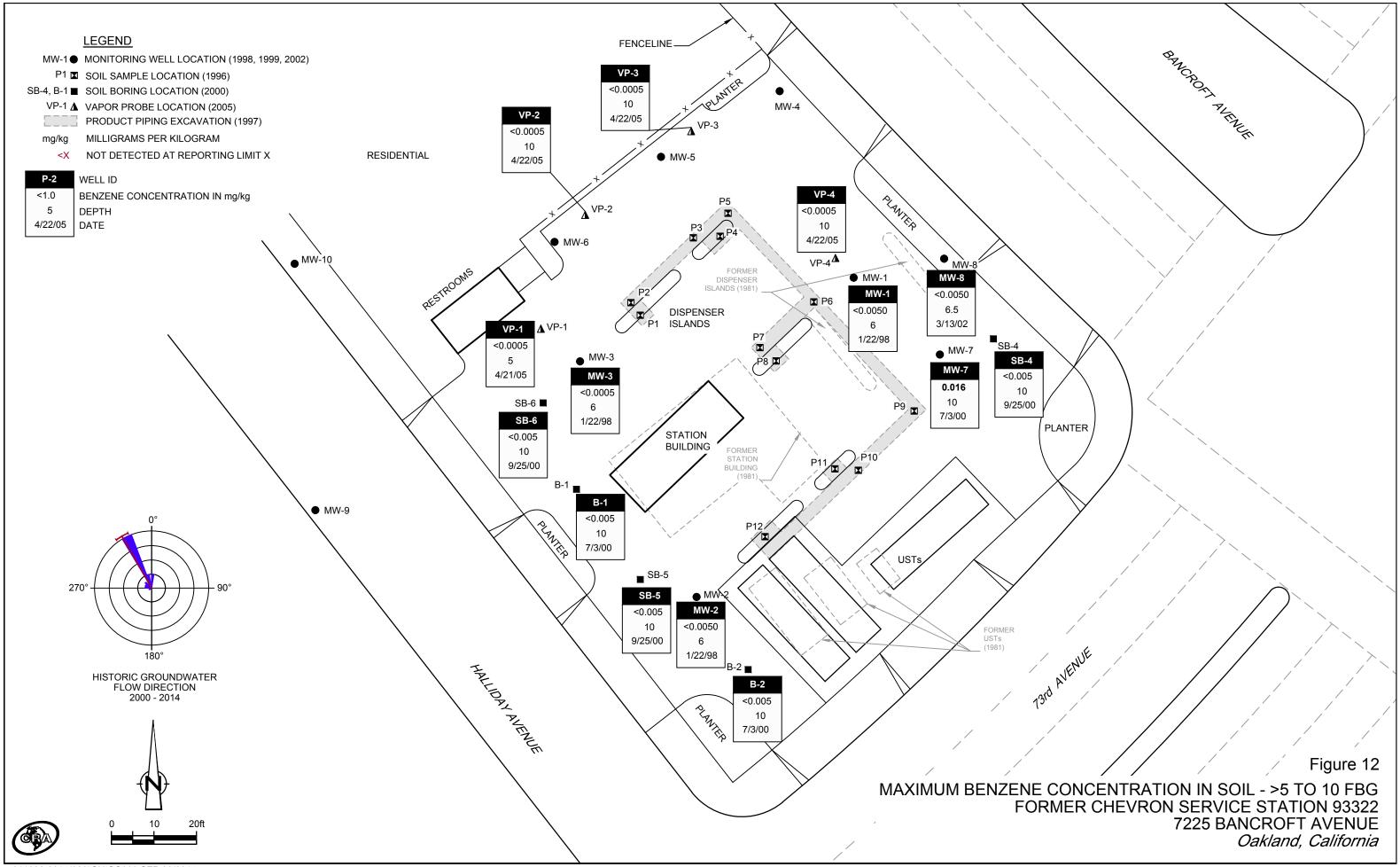


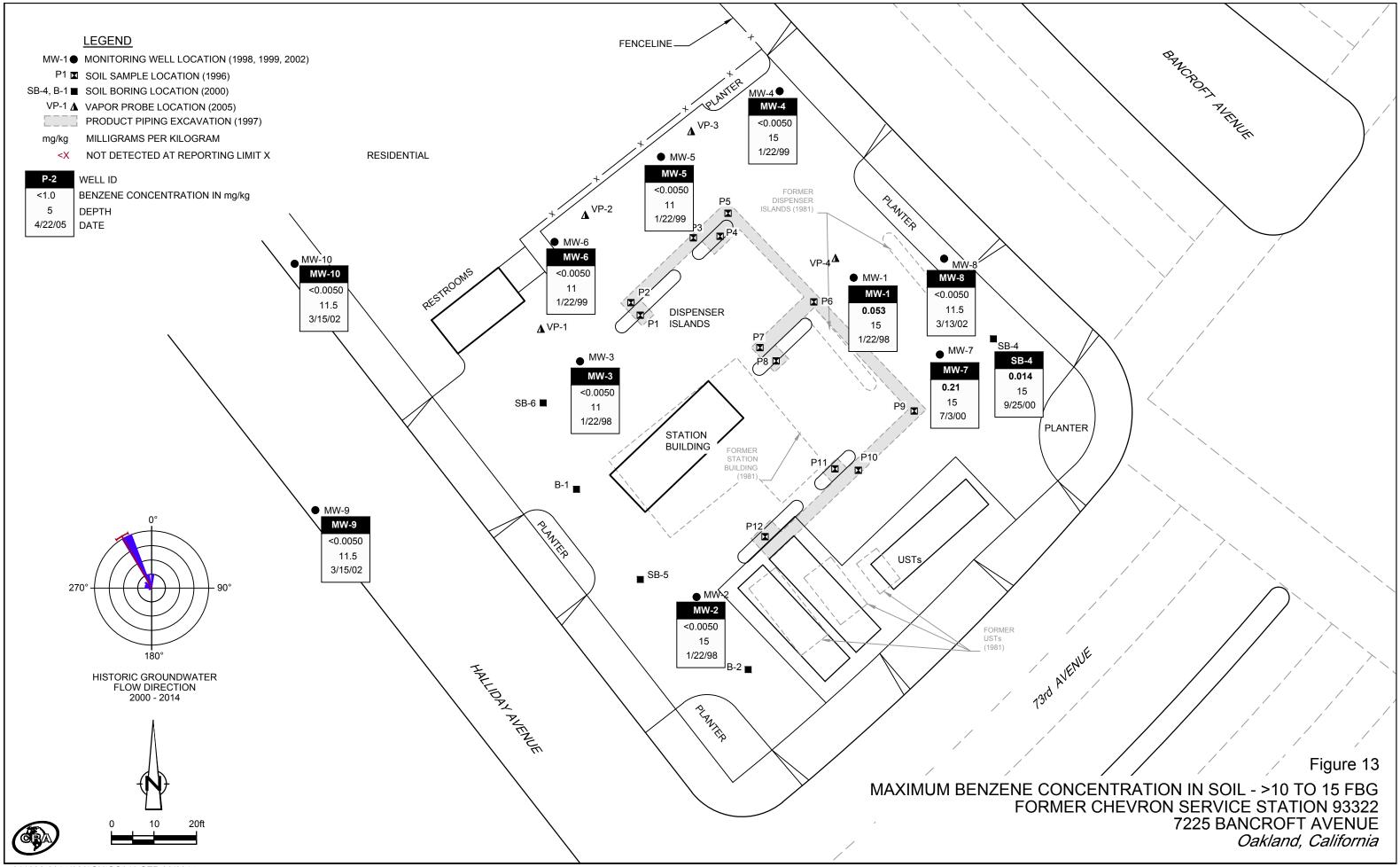


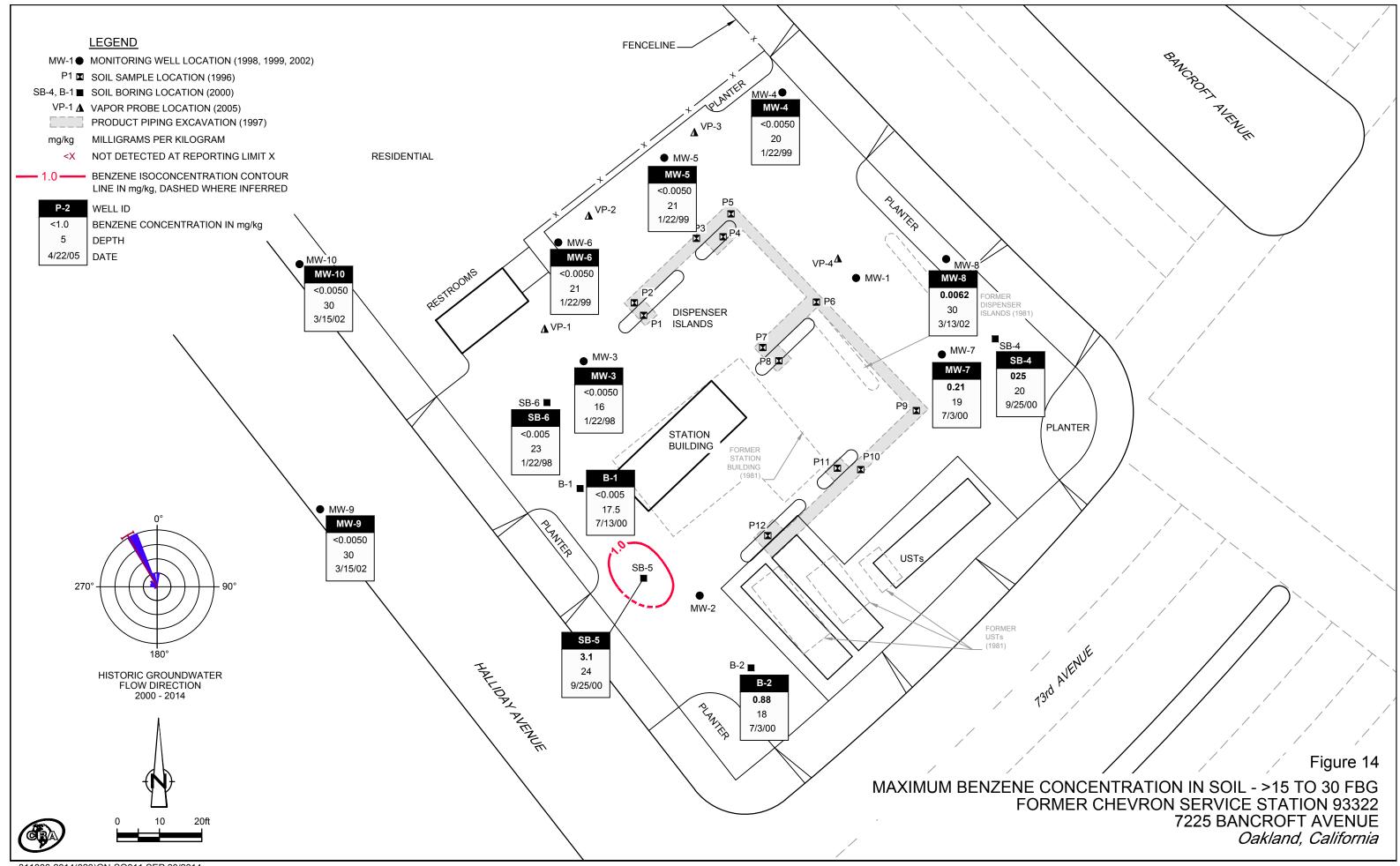


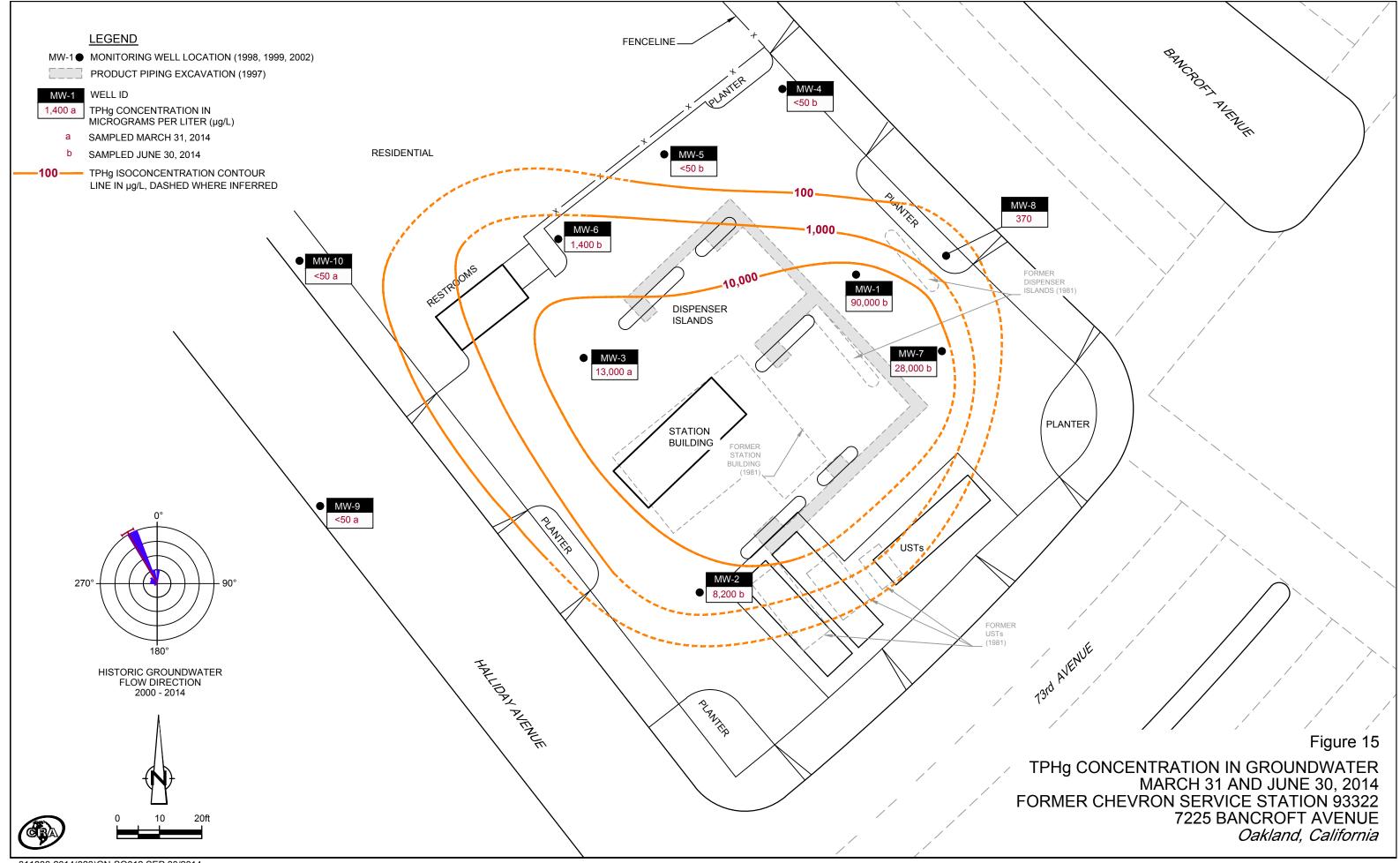


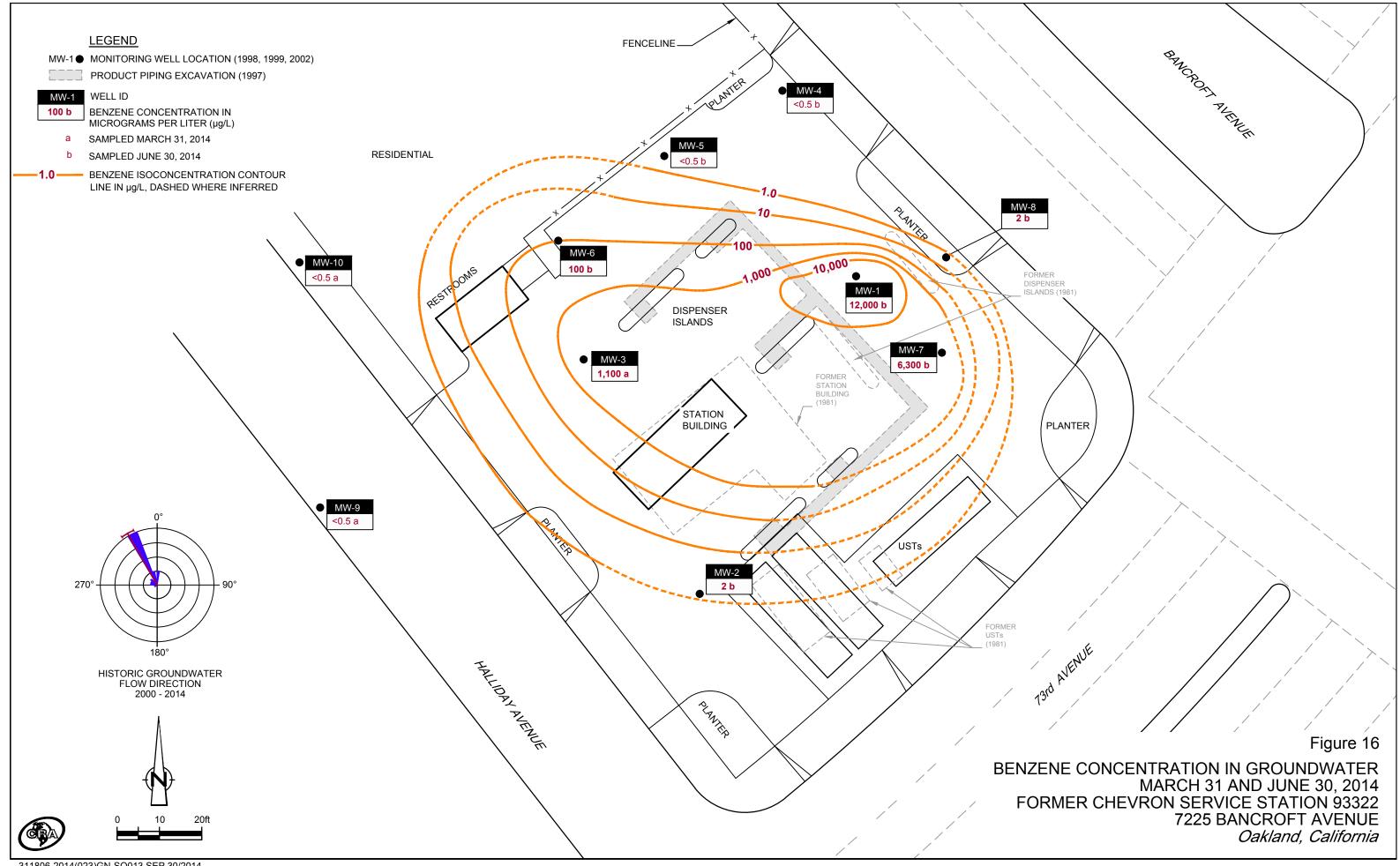


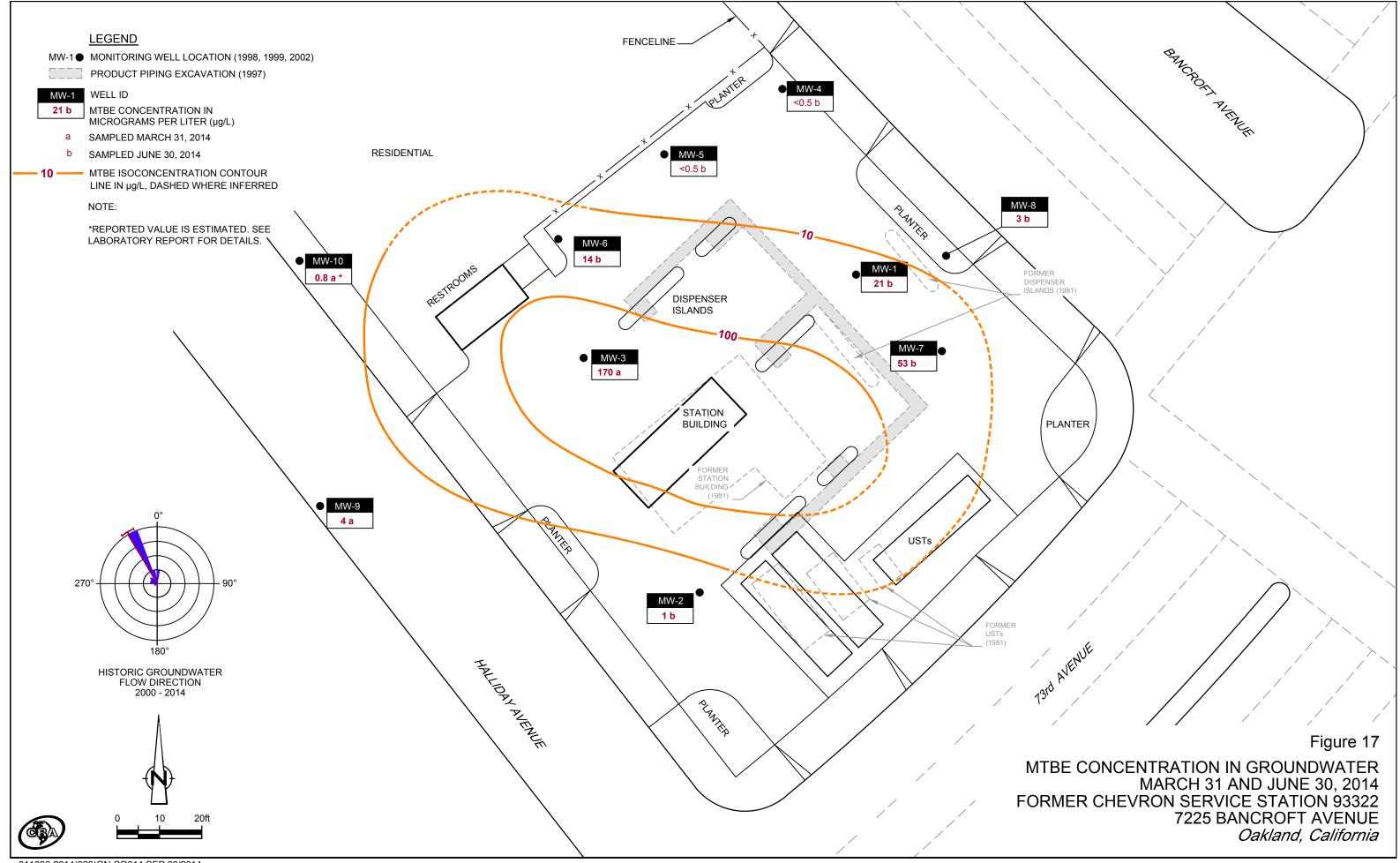


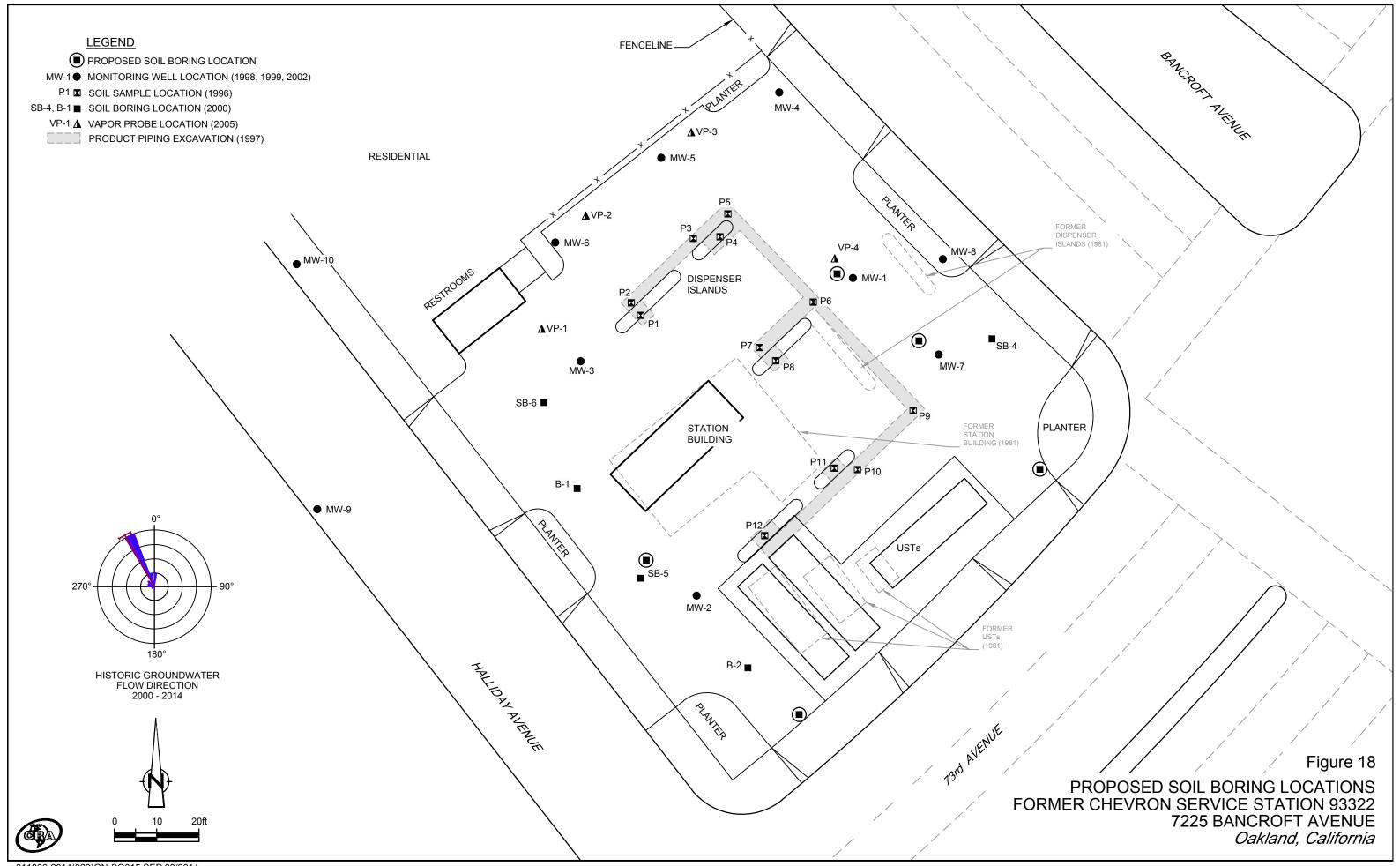












## **Tables**



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# CUMULATIVE SOIL ANALYTICAL DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

						Ethyl-	Total		Napthalen										
		Sample	TPHg	Benzene	Toluene	benzene	Xylenes	MTBE	e	TBA	DIPE	ETBE	TAME	•	EDB	Ethanol	PAHs	Pesticides	PCBs
Sample ID LTC - Commerc	Sample Date	Depth (fbg)	NE	8.2	NE	89	NE	NE	Concent 45	rations re NE	ported in 1 NE	milligrams NE	s per kilog. NE	ram (mg/kg NE	NE	NE	0.68	NE	NE
	cial - O to 3 jbg cial - Outdoor Air	- 0 to 10 fba	NE	12	NE	134	NE	NE NE	45 45	NE	NE	NE NE	NE	NE	NE	NE	NE	NE NE	NE
	orker - 0 to 10 fb	, ,	NE	14	NE	314	NE	NE	219	NE	NE	NE	NE	NE	NE	NE	4.5	NE	NE
2005 Cambria	Soil Vapor Probe	Installation																	
VP-1	04/21/05	5.0	<1.0	0.0006	0.001	<0.001	0.001	0.001							<0.001				
VP-1	04/21/05	10.0	<1.0	<0.0005	<0.001	< 0.001	< 0.001	0.0005							<0.001				
VP-2	04/22/05	5.0	<1.0	0.0007	<0.001	< 0.001	0.001	<0.0005							<0.001				
VP-2	04/22/05	10.0	<1.0	<0.0005	< 0.001	< 0.001	<0.001	<0.0005							<0.001				
VP-3	04/22/05	5.0	<1.0	0.0007	0.002	0.001	0.005	<0.0005							<0.001				
VP-3	04/22/05	10.0	<1.0	<0.0005	< 0.001	< 0.001	<0.001	<0.0005							<0.001				
VP-4	04/22/05	5.0	<1.0	0.0008	0.002	0.001	0.007	<0.0005							<0.001				
VP-4	04/22/05	10.0	<1.0	<0.0005	<0.001	< 0.001	< 0.001	0.001							<0.001				
2002 Gettler-R	Ryan Well Installa	ition																	
MW-8	3/13/2002	6.5	<1.0	<0.0050	<0.0050	<0.0050	< 0.015	<0.050											
MW-8	3/13/2002	11.5	<1.0	<0.0050	<0.0050	<0.0050	< 0.015	<0.050											
MW-8	3/13/2002	16.5	<1.0	<0.0050	<0.0050	<0.0050	< 0.015	<0.050											
MW-8	3/13/2002	21.5	<1.0	<0.0050	<0.0050	<0.0050	< 0.015	<0.050											
MW-8	3/13/2002	30.0	11	0.0062	<0.0050	<0.0050	<0.060	<0.050											
MW-9	3/15/2002	11.5	<1.0	<0.0050	<0.0050	<0.0050	<0.015	<0.050											
MW-9	3/15/2002	21.5	<1.0	<0.0050	<0.0050	<0.0050	<0.015	<0.050											
MW-9	3/15/2002	30.0	<1.0	<0.0050	<0.0050	<0.0050	<0.015	<0.050											
MW-10	3/15/2002	11.5	<1.0	<0.0050	<0.0050	<0.0050	<0.015	<0.050											
MW-10	3/15/2002	21.5	<1.0	<0.0050	<0.0050	<0.0050	< 0.015	<0.050											
MW-10	3/15/2002	30.0	<1.0	<0.0050	<0.0050	<0.0050	<0.015	<0.050											
2000 Cambria	Additional Baseli	ine Investigatio	on																
SB-4	09/25/00	3.0	<1.0	<0.005	<0.005	<0.005	0.014	<0.10*	<0.10								<0.10	0.00284b, 0.00208c	<20
SB-4	09/25/00	5.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.10*	<0.10								<0.10	0.00307b, 0.00210c	<20
SB-4	09/25/00	10.0	<1.0	<0.005	<0.005	< 0.005	<0.005	<0.10*	<0.10								<0.10	ND	<20
SB-4	09/25/00	15.0	58	0.14	0.24	0.33	0.86	<0.10*	<0.10								<0.10	ND	<20

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## CUMULATIVE SOIL ANALYTICAL DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

						Ethyl-	Total		Napthalen										
Sample ID	Sample Date	Sample	TPHg	Benzene	Toluene	benzene	Xylenes	MTBE	e Concenti	TBA	DIPE ported in a	ETBE milliarame	TAME ner kilon	1,2-DCA ram (mg/kg	EDB	Ethanol	PAHs	Pesticides	PCBs
LTC - Commerc		Deptii (jbg)	NE	8.2	NE	89	NE	NE	45	NE NE	NE NE	NE NE	NE NE	NE	NE	NE	0.68	NE	NE
LTC - Commerc	ial - Outdoor Air -	0 to 10 fbg	NE	12	NE	134	NE	NE	45	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
LTC - Utility Wo	orker - 0 to 10 fbg	<u> </u>	NE	14	NE	314	NE	NE	219	NE	NE	NE	NE	NE	NE	NE	4.5	NE	NE
	00/07/00																		
SB-4	09/25/00	18.0	96	0.25	0.62	1.3	5.7	<0.10*	0.58								0.86a	ND	<20
SB-4	09/25/00	20.0	21	0.25	0.58	0.25	1.3	<0.10*	<0.10								<0.10	ND	<20
SB-4	09/25/00	24.0	<1.0	<0.005	<0.005	<0.005	0.017	<0.10*	<0.10								<0.10	ND	<20
SB-5	09/25/00	3.0	<1.0	0.0081	0.0094	0.012	0.014	<0.10*	<0.10								<0.10	ND	<20
SB-5	09/25/00	5.0	<1.0	0.0051	0.0052	0.01	0.016	<0.10*	<0.10								<0.10	ND	<20
SB-5	09/25/00	10.0	<1.0	<0.005	<0.005	<0.005	0.016	<0.10*	<0.10								<0.10	ND	<20
SB-5	09/25/00	16.0	65	0.22	0.27	0.34	0.77	<0.10*	<0.10								<0.10	0.00746d	<20
SB-5	09/25/00	20.0	19	0.079	0.099	0.083	0.21	<0.10*	<0.10								<0.10	ND	<20
SB-5	09/25/00	24.0	1,400	3.1	10	28	150	<0.10*	<0.10								<0.10	ND	<20
SB-6	09/25/00	3.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.10*	< 0.10								<0.10	ND	<20
SB-6	09/25/00	5.0	<1.0	< 0.005	<0.005	< 0.005	<0.005	<0.10*	< 0.10								<0.10	ND	<20
SB-6	09/25/00	10.0	<1.0	<0.005	<0.005	< 0.005	<0.005	<0.10*	< 0.10								<0.10	0.00163c	<20
SB-6	09/25/00	23.0	<1.0	<0.005	<0.005	< 0.005	<0.005	<0.10*	< 0.10								<0.10	ND	<20
2000 Gettler-R	yan Baseline Inve	stigation																	
B-1	07/03/00	10.0	<1.0	<0.005	<0.005	< 0.005	<0.005	< 0.050											
B-1	07/03/00	17.5	<1.0	<0.005	<0.005	< 0.005	< 0.005	0.083											
B-2	07/03/00	5.0	<1.0	<0.005	< 0.005	<0.005	<0.005	<0.050											
B-2	07/03/00	10.0	<1.0	<0.005	< 0.005	<0.005	<0.005	< 0.050											
B-2	07/03/00	18.0	140	0.88	1.1	5.8	1.1	1.7											
B-3 (MW-7)	07/03/00	10.0	<1.0	0.016	< 0.005	<0.005	0.01	< 0.050											
B-3 (MW-7)	07/03/00	15.0	94	0.21	0.68	1.9	8.7	<0.050											
B-3 (MW-7)	07/03/00	19.0	58	0.21	0.52	1.2	5.9	<0.050											
, ,																			
1999 Gettler-R	yan Monitoring W	Vell Installatio	n																
MW-4	1/22/1999	11.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050											
MW-4	1/22/1999	15.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050											
MW-4	1/22/1999	20.0	<1.0	<0.0050	<0.0050	<0.0050		<0.050											
	_,,																		

TABLE 1 Page 3 of 4

## CUMULATIVE SOIL ANALYTICAL DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

						Ethyl-	Total		Napthalen										
		Sample	TPHg	Benzene	Toluene	benzene	Xylenes	MTBE	е	TBA	DIPE	ETBE	TAME	•	EDB	Ethanol	PAHs	Pesticides	PCBs
Sample ID	Sample Date	Depth (fbg)	NE	0.3	NE	89	ΑIΓ	NΓ						ram (mg/kg		NΓ	0.00	NE	NΓ
	cial - 0 to 5 fbg cial - Outdoor Air	- 0 to 10 fba	NE NE	8.2 12	NE NE	134	NE NE	NE NE	45 45	NE NE	NE NE	NE NE	NE NE	NE NE	NE NE	NE NE	0.68 NE	NE NE	NE NE
	orker - 0 to 10 fb		NE	14	NE	314	NE	NE	219	NE	NE	NE	NE	NE	NE	NE	4.5	NE	NE
	,																		
MW-5	1/22/1999	11.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050											
MW-5	1/22/1999	16.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050											
MW-5	1/22/1999	21.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050											
MW-6	1/22/1999	10.5																	
MW-6	1/22/1999	11.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050											
MW-6	1/22/1999	16.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050											
MW-6	1/22/1999	21.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050											
1998 Gettler-I	Ryan Well Installa	tion																	
MW-1	1/22/1998	6.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025											
MW-1	1/22/1998	11.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025											
MW-1	1/22/1998	15.0	23	0.053	0.014	0.28	0.99	0.057											
MW-2	1/22/1998	6.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025											
MW-2	1/22/1998	11.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	0.079											
MW-2	1/22/1998	15.0	8.2	<0.0050	0.022	0.012	0.065	0.40											
MW-3	1/22/1998	6.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025											
MW-3	1/22/1998	11.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025											
MW-3	1/22/1998	16.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025											
1996 Touchsto	one Piping Remov	al Report																	
P1	8/27/1996	2.0	<1.0	0.011	<0.0050	<0.0050	0.022	0.65											
P2	8/27/1996	2.0	<1.0	<0.0050	<0.0050	<0.0050	0.024	0.47											
Р3	8/27/1996	2.0	<1.0	<0.0050	<0.0050	<0.0050	0.0074	0.15											
P4	8/27/1996	2.0	<1.0	<0.0050	<0.0050	<0.0050	0.011	0.19											
P5	8/27/1996	3.0	<1.0	<0.0050	0.0095	<0.0050	0.0072	<0.025											
P6	8/27/1996	4.0	500	<1.0	8.1	7.3	59	<5.0											
P7	8/27/1996	3.0	200	4.2	13	4.5	31	<5.0											
P8	8/27/1996	3.0	250	1.6	10	5.3	32	<5.0											

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#### CUMULATIVE SOIL ANALYTICAL DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

		Sample	ТРНд	Benzene	Toluene	Ethyl- benzene	Total Xylenes	МТВЕ	Napthalen e	TBA	DIPE	ETBE	TAME	1,2-DCA	EDB	Ethanol	PAHs	Pesticides	PCBs
Sample ID	Sample Date	Depth (fbg)							Concent	rations re	ported in	milligram	s per kilog	ram (mg/k	g)				
LTC - Commer	cial - 0 to 5 fbg		NE	8.2	NE	89	NE	NE	45	NE	NE	NE	NE	NE	NE	NE	0.68	NE	NE
LTC - Commer	cial - Outdoor Air	- 0 to 10 fbg	NE	12	NE	134	NE	NE	45	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
LTC - Utility W	orker - 0 to 10 fbg	g	NE	14	NE	314	NE	NE	219	NE	NE	NE	NE	NE	NE	NE	4.5	NE	NE
P9	8/27/1996	4.0	<1.0	<0.0050	0.0095	<0.0050	<0.0050	<0.025											
P10	8/27/1996	4.0	40	0.33	1.8	0.56	1.7	1.1											
P11	8/27/1996	3.0	<1.0	<0.0050	0.0095	<0.0050	0.0082	0.092											
P12	8/27/1996	3.0	6	0.059	0.011	0.015	0.35	0.65											

#### Notes:

Total petroleum hydrocarbons as gasoline (TPHg) analyzed by EPA Method 8015 unless otherwise noted.

Benzene, toluene, ethylbenzene, and xylenes analyzed by EPA Method 8260B; before February 26, 2008, analyzed by EPA Method 8020 unless otherwise noted

Methyl tertiary-butyl ether (MTBE) analyzed by EPA Method 8260B after 1998 and by EPA Method 8020 from 1998 and prior

T-butyl alcohol (TBA); di-isopropyl ether (DIPE); ethyl tertiary-butyl ether (ETBE); t-amyl methyl ether (TAME); 1,2-dichloroethane (1,2-DCA); 1,2-dibromoethane (EDB) and ethanol analyzed by EPA Method 8260B

Polyciclic aromatic hydrocarbons (PAHs) analyzed by EPA Method 8270B

Pesticides and polychlorinated biphenyls (PCBs) by EPA Method 8081A and 8082

NE = Not established

<x = Not detected at reporting limit x

--- = Not analyzed

fbg = feet below grade

ND = not detected above stated laboratory method detection limits

LTC = Low-threat Underground Storage Tank Case Closure Policy Criteria - California State Water Resources Control Board (SWRCB), August 2012, Low-Threat Udnerground Storage Tank Policy.

a = 2-methylnaphthalene

b = Aldrin

c = heptaclor

d = delta-BHC

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### CUMULATIVE SOIL ANALYTICAL DATA - METALS FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFTAVENUE OAKLAND, CALIFORNIA

Sample

Camanda ID	Camanda Data	Donath /fb = 1	11	ch	4.	D.e.	D.	<b>C</b> -1	C	Co	C	DL	0.4.	A/:	C-	Λ	TI	17	7
Sample ID	Sample Date	рертп (јод)	Hg	Sb	As	Ва	Ве	Cd	Cr	Со	Cu	Pb	Мо	Ni	Se	Ag	TI	V	Zn
2000 Cambria	Additional Base	line Investigat	tion																
SB-4	09/25/00	3.0	0.037	<5.0	<5.0	140	<5.0	<5.0	26	21	38	3	<0.50	28	<5.0	1.3	12	84	19
SB-4	09/25/00	5.0	0.17	<5.0	<5.0	120	<5.0	<5.0	40	18	37	6.9	<0.50	37	<5.0	0.82	13	91	40
SB-4	09/25/00	10.0	0.18	<5.0	<5.0	120	<5.0	<5.0	37	20	52	4	<0.50	53	<5.0	0.68	15	100	31
SB-4	09/25/00	15.0	0.088	<5.0	<5.0	160	<5.0	<5.0	44	14	30	7.5	<0.50	54	<5.0	1.7	<10	46	44
SB-4	09/25/00	18.0	0.051	<5.0	<5.0	200	<5.0	<5.0	47	16	30	8.2	<0.50	56	<5.0	<0.50	17	49	48
SB-4	09/25/00	20.0	0.1	<5.0	<5.0	160	<5.0	<5.0	46	14	36	6.6	<0.50	56	<5.0	1.8	15	49	50
SB-4	09/25/00	24.0	0.049	<5.0	<5.0	120	<5.0	<5.0	32	6.3	18	5.3	<0.50	33	<5.0	2.1	18	29	34
SB-5	09/25/00	3.0	0.043	<5.0	<5.0	170	<5.0	<5.0	27	19	46	3.1	<0.50	33	<5.0	<0.50	13	79	23
SB-5	09/25/00	5.0	0.055	<5.0	<5.0	150	<5.0	<5.0	32	23	45	3.6	<0.50	39	<5.0	1.9	12	88	30
SB-5	09/25/00	10.0	0.15	<5.0	<5.0	130	<5.0	<5.0	34	24	49	3.8	<0.50	57	<5.0	1.3	15	100	30
SB-5	09/25/00	16.0	0.092	<5.0	<5.0	130	<5.0	<5.0	40	13	27	6.7	<0.50	50	<5.0	1.2	<10	45	40
SB-5	09/25/00	20.0	0.15	<5.0	<5.0	120	<5.0	<5.0	30	7	14	4.2	<0.50	35	<5.0	<0.50	13	29	31
SB-5	09/25/00	24.0	0.1	<5.0	<5.0	140	<5.0	<5.0	28	8.1	19	4.7	<0.50	39	<5.0	<0.50	<10	32	35
SB-6	09/25/00	3.0	0.069	<5.0	<5.0	150	<5.0	<5.0	28	18	44	2.7	<0.50	39	<5.0	<0.50	14	87	21
SB-6	09/25/00	5.0	0.23	<5.0	<5.0	150	<5.0	<5.0	36	10	46	3.3	<0.50	39	<5.0	1.8	11	76	27
SB-6	09/25/00	10.0	0.22	<5.0	<5.0	100	<5.0	<5.0	34	20	44	2.7	<0.50	50	<5.0	1.3	<10	92	29
SB-6	09/25/00	23.0	0.043	<5.0	<5.0	110	<5.0	<5.0	30	8.3	18	5.6	<0.50	36	<5.0	2.2	<10	35	33
1996 Touchsto	one Piping Remo	val Report																	
P1-2	8/27/1996	2.0										<0.5							
P2-2	8/27/1996	2.0										<0.5							
P3-2	8/27/1996	2.0										<0.5							

TABLE 2 Page 2 of 2

### CUMULATIVE SOIL ANALYTICAL DATA - METALS FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFTAVENUE OAKLAND, CALIFORNIA

#### Sample

Sample ID	Sample Date	Depth (fbg)	Hg	Sb	As	Ва	Ве	Cd	Cr	Co	Cu	Pb	Мо	Ni	Se	Ag	ΤI	V	Zn
<b>-</b>		1 0 37																	
P4-2	8/27/1996	2.0										<0.5							
P5-3	8/27/1996	3.0										<0.5							
P6-4	8/27/1996	4.0										<0.5							
P7-3	8/27/1996	3.0										<0.5							
P8-3	8/27/1996	3.0										<0.5							
P9-4	8/27/1996	4.0										<0.5							
P10-4	8/27/1996	4.0										6.1							
P11-3	8/27/1996	3.0										<0.5							
P12-3	8/27/1996	3.0										<0.5							

#### Notes:

Hg = mercury, Sb = antimony, Ba = barium, Be = beryllium, Cd = cadmium, Cr = chromium, Co = cobalt, Cu = copper, Pb = lead, Mo = molybdenum, Ni = nickel, Se = selenium, Ag = silver, Tl = thallium, V = vanadium, Zn = zinc by EPA Method 6010

<x = Not detected at reporting limit x</pre>

--- = Not analyzed

fbg = feet below grade

ND = not detected above various laboratory method detection limits

CUMULATIVE
GRAB-GROUNDWATER ANALYTICAL DATA
FORMER CHEVON SERVICE STATION 93322
7225 BANCROFT AVENUE
OAKLAND, CALIFORNIA

Sample ID	Date	Depth (fbg)	ТРН	ТРНто	TPHd	ТРНд	Benzene	Toluene	Ethylbenzene	Total Xylenes	МТВЕ	ТВА	DIPE	ETBE	TAME	1,2-DCA				* SVOCs* ograms per lit	-		As	Ва	Ве	Cd	Cr	Со	Cu	Pb	Мо	Ni	Se	Ag	ΤI	v	Zn	Pesticides	PCBs
ESLs - Grou	ndwater (Drinki	ing)	100	100	100	100	1	40	30	20	5	12	NE	NE	NE	0.5	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
MW-2	9/28/2000		5,400				38	17	470	730	70	<50	<2.0	<2.0	18			<500		11a, 39b	<0.00020	<0.10	<0.10	0.16	<0.010	<0.010	0.050	<0.010	<0.010	<0.020	<0.010	0.037	<0.10	0.043	0.24	0.013	0.54	10.8c,	ND
MW-3	9/28/2000		24,000				1,500	560	1,500	5,700	1,400	<500	<20	<20	500			<5,000		51a, 200b	<0.00020	< 0.10	<0.10	0.34	< 0.010	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.10	0.044	0.24	<0.010	0.041	16.0c	ND
MW-7	9/28/2000		4,100				2,000	1,600	180	670	82	<500	<20	<20	<20			<5,000		17a, 120b	<0.00020	<0.10	<0.10	0.098	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	0.017	0.018	<0.10	0.051	<0.10	<0.010	0.067	ND	ND

#### Notes:

Total purgable hydrocarbons (TPH) by DHS LUFT Method

Total petroleum hydrocarbons as motor oil (TPHmo) analyzed by EPA Method 8015B modified unless otherwise noted.

