



Shelby Lathrop

Project Manager, Downstream Environmental Management

Alameda County Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: Site Conceptual Model
Former Chevron Service Station No. 376584
670 98th Avenue
Oakland, California
ACDEH Case No. RO0379
GeoTracker Global ID: T0600101442

I have read and acknowledge the content, recommendations and/or conclusions contained in the attached document submitted on my behalf to the State Water Board's GeoTracker website.

Sincerely,

A handwritten signature in black ink, appearing to read "Shelby Lathrop".

Shelby Lathrop
Project Manager

September 5, 2018

External References:
GeoTracker ID: T0600101442
ACEH Case No. RO379
RWQCB Case No. 01-1567

Ms. Karel Detterman, PG
Hazardous Materials Specialist
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502
(via *electronic mail and internet uploads*)

AECOM Reference: Chevron Site No. 376584, 670 98th Street, Oakland, California 94603

Subject: Site Conceptual Model

Ms. Detterman:

In accordance with your Notice to Comply letter, dated June 28, 2018, please find attached the requested Site Conceptual Model (SCM) for the above-referenced site.

A Data Gap Work Plan will be submitted under separate cover.

Sincerely,



Brenda Evans
Senior Project Manager
AECOM
805-233-3988
brenda.evans@aecom.com

ccs: Ms. Carryl MacLeod and Ms. Shelby Lathrop, Chevron (*via electronic copy*)
Linda Hothem, Linda Hothem Trust (*via electronic mail*)
Rosyln Danforth, c/o Rocklin Industries (*via paper copy*)
City of Oakland Department of Public Works, c/o Mark Arniola (*via electronic mail*)
GeoTracker

Site Conceptual Model
 City of Oakland/Union 76
 670 98th Avenue, Oakland 94603
 September 1, 2018

Sec No	Section Name	Section / Sub-Section Name	Details	References	Data Gap	Method to Address Data Gap								
1	Introduction		<p>This Site Conceptual Model (SCM) was prepared by AECOM on behalf of Chevron Environmental Management Company (CEMC) for the City of Oakland/Union 76 case. Alameda County Department of Environmental Health (ACDEH) is the lead regulatory oversight agency for this case. Case identifiers are provided below:</p> <table border="1" style="width: 100%;"> <tr> <td>Site Name:</td> <td>City of Oakland/Union 76</td> <td>GeoTracker ID:</td> <td>T0600101442</td> </tr> <tr> <td>Site Address:</td> <td>670 98th Avenue, Oakland, CA 94603</td> <td>ACDEH Case No.:</td> <td>RO0000379</td> </tr> </table> <p>This SCM was prepared by or under the oversight of a licensed professional as certified in Attachment A in accordance with industry best practices and State of California LUFT manual.</p>	Site Name:	City of Oakland/Union 76	GeoTracker ID:	T0600101442	Site Address:	670 98th Avenue, Oakland, CA 94603	ACDEH Case No.:	RO0000379	NA NA NA	NA NA NA	NA NA NA
Site Name:	City of Oakland/Union 76	GeoTracker ID:	T0600101442											
Site Address:	670 98th Avenue, Oakland, CA 94603	ACDEH Case No.:	RO0000379											
1.1	Change log		<p>This document has been updated to reflect new data collected for the Site. A summary of previous versions of the SCM for the Site are listed below:</p> <table border="1" style="width: 100%;"> <tr> <td>Prepared By</td> <td>Date</td> </tr> <tr> <td>NA</td> <td>[WWW-mm-dd]</td> </tr> </table> <p>Revisions the most recent previous version of this tabular SCM are indicated using strikethrough to denote deleted text and <u>underline</u> to denote added text.</p>	Prepared By	Date	NA	[WWW-mm-dd]							
Prepared By	Date													
NA	[WWW-mm-dd]													
1.2	Responsible Party Identification		<table border="1" style="width: 100%;"> <tr> <td>Responsible Party Name</td> <td>Relationship</td> <td>Method of Identification</td> </tr> <tr> <td>Chevron Environmental Management Company</td> <td>Former Site Operator</td> <td>NOR</td> </tr> </table> <p>NOR: Notice of Responsibility, VRAA: Voluntary Remedial Action Agreement</p>	Responsible Party Name	Relationship	Method of Identification	Chevron Environmental Management Company	Former Site Operator	NOR	ACDEH NOR letter dated April 2, 2015	NA	NA		
Responsible Party Name	Relationship	Method of Identification												
Chevron Environmental Management Company	Former Site Operator	NOR												

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2 Site Location and Land Use

References Data Gap Method to Address Data Gap

2.1 Site Location

APN (s)	45-5276-2-2
Physical Address	670 98th Avenue, Oakland, CA 94603
Cross Street(s)	Edes Avenue
Site Size (acres)	0.2

Figure 1 - Site Location Map NA NA

2.2 Surrounding Property Descriptions and Land Use

Direction & Distance from Site (feet)	Property and Operations Description	Address	Sensitive Receptors	Use(s)	Tenants
Northwest Adjacent	98th Avenue	NA	None identified	Roadway	NA
Northeast Adjacent >300	Equipment: rental business and equipment/vehicle storage yard	700 98th Avenue	None identified	Commercial	United Rentals
Southeast Adjacent >150	Equipment: rental business and equipment/vehicle storage yard	701 98th Avenue	None identified	Commercial	United Rentals
South Adjacent	Edes Avenue	NA	None identified	Roadway	NA
Northwest >80	Commercial/Retail	Various	None identified	Commercial	Brookfield Discount Liquor, Lupita's Pizzeria, 5&B Smokehouse & Market
Southwest >50	Commercial/Retail	620 98th Avenue	None identified	Commercial	Metro PCS, Laundromat
Southwest >50	Commercial/Retail	9755 Edes Avenue	None identified	Commercial	76 Service Station
Southeast >50	Residential	Various	None identified	Residential	Various

Figure 2 - Site Plan NA NA

2.3 Description of Site Improvements and Land Use

Total Building Footprint	0 square feet/0 percent
Hardscape	9,000 square feet/100 percent
Landscaping	0 square feet/0 percent
Exposed Earth	0 square feet/0 percent

Building ID	Footprint (square feet)	No. Floors	Foundation Type	Subgrade Components	Year of Construction / Demolition
None	NA	NA	NA	NA	NA

NA NA NA NA NA

Anthropogenic Preferential Pathways

Possible: Underground utilities along 98th Avenue; unlikely to be a complete pathway.

12 No NA

Site Conceptual Model
 City of Oakland
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 Section Name

References Data Gap Method to Address Data Gap

Other Improvements None Yes

2.4 Site Use History

Known previous historical environmental and geotechnical reports been uploaded to GeoTracker: Yes

Time Period	Operation Description	Tenant/Operator Name	Building Location	Associated Primary PCOCs	Environmental Cases
<1947	Residential	Unknown	Unknown	None	NA
1947-1966	Gasoline service station	Union 76/Unocal	Unknown	Petroleum hydrocarbons	NA
1966-1985	Gasoline service station	Union 76/Unocal	Station building	Petroleum hydrocarbons	NA
>1985-Present	Equipment/vehicle rental storage yard	United Rentals	None	Unknown	NA

2.5

UST Systems Infrastructure

System Component	Material Stored/Conveyed	Size/Quantity	Status	Installation Date	URF Filing Date
Piping	Gasoline Fuel	Unknown	Removed	1947	Unknown/NA
UST	Gasoline Fuel	Unknown	Removed	1947	Unknown/NA
Dispenser	Gasoline Fuel	Unknown	Removed	1947	Unknown/NA
Piping	Gasoline Fuel	Unknown	Removed	1966	Unknown/NA
UST	Gasoline Fuel	Two 10,000-gallon	Removed	1966	Unknown/NA
UST	Waste Oil	One 230-gallon	Removed	1966	Unknown/NA
Dispenser	Gasoline Fuel	Unknown	Removed	1966	Unknown/NA

2.6

Other Hazardous Materials or Waste Infrastructure

System Component	Material Stored/Conveyed	Size/Quantity	Status	Installation Date	Removal Date
Hoists	Unknown	Unknown	Removed	1966	1985

2.7

Subsurface Fill and Excavations

Backfill Purpose	Description	Location	Date of Fill	Certified Clean Documentation on GeoTracker	Date of Certification

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		<p>Trenching and Utilities</p> <p>In 1990, approximately 1,200 cubic yards of soil were removed from an excavation located between approximately 5 feet of a 98th Avenue utility trench centerline and the former Union 76 underground storage Tank (UST) locations. The excavation extended to groundwater and to the bottom of the former UST excavation backfill. The excavation was to include all soil with petroleum hydrocarbon concentrations greater than 1,000 milligrams per kilogram and at least 2 feet above the groundwater level during excavation. Soil was excavated to at least 5 feet beyond the proposed joint utility trench, and the depth ranged from 10 to 13 feet below ground surface. Approximately 1,200 cubic yards of soil was removed from the excavation and transported to a Class III landfill (SCI 1990b).</p>	13	No	NA
2.8	Other Recognized Environmental Conditions (RECs)	<p>REC Type</p> <p>Former adjacent gasoline service station</p> <p>Description</p> <p>The property previously identified as 692 98th Avenue was located adjacent to the northeast of the subject site and was occupied by a Richfield service station from 1953 until sometime between 1968 and 1973.</p>	1	No	NA
2.9	Exposure Controls and Remediation Systems	<p>Engineering controls currently employed at the Site to control otherwise complete exposure pathways:</p> <p>Institutional controls currently employed at the Site to control otherwise complete exposure pathways or to protect identified engineering controls:</p> <p>Identify remediation systems and remediation system components at the Site:</p>	8	No	NA
		Hardscape across entire property			
		Not applicable	NA	NA	NA
		None			

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Section / Sub-Section No	Section Name	Details	References	Data Gap	Method to Address Data Gap
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3 Physical Setting

3.1 Regional Geology and Hydrogeology

The site is located in the East Bay Plain and is underlain by fluvial and alluvial fan deposits. The fluvial deposits consist primarily of fine-grained sands, silts, and clays. The alluvial deposits consist of a heterogeneous mixture of clay, silt, sand, and gravel. The regional groundwater gradient is west/northwest toward the Bay. Historical groundwater levels in wells at the site indicate that the localized groundwater flow direction has predominantly been to the west/northwest. During the second quarter 2018, groundwater flow direction was to the west/southwest.

3			No	NA	
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3.2 Local Geology and Hydrogeology

Subsurface Lithology:	Based on soil borings advanced at the site, subsurface soils consist primarily of fine-grained material (clay) from ground surface to approximately 15 feet below ground surface (bgs). Soils from approximately 15 to 23 feet bgs consist primarily of coarse-grained material (gravelly sand). Soil from approximately 23 to 29 feet bgs (total depth explored) consist primarily of fine-grained material (clayey sand and clay). In areas where previous underground tanks and fuel lines were located, the excavations were backfilled with sand.		No	NA	Attachment B 12
Water Bearing Zone ID	Media Type and Classification Gravelly sand, clayey sand, sandy clay. Groundwater appears continuous across the site, and may be semi-confined beneath clay from ground surface to approximately 15 feet bgs.		No	NA	Attachment B 10, 12, 15
Water Bearing Zone ID	Media Type and Classification Shallow		No	NA	

3.3 Monitoring Well Network Evaluation

Monitoring Well ID	Screened Interval & Associated Water Bearing Zone ID(s)	Is the well appropriately screened to evaluate LNAPL?	Is the well appropriately screened to evaluate DNAPL?	Is the well appropriately developed and maintained?	Is the well location known, accessible and survey data is uploaded to GeoTracker?
MW-1	6-21 (shallow)	Yes	Yes	Yes	Yes
MW-2	9-27.5 (shallow)	Yes	Yes	Yes	Yes
MW-3	7-22 (shallow)	Yes	Yes	Yes	Yes
MW-4	7.5-22.5 (shallow)	Yes	Yes	Yes	Yes
MW-5	7.5-22.5 (shallow)	Yes	Yes	Yes	Yes
Well-18	6-16 (shallow)	Yes	Yes	Yes	Yes

Identify wells that are routinely excluded from calculations of potentiometric surface or groundwater elevation:	0
Identify wells that are excluded from calculation of isoconcentration contours in for each water-bearing zone:	0

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	<p>Is the monitoring well network sufficient to delineate the lateral extents of the groundwater plume that exceeds water quality standards?</p> <p>Yes</p>	15	No	Constituents of concern identified by the LTCP (benzene and MTBE) are adequately delineated.
	<p>Is the monitoring well network sufficient to delineate the vertical extents of the groundwater plume that exceeds water quality standards?</p> <p>Yes</p>	15	No	
	<p>Applicable Groundwater Vapor Intrusion Scenarios:</p> <p>Not Applicable</p>			

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4 Release and Source

Release Occurrence	Release Material:	Release Date:	Release Source:	Description:
4.1	Petroleum hydrocarbons	1983	Former service station at the subject site and/or former Richfield service station at 692 98th Avenue.	
			During the City of Oakland's 98th Avenue street widening project in 1989, workers encountered petroleum hydrocarbon-impacted soil while excavating a water line trench adjacent to the subject site (and adjacent to 692 98th Avenue site?). Analytical tests of two soil samples from the trench were reported to have detected up to 350 parts per million (ppm) of total petroleum hydrocarbons (TPH). The source of petroleum hydrocarbons was unknown at that time. Subsequent research indicated that 670 98th Avenue was formerly occupied by a Union 76 service station from approximately 1947 to 1983. The service station had USTs in at least three locations, which stored gasoline and waste oil. The service station and USTs were removed in 1983. Additionally, 692 98th Avenue was formerly occupied by a Richfield service station from approximately 1949 to 1963, and included four 1,000-gallon USTs, which were removed from the site in 1970. The location and contents of the Richfield station USTs is unknown, although they are presumed to have stored gasoline, diesel fuel, and/or waste oil.	

4.2 Constituents of Concern and Data Quality Objectives

Data quality objectives (DQO) have been clearly identified and reported for each PCOC and potentially impacted media	PCOCs have been evaluated in the following media:				Yes
	Groundwater	Soil	Soil Vapor	Surface Water	
Data that does not meet data quality objectives is denoted as indefensible in summary tables and figures:	Yes	Yes	No	NA	Yes
Data that does not meet DQOs is not relied upon for the delineation or risk evaluation portions of this SCMI:	Yes	Yes	No	NA	Yes
Chemicals of Concern that drive risk and/or closure (COCs)					
Total Volatile Hydrocarbons (TVH) and Total Extractable Hydrocarbons (TEH gasoline range), TPH-Gasoline-range Oil (TPH-GRO), TPH-Diesel-range Oil (TPH-DRO)+G48	Yes	Yes	No	NA	Yes
Benzene	Yes	Yes	No	NA	Yes

4.3 Distribution and Transport of Contaminants of Concern: Soil

Comprehensive Soil Analytical Table(s) and Figure(s) are provided for all COCs:	No	Yes	Calculations for naphthalene values still to be determined.
Soil analytical data used for delineation or risk assessment meets DQOs:			
Laterally delineated COCs:			
Laterally undelineated COCs:			
Vertically delineated COCs:			

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Benzene	Shallow	MW-1	10/4/1990	7,780
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NAPL COCs	Location(s) and weathering	Source	Direct Evidence of NAPL	Indirect Evidence of NAPL	Mobility
None					

Submerged (fully, partially, or seasonally) preferential pathways capable of intercepting and conveying free phase, aqueous phase, or vapor phase COCs are present within the extents of the groundwater plume:	No
Preferential pathways capable of intercepting and conveying vapor phase COCs are present above the extents of the volatile groundwater contamination plume:	No
The lateral distribution of COCs in groundwater concurs with identified historic groundwater gradient direction:	Yes
The Vertical distribution of COCs in groundwater concurs with identified historic groundwater gradient direction:	Yes

15 NA NA
 15 NA NA
 15 NA NA
 15 NA NA

4.5 Distribution and Transport of Contaminants of Concern: Soil Vapor

Vapor Probe Network Adequacy:	The soil vapor probe network is not adequate to spatially and temporally evaluate the lateral and vertical extent of COCs in the vapor phase.	Table 3	Yes	On-site vapor intrusion to indoor air has not been evaluated recently.
Preferential Pathways Evaluation Complete:	The soil vapor probe network [is/is not] adequate to spatially and temporally evaluate the migration of COCs along identified preferential pathways.	NA	NA	NA
Comprehensive soil vapor analytical table(s) and figure(s) are provided for all COCs:	Yes	Table 3	Yes	Same as above
Soil Vapor analytical data used for delineation or risk assessment meets DQOs:	No	Table 3	Yes	Same as above
Indicate COCs that are sufficiently delineated laterally:	Benzene	Table 3	Yes	Same as above
Indicate COCs that are undelineated laterally:	NA			
Indicate COCs that are sufficiently delineated vertically:	Benzene	Table 3	Yes	Same as above
Indicate COCs that are undelineated vertically:	NA	NA	NA	NA
Soil vapor plumes for COCs are spatially and temporally stable or decreasing in size:	Unknown	NA	NA	NA
Chemo-graphs for each soil vapor probe have been provided:		NA	NA	NA
Describe any observed patterns in soil vapor concentrations (e.g. seasonal variations, effects of groundwater elevation, natural attenuation):	None	NA	NA	NA
Describe evidence to indicate that microbial communities capable of metabolizing vapor phase COCs to a safe endpoint are present:	None	NA	NA	NA
Identify the vapor intrusion scenario that is applicable for the Site:	ETCP Scenario 4 (Direct Measurement of Soil Gas Concentration)	NA	NA	NA

3.6 Distribution of Contaminants of Concern: Indoor Air

Comprehensive indoor air analytical table(s) and figure(s) are provided for all COCs:	NA
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	Indoor air analytical data used to evaluate risk meets DQO : A hazardous materials survey has been completed for the Site and updated during each indoor air sampling event. Tenants and occupants have been provided with appropriate notification Indoor air has been evaluated during HVAC on and HVAC off conditions: COCs in indoor air are temporally stable. Sampling has been conducted to evaluate migration of subsurface contaminants into indoor air via identified preferential pathways:	NA
		NA
		NA
		NA
		NA

	Concentration ($\mu\text{g}/\text{m}^3$)	Sample Date	Building ID	Sample ID
	Maximum concentration reported in Indoor Air			
	NA			
	NA			

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TABLES

Table 1 Summary of Well Construction Details

Table 2 Laboratory Analytical Results for Soil

Table 3 Laboratory Analytical Results for Soil Vapor

FIGURES

Figure 1 Site Location Map

Figure 2 Site Vicinity Overview

Figure 3 Site Plan with Excavation Limits

ATTACHMENTS

Attachment A Professional Seal

Attachment B Soil Boring Logs/Well Construction Diagrams

Attachment C Hydrographs

REFERENCES

1. Applied Geotechnology Inc. 1993. Limited Phase I Environmental Assessment and Groundwater Monitoring, 670 and 692 98th Avenue, Oakland, California. August 11.
2. Baseline Environmental Consulting. 1995. Report on Groundwater Monitoring – March 1995, 670 98th Avenue, Oakland, California. Prepared for Mr. Andrew Clark-Cough, City of Oakland Environmental Affairs, 1333 Broadway, Suite 330, Oakland, California 94612. July 6.
3. Baseline Environmental Consulting. 1999. Report on Soil Gas Sampling and Health Risk Assessment, 670 98th Avenue, Oakland, California. June 4.
4. Chevron Environmental Management Company. 2016. Email regarding 376584 Oakland – RO0000379 Update. Addressed to “Detterman, Karel, Env. Health.” June 8.
5. GeoTracker GAMA database. 2018. Search of datasets: Department of Water Resources, GAMA Domestic Wells, GAMA Priority Basin Projects, Local Groundwater Projects, and Public Water System Wells. August 6.
6. GeoTracker GAMA database. 2018. Search for surface water bodies. August 6.
7. Google Earth Pro. 2018. Aerial imagery dated 7/9/1993 for 37°44'14.56" N 122°10'54.43" W. Source: U.S. Geological Survey. Accessed on March 30.
8. Google Earth Pro. 2018. Reviewed for surface water bodies, wetlands, natural resources, schools, hospitals, and daycare facilities within a 1,500-foot radius of the site. August 6.
9. Google Maps. 2018. Satellite imagery viewed at <https://www.google.com/maps/place/670+98th+Ave,+Oakland,+CA+94603/@37.736522,-122.1849467,915m/data=!3m1!1e3!4m5!3m4!1s0x808085845a20f277:0x48373218acc6888c18m2!3d37.73652214d-122.182758>. March 14.
10. Stantec. 2017a. Fourth Quarter 2016 Groundwater Monitoring Report, Chevron Facility No. 376584, 670 98th Avenue, Oakland, California 94603. March 30.
11. Stantec. 2017b. Email to CEMC regarding 376584 – 98th Avenue Oakland. Addressed to Carryl G MacLeod. November 1.
12. Subsurface Consultants, Inc. (SCI). 1990a. Soil and Groundwater Contamination Assessment: Phase 2, 98th and Edes Avenues, Oakland, California. Prepared for Mr. James Abron, Construction, City of Oakland, 7101 Edgewater Drive, Oakland, California 94621. April 10.
13. Subsurface Consultants, Inc. (SCI). 1990b. Progress Report, Contaminated Soil Removal, Utility Trench Alignment, 98th and Edes Avenues, Oakland, California. Prepared for Mr. Dan Lau, Construction, City of Oakland, 7101 Edgewater Drive, Oakland, California 94621. December 13.
14. Unocal. 1989. Unocal letter from Marie E. Wilson, Real Estate Representative, to Jerriann N. Alexander, Subsurface Consultants, inc., 171 12th Street, Suite, 201, Oakland, California, responding to request for information. June 29.
15. AECOM. 2018. Second Quarter 2018 Semiannual Groundwater Monitoring Report.
16. State Water Resource Control Board Low-Threat Underground Storage Tank Case Closure Policy

ATTACHMENT A



Dana Files, PG #8410

Project Geologist

AECOM

Date Stamped: 9-5-18



ATTACHMENT B

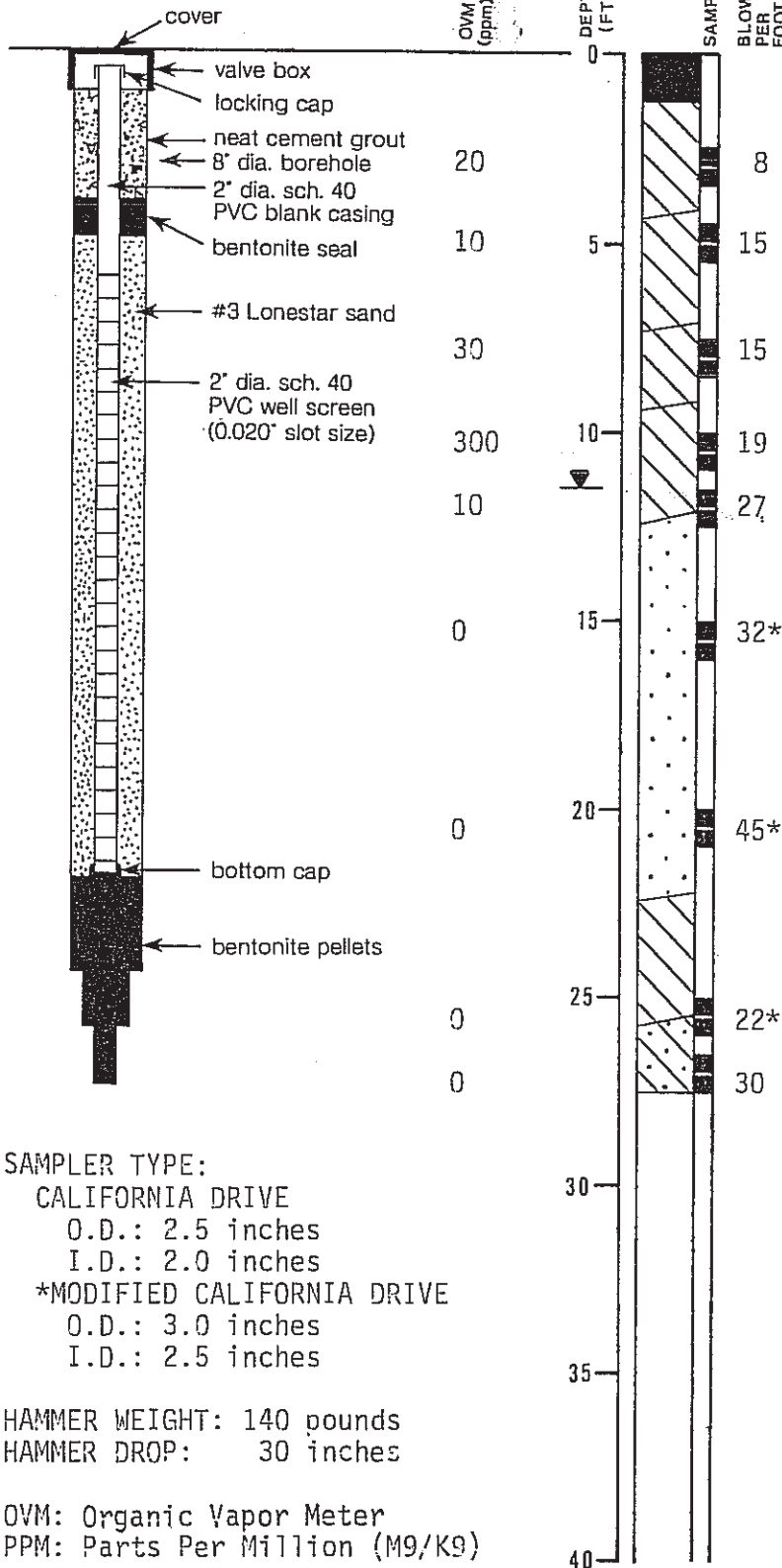
BORING LOGS AND WELL CONSTRUCTION DIAGRAMS

LOG OF TEST BORING MW-1

EQUIPMENT 8" Hollow Stem Auger

DATE DRILLED 2/7/90

ELEVATION 99.40 feet**



DEPTH (FT)	BLOWS PER FOOT	SOIL DESCRIPTION
0 - 1.5		ASPHALTIC CONCRETE - 15" thick
1.5 - 8	8	DARK GRAY SILTY CLAY (CL) medium stiff, moist, with coarse grained sand
8 - 15	15	MOTTLED GRAY AND OLIVE-GREEN SILTY CLAY (CL) medium stiff, moist, with coarse grained sand and gravel
15 - 19	15	MOTTLED GRAY AND BROWN SILTY CLAY (CL) medium stiff, moist
19 - 27	19	GRAY-GREEN SANDY CLAY (CL) medium stiff, moist, medium grained sand
27 - 32*	27	GROUNDWATER LEVEL DURING DRILLING GRAY-GREEN GRAVELLY SAND (SP) medium dense, wet, medium to coarse grained sand, gravel to 3/4 inch, with clay
32* - 45*	32*	
45* - 22*	45*	MOTTLED GRAY AND BROWN CLAY (CL) medium stiff, moist, with coarse grained sand and gravel
22* - 30	22*	BROWN CLAYEY SAND (SC) medium dense, wet, medium to coarse grained sand, with gravel to 1/2 inch

SAMPLER TYPE:
 CALIFORNIA DRIVE
 O.D.: 2.5 inches
 I.D.: 2.0 inches
 *MODIFIED CALIFORNIA DRIVE
 O.D.: 3.0 inches
 I.D.: 2.5 inches

HAMMER WEIGHT: 140 pounds
 HAMMER DROP: 30 inches

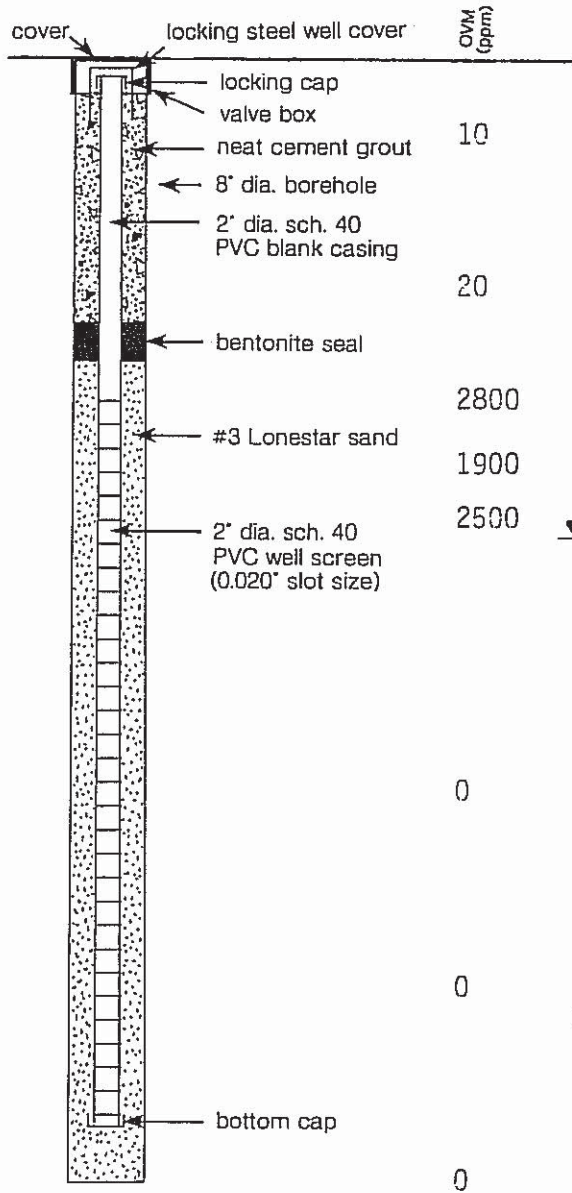
OVM: Organic Vapor Meter
 PPM: Parts Per Million (M9/K9)

**Elevation reference shown on Site Plan

<h2 style="margin: 0;">Subsurface Consultants</h2>	98TH & EDES - PHASE 2 - OAKLAND, CA	PLATE
	JOB NUMBER 272.016	DATE 2/15/90

LOG OF TEST BORING MW-2

EQUIPMENT 8" Hollow Stem Auger
 DATE DRILLED 2/7/90
 ELEVATION 99.72 feet



OVM (ppm)
 10
 20
 2800
 1900
 2500
 0
 0
 0

DEPTH (FT)
 0
 5
 10
 15
 20
 25
 30
 35
 40

SAMPLE
 BLOWS PER FOOT
 12
 16
 12
 14
 14
 28*
 43*
 23*

BROWN SANDY CLAY (CL)
 medium dense, moist, with gravel (fill)
 DARK BROWN SILTY CLAY (CL)
 medium stiff, moist
 MOTTLED GRAY AND BROWN SILTY CLAY (CL)
 medium stiff, moist
 GROUNDWATER LEVEL DURING DRILLING
 BROWN GRAVELLY SAND (SP)
 medium dense, wet, fine to coarse grained sand, gravel to 1 inch

Subsurface Consultants

98TH & EDES - PHASE 2 - OAKLAND, CA
 JOB NUMBER 272.016
 DATE 2/15/90
 APPROVED *[Signature]*

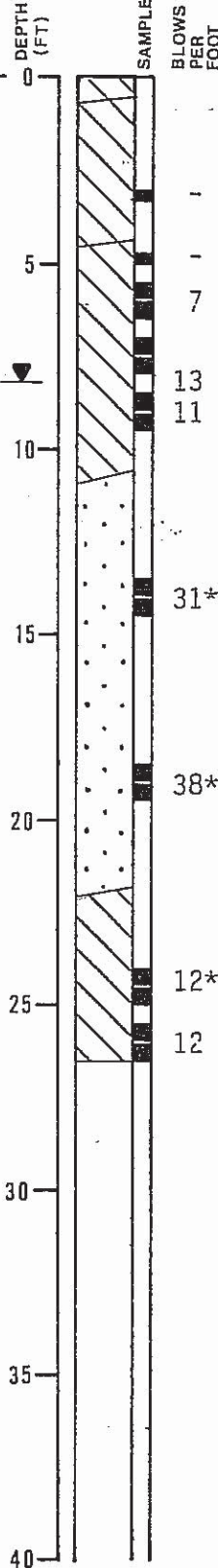
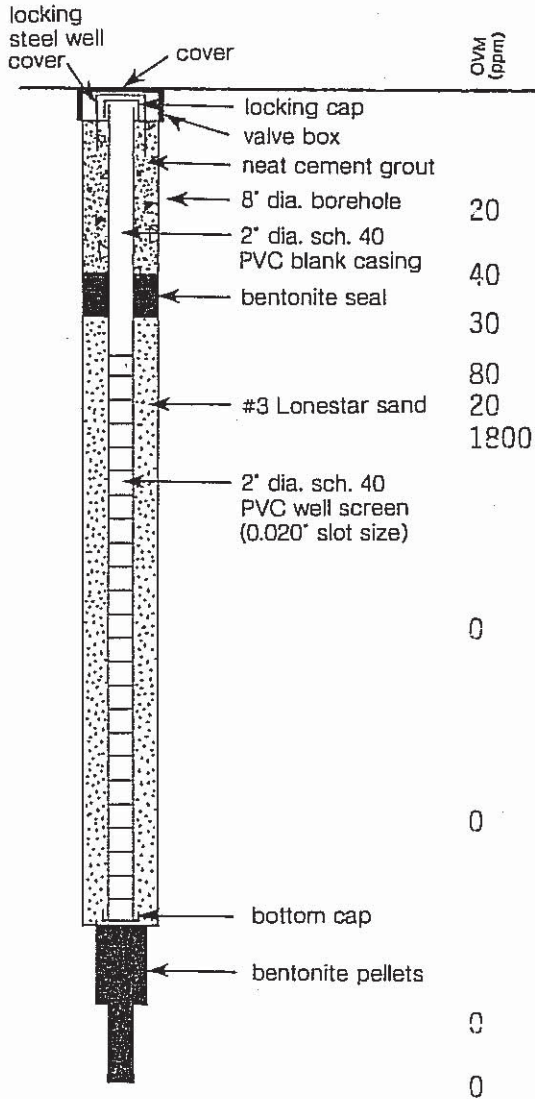
PLATE
3