Total petroleum hydrocarbons as diesel (TPHd) analyzed by EPA Method 8015B with silica gel cleanup unless otherwise noted.

Total petroleum hydrocarbons as gasoline (TPHg) analyzed by EPA Method 8015B modified unless otherwise noted.

Benzene, toluene, ethylbenzene, and xylenes (BTEX); methyl tertiary-butyl ether (MTBE); t-butyl alcohol (TBA); di-isopropyl ether (DIPE); ethyl tertiary-butyl ether (ETBE); t-amyl methyl ether (TAME); 1,2-dichloroethane (1,2-DCA); 1,2-dibromoethane (EDB)

Volatile Organic Compounds (VOCs) by EPA Method 8260B

Semivolatile Organic Compounds (SVOCs) by EPA Method 8270C

Hg = mercury, As = antimony, Ba = barium, Be = berylium, Cd = Cadmium, Cr = chromium, Co = cobalt, Cu = copper, Pb = lead, Mo = molybdenum, Ni = nickel, Se = selenium, Ag = silver, Tl = thallium, V = vanadium, Zn = zinc by EPA 6000/7000 Series Methods

Organochlorine Pesticides (Pesticides) analyzed by EPA Method 8081A, concentrations below detection limits unless otherwise noted

Polychlorinated biphenyls (PCBs) by EPA Method 8082, concentrations below detection limits unless otherwise noted

fbg = feet below grade.

<x = Not detected at reporting limit x.</pre>

ND = not detected at various laboratory method detection limits.

\* = Refer to related investigation report for complete analytical results: only detected compound concentrations reported

a = 2-methylnaphthalene

b = naphthalene

c = delta-BHC

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### GROUNDWATER MONITORING AND SAMPLING DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

							HYDROCARBONS			PRIM	ARY VOCS				AD	DITIONAL V	ocs	
Location	Date	тос	DTW	GWE	LNAPLT	LNAPL REMOVED	TPH-GRO	В	τ	E	х	MTBE by SW8260	MTBE by VOC	Ethanol	ТВА	DIPE	ETBE	таме
	Units	ft	ft	ft-amsl	ft	gal	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
MW-1	02/08/1998	40.41	13.88	26.53	0.00	0.00	130,000	9,700	8,200	3,200	15,000	-	<250.0	-	_	-	-	_
MW-1	06/16/1998	40.41	14.23	26.18	0.00	0.00	96,000	15,000	12,000	2,600	11,000	-	1,300	-	-	-	-	=
MW-1	07/29/1998	40.41	17.82	22.59	0.00	0.00	370,000	19,000	14,000	5,800	15,000	-	<2,500	-	-	-	-	-
MW-1	08/13/1998	40.41	18.40	22.01	0.00	0.00	120,000	19,000	16,000	2,900	14,000	-	<1,000	-	-	-	-	-
MW-1	11/24/1998	40.41	20.80	19.61	0.00	0.00	100,000	26,000	18,000	4,000	22,000	-	2,000	-	-	-	-	=
MW-1	02/03/1999	40.41	17.45	22.96	0.00	0.00	110,000	27,000	16,000	3,800	22,000	-	<2.5	-	-	-	-	-
MW-1	06/07/1999	40.41	16.44	24.29	0.40	0.03	-	-	-	-	-	-	-	-	-	-	-	-
MW-1	09/07/1999	40.41	20.71	19.97	0.34	0.01	-	-	-	-	-	-	-	-	-	-	-	-
MW-1	10/27/1999	40.41	21.75	18.93	0.34	0.03	-	-	-	-	-	-	-	-	-	-	-	-
MW-1	02/08/2000	40.41	17.97	22.44	0.00	0.00	147,000	19,600	13,700	4,020	21,300	-	<2,500	-	-	-	-	-
MW-1	05/05/2000	40.41	16.05	24.36	0.00	0.00	150,000 <sup>2</sup>	28,000	17,000	4,400	23,000	-	<1,000	-	-	-	-	-
MW-1	07/28/2000	40.41	19.20	21.21	0.00	0.00	76,000 <sup>2</sup>	20,000	15,000	3,400	23,000	-	1,200	-	-	-	-	-
MW-1	11/26/2000	40.41	20.18	20.44	0.26	0.264	-	-	-	-	-	-	-	-	-	-	-	-
MW-1	02/09/2001	40.41	18.03	22.40	0.03	0.264	-	-	-	-	-	-	-	-	-	-	-	-
MW-1	05/11/2001	40.41	15.10	25.31	0.00	0.00	89,000 <sup>2</sup>	21,000	12,000	3,200	14,000	-	<500	-	-	-	-	-
MW-1	08/30/2001	40.41	20.42	20.05	0.07	0.264	-	-	-	-	-	-	-	-	-	-	-	-
MW-1	11/21/2001	40.41	20.52	20.11	0.27	0.00	-	-	-	-	-	-	-	-	-	-	-	-
MW-1	02/05/2002	40.41	14.63	25.79	0.01	0.00	130,000	16,000	13,000	4,200	23,000	-	<30.0	-	-	-	-	-
MW-1	04/01/2002	37.40	12.37	25.03	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-
MW-1	08/05/2002	37.40	12.94	24.46	0.00	0.00	230,000	12,000	9,000	5,500	28,000	-	280	-	-	-	-	=
MW-1	11/04/2002	37.40	20.03	17.37	0.00	0.00	130,000	24,000	15,000	3,900	20,000	-	<60	-	-	-	-	-
MW-1	02/03/2003	37.40	14.18	23.22	0.00	0.00	100,000	13,000	8,900	3,000	15,000	-	<130.0	-	-	-	-	-
MW-1	05/02/2003	37.40	13.28	24.12	0.00	0.00	140,000	9,900	5,900	4,200	21,000	-	<130	-	-	-	-	=
MW-1	08/01/2003 <sup>7</sup>	37.40	16.82	20.58	0.00	0.00	250,000	16,000	7,300	3,700	19,000	45	-	-	-	-	-	-
MW-1	11/21/2003 <sup>7</sup>	37.40	18.34	19.06	0.00	0.00	110,000	18,000	9,500	3,000	17,000	<10	-	-	-	-	-	-

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### GROUNDWATER MONITORING AND SAMPLING DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

							HYDROCARBONS			PRIM	ARY VOCS				AD	DITIONAL V	ocs	
Location	Date	тос	DTW	GWE	LNAPLT	LNAPL REMOVED	TPH-GRO	В	τ	E	x	MTBE by SW8260	МТВЕ by VOC	Ethanol	ТВА	DIPE	ETBE	таме
	Units	ft	ft	ft-amsl	ft	gal	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
MW-1	02/10/2004 <sup>7</sup>	37.40	13.51	23.89	0.00	0.00	51,000	4,800	1,700	760	6,400	20	-	-	-	-	-	-
MW-1	05/11/2004 <sup>7</sup>	37.40	14.35	23.05	0.00	0.00	80,000	13,000	6,500	2,800	14,000	61	=	-	-	-	-	-
MW-1	08/10/2004 <sup>7</sup>	37.40	16.80	20.61	0.01	0.00	100,000	14,000	8,700	3,200	17,000	<25	=	-	-	-	-	-
MW-1	11/08/2004	37.40	15.63	21.89	0.15	1.30 <sup>4</sup>	-	-	-	-	-	-	-	-	-	-	-	-
MW-1	02/21/2005	37.40	11.84	25.98	0.52	0.60 <sup>4</sup>	-	-	-	-	-	-	-	-	-	-	-	-
MW-1	05/10/2005	37.40	11.49	26.11	0.25	1.114	-	-	-	-	-	-	-	-	-	-	-	-
MW-1	05/12/2005	37.40	14.44	22.98	0.03	1.014	-	-	-	-	-	-	-	-	-	-	-	-
MW-1	11/11/2005	37.40	18.58	19.13	0.39	0.75 <sup>4</sup>	-	-	-	-	-	-	-	-	-	-	-	-
MW-1	02/20/2006	37.40	12.66	25.33	0.74	0.254	=	-	-	-	-	-	-	-	-	-	-	-
MW-1	05/12/2006	37.40	10.71	26.92	0.29	0.054	-	-	-	-	-	-	-	-	-	-	-	-
MW-1	08/14/2006	37.40	15.82	21.78	0.25	0.024	-	-	-	-	-	-	-	-	-	-	-	-
MW-1	11/08/2006	37.40	18.49	19.21	0.38	0.554	-	-	-	-	-	-	-	-	-	-	-	-
MW-1	02/07/2007	37.40	15.48	21.98	0.08	0.06 <sup>10</sup>	-	-	-	-	-	-	-	-	-	-	-	-
MW-1	05/07/2007	37.40	4.83	32.77	0.25	0.39 <sup>4</sup>	-	-	-	-	-	-	-	-	-	-	-	-
MW-1	08/03/2007	37.40	18.06	19.76	0.52	0.52 <sup>4</sup>	-	-	-	-	-	-	-	-	-	-	-	-
MW-1	10/12/2007	37.40	19.29	18.13	0.03	0.164	=	-	-	-	-	-	-	-	-	-	-	-
MW-1	11/02/2007 <sup>7</sup>	37.40	19.18	18.22	0.00	0.00	140,000	9,800	9,500	4,100	20,000	<10	-	-	-	-	-	-
MW-1	12/07/2007 <sup>7</sup>	37.40	19.06	18.34	0.00	0.00	130,000	11,000	11,000	3,800	20,000	10	-	-	-	-	-	-
MW-1	02/01/2008 <sup>7</sup>	37.40	13.45	23.95	0.00	0.00	61,000	2,200	2,000	2,000	10,000	11	-	-	-	-	-	-
MW-1	05/09/2008 <sup>7</sup>	37.40	15.10	22.30	0.00	0.00	81,000	13,000	10,000	3,500	18,000	30	-	-	-	-	-	-
MW-1	08/22/2008 <sup>7</sup>	37.40	18.63	18.77	0.00	0.00	210,000	13,000	8,800	7,300	37,000	<50	-	-	-	-	-	-
MW-1	11/26/2008 <sup>7</sup>	37.40	20.09	17.31	0.00	0.00	68,000	15,000	9,100	3,600	17,000	<25	=	-	-	-	-	-
MW-1	05/20/2009	37.40	19.48	17.92	0.00	0.00	58,000	11,000	12,000	15,000	59,000	<50	=	<5,000	-	-	-	-
MW-1	08/26/2009	37.40	19.06	18.34	0.00	0.00	340,000	17,000	13,000	8,000	43,000	<25	=	<2,500	-	-	-	-
MW-1	11/12/2009	37.40	17.72	19.68	0.00	0.00	140,000	16,000	10,000	4,400	23,000	<10	-	<1,000	-	-	-	-

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### GROUNDWATER MONITORING AND SAMPLING DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

							HYDROCARBONS			PRIMA	ARY VOCS				AD	DITIONAL V	ocs	
Location	Date	тос	DTW	GWE	LNAPLT	LNAPL REMOVED	TPH-GRO	В	τ	E	x	MTBE by SW8260	МТВЕ by VOC	Ethanol	ТВА	DIPE	ETBE	таме
	Units	ft	ft	ft-amsl	ft	gal	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
MW-1	02/01/2010	37.40	12.80	24.60	0.00	0.00	110,000	7,100	6,100	4,000	20,000	7 J	-	<500	-	-	-	-
MW-1	05/17/2010	37.40	11.14	26.26	0.00	0.00	75,000	7,200	3,600	2,700	12,000	31	=	<500	-	-	-	-
MW-1	08/26/2010	37.40	15.40	22.00	0.00	0.00	96,000	12,000	5,400	3,600	16,000	59	-	<500	-	-	-	-
MW-1	11/11/2010	37.40	17.70	19.70	0.00	0.00	120,000	13,000	6,600	2,700	13,000	26	-	<1,000	-	-	-	-
MW-1	02/10/2011	37.40	13.03	24.37	0.00	0.00	52,000	7,100	3,800	2,800	12,000	25	-	<1,000	-	-	-	-
MW-1	06/17/2011	37.40	12.35	25.05	0.00	0.00	30,000	3,600	940	1,000	3,200	52	-	<500	-	-	-	-
MW-1	09/08/2011	37.40	15.68	21.72	0.00	0.00	98,000	13,000	6,600	3,700	14,000	59	-	<1,000	-	-	-	-
MW-1	12/16/2011	37.40	16.47	20.93	0.00	0.00	140,000	14,000	6,500	2,900	12,000	47 J	-	<2,500	-	-	-	-
MW-1	03/02/2012	37.40	16.55	20.85	0.00	0.00	130,000	14,000	7,400	3,100	14,000	31	-	<1,000	-	-	-	-
MW-1	06/08/2012	37.40	14.11	23.29	0.00	0.00	120,000	8,900	2,900	2,600	11,000	86	-	<500	-	-	-	-
MW-1	09/14/2012	37.40	18.10	19.30	0.00	0.00	280,000	18,000	8,200	4,600	22,000	74	-	<2,500	110 J	<25	<25	<25
MW-1	12/21/2012	37.40	13.61	23.79	0.00	0.00	120,000	12,000	6,800	3,000	15,000	<100	-	<10,000	-	-	-	-
MW-1	04/01/2013	37.40	15.63	21.77	0.00	0.00	120,000	15,000	8,200	4,400	18,000	77	=	<250	-	-	-	-
MW-1	6/28/2013	37.40	17.34	20.06	0.00	0.00	130,000	16,000	10,000	3,500	17,000	34	-	<500	-	-	-	-
MW-1	9/20/2013	37.40	19.21	18.19	0.00	0.00	130,000	19,000	12,000	4,000	19,000	27	-	<1,000	-	-	-	-
MW-1	12/30/2013	37.40	20.72	16.68	0.00	0.00	140,000	18,000	13,000	6,600	34,000	21	-	<1,000	-	-	-	-
MW-1	03/31/2014	37.40	15.78	21.62	0.00	0.00	130,000	17,000	8,600	3,500	17,000	<25	-	<2,500	-	-	-	-
MW-1	06/30/2014	37.40	17.34	20.06	0.00	0.00	90,000	12,000	7,400	2,800	14,000	21	-	<1,000	-	-	-	-
MW-2	02/08/1998	38.73	7.60	31.13	0.00	0.00	24,000	130	170	450	1,900	-	2,300	-	-	-	-	-
MW-2	06/16/1998	38.73	9.12	29.61	0.00	0.00	8,900	31	46	310	1,100	-	260	-	-	-	-	-
MW-2	07/29/1998	38.73	11.67	27.06	0.00	0.00	7,600	15	21	150	480	-	82	-	-	-	-	-
MW-2	08/13/1998	38.73	12.41	26.32	0.00	0.00	14,000	26	80	500	2,100	-	32	-	-	-	-	-
MW-2	11/24/1998	38.73	15.63	23.10	0.00	0.00	37,000	63	220	1,300	7,100	-	770	-	-	-	-	-
MW-2	02/03/1999	38.73	11.57	27.16	0.00	0.00	16,000	140	110	850	3,100	-	900	-	-	-	-	-

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### GROUNDWATER MONITORING AND SAMPLING DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

							HYDROCARBONS			PRIM	ARY VOCS				AD	DITIONAL V	ocs	
Location	Date	тос	DTW	GWE	LNAPLT	LNAPL REMOVED	TPH-GRO	В	τ	E	x	MTBE by SW8260	МТВЕ by VOC	Ethanol	ТВА	DIPE	ЕТВЕ	ТАМЕ
	Units	ft	ft	ft-amsl	ft	gal	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
MW-2	06/07/1999	38.73	10.95	27.78	0.00	0.00	4,300	<10	<10	120	260	-	160	-	-	-	-	-
MW-2	09/07/1999	38.73	12.73	26.00	0.00	0.00	10,700	50.5	<25	297	1,020	-	<250	-	-	-	-	-
MW-2	10/27/1999	38.73	12.71	26.02	0.00	0.00	7,240	53.8	31.9	234	654	-	448	-	-	-	-	-
MW-2	02/08/2000	38.73	10.14	28.59	0.00	0.00	10,100	42.9	18.4	424	1,480	-	206	-	-	-	-	-
MW-2	05/05/2000	38.73	10.12	28.61	0.00	0.00	7,800 <sup>2</sup>	34	22	320	1,100	-	170	-	-	-	-	-
MW-2	07/28/2000	38.73	12.57	26.16	0.00	0.00	6,700 <sup>2</sup>	40	13	490	540	-	190	-	-	-	-	-
MW-2	11/26/2000	38.73	11.90	26.83	0.00	0.00	8,200 <sup>2</sup>	21	9.5	400	1,100	=	120	=	-	-	-	=
MW-2	02/09/2001	38.73	12.20	26.53	0.00	0.00	11,200³	<50.0	<50.0	629	1,380	=	282	=	-	-	-	=
MW-2	05/11/2001	38.73	8.98	29.75	0.00	0.00	6,800 <sup>2</sup>	39	19	370	1,100	-	67	-	-	-	-	-
MW-2	08/30/2001	38.73	12.90	25.83	0.00	0.00	17,000	67	<25	750	2,100	-	360	-	-	-	-	-
MW-2	11/21/2001	38.73	13.12	25.61	0.00	0.00	3,500	14	<5.0	100	51	-	610	-	-	-	-	-
MW-2	02/05/2002	38.73	8.35	30.38	0.00	0.00	10,000	5.5	<10	330	960	-	63	-	-	-	-	-
MW-2	04/01/2002	35.72	7.81	27.91	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-
MW-2	08/05/2002	35.72	15.91	19.81	0.00	0.00	8,800	18	8.2	220	630	-	220	-	-	-	-	-
MW-2	11/04/2002	35.72	14.14	21.58	0.00	0.00	14,000	28	10	670	1,600	-	440	-	-	-	-	-
MW-2	02/03/2003	35.72	10.00	25.72	0.00	0.00	7,200	6.2	2.7	140	430	-	50	-	-	-	-	-
MW-2	05/02/2003	35.72	8.31	27.41	0.00	0.00	12,000	<20	3.9	350	1,500	-	150	-	-	-	-	-
MW-2	08/01/2003 <sup>7</sup>	35.72	12.66	23.06	0.00	0.00	12,000	14	4	330	730	140	-	-	-	-	-	-
MW-2	11/21/2003	35.72	12.67	23.05	0.00	0.00	15,000	13	4	400	1,500	100	-	-	-	-	-	-
MW-2	02/10/2004′	35.72	5.20	30.52	0.00	0.00	17,000	9	3	420	1,600	72	-	-	-	-	-	-
MW-2	05/11/2004 <sup>7</sup>	35.72	9.83	25.89	0.00	0.00	4,800	1	0.6	140	440	81	-	-	-	-	-	-
MW-2	08/10/2004 <sup>7</sup>	35.72	11.81	23.91	0.00	0.00	11,000	8	1	340	1,100	35	-	-	-	-	-	-
MW-2	11/08/2004 <sup>7</sup>	35.72	11.59	24.13	0.00	0.00	11,000	6	2	260	810	25	-	-	-	-	-	-
MW-2	01/11/2005	-	-	-	-	-	4,500	4	1	120	310	7	-	-	-	-	-	-
MW-2	02/21/2005 <sup>7</sup>	35.72	7.74	27.98	0.00	0.00	16,000	5	2	500	1,700	10	=	-	-	-	-	-

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### GROUNDWATER MONITORING AND SAMPLING DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

							HYDROCARBONS			PRIMA	ARY VOCS				AD	DITIONAL V	ocs	$\overline{}$
Location	Date	тос	DTW	GWE	LNAPLT	LNAPL REMOVED	TPH-GRO	В	τ	E	x	MTBE by SW8260	МТВЕ ЬУ VOC	Ethanol	ТВА	ЭЫБ	ЕТВЕ	ТАМЕ
	Units	ft	ft	ft-amsl	ft	gal	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
MW-2	05/10/2005 <sup>7</sup>	35.72	8.11	27.61	0.00	0.00	8,400	3	<1	290	750	6	-	-	-	-	-	-
MW-2	08/12/2005 <sup>7</sup>	35.72	11.32	24.40	0.00	0.00	5,800	4	0.7	150	370	30	-	-	-	-	-	-
MW-2	11/11/2005 <sup>7</sup>	35.72	12.58	23.14	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-
MW-2	02/20/2006 <sup>7</sup>	35.72	7.41	28.31	0.00	0.00	5,700	1	<0.5	190	380	0.7	-	-	-	-	-	-
MW-2	05/12/2006 <sup>7</sup>	35.72	7.02	28.70	0.00	0.00	9,100	2	<0.5	210	440	1	-	-	-	-	-	-
MW-2	08/14/2006 <sup>7</sup>	35.72	11.38	24.34	0.00	0.00	2,400	2	<0.5	42	98	20	-	-	-	-	-	-
MW-2	11/08/2006 <sup>7</sup>	35.72	13.42	22.30	0.00	0.00	5,700	4	0.9	87	190	7	-	-	-	-	-	-
MW-2	02/07/2007 <sup>7</sup>	35.72	11.98	23.74	0.00	0.00	5,500	9	2	85	120	7	-	-	-	-	-	-
MW-2	05/07/2007 <sup>7</sup>	35.72	11.22	24.50	0.00	0.00	8,700	1	<0.5	150	330	5	-	-	-	-	-	-
MW-2	08/03/2007 <sup>7</sup>	35.72	17.19	18.53	0.00	0.00	2,600	<0.5	<0.5	10	28	2	-	-	-	-	-	-
MW-2	10/12/2007 <sup>7</sup>	35.72	14.89	20.83	0.00	0.00	9,300	7	0.6	100	120	4	-	-	-	-	-	-
MW-2	11/02/2007 <sup>7</sup>	35.72	15.58	20.14	0.00	0.00	11,000	3	0.7	220	590	2	-	-	-	-	-	-
MW-2	12/07/2007 <sup>7</sup>	35.72	19.29	16.43	0.00	0.00	9,500	3	<1	210	480	2	-	-	-	-	-	-
MW-2	02/01/2008 <sup>7</sup>	35.72	8.76	26.96	0.00	0.00	8,100	2	0.7	190	440	4	-	-	-	-	-	-
MW-2	05/09/2008 <sup>7</sup>	35.72	11.22	24.50	0.00	0.00	4,000	1	<0.5	98	110	3	-	-	-	-	-	-
MW-2	08/22/2008 <sup>7</sup>	35.72	13.87	21.85	0.00	0.00	9,600 <sup>12</sup>	1	<0.5	230	360	0.9	-	-	-	-	-	-
MW-2	11/26/2008 <sup>7</sup>	35.72	17.48	18.24	0.00	0.00	13,000	9	1	340	570	3	-	-	-	-	-	-
MW-2	05/20/2009	35.72	10.70	25.02	0.00	0.00	12,000	3	<1	250	290	2 J	-	<130	-	-	-	-
MW-2	08/26/2009	35.72	12.98	22.74	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-
MW-2	11/12/2009	35.72	12.13	23.59	0.00	0.00	14,000	3	0.8 J	180	250	13	-	<50	-	-	-	-
MW-2	05/17/2010	35.72	11.96	23.76	0.00	0.00	3,300	<0.5	<0.5	36	34	3	-	<50	-	-	-	-
MW-2	08/26/2010 <sup>11</sup>	35.72	12.10	23.62	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-
MW-2	11/11/2010	35.72	13.72	22.00	0.00	0.00	9,000	6	1 J	61	30	5	-	<50	-	-	-	-
MW-2	02/10/2011 <sup>13</sup>	35.72	9.46	26.26	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-
MW-2	06/17/2011	35.72	8.68	27.04	0.00	0.00	9,300	3	<1	92	55	4	-	<100	-	-	-	-

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### GROUNDWATER MONITORING AND SAMPLING DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

							HYDROCARBONS			PRIM	ARY VOCS		J		AD	DITIONAL V	ocs	
Location	Date	тос	DTW	GWE	LNAPLT	LNAPL REMOVED	TPH-GRO	В	τ	E	х	MTBE by SW8260	МТВЕ by VOC	Ethanol	ТВА	DIPE	ЕТВЕ	ТАМЕ
	Units	ft	ft	ft-amsl	ft	gal	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
MW-2	09/08/2011	35.72	9.69	26.03	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-
MW-2	12/16/2011	35.72	12.18	23.54	0.00	0.00	5,700	1	<0.5	36	19	<0.5	-	<50	-	-	-	-
MW-2	03/02/2012 <sup>13</sup>	35.72	12.09	23.63	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-
MW-2	06/08/2012	35.72	11.08	24.64	0.00	0.00	5,600	<5	<5	48	24	<5	-	<500	-	-	-	-
MW-2	09/14/2012 <sup>13</sup>	35.72	13.57	22.15	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-
MW-2	12/21/2012	35.72	8.52	27.20	0.00	0.00	3,100	<5	<5	23	12	<5	-	<500	-	-	-	-
MW-2	04/01/2013 <sup>13</sup>	35.72	11.90	23.82	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	=
MW-2	06/28/2013	35.72	13.61	22.11	0.00	0.00	6,700	2	<0.5	36	9	<0.5	-	<50	-	-	-	=
MW-2	09/20/2013 <sup>13</sup>	35.72	14.02	21.70	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-
MW-2	12/30/2013	35.72	14.68	21.04	0.00	0.00	7,700	4	0.8 J	31	6	0.7 J	-	<50	-	-	-	-
MW-2	03/31/2014 <sup>13</sup>	35.72	11.59	24.13	0.00	0.00	=	-	-	-	-	-	-	-	-	-	-	-
MW-2	06/30/2014	35.72	13.12	22.60	0.00	0.00	8,200	2	0.6 J	59	9	1	-	<50	-	-	-	-
MW-3	02/08/1998	39.51	14.60	24.91	0.00	0.00	94,000	12,000	4,400	2,000	10,000	_	8,000	_	_	_	_	_
MW-3	06/16/1998	39.51	13.98	25.53	0.00	0.00	38,000	5,600	1,400	1,200	4,700	_	4,600 <sup>1</sup> /6,300	_	_	_	_	_
MW-3	07/29/1998	39.51	17.37	22.14	0.00	0.00	58,000	4,100	700	1,300	4,200	_	4,100	_	_	_	_	_
MW-3	08/13/1998	39.51	18.22	21.29	0.00	0.00	43,000	6,800	1,900	1,600	6,800	_	2,300	_	-	_	_	-
MW-3	11/24/1998	39.51	20.45	19.06	0.00	0.00	40,000	5,000	800	1,600	6,800	_	6,000/4,400 <sup>1</sup>	-	-	-	-	-
MW-3	02/03/1999	39.51	17.48	22.03	0.00	0.00	47,000	7,100	1,600	1,900	9,000	-	5,000	-	-	-	-	-
MW-3	06/07/1999	39.51	15.75	23.76	0.00	0.00	27,000	2,500	540	1,200	3,900	-	2,800	-	-	-	-	-
MW-3	09/07/1999	39.51	19.71	19.80	0.00	0.00	44,000	3,930	1,170	1,760	7,130	-	3,440	-	-	-	-	-
MW-3	10/27/1999	39.51	20.42	19.09	0.00	0.00	28,200	2,030	620	1,260	5,080	-	1,710	-	-	-	-	-
MW-3	02/08/2000	39.51	17.75	21.76	0.00	0.00	25,300	2,000	668	1,210	5,330	-	1,760	-	=	-	=	=
MW-3	05/05/2000	39.51	15.64	23.87	0.00	0.00	27,000 <sup>2</sup>	2,600	960	1,500	5,200	-	2,500	-	-	-	-	-
MW-3	07/28/2000	39.51	18.23	21.28	0.00	0.00	7,400 <sup>2</sup>	950	360	840	3,200	-	1,700	-	-	-	-	-

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### GROUNDWATER MONITORING AND SAMPLING DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

							HYDROCARBONS			PRIM	ARY VOCS				AD	DITIONAL V	ocs	
Location	Date	тос	DTW	GWE	LNAPLT	LNAPL REMOVED	TPH-GRO	В	т	E	х	MTBE by SW8260	МТВЕ by VOC	Ethanol	ТВА	DIPE	ЕТВЕ	ТАМЕ
	Units	ft	ft	ft-amsl	ft	gal	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
MW-3	11/26/2000	39.51	19.38	20.13	0.00	0.00	20,000 <sup>2</sup>	1,800	690	1,400	5,500	-	1,600	-	-	-	-	-
MW-3	02/09/2001	39.51	17.72	21.79	0.00	0.00	31,200 <sup>3</sup>	1,980	<50.0	1,770	7,220	-	2,170	-	-	-	-	-
MW-3	05/11/2001	39.51	14.65	24.86	0.00	0.00	18,000 <sup>2</sup>	3,000	780	1,600	5,500	-	1,800	-	-	-	-	-
MW-3	08/30/2001	39.51	19.35	20.16	0.00	0.00	9,400	570	180	610	1,900	-	880	-	-	-	-	-
MW-3	11/21/2001	39.51	20.04	19.47	0.00	0.00	29,000	1,100	450	1,500	6,100	-	1,200	-	-	=	-	=
MW-3	02/05/2002	39.51	14.09	25.42	0.00	0.00	16,000	820	210	830	2,400	-	1,100	-	-	=	-	=
MW-3	04/01/2002	36.53	12.21	24.32	0.00	0.00	-	=	-	=	-	-	=	-	=	=	-	=
MW-3	08/05/2002	36.53	14.31	22.22	0.00	0.00	11,000	310	92	380	820	-	830	-	-	-	-	-
MW-3	11/04/2002	36.53	19.03	17.50	0.00	0.00	32,000	1,900	540	1,800	5,900	-	1,500	-	-	-	-	-
MW-3	02/03/2003	36.53	13.95	22.58	0.00	0.00	19,000	1,100	240	920	2,900	-	1,100	-	-	-	-	-
MW-3	05/02/2003	36.53	13.07	23.46	0.00	0.00	18,000	1,200	270	1,100	2,500	-	1,400	-	-	-	-	-
MW-3	08/01/2003 <sup>7</sup>	36.53	16.31	20.22	0.00	0.00	7,700	300	79	410	820	780	-	-	-	-	-	-
MW-3	11/21/2003	36.53	17.89	18.64	0.00	0.00	7,600	270	100	470	1,300	700	-	-	-	-	-	-
MW-3	02/10/2004	36.53	13.06	23.47	0.00	0.00	3,800	250	28	170	300	650	-	-	-	-	-	-
MW-3	05/11/2004 <sup>7</sup>	36.53	13.73	22.80	0.00	0.00	1,200	60	9	76	62	530	-	-	-	-	-	-
MW-3	08/10/2004 <sup>7</sup>	36.53	16.09	20.44	0.00	0.00	1,600	70	9	86	62	500	-	-	-	-	-	-
MW-3	11/08/2004′	36.53	15.11	21.42	0.00	0.00	4,800	280	37	260	400	760	-	-	-	-	-	-
MW-3	02/21/2005 <sup>7</sup>	36.53	11.45	25.08	0.00	0.00	450	0.8	<0.5	0.7	<0.5	200	-	-	-	-	-	-
MW-3	05/10/2005′	36.53	10.26	26.27	0.00	0.00	220	<0.5	<0.5	<0.5	<0.5	250	=	=	-	-	-	=
MW-3	08/12/2005′	36.53	16.42	20.11	0.00	0.00	2,800	94	32	150	390	370	-	-	-	-	-	-
MW-3	11/11/2005	36.53	17.59	18.94	0.00	0.00	3,800	140	46	230	430	440	=	-	-	-	-	=
MW-3	02/20/2006 <sup>7</sup>	36.53	11.92	24.61	0.00	0.00	390	4	0.9	5	4	290	-	-	-	-	-	-
MW-3	05/12/2006 <sup>7</sup>	36.53	9.38	27.15	0.00	0.00	1,100	2	<0.5	3	2	91	-	-	-	-	-	-
MW-3	08/14/2006 <sup>7</sup>	36.53	14.68	21.85	0.00	0.00	170	<0.5	<0.5	<0.5	0.8	21	-	-	-	-	-	-
MW-3	11/08/2006 <sup>7</sup>	36.53	17.43	19.10	0.00	0.00	1,900	83	17	120	130	100	-	-	-	-	-	-

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#### GROUNDWATER MONITORING AND SAMPLING DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

							HYDROCARBONS			PRIMA	ARY VOCS				AD	DITIONAL V	ocs	
Location	Date	тос	DTW	GWE	LNAPLT	LNAPL REMOVED	TPH-GRO	В	τ	E	x	MTBE by SW8260	МТВЕ ЬУ VOC	Ethanol	ТВА	ЭЫРЕ	ЕТВЕ	ТАМЕ
	Units	ft	ft	ft-amsl	ft	gal	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
MW-3	02/07/2007	36.53	15.07	21.46	0.00	0.00	7,400	340	42	310	530	170	-	-	-	-	-	-
MW-3	05/07/2007 <sup>7</sup>	36.53	13.32	23.21	0.00	0.00	1,200	7	<0.5	5	6	17	-	-	-	-	-	=
MW-3	08/03/2007 <sup>7</sup>	36.53	17.05	19.48	0.00	0.00	740	44	2	12	9	77	-	-	-	-	-	-
MW-3	10/12/2007 <sup>7</sup>	36.53	18.70	17.83	0.00	0.00	5,800	250	28	240	290	170	-	-	-	-	-	-
MW-3	11/02/2007	36.53	18.81	17.72	0.00	0.00	2,400	160	8	33	19	140	-	-	-	-	-	-
MW-3	12/07/2007	36.53	18.65	17.88	0.00	0.00	2,100	180	11	41	33	160	-	-	-	-	-	=
MW-3	02/01/2008 <sup>7</sup>	36.53	14.59	21.94	0.00	0.00	3,600	570	45	81	140	180	-	-	-	-	-	-
MW-3	05/09/2008 <sup>7</sup>	36.53	14.75	21.78	0.00	0.00	460	49	3	5	2	35	-	-	-	-	-	-
MW-3	08/22/2008 <sup>7</sup> 11/26/2008 <sup>7</sup>	36.53	17.98	18.55	0.00	0.00	5,400	200	16	160	150	84	-	-	-	-	-	-
MW-3		36.53	19.41	17.12	0.00	0.00	2,600	80	4	20	7	55	-	-	-	-	-	-
MW-3	05/20/2009 08/26/2009	36.53	14.50	22.03	0.00	0.00	6,600	510	33	200	170	130	-	<50	-	-	-	=
MW-3	02/01/2010	36.53	18.84	17.69	0.00	0.00	7,900 9,700	290	18	180	110	120	-	<50	-	-	-	=
MW-3	08/26/2010	36.53 36.53	13.10 14.90	23.43 21.63	0.00	0.00	15,000	1,600 1,400	65 84	230 670	220 710	260 210	-	<250 <100	-	-	-	=
MW-3	11/11/2010 <sup>11</sup>	36.53	17.08	19.45	0.00	0.00	13,000	-	-	-	-	210	-	-	-	-	-	-
MW-3	02/10/2011	36.53	12.88	23.65	0.00	0.00	6,700	710	35	270	230	130	_	<100	_			
MW-3	06/17/2011 <sup>11</sup>	36.53	-	-	-	-	-	710	-	-	-	-	_	-	_	_	_	_
MW-3	09/08/2011	36.53	14.93	21.60	0.00	0.00	7,700	490	29	260	190	96	_	<500	_	_	_	_
MW-3	12/16/2011 <sup>11</sup>	36.53	16.06	20.47	0.00	0.00	-	-	-	-	-	-	<u>-</u>	-	_	-	-	_
MW-3	03/02/2012	36.53	15.98	20.55	0.00	0.00	7,500	490	28	240	150	89	_	<500	_	-	-	-
MW-3	06/08/2012 <sup>11</sup>	36.53	13.52	23.01	0.00	0.00	-	-	-	-	-	-	-	-	_	-	-	-
MW-3	09/14/2012	36.53	17.24	19.29	0.00	0.00	7,600	330	15	140	54	63	-	<500	110	<5	<5	16
MW-3	12/21/2012 <sup>11</sup>	36.53	13.32	23.21	0.00	0.00	- -	-	-	-	-	-	-	-	-	-	-	-
MW-3	04/01/2013	36.53	15.01	21.52	0.00	0.00	8,000	490	27	230	140	73	-	<50	-	-	-	-
MW-3	06/28/2013 <sup>11</sup>	36.53	16.72	19.81	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-

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### GROUNDWATER MONITORING AND SAMPLING DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

							HYDROCARBONS			PRIMA	ARY VOCS				AD	DITIONAL V	ocs	
Location	Date	тос	DTW	GWE	LNAPLT	LNAPL REMOVED	TPH-GRO	В	τ	E	x	MTBE by SW8260	MTBE by VOC	Ethanol	ТВА	DIPE	ETBE	таме
	Units	ft	ft	ft-amsl	ft	gal	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
MW-3	09/20/2013	36.53	18.55	17.98	0.00	0.00	11,000	610	31	270	140	81	-	<50	-	-	-	-
MW-3	12/30/2013 <sup>13</sup>	36.53	19.41	17.12	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-
MW-3	03/31/2014	36.53	15.81	20.72	0.00	0.00	13,000	1,100	50	350	240	170	=	<100	-	-	-	=
MW-3	06/30/2014 <sup>13</sup>	36.53	16.82	19.71	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-
MW-4	02/02/1999	40.24	13.17	27.07	0.00	0.00	<50	0.52	<0.5	<0.5	<0.5	-	6.0	-	-	-	-	-
MW-4	06/07/1999	40.24	16.41	23.83	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	-	<2.5	-	-	-	-	-
MW-4	09/07/1999	40.24	20.90	19.34	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	-	<5.0	-	-	-	-	-
MW-4	10/27/1999	40.24	21.59	18.65	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	=	<2.5	-	-	-	-	-
MW-4	02/08/2000	40.24	17.16	23.08	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	-	<5.0	-	-	-	-	-
MW-4	05/05/2000	40.24	16.02	24.22	0.00	0.00	<50	<0.50	<0.50	<0.50	<0.50	-	<2.5	-	-	-	-	-
MW-4	07/28/2000	40.24	19.12	21.12	0.00	0.00	<50	<0.50	<0.50	<0.50	<0.50	-	<2.5	-	-	-	-	-
MW-4	11/26/2000	40.24	19.92	20.32	0.00	0.00	<50	<0.50	<0.50	<0.50	<0.50	-	<2.5	-	-	-	-	-
MW-4	02/09/2001	40.24	17.45	22.79	0.00	0.00	<50.0	<0.500	<0.500	<0.500	<0.500	-	<2.50	-	-	-	-	-
MW-4	05/11/2001	40.24	15.02	25.22	0.00	0.00	<50	<0.50	<0.50	<0.50	<0.50	-	<2.5	-	-	-	-	-
MW-4	08/30/2001	40.24	20.33	19.91	0.00	0.00	<50	<0.50	<0.50	<0.50	<0.50	-	<2.5	-	-	-	-	-
MW-4	11/21/2001	40.24	19.75	20.49	0.00	0.00	<50	<0.50	<0.50	<0.50	<1.5	-	<2.5	-	-	-	-	-
MW-4	02/05/2002	40.24	14.06	26.18	0.00	0.00	<50	<0.50	<0.50	<0.50	<1.5	-	<2.5	-	-	-	-	-
MW-4	04/01/2002	37.29	12.06	25.23	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-
MW-4	08/05/2002	37.29	17.05	20.24	0.00	0.00	<50	<0.50	<0.50	<0.50	<1.5	=	<2.5	-	-	-	-	=
MW-4	11/04/2002	37.29	19.73	17.56	0.00	0.00	<50	<0.50	<0.50	<0.50	<1.5	-	<2.5	-	-	-	-	-
MW-4	02/03/2003	37.29	14.05	23.24	0.00	0.00	<50	<0.50	<0.50	<0.50	<1.5	=	<2.5	-	-	-	-	=
MW-4	05/02/2003	37.29	12.85	24.44	0.00	0.00	<50	<0.5	<0.5	<0.5	<1.5	-	<2.5	-	-	-	-	-
MW-4	08/01/2003 <sup>7</sup>	37.29	16.94	20.35	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	=	-	-	-	-	-
MW-4	11/21/2003 <sup>7</sup>	37.29	18.15	19.14	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	=	-	-	-	-	-

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### GROUNDWATER MONITORING AND SAMPLING DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

							HYDROCARBONS			PRIMA	ARY VOCS				AD	DITIONAL V	ocs	
Location	Date	тос	DTW	GWE	LNAPLT	LNAPL REMOVED	TPH-GRO	В	т	E	х	MTBE by SW8260	МТВЕ by VOC	Ethanol	78 <i>A</i>	DIPE	ETBE	ТАМЕ
	Units	ft	ft	ft-amsl	ft	gal	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
MW-4	02/10/2004 <sup>7</sup>	37.29	13.02	24.27	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	1	-	-	-	-	-	-
MW-4	05/11/2004 <sup>7</sup>	37.29	14.15	23.14	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
MW-4	08/10/2004 <sup>7</sup>	37.29	16.47	20.82	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
MW-4	11/08/2004	37.29	14.86	22.43	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
MW-4	02/21/2005 <sup>7</sup>	37.29	10.76	26.53	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
MW-4	05/10/2005 <sup>7</sup>	37.29	10.25	27.04	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	1	-	-	-	-	-	-
MW-4	08/12/2005 <sup>7</sup>	37.29	15.25	22.04	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
MW-4	11/11/2005 <sup>7</sup>	37.29	18.36	18.93	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
MW-4	02/20/2006 <sup>7</sup>	37.29	11.59	25.70	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	1	-	-	-	-	-	-
MW-4	05/12/2006 <sup>7</sup>	37.29	9.87	27.42	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	0.8	=	=	-	-	-	-
MW-4	08/14/2006 <sup>7</sup>	37.29	15.35	21.94	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	=	=	-	-	-	-
MW-4	11/08/2006 <sup>7</sup>	37.29	18.28	19.01	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	=	-	-	-	-	-
MW-4	02/07/2007	37.29	15.40	21.89	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	=	=	-	-	-	-
MW-4	05/07/2007	37.29	13.56	23.73	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
MW-4	08/03/2007 <sup>7</sup> 10/12/2007 <sup>7</sup>	37.29	17.70	19.59	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
MW-4	10/12/2007 11/02/2007	37.29 37.29	19.48	17.81	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
MW-4 MW-4	12/07/2007	37.29	19.41 19.45	17.88 17.84	0.00	0.00	<50 <50	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5	=	-	-	-	-	-
MW-4	02/01/2007	37.29	13.15	24.14	0.00	0.00	<50 <50	<0.5		<0.5	<0.5	<0.5	=	-	-	-	-	-
MW-4	05/09/2008 <sup>7</sup>	37.29	14.98	22.31	0.00	0.00	<50	<0.5	<0.5 <0.5	<0.5	<0.5	<0.5 <0.5	-	-	-	-	-	-
MW-4	08/22/2008 <sup>7</sup>	37.29	18.67	18.62	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	_	_	_		_	_
MW-4	11/26/2008	37.29	20.03	17.26	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	_	_	_	_	_	_
MW-4	05/20/2009	37.29	14.89	22.40	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	_	<50	_	_	_	_
MW-4	08/26/2009	37.29	19.29	18.00	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	_	<50	_	_	_	-
MW-4	11/12/2009	37.29	17.70	19.59	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	<50	-	-	-	-

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### GROUNDWATER MONITORING AND SAMPLING DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

							HYDROCARBONS			PRIM	ARY VOCS				AD	DITIONAL V	ocs	
Location	Date	тос	DTW	GWE	LNAPLT	LNAPL REMOVED	TPH-GRO	В	т	E	х	MTBE by SW8260	МТВЕ by VOC	Ethanol	ТВА	DIPE	ETBE	ТАМЕ
	Units	ft	ft	ft-amsl	ft	gal	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
MW-4	02/01/2010	37.29	12.57	24.72	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	<50	-	-	-	-
MW-4	05/17/2010	37.29	11.15	26.14	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	<50	-	-	-	-
MW-4	08/26/2010	37.29	15.50	21.79	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	<50	-	-	-	-
MW-4	11/11/2010	37.29	17.34	19.95	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	=	<50	=	-	-	-
MW-4	02/10/2011	37.29	13.01	24.28	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	=	<50	=	-	-	-
MW-4	06/17/2011	37.29	12.07	25.22	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	=	<50	=	-	-	-
MW-4	09/08/2011	37.29	15.75	21.54	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	=	<50	=	=	-	=
MW-4	12/16/2011	37.29	16.80	20.49	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	=	<50	-	-	-	-
MW-4	06/08/2012	37.29	14.30	22.99	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	<50	-	-	-	-
MW-4	06/08/2012	37.29	14.30	22.99	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	<50	-	-	-	-
MW-4	09/14/2012	37.29	18.10	19.19	0.00	0.00	<50	<0.5	<0.5	<0.5	2	<0.5	-	<50	<2	<0.5	<0.5	<0.5
MW-4	12/21/2012	37.29	13.33	23.96	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	<50	-	-	-	-
MW-4	04/01/2013	37.29	15.67	21.62	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	<50	-	-	-	-
MW-4	06/28/2013	37.29	17.47	19.82	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	<50	-	-	-	-
MW-4	09/20/2013	37.29	19.26	18.03	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	<50	-	-	-	-
MW-4	12/30/2013	37.29	20.51	16.78	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	<50	-	-	-	-
MW-4	03/31/2014	37.29	15.50	21.79	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	<50	-	-	-	-
MW-4	06/30/2014	37.29	17.51	19.78	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	<50	-	-	-	-
MW-5	02/02/1999	40.37	18.80	21.57	0.00	0.00	72	2.7	<0.5	<0.5	<0.5	-	11	=	-	-	-	=
MW-5	06/07/1999	40.37	16.98	23.39	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	-	<2.5	-	=	-	-	=
MW-5	09/07/1999	40.37	21.13	19.24	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	-	6.92	-	-	-	-	-
MW-5	10/27/1999	40.37	21.92	18.45	0.00	0.00	<50	2.39	<0.5	<0.5	<0.5	-	21.3	-	-	-	-	-
MW-5	02/08/2000	40.37	18.98	21.39	0.00	0.00	<50	10.6	<0.5	<0.5	<0.5	-	21.7	-	-	-	-	-
MW-5	05/05/2000	40.37	16.89	23.48	0.00	0.00	<50	<0.50	<0.50	<0.50	<0.50	-	3.8	-	-	-	-	-

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### GROUNDWATER MONITORING AND SAMPLING DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

							HYDROCARBONS			PRIM	ARY VOCS				AD	DITIONAL V	ocs	
Location	Date	тос	DTW	GWE	LNAPLT	LNAPL REMOVED	TPH-GRO	В	T	E	х	MTBE by SW8260	MTBE by VOC	Ethanol	ТВА	DIPE	ЕТВЕ	ТАМЕ
	Units	ft	ft	ft-amsl	ft	gal	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
MW-5	07/28/2000	40.37	19.49	20.88	0.00	0.00	<50	<0.50	<0.50	<0.50	<0.50	-	<2.5	-	-	-	-	-
MW-5	11/26/2000	40.37	20.69	19.68	0.00	0.00	<50	0.57	<0.50	<0.50	<0.50	-	15	-	-	-	-	-
MW-5	02/09/2001	40.37	18.87	21.50	0.00	0.00	<50.0	<0.500	<0.500	<0.500	<0.500	-	9.11	-	-	-	-	-
MW-5	05/11/2001	40.37	15.90	24.47	0.00	0.00	<50	<0.50	<0.50	<0.50	<0.50	-	<2.5	-	-	=	-	-
MW-5	08/30/2001	40.37	20.61	19.76	0.00	0.00	<50	<0.50	<0.50	<0.50	<0.50	-	9.5	-	-	=	-	-
MW-5	11/21/2001	40.37	21.04	19.33	0.00	0.00	<50	<0.50	<0.50	<0.50	<1.5	-	7.3	-	-	=	-	-
MW-5	02/05/2002	40.37	15.21	25.16	0.00	0.00	<50	<0.50	<0.50	<0.50	<1.5	-	<2.5	-	=	=	-	=
MW-5	04/01/2002	37.40	13.45	23.95	0.00	0.00	-	=	=	=	-	=	-	=	-	-	-	-
MW-5	08/05/2002	37.40	17.54	19.86	0.00	0.00	<50	<0.50	<0.50	<0.50	<1.5	-	2.7	-	-	-	-	-
MW-5	11/04/2002	37.40	20.07	17.33	0.00	0.00	<50	<0.50	<0.50	<0.50	<1.5	-	6.3	-	-	-	-	-
MW-5	02/03/2003	37.40	15.03	22.37	0.00	0.00	<50	<0.50	0.60	<0.50	<1.5	-	<2.5	-	-	-	-	-
MW-5	05/02/2003	37.40	13.96	23.44	0.00	0.00	<50	<0.5	<0.5	<0.5	<1.5	-	<2.5	-	-	-	-	-
MW-5	08/01/2003 <sup>7</sup>	37.40	17.40	20.00	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
MW-5	11/21/2003	37.40	18.57	18.83	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
MW-5	02/10/2004 <sup>7</sup>	37.40	14.14	23.26	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
MW-5	05/11/2004 <sup>7</sup>	37.40	14.70	22.70	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
MW-5	08/10/2004′	37.40	17.08	20.32	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
MW-5	11/08/2004′	37.40	15.98	21.42	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
MW-5	02/21/2005	37.40	-	-	-	-	-	=	=	=	-	=	-	-	-	-	-	-
MW-5	05/10/2005′	37.40	11.88	25.52	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	1	-	-	-	-	-	-
MW-5	08/12/2005 <sup>7</sup>	37.40	15.63	21.77	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
MW-5	11/11/2005 <sup>7</sup>	37.40	18.68	18.72	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	0.8	-	-	-	-	-	-
MW-5	02/20/2006 <sup>7</sup>	37.40	12.57	24.83	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
MW-5	05/12/2006 <sup>7</sup>	37.40	11.06	26.34	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	0.9	-	-	-	-	-	-
MW-5	08/14/2006 <sup>7</sup>	37.40	15.73	21.67	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	0.9	-	-	-	-	-	-

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### GROUNDWATER MONITORING AND SAMPLING DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

							HYDROCARBONS			PRIM	ARY VOCS				AD	DITIONAL V	ocs	
Location	Date	тос	DTW	GWE	LNAPLT	LNAPL REMOVED	TPH-GRO	В	т	E	х	MTBE by SW8260	МТВЕ by VOC	Ethanol	ТВА	DIPE	ETBE	ТАМЕ
	Units	ft	ft	ft-amsl	ft	gal	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
MW-5	11/08/2006 <sup>7</sup>	37.40	18.51	18.89	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	1	-	=	-	-	-	-
MW-5	02/07/2007 <sup>7</sup>	37.40	16.02	21.38	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	0.6	-	-	-	-	-	-
MW-5	05/07/2007 <sup>7</sup>	37.40	14.32	23.08	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
MW-5	08/03/2007 <sup>7</sup>	37.40	18.08	19.32	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	0.6	-	-	-	-	-	-
MW-5	10/12/2007	37.40	19.74	17.66	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	0.8	=	-	-	-	-	-
MW-5	11/02/2007	37.40	19.78	17.62	0.00	0.00	61	<0.5	<0.5	<0.5	<0.5	<0.5	=	-	-	-	-	-
MW-5	12/07/2007	37.40	19.71	17.69	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	=	=	-	-	-	-
MW-5	02/01/2008 <sup>7</sup>	37.40	14.34	23.06	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
MW-5	05/09/2008 <sup>7</sup>	37.40	15.62	21.78	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
MW-5	08/22/2008 <sup>7</sup>	37.40	18.96	18.44	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
MW-5	11/26/2008 <sup>7</sup>	37.40	20.35	17.05	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	0.9	-	-	-	-	-	-
MW-5	05/20/2009	37.40	15.56	21.84	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	<50	-	-	-	-
MW-5	08/26/2009	37.40	19.56	17.84	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	0.5 J	-	<50	-	-	-	-
MW-5	11/12/2009	37.40	18.50	18.90	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	=	<50	=	=	-	-
MW-5	02/01/2010	37.40	14.41	22.99	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	=	<50	=	=	-	=
MW-5	05/17/2010	37.40	13.00	24.40	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	<50	-	-	-	-
MW-5	08/26/2010	37.40	15.90	21.50	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	<50	-	-	-	-
MW-5	11/11/2010	37.40	18.05	19.35	0.00	0.00	68 J	<0.5	<0.5	<0.5	<0.5	<0.5	-	<50	-	-	-	-
MW-5	02/10/2011	37.40	13.70	23.70	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	=	<50	-	-	-	-
MW-5	06/17/2011	37.40	13.37	24.03	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	<50	-	-	-	-
MW-5	09/08/2011	37.40	16.15	21.25	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	<50	-	-	-	-
MW-5 MW-5	12/16/2011	37.40 37.40	17.20	20.20	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	<50	-	-	-	-
MW-5	03/02/2012	37.40 37.40	17.41	19.99 22.20	0.00	0.00	<50	<0.5 <0.5	<0.5	<0.5 <0.5	<0.5	<0.5	-	<50	-	-	-	-
	06/08/2012		15.20		0.00	0.00	<50		<0.5		<0.5	<0.5	-	<50	-	- -0.F		
MW-5	09/14/2012	37.40	18.40	19.00	0.00	0.00	130	<0.5	<0.5	4	22	<0.5	-	<50	<2	<0.5	<0.5	<0.5

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### GROUNDWATER MONITORING AND SAMPLING DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

							HYDROCARBONS			PRIMA	ARY VOCS				AD	DITIONAL V	ocs	
Location	Date	тос	DTW	GWE	LNAPLT	LNAPL REMOVED	TPH-GRO	В	τ	E	x	MTBE by SW8260	MTBE by VOC	Ethanol	ТВА	DIPE	ЕТВЕ	ТАМЕ
	Units	ft	ft	ft-amsl	ft	gal	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
MW-5	12/21/2012	37.40	14.62	22.78	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<u>-</u>	<50	_	_	_	_
MW-5	04/01/2013	37.40	16.10	21.30	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	<50	_	_	-	-
MW-5	06/28/2013	37.40	17.77	19.63	0.00	0.00	150	<0.5	<0.5	<0.5	<0.5	<0.5	=	<50	-	-	-	-
MW-5	09/20/2013	37.40	19.59	17.81	0.00	0.00	170	<0.5	<0.5	<0.5	<0.5	0.5 J	-	<50	-	-	-	-
MW-5	12/30/2013	37.40	20.80	16.60	0.00	0.00	170	<0.5	<0.5	<0.5	<0.5	<0.5	-	<50	-	=	-	-
MW-5	03/31/2014	37.40	16.60	20.80	0.00	0.00	54 J	<0.5	<0.5	<0.5	<0.5	<0.5	-	<50	-	-	-	-
MW-5	06/30/2014	37.40	18.12	19.28	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	<50	-	-	-	-
MW-6	02/02/1999	39.84	18.48	21.36	0.00	0.00	14,000	5,600	<50	150	160	-	<250	-	-	-	-	-
MW-6	06/07/1999	39.84	16.45	23.39	0.00	0.00	1,500	1,100	33	25	34	-	200	-	-	-	-	-
MW-6	09/07/1999	39.84	20.49	19.35	0.00	0.00	6,550	2,940	81.5	177	84	-	865	-	-	=	-	=
MW-6	10/27/1999	39.84	21.23	18.61	0.00	0.00	3,680	1,240	29.6	115	14.9	-	735	-	-	-	-	-
MW-6	02/08/2000	39.84	18.40	21.44	0.00	0.00	17,300	8,920	<100	378	211	-	2,610	-	-	-	-	-
MW-6	05/05/2000	39.84	16.36	23.48	0.00	0.00	4,200 <sup>2</sup>	1,900	98	170	290	-	1,300	-	-	-	-	-
MW-6	07/28/2000	39.84	18.94	20.90	0.00	0.00	1,200 <sup>2</sup>	660	30	83	36	-	650	-	-	-	-	-
MW-6	11/26/2000	39.84	20.13	19.71	0.00	0.00	7,600 <sup>2</sup>	4,300	63	360	110	-	2,000	-	-	-	-	-
MW-6	02/09/2001	39.84	18.40	21.44	0.00	0.00	18,200 <sup>3</sup>	7,090	<100	457	169	-	2,930	-	-	-	-	-
MW-6	05/11/2001	39.84	15.45	24.39	0.00	0.00	2,600 <sup>2</sup>	2,300	31	88	40	-	990	-	-	-	-	-
MW-6	08/30/2001	39.84	20.02	19.82	0.00	0.00	2,500	1,600	50	160	100	-	1,900	-	-	-	-	-
MW-6	11/21/2001	39.84	20.62	19.22	0.00	0.00	25,000	8,800	150	620	330	-	2,900	-	-	-	-	-
MW-6	02/05/2002	39.84	15.80	24.04	0.00	0.00	1,400	400	6.8	27	20	-	480	-	-	-	-	-
MW-6	04/01/2002	36.90	13.82	23.08	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-
MW-6	08/05/2002	36.90	17.05	19.85	0.00	0.00	1,200	300	5.1	11	3.7	-	250	-	-	-	-	-
MW-6	11/04/2002	36.90	19.56	17.34	0.00	0.00	7,500	2,000	29	140	39	-	1,300	-	-	-	-	-
MW-6	02/03/2003	36.90	14.62	22.28	0.00	0.00	630	160	<5.0	9.2	2.7	-	260	-	-	-	-	-

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### GROUNDWATER MONITORING AND SAMPLING DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

							HYDROCARBONS			PRIM	ARY VOCS				AD	DITIONAL V	ocs	
Location	Date	тос	DTW	GWE	LNAPLT	LNAPL REMOVED	TPH-GRO	В	τ	E	х	MTBE by SW8260	МТВЕ by VOC	Ethanol	ТВА	DIPE	ETBE	таме
	Units	ft	ft	ft-amsl	ft	gal	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
MW-6	05/02/2003	36.90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-6	08/01/2003 <sup>7</sup>	36.90	16.88	20.02	0.00	0.00	1,500	400	3	14	3	540	-	-	-	-	-	-
MW-6	11/21/2003 <sup>7</sup>	36.90	18.41	18.49	0.00	0.00	4,400	1,300	12	98	18	540	-	-	-	-	-	-
MW-6	02/10/2004 <sup>7</sup>	36.90	13.70	23.20	0.00	0.00	430	110	1	4	0.7	150	-	-	-	-	-	-
MW-6	05/11/2004 <sup>7</sup>	36.90	14.27	22.63	0.00	0.00	95	11	<0.5	1	0.6	120	-	-	-	-	-	-
MW-6	08/10/2004 <sup>7</sup>	36.90	16.64	20.26	0.00	0.00	430	46	<0.5	3	<0.5	140	-	-	-	-	-	-
MW-6	11/08/2004 <sup>7</sup>	36.90	15.63	21.27	0.00	0.00	750	50	<0.5	2	<0.5	81	-	-	-	-	-	-
MW-6	02/21/2005 <sup>7</sup>	36.90	11.43	25.47	0.00	0.00	130	8	<0.5	<0.5	<0.5	60	-	-	-	-	-	-
MW-6	05/10/2005 <sup>7</sup>	36.90	11.41	25.49	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
MW-6	08/12/2005 <sup>7</sup>	36.90	15.08	21.82	0.00	0.00	75	<0.5	<0.5	<0.5	<0.5	82	-	-	-	-	-	-
MW-6	11/11/2005 <sup>7</sup>	36.90	18.16	18.74	0.00	0.00	1,100	270	12	19	46	350	-	-	-	-	-	-
MW-6	02/20/2006 <sup>7</sup>	36.90	12.15	24.75	0.00	0.00	1,100	250	3	22	9	130	-	=	=	=	-	=
MW-6	05/12/2006 <sup>7</sup>	36.90	10.32	26.58	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	84	-	-	-	-	=	-
MW-6	08/14/2006 <sup>7</sup>	36.90	15.21	21.69	0.00	0.00	51	<0.5	<0.5	<0.5	<0.5	75	-	-	-	-	=	-
MW-6	11/08/2006 <sup>7</sup>	36.90	17.97	18.93	0.00	0.00	200	3	<0.5	<0.5	<0.5	27	-	-	-	-	-	-
MW-6	02/07/2007	36.90	15.60	21.30	0.00	0.00	1,500	120	0.8	5	1	54	-	-	-	-	-	-
MW-6	05/07/2007 <sup>7</sup>	36.90	14.78	22.12	0.00	0.00	740	98	0.5	2	2	31	-	-	-	-	-	-
MW-6	08/03/2007 <sup>7</sup>	36.90	17.57	19.33	0.00	0.00	1,600	410	4	2	3	80	-	-	-	-	-	-
MW-6	10/12/2007	36.90	19.20	17.70	0.00	0.00	1,100	130	0.9	0.9	<0.5	79	-	-	-	-	-	-
MW-6	11/02/2007	36.90	19.43	17.47	0.00	0.00	1,500	240	1	0.7	0.5	70	-	-	-	-	-	-
MW-6	12/07/2007	36.90	19.11	17.79	0.00	0.00	770	84	<0.5	<0.5	<0.5	60	-	-	-	-	-	-
MW-6	02/01/20087	36.90	14.03	22.87	0.00	0.00	650	89	<0.5	1	0.7	24	-	-	-	-	-	-
MW-6	05/09/2008 <sup>7</sup>	36.90	15.22	21.68	0.00	0.00	680	87	<0.5	<0.5	<0.5	19	-	-	-	-	-	-
MW-6	08/22/2008 <sup>7</sup>	36.90	18.46	18.44	0.00	0.00	950	43	<0.5	<0.5	<0.5	38	-	-	-	-	-	-
MW-6	11/26/2008 <sup>7</sup>	36.90	19.87	17.03	0.00	0.00	1,500	190	1	0.6	0.5	71	-	-	-	-	-	-

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### GROUNDWATER MONITORING AND SAMPLING DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

							HYDROCARBONS			PRIM	ARY VOCS				AD	DITIONAL V	ocs	
Location	Date	тос	DTW	GWE	LNAPLT	LNAPL REMOVED	TPH-GRO	В	τ	E	х	MTBE by SW8260	МТВЕ by VOC	Ethanol	ТВА	ЭЫРЕ	ЕТВЕ	ТАМЕ
	Units	ft	ft	ft-amsl	ft	gal	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
MW-6	05/20/2009	36.90	15.03	21.87	0.00	0.00	580	23	<0.5	0.7 J	<0.5	11	-	<50	-	-	-	-
MW-6	08/26/2009	36.90	19.00	17.90	0.00	0.00	1,100	88	0.8 J	0.6 J	<0.5	25	-	<50	-	-	-	-
MW-6	11/12/2009	36.90	18.19	18.71	0.00	0.00	980	95	0.8 J	1	1	20	-	<50	-	-	-	-
MW-6	02/01/2010	36.90	13.30	23.60	0.00	0.00	530	28	<0.5	0.9 J	<0.5	6	-	<50	-	-	-	-
MW-6	05/17/2010	36.90	11.67	25.23	0.00	0.00	450	14	<0.5	1	<0.5	4	-	<50	-	-	-	-
MW-6	08/26/2010	36.90	15.42	21.48	0.00	0.00	860	29	<0.5	2	<0.5	4	-	<50	-	-	-	-
MW-6	11/11/2010 <sup>12</sup>	36.90	=	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-6	02/10/2011	36.90	13.00	23.90	0.00	0.00	370	10	<0.5	<0.5	<0.5	3	-	<50	-	-	-	-
MW-6	06/17/2011	36.90	12.35	24.55	0.00	0.00	690	22	<0.5	2	<0.5	4	-	<50	-	-	-	-
MW-6	09/08/2011	36.90	15.68	21.22	0.00	0.00	880	92	<0.5	2	<0.5	6	-	<50	-	-	-	-
MW-6	12/16/2011	36.90	16.63	20.27	0.00	0.00	3,200	620	4	10	8	11	-	<50	-	-	-	-
MW-6	03/02/2012	36.90	16.55	20.35	0.00	0.00	2,900	510	<5 .5	<5 .5	5 J	13	-	<500	-	-	-	-
MW-6	06/08/2012	36.90	14.03	22.87	0.00	0.00	3,000	750	<5 .5	<5 .5	<5 .c	12	=	<500	-	-	-	-
MW-6	09/14/2012	36.90	17.84	19.06	0.00	0.00	4,300	930	<5 <5	<5 <5	<5 -r	10	-	<500	81	<5	<5	<5
MW-6 MW-6	12/21/2012 04/01/2013	36.90 36.90	13.88 15.58	23.02 21.32	0.00	0.00	2,200 2,100	360 520	<5 2	<5 3	<5 2	28 21	-	<500 <50	-	-	-	-
MW-6	06/28/2013	36.90	17.30	19.60	0.00	0.00	1,600	130	<0.5	<0.5	<0.5	5	-	<50	-	-	_	-
MW-6	09/20/2013	36.90	19.07	17.83	0.00	0.00	3,100	680	3	4	3	15	_	<50				
MW-6	12/30/2013 <sup>14</sup>	36.90	15.07	-	-	-	3,100	-	-	-	-	-	_	-				
MW-6	03/31/2014	36.90	16.10	20.80	0.00	0.00	2,000	220	2	4	2	20	_	<50	_	_	_	_
MW-6	06/30/2014	36.90	17.41	19.49	0.00	0.00	1,400	100	0.6 J	2	<0.5	14	_	<50	_	_	_	_
17777-0	00, 50, 2014	30.30	17.71	15.75	0.00	0.00	2,400	200	0.03	-	-5.5		-	-30	-	-	-	
MW-7	02/21/2005 <sup>7</sup>	36.84	10.41	26.43	0.00	0.00	7,600	2,200	6	210	920	53	-	<100	130	<1	<1	<1
MW-7	05/10/2005 <sup>7</sup>	36.84	9.59	27.25	0.00	0.00	3,900	700	<0.5	<0.5	650	77	-	<50	140	<0.5	<0.5	<0.5
MW-7	08/12/2005 <sup>7</sup>	36.84	12.83	24.01	0.00	0.00	18,000	7,300	12	1,100	2,500	80	-	<500	280	<5	<5	<5

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### GROUNDWATER MONITORING AND SAMPLING DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

							HYDROCARBONS			PRIM	ARY VOCS				AD	DITIONAL V	ocs	
Location	Date	тос	DTW	GWE	LNAPLT	LNAPL REMOVED	TPH-GRO	В	τ	E	x	MTBE by SW8260	МТВЕ by VOC	Ethanol	ТВА	ЭЫБ	ЕТВЕ	ТАМЕ
	Units	ft	ft	ft-amsl	ft	gal	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
MW-7	11/11/2005 <sup>7</sup>	36.84	16.64	20.20	0.00	0.00	39,000	11,000	38	1,700	2,900	100	-	<1,000	340	<10	<10	<10
MW-7	02/20/2006 <sup>7</sup>	36.84	10.39	26.45	0.00	0.00	17,000	4,400	18	470	1,500	62	-	<500	200	<5	<5	<5
MW-7	05/12/2006 <sup>7</sup>	36.84	8.79	28.05	0.00	0.00	15,000	5,100	12	370	880	73	-	<500	200	<5	<5	<5
MW-7	08/14/2006 <sup>7</sup>	36.84	13.88	22.96	0.00	0.00	30,000	8,100	18	1,500	3,600	74	-	<1,000	280	<10	<10	<10
MW-7	11/08/2006 <sup>7</sup>	36.84	16.87	19.97	0.00	0.00	39,000	10,000	28	1,400	2,300	89	-	<1,000	330	<10	<10	<10
MW-7	02/07/2007 <sup>7</sup>	36.84	14.43	22.41	0.00	0.00	43,000	9,400	51	1,800	4,400	80	-	<500	280	<5	<5	<5
MW-7	05/07/2007 <sup>7</sup>	36.84	12.57	24.27	0.00	0.00	50,000	8,800	35	1,700	3,700	72	-	<1,000	240	<10	<10	<10
MW-7	08/03/2007 <sup>7</sup>	36.84	16.10	20.74	0.00	0.00	57,000	12,000	41	2,400	4,400	84	-	<2,500	300	<25	<25	<25
MW-7	10/12/2007 <sup>7</sup>	36.84	18.16	18.68	0.00	0.00	15,000	2,300	63	270	730	58	-	<1,000	290	<10	<10	<10
MW-7	11/02/2007 <sup>7</sup>	36.84	18.01	18.83	0.00	0.00	21,000	5,000	120	820	2,300	59	-	<500	280	<5	<5	<5
MW-7	12/07/2007	36.84	18.92	17.92	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-
MW-7	02/01/2008	36.84	12.78	24.06	0.00	0.00	=	-	-	-	-	-	-	-	-	-	-	-
MW-7	05/09/2008 <sup>7</sup>	36.84	13.98	22.86	0.00	0.00	24,000	4,600	99	1,000	3,400	57	-	<250	240	<3	<3	<3
MW-7	08/22/2008 <sup>7</sup>	36.84	17.19	19.65	0.00	0.00	32,000	9,500	240	1,900	4,800	76	-	<1,000	270	<10	<10	<10
MW-7	11/26/2008 <sup>7</sup>	36.84	19.01	17.83	0.00	0.00	39,000	9,700	840	1,600	5,700	62	-	<1,300	280	<13	<13	<13
MW-7	05/20/2009	36.84	13.71	23.13	0.00	0.00	24,000	5,400	190	810	2,800	66	-	<250	260	<3	<3	<3
MW-7	08/26/2009	36.84	19.00	17.84	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-
MW-7	11/12/2009	36.84	16.43	20.41	0.00	0.00	19,000	5,900	190	540	1,800	57	-	<500	240	<5	<5	<5
MW-7	05/17/2010	36.84	10.30	26.54	0.00	0.00	13,000	3,600	63	310	1,300	58	-	<250	220	<3	<3	<3
MW-7	08/26/2010 <sup>11</sup>	36.84	14.40	22.44	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-
MW-7	11/11/2010	36.84	16.50	20.34	0.00	0.00	16,000	7,300	140	720	2,400	64	-	<500	280	<5	<5	<5
MW-7	02/10/2011 <sup>13</sup>	36.84	12.16	24.68	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-
MW-7	06/17/2011	36.84	11.25	25.59	0.00	0.00	12,000	3,800	22	460	1,600	56	-	<250	120	<3	<3	<3
MW-7	09/08/2011	36.84	14.65	22.19	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-
MW-7	12/16/2011	36.84	17.36	19.48	0.00	0.00	35,000	8,100	370	1,000	3,900	78	-	<500	300	<5	<5	<5

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### GROUNDWATER MONITORING AND SAMPLING DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

							HYDROCARBONS			AD	DITIONAL V	ocs						
Location	Date	тос	DTW	GWE	LNAPLT	LNAPL REMOVED	трн.GRО	В	τ	E	ARY VOCS	MTBE by SW8260	МТВЕ ЬУ VOC	Ethanol	ТВА	ЭЫРЕ	ЕТВЕ	ТАМЕ
	Units	ft	ft	ft-amsl	ft	gal	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
MW-7	03/02/2012 <sup>13</sup>	36.84	15.42	21.42	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-
MW-7	06/08/2012	36.84	13.10	23.74	0.00	0.00	19,000	6,000	180	310	1,200	56	-	<500	-	-	-	-
MW-7	09/14/2012 <sup>13</sup>	36.84	16.91	19.93	0.00	0.00	-	-	-	-	- 200	-	-	-2 500	- 240.1	-	-	-
MW-7 MW-7	12/21/2012 04/01/2013 <sup>13</sup>	36.84 36.84	12.19 14.64	24.65 22.20	0.00	0.00	21,000	5,300	160	530	2,200	55	-	<2,500 -	240 J -	<25	<25 -	<25 -
MW-7	06/28/2013	36.84	16.10	20.74	0.00	0.00	20,000	6,900	200	420	1,700	81	_	<250	240	<3	<3	<3
MW-7	09/20/2013 <sup>13</sup>	36.84	17.72	19.12	0.00	0.00	-	-	-	-	-	-	_	-	-	-	-	-
MW-7	12/30/2013	36.84	19.10	17.74	0.00	0.00	14,000	4,800	220	210	1,300	55	-	<500	_	_	-	-
MW-7	03/31/2014 <sup>13</sup>	36.84	14.64	22.20	0.00	0.00	-	-	-	-	-	-	-	-	_	-	-	-
MW-7	06/30/2014	36.84	15.92	20.92	0.00	0.00	28,000	6,300	290	790	3,000	53	-	<500	-	-	-	-
MW-8	04/01/2002 <sup>6</sup>	37.21	11.10	26.11	0.00	0.00	1,200	8.6	<0.50	2.5	2.5	-	<2.5/<2 <sup>5</sup>	-	<100	<2	<2	<2
MW-8	08/05/2002	37.21	16.14	21.07	0.00	0.00	560	11	<0.50	<0.50	<1.5	-	<2.5/<2 <sup>5</sup>	-	<100	<2	<2	<2
MW-8	11/04/2002	37.21	18.97	18.24	0.00	0.00	780	5.1	<0.50	1.1	1.9	-	<2 <sup>5</sup> /<2.5	-	<100	<2	<2	<2
MW-8	02/03/2003	37.21	13.21	24.00	0.00	0.00	230	3.7	<0.50	0.54	<1.5	-	<0.6 <sup>5</sup> /<10	-	<5 	<0.5	<0.5	<0.5
MW-8	05/02/2003 08/01/2003 <sup>7</sup>	37.21	12.12	25.09	0.00	0.00	180	2.5	<0.5	<0.5	<1.5	-	<0.5 <sup>5</sup> /<2.5	-	<5 -5	<0.5	<0.5	<0.5
MW-8	11/21/2003 <sup>7</sup>	37.21 37.21	16.11 17.17	21.10 20.04	0.00	0.00	220 140	2 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	0.8 0.7	-	<50 <50	<5 <5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5
MW-8	02/10/2004 <sup>7</sup>	37.21	12.13	25.08	0.00	0.00	150	2	<0.5	<0.5	<0.5	0.7	-	<50	<5	<0.5	<0.5	<0.5
MW-8	05/11/2004	37.21	13.47	23.74	0.00	0.00	86	4	<0.5	<0.5	<0.5	1	_	<50	<5	<0.5	<0.5	<0.5
MW-8	08/10/2004 <sup>7</sup>	37.21	15.65	21.56	0.00	0.00	80	<0.5	<0.5	<0.5	<0.5	0.8	-	<50	<5	<0.5	<0.5	<0.5
MW-8	11/08/2004 <sup>7</sup>	37.21	13.98	23.23	0.00	0.00	110	<0.5	<0.5	<0.5	<0.5	1	-	<50	7	<0.5	<0.5	<0.5
MW-8	02/21/2005 <sup>7</sup>	37.21	10.09	27.12	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	<50	<5	<0.5	<0.5	<0.5
MW-8	05/10/2005 <sup>7</sup>	37.21	10.60	26.61	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	1	-	<50	<5	<0.5	<0.5	<0.5
MW-8	08/12/2005 <sup>7</sup>	37.21	12.58	24.63	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	<50	<5	<0.5	<0.5	<0.5

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### GROUNDWATER MONITORING AND SAMPLING DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

							HYDROCARBONS			PRIM	ARY VOCS				AD	DITIONAL V	ocs	
Location	Date	тос	DTW	GWE	LNAPLT	LNAPL REMOVED	трн-GRO	В	τ	E	x	MTBE by SW8260	МТВЕ by VOC	Ethanol	ТВА	DIPE	ЕТВЕ	ТАМЕ
	Units	ft	ft	ft-amsl	ft	gal	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
MW-8	11/11/2005 <sup>7</sup>	37.21	17.41	19.80	0.00	0.00	96	<0.5	<0.5	<0.5	<0.5	2	-	<50	6	<0.5	<0.5	<0.5
MW-8	02/20/2006 <sup>7</sup>	37.21	10.79	26.42	0.00	0.00	81	<0.5	<0.5	<0.5	<0.5	0.6	-	<50	<5	<0.5	<0.5	<0.5
MW-8	05/12/2006 <sup>7</sup>	37.21	9.24	27.97	0.00	0.00	72	1	<0.5	<0.5	<0.5	2	-	<50	6	<0.5	<0.5	<0.5
MW-8	08/14/2006 <sup>7</sup>	37.21	14.67	22.54	0.00	0.00	110	3	<0.5	<0.5	<0.5	2	-	<50	7	<0.5	<0.5	<0.5
MW-8	11/08/2006 <sup>7</sup>	37.21	17.41	19.80	0.00	0.00	310	2	1	<0.5	2	3	-	<50	13	<0.5	<0.5	<0.5
MW-8	02/07/2007	37.21	14.58	22.63	0.00	0.00	310	0.6	<0.5	<0.5	<0.5	2	-	<50	7	<0.5	<0.5	<0.5
MW-8	05/07/2007 <sup>7</sup>	37.21	12.78	24.43	0.00	0.00	95	0.5	<0.5	<0.5	<0.5	2	-	<50	6	<0.5	<0.5	<0.5
MW-8	08/03/2007	37.21	16.70	20.51	0.00	0.00	130	<0.5	<0.5	<0.5	<0.5	2	-	<50	8	<0.5	<0.5	<0.5
MW-8	10/12/2007	37.21	18.51	18.70	0.00	0.00	340	<0.5	<0.5	<0.5	<0.5	5	-	<50	20	<0.5	<0.5	<0.5
MW-8	11/02/2007	37.21	18.81	18.40	0.00	0.00	210	<0.5	<0.5	<0.5	<0.5	2	-	<50	5	<0.5	<0.5	<0.5
MW-8	12/07/2007	37.21	18.62	18.59	0.00	0.00	230	<0.5	<0.5	<0.5	<0.5	2	-	<50	5	<0.5	<0.5	<0.5
MW-8	02/01/2008 <sup>7</sup>	37.21	14.18	23.03	0.00	0.00	96	<0.5	<0.5	<0.5	<0.5	0.8	-	<50	<2	<0.5	<0.5	<0.5
MW-8	05/09/2008 <sup>7</sup>	37.21	14.33	22.88	0.00	0.00	120	2	<0.5	<0.5	<0.5	2	-	<50	6	<0.5	<0.5	<0.5
MW-8	08/22/2008 <sup>7</sup>	37.21	17.88	19.33	0.00	0.00	180	0.9	<0.5	<0.5	<0.5	4	-	<50	14	<0.5	<0.5	<0.5
MW-8	11/26/2008 <sup>7</sup>	37.21	19.52	17.69	0.00	0.00	350	<0.5	<0.5	<0.5	<0.5	1	-	<50	2	<0.5	<0.5	<0.5
MW-8	05/20/2009	37.21	14.11	23.10	0.00	0.00	310	3	<0.5	<0.5	<0.5	0.7 J	-	<50	<2	<0.5	<0.5	<0.5
MW-8	08/26/2009	37.21	18.19	19.02	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-
MW-8	11/12/2009	37.21	16.60	20.61	0.00	0.00	350	2	<0.5	<0.5	<0.5	1	-	<50	2 J	<0.5	<0.5	<0.5
MW-8	05/17/2010	37.21	10.50	26.71	0.00	0.00	230	2	<0.5	<0.5	<0.5	0.5 J	-	<50	<2	<0.5	<0.5	<0.5
MW-8	08/26/2010 <sup>11</sup>	37.21	14.72	22.49	0.00	0.00	=	-	-	-	-	-	-	-	-	-	-	-
MW-8	11/11/2010	37.21	16.58	20.63	0.00	0.00	330	<0.5	<0.5	<0.5	<0.5	1	-	<50	3 1	<0.5	<0.5	<0.5
MW-8	02/10/2011 <sup>13</sup>	37.21	12.30	24.91	0.00	0.00	-	-	-	-	=	-	-	=	-	-	=	-
MW-8	06/17/2011	37.21	11.43	25.78	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	1	-	<50	<2	<0.5	<0.5	<0.5
MW-8	09/08/2011	37.21	15.15	22.06	0.00	0.00	-	-	-	-	=	-	-	=	-	-	-	-
MW-8	12/16/2011	37.21	15.00	22.21	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	1	=	<50	4 J	<0.5	<0.5	<0.5

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### GROUNDWATER MONITORING AND SAMPLING DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

							HYDROCARBONS PRIMARY VOCS								ADDITIONAL VOCS						
Location	Date	тос	DTW	GWE	LNAPLT	LNAPL REMOVED	TPH-GRO	В	τ	E	x	MTBE by SW8260	МТВЕ by VOC	Ethanol	TBA	DIPE	ETBE	ТАМЕ			
	Units	ft	ft	ft-amsl	ft	gal	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L			
MW-8	03/02/2012 <sup>13</sup>	37.21	15.70	21.51	0.00	0.00	-	-	-	-	-	-	-	-	-	-	<del>-</del>	-			
MW-8	06/08/2012	37.21	13.42	23.79	0.00	0.00	100	2	<0.5	<0.5	<0.5	3	-	<50	-	-	-	-			
MW-8	09/14/2012 <sup>13</sup>	37.21	17.20	20.01	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-			
MW-8	12/21/2012	37.21	12.11	25.10	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	2	-	<50	6	<0.5	<0.5	<0.5			
MW-8	04/01/2013 <sup>13</sup>	37.21	14.87	22.34	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-			
MW-8	06/28/2013	37.21	16.46	20.75	0.00	0.00	350	<0.5	<0.5	0.5 J	0.6 J	9	-	<50	22	<0.5	<0.5	<0.5			
MW-8	09/20/2013 <sup>13</sup>	37.21	18.01	19.20	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-			
MW-8	12/30/2013	37.21	19.43	17.78	0.00	0.00	820	<0.5	<0.5	<0.5	<0.5	3	-	<50	-	-	-	-			
MW-8	03/31/2014 <sup>13</sup>	37.21	14.40	22.81	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-			
MW-8	06/30/2014	37.21	16.46	20.75	0.00	0.00	370	2	<0.5	<0.5	<0.5	3	-	<50	-	-	-	-			
MW-9	04/01/2002 <sup>6</sup>	35.03	10.62	24.41	0.00	0.00	94	1.5	<0.50	<0.50	<1.5	-	25/19 <sup>5</sup>	-	<100	<2	<2	<2			
MW-9	08/05/2002	35.03	14.85	20.18	0.00	0.00	<50	<0.50	<0.50	<0.50	<1.5	-	15 <sup>5/</sup> 18	-	<100	<2	<2	<2			
MW-9	11/04/2002	35.03	17.48	17.55	0.00	0.00	<50	<0.50	1.7	<0.50	2.1	-	24/21 <sup>5</sup>	-	<100	<2	<2	<2			
MW-9	02/03/2003	35.03	12.51	22.52	0.00	0.00	<50	1.9	<0.50	<0.50	<1.5	-	17/16 <sup>5</sup>	-	<5	<0.5	<0.5	0.8			
MW-9	05/02/2003	35.03	11.68	23.35	0.00	0.00	<50	0.6	<0.5	<0.5	<1.5	-	21/18 <sup>5</sup>	-	<5	<0.5	<0.5	0.8			
MW-9	08/01/2003 <sup>7</sup>	35.03	14.69	20.34	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	22	-	<50	7	0.9	<0.5	1			
MW-9	11/21/2003 <sup>7</sup>	35.03	16.35	18.68	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	18	-	<50	<5	0.8	<0.5	1			
MW-9	02/10/2004 <sup>7</sup>	35.03	11.69	23.34	0.00	0.00	210	7	0.5	1	1	31	-	<50	9	0.6	<0.5	2			
MW-9	05/11/2004 <sup>7</sup>	35.03	12.12	22.91	0.00	0.00	230	17	<0.5	<0.5	<0.5	72	-	<50	16	<0.5	<0.5	4			
MW-9	08/10/2004 <sup>7</sup>	35.03	14.58	20.45	0.00	0.00	250	5	<0.5	<0.5	<0.5	66	-	<50	<5	0.9	<0.5	3			
MW-9	11/08/2004	35.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
MW-9	02/21/2005 <sup>7</sup>	35.03	9.52	25.51	0.00	0.00	510	6	<0.5	1	3	79	-	<50	17	0.5	<0.5	4			
MW-9	05/10/2005 <sup>7</sup>	35.03	8.85	26.18	0.00	0.00	670	11	0.7	0.5	2	100	-	<50	20	<0.5	<0.5	4			
MW-9	08/12/2005 <sup>7</sup>	35.03	11.06	23.97	0.00	0.00	390	4	<0.5	<0.5	0.7	89	-	<50	18	<0.5	<0.5	4			

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### GROUNDWATER MONITORING AND SAMPLING DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

							UVDBOCABBONS			4.0	DITIONALL	000						
			Ι				HYDROCARBONS	HYDROCARBONS PRIMARY VOCS								DITIONAL V	l	
Location	Date	тос	DTW	GWE	LNAPLT	LNAPL REMOVED	TPH-GRO	В	τ	E	x	MTBE by SW8260	МТВЕ by VOC	Ethanol	ТВА	DIPE	ETBE	ТАМЕ
	Units	ft	ft	ft-amsl	ft	gal	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
MW-9	11/11/2005 <sup>7</sup>	35.03	15.98	19.05	0.00	0.00	2,500	48	5	21	33	140	-	<50	25	<0.5	<0.5	6
MW-9	02/20/2006 <sup>7</sup>	35.03	10.08	24.95	0.00	0.00	3,200	47	5	30	32	130	-	<50	22	<0.5	<0.5	5
MW-9	05/12/2006 <sup>7</sup>	35.03	8.08	26.95	0.00	0.00	1,800	19	1	1	4	89	-	<50	14	<0.5	<0.5	4
MW-9	08/14/2006	35.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-9	11/08/2006	35.03	-	-	-	-	=	-	-	-	-	-	-	-	-	-	-	-
MW-9	02/07/2007	35.03	13.57	21.46	0.00	0.00	2,000	22	2	1	8	78	-	<50	14	<0.5	<0.5	3
MW-9	05/07/2007 <sup>7</sup>	35.03	11.85	23.18	0.00	0.00	1,800	17	2	1	5	67	-	<50	13	<0.5	<0.5	3
MW-9	08/03/2007	35.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-9	10/12/2007	35.03	17.20	17.83	0.00	0.00	55	<0.5	<0.5	<0.5	<0.5	30	-	<50	4	<0.5	<0.5	1
MW-9	11/02/2007	35.03	17.28	17.75	0.00	0.00	72	<0.5	<0.5	<0.5	0.9	57	-	<50	8	<0.5	<0.5	2
MW-9	12/07/2007 <sup>7</sup>	35.03	17.12	17.91	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	59	-	<50	9	<0.5	<0.5	2
MW-9	02/01/2008 <sup>7</sup>	35.03	12.23	22.80	0.00	0.00	61	<0.5	<0.5	<0.5	<0.5	50	-	<50	11	<0.5	<0.5	2
MW-9	05/09/2008	35.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-9	05/16/2008 <sup>7</sup>	35.03	13.34	21.69	0.00	0.00	51	0.5	6	0.5	3	35	-	<50	11	<0.5	<0.5	1
MW-9	08/22/2008 <sup>7</sup>	35.03	16.32	18.71	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	35	-	<50	6	<0.5	<0.5	0.9
MW-9	11/26/20087	35.03	17.84	17.19	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	33	-	<50	4	<0.5	<0.5	0.7
MW-9	05/20/2009	35.03	13.18	21.85	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	18	-	<50	7	<0.5	<0.5	<0.5
MW-9	08/26/2009	35.03	17.03	18.00	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	26	-	<50	<2	<0.5	<0.5	<0.5
MW-9	02/01/2010	35.03	11.69	23.34	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	19	-	<50	9	<0.5	<0.5	<0.5
MW-9	08/26/2010	35.03	12.60	22.43	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	17	-	<50	9	<0.5	<0.5	0.6 J
MW-9	11/11/2010 <sup>11</sup>	35.03	15.74	19.29	0.00	0.00	-	-	-	-	=	-	-	-	-	-	=	=
MW-9	02/10/2011 <sup>11</sup>	35.03	10.29	24.74	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	12	-	<50	12	<0.5	<0.5	<0.5
MW-9	06/17/2011 <sup>11</sup>	35.03	-	=	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-9	09/08/2011 <sup>11</sup>	35.03	12.74	22.29	0.00	0.00	60 J	<0.5	<0.5	<0.5	<0.5	15	-	<50	-	-	-	-
MW-9	12/16/2011 <sup>11</sup>	35.03	14.60	20.43	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-