LOG OF TEST BORING MW-3

EQUIPMENT 8" Hollow Stem Auger

DATE DRILLED 2/8/90

ELEVATION 99.74 feet



DARK BROWN SILTY CLAY (CL)
medium stiff, moist (fill)

BROWN SANDY CLAY (CL)
medium stiff, moist, with gravel (fill)
with cobbles from 3.5 to 4.5 feet

GRAY GREEN SANDY CLAY (CL)
medium stiff, moist, coarse grained sand, with gravel

GROUNDWATER LEVEL DURING DRILLING

GRAY-GREEN GRAVELLY SAND (SP)
dense, wet, medium to coarse grained sand, gravel to 3/4 inch, with clay

BROWN SANDY CLAY (CL)
medium stiff, moist, coarse grained sand

Subsurface Consultants

98TH & EDES - PHASE 2 - OAKLAND, CA

JOB NUMBER
272.016

DATE
2/15/90

APPROVED
[Signature]

PLATE

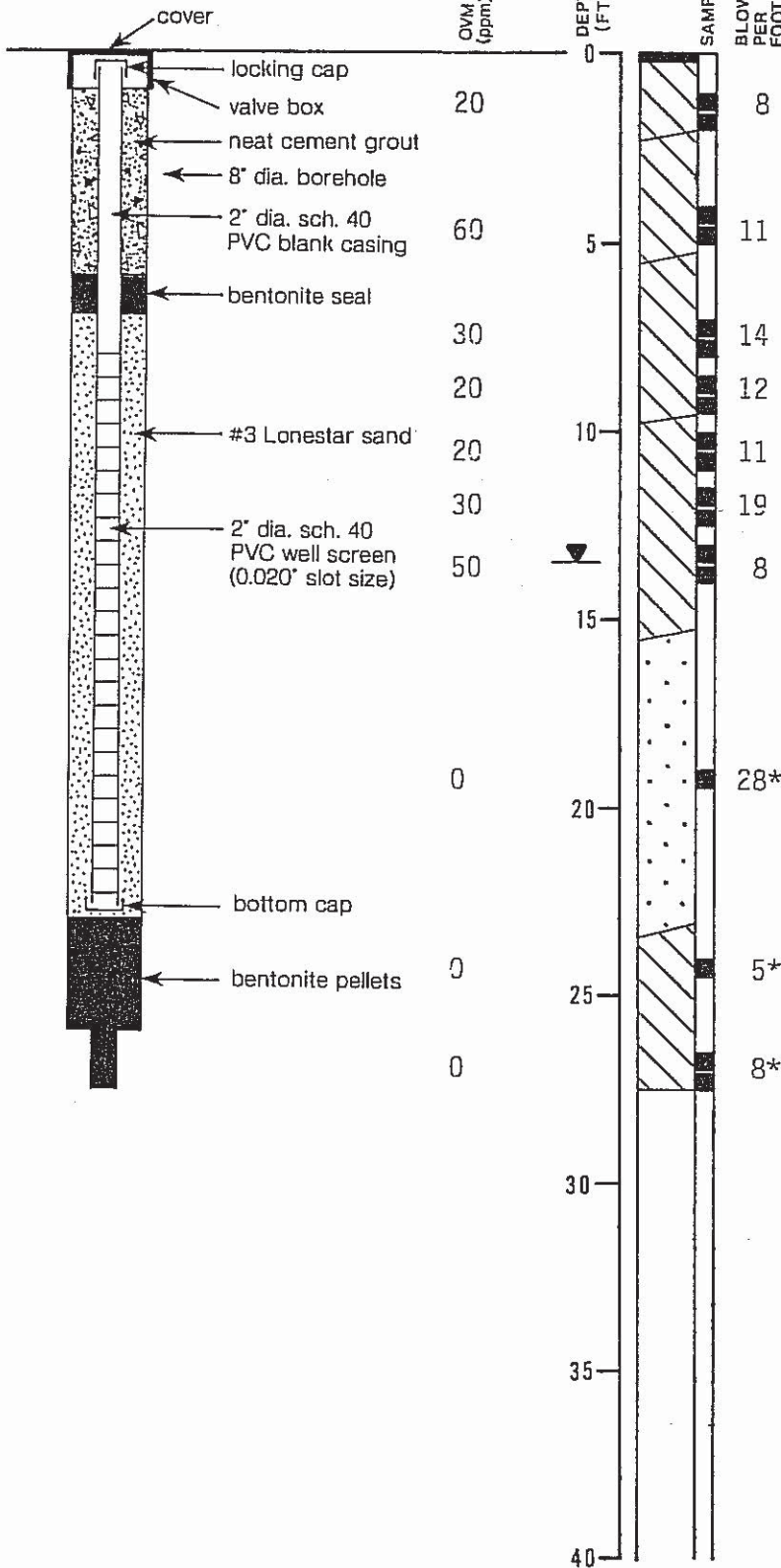
4

LOG OF TEST BORING MW-4

EQUIPMENT 8" Hollow Stem Auger

DATE DRILLED 2/8/90

ELEVATION 100.93 feet



DEPTH (FT)	SAMPLE	BLOWS PER FOOT	SOIL DESCRIPTION
0			ASPHALTIC CONCRETE - 2" thick
8		8	BROWN SANDY CLAY (CL) medium stiff, moist (fill)
11		11	DARK GREEN-GRAY SILTY CLAY (CL) medium stiff, moist, with coarse grained sand
14		14	MOTTLED GRAY AND BROWN SILTY CLAY (CL) medium stiff, moist
19		19	BROWN SILTY CLAY (CL) medium stiff, moist, with fine grained sand
15		8	GROUNDWATER LEVEL DURING DRILLING
20		28*	BROWN GRAVELLY SAND (SP) medium dense, wet, fine grained sand, gravel to 1 inch, with clay
25		5*	BROWN SANDY CLAY (CL) medium stiff, wet, medium to coarse grained sand
28		8*	

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JOB NUMBER
272.015

DATE
2/15/90

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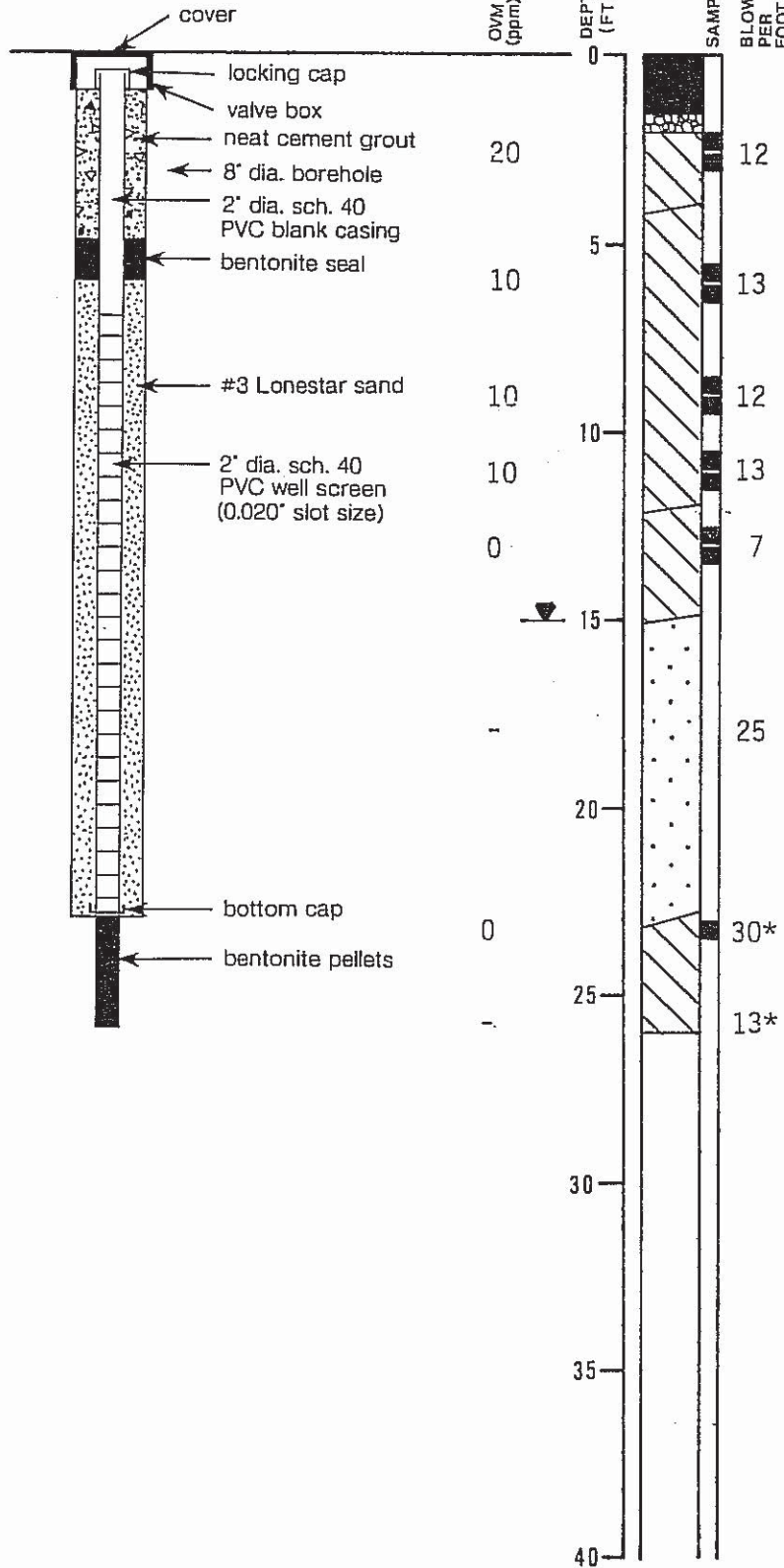
5

LOG OF TEST BORING MW-5

EQUIPMENT 8" Hollow Stem Auger

DATE DRILLED 2/9/90

ELEVATION 100.57 feet



ASPHALTIC CONCRETE - 18" thick
 BASE ROCK - 6" thick
 DARK GRAY SILTY CLAY (CL)
 medium stiff, moist, with coarse grained sand
 MOTTLED GRAY AND BROWN SILTY CLAY (CL)
 medium stiff, moist
 BROWN SANDY CLAY (CL)
 medium stiff, moist, fine grained sand
 GROUNDWATER LEVEL DURING DRILLING
 BROWN GRAVELLY SAND (SP)
 medium dense, wet, fine to coarse grained sand, gravel to 2 inches (no sample recovered)
 BROWN SANDY CLAY (CL)
 medium stiff, wet, medium to coarse grained sand (no sample recovered)

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6

LOG OF TEST BORING 1

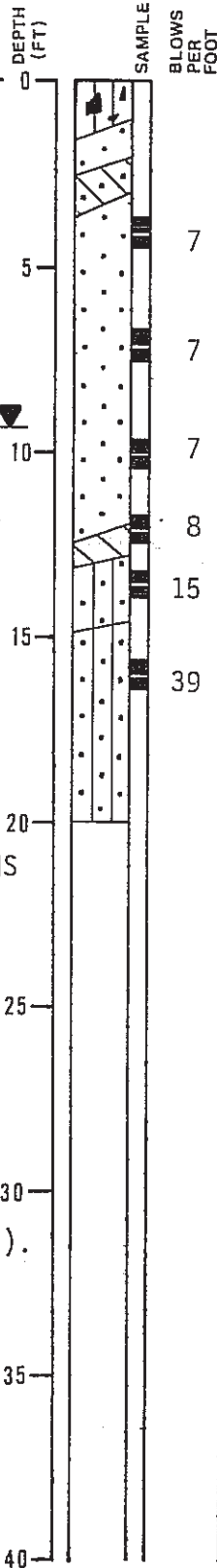
EQUIPMENT 8" Hollow Stem Auger

DATE DRILLED 5/25/89

ELEVATION --

LABORATORY TESTS

TVH	TEH	TOG	VOC	
ND	ND	60	ND	
TVH	B	T	X	E
1100	8.1	2.6	120	31
ND	0.025	0.015	0.23	0.052



GRAY-BROWN SANDY GRAVEL (GM)
medium dense, moist (fill)

OLIVE-BROWN SAND (SP)
medium dense, moist (fill)

7 BROWN AND ORANGE CLAYEY SAND (SC)
medium dense, moist (fill)

7 OLIVE-BROWN SAND (SP)
medium dense, moist (fill)

7 dark brown below 6 feet

GROUNDWATER LEVEL DURING DRILLING
dark gray below 9½ feet

8 DARK GRAY SILTY CLAY (CL)
medium stiff, wet

15 BROWN SILTY SAND (SM)
medium dense, wet, with gravel

39 BROWN GRAVELLY SAND (SM)
dense, wet, coarse grained

(5 feet of heave in auger)

BOREHOLE BACKFILLED WITH CEMENT/BENTONITE GROUT

NOTES:

- TEH: TOTAL EXTRACTABLE HYDROCARBONS
- TOG: TOTAL OIL AND GREASE
- VOC: VOLATILE ORGANIC COMPOUNDS
- TVH: TOTAL VOLATILE HYDROCARBONS
- B: BENZENE
- T: TOLUENE
- X: TOTAL XYLENES
- E: ETHYLBENZENE
- ND: NONE DETECTED

See analytical test reports for detection limits. All analytical test results reported in ppm (mg/kg).