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### GROUNDWATER MONITORING AND SAMPLING DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

							HYDROCARBONS	ADDITIONAL VOCS										
Location	Date	тос	DTW	GWE	LNAPLT	LNAPL REMOVED	TPH-GRO	В	τ	E	ARY VOCS	MTBE by SW8260	МТВЕ by VOC	Ethanol	ТВА	ЭЫО	ЕТВЕ	ТАМЕ
	Units	ft	ft	ft-amsl	ft	gal	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
MW-9	03/02/2012	35.03	14.43	20.60	0.00	0.00	83 J	<0.5	<0.5	<0.5	<0.5	10	-	<50	15	<0.5	<0.5	<0.5
MW-9	06/08/2012 <sup>11</sup>	35.03	11.42	23.61	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-
MW-9	09/14/2012	35.03	15.90	19.13	0.00	0.00	220	1	<0.5	<0.5	<0.5	17	-	<50	14	<0.5	<0.5	<0.5
MW-9	12/21/2012 <sup>11</sup>	35.03	12.06	22.97	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-
MW-9	04/01/2013	35.03	12.68	22.35	0.00	0.00	630	4	0.5 J	<0.5	1	11	-	<50	11	<0.5	<0.5	<0.5
MW-9	06/28/2013 <sup>11</sup>	35.03	15.29	19.74	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-
MW-9	09/20/2013	35.03	16.92	18.11	0.00	0.00	120	<0.5	<0.5	<0.5	<0.5	12	-	<50	-	-	-	-
MW-9	12/30/2013	35.03	18.24	16.79	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-
MW-9	03/31/2014	35.03	14.20	20.83	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	4	-	<50	4 J	<0.5	<0.5	<0.5
MW-9	06/30/2014 <sup>13</sup>	35.03	15.51	19.52	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-
MW-10	04/01/2002 <sup>6</sup>	35.53	11.72	23.81	0.00	0.00	<50	<0.50	<0.50	<0.50	<1.5	-	5 <sup>5</sup> /6.1	-	<100	<2	<2.0	<2
MW-10	08/05/2002	35.53	15.80	19.73	0.00	0.00	<50	<0.50	<0.50	<0.50	<1.5	-	5.1/5 <sup>5</sup>	-	<100	<2	<2.0	<2
MW-10	11/04/2002	35.53	18.31	17.22	0.00	0.00	<50	<0.50	<0.50	<0.50	<1.5	-	5.5/5 <sup>5</sup>	=	<100	<2	<2.0	<2
MW-10	02/03/2003	35.53	13.42	22.11	0.00	0.00	<50	<0.50	<0.50	<0.50	<1.5	-	2.8/3 <sup>5</sup>	-	<5	<0.5	<0.5	<0.5
MW-10	05/02/2003	35.53	12.45	23.08	0.00	0.00	<50	<0.5	<0.5	<0.5	<1.5	-	<2.5/<0.5 <sup>5</sup>	-	<5	<0.5	<0.5	<0.5
MW-10	08/01/2003 <sup>7</sup>	35.53	15.62	19.91	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	2	-	<50.0	<5	<0.5	<0.5	<0.5
MW-10	11/21/2003 <sup>7</sup>	35.53	17.26	18.27	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	1	-	<50.0	<5	<0.50	<0.50	<0.5
MW-10	02/10/20047	35.53	12.52	23.01	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	<50.0	<5	<0.50	<0.5	<0.5
MW-10	05/11/2004 <sup>7</sup>	35.53	13.06	22.47	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	1	-	<50	<5	<0.5	<0.5	<0.5
MW-10	08/10/2004 <sup>7</sup>	35.53	15.45	20.08	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	3	-	<50.0	<5	<0.5	<0.5	<0.5
MW-10	11/08/2004 <sup>7</sup>	35.53	14.68	20.85	0.00	0.00	<50	<0.5	<0.5	0.9	5	<0.5	-	<50.0	<5	<0.5	<0.50	<0.5
MW-10	02/21/2005 <sup>7</sup>	35.53	10.32	25.21	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	<50.0	<5	<0.5	<0.50	<0.5
MW-10	05/10/2005 <sup>7</sup>	35.53	11.04	24.49	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	1	-	<50.0	<5	<0.5	<0.50	<0.5
MW-10	08/12/2005 <sup>7</sup>	35.53	12.58	22.95	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	1	-	<50.0	<5	<0.5	<0.50	<0.5

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### GROUNDWATER MONITORING AND SAMPLING DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

							HYDROCARBONS			PRIM	ARY VOCS				AD	DITIONAL V	ocs	
Location	Date	тос	DTW	GWE	LNAPLT	LNAPL REMOVED	TPH-GRO	В	τ	E	х	MTBE by SW8260	МТВЕ by VOC	Ethanol	ТВА	DIPE	ETBE	ТАМЕ
	Units	ft	ft	ft-amsl	ft	gal	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
MW-10	11/11/2005 <sup>7</sup>	35.53	16.89	18.64	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	5	-	<50.0	<5	<0.5	<0.50	<0.5
MW-10	02/20/2006 <sup>7</sup>	35.53	10.91	24.62	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	<50.0	<5	<0.5	<0.50	<0.5
MW-10	05/12/2006 <sup>7</sup>	35.53	9.26	26.27	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	0.6	-	<50	<5	<0.5	<0.5	<0.5
MW-10	08/14/2006 <sup>7</sup>	35.53	13.96	21.57	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	2	-	<50.0	<5	<0.5	<0.5	<0.5
MW-10	11/08/2006	35.53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-10	02/07/2007 <sup>7</sup>	35.53	14.45	21.08	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	2	-	<50.0	<2	<0.5	<0.5	<0.5
MW-10	05/07/2007 <sup>7</sup>	35.53	12.81	22.72	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	0.9	-	<50.0	<2	<0.5	<0.5	<0.5
MW-10	08/03/2007 <sup>7</sup>	35.53	16.35	19.18	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	3	-	<50	<2	<0.5	<0.5	<0.5
MW-10	10/12/2007 <sup>7</sup>	35.53	17.93	17.60	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	5	-	<50	<2	<0.5	<0.5	<0.5
MW-10	11/02/2007 <sup>7</sup>	35.53	18.04	17.49	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	4	-	<50	<2	<0.5	<0.5	<0.5
MW-10	12/07/2007 <sup>7</sup>	35.53	17.81	17.72	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	3	-	<50	<2	<0.5	<0.50	<0.5
MW-10	02/01/2008 <sup>7</sup>	35.53	13.35	22.18	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	<50	<2	<0.5	<0.50	<0.5
MW-10	05/09/2008 <sup>7</sup>	35.53	14.11	21.42	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	2	-	<50	<2	<0.50	<0.50	<0.5
MW-10	08/22/2008 <sup>7</sup>	35.53	17.70	17.83	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	5	-	<50	<2	<0.5	<0.50	<0.5
MW-10	11/26/2008 <sup>7</sup>	35.53	18.61	16.92	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	4	-	<50	<2	<0.5	<0.5	<0.5
MW-10	05/20/2009	35.53	14.03	21.50	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	3	-	<50	<2	<0.5	<0.5	<0.5
MW-10	08/26/2009	35.53	17.81	17.72	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	4	-	<50	<2	<0.5	<0.5	<0.5
MW-10	02/01/2010	35.53	12.36	23.17	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	1	-	<50	<2	<0.5	<0.5	<0.5
MW-10	08/26/2010	35.53	14.15	21.38	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	1	-	<50	<2	<0.5	<0.5	<0.5
MW-10	11/11/2010 <sup>11</sup>	35.53	16.09	19.44	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-
MW-10	02/10/2011 <sup>11</sup>	35.53	12.02	23.51	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	0.7 J	-	<50	<2	<0.5	<0.5	<0.5
MW-10	06/17/2011 <sup>11</sup>	35.53	-	-	-	-	-	-	-	=	-	-	-	-	-	-	-	-
MW-10	09/08/2011 <sup>11</sup>	35.53	14.31	21.22	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	0.5 J	-	<50	-	-	-	-
MW-10	12/16/2011 <sup>11</sup>	35.53	15.41	20.12	0.00	0.00	-	-	-	=	-	-	-	-	-	-	-	-
MW-10	03/02/2012	35.53	15.28	20.25	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	1	-	<50	<2	<0.5	<0.5	<0.5

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### GROUNDWATER MONITORING AND SAMPLING DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

							HYDROCARBONS			PRIM	ARY VOCS				AD	DITIONAL V	ocs	1
Location	Date	тос	DTW	GWE	LNAPLT	LNAPL REMOVED	TPH-GRO	В	τ	E	х	MTBE by SW8260	MTBE by VOC	Ethanol	ТВА	DIPE	ЕТВЕ	ТАМЕ
	Units	ft	ft	ft-amsl	ft	gal	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
MW-10	06/08/2012 <sup>11</sup>	35.53	12.84	22.69	0.00	0.00	-	-	-	-	-	-	=	-	-	-	-	-
MW-10	09/14/2012	35.53	16.63	18.90	0.00	0.00	<50	<0.5	<0.5	1	6	2	-	<50	<2	<0.5	<0.5	<0.5
MW-10	12/21/2012 <sup>11</sup>	35.53	12.76	22.77	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-
MW-10	04/01/2013	35.53	14.37	21.16	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	1	=	<50	<2	<0.5	<0.5	<0.5
MW-10	06/28/2013 <sup>11</sup>	35.53	16.03	19.50	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-
MW-10	09/20/2013	35.53	17.88	17.65	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	2	-	<50	-	-	-	-
MW-10	12/30/2013	35.53	19.05	16.48	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-
MW-10	03/31/2014	35.53	15.40	20.13	0.00	0.00	<50	<0.5	<0.5	<0.5	<0.5	0.8 J	-	<50	<2	<0.5	<0.5	<0.5
MW-10	06/30/2014 <sup>13</sup>	35.53	16.22	19.31	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-
QA	11/21/2001	-	-	-	-	-	<50	<0.50	<0.50	<0.50	<1.5	-	<2.5	-	-	-	-	-
QA	02/05/2002	-	-	-	-	-	<50	<0.50	<0.50	<0.50	<1.5	-	<2.5	-	-	-	-	-
QA	04/01/2002	-	-	-	-	-	<50	<0.50	<0.50	<0.50	<1.5	-	<2.5	-	-	-	-	-
QA	08/05/2002	-	-	-	-	-	<50	<0.50	<0.50	<0.50	<1.5	-	<2.5	-	-	-	-	-
QA	10/04/2002	-	-	-	-	-	<50	<0.50	<0.50	<0.50	<1.5	-	<2.5	-	-	-	-	-
QA	02/03/2003	-	-	-	-	-	<50	<0.50	<0.50	<0.50	<1.5	-	<2.5	-	-	-	-	-
QA	05/02/2003	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<1.5	=	<2.5	=	=	=	-	=
QA	08/01/2003 <sup>7</sup>	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5	=	-	-	=	-	-
QA	11/21/2003 <sup>7</sup>	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
QA	02/10/2004 <sup>7</sup>	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
QA	05/11/2004 <sup>7</sup>	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
QA	08/10/2004 <sup>7</sup>	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
QA	11/08/2004 <sup>7</sup>	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
QA	02/21/2005 <sup>7</sup>	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
QA	05/10/2005 <sup>7</sup>	-	-	-		-	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-

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#### GROUNDWATER MONITORING AND SAMPLING DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

	Date Units	тос				VED												
Location	Units		DTW	GWE	LNAPLT	LNAPL REMOVED	TPH-GRO	В	т	E	х	MTBE by SW8260	МТВЕ by VOC	Ethanol	ТВА	ЭЫРЕ	ETBE	ТАМЕ
		ft	ft	ft-amsl	ft	gal	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
	/12/2005 <sup>7</sup>	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
	/11/2005 <sup>7</sup>	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
	/20/2006 <sup>7</sup>	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
	/12/2006 <sup>7</sup>	-	-	-	-	=	<50	<0.5	0.59	<0.5	<0.5	<0.5	-	=	=	-	=	-
	/14/2006 <sup>7</sup>	-	-	-	-	=	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	=	=	-	=	-
	/08/2006 <sup>7</sup>	-	-	-	-	=	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	=	=	-	=	-
	/07/2007 <sup>7</sup>	-	-	-	-	=	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	=	=	-	=	-
	/07/2007 <sup>7</sup>	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
	/03/2007 <sup>7</sup>	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
	/12/2007 <sup>7</sup>	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
	/02/2007 <sup>7</sup>	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
	/07/2007 <sup>7</sup>	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
	/01/2008 <sup>7</sup>	-	-	-	-	=	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	=	=	-	=	-
	/09/2008 <sup>7</sup>	-	-	-	-	=	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	=	=	-	=	-
	/16/2008 <sup>7</sup>	-	-	-	-	=	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	=	=	-	=	-
	/22/2008 <sup>7</sup>	-	-	-	-	=	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	=	=	-	=	-
	/26/2008 <sup>7</sup>	-	-	-	-	=	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	=	=	-	=	-
	/20/2009	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
	/26/2009	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
	/12/2009	-	-	-	-	=	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	=	=	=	-
	/01/2010	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	<50	-	-	-	-
	/17/2010	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
	/26/2010	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
	/11/2010 /10/2011	=	-	-	=	-	<50 <50	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	-	-	-	-	-	-

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#### GROUNDWATER MONITORING AND SAMPLING DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

							HYDROCARBONS PRIMARY VOCS								AD	DITIONAL V	ocs	
Location	Date	тос	DTW	GWE	LNAPLT	LNAPL REMOVED	TPH-GRO	В	τ	E	x	MTBE by SW8260	МТВЕ by VOC	Ethanol	ТВА	DIPE	ЕТВЕ	ТАМЕ
	Units	ft	ft	ft-amsl	ft	gal	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
QA	06/17/2011	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5		-	-	-	-	-
QA	09/08/2011	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	<50	-	-	-	-
QA	12/16/2011	-	-	=	-	=	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
QA	03/02/2012	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
QA	06/08/2012	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5	=	-	-	=	-	=
QA	09/14/2012	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
QA	12/21/2012	-	=	-		-	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
QA	04/01/2013	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
QA	06/28/2013	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
QA	09/20/2013	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5	=	=	-	=	-	=
QA	12/30/2013	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
QA	03/31/2014	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
QA	06/30/2014	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-
TRIP BLANK	02/08/1998	_	_	-	_	-	<50	<0.5	<0.5	<0.5	<0.5	_	<2.5	-	-	-	-	-
TRIP BLANK	06/16/1998	_	-	_	_	_	<50	<0.5	<0.5	<0.5	<0.5	_	<2.5	_	_	_	_	-
TRIP BLANK	07/29/1998	_	_	_	_	_	<50	<0.5	<0.5	<0.5	<0.5	_	<2.5	_	_	_	_	-
TRIP BLANK	08/13/1998	_	-	_	-	_	<50	<0.5	<0.5	<0.5	<0.5	_	<2.5	_	_	_	-	-
TRIP BLANK	11/24/1998	-	_	=	-	=	<50	<0.5	<0.5	<0.5	<0.5	-	<2.5	_	-	-	-	-
TRIP BLANK	02/02/1999	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	-	<2.5	-	-	-	-	-
TRIP BLANK	02/03/1999	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	-	<2.5	-	-	-	-	-
TRIP BLANK	06/07/1999	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	-	<2.5	-	-	-	-	-
TRIP BLANK	09/07/1999	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	-	<5.0	-	-	-	-	-
TRIP BLANK	10/27/1999	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	-	<2.5	-	-	-	-	-
TRIP BLANK	02/08/2000	-	-	-	-	-	<50	<0.5	<0.5	<0.5	<0.5	-	<5.0	-	-	-	-	-

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#### GROUNDWATER MONITORING AND SAMPLING DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

							HYDROCARBONS			PRIMA	ARY VOCS				AD	DITIONAL V	ocs	
Location	Date	тос	DTW	GWE	LNAPLT	LNAPL REMOVED	TPH-GRO	В	τ	E	x	MTBE by SW8260	MTBE by VOC	Ethanol	7BA	Зага	ETBE	ТАМЕ
	Units	ft	ft	ft-amsl	ft	gal	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
TRIP BLANK TRIP BLANK TRIP BLANK TRIP BLANK TRIP BLANK	05/05/2000 07/28/2000 11/26/2000 02/09/2001 05/11/2001	- - -	- - -	- - -	- - -	- - - -	<50 <50 <50 <50.0 <50.0	<0.50 <0.50 <0.50 <0.500 <0.500	<0.50 <0.50 <0.50 <0.500 <0.500	<0.50 <0.50 <0.50 <0.500 <0.500	<0.50 <0.50 <0.50 <0.500 <0.500	- - - -	<2.5 <2.5 <2.5 <2.50 <2.50	- - -	- - -	- - -	- - -	- - -
TRIP BLANK	08/30/2001	-	-	-	-	-	<50	<0.50	<0.50	<0.50	<0.50	-	<2.5	-	-	-	-	-

#### **Abbreviations and Notes:**

TOC = Top of casing

DTW = Depth to water

GWE = Groundwater elevation

(ft-amsl) = Feet above mean sea level

ft = Feet

μg/L = Micrograms per liter

TPH-GRO = Total petroleum hydrocarbons - gasoline range organics

VOCS = Volatile organic compounds

B = Benzene

T = Toluene

E = Ethylbenzene

X = Xylenes (Total)

MTBE = Methyl tert butyl ether

TBA = Tert-butyl alcohol

DIPE = Diisopropyl ether

ETBE = Tert-butyl ethyl ether

TAME = Tert-amyl methyl ether

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#### GROUNDWATER MONITORING AND SAMPLING DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

							HYDROCARBONS			PRIMA	ARY VOCS				AD	DITIONAL V	ocs	
Location	Date	тос	DTW	GWE	LNAPLT	LNAPL REMOVED	трн-GRO	В	τ	E	х	MTBE by SW8260	МТВЕ by VOC	Ethanol	ТВА	ЭЫБ	ETBE	ТАМЕ
	Units	ft	ft	ft-amsl	ft	gal	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L

J = Estimated value (the result method result > the detection limit < the limit of quantitation)

<x = Not detected above laboratory method detection limit

\* TOC elevations were re-surveyed on May 31, 2005, by Morrow Surveying Land Surveyors using the previous benchmark. TOC elevations were surveyed in April 2002, by Morrow Surveying. Elevations are based on City of Oakland Benchmark designated 3787 in field book 1595, page 50; cut square northerly curb on Krause Ave., approx. 37 feet westerly of PL westerly of 73rd Ave., (Elevation = 33.82 feet).

\*\* GWE corrected for the presence of LNAPL; correction factor: [(TOC - DTW) + (LNAPLT x 0.8)].

- 1 Confirmation run.
- 2 Laboratory report indicates gasoline C6-C12.
- Laboratory report indicates weathered gasoline C6-C12.
- Product and water removed.
- MTBE by EPA Method 8260.
- 6 Well development performed.
- 7 BTEX and MTBE by EPA Method 8260.
- 8 Laboratory report indicates the trip blank results were investigated and the source of contamination did not occur during analysis.
- 9 Product removed; no water removed.
- 10 Laboratory report indicates the value for the TPH-GRO is estimated because the value is over the calibration range of the system. The surrogate recovery is outside the upper statistical
  - QC limit. The sample was not reanalyzed because the hold time had ex
- 11 Sampled semi-annually.
- 12 Unable to access well due to large donation bin located on well.
- 13 Gauged only.
- 14 Inaccessible

<sup>-- =</sup> Not available / not applicable

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#### MONITORING WELL CONSTRUCTION DETAIL FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

Well ID	Date Installed	Consultant	Well Casing Diameter (inches)	Depth (fbg)	Screen Interval (fbg)	Top of Casing (msl)	Top of Screen	Length of Screen	
MW-1	01/22/98	Gettler-Ryan	2	36.5	14.0-34.0	37.40	14	20	
MW-2	01/22/98	Gettler-Ryan	2	31.5	10.5-30.5	35.72	10.5	20	
MW-3	01/22/98	Gettler-Ryan	2	34.5	13.5-33.5	36.53	13.5	20	
MW-4	01/22/99	Gettler-Ryan	2	31.5	11.0-31.0	37.29	11	20	
MW-5	01/22/99	Gettler-Ryan	2	31.5	11.5-31.5	37.40	11.5	20	
MW-6	01/22/99	Gettler-Ryan	2	32.0	12.0-32.0	36.90	12	20	
MW-7	07/03/00	Cambria	3/4	25.0	10.0-25.0	36.84	10	15	
MW-8	03/13/02	Gettler-Ryan	2	30.0	10.0-30.0	37.21	10	20	
MW-9	03/15/02	Gettler-Ryan	2	30.0	10.0-30.0	35.03	10	20	
MW-10	03/15/02	Gettler-Ryan	2	30.0	10.0-30.0	35.53	10	20	

#### Notes:

fbg = Feet below grade msl = mean sea level TABLE 6 Page1 of 4

# CUMULATIVE VAPOR ANALYTICAL DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

Sample ID	Sample Date	Probe Depth Interval (fbg)	TPHg	Benzene Co	Toluene ncentrations	Ethylbenzene reported in micro	Xylene <sup>A</sup> grams per cu	MTBE	2-propanol <sup>B</sup> (µg/m³)	Isobutane <sup>B</sup>	Helium Concer	Oxygen ntrations report	Carbon Dioxide
LTP- Soil Gas-	Scenario 4, Oxy	gen < 4%							,			<u> </u>	
Residential	, , ,		NE	<85	NE	<1,100	NE	NE	NE	NE	NE	<4	NE
Commerical			NE	<280	NE	<3,600	NE	NE	NE	NE	NE	<4	NE
LTP- Soil Gas-	Scenario 4, Oxy	gen > 4%											
Residential	, ,		NE	<85,000	NE	<1,100,000	NE	NE	NE	NE	NE	NE	NE
Commerical			NE	<280,000	NE	<3,600,000	NE	NE	NE	NE	NE	NE	NE
VP-1	04/21/05	5.0-6.5	79,000	<33	49	<45	<45	660	170			9.2	0.9
VP-1	07/18/05	5.0-6.5	33,000	<39	52	<52	<52	260	350			15	1.0
VP-1*	08/11/05	5.0-6.5											
VP-1	09/29/06	5.0-6.5	1,100	<3.6	6.6	<5.5	5.1	660		67		12	7.5
VP-1		UPLICATE		<3.6	6.7	<5.0	5.4	660		52			
VP-1	05/23/08	5.0-6.5	2,700	4.5	<4.6	<5.4	<5.4	410			<0.12	1.4	11
VP-1	04/21/05	7.5-9.0	11,000	<39	<46	<54	<54	570	450			7.6	8.2
VP-1	07/18/05	7.5-9.0	40,000	<38	110	<52	72	370	190			8.2	11
VP-1*	08/11/05	7.5-9.0											
VP-1	09/29/06	7.5-9.0	12,000	17	5.1	<4.8	<4.8	910		76		2.9	14
VP-1 DUP	09/29/06	7.5-9.0	12,000	17	5.3	<4.9	<4.9	880		81		2.6	14
VP-1 DUP	LAB D	UPLICATE	11,000										
VP-1	05/23/08	7.5-9.0	13,000	<7.9	<9.3	<11	<11	660				1.5	12
VP-1 DUP	05/23/08	7.5-9.0	13,000	<7.9	<9.3	<11	<11	660			<0.12	1.4	12
VP-1	04/21/05	10.0-11.5	6,300	<39	<46	<54	<54	280	850			8.1	9.3
VP-1	07/18/05	10.0-11.5	94,000	<35	61	<48	<48	70	96			9.6	7.5
VP-1*	08/11/05	10.0-11.5											
VP-1	09/29/06	10.0-11.5	13,000	23	11	<5.0	<5.0	490		69		1.8	15.0
VP-1	05/23/08	10.0-11.5	34,000	<15	<18	<21	<21	390			<0.12	1.3	12
VP-2	04/22/05	5.0-6.5											
VP-2	07/18/05	5.0-6.5											
VP-2*	08/11/05	5.0-6.5											
VP-2	09/28/06	5.0-6.5	520	<3.7	<4.4	<5.0	<5.0	14		150		18	2.1
VP-2	05/23/08	5.0-6.5	570	4.5	18	<5.5	5.6	<4.6			4.2	20	0.34

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#### CUMULATIVE VAPOR ANALYTICAL DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

Sample ID	Sample Date	Probe Depth Interval (fbg)	TPHg	Benzene	Toluene	Ethylbenzene reported in micro	Xylene <sup>A</sup>	MTBE	2-propanol <sup>B</sup>	Isobutane <sup>B</sup>	Helium Concer	Oxygen	Carbon Dioxide ed in % volume
ITP- Soil Gas-	Scenario 4, Oxy				neenti ations	reported in finero	Brains per ea	bic meter	(μβ/ … /				
Residential	Scenario 4, Oxyg	JC11 < 470	NE	<85	NE	<1,100	NE	NE	NE	NE	NE	<4	NE
Commerical			NE	<280	NE	<3,600	NE	NE	NE	NE	NE	<4	NE
LTP- Soil Gas-	Scenario 4, Oxyo	gen > 4%				,							
Residential	, , ,	,	NE	<85,000	NE	<1,100,000	NE	NE	NE	NE	NE	NE	NE
Commerical			NE	<280,000	NE	<3,600,000	NE	NE	NE	NE	NE	NE	NE
VP-2	04/22/05	7.5-9.0	49,000	<39	<46	<54	<54	<44	110,000 <sup>C</sup>			7.8	5.5
VP-2 DUP	04/22/05	7.5-9.0	50,000	<36	<42	<49	<49	<40	110,000 <sup>c</sup>			7	5.9
VP-2	07/18/05	7.5-9.0	8,400	<39	<46	<52	<52	<44	44			6.6	7.8
VP-2 DUP	07/18/05	7.5-9.0	8,700	<37	<44	<50	<50	<42	82			6.5	8.2
VP-2*	08/11/05	7.5-9.0											
VP-2	09/28/06	7.5-9.0	500	<3.6	<4.3	5.3	21	34		67		3.6	9.9
VP-2	05/23/08	7.5-9.0	3,400	4.4	11	<5.7	<5.7	14			0.15	3.6	7.4
VP-2	04/22/05	10.0-11.5											
VP-2	07/18/05	10.0-11.5	5,900	<36	<43	<50	<50	<41	<28			12	4.4
VP-2*	08/11/05	10.0-11.5											
VP-2	09/28/06	10.0-11.5	20,000	<5.8	<6.9	<7.9	<7.9	31		380		3.2	10
VP-2	05/23/08	10.0-11.5	10,000	7.2	100	21	72	10			1.2	8.1	5.3
VP-3	04/22/05	5.0-6.5	36,000	<39	<46	<54	<54	<44	79,000 <sup>c</sup>			14	2.8
VP-3	07/18/05	5.0-6.5	54, 000	<140	<170	<190	<190	<160	<58,000			4.4	8.4
VP-3	08/11/05	5.0-6.5	330,000	220	<42	1,100	890	<40	110				
VP-3	09/28/06	5.0-6.5	<240	<3.7	<4.4	<5.0	<5.0	<4.2		404		22	0.065
VP-3	05/23/08	5.0-6.5	940	<3.9	<4.6	7.8	220	<4.4			<0.12	6.4	6.3
VP-3	LAB DI	UPLICATE									<0.12	6.4	6.3
VP-3	04/22/05	7.5-9.0	2,300,000	<40	<48	<55	<55	<46	>1,000,000			21	0.2
VP-3	07/18/05	7.5-9.0	19,000	<65	<76	<88	<88	<73	<26,000			4.7	7.9
VP-3	08/11/05	7.5-9.0	48,000	<36	<42	210	130	<40	740				
VP-3	09/28/06	7.5-9.0	260	<3.9	11	<5.2	<5.2	<4.4		ND		6.7	10
VP-3 DUP	09/28/06	7.5-9.0	540	3.8	18	<4.8	<4.8	<4.0		ND		6.7	11
VP-3 DUP	05/23/08	7.5-9.0	1,400	<4	490	8.5	7.7	<4.6			0.3	6.6	6

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# CUMULATIVE VAPOR ANALYTICAL DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

Sample ID	Sample Date	Probe Depth	TPHg	Benzene	Toluene	Ethylbenzene	Xylene <sup>A</sup>	MTBE	2-propanol <sup>B</sup>	Isobutane <sup>B</sup>	Helium	Oxygen	Carbon Dioxide
	Sumple Bate	Interval (fbg)		Со	ncentrations	reported in micro	grams per cu	bic meter - (¡	μg/m³)		Concer	trations report	ed in % volume
LTP- Soil Gas-	Scenario 4, Oxyg	gen < 4%											
Residential			NE	<85	NE	<1,100	NE	NE	NE	NE	NE	<4	NE
Commerical			NE	<280	NE	<3,600	NE	NE	NE	NE	NE	<4	NE
LTP- Soil Gas-	Scenario 4, Oxyg	gen > 4%											
Residential			NE	<85,000	NE	<1,100,000	NE	NE	NE	NE	NE	NE	NE
Commerical			NE	<280,000	NE	<3,600,000	NE	NE	NE	NE	NE	NE	NE
VP-3 DUP	LAB DI	JPLICATE		<4	470	8.4	15	<4.6			0.3	6.6	6
VP-3	04/22/05	10.0-11.5											
VP-3	07/18/05	10.0-11.5	10,000	<34	<41	<47	<47	<39	<13,000			4.5	5.2
VP-3		JPLICATE	10,000	<34	<41	<47	<47	<39	<13,000			4.5	5.2
VP-3	08/11/05	10.0-11.5	19,000	<38	<45	70	60	<43	3,900				
VP-3 DUP	08/11/05	10.0-11.5	18,000	<40	<48	66	<55	<46	3,900				
VP-3	09/28/06	10.0-11.5	970	5.2	16	<5.4	<5.4	<4.4		ND		3.7	6.4
VP-3	05/23/08	10.0-11.5	5,700	<7.3	2500	47	91	<8.2			0.29	12	3.2
VP-4	04/22/05	5.0-6.5	1,800,000	<39	97	<54	97	220	>650,000			13	6.0
VP-4	07/18/05	5.0-6.5											
VP-4	08/11/05	5.0-6.5	2,300,000	150	<43	60	120	540	48				
VP-4	09/29/06	5.0-6.5	1,500,000	<91	<110	<120	<120	210		ND		7.8	14
VP-4	05/23/08	5.0-6.5	2,100,000	<170	<200	<230	<230	260			<0.11	1.3	18
VP-4	04/22/05	7.5-9.0	1,300,000	<39	99	<54	110	340	>420,000			15	5.5
VP-4	07/18/05	7.5-9.0											
VP-4	08/11/05	7.5-9.0	1,800,000	120	<42	<49	79	700	690				
VP-4	09/29/06	7.5-9.0	2,800,000	<180	<210	<240	<240	410		ND		5.1	16
VP-4	05/23/08	7.5-9.0	2,700,000	<790	<930	<1100	<1100	<890			<0.12	1.2	15
VP-4	04/22/05	10.0-11.5	280,000	<40	48	<55	<55	<46	340,000 <sup>c</sup>			21	0.2
VP-4	LAB DI	JPLICATE	270,000	41	<48	<55	<55	<46	370,000 <sup>c</sup>				
VP-4	07/18/05	10.0-11.5											
VP-4	08/11/05	10.0-11.5	25,000,000	19,000	<1700	48,000	34,000	<1,600	<1,100				
VP-4	09/29/06	10.0-11.5	42,000,000	180,000	440,000	430,000	250,000	<82,000		1,854,135		1.9	16
VP-4	05/23/08	10.0-11.5	15,000,000	<1500	2,600	<2000	<2000	<1700			< 0.12	3.2	11

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## CUMULATIVE VAPOR ANALYTICAL DATA FORMER CHEVRON SERVICE STATION 93322 7225 BANCROFT AVENUE OAKLAND, CALIFORNIA

Sample ID	Sample Date	Probe Depth	TPHg	Benzene	Toluene	Ethylbenzene	Xylene <sup>A</sup>	MTBE	2-propanol <sup>B</sup>	Isobutane <sup>B</sup>	Helium	Oxygen	Carbon Dioxide
Sample 15	Sample Date	Interval (fbg)		Cor	ncentrations	reported in micro	grams per cu	bic meter -	(μg/m³)		Concer	ntrations repor	ted in % volume
LTP- Soil Gas	s-Scenario 4, Oxy	gen < 4%											
Residential			NE	<85	NE	<1,100	NE	NE	NE	NE	NE	<4	NE
Commerical	1		NE	<280	NE	<3,600	NE	NE	NE	NE	NE	<4	NE
LTP- Soil Gas	s-Scenario 4, Oxy	gen > 4%											
Residential			NE	<85,000	NE	<1,100,000	NE	NE	NE	NE	NE	NE	NE
Commerical	1		NE	<280,000	NE	<3,600,000	NE	NE	NE	NE	NE	NE	NE

#### Notes:

Total petroleum hydrocarbons as gasoline (TPHg) by Modified EPA Method TO-15 before 3Q06 and by Modified EPA Method TO-3 after 3Q06.

Benzene, toluene, ethylbenzene and xylenes (BTEX), methyl tertiary butyl ether (MTBE), tert-Butyl alcohol (TBA), isopropyl ether (DIPE), ethyl-tert-butyl ether (ETBE), tert-amyl methyl ether (TAME), 1,2-dicholoroethane (1,2-DCA), 1,2-dibromoethane (EDB), ethanol, naphthalene, 2-propanol and isobutane by Modified EPA Method TO-14A in 2005 and by Modified EPA Method TO-15 after 2005.

Helium, oxygen and carbon dioxide by ASTM D-1946.

fbg = Feet below grade.

<x = Not detected above method detection limit.

ND = Not detected above laboratory method detection limit, no detection limit reported.

NE = Not established

>xxx = Labortory report indicates saturated peak, data reported as estimated

A = Values for highest value of Xylenes detected.

B = 2-propanol and isobutane were used as leak test compounds per DTSC guidelines in Advisory - Active Soil Gas Investigations, published January 2003. Originally reported in part per billion by volume (ppbv) and converted to μg/m3 using Air Toxics Units Conversion Calculator

C = Exceeded laboratory instrument calibration range

<sup>\* =</sup> Only soil vapor probes VP-3 and VP-4 were sampled during the August, 2005 resampling event.

### Appendix A

**Regulatory Correspondence** 

#### ALAMEDA COUNTY **HEALTH CARE SERVICES** AGENCY



ALEX BRISCOE, Agency Director

**ENVIRONMENTAL HEALTH DEPARTMENT ENVIRONMENTAL PROTECTION** 1131 Harbor Bay Parkway, Suite 250 Alameda, CA 94502-6577 (510) 567-6700 FAX (510) 337-9335

April 7, 2014

Ms. Alexis Fischer Chevron Products Company 6101 Bollinger Canyon Road San Ramon, CA 94583 (sent via electronic mail to AFischer@chevron.com)

Mr. Amardeep Sidhu Malwa Petroleum Sales, LLC 32875 Bluebird Loop Fremont, CA 94555

Mike and Dean Najdawi 1001 Shoreway Road Belmont, CA 94002

7225 Bancroft St LP c/o Najdawi Investments, Inc. 5 Kingswood Circle Hillsborough, CA 94010

Subject: Request for Focused Site Conceptual Model Addendum and Data Gap Work Plan; Fuel Leak Case No. RO0000274 and Geotracker Global ID T0600102079, Chevron #9-3322; 7225 Bancroft Avenue, Oakland, CA 94605

#### Dear Responsible Parties:

Alameda County Environmental Health (ACEH) staff has reviewed the case file including the Second Quarter 2013 Groundwater Monitoring and Sampling Report, dated August 16, 2013, submitted on your behalf by Conestoga-Rovers & Associates (CRA). Thank you the submittal of the report.

ACEH has evaluated the data and recommendations presented in the above-mentioned reports, in conjunction with the case files, to determine if the site is eligible for closure as a low risk site under the State Water Resources Control Board's (SWRCBs) Low Threat Underground Storage Tank Case Closure Policy (LTCP). Based on ACEH staff review, we have determined that the site fails to meet the LTCP General Criteria d (free product removed to extent practicable), e (Site Conceptual Model), f (secondary source removed to the extent practicable), the Media-Specific Criteria for Groundwater, and the Media-Specific Criteria for Vapor Intrusion to Indoor Air (see Geotracker for a copy of the LTCP checklist).

Therefore, at this juncture ACEH requests that you prepare a Revised Data Gap Investigation Work Plan that is supported by a focused Site Conceptual Model (SCM) to address the Technical Comments provided below.

#### TECHNICAL COMMENTS

1. LTCP General Criteria d (Free Product) - The LTCP requires free product to be removed to the extent practicable at release sites where investigations indicate the presence of free product by removing in a manner that minimizes the spread of the unauthorized release into previously uncontaminated zones by using recovery and disposal techniques appropriate to the hydrogeologic conditions at the site, and that properly treats, discharges, or disposes of recovery byproducts in compliance with applicable laws. Additionally, the LTCP requires that abatement of free product migration be used as a minimum objective for the design of any free product removal system.

ACEH's review of the case files indicates that insufficient data and analysis has been presented to assess free product at the site. Specifically, total petroleum hydrocarbons as gasoline (TPHg) and benzene were detected at concentrations technical support documents for the LTCP consider to be indirect evidence of Light Non-Aqueous Phase Liquid (LNAPL). Prior to the introduction of surfactant in 2007 LNAPL was consistently observed in wells MW-1; however, subsequently LNAPL has not been observed but concentrations indicative of LNAPL remain. Concentrations from the most recently available groundwater monitoring event (September 2013) ranged up to 130,000 micrograms per liter (µg/l) TPHg, and 19,000 µg/l benzene. During the August 1998 groundwater sampling event, well MW-1 contained nearly identical concentrations (130,000 µg/l and 19,000 µg/l, respectively). In the intervening years, contaminant concentrations have ranged up to 340,000 TPHg and 28,000 µg/l benzene. Contaminant concentrations in the well have not decreased or degraded in over 15 years. Wells MW-1 and MW-7 also contain consistent elevated ethanol detection limits that suggest that the lack of degradation of benzene in the wells may be related to the presence of ethanol in the wells. The introduction of surfactant in 2007 to these wells may also be limiting biodegradation beneath the site.

Please evaluate the adequacy of LNAPL removal in the focused SCM and if applicable present a strategy in the Data Gap Work Plan (described in Item 6 below) to address the items discussed above. Alternatively, please provide justification of why the site satisfies this general criterion in the focused SCM described in Item 6 below.

2. LTCP General Criteria e (Site Conceptual Model) – According to the LTCP, the SCM is a fundamental element of a comprehensive site investigation. The SCM establishes the source and attributes of the unauthorized release, describes all affected media (including soil, groundwater, and soil vapor as appropriate), describes local geology, hydrogeology and other physical site characteristics that affect contaminant environmental transport and fate, and identifies all confirmed and potential contaminant receptors (including water supply wells, surface water bodies, structures and their inhabitants). The SCM is relied upon by practitioners as a guide for investigative design and data collection. All relevant site characteristics identified by the SCM shall be assessed and supported by data so that the nature, extent and mobility of the release have been established to determine conformance with applicable criteria in this policy.

Our review of the case files indicates that insufficient data collection and analysis has not been presented to assess the nature, extent, and mobility of the release and to support compliance with General Criteria d as discussed in Item 1 above, General Criteria f, Media Specific Criteria for Groundwater, and Vapor Intrusion to Indoor Air, as described in Items 3, 4 and 5 below, respectively.

3. General Criteria f — Secondary Source Has Been Removed to the Extent Practicable — "Secondary source" is defined as petroleum-impacted soil or groundwater located at or immediately beneath the point of release from the primary source. Unless site attributes prevent secondary source removal (e.g. physical or infrastructural constraints exist whose removal or relocation would be technically or economically infeasible), petroleum-release sites are required to undergo secondary source removal to the extent practicable as described in the policy. "To the extent practicable" means implementing a cost-effective corrective action which removes or destroys-in-place the most readily recoverable fraction of source-area mass. It is expected that most secondary mass removal efforts will be completed in one year or less. Following removal or destruction of the secondary source, additional removal or active remedial actions shall not be required by regulatory agencies unless (1) necessary to abate a demonstrated threat to human health or (2) the groundwater plume does not meet the definition of low threat as described in this policy.

The removal of product piping in August 1996 is the only documented removal of existing underground dispensing infrastructure at the site. Confirmation soil samples detected soil concentrations up to 500 milligrams per kilogram (mg/kg) TPHg at 4 feet below grade surface (bgs), 4.2 mg/kg benzene at 3 feet bgs, and 1.1 mg/kg MTBE at 4 feet bgs (confirmation soil samples P-6, P7, P8, and P10). Technical support documents for the LTCP consider concentrations in soil greater than 100 – 200 mg/kg TPHg to be indirect evidence of LNAPL in soil at a site.

Additionally, ACEH's files contain a facsimile copy (dated August 14, 1996) of a former site schematic that indicates that a piping "elbow sloughed off" near the southern dispensers associated with an earlier tank configuration, and that no soil sample had been collected. Two fuel releases have been

reported to be associated with the site, an earlier leaded gasoline and a reformulated gasoline containing MTBE. ACEH assumes the earlier release may be associated with this release location. This release vicinity has not been further characterized at depth. ACEH has attached a copy of the facsimile. Finally, the presence of elevated ethanol limits of detection in wells MW-1 and MW-7 indicates that a third release has occurred at the site.

Please present a strategy in the Data Gap Work Plan (described in Item 6 below) to address the items discussed above. Alternatively, please provide justification of why the site satisfies this general criterion in the focused SCM described in Item 6 below.

**4. LTCP Media Specific Criteria for Groundwater** — To satisfy the media-specific criteria for groundwater, the contaminant plume that exceeds water quality objectives must be stable or decreasing in areal extent, and meet all of the additional characteristics of one of the five classes of sites listed in the policy.

Our review of the case files indicates that insufficient data collection and analysis has been presented to support the requisite characteristics of plume stability or plume classification as follows:

- a. Insufficient Characterization of Hydrogeology The hydrogeology of the site appears to be fairly complex, and does not appear to be sufficiently characterized. The following elements contribute to this summarization:
  - i. Length of LNAPL and High Dissolved Phase Plumes As noted above, well MW-1 contains groundwater concentrations that technical support documents for the LTCP consider to be indirect evidence of LNAPL. Prior to the introduction of surfactant to wells at the site, including MW-1, LNAPL was consistently observed in the well. At present well MW-4, apparently 50 feet downgradient of well MW-1 contains absolutely no detectable concentration of any hydrocarbon constituent. This is highly unusual in a granular water-bearing zone. The site also has a substantial vertical gradient, with a difference in groundwater levels as much as 6.4 feet across the site (a distance of approximately 100 feet). It appears appropriate to investigate manmade or natural preferential pathways beneath the site verify that well MW-4 is an appropriate downgradient compliance point.
  - ii. Lateral Extent of LNAPL, Soil, and Groundwater Contamination A minimum of two release areas appear to have been present at the site as discussed above. Due to the granular nature of soil at the site, it appears that the older release discharged nearly directly through a granular tank complex to groundwater, as indicated in the soil bore descriptions (see below). As the release appears to involve free-phase liquids released directly to granular tank fill and a granular water-bearing zone, the extent of the LNAPL "pancake" layer, including the upgradient extent, has not been defined offsite to the south, southwest, and southeast of the tank complex(s).
  - iii. Vertical Extent of Soil and Groundwater Contamination The vertical extent of soil and groundwater contamination does not appear to be characterized. This influences the understanding of site hydrogeology, and contaminant pathways and transport. Multiple bore and well logs document that either the highest soil analytical result or the highest PID detection was at or near the bottom of a bore (see for example MW-1, MW-2, MW-3, MW-7, MW-8, B-2, B-5, etc.) A substantial number of high PID detections, at or near the bottom of a bore, were not submitted for laboratory analysis. Additional hydrogeologic pathways may be present beneath the explored depths as the vertical extent of the smear zone is not presently known or understood. As discussed above, the high vertical groundwater gradient further indicates a potential for significant vertical extent and unresolved migration pathways for LNAPL and dissolved-phase hydrocarbons.
  - iv. Preferential Pathway and Conduit Survey The Creek and Watershed Map of Oakland & Berkeley, (Oakland Museum of California, 2000; available online at the

ACEH or the Museum's website), indicates the 73<sup>rd</sup> Avenue Branch Storm Drain, a major trunk storm drain line, runs toward the bay beneath 73<sup>rd</sup> Avenue. Additionally, two large trunk storm drain lines run beneath Bancroft Avenue and beneath the Eastmont Mall parking lot and intersect the 73<sup>rd</sup> Avenue Branch storm drain at 73<sup>rd</sup> Avenue. The potential to transport substantial volumes of water past the subject site in granular water-bearing zones exists and may influence site groundwater flow. Because the nature of the storm line is undetermined (construction styles, lined or unlined, backfill material surrounding the structures, installation depths, invert depths, etc), and because other utility conduits are likely beneath the adjacent streets, it appears appropriate to conduct a preferential pathway conduit survey.

v. Sensitive Receptor Survey - The subject site is situated on the edge of a residential neighborhood. Because groundwater appears to flow to the north to northwest beneath the residential neighborhood, it appears appropriate to determine if basements or other structures may be present beneath the site vicinity that can eliminate or negate any level of safety through vertical separation built into the LTCP.