SAMPLER TYPE:
CALIFORNIA DRIVE
O.D.: 2.5 inches
I.D.: 2.0 inches

HAMMER WEIGHT: 140 pounds
HAMMER DROP: 30 inches

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LOG OF TEST BORING 2

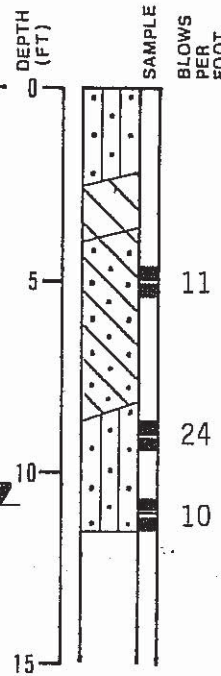
EQUIPMENT 8" Hollow Stem Auger

DATE DRILLED 5/25/89

ELEVATION --

LABORATORY TESTS

TVH	B	T	X	E
280	3.1	17	72	12
1,100	16	31	130	39
13,000	-	-	-	-



DARK BROWN GRAVELLY SAND (SM)
medium dense, moist (fill)

MOTTLED DARK GRAY AND BLACK SILTY CLAY (CL)
medium stiff, moist (fill)

OLIVE-GREEN CLAYEY SAND (SC)
medium dense, moist, with occasional gravel (fill)

GRAY SILTY SAND (SM)
medium dense, moist

GROUNDWATER LEVEL DURING DRILLING

BOREHOLE BACKFILLED WITH CEMENT/BENTONITE GROUT

LOG OF TEST BORING 3

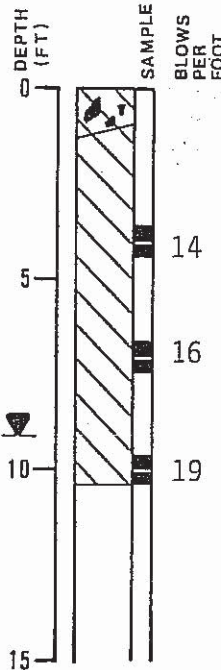
EQUIPMENT 8" Hollow Stem Auger

DATE DRILLED 5/25/89

ELEVATION --

LABORATORY TESTS

TVH	B	T	X	E
20	0.39	0.90	1.7	0.33
ND	-	-	-	-
260	1.7	6.2	26	3.1



BROWN CLAYEY GRAVEL (GC)
medium dense, moist

DARK BROWN SILTY CLAY (CL)
medium stiff, moist
olive-green and gray below 3 feet

GROUNDWATER LEVEL DURING DRILLING

BOREHOLE BACKFILLED WITH CEMENT/BENTONITE GROUT

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LOG OF TEST BORING 4

EQUIPMENT 8" Hollow Stem Auger

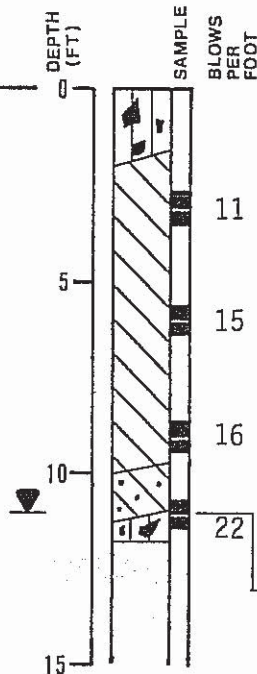
DATE DRILLED 5/25/89

ELEVATION --

LABORATORY TESTS

TVH	B	T	X	E
14	0.83	1.1	3.6	0.71

150	4.7	5.9	49	6.8
-----	-----	-----	----	-----



BROWN SANDY GRAVEL (GM)
medium dense, moist (fill)

DARK BROWN SILTY CLAY (CL)
medium stiff, moist

mottled brown and gray below
6 feet

BROWN CLAYEY SAND (SC)
medium dense, wet

DARK GRAY SANDY GRAVEL (GM)
medium dense, wet

GROUNDWATER LEVEL DURING DRILLING

BOREHOLE BACKFILLED WITH
CEMENT/BENTONITE GROUT

LOG OF TEST BORING 5

EQUIPMENT 8" Hollow Stem Auger

DATE DRILLED 5/25/89

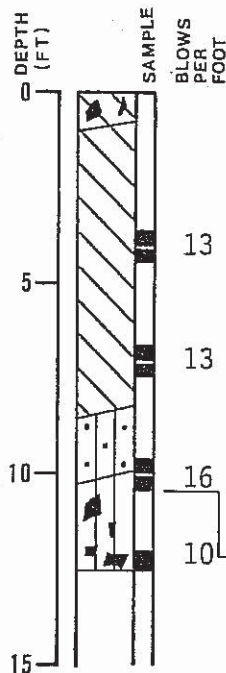
ELEVATION --

LABORATORY TESTS

TVH	B	T	X	E
130	4.7	17	58	13

930	11	32	90	20
-----	----	----	----	----

2,600	-	-	-	-
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BROWN CLAYEY GRAVEL (GC)
medium dense, moist (fill)

DARK BROWN SILTY CLAY (CL)
medium stiff, moist

brown below 5 feet

OLIVE-GREEN AND BROWN SILTY
SAND (SM)
medium dense, moist, with gravel

GRAY SANDY GRAVEL (GM)
medium dense, wet

GROUNDWATER LEVEL DURING DRILLING

BOREHOLE BACKFILLED WITH
CEMENT/BENTONITE GROUT

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JOB NUMBER
272.011

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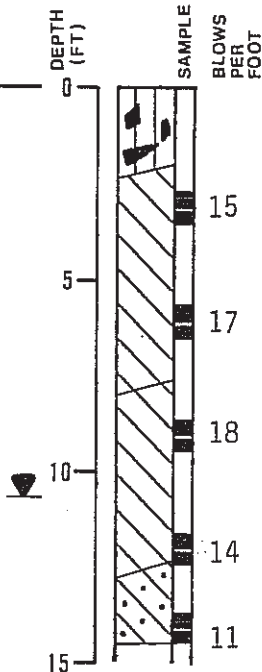
9

LOG OF TEST BORING 6

EQUIPMENT 8" Hollow Stem Auger
 DATE DRILLED 5/25/89
 ELEVATION --

LABORATORY TESTS

TVH	B	T	X	E
ND	ND	ND	ND	ND
45	1.1	1.2	16	2.2
TOG				
ND				



BROWN SANDY GRAVEL (GM)
 medium dense, moist (fill)
 DARK BROWN SILTY CLAY (CL)
 medium stiff, moist, with gravel

MOTTLED GRAY AND BROWN SILTY CLAY (CL)
 medium stiff, moist
 GROUNDWATER LEVEL DURING DRILLING

BROWN CLAYEY SAND (SC)
 medium dense, moist

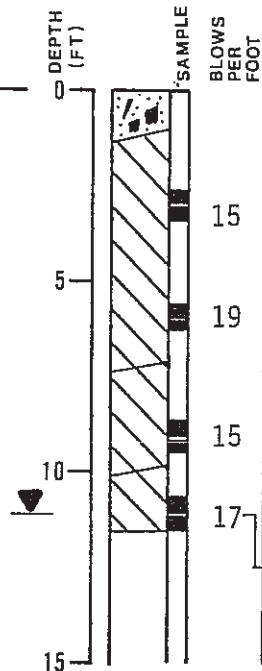
BOREHOLE BACKFILLED WITH CEMENT/BENTONITE GROUT

LOG OF TEST BORING 7

EQUIPMENT 8" Hollow Stem Auger
 DATE DRILLED 5/25/89
 ELEVATION --

LABORATORY TESTS

TVH	B	T	X	E
45	3.7	6.0	14	2.6
200	5.2	8.3	16	2.9



BROWN SANDY GRAVEL (GP)
 medium dense, moist (fill)
 DARK BROWN SILTY CLAY (CL)
 medium stiff, moist, with gravel

MOTTLED GRAY AND BROWN SILTY CLAY (CL)
 medium stiff, moist, with gravel

MOTTLED GRAY AND BROWN SANDY CLAY (CL)
 stiff, moist
 GROUNDWATER LEVEL DURING DRILLING

BOREHOLE BACKFILLED WITH CEMENT/BENTONITE GROUT

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JOB NUMBER
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DATE
 6/2/89

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PLATE

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LOG OF TEST BORING 8

EQUIPMENT 8" Hollow Stem Auger

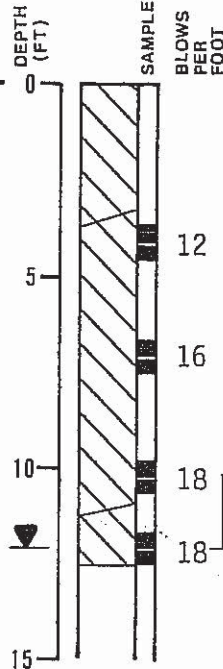
DATE DRILLED 5/26/89

ELEVATION --

LABORATORY TESTS

TVH	B	T	X	E
ND	ND	0.018	ND	ND
120	1.5	0.27	*	4.7

* not determinable



DARK BROWN SANDY CLAY (CL)
medium stiff, moist, with gravel (fill)

DARK BROWN SILTY CLAY (CL)
medium stiff, moist

mottled gray and brown
below 6 feet

GROUNDWATER LEVEL DURING DRILLING

GRAY SANDY CLAY (CL)
stiff, moist

BOREHOLE BACKFILLED WITH
CEMENT/BENTONITE GROUT

LOG OF TEST BORING 9

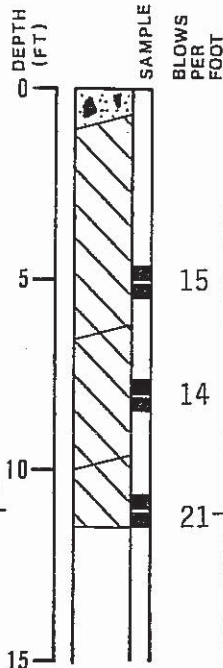
EQUIPMENT 8" Hollow Stem Auger

DATE DRILLED 5/26/89

ELEVATION --

LABORATORY TESTS

TVH	B	T	X	E
ND	0.017	ND	ND	ND
100	0.50	0.32	7.3	2.4



BROWN SANDY GRAVEL (GP)
medium dense, moist (fill)
DARK BROWN SILTY CLAY (CL)
medium stiff, moist, with gravel

BROWN SILTY CLAY (CL)
medium stiff, moist

MOTTLED GRAY AND BROWN
SANDY CLAY (CL)
stiff, moist, with gravel
GROUNDWATER LEVEL DURING DRILLING

BOREHOLE BACKFILLED WITH
CEMENT/BENTONITE GROUT

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PLATE

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LOG OF TEST BORING 10

EQUIPMENT 8" Hollow Stem Auger

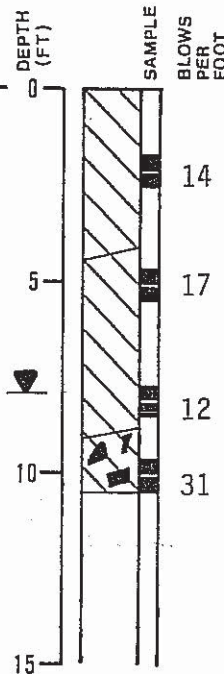
DATE DRILLED 5/26/89

ELEVATION --

LABORATORY TESTS

TVH	B	T	X	E
ND	ND	0.048	0.047	0.012

ND	ND	0.12	ND	ND
----	----	------	----	----



0
14
5
17
12
10
31
15

DARK BROWN SILTY CLAY (CL)
medium stiff, moist

BROWN SANDY CLAY (CL)
medium stiff, moist, fine grained sand

GROUNDWATER LEVEL DURING DRILLING

GRAY CLAYEY GRAVEL (GC)
dense, moist

BOREHOLE BACKFILLED WITH CEMENT/BENTONITE GROUT

LOG OF TEST BORING 11

EQUIPMENT 8" Hollow Stem Auger

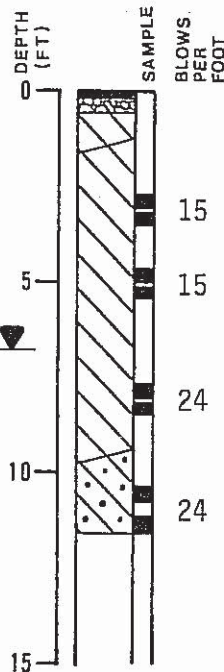
DATE DRILLED 5/26/89

ELEVATION --

LABORATORY TESTS

TVH	B	T	X	E
16	0.94	1.9	2.5	0.48

150	3.3	6.3	15	3.4
-----	-----	-----	----	-----



0
15
5
15
24
10
24
15

ASPHALTIC CONCRETE - 2" thick

BASEROCK - 4" thick

BROWN SANDY CLAY (CL)
medium stiff, moist, with gravel (fill)

DARK BROWN SILTY CLAY (CL)
medium stiff, moist, with gravel

GROUNDWATER LEVEL DURING DRILLING
mottled gray and brown below 4½ feet.

GRAY CLAYEY SAND (SC)
medium dense, moist, with gravel

BOREHOLE BACKFILLED WITH CEMENT/BENTONITE GROUT

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PLATE

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LOG OF TEST BORING 12

EQUIPMENT 8" Hollow Stem Auger

DATE DRILLED 5/26/89

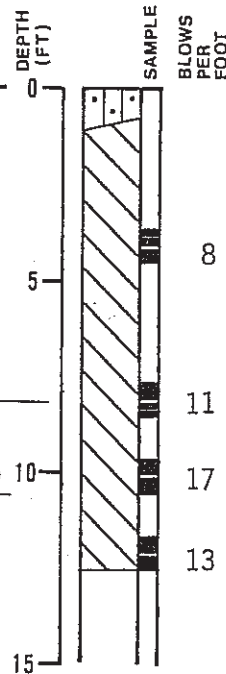
ELEVATION --

LABORATORY TESTS

<u>TVH</u>	<u>B</u>	<u>T</u>	<u>X</u>	<u>E</u>
ND	ND	0.046	ND	ND

<u>TVH</u>	<u>TEH</u>
ND	ND

<u>TVH</u>	<u>B</u>	<u>T</u>	<u>X</u>	<u>E</u>
310	1.5	2.2	13	2.9



BROWN GRAVELLY SAND (SM)
medium dense, moist (fill)
DARK BROWN SILTY CLAY (CL)
medium stiff, moist, with gravel

mottled brown and gray below
6 feet

GROUNDWATER LEVEL DURING DRILLING

BOREHOLE BACKFILLED WITH
CEMENT/BENTONITE GROUT

LOG OF TEST BORING 13

EQUIPMENT 8" Hollow Stem Auger

DATE DRILLED 5/26/89

ELEVATION --

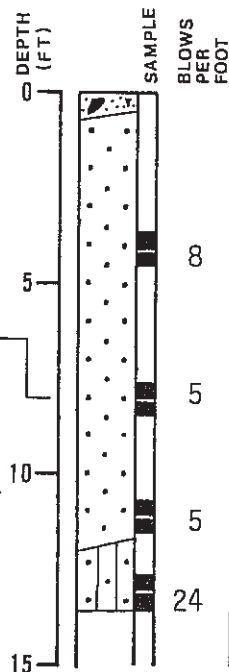
LABORATORY TESTS

<u>TEH</u>	<u>TOG</u>	<u>VOC</u>
67	ND	ND*

<u>TVH</u>	<u>B</u>	<u>T</u>	<u>X</u>	<u>E</u>
9,600	23	270	1,000	190

TVH
25,000

TVH
28



BROWN SANDY GRAVEL (GP)
medium dense, moist
GRAY SAND (SP)
medium dense, moist (fill)

dark gray below 6 feet

GROUNDWATER LEVEL DURING DRILLING

GRAY GRAVELLY SAND (SM)
medium dense, wet

BOREHOLE BACKFILLED WITH
CEMENT/BENTONITE GROUT

* other than BTXE

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PLATE

13

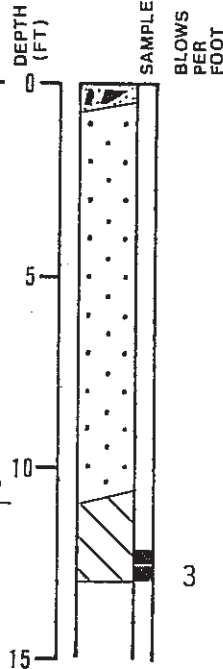
LOG OF TEST BORING 14

EQUIPMENT 8" Hollow Stem Auger

DATE DRILLED 5/26/89

ELEVATION --

LABORATORY TESTS



BROWN SANDY GRAVEL (GP)
medium dense, moist (fill)

GRAY-BROWN SAND (SP)
medium dense, moist (fill)

GROUNDWATER LEVEL DURING DRILLING
GRAY SANDY CLAY (CL)
soft, wet

BOREHOLE BACKFILLED WITH
CEMENT/BENTONITE GROUT

TVH

730

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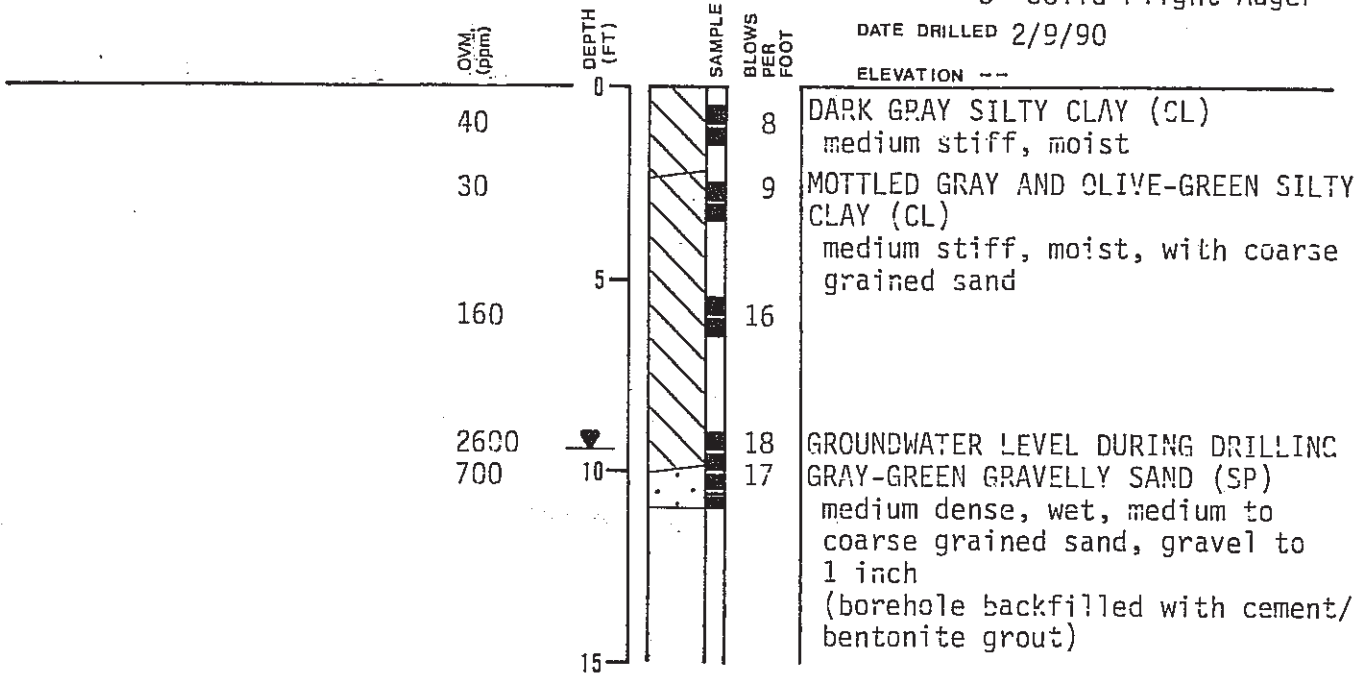
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14

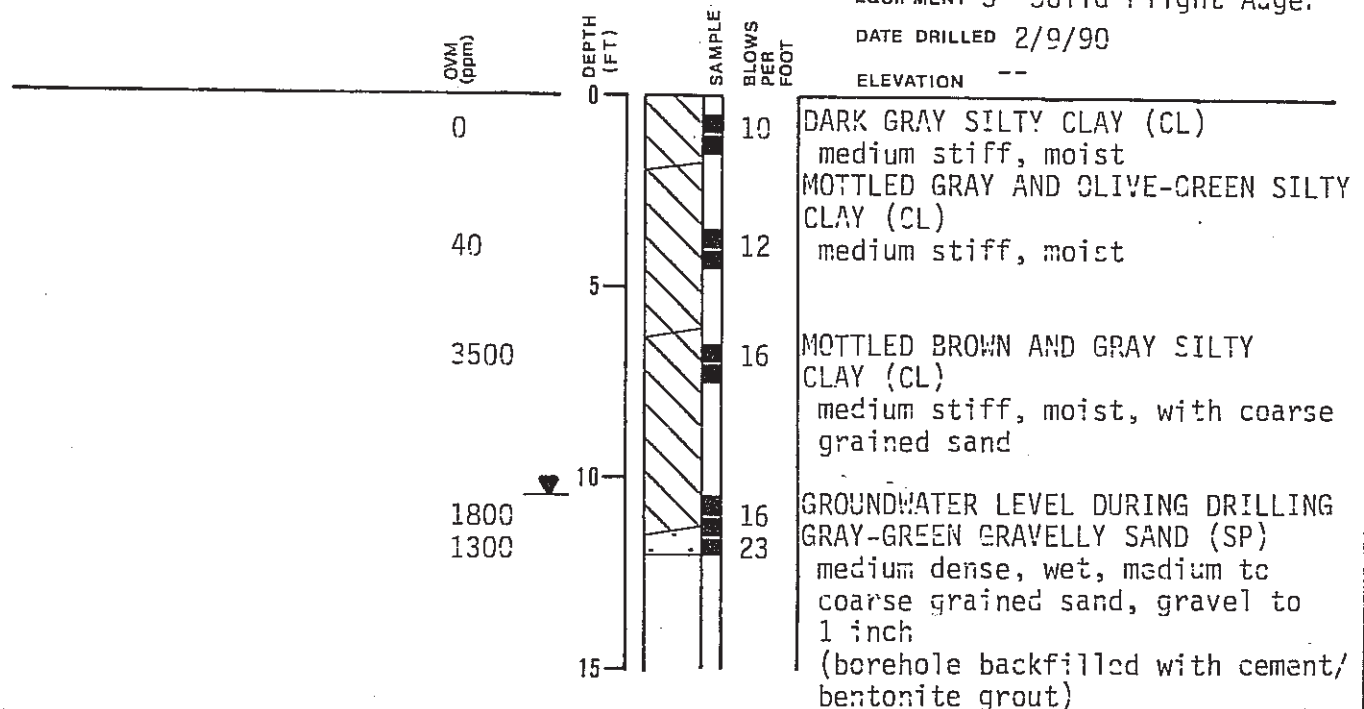
LOG OF TEST BORING 15

EQUIPMENT 3" Solid Flight Auger
 DATE DRILLED 2/9/90
 ELEVATION --



LOG OF TEST BORING 16

EQUIPMENT 3" Solid Flight Auger
 DATE DRILLED 2/9/90
 ELEVATION --



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PLATE
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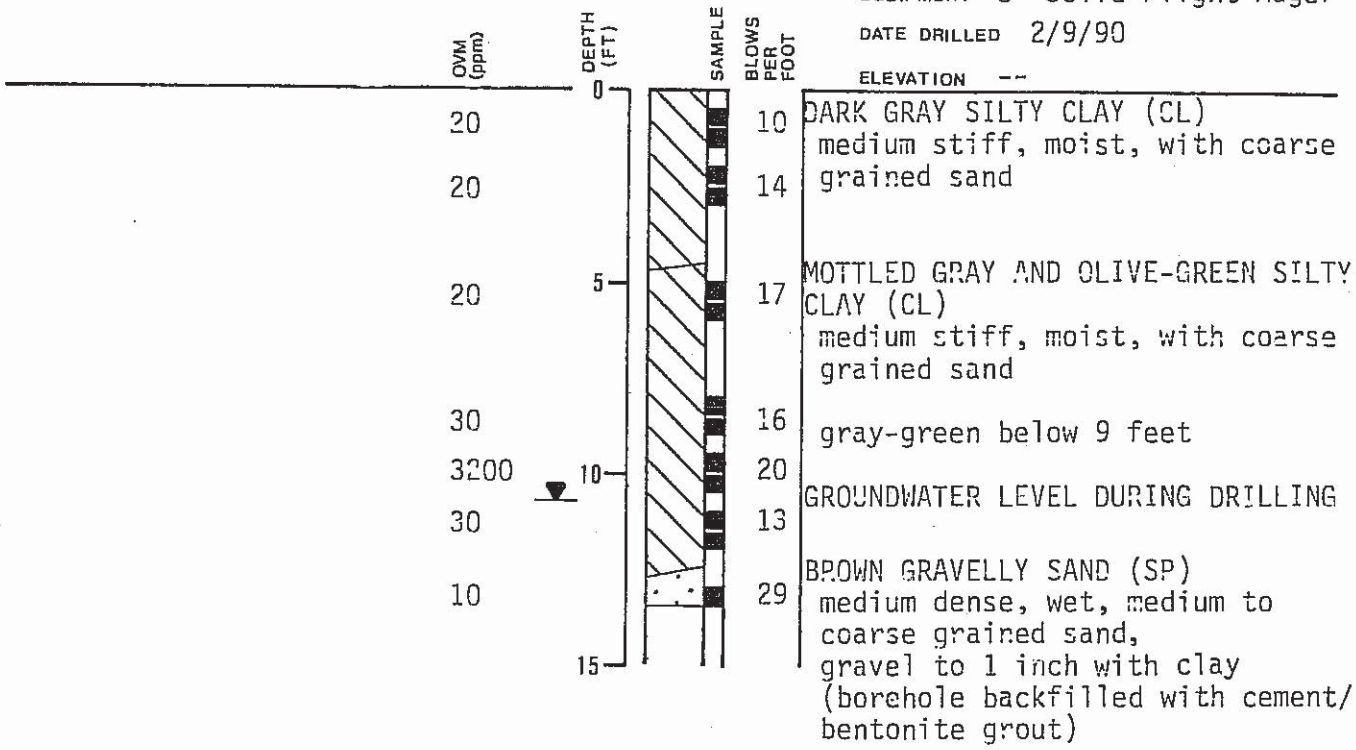
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DATE
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LOG OF TEST BORING 17

EQUIPMENT 3" Solid Flight Auger
 DATE DRILLED 2/9/90
 ELEVATION --



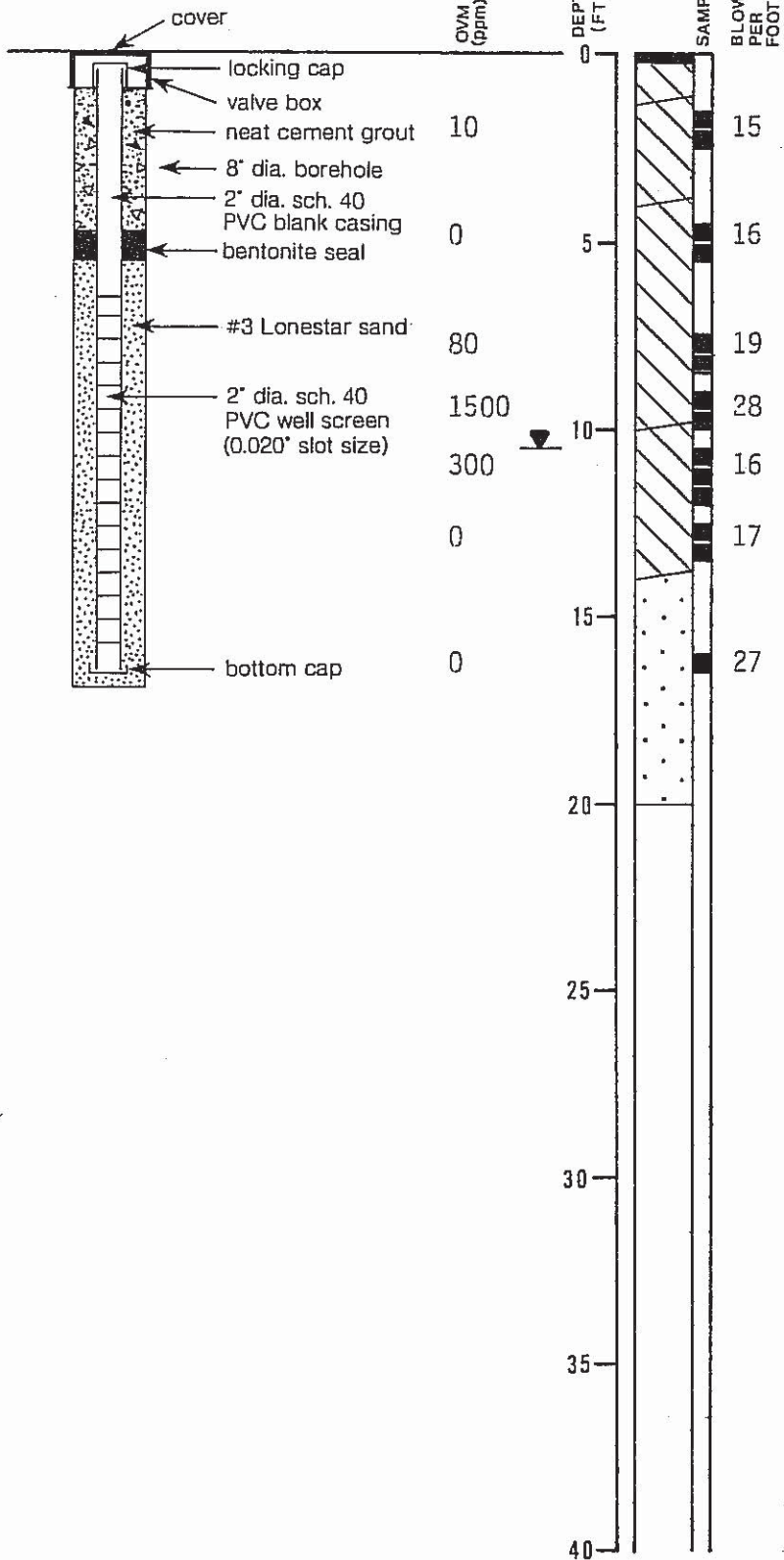
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 DATE 2/15/90
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PLATE
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LOG OF TEST BORING 18

EQUIPMENT 6" Solid Flight Auger
 DATE DRILLED 2/9/90
 ELEVATION 99.17 feet



ASPHALTIC CONCRETE - 2" thick
 BLACK SILTY CLAY (CL)
 medium stiff, moist, with gravel (fill)
 DARK BROWN SILTY CLAY (CL)
 medium stiff, moist
 MOTTLED GRAY AND BROWN SILTY CLAY (CL)
 medium stiff, moist, with coarse grained sand
 GROUNDWATER LEVEL DURING DRILLING
 GRAY-GREEN SILTY CLAY (CL)
 medium stiff, wet, with fine grained sand
 BROWN GRAVELLY SAND (SP)
 medium dense, wet, medium to coarse grained sand, gravel to 1 inch

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 DATE 2/15/90
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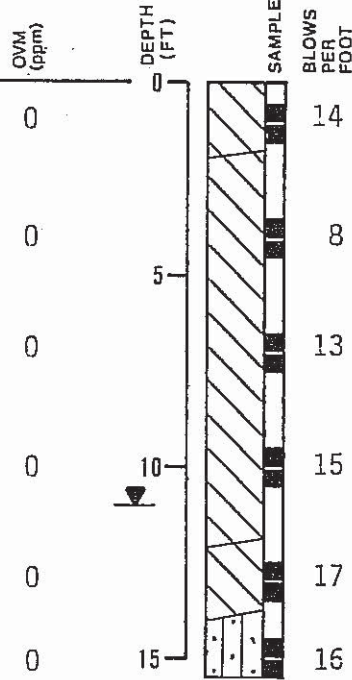
PLATE
17

LOG OF TEST BORING 19

EQUIPMENT 8" Hollow Stem Auger

DATE DRILLED 2/9/90

ELEVATION --



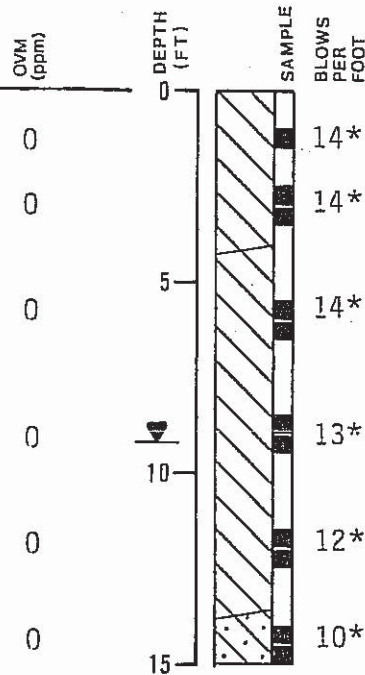
GROUNDWATER LEVEL DURING DRILLING

LOG OF TEST BORING 20

EQUIPMENT 8" Hollow Stem Auger

DATE DRILLED 2/9/90

ELEVATION --



GROUNDWATER LEVEL DURING DRILLING

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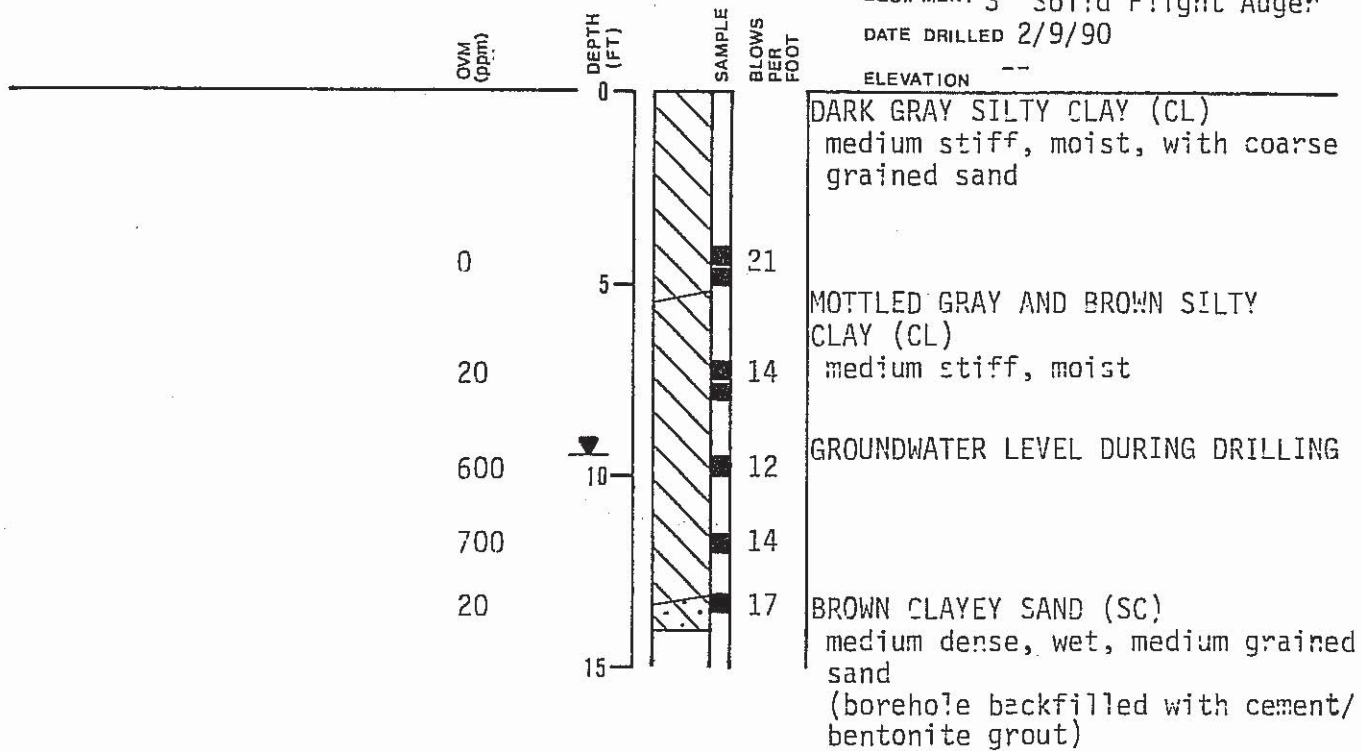
18