It also appears to be appropriate to update the 1998 well survey and incorporate both Department of Water Resources and Alameda County Public Works Agency records for wells that may have been missed or installed in the intervening years.

Please present a strategy in the Data Gap Work Plan (described in Item 6 below) to address the items discussed above. Alternatively, please provide justification of why the site satisfies the Media-Specific Criteria for Groundwater in the focused SCM described in Item 6 below.

5. LTCP Media Specific Criteria for Vapor Intrusion to Indoor Air – The LTCP describes conditions, including bioattenuation zones, which if met will assure that exposure to petroleum vapors in indoor air will not pose unacceptable health risks to human occupants of existing or future site buildings, and adjacent parcels. Appendices 1 through 4 of the LTCP criteria illustrate four potential exposure scenarios and describe characteristics and criteria associated with each scenario.

Our review of the case files indicates that the site data collection and analysis fail to support the requisite characteristics of one of the four scenarios. Specifically, while ACEH recognizes this is currently an active service station that is exempt from meeting the criteria onsite, the assumed groundwater flow direction appears to immediately underflow a residential neighborhood, with unknown construction styles (depth of foundation, slab on grade vs. crawl space, presence of any basements, etc.). The onsite groundwater concentration of benzene was recently 19,000 µg/l. Groundwater concentrations at the assumed downgradient property line were recently as high as 680 µg/l benzene (MW-6, and were on a notable increasing concentration trend), and oxygen concentrations were as low as 1.4% (VP-1) at a depth of five feet. Soil analytical data collected at 5 and 10 feet bgs in vapor probes VP-1 to VP-3 indicate that TPH is less than 100 mg/kg. The lack of knowledge of home construction, and the increasing benzene concentration trend does not allow use of scenarios 1 to 3, and the lack of recent vapor samples collected within the increasing benzene trend period does not appear to allow use of scenario 4. The collection of additional vapor samples at locations adjacent to the residents appears appropriate, and should be done in conjunction additional site investigations, as discussed above.

Alternatively, please provide justification of why the site satisfies the Media-Specific Criteria for Vapor Intrusion to Indoor Air in a SCM that assures that exposure to petroleum vapors in indoor air will not pose unacceptable health risks to occupants of adjacent buildings.

Please note, that if direct measurement of soil gas is proposed, ensure that your strategy is consistent with the field sampling protocols described in the Department of Toxic Substances Control's Final Vapor Intrusion Guidance (October 2011). Consistent with the guidance, ACEH requires installation of permanent vapor wells to assess temporal and seasonal variations in soil gas concentrations.

- 6. Revised Data Gap Investigation Work Plan and Focused Site Conceptual Model Please prepare Revised Data Gap Investigation Work Plan to address the technical comments listed above. Please support the scope of work in the Revised Data Gap Investigation Work Plan with a focused SCM and Data Quality Objectives (DQOs) that relate the data collection to each LTCP criteria. For example please clarify which scenario within each Media-Specific Criteria a sampling strategy is intended to apply to.
  - In order to expedite review, ACEH requests the focused SCM be presented in a tabular format that highlights the major SCM elements and associated data gaps, which need to be addressed to progress the site to case closure under the LTCP. Please see Attachment A "Site Conceptual Model Requisite Elements". Please sequence activities in the proposed revised data gap investigation scope of work to enable efficient data collection in the fewest mobilizations possible.
- 7. Groundwater Monitoring The subject site is required to be sampled on a quarterly basis; however, three quarterly groundwater monitoring events have not been submitted to ACEH since the last submitted report dated August 16, 2013 (however, one has been submitted to Geotracker). Groundwater monitoring data for the third and fourth quarter 2013, and first quarter 2014 are now overdue. Therefore ACEH requests that groundwater monitoring reports be submitted in accordance with the following schedule.

#### **TECHNICAL REPORT REQUEST**

Please upload technical reports to the ACEH ftp site (Attention: Mark Detterman), and to the State Water Resources Control Board's Geotracker website, in accordance with the specified file naming convention below, according to the following schedule:

- April 28, 2014 Third and Fourth Quarter 2013 Groundwater Monitoring Reports Files to be named: RO274\_GWM\_R\_yyyy-mm-dd
- April 28, 2014 First Quarter 2014 Groundwater Monitoring Report File to be named: RO274\_GWM\_R\_yyyy-mm-dd
- May 16, 2014 Second Quarter 2014 Groundwater Monitoring Report File to be named: RO274\_GWM\_R\_yyyy-mm-dd
- July 13, 2014 Data Gap Investigation Plan and Focused Site Conceptual Model File to be named: RO274\_WP\_SCM\_R\_yyyy-mm-dd
- August 15, 2014 Third Quarter 2014 Groundwater Monitoring Report File to be named: RO274\_GWM\_R\_yyyy-mm-dd
- 60 Days After Work Plan Approval Site Investigation Report and Updated SCM File to be named: RO274\_SWI\_R\_yyyy-mm-dd

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

Online case files are available for review at the following website: <a href="http://www.acgov.org/aceh/index.htm">http://www.acgov.org/aceh/index.htm</a>.

Responsible Parties RO0000274 April 7, 2014, Page 6

If you have any questions, please call me at (510) 567-6876 or send me an electronic mail message at mark\_detterman@acgov.org.

Sincerely,

Make

Digitally signed by Mark E. Detterman DN: cn=Mark E. Detterman, o, ou, email, c=US Date: 2014.04.07 15:52:04 -07'00'

Mark E. Detterman, P.G., C.E.G. Senior Hazardous Materials Specialist

Enclosures:

Attachment 1 - Responsible Party (ies) Legal Requirements / Obligations

Electronic Report Upload (ftp) Instructions

Attachment A - Site Conceptual Model Requisite Elements

August 14, 1996 facsimile of old site plan and notes

cc: Nathan Lee, Connestoga-Rovers & Associates, Inc., 5900 Hollis Street, Suite A, Emeryville, CA 94608; (sent via electronic mail to <a href="mailto:nlee@craworld.com">nlee@craworld.com</a>)

Leroy Griffin, Oakland Fire Department 250 Frank H. Ogawa Plaza, Ste. 3341, Oakland, CA 94612-2032 (sent via electronic mail to <a href="mailto:lgriffin@oaklandnet.com">lgriffin@oaklandnet.com</a>)

Dilan Roe, ACEH (sent via electronic mail to <a href="mailto:mailto:mailto:mark.detterman@acgov.org">mark.detterman@acgov.org</a>)

Mark Detterman (sent via electronic mail to <a href="mailto:mark.detterman@acgov.org">mark.detterman@acgov.org</a>)

Electronic file, GeoTracker

#### Attachment 1

#### Responsible Party(ies) Legal Requirements/Obligations

#### REPORT/DATA REQUESTS

These reports/data are being requested pursuant to Division 7 of the California Water Code (Water Quality), Chapter 6.7 of Division 20 of the California Health and Safety Code (Underground Storage of Hazardous Substances), and Chapter 16 of Division 3 of Title 23 of the California Code of Regulations (Underground Storage Tank Regulations).

#### **ELECTRONIC SUBMITTAL OF REPORTS**

ACEH's Environmental Cleanup Oversight Programs (Local Oversight Program [LOP] for unauthorized releases from petroleum Underground Storage Tanks [USTs], and Site Cleanup Program [SCP] for unauthorized releases of non-petroleum hazardous substances) require submission of reports in electronic format pursuant to Chapter 3 of Division 7, Sections 13195 and 13197.5 of the California Water Code, and Chapter 30, Articles 1 and 2, Sections 3890 to 3895 of Division 3 of Title 23 of the California Code of Regulations (23 CCR). Instructions for submission of electronic documents to the ACEH FTP site are provided on the attached "Electronic Report Upload Instructions."

Submission of reports to the ACEH FTP site is in addition to requirements for electronic submittal of information (ESI) to the State Water Resources Control Board's (SWRCB) Geotracker website. In April 2001, the SWRCB adopted 23 CCR, Division 3, Chapter 16, Article 12, Sections 2729 and 2729.1 (Electronic Submission of Laboratory Data for UST Reports). Article 12 required electronic submittal of analytical laboratory data submitted in a report to a regulatory agency (effective September 1, 2001), and surveyed locations (latitude, longitude and elevation) of groundwater monitoring wells (effective January 1, 2002) in Electronic Deliverable Format (EDF) to Geotracker. Article 12 was subsequently repealed in 2004 and replaced with Article 30 (Electronic Submittal of Information) which expanded the ESI requirements to include electronic submittal of any report or data required by a regulatory agency from a cleanup site. The expanded ESI submittal requirements for petroleum UST sites subject to the requirements of 23 CCR, Division, 3, Chapter 16, Article 11, became effective December 16, 2004. All other electronic submittals required pursuant to Chapter 30 became effective January 1, **SWRCB** Please 2005. visit the website for тоге information these requirements: (http://www.waterboards.ca.gov/water\_issues/programs/ust/electronic\_submittal/).

#### PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

#### PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 7835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

#### UNDERGROUND STORAGE TANK CLEANUP FUND

Please note that delays in investigation, late reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

#### AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to \$10,000 per day for each day of violation.

### Alameda County Environmental Cleanup Oversight Programs (LOP and SCP)

REVISION DATE: July 25, 2012

ISSUE DATE: July 5, 2005

PREVIOUS REVISIONS: October 31, 2005; December 16, 2005; March 27, 2009; July 8, 2010

SECTION: Miscellaneous Administrative Topics & Procedures

SUBJECT: Electronic Report Upload (ftp) Instructions

The Alameda County Environmental Cleanup Oversight Programs (petroleum UST and SCP) require submission of all reports in electronic form to the county's FTP site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities.

#### REQUIREMENTS

- Please do not submit reports as attachments to electronic mail.
- Entire report including cover letter must be submitted to the ftp site as a single Portable Document Format (PDF) with no password protection.
- It is preferable that reports be converted to PDF format from their original format, (e.g., Microsoft Word) rather than scanned.
- Signature pages and perjury statements must be included and have either original or electronic signature.
- Do not password protect the document. Once indexed and inserted into the correct electronic case file, the document will be secured in compliance with the County's current security standards and a password. Documents with password protection will not be accepted.
- Each page in the PDF document should be rotated in the direction that will make it easiest to read on a computer monitor
- Reports must be named and saved using the following naming convention:

RO# Report Name Year-Month-Date (e.g., RO#5555 WorkPlan 2005-06-14)

#### **Submission Instructions**

- Obtain User Name and Password
  - a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
    - i) Send an e-mail to <a href="mailto:deh.loptoxic@acgov.org">deh.loptoxic@acgov.org</a>
  - b) In the subject line of your request, be sure to include "ftp PASSWORD REQUEST" and in the body of your request, include the Contact Information, Site Addresses, and the Case Numbers (RO# available in Geotracker) you will be posting for.
- 2) Upload Files to the ftp Site
  - a) Using Internet Explorer (IE4+), go to <a href="ftp://alcoftp1.acgov.org">ftp://alcoftp1.acgov.org</a>
    - (i) Note: Netscape, Safari, and Firefox browsers will not open the FTP site as they are NOT being supported at this time.
  - b) Click on Page located on the Command bar on upper right side of window, and then scroll down to Open FTP Site in Windows Explorer.
  - c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
  - d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
  - e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.
- 3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
  - a) Send email to deh.loptoxic@acgov.org notify us that you have placed a report on our ftp site.
  - b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name @acgov.org. (e.g., firstname.lastname@acgov.org)
  - c) The subject line of the e-mail must start with the RO# followed by **Report Upload**. (e.g., Subject: RO1234 Report Upload). If site is a new case without an RO#, use the street address instead.
  - d) If your document meets the above requirements and you follow the submission instructions, you will receive a notification by email indicating that your document was successfully uploaded to the ftp site.

#### ATTACHMENT A

**Site Conceptual Model Requisite Elements** 

#### ATTACHMENT A

#### Site Conceptual Model

The site conceptual model (SCM) is an essential decision-making and communication tool for all interested parties during the site characterization, remediation planning and implementation, and closure process. A SCM is a set of working hypotheses pertaining to all aspects of the contaminant release, including site geology, hydrogeology, release history, residual and dissolved contamination, attenuation mechanisms, pathways to nearby receptors, and likely magnitude of potential impacts to receptors.

The SCM is initially used to characterize the site and identify data gaps. As the investigation proceeds and the data gaps are filled, the working hypotheses are modified, and the overall SCM is refined and strengthened until it is said to be "validated". At this point, the focus of the SCM shifts from site characterization towards remedial technology evaluation and selection, and later remedy optimization, and forms the foundation for developing the most cost-effective corrective action plan to protect existing and potential receptors.

For ease of review, Alameda County Environmental Health (ACEH) requests utilization of tabular formats to (1) highlight the major SCM elements and their associated data gaps which need to be addressed to progress the site to case closure (see Table 1 of attached example), and (2) highlight the identified data gaps and proposed investigation activities (see Table 2 of the attached example). ACEH requests that the tables presenting the SCM elements, data gaps, and proposed investigation activities be updated as appropriate at each stage of the project and submitted with work plans, feasibility studies, corrective action plans, and requests for closures to support proposed work, conclusions, and/or recommendations.

The SCM should incorporate, but is not limited to, the topics listed below. Please support the SCM with the use of large-scaled maps and graphics, tables, and conceptual diagrams to illustrate key points. Please include an extended site map(s) utilizing an aerial photographic base map with sufficient resolution to show the facility, delineation of streets and property boundaries within the adjacent neighborhood, downgradient irrigation wells, and proposed locations of transects, monitoring wells, and soil vapor probes.

- a. Regional and local (on-site and off-site) geology and hydrogeology. Include a discussion of the surface geology (e.g., soil types, soil parameters, outcrops, faulting), subsurface geology (e.g., stratigraphy, continuity, and connectivity), and hydrogeology (e.g., water-bearing zones, hydrologic parameters, impermeable strata). Please include a structural contour map (top of unit) and isopach map for the aquitard that is presumed to separate your release from the deeper aquifer(s), cross sections, soil boring and monitoring well logs and locations, and copies of regional geologic maps.
- b. Analysis of the hydraulic flow system in the vicinity of the site. Include rose diagrams for depicting groundwater gradients. The rose diagram shall be plotted on groundwater elevation contour maps and updated in all future reports submitted for your site. Please address changes due to seasonal precipitation and groundwater pumping, and evaluate the potential interconnection between shallow and deep aquifers. Please include an analysis of vertical hydraulic gradients, and effects of pumping rates on hydraulic head from nearby water supply wells, if appropriate. Include hydraulic head in the different water bearing zones and hydrographs of all monitoring wells.
- c. Release history, including potential source(s) of releases, potential contaminants of concern (COC) associated with each potential release, confirmed source locations, confirmed release locations, and existing delineation of release areas. Address primary leak source(s) (e.g., a tank, sump, pipeline, etc.) and secondary sources (e.g., high-

#### ATTACHMENT A

#### Site Conceptual Model (continued)

concentration contaminants in low-permeability lithologic soil units that sustain groundwater or vapor plumes). Include local and regional plan view maps that illustrate the location of sources (former facilities, piping, tanks, etc.).

- d. Plume (soil gas and groundwater) development and dynamics including aging of source(s), phase distribution (NAPL, dissolved, vapor, residual), diving plumes, attenuation mechanisms, migration routes, preferential pathways (geologic and anthropogenic), magnitude of chemicals of concern and spatial and temporal changes in concentrations, and contaminant fate and transport. Please include three-dimensional plume maps for groundwater and two-dimensional soil vapor plume plan view maps to provide an accurate depiction of the contaminant distribution of each COC.
- e. Summary tables of chemical concentrations in different media (i.e., soil, groundwater, and soil vapor). Please include applicable environmental screening levels on all tables. Include graphs of contaminant concentrations versus time.
- f. Current and historic facility structures (e.g., buildings, drain systems, sewer systems, underground utilities, etc.) and physical features including topographical features (e.g., hills, gradients, surface vegetation, or pavement) and surface water features (e.g. routes of drainage ditches, links to water bodies). Please include current and historic site maps.
- g. Current and historic site operations/processes (e.g., parts cleaning, chemical storage areas, manufacturing, etc.).
- h. Other contaminant release sites in the vicinity of the site. Hydrogeologic and contaminant data from those sites may prove helpful in testing certain hypotheses for the SCM. Include a summary of work and technical findings from nearby release sites, including the two adjacent closed LUFT sites, (i.e., Montgomery Ward site and the Quest Laboratory site).
- Land uses and exposure scenarios on the facility and adjacent properties. Include beneficial resources (e.g., groundwater classification, wetlands, natural resources, etc.), resource use locations (e.g., water supply wells, surface water intakes), subpopulation types and locations (e.g., schools, hospitals, day care centers, etc.), exposure scenarios (e.g. residential, industrial, recreational, farming), and exposure pathways, and potential threat to sensitive receptors. Include an analysis of the contaminant volatilization from the subsurface to indoor/outdoor air exposure route (i.e., vapor pathway). Please include copies of Sanborn maps and aerial photographs, as appropriate.
- Identification and listing of specific data gaps that require further investigation during subsequent phases of work. Proposed activities to investigate and fill data gaps identified.

### TABLE 1 INITIAL SITE CONCEPTUAL MODEL

00115	CSM Sub-			
CSM Element	Element	Description	Data Gap	How to Address
Geology and Hydrogeology	Regional	The site is in the northwest portion of the Livermore Valley, which consists of a structural trough within the Diablo Range and contains the Livermore Valley Groundwater Basin (referred to as "the Basin") (DWR, 2006). Several faults traverse the Basin, which act as barriers to groundwater flow, as evidenced by large differences in water levels between the upgradient and downgradient sides of these faults (DWR, 2006). The Basin is divided into 12 groundwater basins, which are defined by faults and non-water-bearing geologic units (DWR, 1974).	None	NA NA
		The hydrogeology of the Basin consists of a thick sequence of fresh-water-bearing continental deposits from alluvial fans, outwash plains, and lacustrine environments to up to approximately 5,000 feet bgs (DWR, 2006). Three defined fresh-water bearing geologic units exist within the Basin: Holocene Valley Fill (up to approximately 400 feet bgs in the central portion of the Basin), the Plio-Pleistocene Livermore Formation (generally between approximately 400 and 4,000 feet bgs in the central portion of the Basin), and the Pliocene Tassajara Formation (generally between approximately 250 and 5,000 or more feet bgs) (DWR, 1974). The Valley Fill units in the western portion of the Basin are capped by up to 40 feet of clay (DWR, 2006).		
	Site	Geology: Borings advanced at the site indicate that subsurface materials consist primarily of finer-grained deposits (clay, sandy clay, silt and sandy silt) with interbedded sand lenses to 20 feet below ground surface (bgs), the approximate depth to which these borings were advanced. The documented lithology for one onsite boring that was logged to approximately 45 feet bgs indicates that beyond approximately 20 feet bgs, fine-grained soils are present to approximately 45 feet bgs. A cone penetrometer technology test indicated the presence of sandier lenses from approximately 45 to 58 feet bgs and even coarser materials (interbedded with finer-grained materials) from approximately 58 feet to 75 feet bgs, the total depth drilled. The lithology documented at the site is similar to that reported at other nearby sites, specifically the Montgomery Ward site (7575 Dublin Boulevard), the Quest laboratory site (6511 Golden Gate Drive), the Shell-branded Service Station site (11989 Dublin Boulevard), and the Chevron site (7007 San Ramon Road).	advanced and logged to 45 feet bgs; CPT data was	Two direct push borings and four multi-port wells will be advanced to depth (up to approximately 75 feet bgs) and soil lithology will be logged. See items 4 and 5 on Table 2.
		Hydrogeology: Shallow groundwater has been encountered at depths of approximately 9 to 15 feet bgs. The hydraulic gradient and groundwater flow direction have not been specifically evaluated at the site.	The on-site shallow groundwater horizontal gradient has not been confirmed. Additionally, it is not known if there may be a vertical component to the hydraulic gradient.	Shallow and deeper groundwater monitoring wells will be installed to provide information on lateral and vertical gradients. See Items 2 and 5 on Table 2.
Surface Water Bodies		The closest surface water bodies are culverted creeks. Martin Canyon Creek flows from a gully west of the site, enters a culvert north of the site, and then bends to the south, passing approximately 1,000 feet east of the site before flowing into the Alamo Canal. Dublin Creek flows from a gully west of the site, enters a culvert approximately 750 feet south of the site, and then joins Martin Canyon Creek approximately 750 feet southeast of the site.		NA
Nearby Wells	MAGASTER STATE OF THE STATE OF	The State Water Resources Control Board's GeoTracker GAMA website includes information regarding the approximate locations of water supply wells in California. In the vicinity of the site, the closest water supply wells presented on this website are depicted approximately 2 miles southeast of the site; the locations shown are approximate (within 1 mile of actual location for California Department of Public Health supply wells and 0.5 mile for other supply wells). No water-producing wells were identified within 1/4 mile of the site in the well survey conducted for the Quest Laboratory site (6511 Golden Gate Drive; documented in 2009); information documented in a 2005 report for the Chevron site at 7007 San Ramon Road indicates that a water-producing well may exist within 1/2 mile of the site.	producing, monitoring, cathodic protection, and dewatering wells.	Obtain data regarding nearby, permitted wells from the California Department of Water Resources and Zone 7 Water Agency (Item 11 on Table 2).

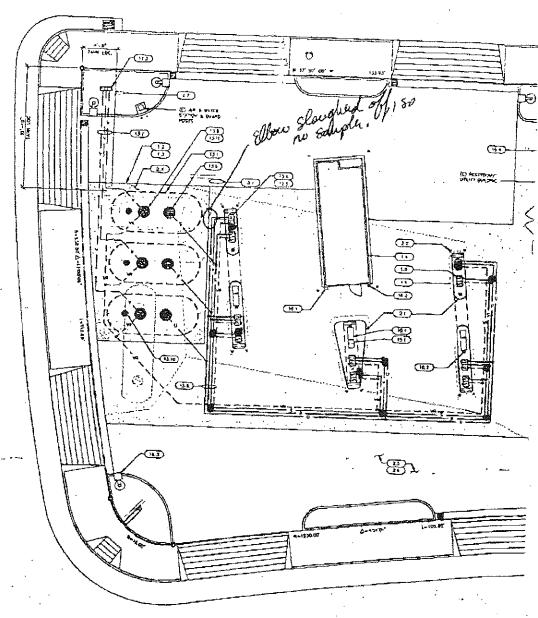
TABLE 2

DATA GAPS AND PROPOSED INVESTIGATION

Item	Data Gap	Proposed Investigation	Rationale	Analysis
5	impacts to deeper groundwater.  Evaluate deeper groundwater concentration trends over time.	determined. Soil samples will be collected only if there are field	One well is proposed at the western (upgradient) property boundary to confirm that there are no deeper groundwater impacts from upgradient. Two wells are proposed near the center of the northern parking lot to evaluate potential impacts in an area where deeper impacts, if any, would most likely to be found. One well is proposed at the eastern (downgradient) property boundary to confirm that there are no impacts extending off-site. Port depths will be chosen based on the locations of saturated soils (as logged in direct push borings; see Item 4, above), but are expected at approximately 15, 45, and 60 feet bgs.	Groundwater: VOCs by EPA Method 8260, dissolved oxygen, oxidation/reduction potential, temperature, pH, and specific conductance.
6	the downgradient direction (east).	8 feet bgs along the eastern property boundary. Based on the	Available data indicate that PCE and TCE are present in soil vapor in the eastern portion of the northern parking lot. Samples are proposed on approximately 50-foot intervals along the eastern property boundary to provide a transect of concentrations through the vapor plume. The depths of 4 and 8 feet bgs are chosen to provide data closest to the source (i.e., groundwater) while avoiding saturated soil, and also provide shallower data to help evaluate potential attenuation within the soil column. Two sets of nested vapor probes will be converted into vapor monitoring wells (by installing well boxes at ground surface); the locations of the permanent wells will be chosen based on the results of samples from the temporary probes.	Soil vapor: VOCs by EPA Method TO-15.
7		Advance two borings to approximately 20 feet bgs in the parking lot of the property east of the Crown site for collection of grab groundwater samples.	Two borings are proposed off-site, on the property east of the Crown site, just east of the building in the expected area of highest potential VOC concentrations.	Groundwater: VOCs by EPA Method 8260, dissolved oxygen, oxidation/reduction potential, temperature, pH, and specific conductance.
8	north of the highest concentration area.	will be collected at two depths in the vadose zone. Soil samples will be collected based on field indications of impacts (PID readings,	The highest concentrations of PCE in groundwater were detected at boring NM-B-32, just north of Building A. The nearest available data to the north are approximately 75 feet away. One of the borings will be advanced approximately 20 feet north of NM-B-32 to provide data close to the highest concentration area. A second boring will be advanced approximately halfway between the first boring and former boring NM-B-33 to provide additional spatial data for contouring purposes. These borings will be part of a transect in the highest concentration area.	Groundwater: VOCs by EPA Method 8260, dissolved oxygen, oxidation/reduction potential, temperature, pH, and specific conductance.  Soil: VOCs by EPA Method 8260 (soil samples to be collected using field preservation in accordance with EPA Method 5035).
9	Evaluate VOC concentrations in soil vapor in the south parcel of the site.	around boring SV-25, where PCE was detected in soil vapor at a low concentration.	PCE was detected in soil vapor sample SV-25 in the southern parcel, although was not detected in groundwater in that area. Three probes will be installed approximately 30 feet from of boring SV-25 to attempt to delineate the extent of impacts. A fourth probe is proposed west of the original sample, close to the property boundary and the location of mapped utility lines, which may be a potential conduit, to evaluate potential impacts from the west.	Soil vapor: VOCs by EPA Method TO-15.
10	Obtain additional information regarding subsurface structures and utilities to further evaluate migration pathways and sources.	methodologies will be used, as appropriate, to further evaluate the presence of unknown utilities and structures at the site.	Utilities have been identified at the site that include an on-site sewer lateral and drain line, and shallow water, electric, and gas lines. Given the current understanding of the distribution of PCE in groundwater at the site, it is possible that other subsurface utilities, and specifically sewer laterals, exist that may act as a source or migration pathway for distribution of VOCs in the subsurface.	NA

· Sauple locations (~ 2' bys)

HALLIDAY AVENUE



BANCROFT AVENUE

From: Detterman, Mark, Env. Health [mailto:Mark.Detterman@acgov.org]

Sent: Friday, July 18, 2014 6:18 PM

To: Fischer, Alexis N; Roe, Dilan, Env. Health

Subject: RE: RO0274-Chevron 93322-7225 Bancroft Oakland-SCM/Data Gap Work Plan-Extension request

Alexis and Nate,

As discussed in the meeting today, please use this email to document ACEH concurrence to extend the deliverable date to September 30<sup>th</sup>.

Mark Detterman Senior Hazardous Materials Specialist, PG, CEG Alameda County Environmental Health 1131 Harbor Bay Parkway Alameda, CA 94502

Direct: 510.567.6876 Fax: 510.337.9335

Email: mark.detterman@acgov.org

PDF copies of case files can be downloaded at: http://www.acgov.org/aceh/lop/ust.htm

**From:** Fischer, Alexis N [mailto:AFischer@chevron.com]

Sent: Thursday, July 10, 2014 11:27 AM

To: Roe, Dilan, Env. Health; Detterman, Mark, Env. Health

Subject: RO0274-Chevron 93322-7225 Bancroft Oakland-SCM/Data Gap Work Plan-Extension request

Dear Mark and Dilan,

Seeking your approval with regards to an extension request for the Site Conceptual Model and Data Gap Work Plan which was requested by Alameda County Environmental Health (ACEH) in a letter dated April 7, 2014 and is due on July 13, 2014 for the facility referenced above. CRA has worked on multiple deliverables that have been submitted and are currently being worked on over the last month and a half and they have informed me that additional time will be necessary in order to complete the Site Conceptual Model and Data Gap Work Plan. Therefore, an extension of **October 3, 2014** for the submittal of both the Site Conceptual Model and Data Gap Work Plan is requested.

Thank you for your consideration and support.

Regards,

Alexis N. Fischer

Property Specialist - Claims & Agreements - West
Chevron's Environmental Management Company - MBU
6101 Bollinger Canyon Road
San Ramon, Ca 94583

Direct Line: (925)790-6441 / Cell: (925)786-3760

AFischer@Chevron.com

From: Lee, Nathan

Sent: Tuesday, September 30, 2014 5:29 PM

To: 'Detterman, Mark, Env. Health'

Cc: Roe, Dilan, Env. Health; 'Fischer, Alexis N'

Subject: RO0274-Chevron 93322-7225 Bancroft Oakland-SCM/Data Gap Work Plan-Update

Mark,

Conestoga-Rovers and Associates (CRA) is notifying you on behalf of Chevron Environmental Management Company (EMC), that CRA's is experiencing server issues. As discussed with you over the phone, the files that contain the *Site Conceptual Model and Data Gap Work Plan* that is due today are located on the server that can not be accessed as this time. CRA's IT Staff is working on the issue and the server should be accessible tomorrow. Therefore the *Site Conceptual Model and Data Gap Work Plan* will be submitted tomorrow October 1, 2014 as long as the server is back online. I will update you if, for some reason the server issues continue tomorrow.

Thank you for your patience and understanding.

Thanks,
Nathan Lee, P.G.
Conestoga-Rovers & Associates (CRA)
2300 Clayton Road, Suite 920
Concord, CA 94520

Phone: 925.849.1003 Fax: 510.420.9170 Cell: 510.385.2499

Email: nlee@CRAworld.com

### **Appendix B**

**EDR Report** 





# The EDR Aerial Photo Decade Package

311806 - Oakland, CA 7225 Bancroft Ave. Oakland, CA 94605

**Inquiry Number: 1969211.5** 

July 02, 2007

### The Standard in Environmental Risk Information

440 Wheelers Farms Road Milford, Connecticut 06461

#### **Nationwide Customer Service**

Telephone: 1-800-352-0050 Fax: 1-800-231-6802 Internet: www.edrnet.com

#### **EDR Aerial Photo Decade Package**

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDRs professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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#### **Date EDR Searched Historical Sources:**

Aerial Photography July 02, 2007

#### **Target Property:**

7225 Bancroft Ave.

Oakland, CA 94605

<u>Year</u>	<u>Scale</u>	<u>Details</u>	<u>Source</u>
1939	Aerial Photograph. Scale: 1"=555'	Flight Year: 1939	Fairchild
1946	Aerial Photograph. Scale: 1"=655'	Flight Year: 1946	Jack Ammann
1958	Aerial Photograph. Scale: 1"=555'	Flight Year: 1958	Cartwright
1965	Aerial Photograph. Scale: 1"=333'	Flight Year: 1965	Cartwright
1982	Aerial Photograph. Scale: 1"=690'	Flight Year: 1982	WSA
1993	Aerial Photograph. Scale: 1"=666'	Flight Year: 1993	USGS
1998	Aerial Photograph. Scale: 1"=666'	Flight Year: 1998	USGS













## Certified Sanborn® Map Report



Sanborn® Library search results Certification # ECC7-419B-9F2A

311806 - Oakland CA 7225 Bancroft Ave. Oakland, CA 94605

Inquiry Number 1969211.3S

July 02, 2007



### The Standard in Environmental Risk Information

440 Wheelers Farms Rd Milford, Connecticut 06461

**Nationwide Customer Service** 

Telephone: 1-800-352-0050 Fax: 1-800-231-6802 Internet: www.edrnet.com

### **Certified Sanborn® Map Report**

7/02/07

Site Name: Client Name:

311806 - Oakland CA Conestoga-Rovers & 7225 Bancroft Ave. 8615 West Bryn Mawr Ave Oakland, CA 94605 Chicago, IL 60631

EDR Inquiry # 1969211.3S Contact: Kelly Connolly



The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by Conestoga-Rovers & Associates were identified for the years listed below. The certified Sanborn Library search results in this report can be authenticated by visiting www.edrnet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by Sanborn Library LLC, the copyright holder for the collection.

#### Certified Sanborn Results:

Site Name: 311806 - Oakland CA Address: 7225 Bancroft Ave. City, State, Zip: Oakland, CA 94605

**Cross Street:** 

 P.O. #
 311806 - Oaklan

 Project:
 311806 - Oaklan

 Certification #
 ECC7-419B-9F2A

Maps Identified - Number of maps indicated within "()"

1969 (4) 1950 (4) 1968 (4) 1925 (4) 1966 (4) 1912 (1)

1960 (4) 1959 (4) 1952 (4)

Total Maps: 33



Sanborn® Library search results
Certification # ECC7-419B-9F2A

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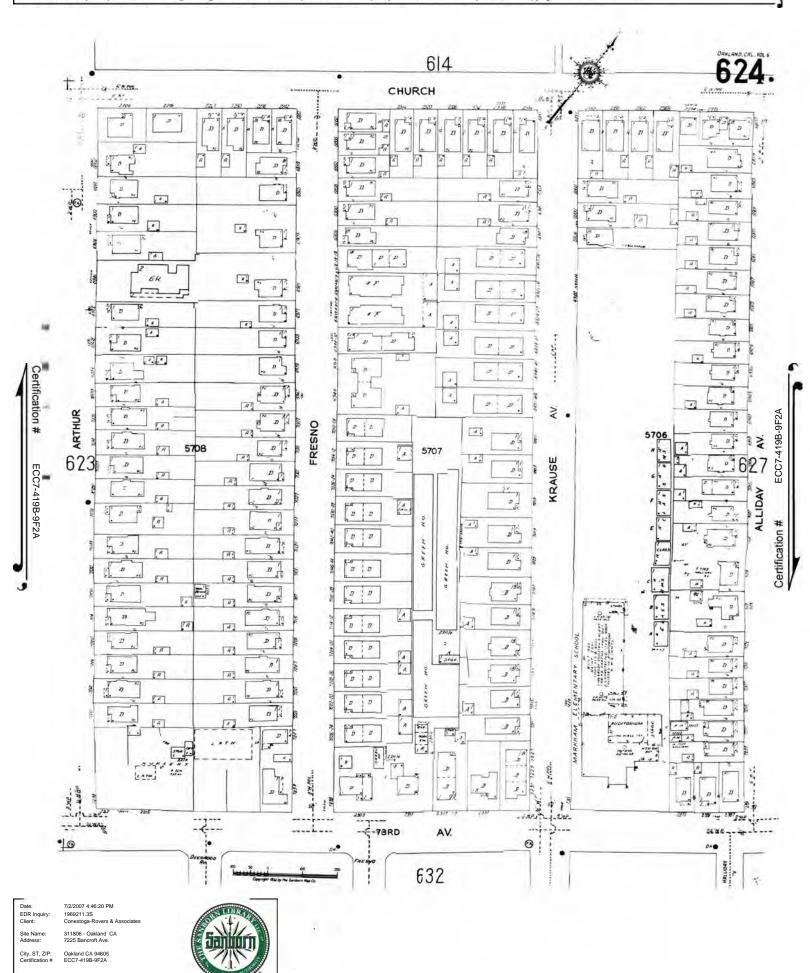
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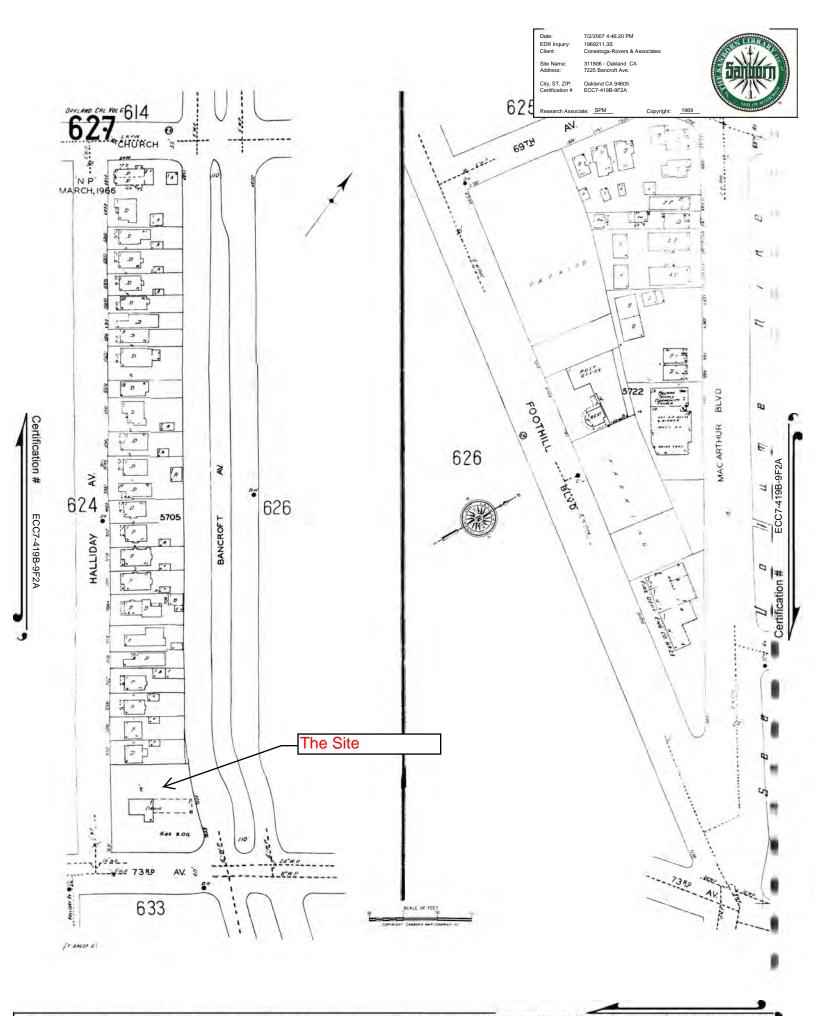
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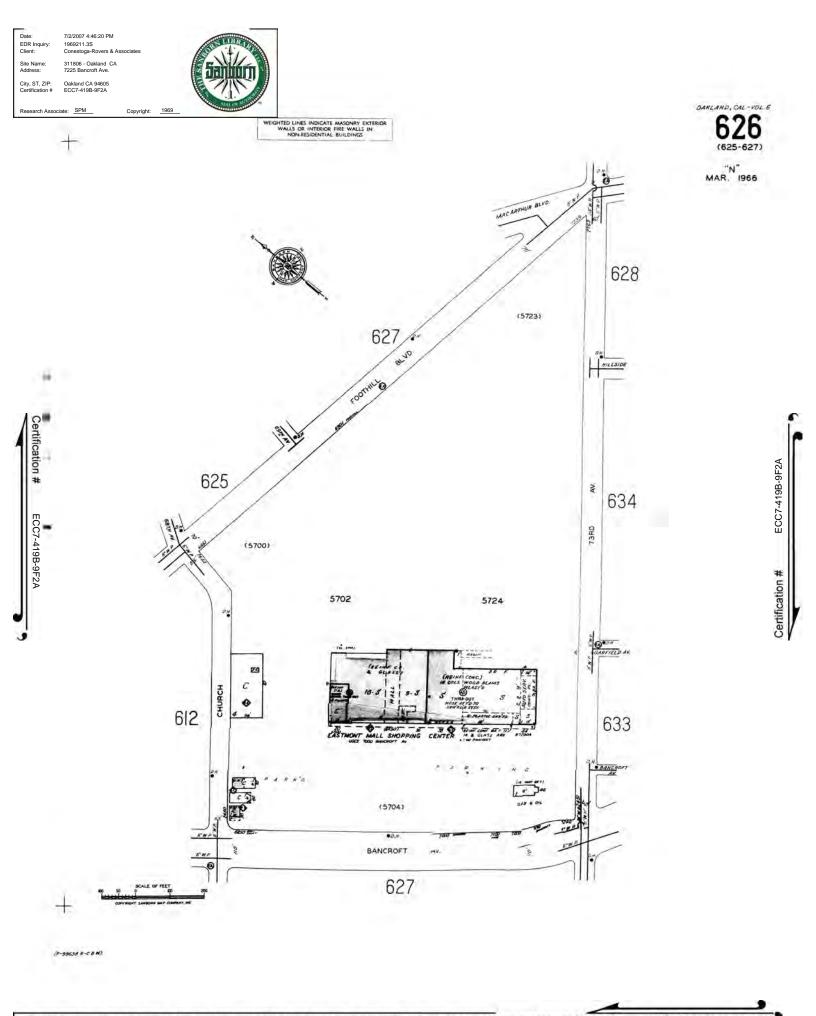
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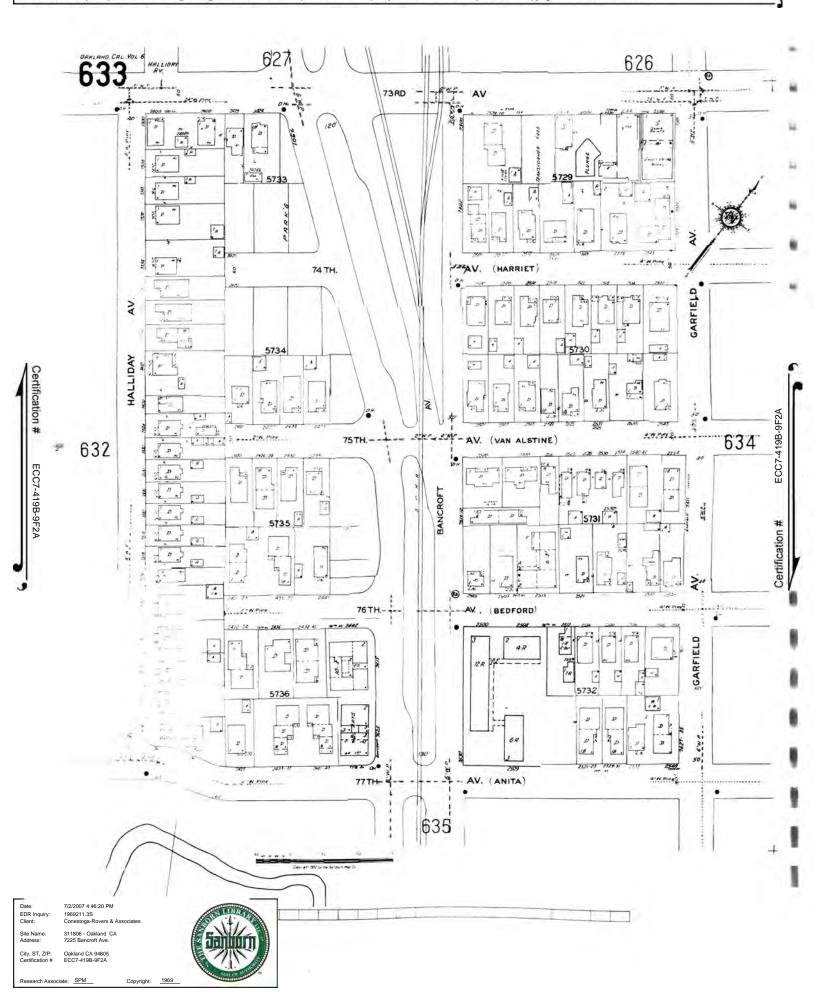


Research Associate: SPM

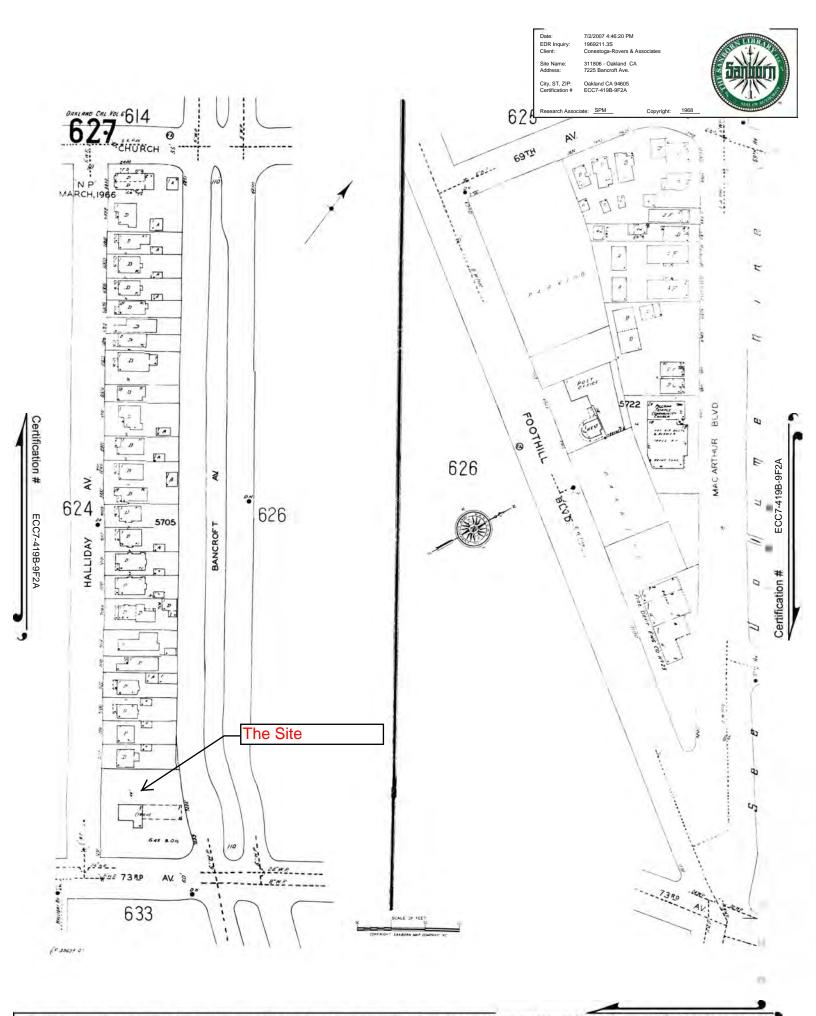
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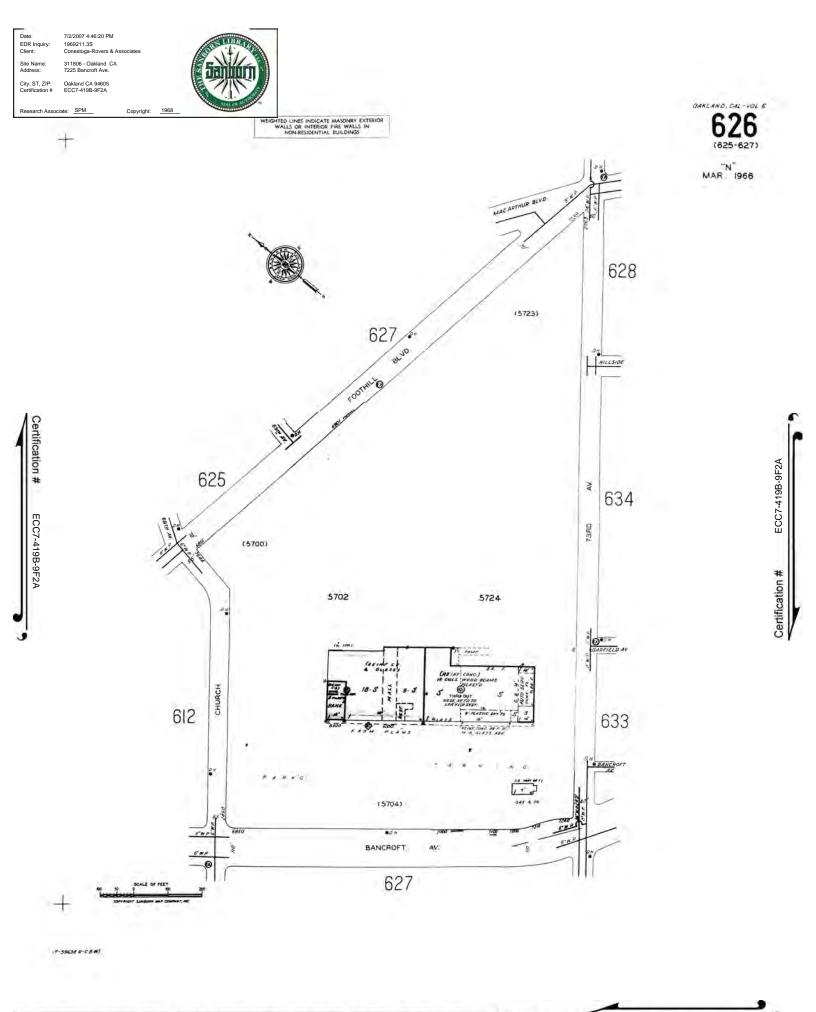


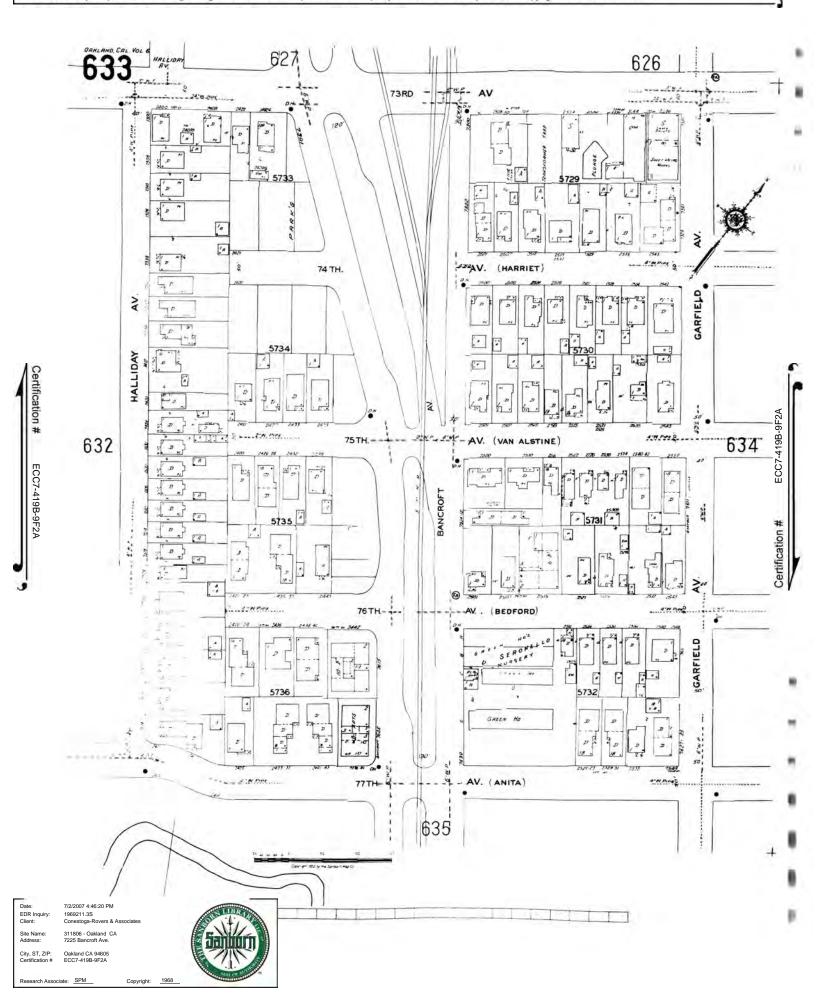


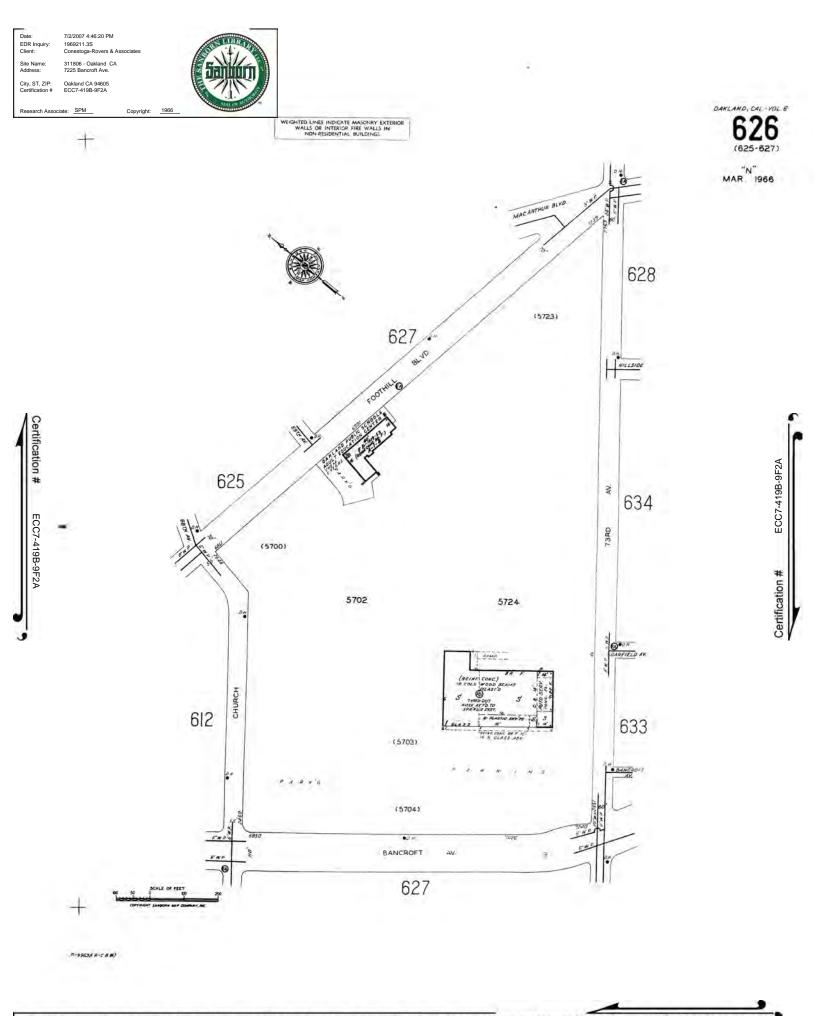


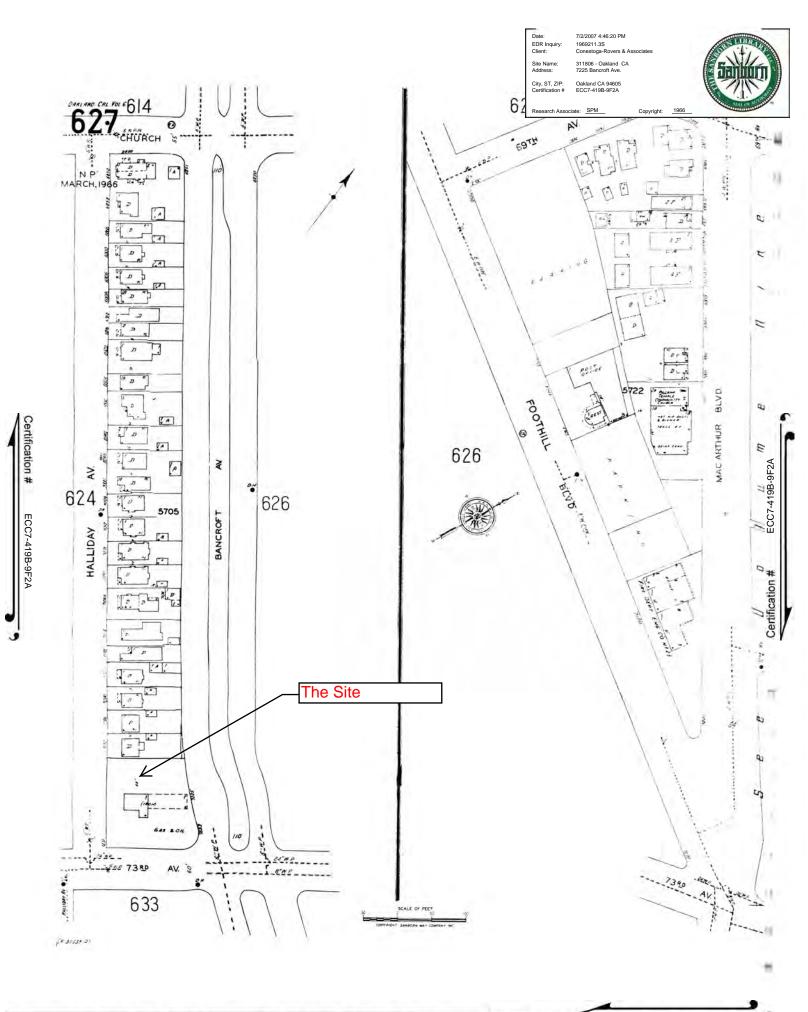


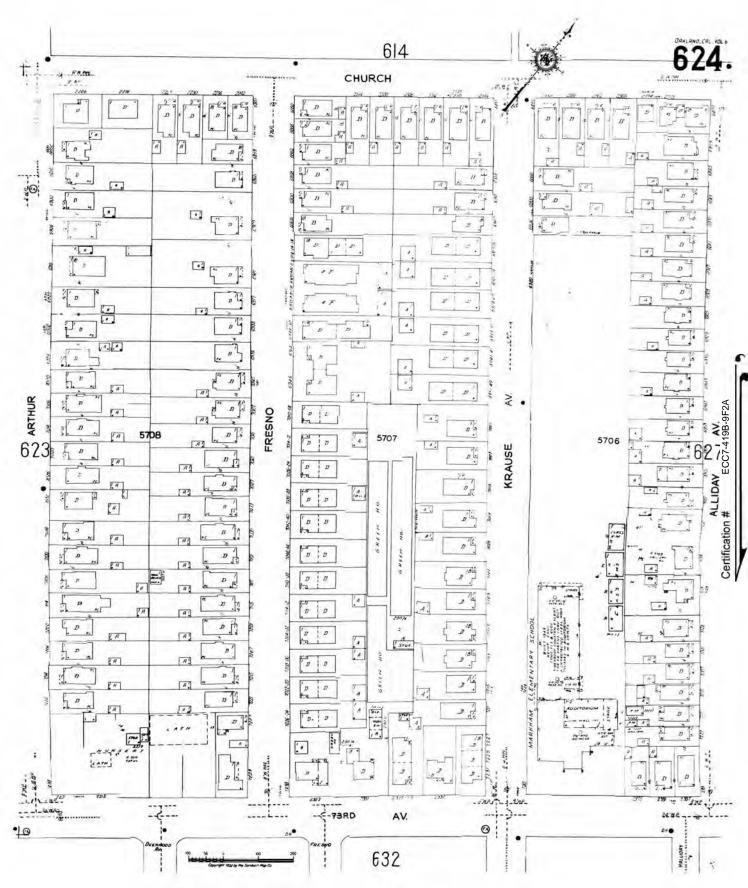








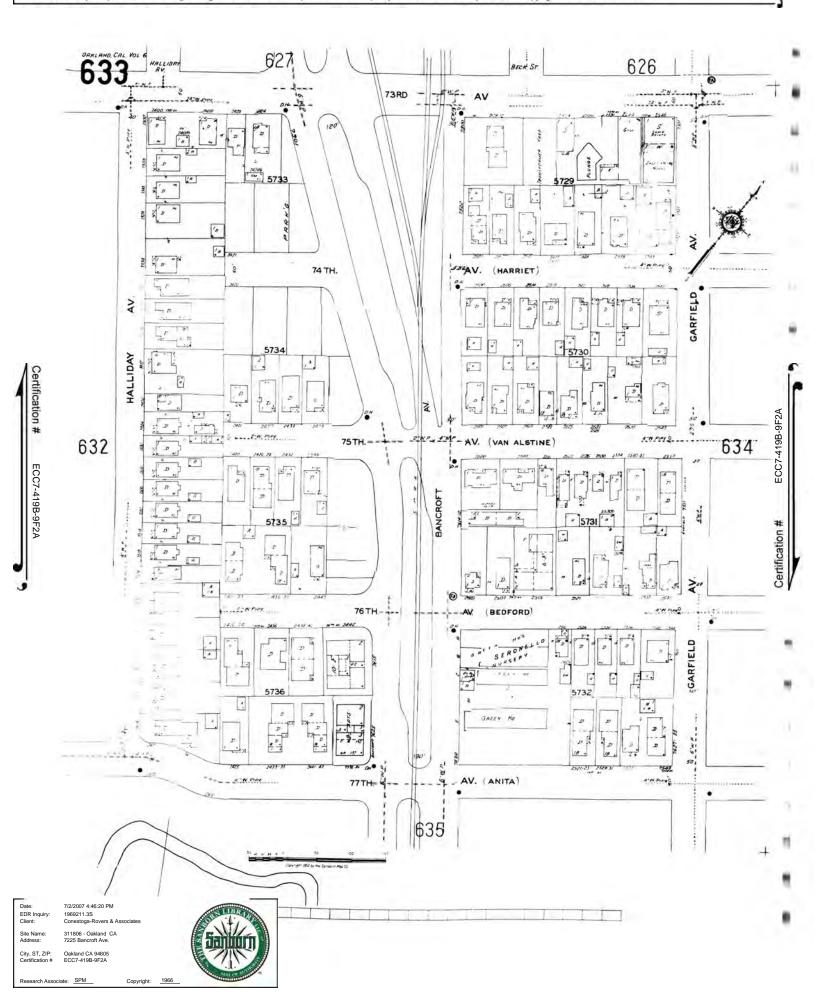


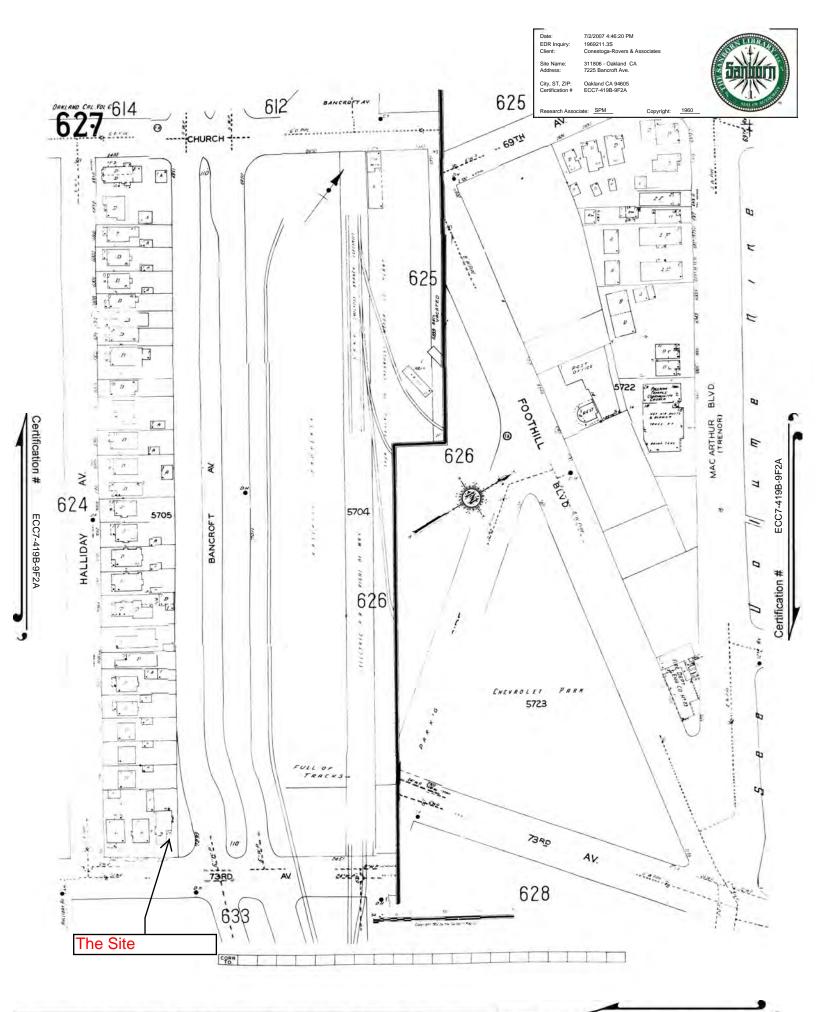


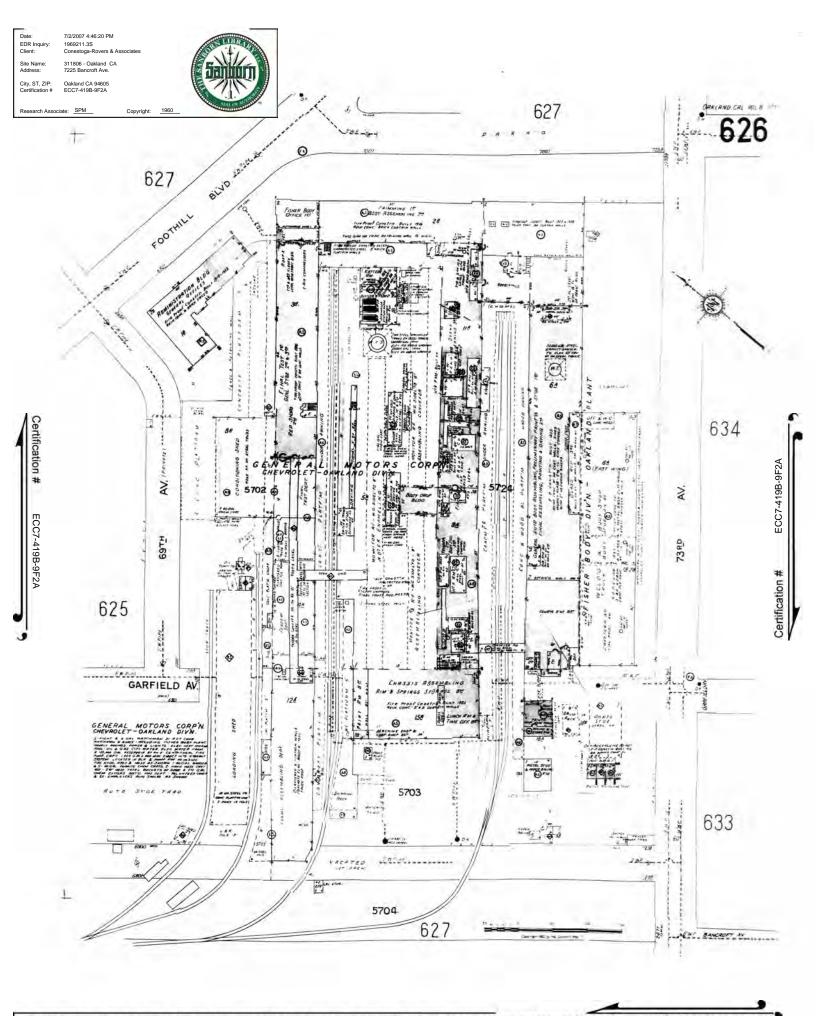
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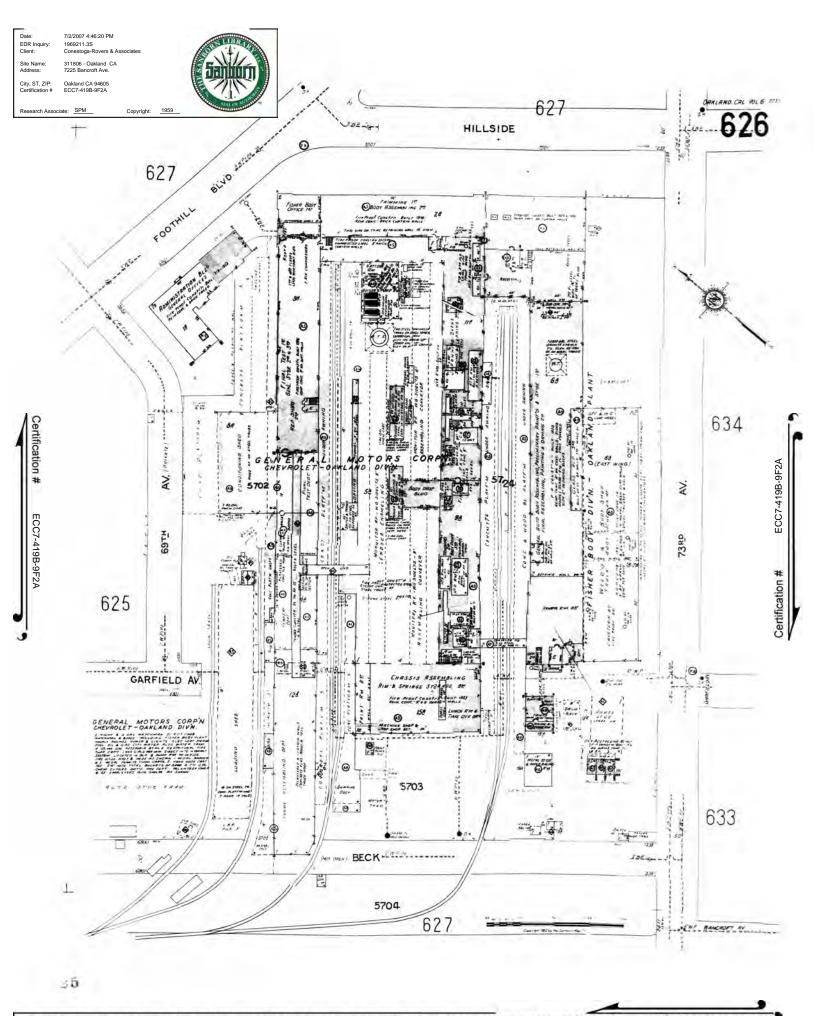
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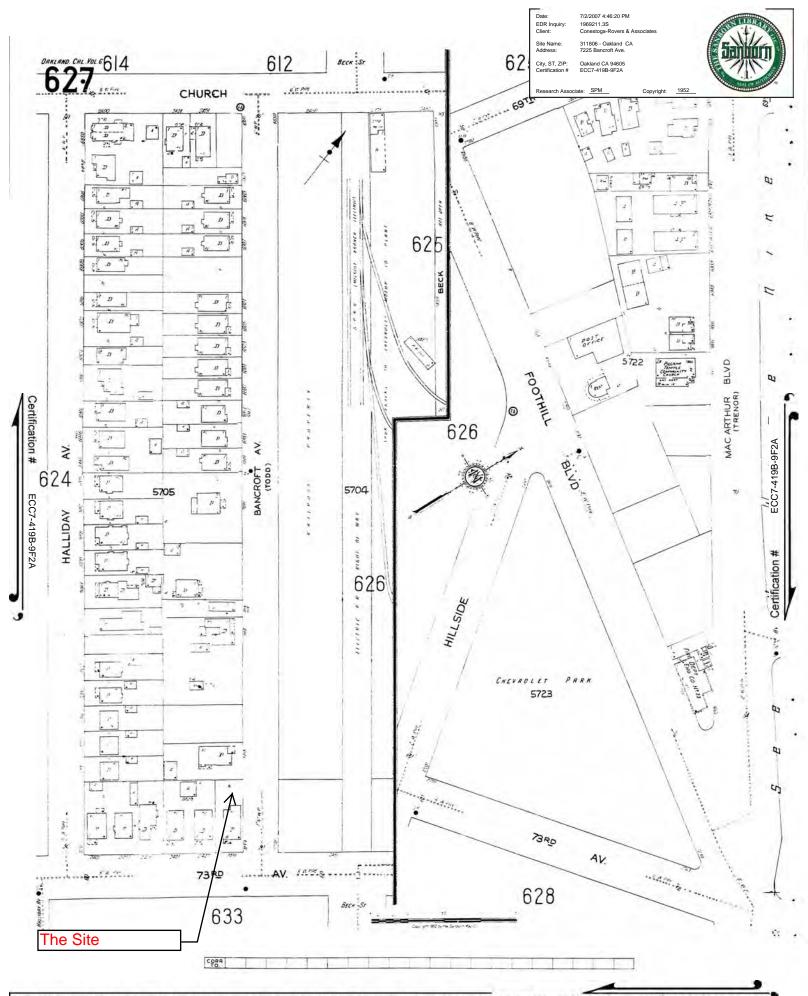
Research Associate: SPM Copyright: 1966

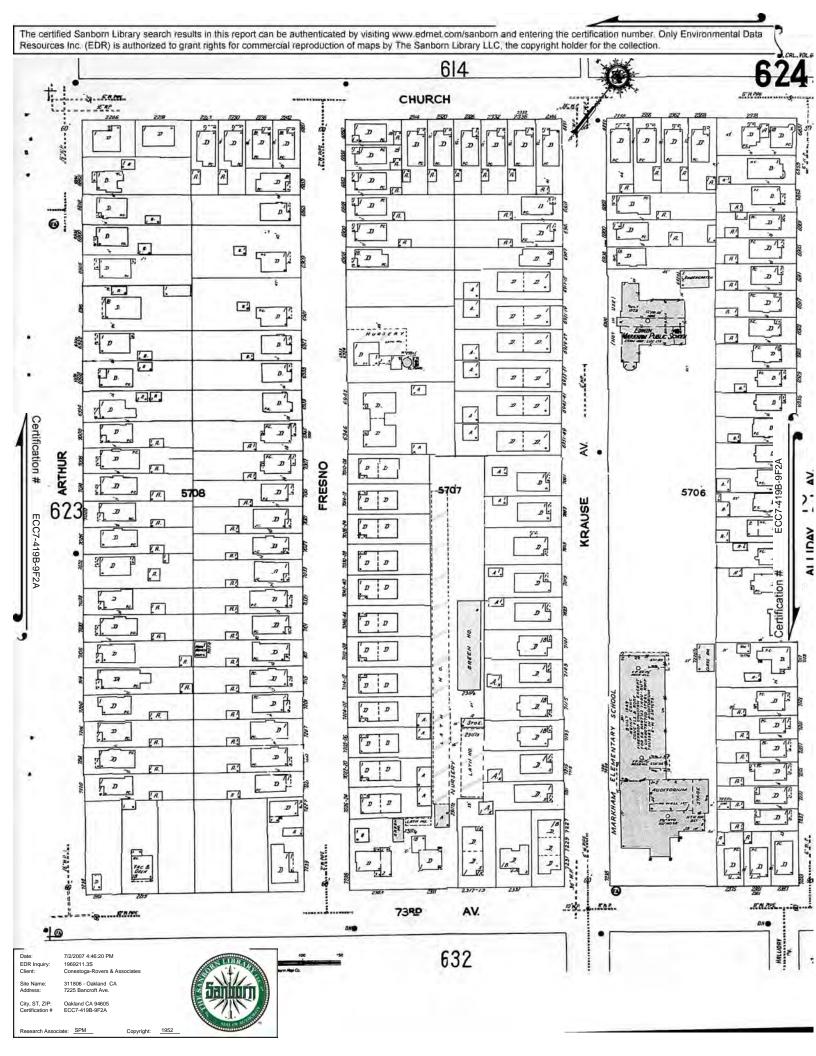


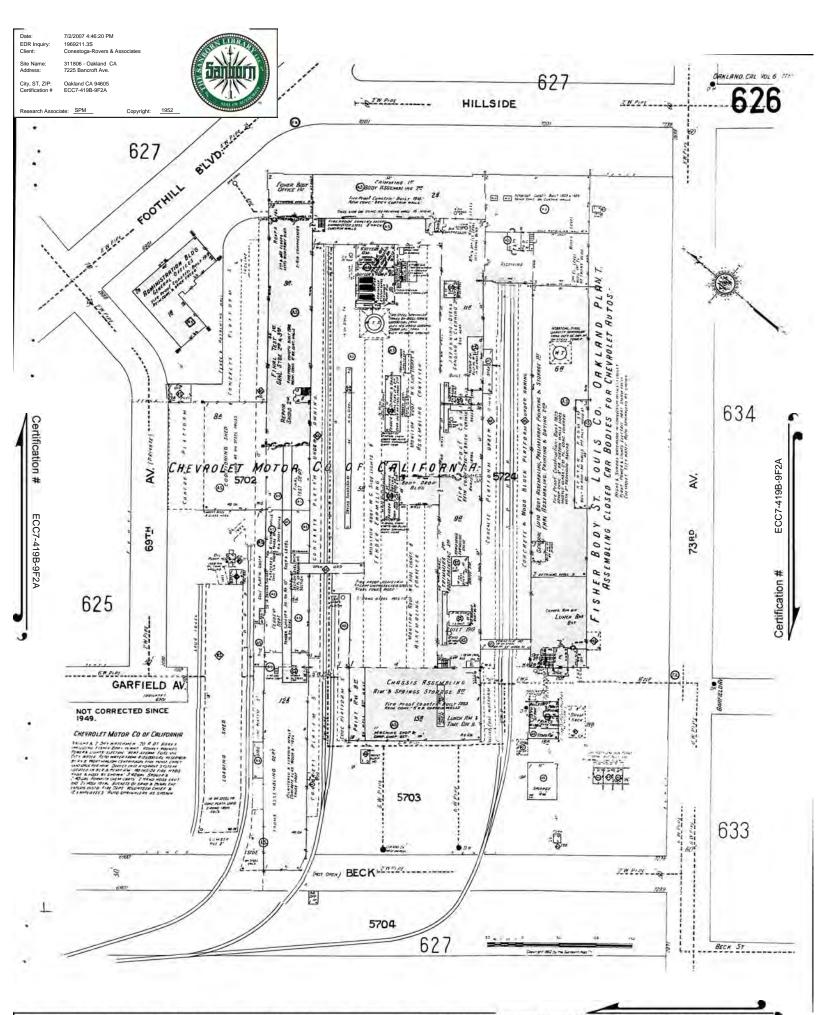


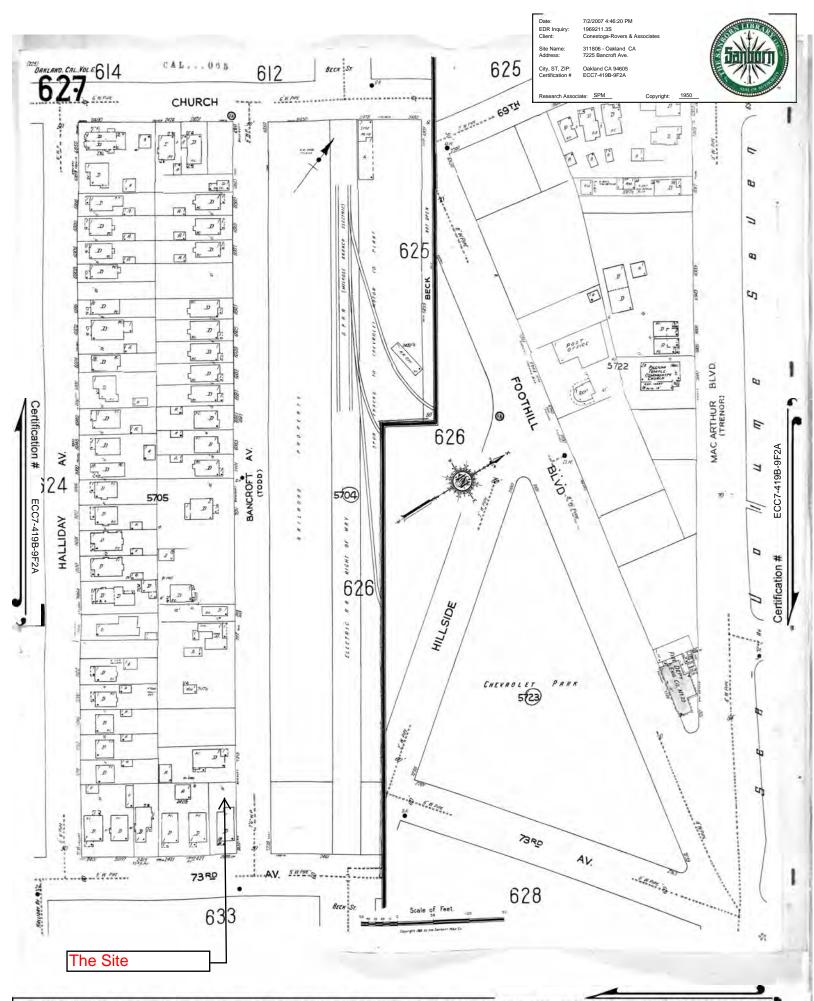


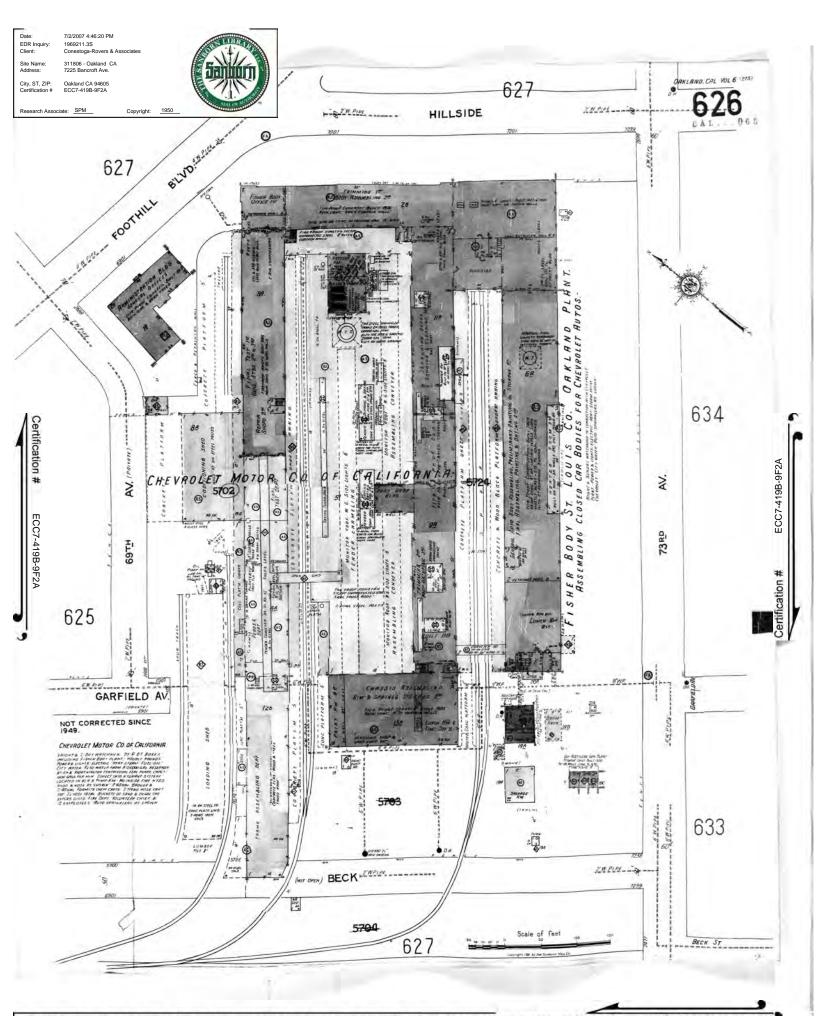






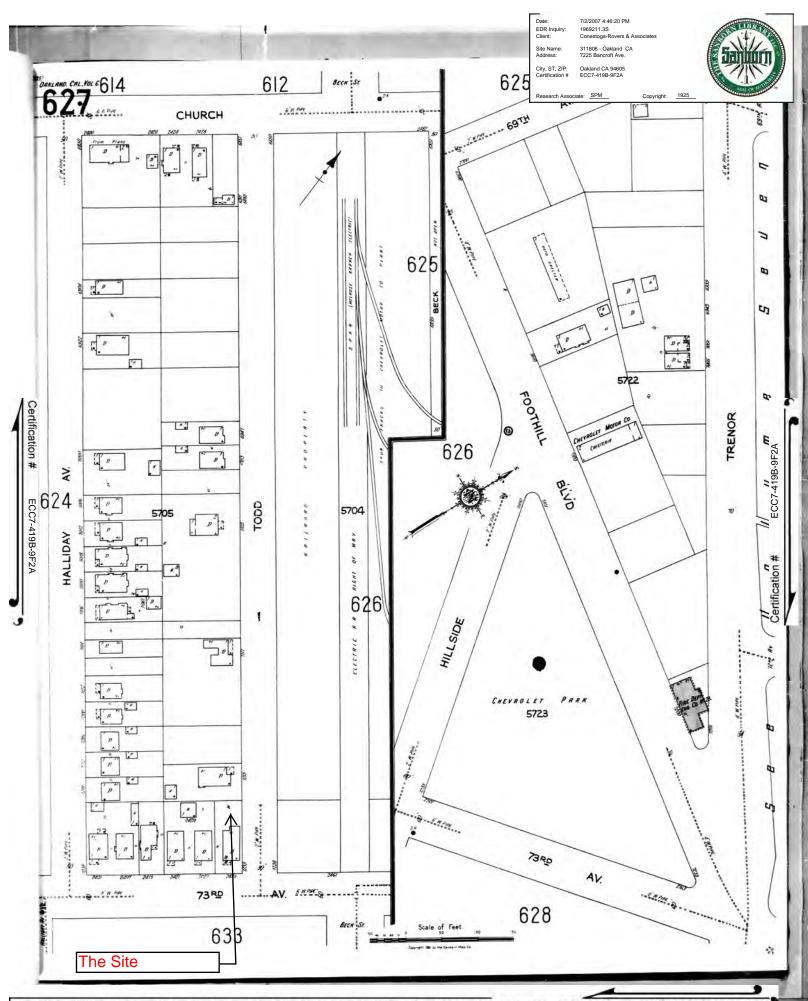


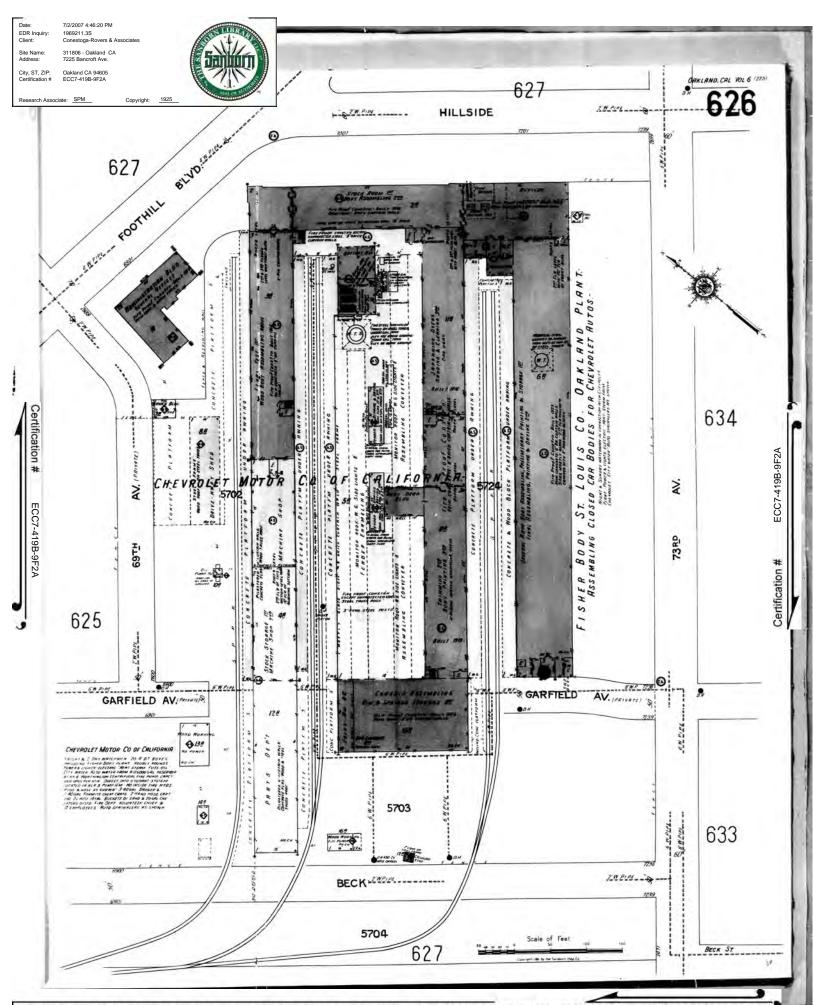




Research Associate: SPM

1950





## **Appendix C**

**Previous Site Environmental Work and Adjacent Site Data** 

#### SUMMARY OF ENVIRONMENTAL INVESTIGATION AND REMEDIATION

# Former Chevron Service Station 93322 7225 Bancroft Avenue Oakland, California

#### 1981 UST Removal and Replacement

Chevron records indicate the current underground storage tanks (USTs) were installed in 1981. These tanks represent at least the second generation of USTs at the site. In 1981, no regulations requiring soil or groundwater sampling existed to document conditions associated with the fuel system. As a result, no records of 1981 soil or groundwater conditions are available.

#### August 1996 Product Line Removal and Replacement

In August 1996, Gettler-Ryan Inc. (G-R) of Dublin, California removed and replaced product piping at the site. Touchstone Developments (Touchstone) of Santa Rosa, California collected compliance soil samples between two and four feet below grade (fbg) beneath the product lines and dispenser islands. Records indicate that approximately 300 cubic yards of soil and pea gravel were excavated during product line removal activities. Additional information available in Touchstone's May 28, 1997 *Product Piping Removal Soil Sampling Report*.