LOG OF TEST BORING 21

EQUIPMENT 3" Solid Flight Auger

DATE DRILLED 2/9/90

ELEVATION --



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2/15/90

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GENERAL SOIL CATEGORIES			SYMBOLS	TYPICAL SOIL TYPES
COARSE GRAINED SOILS More than half is larger than No. 200 sieve	GRAVEL More than half coarse fraction is larger than No. 4 sieve size	Clean Gravel with little or no fines	GW	Well Graded Gravel, Gravel-Sand Mixtures
			GP	Poorly Graded Gravel, Gravel-Sand Mixtures
		Gravel with more than 12% fines	GM	Silty Gravel, Poorly Graded Gravel-Sand-Silt Mixtures
			GC	Clayey Gravel, Poorly Graded Gravel-Sand-Clay Mixtures
	SAND More than half coarse fraction is smaller than No. 4 sieve size	Clean sand with little or no fines	SW	Well Graded Sand, Gravelly Sand
			SP	Poorly Graded Sand, Gravelly Sand
		Sand with more than 12% fines	SM	Silty Sand, Poorly Graded Sand-Silt Mixtures
			SC	Clayey Sand, Poorly Graded Sand-Clay Mixtures
FINE GRAINED SOILS More than half is smaller than No. 200 sieve	SILT AND CLAY Liquid Limit Less than 50%	ML	Inorganic Silt and Very Fine Sand, Rock Flour, Silty or Clayey Fine Sand, or Clayey Silt with Slight Plasticity	
		CL	Inorganic Clay of Low to Medium Plasticity, Gravelly Clay, Sandy Clay, Silty Clay, Lean Clay	
		OL	Organic Clay and Organic Silty Clay of Low Plasticity	
	SILT AND CLAY Liquid Limit Greater than 50%	MH	Inorganic Silt, Micaceous or Diatomaceous Fine Sandy or Silty Soils, Elastic Silt	
		CH	Inorganic Clay of High Plasticity, Fat Clay	
		OH	Organic Clay of Medium to High Plasticity, Organic Silt	
HIGHLY ORGANIC SOILS			PT	Peat and Other Highly Organic Soils

UNIFIED SOIL CLASSIFICATION SYSTEM

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 JOB NUMBER 272.016 DATE 2/15/90 APPROVED 