#### January 1998 Well Installation

In January 1998, G-R observed Bay Area Exploration Services, Inc. (BAES) install 2-inch diameter monitoring wells MW-1 through MW-3. All three monitoring wells were installed surrounding the former and current dispenser islands. Additional information available in G-R's March 13, 1998 *Well Installation Report*.

#### July 1998 Well Survey

In July 1998, G-R conducted a search of California Department of Water Resources records to identify domestic and municipal supply wells within a 0.5-mile radius of the site. Seven wells were located within the search area, but none were identified as domestic or municipal wells. Additional information available in G-R's July 21, 1998 *Well Search*.

#### January 1999 Well Installation

In January 1999, G-R installed 2-inch diameter monitoring wells MW-4 through MW-6 to further define the extent of hydrocarbons in soil and groundwater beneath the site. Additional information available in G-R's April 9, 1999 *Monitoring Well Installation Report*.

#### July 2000 Baseline Investigation

In July 2000, Cambria Environmental Technology, Inc. (Cambria) observed Vironex Inc. of San Leandro, California advance soil borings B-1 and B-2 and install monitoring well MW-7. The purpose of the investigation was to provide information of environmental conditions beneath the site at the time of

property transfer. Additional information available in Cambria's August 31, 2000 *Subsurface Investigation Report*.

#### September 2000 Additional Baseline Investigation

In September 2000, Cambria observed V&W Drilling of Rio Vista, California advance borings SB-4 through SB-6. The purpose of this investigation was to provide additional environmental data to satisfy real estate and lending requirements of the station operator for purchase of site facilities. Additional information available in Cambria's November 22, 2000 *Additional Baseline Investigation Report*.

#### March 2002 Well Installation

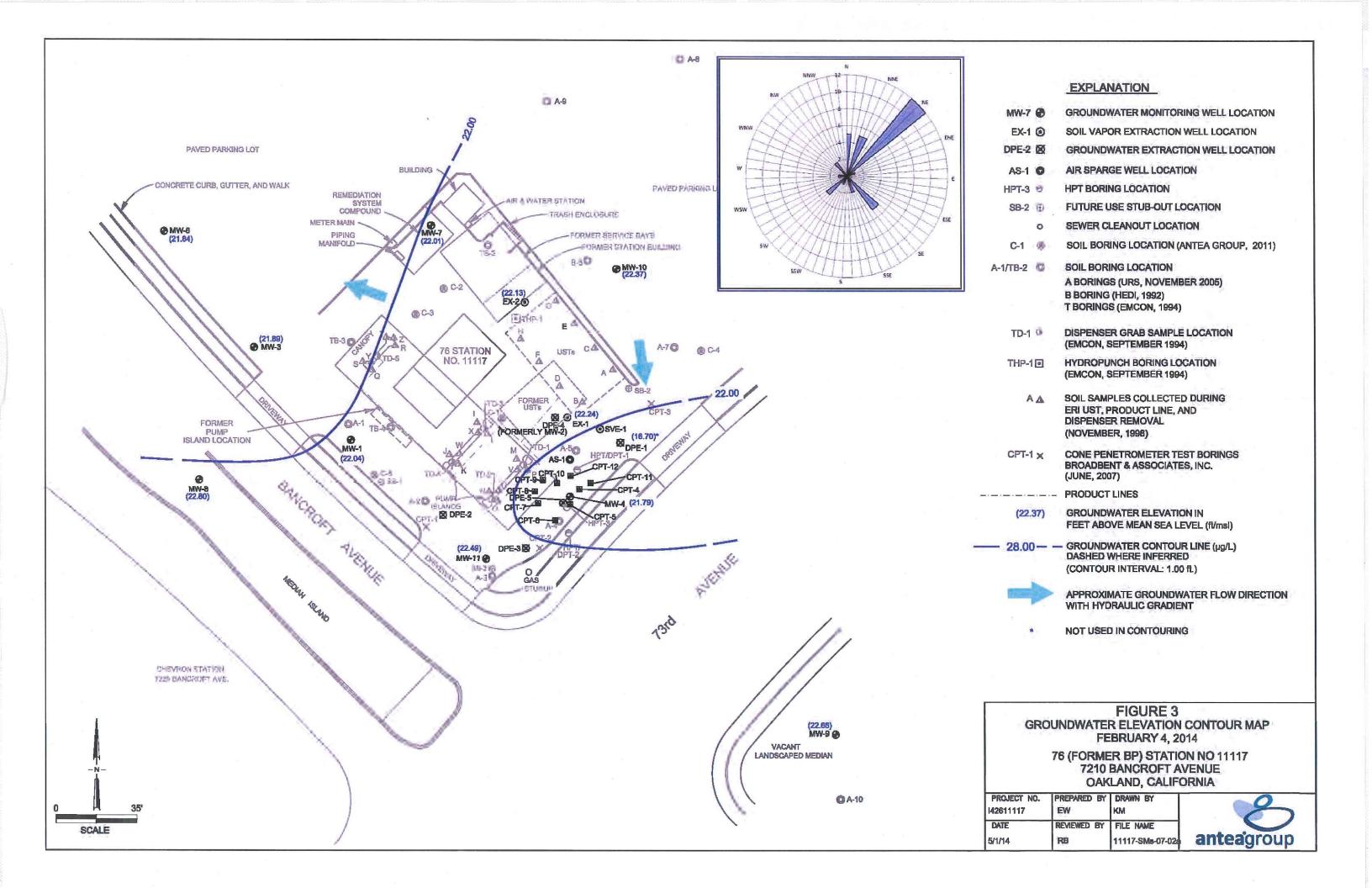
G-R installed monitoring wells MW-8, MW-9 and MW-10 to delineate light non-aqueous phase liquids (LNAPL) in the vicinity of well MW-1 and further evaluate the dissolved-phase hydrocarbon plume. G-R concluded that the dissolved-hydrocarbon plume is defined downgradient and additional assessment of soil conditions in the vicinity of the newly installed wells was not warranted. Additional information available in G-R's June 26, 2002 *Monitoring Well Installation Report*.

#### March 2005 Vapor Probe installation

Cambria installed four vapor probes VP-1 through VP-4 to construct a horizontal and vertical profile of vapor concentrations along the downgradient boundary and in the area of recurring LNAPL. Vapor probes were sampled a total of five times between April 2005 and May 2008. More information available in Cambria's July 11, 2005 *Vapor Probe Installation Report*.

#### September 2007 Surfactant Application

On September 25 2007, a surfactant enhanced LNAPL extraction event was conducted to remove LNAPL from well MW-1. A total of 346 gallons of a 5 percent surfactant solution was gravity-fed into MW-1. Surfactant solution was also added to well MW-7 but was not successful due to the small ¾-inch casing diameter. A total of approximately 7 gallons (1 casing volume) of the surfactant solution was gravity-fed into well MW-7. Following application, the surfactant solution was allowed to envelop and emulsify any residual LNAPL in the application area smear zone for approximately 24 hours. Afterward, approximately 1,200 gallons of groundwater, surfactant, and LNAPL were extracted. More information is available in Conestoga-Rovers & Associates (CRA)'s January 30, 2009 Site Conceptual Model.



O A-9

## PAVED PARKING LOT BUILDING CONCRETE CURB, GUTTER, AND WALK PAVED PARKING LOT REMEDIATION AIR & WATER STATION SYSTEM COMPOUND TRASH ENCLOSURE METER MAIN PIPING MANIFOLD FORMER SERVICE BAYS FORMER STATION BUILDING (<50) EX-20 EX-1 H ● MW-3 (<50) 76 STATION NO. 11117 USTs CA A-7@ CPT-3 ØA-1 <sub>TB-4</sub>€ FORMER PUMP ISLAND LOCATION MW-1 (<50) © C-5 ⊕ SB-1 MW-8 CHEVRON STATION 7225 BANCROFT AVE. VACANT LANDSCAPED MEDIAN @ A-10 SCALE

#### EXPLANATION

MW-7	•	GROUNDWATER MONITORING WELL LOCATION
EX-1	0	SOIL VAPOR EXTRACTION WELL LOCATION
DPE-2	8	GROUNDWATER EXTRACTION WELL LOCATION
AS-1	0	AIR SPARGE WELL LOCATION
HPT-3	0	HPT BORING LOCATION
SB-2	$\oplus$	FUTURE USE STUB-OUT LOCATION
	0	SEWER CLEANOUT LOCATION
C-1		SOIL BORING LOCATION (ANTEA GROUP, 2011)
A-1/TB-2	0	SOIL BORING LOCATION A BORINGS (URS, NOVEMBER 2005) B BORING (HEDI, 1992) T BORINGS (EMCON, 1994)
TD-1	0	DISPENSER GRAB SAMPLE LOCATION (EMCON, SEPTEMBER 1994)
THP-1回		HYDROPUNCH BORING LOCATION (EMCON, SEPTEMBER 1994)
А	. 🛕	SOIL SAMPLES COLLECTED DURING ERI UST, PRODUCT LINE, AND DISPENSER REMOVAL (NOVEMBER, 1998)
CPT-1	х	CONE PENETROMETER TEST BORINGS BROADBENT & ASSOCIATES, INC. (JUNE, 2007)
		PRODUCT LINES
TPHg	ı	TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
µg/L		MICROGRAMS PER LITER
<del> 5000</del>		DISSOLVED PHASE GRO CONCENTRATION CONTOUR ( $\mu g/L$ ); DASHED WHERE INFERRED
(8,100	))	DISSOLVED PHASE GRO CONCENTRATION (µg/L)
<50		CONSTITUENT NOT DETECTED ABOVE INDICATED REPORTING LIMIT
NS		NOT SAMPLED

# FIGURE 4 DISSOLVED PHASE TPHg ISOCONCENTRATION MAP FEBRUARY 4, 2014

76 (FORMER BP) STATION NO 11117 7210 BANCROFT AVENUE OAKLAND, CALIFORNIA

PROJECT NO. 142611117	PREPARED BY EW	DRAWN BY KM
DATE	REVIEWED BY	FILE NAME
5/1/14	RB	11117-SMs-07-02a



O A-9

## PAVED PARKING LOT BUILDING > CONCRETE CURB, GUTTER, AND WALK PAVED PARKING LOT REMEDIATION SYSTEM COMPOUND AIR & WATER STATION TRASH ENCLOSURE METER MAIN FORMER SERVICE BAYS MANIFOLD FORMER STATION BUILDING B-5© (<0.50) EX-2.0 C-3 OTHP-1 **● MW-3** A-7@ 76 STATION NO. 11117 USTs X CPT-3 FORMER PUMP ISLAND LOCATION @A-1 MW-8 (<0.50) A-2 PUMP ISLANDS CPT-1 DPE-2 (0.52) DPE-3 MW-11 CHEVRON STATION 7225 BANCROFT AVE. (<0.50) MW-9 VACANT LANDSCAPED MEDIAN @ A-10 SCALE

#### **EXPLANATION**

MW-7 €	GROUNDWATER MONITORING WELL LOCATION
EX-1 @	SOIL VAPOR EXTRACTION WELL LOCATION
DPE-2	GROUNDWATER EXTRACTION WELL LOCATION
AS-1	AIR SPARGE WELL LOCATION
HPT-3 €	HPT BORING LOCATION
SB-2 €	FUTURE USE STUB-OUT LOCATION
0	SEWER CLEANOUT LOCATION
C-1 (	SOIL BORING LOCATION (ANTEA GROUP, 2011)
A-1/TB-2 ©	SOIL BORING LOCATION A BORINGS (URS, NOVEMBER 2005) B BORING (HEDI, 1992) T BORINGS (EMCON, 1994)
TD-1 0	DISPENSER GRAB SAMPLE LOCATION (EMCON, SEPTEMBER 1994)
THP-1	HYDROPUNCH BORING LOCATION (EMCON, SEPTEMBER 1994)
AΔ	SOIL SAMPLES COLLECTED DURING ERI UST, PRODUCT LINE, AND DISPENSER REMOVAL (NOVEMBER, 1998)
CPT-1 x	CONE PENETROMETER TEST BORINGS BROADBENT & ASSOCIATES, INC. (JUNE, 2007)
	- PRODUCT LINES
µg/L	MICROGRAMS PER LITER
<del> 500</del>	DISSOLVED PHASE BENZENE CONCENTRATION CONTOUR (µg/L); DASHED WHERE INFERRED
(3,200)	DISSOLVED PHASE BENZENE CONCENTRATION (µg/L)
<0.50	CONSTITUENT NOT DETECTED ABOVE INDICATED REPORTING LIMIT

## FIGURE 5 DISSOLVED PHASE BENZENE ISOCONCENTRATION MAP - FEBRUARY 4, 2014

76 (FORMER BP) STATION NO 11117 7210 BANCROFT AVENUE OAKLAND, CALIFORNIA

PROJECT NO. 142611117	PREPARED BY EW	DRAWN BY KM
DATE	REVIEWED BY	FILE NAME
5/1/14	RB	11117-SMs-07-02a



O A-9

# PAVED PARKING LOT BUILDING CONCRETE CURB, GUTTER, AND WALK PAVED PARKING LOT REMEDIATION SYSTEM COMPOUND AIR & WATER STATION TRACH ENCLOSURE PIPING FORMER SERVICE BAYS MANIFOLD: MW-10 EX-2.0 76 STATIOI NO. 11117 (FORMERLY MW-2) FORMER PUMP ISLAND LOCATION @A-1 MW-1 (<0.50) MW-8 (<0.50) A-2© PUMP ISLANDS CPT-1 © DPE-2 (<0.50) MW-11 O / CHEVRON STATION 7225 BANCROFT AVE. VACANT LANDSCAPED MEDIAN @ A-10 SCALE

## EXPLANATION

MW-7 🕝	GROUNDWATER MONITORING WELL LOCATION						
EX-1 @	SOIL VAPOR EXTRACTION WELL LOCATION						
DPE-2	GROUNDWATER EXTRACTION WELL LOCATION						
AS-1 0	AIR SPARGE WELL LOCATION						
HPT-3 ⊖	HPT BORING LOCATION						
SB-2 ⊕	FUTURE USE STUB-OUT LOCATION						
0	SEWER CLEANOUT LOCATION						
C-1 (III)	SOIL BORING LOCATION (ANTEA GROUP, 2011)						
A-1/TB-2 ©	SOIL BORING LOCATION A BORINGS (URS, NOVEMBER 2005) B BORING (HEDI, 1992) T BORINGS (EMCON, 1994)						
TD-1 ①	DISPENSER GRAB SAMPLE LOCATION (EMCON, SEPTEMBER 1994)						
THP-1	HYDROPUNCH BORING LOCATION (EMCON, SEPTEMBER 1994)						
AΔ	SOIL SAMPLES COLLECTED DURING ERI UST, PRODUCT LINE, AND DISPENSER REMOVAL (NOVEMBER, 1998)						
CPT-1 x	CONE PENETROMETER TEST BORINGS BROADBENT & ASSOCIATES, INC. (JUNE, 2007)						
	PRODUCT LINES						
MTBE	METHYL TERTIARY BUTYL ETHER						
µg/L	MICROGRAMS PER LITER						
50	DISSOLVED-PHASE MTBE CONCENTRATION CONTOUR (µg/L); DASHED WHERE INFERRED						
(220)	DISSOLVED-PHASE MTBE CONCENTRATION (µg/L)						
<0.50	CONSTITUENT NOT DETECTED ABOVE INDICATED REPORTING LIMIT						

# FIGURE 6 DISSOLVED-PHASE MTBE ISOCONCENTRATION MAP - FEBRUARY 4, 2014

76 (FORMER BP) STATION NO 11117 7210 BANCROFT AVENUE OAKLAND, CALIFORNIA

PROJECT NO.	PREPARED BY	DRAWN BY
142611117	EW	KM
DATE	REVIEWED BY	FILE NAME
5/1/14	RB	11117-SMs-07-02a



# **Appendix D**

**Boring Logs** 



	(	Get	tler-R	ya	in, I	nc.		Log of Boring MW-1			
		24	on Servic		tatio	#9-3	322	LOCATION: 7225 Bancroft Avenu	e, Oakland, CA		
					181101	1 11 0		SURFACE ELEVATION: 40.41 fee	t MSL		
			: 6433 01/22/9					WL (ft. bgs): 25.5 DATE: 01/22/98	TIME: 10:40		
	START		01/22/5					WL (ft. bgs): 16.3 DATE: 01/22/98	TIME: 15:45		
	FINISI				low Si	em Aug	ner	TOTAL DEPTH: 36.5 Feet			
	LING ME						on, Inc.	GEOLOGIST: Barbara Sieminski			
feet 7		BLOWS/FT. *	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS		EOLOGIC DESCRIPTION	WELL DIAGRAM		
=						CL	PAVEMENT - as	sphalt.			
5-						CL	CLAY (CL) - da medium plasticit	ark gray (10YR 4/1), moist, stiff, y; 95% clay, 5% fine sand.	sch. 40 ———————————————————————————————————		
-	0	10	MW1-6				low plasticity; 7	CL) - brown (10YR 5/3), damp, stiff, 70% clay, 30% fine sand.	2" blank PVC Sch. 4l		
10- - - -	18	19	MWI-11			GC	40% fine to co gravel at 10 fe	to yellowish brown (10YR 5/4), up to arse sand, trace subrounded fine et.  EL WITH SAND (GC) - light olive brown	*		
15-	168	36	MW1-15					ttled greenish gray (5GY 4/1), moist, bangular to subrounded fine gravel, arse sand, 20% clay.	cnl		
20-	68	36 -	-MW1-21				Color changes feet. No wate	s to yellowish brown (10YR 5/6) at 20 er in the hole after waiting 10 minutes.	(0.02 m		
25-	56	17	MW1-26			GW-G	E/3\ caturate	I SAND AND CLAY (GW-GC) - olive (5Y ed, medium dense; 50% subrounded to fine gravel, 30-35% fine to coarse clay.	2" machine slotted pvc		
30-	7.7	22	MW1-31			CL	CANDY OLAY	(CL) - yellowish brown (10YR 5/6),			
35	142	27	- МWI-3	6			moist, very s medium sand	tiff, low plasticity; 70% clay, 30% fine to			
40	) <del>-</del>				4		(x = conver	ted to equivalent standard penetration	÷		

		Get	tler-R	ly a	an, Inc	 >.		Log of Boring	J MW−2
PROJ	CCT.	Chev	on Servic	۰ م:	Station #	9-33	122	LOCATION: 7225 Bancroft Avenue	
. , ,			.: 6433					SURFACE ELEVATION: 38.73 feet	MSL
	STAR		01/22/9					WL (ft. bgs): 18.5 DATE: 01/22/98	TIME: 14:55
	FINIS							WL (ft. bgs): 10.2 DATE: 01/22/98	TIME: 16:00
	LING M				low Stem	Augi	er	TOTAL DEPTH: 31.5 Feet	
	LING C				ea Explo			GEOLOGIST: Barbara Sieminski	
DEPTH G	PID (ppm)	BLOWS/FT. *	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	CLASS		COLOGIC DESCRIPTION	WELL DIAGRAM
				٠	//// C		PAVEMENT - as	phalt.	
5-	10.9	19	MW2-6				medium plasticity	rk gray (10YR 4/1), moist, stiff, y; 95% clay, 5% fine sand.  D (CL) - dark brown (10YR 4/3), , low plasticity; 85% clay, 15% fine to	BBB PVC Sch. 40 - 2" blank PVC Sch. 40 - 10 - 10 - 10 - 10 - 10 - 10 - 10 -
10-	5.7	21	MW2-11 MW2-15	<b>2</b>		SC	very stiff, low p coarse sand.  CLAYEY GRAVE (10YR 4/3), moi fine gravel, 30%	CL) - dark brown (10YR 4/3), damp, lasticity; 60% clay, 40% fine to  L WITH SAND (GC) - dark brown st, medium dense; 40% subrounded fine to coarse sand, 30% clay.  to dark greenish gray (5GY 4/1) at 15	Ch + + + + + + + + + + + + + + + + + + +
20-	94	29	MW2-21			GW	gray (5GY 4/1) subrounded to coarse sand, 10 Color changes	SAND AND CLAY (GW) - dark greenish, saturated, medium dense; 50% well rounded fine gravel, 40% fine to 0% clay.	- 2" machine slotted pvc (0.02 in
	79	36	MW2-26				at 25 feet.		
30-	72	57	MW2-31				Becomes very	dense at 30 feet.	Cap M M M K K M M M M M M M M M M M M M M
35					1				
40					-		(* = convert blows/ft.)	ed to equivalent standard penetration	
	4				<u> </u>				0 1
J	B NUN	<b>IBER</b>	6433.	01			•		Page 1

G	ettler-R	lyan, Inc.		Log of Boring MW-3			
		ce Station #9-3	322	LOCATION: 7225 Bancroft Avenue, Oakland, CA			
				SURFACE ELEVATION: 39.51 feet	MSL		
-R PROJECT				WL (ft. bgs): 23.6 DATE: 01/22/98	TIME: 13:05		
ATE STARTE			<u> </u>	WL (ft. bgs): 17.0 DATE: 01/22/98	TIME: 15:45		
ATE FINISHE		Hollow Stem Aug	ger	TOTAL DEPTH: 34.5 Feet			
DRILLING MET	PANY PAN	y Area Explorati	on, Inc.	GEOLOGIST: Barbara Sieminski	4		
feet PID (ppm) ABLOWS/F1.*	MBER	SAMPLE INT. GRAPHIC LOG SOIL CLASS		EOLOGIC DESCRIPTION	WELL DIAGRAM		
		7/// 61	PAVEMENT - as	sphalt.			
5- 0 14	4 MW3-6	CL	SANDY CLAY ( stiff, low plasti sand, trace sul	ark gray (10YR 4/1), moist, stiff, 19; 95% clay, 5% fine sand.  CL) - dark brown (10YR 3/3), damp, city; 70% clay, 30% fine to coarse brounded fine gravel.  to dark yellowish brown (10YR 4/6);	2" blank PVC Sch. 40 ———————————————————————————————————		
10-	6 MW3-11	CL GC/SC	CLAY (CL) - o plasticity; 70% sand.	olive (5Y 4/3), damp, very stiff, low clay, 30% silt, trace fine to coarse			
15-	20 MW3-16		CLAYEY GRAV	EL WITH SAND (GC) — light olive brown bist, medium dense; 35% subrounded % fine to coarse sand, 30% clay.	mch) ————————————————————————————————————		
20-	15 MW3-20	D ML	stiff; 100% silt	olive (5Y 5/4), moist, low plasticity, 	(0.02		
25-0	11 MW3-2 19 MW3-2		saturated, lo	(ML) – light olive brown (2.5Y 5/6), w plasticity, stiff; 70% silt, 30% fine es to greenish gray (5GY 5/1) at 25.5	2" machine slotted pvc		
30-	14 MW3-	31 GW	(5GY 5/1), so fine to coars clay.	VEL WITH SAND (GC) - greenish gray aturated, medium dense; 40% subrounded se gravel, 35% fine to coarse sand, 25% TH SAND (GW) - dark greenish gray			
35-	27 MW3-	34 CI	(5GY 4/1), s to well round coarse sand SANDY CLA moist, very coarse sand	aturated, medium dense; 60% subrounded ded fine to coarse gravel, 40% fine to 1.  Y (CL) - yellowish brown (10YR 5/6), stiff, low plasticity; 70% clay, 30% fine to d.	Ž		
40-			(* = conve blows/ft.)	rted to equivalent standard penetration			

PRO	JECT: Ch	evron	SS 9	-3322			LOCATION: 7225 Bancroft Ave, O	akland, CA.
GSI F	PROJECT	10. :	3464	33.02			SURFACE ELEVATION: 40.24 ft.	MSL
DATE	STARTE	D: <i>Oi</i>	/22/9	9			WL (ft. bgs): 24.0 DATE: 01/22/99	TIME: 11:35
DATE	FINISHE	D: 0	1/22/	99		<del></del>	WL (ft. bgs): 14.5 DATE: 01/22/99	TIME: 14:25
	LING METH						TOTAL DEPTH: 31.5 Feet	
DRIL	LING COMP	PANY:	Вау	Area Ex	ploratio	n Inc.	GEOLOGIST: Barbara Sieminski	- <b>-</b>
DEPTH feet	SAMPLE NUMBER	BLOWS/FT. *	PID (ppm)	SAMPLE INT. GRAPHIC LOG	SOIL CLASS	GE	EOLOGIC DESCRIPTION	WELL DIAGRAM
				7//	CL	PAVEMENT - As	phalt.	- 1
5—	MW4-6	15	, 0		ML-CL	plasticity, stiff;	ry dark gray (5Y 3/1), moist, medium 95% clay, 5% fine sand. 	2" blank PVC (schedule 40)
10	MW4-11	16	0		GC	Sand increses t feet bgs.  CLAYEY GRAVE!	ne to coarse sand.  o 25-30%, trace fine gravel at 10  L WITH SAND (GC) - yellowish brown in the properties of the prope	
15	MW4-15 MW4-16	30	0		ML	Coarse sand.	Coarse graver, 20% cray, 20% file to	
20- 20-	MW4-20 MW4-21	15	0		ML	SANDY SILT (M. 3/4), moist, low sand, 10% clay.	IL) – light yellowish brown (10YR plasticity, stiff; 50% silt, 40% fine	
25-	MW4-26	19	0		GW-GM	brown (10YR 5/ subrounded to	GAND AND SILT (GW-GM) — yellowish (8), saturated, medium dense; 60% well rounded fine to coarse gravel, arse sand, 10% silt.	
30-	MW4-31	26	0			Bottom of borin	ng at 31.5 feet.	
35-	<u> </u>	-					d to equivalent standard penetration	

PRO	JECT: <i>Chi</i>	evron	SS 9	-3322				LOCATION: 7225 Bancroft Ave, Oakland, CA.					
	PROJECT N							SURFACE ELEVATION: 40.37 ft. MSL					
	STARTED							WL (ft. bgs): 24.0	DATE: 01/22/99			15:35	
	FINISHE							WL (ft. bgs): 20.6	DATE: 01/22/99		TIME:	16:15	
	LING METH							TOTAL DEPTH:				<del></del>	<del></del>
DRIL	LING COMP	ANY:	Вау	Area E.	xploratio	on Ind	<del>.</del>	GEOLOGIST: Ba	rbara Sieminski	-			
DEРТН feet	SAMPLE NUMBER	BLOWS/FT. *	PIO (ppm)	SAMPLE INT. GRAPHIC LOG	SOIL CLASS			EOLOGIC DESCRIPTION	DN			WELL DIA	GRAM
4				1//	CL	_	PAVEMENT - Co			$\overline{}$		7	] [
5—	MW5-6	14	0		ML-CL		CLAY (CL) - ver	ry dark gray (5Y 3/1), 95% clay, 5% fine san	moist, medium d.		2" blank PVC (schedule 40)		neat cement
- 10- - -	MW5-11	13	0		CL		brown (10YR 4/ stiff; 40-50% si sand. 	ITH SAND (ML-CL) - 6), damp, low to mediu lt, 35% clay, 15-25% fi	m plasticity, ne to coarse  ellowish brown stiff; 60% clay,		<del>\</del>		>+ >+ Contonite
- 15- - - -	MW5-16	18	0		GC		CLAYEY GRAVE	L WITH SAND (GC) - np, dense ; 50% subro coarse gravel, 35% c	yellowish brown unded to well		(0.02 inch)		
20-	MW5-21	18	0			Å	SILT (ML) - lig	ht yellowish brown (10 ery stiff; 50% sllt, 309	YR 3/4), damp, % fine sand, 20%		slotted PVC		#3 sand ——
25-	MW5-26	18	0		SW SW	Į Į	5/4), saturated	AVEL (SW) - yellowish I, medium dense; 80% ounded fine gravel, 5%	fine to coarse		2" machine		
30-					GW-GN ∵ SW	1	brown (2.5Y 5/ subrounded to 30% fine to co	SAND AND SILT (GW- '4), saturated, medium well rounded fine to c arse sand, 10% silt.	dense; 60% oarse gravel,		cap		
	MW5-31	20	0			$\uparrow \setminus$	SAND (SW) - o dense; 90% fin fine gravel.	olive (5Y 5/3), satural e to coarse sand, 10%	ed, medium well rounded				1 1
	]						Bottom of bori	ng at 31.5 feet.			1		
35-							(x = converte blows/ft.)	d to equivalent stand	ard penetration		.		

PROJ	IECT: Chi	evron	SS 9	-33	22			LOCATION: 7225 Bancroft Ave,	Oakland, CA.	
	ROJECT N							SURFACE ELEVATION: 39.84 ft	. MSL	_
DATE	STARTED	): 01	/22/9	19				WL (ft. bgs): 24.0 DATE: 01/22/99	TIME: 13:45	
DATE	FINISHE	D: 0	1/22/	99				WL (ft. bgs): 20.6 DATE: 01/22/99	TIME: 16:10	
DRILL	ING METH	IOD:	8 in.	Holl	ow S	tem Aug	ier	TOTAL DEPTH: 32.0 Feet		
DRILL	ING COMP	ANY:	Вау	Are	ea Ex	ploratio	on Inc.	GEOLOGIST: Barbara Sieminski	·	
DEPTH feet	SAMPLE NUMBER	BLOWS/FT. *	PID (ppm)	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	G	EOLOGIC DESCRIPTION	WELL DIAG	٦A
					///	CL	PAVEMENT - Co	oncrete.		1
5-	MW6-6	10	0				CLAY (CL) — bl. plasticity, stiff;	ack (7.5YR 2/0), moist, medium 95% clay, 5% fine sand.	2" blank PVC (schedule 40)	400000000000000000000000000000000000000
- -10- -	MW6-10.5 MW6-11	18	0			ML-CL	brown (10YR 4. 40% silt, 30% c fine gravel.	ITH CLAY (ML-CL) - dark yellowish (6), damp, low plasticity, very stiff; lay, 30% fine to coarse sand, trace	*	1
15-	MW6-15.5 MW6-16	19	0				(2.5Y 5/4), da	mp, medium dense; 40% subrounded to he gravel, 40% fine to coarse sand,		
20—	MW6-21	15	0			ML	SILT (ML) - lighted lighted states and states and states are lighted states and states are lighted states and states are lighted states are lighte	ght yellowish brown (10YR 3/4), damp, very stiff; 50% silt, 30% fine sand, 20%	— 2" machine slatted PVC (0.02 inch) —	
25- -	MW6-26	22	0			GW-GN	brown (2.5Y 5	SAND AND SILT (GW-GM) - light olive /4), saturated, medium dense; 50% well rounded fine to coarse gravel, parse sand, 10% silt.	2" machine	
30-	 	30	0			.∵ SW	decreaes to 5	es to 75%, sand decreases to 20%, silt 5% at 30.5 feet bgs.		
	1				-		SAND (SW) - fine to coarse	olive (5Y 5/3), saturated, dense; 95% e sand, 5% well rounded fine gravel.	_/.	
	1				1	}	Bottom of bor	Ing at 32.0 feet.		
35-	1	1			1 : -		į.	ed to equivalent standard penetration		



B3/MW-7 BORING/WELL NAME **CLIENT NAME** Chevron Products Company 03-Jul-00 **DRILLING STARTED** 9-3322 JOB/SITE NAME DRILLING COMPLETED 03-Jul-00 7225 Bancroft Ave, Oakland, CA LOCATION NA WELL DEVELOPMENT DATE (YIELD) 31A-1806 **PROJECT NUMBER GROUND SURFACE ELEVATION** Not Surveyed Vironex DRILLER TOP OF CASING ELEVATION NA Hydraulic push DRILLING METHOD 10 to 25 ft bgs SCREENED INTERVAL BORING DIAMETER DEPTH TO WATER (First Encountered) NA **LOGGED BY** Albert Simmons 23.20 ft (05-Jul-00)

**DEPTH TO WATER (Static)** REVIEWED BY **Bob Foss** Hand augered to five feet bgs REMARKS CONTACT DEPTH (ft bgs) TPHg (mg/kg) GRAPHIC LOG BLOW U.S.C.S. EXTENT DEPTH (ft bgs) SAMPLE LITHOLOGIC DESCRIPTION **WELL DIAGRAM** Black CLAY w/trace sand, damp, stiff, 95% clay, 5% sand CL Portland Type 1/11 5.0 Dark brown Sandy CLAY, dry, very stiff, 60% clay, 40% B3-5° NA sand Bentonite Seal CL Note: gravel zone from 8-9' ft bgs 9.0 Monterey Mottled orange & brown Clayey SAND, dry, stiff, 60% Sand #2/12 sand, 40% clay B3-10' <1.0 SC 12.0 Brown GRAVEL w/ sand, dry, stiff, 70% gravel, 30% GW 15.0 Light brown Clayey SAND, moist, stiff, 60% sand, 40% B3-15 94 SC 3/4 Inch Prepacked 19.0 Screen Brown GRAVEL w/sand, moist, stiff, 65% gravel, 35% B3-19' 58 sand WELL LOG (TPH-G) 1:9-3322/GINT9-3322 GPJ DEFAULT.GDT 7/28/00 GW Ţ. 25.0 Bottom of B3-25 NA 25 Boring @ 25 ft

	G	ettler	-R	yar	ı, In	C.	Log of Boring	g MW-8
PROJ	FCT:	Former C	hevr	on Se	rvice S	Station No. 9-3322	LOCATION: 7225 Bancroft Avenue	e, Oakland, California
		T NO. : 1					CASING ELEVATION: 37.21 ft. (M	SL)
		RTED: 0.					WL (ft. bgs): DATE:	TIME:
		SHED: 0					WL (ft. bgs): 12.50 DATE: 03/13/02	TIME: 12:10
DRIL	LING N	METHOD:	8 in	. HSA	- Limi	ted Access Rig	TOTAL DEPTH: 30 feet	
DRIL	LING (	COMPANY:	Gr	egg D	rilling,	Inc.	GEOLOGIST: Tony Mikacich	
DЕРТН (feet)	PID (ppm)	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GE(	DLOGIC DESCRIPTION	WELL DIAGRAM
- - - 5- -	-	MW-8-6.5			CL	CLAY WITH SAND (CL 20% fine sand, abund matter.	.) – brown (10YR 5/3), moist; 80% clay, ant iron oxidation, black organic	2" blank schedule 40 PVC —>
10-	-	MW-8-11.5	-			medium sand, trace fi	brown (10YR 5/3), moist; 60% clay, 40% ne gravels.  L) - brown (10YR 5/3), moist; 80% clay, iron oxidation, trace gray nodules.	*
20-	- - - - - - -	MW-8-16.	-		GC	60% fine to medium of hydrocarbon odor.	H SAND (GC) - brown (10YR 5/3), wet; gravel, 20% clay, 20% medium sand, faint	2" machine slotted PVC (0.020 inch)
25-		MW-8-26	5.5		GC	CLAYEY GRAVEL WI 60% fine to medium hydrocarbon odor.	5% fine gravel, 5% silt.  TH SAND (GC) - brown (10YR 5/3), wet; gravel, 20% clay, 20% medium sand, tht olive brown (2.5Y 5/6).	
30· 35	-	MW-8-3	0	-		Bottom of boring at		

	G	ettler	-Ry	an,	Inc	·	Log of Boring I	MW-9
PRO.II	FCT.	Former C	hevroi	Serv	ice St	ation No. 9-3322	LOCATION: 7225 Bancroft Avenue, C	Pakland, California
		T NO.: L					CASING ELEVATION: 35.03 ft. (MSL.	)
		RTED: 03					WL (ft. bgs): DATE:	TIME:
		SHED: 0					WL (ft. bgs): 11.65 DATE: 03/15/02	TIME: 15:10
					- Limite	ed Access Rig	TOTAL DEPTH: 30 feet	
		COMPANY:					GEOLOGIST: Tony Mikacich	
OEPTH (feet)	PIO (ppm)	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS		DLOGIC DESCRIPTION	WELL DIAGRAM
			À:>			Asphalt - 2 inches thi		1 1 2 1 2 1
- - - 5—	2	MW-9-6.5			CL \	Concrete - 6 inches (CLAY WITH SAND (CL 20% fine to medium sa	.) - black (7.5YR 2/0), moist; 80% clay, and.	2" blank schedule 40 PVC — Small   Sm
10-	14	MW-9-11.5			SC	Includes trace fine g  CLAYEY SAND (SC) fine to medium sand,	- brown (10YR 5/3), very moist; 70% 30% clay, trace fine gravels.	20 inch)
20-	6 - 6 - 8	MW-9-16.					ht olive brown (2.5Y 5/6).	
25	6	MW-9-26	3.5		GP-GC	POORLY GRADED GR olive brown (10YR 5 30% medium sand, 10	AVEL WITH SAND AND CLAY (GP-GC) - /3), wet; 60% subrounded fine gravel, % clay.	— cap — 2" machine slotted PVC (0.0
30 35	-	MW-9-3	30	• ۴.		Bottom of boring at	30 feet bgs.	

Gettler-Ryan, Inc	<b>:</b> .	Log of Boring MW-10				
OJECT: Former Chevron Service S	tation No. 9-3322	LOCATION: 7225 Bancroft Avenue, C				
PROJECT NO.: DG93322G.4CT1		CASING ELEVATION: 35.53 ft. (MSL	)			
TE STARTED: 03/15/02		WL (II. Dgs). BATE:	TIME:			
TE FINISHED: 03/15/02		ME (18. 090). IEIOO DITTE	TIME: 15:10			
ILLING METHOD: 8 in. HSA - Limit	ed Access Rig	TOTAL DEPTH: 30 feet				
ILLING COMPANY: Gregg Drilling, I		GEOLOGIST: Tony Mikacich	<u> </u>			
PID (ppm) SAMPLE NUMBER SAMPLE INT. GRAPHIC LOG SOIL CLASS	GE	EOLOGIC DESCRIPTION	WELL DIAGRAM			
5— CL	30% fine to medium s	dark brown (10YR 3/3), moist; 70% clay, sand, trace fine to medium gravels.  Town (10YR 5/3); includes trace iron	blank schedule 40 PVC			
0- 8 MW-10-6.5 SC	CLAYEY SAND (SC	c) — light olive brown (2.5Y 5/4), moist; sand, 40% clay, trace fine gravels.				
15— 8 MW-10-16.5 CL	SANDY CLAY (CL) clay, 30% fine to r oxidation, black or	- light olive brown (2.5Y 5/4), wet; 70% medium sand, trace fine gravels, trace iron rganic matter.				
12 MW-10-21.5 GC	CLAYEY GRAVEL 50% subrounded to clay.	WITH SAND (GC) — olive (5Y 5/3), wet; fine gravel, 30% fine to medium sand, 20%				
GP-G	olive (5Y 5/3), w medium sand, 10%		- Cap			
30— 28 MW-10-30 M-12	Bottom of boring	g at 30 feet bys.				



## Cambria Environmental Technology, Inc. 1144 - 65th St.

Oakland, CA 94608 Telephone: (510) 420-0700 Fax: (510) 420-9170

## **BORING/WELL LOG**

	Chevron Products Company	BORING/WELL NAME B1	
CLIENT NAME _	Chevion Floducis Company	DRILLING STARTED 03-Jul-00	
JOB/SITE NAME	9-3322	DNICLING	
	7225 Bancroft Ave, Oakland, CA	DRILLING COMPLETED 03-Jul-00	
LOCATION _	7225 Bancroll Ave, Oakland, Ort	WELL DEVELOPMENT DATE (YIELD) NA	
PROJECT NUMBER _	31A-1806		
	Vironex	GROUND SURFACE ELEVATION Not Surveyed	
DRILLER _	VIIONEX	TOP OF CASING ELEVATION NA	- 6,
DRILLING METHOD _	Hydraulic push		
		SCREENED INTERVAL NA	
BORING DIAMETER		DEPTH TO WATER (First Encountered)	Ϋ́
LOGGED BY	Albert Simmons		Ŧ
REVIEWED BY	Bob Foss	DEPTH TO WATER (Static) NA NA	_ <del>_</del>
KEAICALED DI	0001000		

Hand augered to five feet bgs REMARKS CONTACT DEPTH (ft bgs) TPHg (mg/kg) GRAPHIC SAMPLE ID BLOW COUNTS U.S.C.S. EXTENT DEPTH (ft bgs) **WELL DIAGRAM** LITHOLOGIC DESCRIPTION 0.5 ASPHALT
Black CLAY w/trace sand, damp, stiff, 95% clay, 5% sand CL 5.0 Brown Sandy CLAY, dry, very stiff, 80% clay, 20% sand B1-5' NA CL Brown Sandy CLAY w/gravels, dry, stiff, 60% clay, 30% sand, 10% gravels <1.0 B1-10' Portland Type CL 1/11 15.0 Olive Clayey GRAVEL w/ sand, damp to moist, soft, 35% gravel, 30% clay, 20% sand B1-15' NA GC 18.0 Litght brown Sandy CLAY, moist, very stiff, 60% clay, B1-17.5' 又 <1.0 40% sand CL WELL LOG (TPH-G) 1:9-3322/GINT9-3322 GPJ DEFAULT GDT 7/28/00 24.0 Bottom of Boring @ 24 ft

Cambria Environmental Technology, Inc. 1144 - 65th St. Oakland, CA 94608 Telephone: (510) 420-0700 Fax: (510) 420-9170

> 31A-1806 Vironex

Hydraulic push

Chevron Products Company

7225 Bancroft Ave, Oakland, CA

CLIENT NAME

LOCATION

DRILLER

JOB/SITE NAME

PROJECT NUMBER

DRILLING METHOD
BORING DIAMETER

BORING/WELL NAME	B2		
DRILLING STARTED	03-Jul-00	·	
DRILLING COMPLETED	03-Jul-00		
WELL DEVELOPMENT DA		NA	
GROUND SURFACE ELE		Not Surveyed	
TOP OF CASING ELEVAT			
SCREENED INTERVAL			
DEPTH TO WATER (First		NA	<u>_</u>
DEL TIL TO WATER (Stotl		NA	

Albert Simmons LOGGED BY DEPTH TO WATER (Static) **Bob Foss** REVIEWED BY Hand augered to five feet bgs REMARKS CONTACT DEPTH (ft bgs) TPHg (mg/kg) GRAPHIC LOG BLOW COUNTS DEPTH (ft bgs) U.S.C.S. SAMPLE **WELL DIAGRAM** LITHOLOGIC DESCRIPTION 0.5 CONCRETE Black CLAY w/trace sand, damp, stiff, 95% clay, 5% sand CL 5.0 Dark brown Sandy CLAY, dry, very stiff, 60% clay, 40% <1.0 B2-5' sand CL 11.0 B2-10° <1.0 Dark brown Clayey GRAVEL w/sand, dry, stiff, 45% Portland Type gravel, 35% clay, 20% sand GC 16.0 B2-15' NA Olive Sandy GRAVEL w/clay, moist, stiff, 50% gravel, 30% sand, 20% clay GC 140 **B2-18**<sup>t</sup> 20.0 Olive Clayey GRAVEL w/sand, moist, stiff, 50% gravel, 30% clay, 20% sand GC 24.0 WELL LOG (TPH-G) 1:19-3322/GINT9-3322.GPJ DEFAULT.GDT Bottom of Boring @ 24 ft



CLIENT NAME	Chevron Products Company	BORING/WELL NAME B3/MW-7	
JOB/SITE NAME	9-3322	DRILLING STARTED 03-Jul-00	
LOCATION	7225 Bancroft Ave, Oakland, CA	DRILLING COMPLETED 03-Jul-00	
PROJECT NUMBER	31A-1806	WELL DEVELOPMENT DATE (YIELD) NA	_
DRILLER	Vironex	GROUND SURFACE ELEVATION Not Surveyed	_
DRILLING METHOD	Hydraulic push	TOP OF CASING ELEVATION NA	_
	3"	SCREENED INTERVAL 10 to 25 ft bgs	
LOGGED BY	Albert Simmons	DEPTH TO WATER (First Encountered) NA	Ž
REVIEWED BY	Bob Foss	DEPTH TO WATER (Static) 23.20 ft (05-Jul-00)	Ţ

Hand augered to five feet bgs REMARKS CONTACT DEPTH (ft bgs) TPHg (mg/kg) SAMPLE ID GRAPHIC LOG BLOW U.S.C.S. DEPTH (ft bgs) **WELL DIAGRAM** LITHOLOGIC DESCRIPTION 0.5 <u>ASPHALT</u> Black CLAY w/trace sand, damp, stiff, 95% clay, 5% CL Portland Type MI 5.0 Dark brown Sandy CLAY, dry, very stiff, 60% clay, 40% B3-5' NA ■ Bentonite Seal CL Note: gravel zone from 8-9' ft bgs 9.0 Monterey Mottled orange & brown Clayey SAND, dry, stiff, 60% Sand #2/12 sand, 40% clay B3-10<sup>4</sup> <1.0 sc 12.0 Brown GRAVEL w/ sand, dry, stiff, 70% gravel, 30% GW 15.0 Light brown Clayey SAND, moist, stiff, 60% sand, 40% B3-15' 94 SC 3/4 Inch Prepacked 19.0 Screen Brown GRAVEL w/sand, moist, stiff, 65% gravel, 35% 58 B3-19' sand WELL LOG (TPH-G) 1:9-3322/GINT9-3322/GPJ DEFAULT.GDT 7/28/00 Ţ 25.0 **Bottom of** NA B3-25' 25 Boring @ 25 ft



PAGE 1 OF 1



Cambria Environmental Technology, Inc. 1144 - 65th St. Oakland, CA 94608 Telephone: (510) 420-0700

relept	none:	(010)	420-0700
Fax: (	510)	420-9	170

CLIENT N JOB/SITE LOCATIO PROJECT DRILLER DRILLING BORING LOGGED REVIEWE REMARK	E NAM ON T NUM G MET DIAME BY ED BY	E	V&W Drilling Hydraulic push TOP OF CASING ELEVATION Not Surve  1.5" SCREENED INTERVAL NA Albert Simmons DEPTH TO WATER (First Encountered) Bob Foss DEPTH TO WATER (Static) Hand augered to five fbg				Not Surveyed  veyed  NA   24.50ft (25-Sep-00)  ▼					
TPHg (mg/kg)	BLOW	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITH	OLOGIC DESCRIPTION		CONTACT DEPTH (ft bgs)	WELI	_ DIAGRAM
		SB4-3' SB4-5'	Υ.	- 5 -	CL		clay, 5% sand	oith trace sand, damp, stiff, 9		5.0		
		SB4-10 <sup>4</sup>		  - 10-	CL CL		Light brown mottled dry, very stiff, 70%	with greenish grey <u>Sandy C</u> clay, 30% sand	LAY.	9.0		
		SB4-15'		15	GC		sand, dry, stiff, 45% Light brown Sandy @15' Color change increases to damp	greenish grey Clayey GRAVI gravel, 35% sand, 20% clay CLAY, dry, stiff, 60% clay, 4 s to olive brown; moisture co	y 0% sand entent	13.5		✓ Portland Type I/II
01.92900		SB4-18' SB4-20'		 -20-	CL		sand			23.0		
G) 1.9-3322-10GNT9-3322.GPJ DEFAULL 01		SB4-24'		-25-	SC		Light brown <u>Clayey</u> clay	SAND, wet, soft, 60% sand,	40%	25.0		Bottom of Boring @ 25 ft



Cambria Environmental Technology, Inc. 1144 - 65th St. Oakland, CA 94608 Telephone: (510) 420-0700 Fax: (510) 420-9170

CLIENT NAME	Chevron Products Company	BORING/WELL NAME SB5
JOB/SITE NAME	9-3322	DRILLING STARTED 25-Sep-00
LOCATION	7225 Bancroft Ave, Oakland, CA	DRILLING COMPLETED 25-Sep-00
PROJECT NUMBER _	31A-1806	WELL DEVELOPMENT DATE (YIELD) NA
DRILLER	V&W Drilling	GROUND SURFACE ELEVATION Not Surveyed
DRILLING METHOD	Hydraulic push	TOP OF CASING ELEVATION Not Surveyed
BORING DIAMETER	1.5*	SCREENED INTERVAL NA
LOGGED BY	Albert Simmons	DEPTH TO WATER (First Encountered) NA
REVIEWED BY	Bob Foss	DEPTH TO WATER (Static) 17.50ft (25-Sep-00)

Hand augered to five fbg REMARKS CONTACT DEPTH (ft bgs) TPHg (mg/kg) GRAPHIC LOG BLOW COUNTS U.S.C.S. DEPTH (ft bgs) EXTENT SAMPLE LITHOLOGIC DESCRIPTION **WELL DIAGRAM** 0.5 ASPHALT Black CLAY with trace sand, damp, stiff, 95% clay, 5% sand CL SB5-3' 4.0 Light brown Sandy CLAY, dry, very stiff, 60% clay, 40% CL SB5-5' 6.0 @ 5' Color changes to dark brown 9.0 Light brown Sandy CLAY, dry, very stiff, 60% clay, 40% sand SB5-10' 11.0 Portland Type 1/11 14.0 Olive brown mottled with greenish grey Sandy CLAY with gravel, moist, stiff, 55% clay, 30% sand, 15% gravel CL 16.0 Olive Clayey GRAVEL with sand, wet, soft, 50% gravels, 35% sand, 15% clay SB5-16' Ţ. GC SB5-20' 21.0 LOG (TPH-G) 1:19-3322-1/GINT9-3322 GPJ DEFAULT.GDT 9/29/00 23.0 Olive Clayey SAND saturated, soft, 70% sand, 30% sc SB5-24' 25.0 Bottom of Boring @ 25 ft PAGE 1 OF



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	, ,			
CLIENT NAME  JOB/SITE NAME  LOCATION  PROJECT NUMBER  DRILLER  DRILLING METHOD  BORING DIAMETER  LOGGED BY  REVIEWED BY  REMARKS	Chevron Products Company 9-3322 7225 Bancroft Ave, Oakland, CA 31A-1806 V&W Drilling Hydraulic push 1.5" Albert Simmons Bob Foss Hand augered to five fbg	BORING/WELL NAME SB6  DRILLING STARTED 25-Sep-00  DRILLING COMPLETED 25-Sep-00  WELL DEVELOPMENT DATE (YIELD)  GROUND SURFACE ELEVATION  TOP OF CASING ELEVATION Not SI  SCREENED INTERVAL NA  DEPTH TO WATER (First Encountered DEPTH TO WATER (Static)	NA Not Su urveyed	rveyed $\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$
4g (mg/kg) BLOW OUNTS	EXTENT DEPTH (ft bgs) J.S.C.S. IRAPHIC LOG	LITHOLOGIC DESCRIPTION	ONTACT PTH (ft bgs)	WELL DIAGRAM

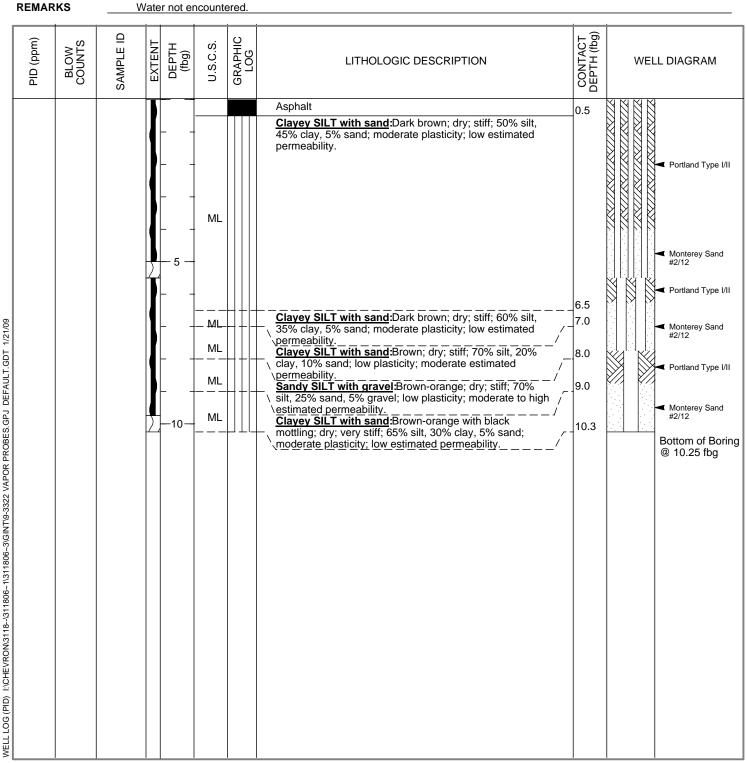
SH SA 횬 ASPHALT
Black CLAY with trace sand, dry, stiff, 95% clay, 5% sand CL SB6-3' SB6-5' 6.0 Brown Sandy CLAY, dry, stiff, 60% clay, 40% sand CL 10.0 Brown Sandy CLAY, dry, stiff, 60% clay, 40% sand SB6-10' CL 12.0 Portland Type 15.0 Brown Clayey GRAVEL with sand, moist, stiff, 45% gravel, 35% sand, 20% clay GC 19.0 Olive Clayey SAND, moist, stiff, 70% sand, 30% clay @ 21' Color changes to light brown SC WELL LOG (TPH-G) 1:9-3322-1/GINT9-3322.GPJ DEFAULT.GDT 9/29/00 SB6-23' 23.0 Light brown Sandy CLAY, moist-wet, medium stiff, 60% clay, 40 % sand 25.0 **Bottom of** 25 Boring @ 25 ft PAGE 1 OF 1



Cambria Environmental Technology, Inc. 5900 Hollis Street, Suite A Emeryville, CA 94608 Telephone: 510-420-0700

Fax: 510-420-9170

**CLIENT NAME** Chevron Products Company **BORING/WELL NAME** VP-1 17-Mar-05 **JOB/SITE NAME** 9-3322 **DRILLING STARTED** DRILLING COMPLETED 17-Mar-05 7225 Bancroft Avenue, Oakland, CA LOCATION PROJECT NUMBER 31H-1806 WELL DEVELOPMENT DATE (YIELD) NA **GROUND SURFACE ELEVATION** NA **DRILLER** Grega Drilling **DRILLING METHOD** Hand Augered TOP OF CASING ELEVATION NA NA **BORING DIAMETER SCREENED INTERVALS** LOGGED BY Charlotte Evans **DEPTH TO WATER (First Encountered)** NA **REVIEWED BY DEPTH TO WATER (Static)** B. Foss, RG# 7445 NA





Cambria Environmental Technology, Inc. 5900 Hollis Street, Suite A Emeryville, CA 94608 Telephone: 510-420-0700

Fax: 510-420-9170

VP-2 **CLIENT NAME** Chevron Products Company **BORING/WELL NAME** 17-Mar-05 JOB/SITE NAME 9-3322 **DRILLING STARTED** DRILLING COMPLETED 17-Mar-05 LOCATION 7225 Bancroft Avenue, Oakland, CA PROJECT NUMBER 31H-1806 WELL DEVELOPMENT DATE (YIELD) NA NA **DRILLER** Gregg Drilling **GROUND SURFACE ELEVATION DRILLING METHOD** Hand Augered TOP OF CASING ELEVATION NA NA **BORING DIAMETER SCREENED INTERVALS LOGGED BY** Charlotte Evans DEPTH TO WATER (First Encountered) NA **REVIEWED BY** B. Foss, RG# 7445 **DEPTH TO WATER (Static)** NA **REMARKS** Water not encountered.

PID (ppm)	BLOW	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WEI	LL DIAGRAM
WELL LOG (PID) 1:/CHEVROM311833118063/GINT\9-3322 VAPOR PROBES.GPJ DEFAULT.GDT 1/21/09 P		AS			ML GC	9	CLAY SILT with sand and gravel:Dark brown; damp; moderately soft; 40% clay, 40% silt, 10% sand, 10% gravel; moderate plasticity; moderate estimated permeability.  CLAYEY GRAVEL with silt: Grey brown; wet; 45% clay, 45% gravel, 10% silt; low plasticity; high estimated permeability.  Silty CLAY with sand: Dark brown; damp; stiff; 60% clay, 35% silt, 10% sand; moderate plasticity; moderate estimated permeability.  Silty CLAY with sand: Brown; damp; stiff; 60% clay, 35% silt, 10% sand; moderate plasticity; moderate estimated permeability.  Sandy SILT with clay and gravel:Brown-orange; damp; very stiff; 65% silt, 20% sand, 10% clay, 5% gravel; low plasticity; high estimated permeability.	1.0 2.5 3.0 6.0		Monterey Sand #2/12  Portland Type I/II  Monterey Sand #2/12  Portland Type I/II  Monterey Sand #2/12  Bottom of Boring @ 11.5 fbg
WELL LOG (PII										



Cambria Environmental Technology, Inc. 5900 Hollis Street, Suite A Emeryville, CA 94608 Telephone: 510-420-0700

Fax: 510-420-9170

**CLIENT NAME** VP-3 Chevron Products Company **BORING/WELL NAME** 17-Mar-05 JOB/SITE NAME 9-3322 **DRILLING STARTED** DRILLING COMPLETED 17-Mar-05 LOCATION 7225 Bancroft Avenue, Oakland, CA PROJECT NUMBER 31H-1806 WELL DEVELOPMENT DATE (YIELD) NA NA **DRILLER** Gregg Drilling **GROUND SURFACE ELEVATION DRILLING METHOD** Hand Augered TOP OF CASING ELEVATION NA NA **BORING DIAMETER SCREENED INTERVALS LOGGED BY** Charlotte Evans **DEPTH TO WATER (First Encountered)** NA **REVIEWED BY** B. Foss, RG# 7445 **DEPTH TO WATER (Static)** NA REMARKS Water not encountered.

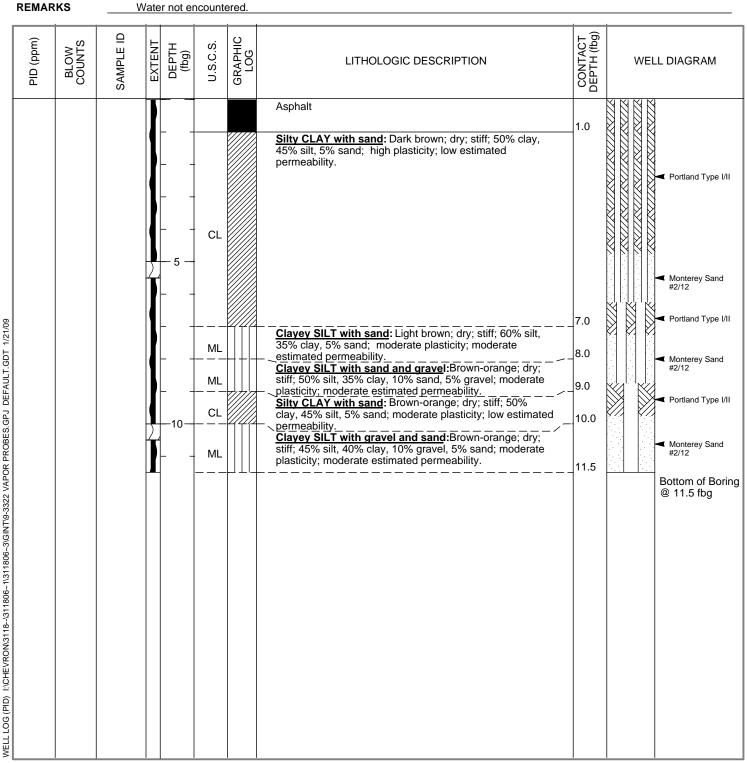
	REMAR	ino	V	vate	r not er	icount	егеа.			
	PID (ppm)	BLOW	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
WELL LOG (PID) I:\CHEVRON\3118-\311806~\1311806~\3\GINT\9-3322 VAPOR PROBES.GPJ DEFAULT.GDT 1/21/09						ML ML ML ML		Clayey SILT with gravel: Dark brown; dry; stiff; 55% silt, 40% clay, 5% gravel; moderate plasticity; moderate estimated permeability.  Clayey SILT with sand: Brown; dry; stiff; 55% silt, 40% clay, 5% sand; moderate plasticity; low estimated permeability.  Clayey SILT with gravel and sand Brown-orange; dry; stiff; 55% silt, 30% clay, 10% gravel and 5% sand; low; moderate estimated permeability.  Clayey SILT with sand and gravelBrown-orange; dry; stiff; 60% silt, 20% clay, 15% sand, 5% gravel; low plasticity; moderate estimated permeability.  Clayey SILT with sand and gravelBrown-orange; dry; stiff; 50% silt, 30% clay, 15% sand, 5% gravel; low plasticity; moderate estimated permeability.  Clayey SILT with sand and gravelBrown-orange; dry; stiff; 50% silt, 30% clay, 15% sand, 5% gravel; low plasticity; moderate estimated permeability.	1.0 5.0 6.0 7.0 9.0	Monterey Sand #2/12  Portland Type I/II  Monterey Sand #2/12  Portland Type I/II  Monterey Sand #2/12  Bottom of Boring @ 11.5 fbg



Cambria Environmental Technology, Inc. 5900 Hollis Street, Suite A Emeryville, CA 94608 Telephone: 510-420-0700

Fax: 510-420-9170

**CLIENT NAME** Chevron Products Company **BORING/WELL NAME** VP-4 16-Mar-05 **JOB/SITE NAME** 9-3322 **DRILLING STARTED** DRILLING COMPLETED 16-Mar-05 7225 Bancroft Avenue, Oakland, CA LOCATION PROJECT NUMBER 31H-1806 WELL DEVELOPMENT DATE (YIELD) NA **GROUND SURFACE ELEVATION** NA **DRILLER** Grega Drilling **DRILLING METHOD** Hand Augered TOP OF CASING ELEVATION NA NA **BORING DIAMETER SCREENED INTERVALS LOGGED BY** Charlotte Evans **DEPTH TO WATER (First Encountered)** NA **REVIEWED BY DEPTH TO WATER (Static)** B. Foss, RG# 7445 NA **REMARKS** 



# **Appendix E**

**LNAPL Fingerprint Report** 



# CHEVRONTEXACO ENERGY TECHNOLOGY COMPANY INTEGRATED LABORATORY TECHNOLOGIES UNIT PROJECT SUMMARY

Project No.2005.0007Requested by Date InitiatedM. Inglis LocationDate Initiated2/25/05LocationCEMC

 Date Completed
 3/15/05
 P.O. Box 6012 (K2256)

 CRTC Charge Code
 YWETS1570047
 San Ramon, CA 94583

**Phone** (925)842-1589

**Project Description:** Analyze one hydrocarbon sample from a former Chevron service station, facility #9-3322 located at 7225 Bancroft Avenue, Oakland, CA. The sample is labeled MW-1. Identify the hydrocarbon type present. Compare with a previous sample from this site, 1999.0063.

**Results:** The sample contains weathered leaded gasoline. It contains 0.25g/gal lead consisting primarily of tetraethyllead (TEL). The gasoline has lost most of its normal paraffins, iso-octane and olefins. It has also lost its most of the lighter aromatics (benzene, toluene ethylbenzenes and xylenes) to water washing and/or microbial action. This gasoline sample has no detectable oxygenates (<0.1 wt %).

Data from the previous sample (1999.0063 water sample) shows that it was more biodegraded and/or water washed than the current sample. It had lost most of its light ends. TEL was detected in the 1999 sample.

Sample	C5- (area%)	C6-C10 (area %)	C11-C14 (area %)	C15-C25+ (area %)
MW-1 Product	1.57	80.75	16.85	0.83
MW-1 (1999.0063) water sample	0.19	78.13	20.62	1.07

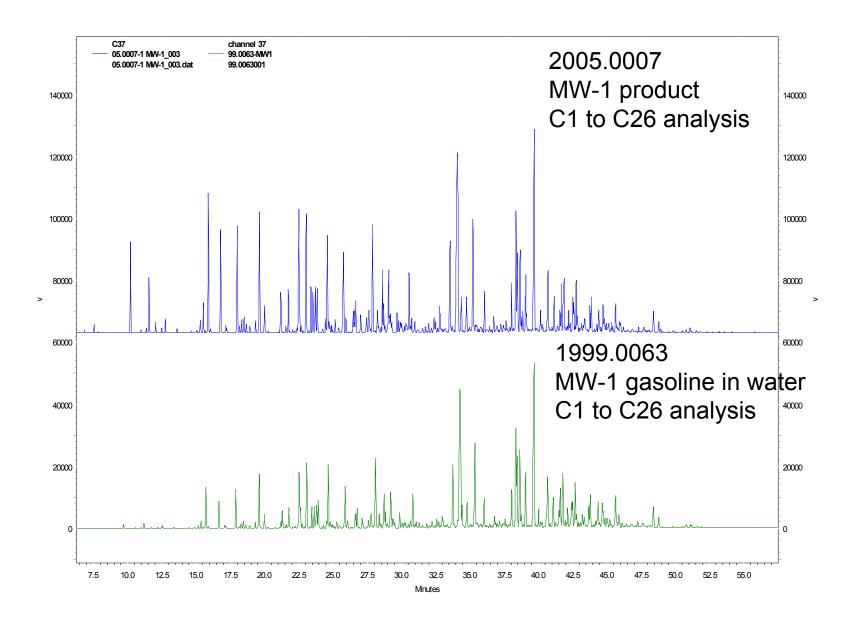
<u>Analytical Approach:</u> The sample was analyzed by gas chromatography using a flame ionization detector to determine the hydrocarbon composition and an electron capture detector to measure the lead alkyl isomer distribution. Oxygenates were measured by ASTM method D4815. Total lead was measured by Inductively Coupled Plasma Spectrometry.

Analyzed by: G. C. Chen, A. Hackett, R. Joves

Reported by: G. C. Chen GCCReviewed by: M. E. Moir MEM MInglis AWVerstuyft GCChen

BFoss MEMoir

Technical files ECTfile



Request for Environmental Analysis and Chain of Custody

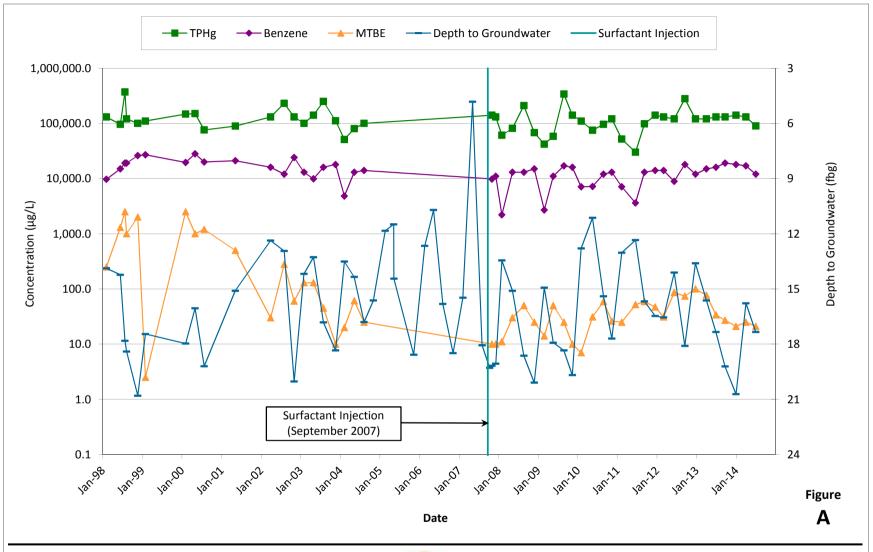
Date

100 Che Contact: Gr	nTexaco Energy Technology Co., evron Way, Richmond, CA 94802 race Chen 510-242-5918 or Michael Moir 51	10-242-1634		2/21/05
ChevronTex Mark Inglis	xaco PM			Phone 925-842-1589
Company, D Chevron EM		EMC Bus. Unit, if applicabl	е	Charge Code
Address P.O. Box	k 6012(K2256), San Ramon, CA	94583		
Contract PM Bob Foss	I (Consultant)	E-mail bfoss@cambria-env.com		Phone 510-420-3348
Company, A 5900 Ho	ddress. llis St., Suite A, Emeryvill	e, CA 94608		
	ocation (Address) ncroft Avenue, Oakland, CA		Facility N	lumber Chevron #9-3322
(xx ) Service ( ) Other_	Station () Fuel Terminal () Marine Termin	nal () Pipeline () Refinery	<i>I</i>	
() Other	n()Texaco()Gulf()BP()Cumberland	Farms		
(xx ) Identify () Compare () Other	lysis Desired Product () Compare Spill with Potential So Samples with Previous Analyses. Log Numb	ers and/or Dates: (Call 510-242-5918 o	or 510-242	2-1634 for Approval)
	Request (Clearly State Problem, Site History,	Draw or Enclose a Map, Inc	licate Wh	ether Leak or Spill)
Identify prod	luct, previous samples were submitted approx	ximately three years ago.		
	-around time is 4 weeks. Call 510-242-1634 to	<del></del>	ements.	Compled
Number of Containers	Sample Name/Description	Date Sampled		Sampled By
Per Sample		2/21	lor	3 Herror
1	MW-1 (Monitoring Well)			
			5/05	
Transporter Gettler-	-Ryan, Inc. HK 2/2	5/05 Date Rece 2/21/.	ived	Initials ///
	xaco Energy Research & Technology	Date Rece	5	Initials
	oper's responsibility to ensure Federal DO ultation with a ChevronTexaco Regional Tr			

To: Environmental Analysis Lab, Room 51-1151,

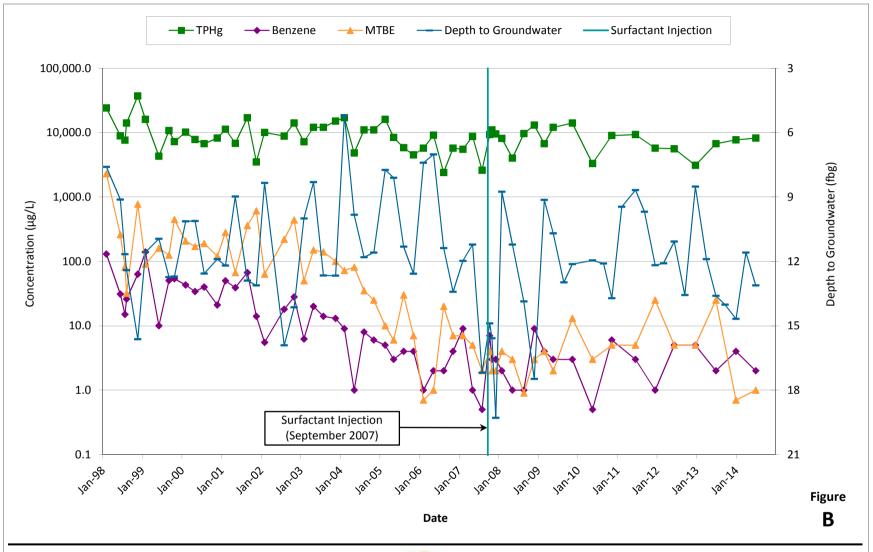
# **Appendix F**

**Concentration Trend Graphs** 



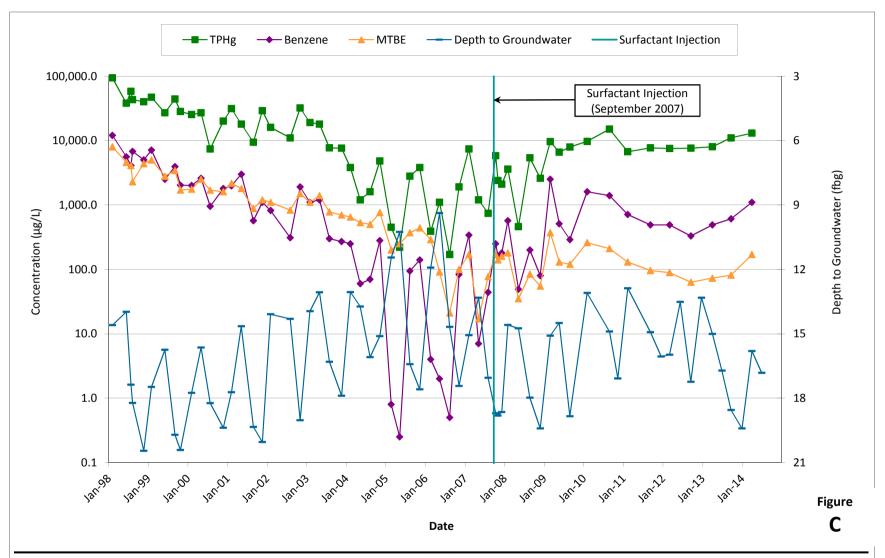


MW-1: TPHg,BENZENE, AND MTBE CONCENTRATIONS AND DEPTH TO GROUNDWATER



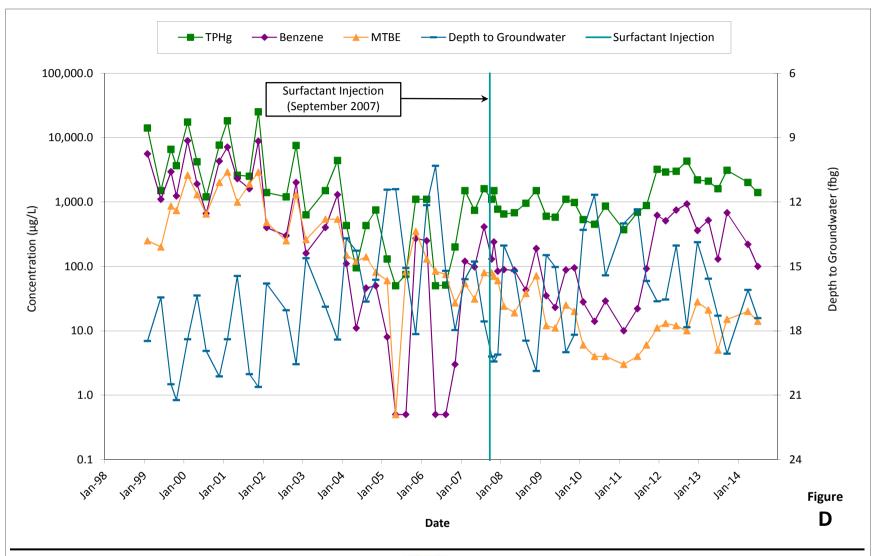


MW-2: TPHg,BENZENE, AND MTBE CONCENTRATIONS AND DEPTH TO GROUNDWATER



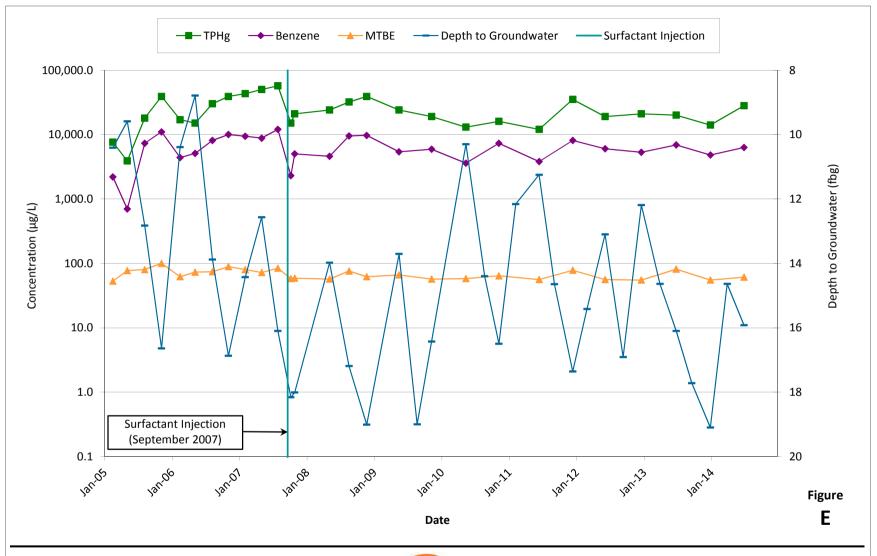


MW-3: TPHg,BENZENE, AND MTBE CONCENTRATIONS AND DEPTH TO GROUNDWATER



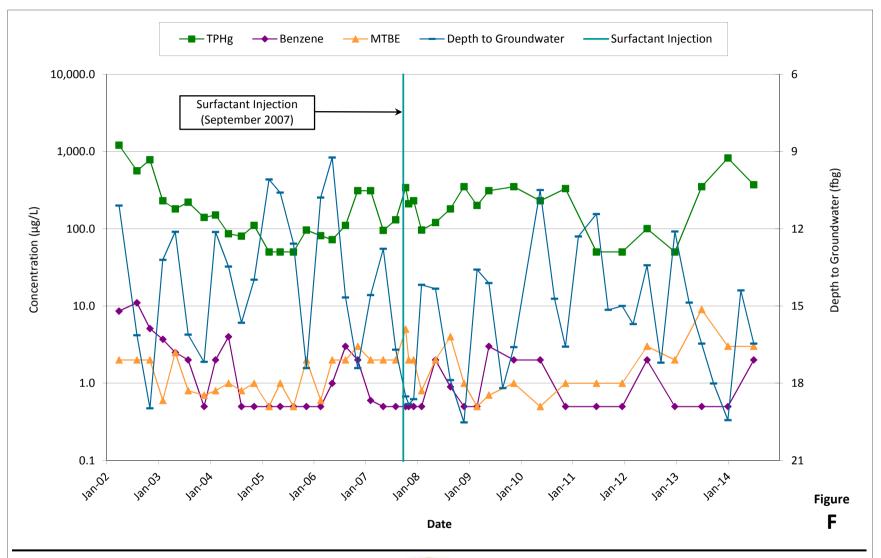


MW-6: TPHg,BENZENE, AND MTBE CONCENTRATIONS AND DEPTH TO GROUNDWATER



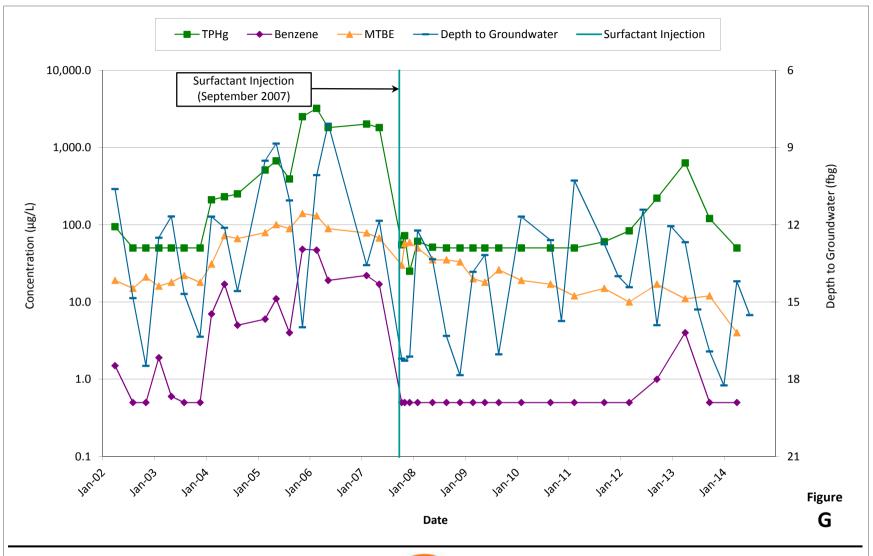


MW-7: TPHg,BENZENE, AND MTBE CONCENTRATIONS AND DEPTH TO GROUNDWATER





MW-8: TPHg,BENZENE, AND MTBE CONCENTRATIONS AND DEPTH TO GROUNDWATER

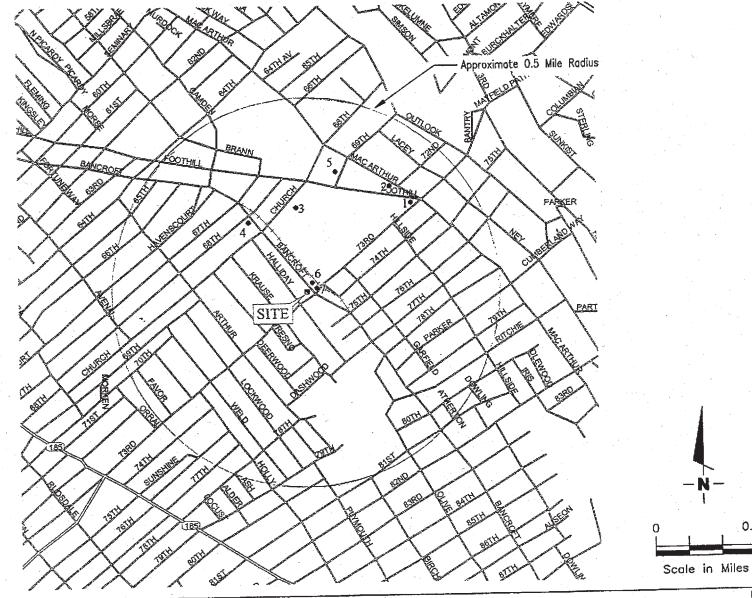




MW-9: TPHg,BENZENE, AND MTBE CONCENTRATIONS AND DEPTH TO GROUNDWATER

# Appendix G

Well Survey Map and Table





## Gettler - Ryan Inc.

6747 Sierra Ct., Suite J Dublin, CA 94568

Source: Street Atlas USA, Delorme (1995).

**EXPLANATION:** 

Well Location

(925) 551-7555

VICINITY MAP Chevron Service Station No. 9-3322 7225 Bancroft Avenue Oakland, California

DATE 07/98

JOB NUMBER 346433

REVIEWED BY

REVISED DATE

0.25

FIGURE

## TABLE 1 - WELL SEARCH DATA Chevron Service Station #9-3322 7225 Bancroft Avenue Oakland, California

Map ID	Well Owner	Well Location	Well Use	State Well Number	Year Installed
1	Topa Savings Bank	Foothill Boulevard and 73rd Avenue	Test	02S03W10J	1989
2	City of Oakland	7100 Foothill Boulevard	Monitoring	02S03W10J	1993
3	Topa Savings Bank	Church Street and Bancroft Avenue	Test	02S03W10K	1989
4	Exxon Oil Co.	Bancroft Avenue and 68th Street	Other	02S03W10L	1977
5	Chevrolet - Oakland Div.	Foothill Boulevard and 69th Street	Industrial	02S03W10Q	1951
6	Topa Savings Bank	Eastmont Mall: Bancroft Ave. and 73rd Ave.	Test	02S03W10Q	1989
7	BP Oil Co.	Bancroft Avenue and 73rd Ave.	Monitoring	02S03W10Q	1992

Well data information was collected on July 9, 1998 from the Department of Water Resources files located in Sacramento, California.

# **Appendix H**

**Standard Operating Procedures** 



#### STANDARD FIELD PROCEDURES FOR SOIL BORINGS

This document presents standard field methods for drilling and sampling soil borings and installing, developing and sampling groundwater monitoring wells. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

#### **SOIL BORINGS**

### **Objectives**

Soil samples are collected to characterize subsurface lithology, assess whether the soils exhibit obvious hydrocarbon or other compound vapor or staining, and to collect samples for analysis at a State-certified laboratory. All borings are logged using the ASTM D2488-06 Unified Soil Classification System by a trained geologist working under the supervision of a California Professional Geologist (PG).

### **Soil Boring and Sampling**

Prior to drilling, the first 8 feet of the boring are cleared using an air or water knife and vacuum extraction or hand auger. This minimizes the potential for impacting utilities. Soil borings are typically drilled using hollow-stem augers or direct-push technologies such as the Geoprobe®. Soil samples are collected at least every five ft to characterize the subsurface sediments and for possible chemical analysis. Additional soil samples are collected near the water table and at lithologic changes. Samples are collected using lined split-barrel or equivalent samplers driven into undisturbed sediments at the bottom of the borehole.

Drilling and sampling equipment is steam-cleaned prior to drilling and between borings to prevent cross-contamination. Sampling equipment is washed between samples with trisodium phosphate or an equivalent EPA-approved detergent.

#### **Sample Analysis**

Sampling tubes chosen for analysis are trimmed of excess soil and capped with Teflon tape and plastic end caps. Soil samples are labeled and stored at or below 4° C on either crushed or dry ice, depending upon local regulations. Samples are transported under chain-of-custody to a State-certified analytic laboratory.

### Field Screening

One of the remaining tubes is partially emptied leaving about one-third of the soil in the tube. The tube is capped with plastic end caps and set aside to allow hydrocarbons to volatilize from the soil. After ten to fifteen minutes, a portable volatile vapor analyzer measures volatile hydrocarbon vapor concentrations in the tube headspace, extracting the vapor through a slit in the cap. Volatile vapor analyzer measurements are used along with the field observations, odors, stratigraphy and groundwater depth to select soil samples for analysis.

#### **Water Sampling**

Water samples, if they are collected from the boring, are either collected using a driven Hydropunch® type sampler or are collected from the open borehole using bailers. The groundwater samples are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labeled, placed in protective foam sleeves, stored on crushed ice at or below 4°C, and transported under chain-of-custody to the laboratory. Laboratory-supplied trip blanks accompany the samples and are analyzed to check for cross-contamination. An equipment blank may be analyzed if non-dedicated sampling equipment is used.

#### Grouting

If the borings are not completed as wells, the borings are filled to the ground surface with cement grout poured or pumped through a tremie pipe.

### **Waste Handling and Disposal**

Soil cuttings from drilling activities are usually stockpiled onsite and covered by plastic sheeting. At least three individual soil samples are collected from the stockpiles and composited at the analytic laboratory. The composite sample is analyzed for the same constituents analyzed in the borehole samples in addition to any analytes required by the receiving disposal facility. Soil cuttings are transported by licensed waste haulers and disposed in secure, licensed facilities based on the composite analytic results.

Groundwater removed during development and sampling is typically stored onsite in sealed 55-gallon drums. Each drum is labeled with the drum number, date of generation, suspected contents, generator identification and consultant contact. Upon receipt of analytic results, the water is either pumped out using a vacuum truck for transport to a licensed waste treatment/disposal facility or the individual drums are picked up and transported to the waste facility where the drum contents are removed and appropriately disposed.

# STANDARD FIELD PROCEDURES FOR SOIL VAPOR PROBE INSTALLATION AND SAMPLING

This document describes Conestoga-Rovers & Associates' standard field procedures for soil vapor probe installation and sampling. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

### **Objectives**

Soil vapor samples are collected and analyzed to assess whether vapor-phase subsurface contaminants pose a threat to human health or the environment.

## Shallow Soil Vapor Probe Installation

The shallow soil vapor probe method for soil vapor sampling utilizes a hand auger or drill rig to advance a boring for the installation of a soil vapor sampling probe. Soil vapor probes facilitate the collection of in-situ vapor samples. Once the boring is advanced to the final depth, #2/12 filter pack is poured through a tremie pipe to fill the bottom 6 inches of the boring. A permeable, stainless-steel probe tip is connected to ¼-inch outside diameter Teflon tubing via a push-to-connect fitting. The probe tip is then placed approximately 6 inches from the bottom of the boring and covered by 6 inches of #2/16 filter sand. A 12 inch layer of dry granular bentonite is placed on top of the filter pack. Pre-hydrated granular bentonite is then poured to fill the borehole. The tube is labeled, capped, and placed within a traditional well box finished flush to grade. Soil vapor samples will be collected no sooner than 48 hours after installation of the soil vapor probe to allow adequate time for representative soil vapors to accumulate. Soil vapor sample collection will not be scheduled until after a minimum of three consecutive precipitation-free days and irrigation onsite has ceased.

#### **Purging**

At least three purge volumes of vapor are removed from the soil vapor probe prior to sampling. The purge volume is defined as the amount of air within the probe and tubing. Purging is performed using the vacuum of a dedicated Summa canister, a flow regulator set to the same flow rate used for sampling, and vacuum gauges. Immediately after purging, soil vapor samples will be collected using the appropriate size Summa canister with attached flow regulator and sediment filter.

#### Sampling Soil Vapor Probes

Samples collected using a SUMMA<sup>™</sup> canister will have the SUMMA<sup>™</sup> canister connected to the sampling tube of each vapor probe. Prior to collecting soil vapor samples, the initial vacuum of the canisters is measured and recorded on the chain-of-custody. The vacuum of the SUMMA<sup>™</sup> canister is used to draw the soil vapor through the flow controller until a negative pressure of approximately 5 inches of mercury is observed on the vacuum gauge and recorded on the

chain-of-custody. The flow controllers should be set to 100-200 milliliters per minute. Field duplicates should be collected for every day of sampling and/or for every 10 samples collected.

In accordance with the DTSC guidance document titled *Advisory-Active Soil Gas Investigations*, dated March 2010, leak testing is necessary during sampling. Helium is recommended, although shaving cream is acceptable. Helium is pumped into a shroud that contains the entire sampling apparatus and the soil vapor probe well vault. A helium meter is used to quantify the percentage helium in the shroud during sampling.

Samples collected for TO-17 analysis will be collected using a TO-17 Sorbent Tubes connected to the sampling tube of each vapor probe. A 60 cc syringe will be used to draw the sample into the sorbent tubes. Field duplicates should be collected for each day of sampling and/or for every 10 samples collected.

A leak test will be performed prior to connecting the sampling equipment to the vapor tubing. The test is performed by inserting the sorbent tube into the tube holder on the syringe assembly, turning the valve into the 'off' position, pulling the plunger of the syringe. If the plunger does not move or immediately returns to the starting position, the system is leak tight and is ready for sampling.

#### Vapor Sample Storage, Handling and Transport

Samples are stored and transported under chain-of-custody to a state-certified analytic laboratory. Samples should never be cooled due to the possibility of condensation within the canister.

## Soil Vapor Probe Destruction

The soil vapor probes will be preserved until they are no longer needed for risk evaluation purposes. At that time, they will be destroyed by extracting the tubing, hand augering to remove the sand and bentonite, and backfilling the boring with neat cement. The boring will be patched with asphalt or concrete, as appropriate.

H-2