PLATE
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ATTACHMENT C

HYDROGRAPHS

Chart 1 - Hydrograph for Well MW-1

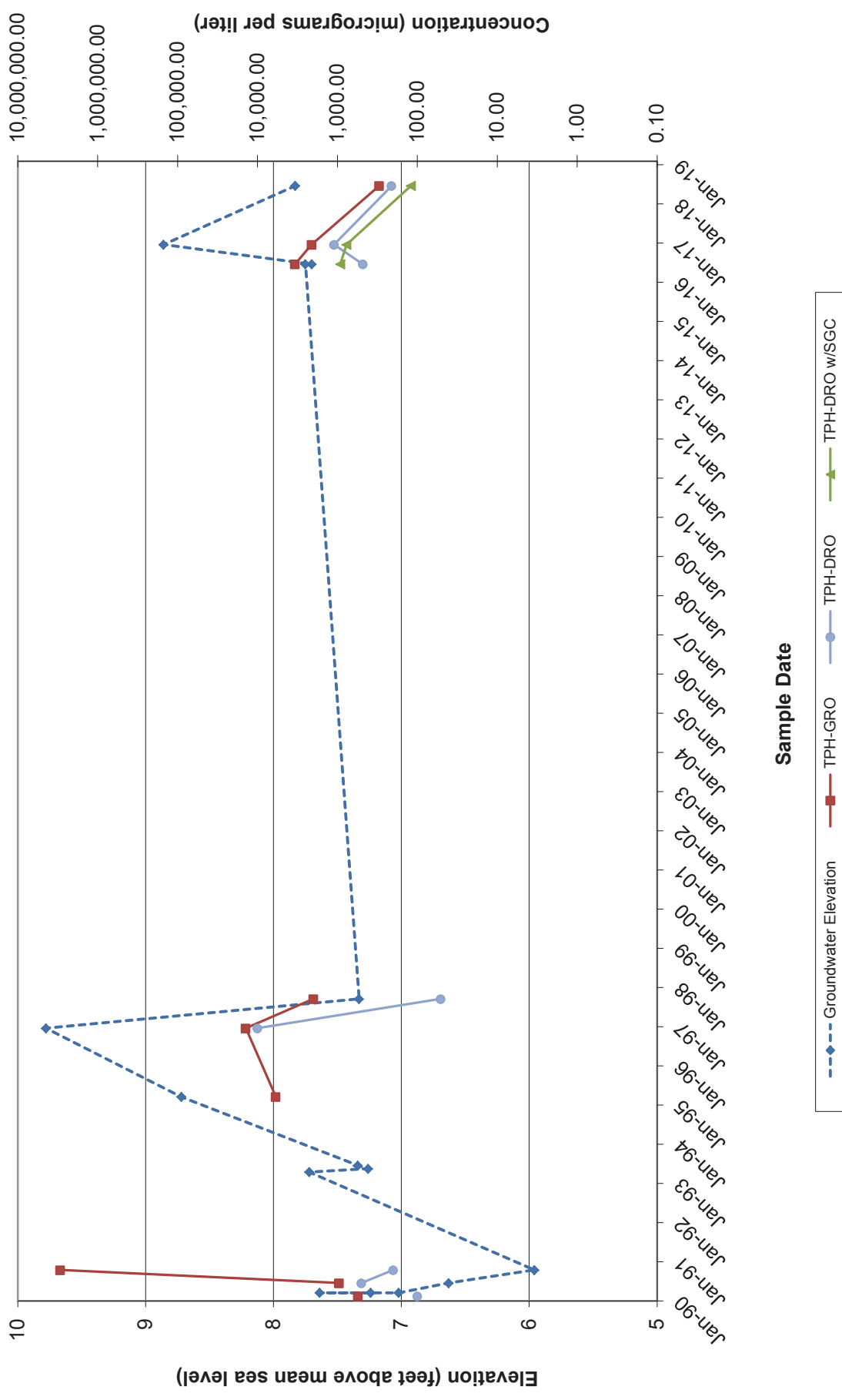


Chart 2 - Hydrograph for Well MW-2

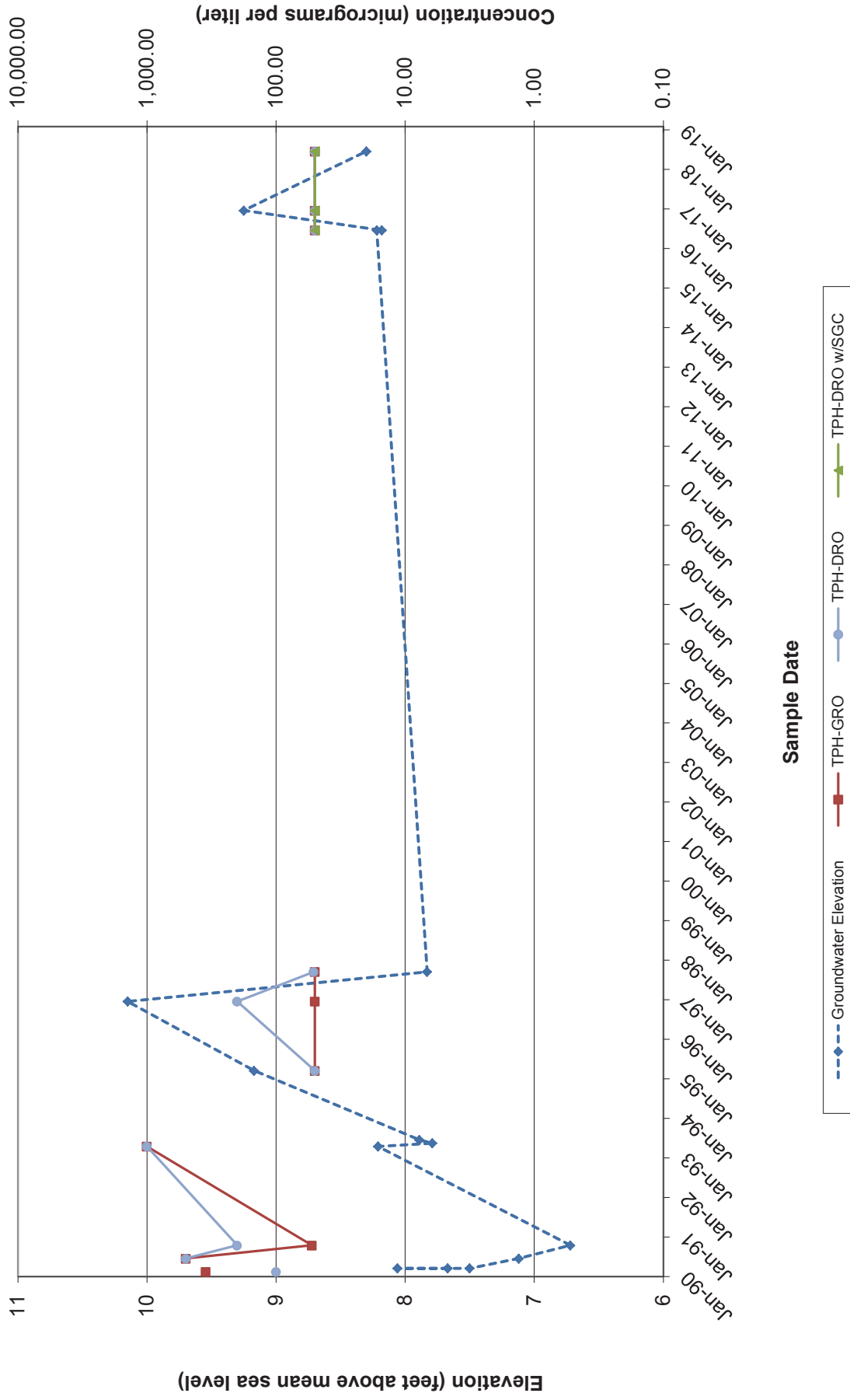


Chart 3 - Hydrograph for Well MW-3

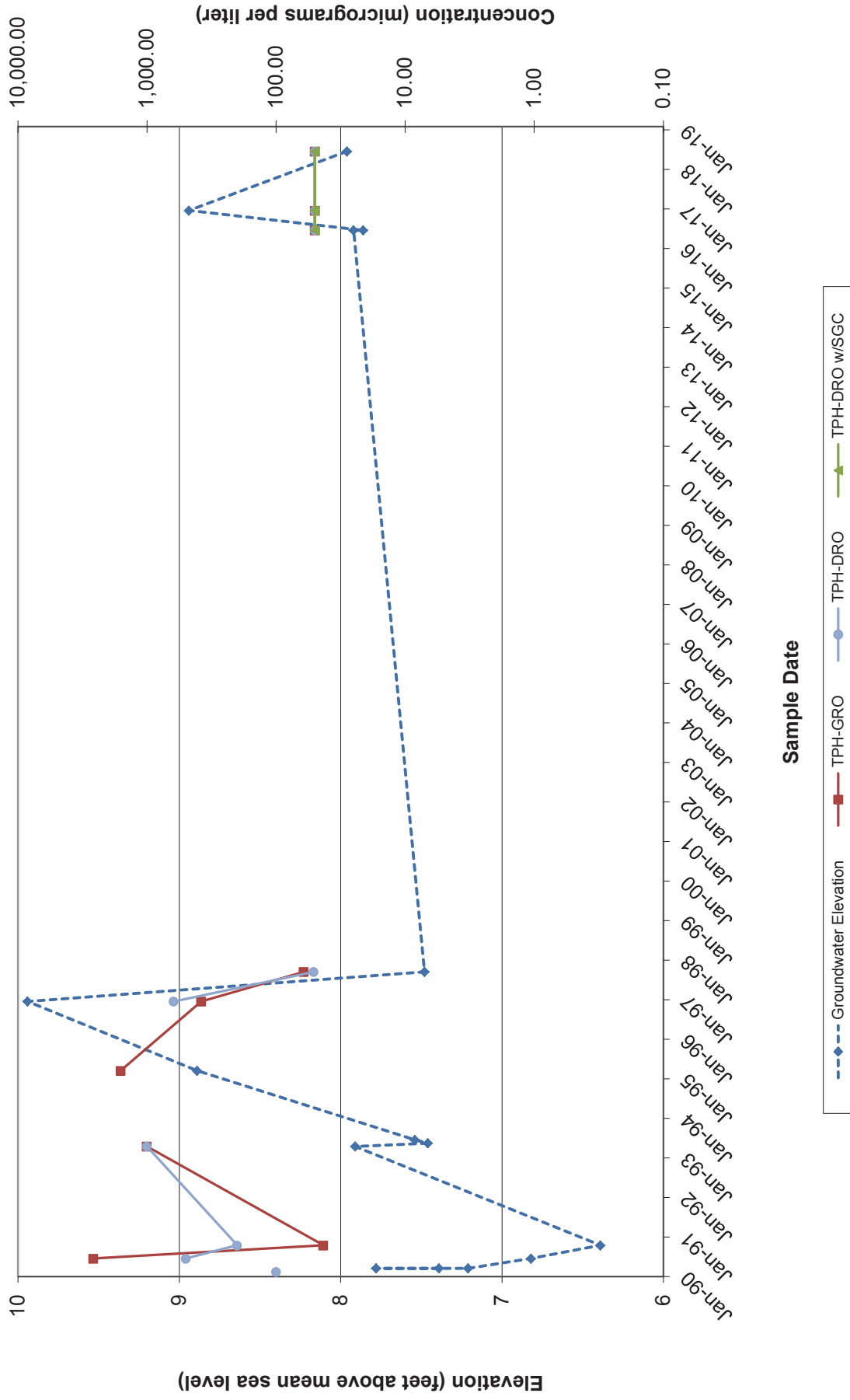


Chart 4 - Hydrograph for Well MW-4

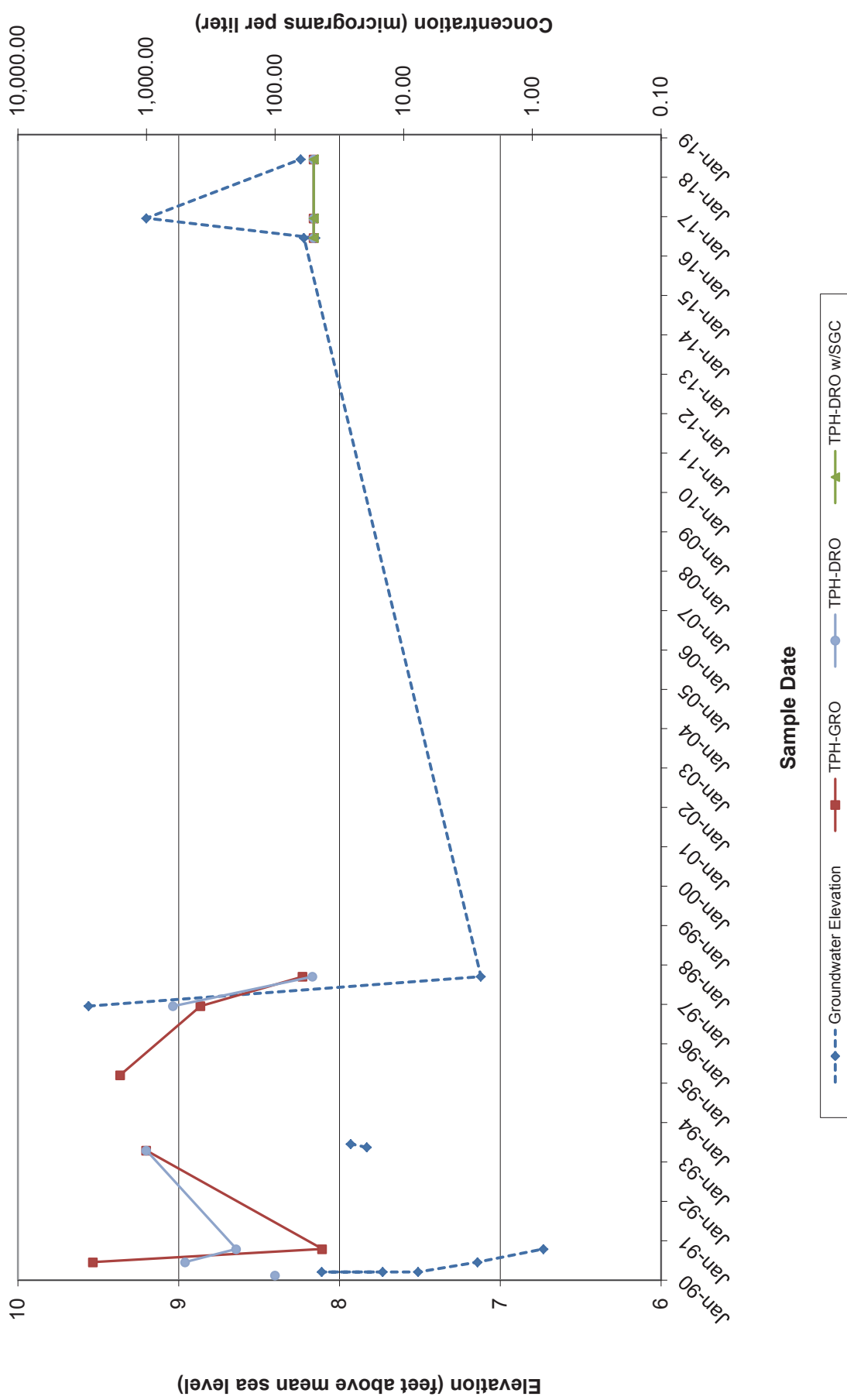


Chart 5 - Hydrograph for Well MW-5

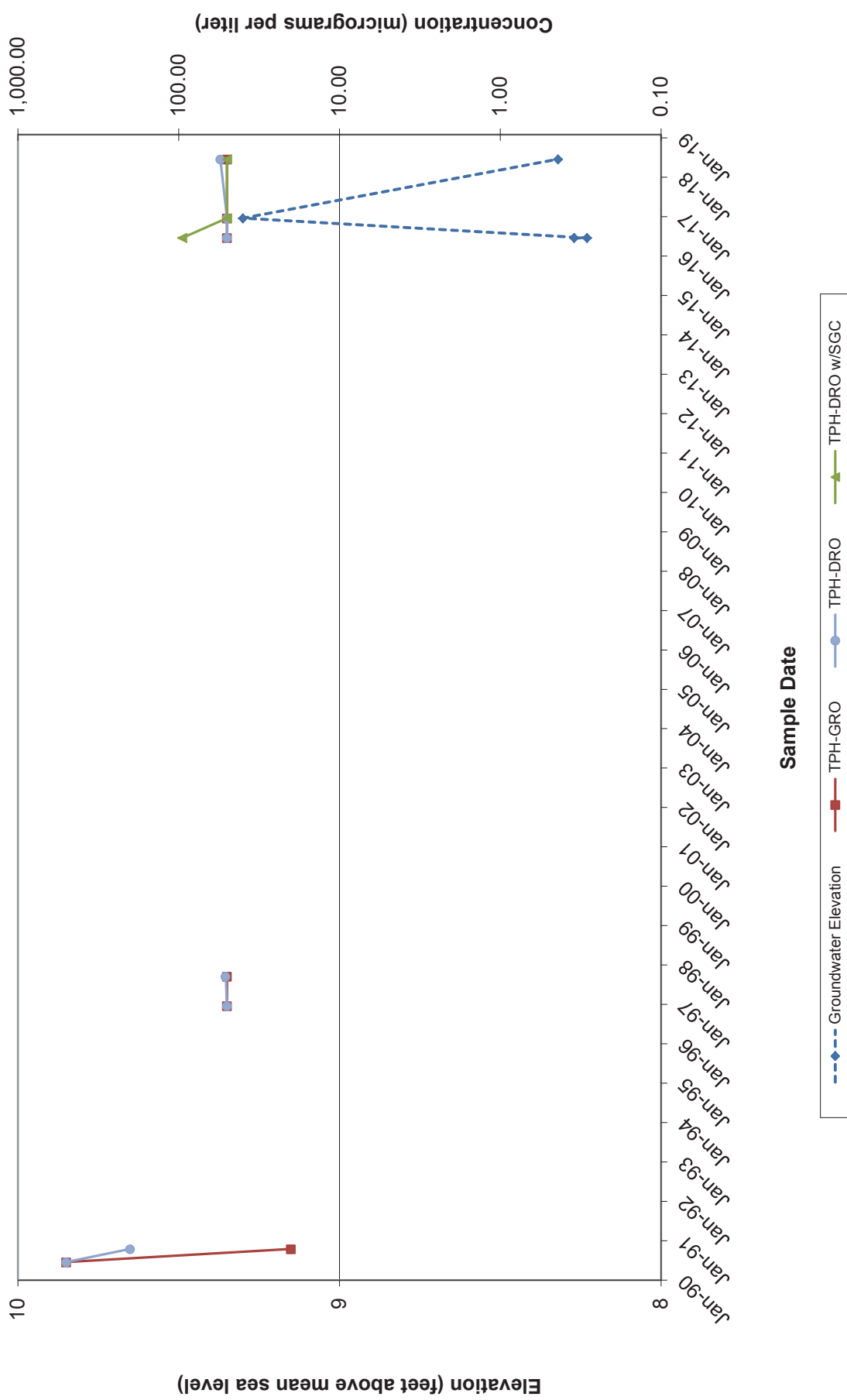


Chart 6 - Hydrograph for Well-18

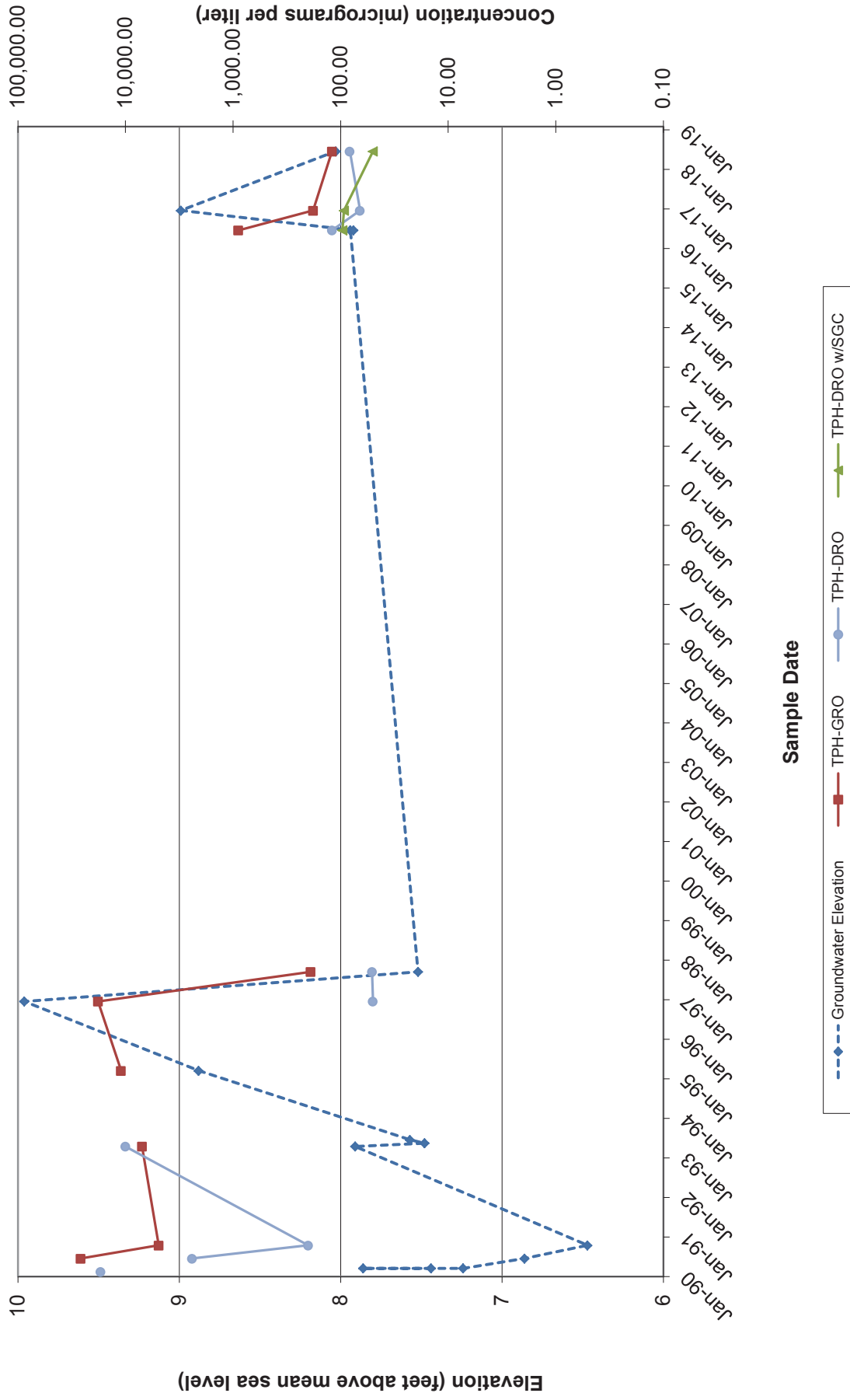


Table 1
Summary of Well Construction Details
Chevron Site No. 376584 (Former Union Oil Service Station 2720)
670 98th Avenue
Oakland, California

WELL ID	DATE INSTALLED	TOTAL DEPTH <i>(ft bgs)</i>	BOREHOLE DIAMETER <i>(inches)</i>	WELL CASING DIAMETER <i>(inches)</i>	SCREENED INTERVAL <i>(ft bgs)</i>	SLOT SIZE <i>(inches)</i>	TOP OF CASING ELEVATION <i>(ft amsl)</i>	COMMENTS
MW-1	2/7/1990	19.30	8	2	6-21	0.020	16.18	
MW-2	2/7/1990	27.50	8	2	9-27.5	0.020	16.50	
MW-3	2/8/1990	22.30	8	2	7-22	0.020	16.54	
MW-4	2/8/1990	21.10	8	2	7.5-22.5	0.020	18.40	
MW-5	2/9/1990	22.00	8	2	7.5-22.5	0.020	17.35	
Well-18	2/9/1990	16.55	8	2	6-16	0.020	15.97	

Notes:

Well data were obtained from Subsurface Consultants' borelogs and State Water Resources Control Board's GeoTracker database.

ft bgs = feet below ground surface

ft amsl = feet above mean sea level

ID = Identification

Table 2
Laboratory Analytical Results for Soil
Chevron Site No. 376584 (Former Union Oil Service Station)
670 98th Avenue, Oakland, California

BORING ID	SAMPLE ID	SAMPLE DEPTH (feet bags)	DATE	TEH ¹ (mg/kg)	TVH (mg/kg)	TOG (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)
1	1 @ 7'	7	5/25/1989	ND	ND	60	ND ²	ND ²	ND ²	ND ²
	1 @ 10'	10	5/25/1989	--	1,100	--	8.1	2.6	31	120
	1 @ 13.5'	13.5	5/25/1989	--	ND	--	0.025	0.015	0.052	0.230
2	2 @ 5'	5	5/25/1989	--	280	--	3.1	17	12	72
	2 @ 9'	9	5/25/1989	--	1,100	--	16	31	39	130
	2 @ 11'	11	5/25/1989	--	13,000	--	--	--	--	--
3	3 @ 4'	4	5/25/1989	--	20	--	0.39	0.90	0.33	1.7
	3 @ 7'	7	5/25/1989	--	ND	--	--	--	--	--
	3 @ 10'	10	5/25/1989	--	260	--	1.7	6.2	3.1	26
4	4 @ 3'	3	5/25/1989	--	14	--	0.83	1.1	0.71	3.6
	4 @ 9'	9	5/25/1989	--	150	--	4.7	5.9	6.8	4.9
5	5 @ 7'	7	5/25/1989	--	130	--	4.7	17	13	58
	5 @ 10'	9	5/25/1989	--	930	--	--	--	--	--
	5 @ 12'	12	5/25/1989	--	2,600	--	11	32	20	90
6	6 @ 6'	6	5/25/1989	--	ND	--	ND	ND	ND	ND
	6 @ 9'	9	5/25/1989	ND	45	--	1.1	1.2	2.2	16
7	7 @ 3'	3	5/25/1989	--	45	--	3.7	6.0	2.6	14
	7 @ 9'	9	5/25/1989	--	200	--	5.2	8.3	2.9	16
8	8 @ 7'	7	5/26/1989	--	ND	--	ND	0.018	ND	ND
	8 @ 10'	10	5/26/1989	--	120	--	15	0.27	4.7	--
9	9 @ 8'	8	5/26/1989	--	ND	--	0.017	ND	ND	ND
	9 @ 11'	11	5/26/1989	--	100	--	0.50	0.32	2.4	7.3
10	10 @ 2'	2	5/26/1989	--	ND	--	ND	0.048	0.012	0.047
	10 @ 8'	8	5/26/1989	--	ND	--	ND	0.12	ND	ND
11	11 @ 3'	3	5/26/1989	--	16	--	0.94	1.9	0.48	2.5
	11 @ 8'	8	5/26/1989	--	150	--	3.3	0.3	3.4	15
12	12 @ 4'	4	5/26/1989	--	ND	--	ND	0.046	ND	ND
	12 @ 8'	8	5/26/1989	ND	440	--	--	--	--	--
	12 @ 10'	10	5/26/1989	--	310	--	1.5	2.2	2.9	13
13	13 @ 8'	8	5/26/1989	67	9,600	ND	23	270	190	1,000
	13 @ 11'	11	5/26/1989	--	25,000	--	--	--	--	--
	13 @ 13'	13	5/26/1989	--	28	--	--	--	--	--
14	14 @ 12.5'	12.5	5/26/1989	--	730	--	--	--	--	--
15	15 @ 6'	6	2/9/1990	--	ND	--	ND	0.003	0.004	0.006
	15 @ 9.5'	9.5	2/9/1990	16	0.737	--	0.75	8.32	9.25	49.0
16	16 @ 10.5'	10.5	2/9/1990	1540	56.6	--	39.1	260	96.2	519
	16 @ 4'	4	2/9/1990	--	ND	--	ND	0.079	ND	0.005
	16 @ 7'	7	2/9/1990	62	0.641	--	0.4	2.13	1.43	8.06
17	17 @ 11.5'	11.5	2/9/1990	5650	10.2	--	13.1	81.9	25.3	146
	17 @ 8.5'	8.5	2/9/1990	--	ND	--	ND	0.007	ND	ND
	17 @ 10'	10	2/9/1990	ND	ND	--	ND	0.037	0.108	0.444
18 (monitoring well)	18 @ 11.5'	11.5	2/9/1990	--	ND	--	ND	0.007	0.038	0.135
	18 @ 8'	8	2/9/1990	--	ND	--	ND	0.008	0.003	0.012
	18 @ 9.5'	9.5	2/9/1990	138	0.766	ND	0.333	1.39	2.63	11.5
19	19 @ 10'	10	2/9/1990	--	0.703	--	0.122	0.236	0.552	1.53
	19 @ 9'	9	2/9/1990	--	ND	--	ND	0.007	ND	ND
20	20 @ 9'	9	2/9/1990	--	ND	--	ND	0.007	0.003	0.011
	21 @ 7.5'	7.5	2/9/1990	--	ND	--	ND	0.005	0.007	0.016
	21 @ 9.5'	9.5	2/9/1990	16	ND	ND	ND	0.072	0.28	0.970
	21 @ 11.5'	11.5	2/9/1990	20	0.754	--	ND	0.860	0.73	2.73
MW-1	21 @ 13'	13	2/9/1990	--	ND	--	ND	0.017	0.024	0.07
	MW1 @ 8'	8	2/7/1990	--	ND	--	0.329	0.007	0.070	0.130
	MW1 @ 10.5'	10.5	2/7/1990	732	ND	732	1.690	12.8	9.47	48.3
	MW1 @ 12'	12	2/7/1990	--	ND	--	0.072	0.004	0.006	0.002
	MW2 @ 6'	6	2/7/1990	--	ND	--	ND	ND	ND	ND
MW-2	MW2 @ 9'	9	2/7/1990	293 ³	ND	278	ND	0.355	0.81	3.98
	MW2 @ 12'	12	2/7/1990	--	ND	--	ND	ND	0.74	3.74
	MW3 @ 6'	6	2/8/1990	--	ND	--	ND	ND	ND	ND
MW-3	MW3 @ 9'	9	2/8/1990	352	14.4	840	ND	ND	0.74	3.74
	MW4 @ 4.5'	4.5	2/8/1990	--	ND	--	ND	ND	ND	ND
MW-4	MW4 @ 10.5'	10.5	2/8/1990	ND	ND	ND	ND	ND	1.99	10.2
	MW4 @ 13.5'	13.5	2/8/1990	--	ND	--	ND	ND	ND	ND
MW-5	MW5 @ 9'	9	2/9/1990	ND	ND	--	ND	ND	ND	ND
	MW5 @ 11'	11	2/9/1990	--	ND	--	ND	0.003	ND	ND

Table 2
Laboratory Analytical Results for Soil
Chevron Site No. 376584 (Former Union Oil Service Station)
670 98th Avenue, Oakland, California

BORING ID	SAMPLE ID	SAMPLE DEPTH (feet bags)	DATE	TEH ¹ (mg/kg)	TVH (mg/kg)	TOG (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)
EXCAVATION SIDEWALLS	SW-1 @ 9'	9	10/90	--	ND	--	--	--	--	--
	SW-2 @ 12'	12	10/90	--	81	--	--	--	--	--
	SW-3 @ 10'	10	10/90	--	430	--	--	--	--	--
	SW-4 @ 9'	9	10/90	--	210	--	--	--	--	--
	NW-1 @ 9'	9	10/90	--	ND	--	--	--	--	--
	NW-2 @ 10'	10	10/90	--	260	--	--	--	--	--
	NW-3 @ 9'	9	10/90	--	420	--	--	--	--	--
	NW-4 @ 9'	9	10/90	--	50	--	--	--	--	--
	NW-5 @ 9'	9	10/90	--	83	--	--	--	--	--
	WW-1 @ 9'	9	10/90	--	2,000	--	--	--	--	--
WW-2 @ 9'	9	10/90	--	140	--	--	--	--	--	
EXCAVATION BOTTOM	B-1 @ 10'	10	10/90	--	790	--	--	--	--	--
	B-2 @ 13.5'	13.5	10/90	--	1,700	--	--	--	--	--
	B-3 @ 10'	10	10/90	--	1,400	--	--	--	--	--
	B-4 @ 10.5'	10.5	10/90	--	2,100	--	--	--	--	--

NOTES:

- ¹ = Gasoline range unless otherwise noted
- ² = EPA Method 8240; all others EPA Method 8020 unless noted otherwise
- ³ = Gasoline range 246 mg/kg; motor oil range 47 mg/kg
- bgs = Below ground surface
- ID = Identification
- mg/kg = Milligrams per kilogram
- ND = Analyte not detected, but detection limit not available
- = Not analyzed or not applicable
- TEH = Total extractable hydrocarbons
- TVH = Total volatile hydrocarbons
- TOG = Total oil and grease
- B = Benzene
- T = Toluene
- E = Ethylbenzene
- X = Xylenes

Sources:

2/5/1990 through 2/9/1990 data from tables and boring logs in "Soil and Groundwater Contamination Assessment, Phase 2, 98th and Edes Avenues, Oakland, California, SCI 272.016. Dated April 10, 1990. Prepared for Mr. James Abron, Construction, City of Oakland, 7101 Edgewater Drive, Oakland, California 94621. Prepared by Subsurface Consultants, Inc., 171 12th Street, Suite 201, Oakland, California 94607.

Excavation sample data from "Progress Report, Contaminated Sil Removal, Utility Trench Alignment, 98th and Edes Avenues, Oakland, California, SCI 272.016. Dated December 13, 1990. Prepared for Mr. Dan Lau, Construction, City of Oakland, 7101 Edgewater Drive, Oakland, California 94621. Prepared by Subsurface Consultants, Inc., 171 12th Street, Suite 201, Oakland, California 94607.

Excavation sample data (10/1990) from "Report on Groundwater Monitoring, March 1995, 670 98th Avenue, Oakland, California. Dated July 6, 1995. Prepared for Mr. Andrew Clark-Clough, City of Oakland Environmental Affairs, 1333 Broadway, Suite 330, Oakland, California 94612. Prepared by Baseline Environmental Consulting, 5900 Hollis Street, Suite D, Emeryville, CA 94608.

Table 3
Laboratory Analytical Results for Soil Vapor
Samples Collected March 10, 1999
Chevron Site No. 376584 (Former Union Oil Service Station No. 2720)
670 98th Avenue, Oakland, California

Constituent	Sample ID							
	SG-1		SG-2		SG-3		SG-4	
	ppbv	µg/m ³	ppbv	µg/m ³	ppbv	µg/m ³	ppbv	µg/m ³
Freon 12	<0.71	<3.5	0.71J	3.6J	<0.67	<3.4	<0.70	<3.5
Chloromethane	1.7J	3.6J	1.8J	3.7J	1.6J	3.3J	4.0	8.4
Freon 11	1.9J	11J	<0.68	<3.9	<0.67	<3.8	<0.70	<4.0
Methylene Chloride	1.0	3.6J	0.95J	3.3J	0.72J	2.6J	1.3J	4.7J
Benzene	1.7J	5.5J	1.1J	3.6J	1.2J	4.1J	0.96J	3.1J
Ethylbenzene	0.83J	3.6J	1.3J	5.7J	1.4J	6.1J	1.6J	6.9J
m,p-xylene	3.0	13.0	5.3	23	5.0	22.0	6.1	27.0
o-xylene	1.3J	5.8J	2.1J	9.2J	1.9J	8.4J	2.3J	10J
Styrene	<0.71	<3.1	0.78J	3.4J	<0.67	<2.9	0.85J	3.7J
1,3,5-trimethylbenzene	<0.71	<3.5	0.71J	3.6J	<0.67	<3.3	0.92J	4.6J
1,2,4-trimethylbenzene	1.2J	6.1J	2.6J	13J	2J	10J	3.4	17.0
1,3-dichlorobenzene	0.91J	5.6J	2.2J	13J	1.8J	11J	3.4	21.0
Acetone	16	38	17	40	21	50	14	34.0
2-propanol	<2.8	<7.0	2.8J	7.1J	3.8J	9.5J	3.2J	8.0J
2-butanone (methyl ethyl ketone)	3.7M	11J	3.8J	11J	2.9J	8.8J	<2.8	<8.3
4-ethyltoluene	<2.8	<14	<2.7	<14	<2.7	<13	2.8J	14J
Ethanol	36	70	56	110	57	110	72	140.0
Toluene	4.1	16	4.8	18	4.9	19	5.0	19.0

NOTES:

ID = Identification

ppbv = parts per billion by volume

µg/m³ = micrograms per cubic meter

<# = Analyte not detected at or above indicated laboratory reporting limit

J = Amount detected greater than the method detection limit, but less than the laboratory reporting limit

All samples were collected with a 6-liter Summa canister from probes at 2.5 to 3.0 feet below ground surface. All samples analyzed by EPA Method TO-14 GC/MS full scan.

Source: "Report on Soil Gas Sampling and Health Risk Assessment, June 1999, 670 98th Avenue, Oakland, California. Dated June 4, 1999. Prepared for Mr. Mark Hirsch, City of Oakland Environmental Services, 1333 Broadway, Suite 330, Oakland, CA 94612. Prepared by Baseline Environmental Consulting, 5900 Hollis Street, Suite D, Emeryville, California 94608.



SITE LOCATION

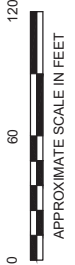
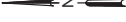


Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO,

Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, © OpenStreetMap contributors, and the GIS User Community



<p>AECOM 1220 AVENIDA ACASO CAMARILLO, CALIFORNIA 93012 PHONE: 805.388.3775 FAX: 805.388.3557 WEB: HTTP://WWW.AECOM.COM</p>	<p>SITE LOCATION MAP</p> <p>Chevron Site No. 376584 (Former Union Oil Service Station 2720) 670 98th Avenue Oakland, California</p>			<p>FIGURE NUMBER:</p> <p style="text-align: center; font-size: 24pt;">1</p>
	<p>DRAWN BY:</p> <p>T. Quiroz</p>	<p>DATE:</p> <p>07/25/2018</p>	<p>PROJECT NUMBER:</p> <p>60580698</p>	<p>SHEET NUMBER:</p> <p>1 of 1</p>



SOURCES:
 FORMER SITE FEATURES FROM 1963 AND 1966 AERIAL IMAGERY AND 1974 GENERAL ARRANGEMENT SITE PLAN FOR SERVICE STATION 2720
 GENERAL ARRANGEMENT SITE PLAN, SERVICE STATION NO. 2720, UNION OIL COMPANY OF CALIFORNIA, DRAWING NO. F-3-2720-1.1 DATED 6/17/1966; REVISED 2/16/1967, 5/24/1974, AND 9/17/UNKNOWN YEAR.
 SITE PLAN, LIMITED PHASE I ENVIRONMENTAL SITE ASSESSMENT AND GROUNDWATER MONITORING REPORT/CITY OF OAKLAND, 670 AND 692 98th AVENUE, APPLIED GEOTECHNOLOGY, INC., 7/9/1983.

LEGEND
 [Symbol] CHEVRON SITE NO. 376584
 [Symbol] APPROXIMATE PROPERTY BOUNDARY
 [Symbol] FORMER RICHFIELD SERVICE STATION APPROXIMATE PROPERTY BOUNDARY
 [Symbol] MONITORING WELL (2/9/1990 BY SCI)
 [Symbol] SOIL TEST BORING (5/25-26/1989 BY SCI)
 [Symbol] SOIL TEST BORING (2/9/1990 BY SCI)
 [Symbol] FORMER HOIST (1966)
 [Symbol] FORMER DISPENSER ISLAND (1966)
 [Symbol] TEMPORARY WELL POINT LOCATION (9/23/1997 BY BEC)
 [Symbol] SOIL VAPOR SAMPLING LOCATION (3/10/1999 BY BEC)
 [Symbol] SUBSURFACE CONSULTANTS, INC.
 [Symbol] BEC BASELINE ENVIRONMENTAL CONSULTING
NOTE: BASE MAP FROM GOOGLE EARTH PRO
 SOURCES: FORMER SITE FEATURES FROM 1963 AND 1966 AERIAL IMAGERY AND 1974 GENERAL ARRANGEMENT SITE PLAN FOR SERVICE STATION 2720

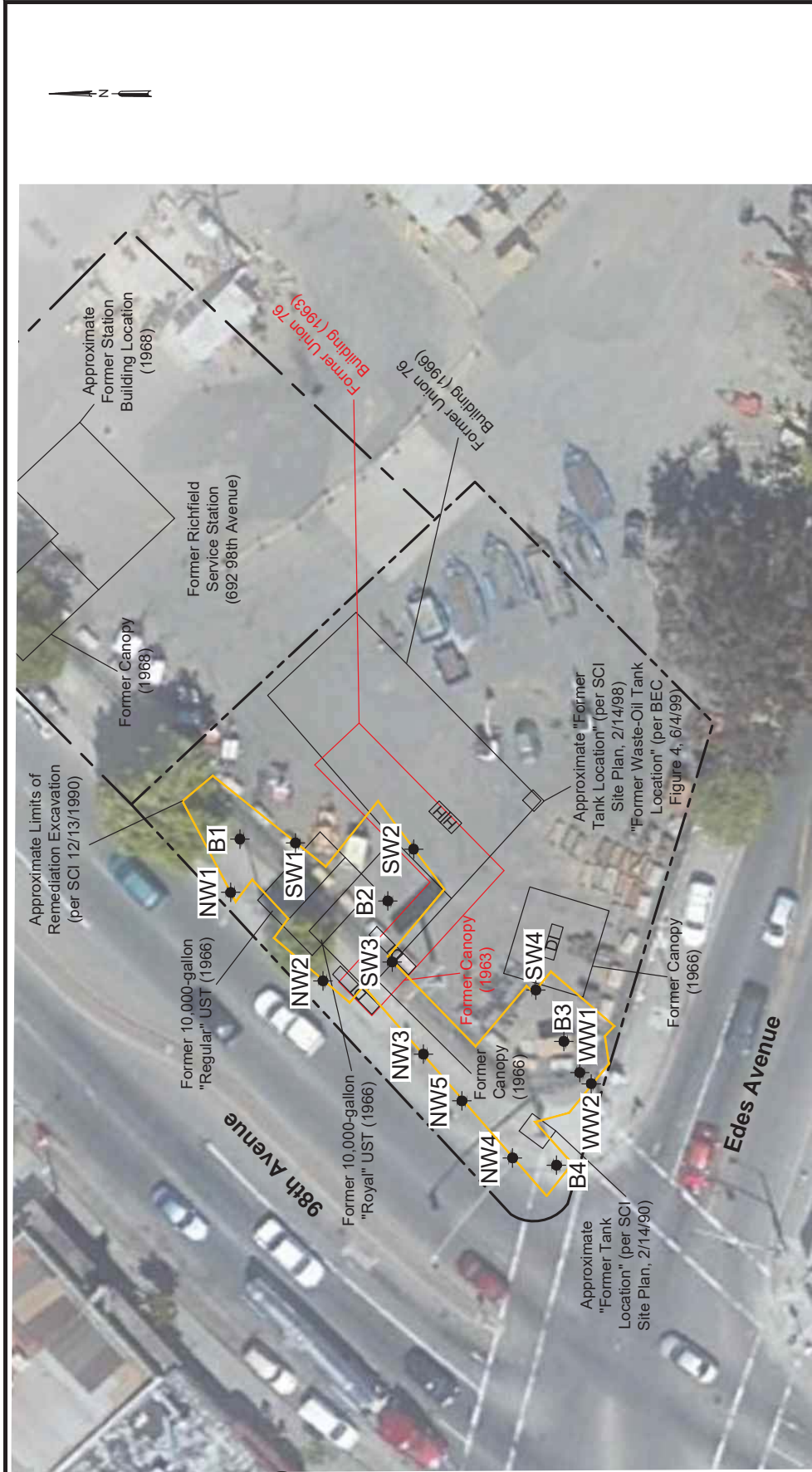
DESIGNED BY		TO		DATE	
CHECKED BY		TO		DATE	
APPROVED BY		TO		DATE	

AECOM
 1220 AVENIDA AGASSO
 CAMARILLO, CALIFORNIA 93012
 PHONE: (805) 388-3775
 FAX: (805) 388-3577

SCALE	DATE	PROJECT NUMBER
1" = 60'	08/30/2018	60580698

SITE VICINITY OVERVIEW
 CHEVRON SITE NO. 376584
 (FORMER UNION OIL SERVICE STATION 2720)
 OAKLAND, CALIFORNIA

FIGURE NUMBER	SHEET NUMBER
2	1 of 1

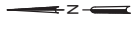


- LEGEND**
- CHEVRON SITE NO. 376584
 - APPROXIMATE PROPERTY BOUNDARY
 - FORMER RICHFIELD SERVICE STATION
 - APPROXIMATE PROPERTY BOUNDARY
 - APPROXIMATE EXCAVATION SAMPLE LOCATION (10/1990 BY SCI)
 - FORMER HOIST (1966)
 - FORMER DISPENSER ISLAND (1966)

SOURCES: GENERAL ARRANGEMENT SITE PLAN, SERVICE STATION NO. 2720, UNION OIL COMPANY OF CALIFORNIA, DRAWING NO. F-3-2720-1.1 DATED 6/17/1966; REVISED 2/16/1967, 5/24/1974, AND 9/17/UNKNOWN YEAR.

SITE PLAN, LIMITED PHASE I ENVIRONMENTAL SITE ASSESSMENT AND GROUNDWATER MONITORING REPORT/CITY OF OAKLAND, 670 AND 692 98th AVENUE, APPLIED GEOTECHNOLOGY, INC., 7/9/1993.

FORMER SITE FEATURES FROM 1963 AND 1966 AERIAL IMAGERY AND 1974 GENERAL ARRANGEMENT SITE PLAN FOR SERVICE STATION 2720.



DESIGNED BY		NO.		TO		DATE	
DRAWN BY		CHECKED BY		DATE			
APPROVED BY		DATE					
REVISIONS							

AECOM

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PROJECT NUMBER		
60580698		
DATE	SCALE	1" = 40'
08/30/2018		
SITE PLAN		
WITH EXCAVATION LIMITS		
CHEVRON SITE NO. 376584 (FORMER UNION OIL SERVICE STATION 2720) 670 98th AVENUE OAKLAND, CALIFORNIA		

3
FIGURE NUMBER
SHEET NUMBER 1 of 1