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Darin L. Rouse
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Environmental Remediation

ExxonMobil
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October 19, 2000

Mr. Scott Seery
Alameda County Environmental Health Department
1131 Harbor Bay Parkway
Alameda, CA 94501-6577

Subject: Former Exxon RAS #7-3399/2991 Hopyard Road, Pleasanton, California

Dear Mr. Seery:

Attached for your review and comment is a copy of the ***Work Plan for Well Replacement*** dated October 2000 for the above-referenced site. The report was prepared by ETIC Engineering, Inc. of Walnut Creek, California.

If you have any questions or comments, please contact me at (925) 246-8768.

Sincerely,

Darin L. Rouse
Senior Engineer

Attachment: ETIC Work Plan for Well Replacement dated October 2000

c: w/attachment:
Mr. Chuck Headlee – Regional Water Quality Control Board, San Francisco Bay Region
Mr. Matthew Katen – Alameda County Flood Control and Water Conservation District (Zone 7)
Mr. Stephen Cusenza – City of Pleasanton Public Works Department
Mr. Thomas Elson – Luhdorff and Scalmanini Consulting Engineers

c: w/o attachment:
Ms. Christa Marting - ETIC Engineering, Inc.

ETIC
Engineering, Inc.

Work Plan for Well Replacement

Former Exxon Retail Site 7-3399
2991 Hopyard Road
Pleasanton, California

Prepared for

ExxonMobil Refining and Supply Company
P.O. Box 4032
2300 Clayton Road, Suite 1250
Concord, California 94524-4032

Prepared by

ETIC Engineering, Inc.
144 Mayhew Way
Walnut Creek, California 94596
(925) 977-7914

10/19/00

Joseph T. Muehleck
Project Manager

Date

Heidi Dieffenbach-Carle

REGISTERED GEOLOGIST
HEIDI L. DIEFFENBACH-CARLE
No. 6793
exp03/31/02
STATE OF CALIFORNIA

October 17, 2000

Heidi Dieffenbach-Carle, R.G. #6793
Senior Geologist

Date

October 2000

SITE CONTACTS

Site Name:	Former Exxon Retail Site 7-3399
Site Address:	2991 Hopyard Road Pleasanton, California
ExxonMobil Project Manager:	Darin L. Rouse ExxonMobil Refining and Supply Company P.O. Box 4032 2300 Clayton Road, Suite 1250 Concord, California 94524-4032 (925) 246-8768
Consultant to ExxonMobil:	ETIC Engineering, Inc. 144 Mayhew Way Walnut Creek, California 94596 (925) 977-7914
ETIC Project Manager:	Joseph T. Muehleck
Regulatory Oversight:	Scott Seery Alameda County Environmental Health Department 1131 Harbor Bay Parkway Alameda, CA 94501-6577 (510) 567-6783 Chuck Headlee California Regional Water Quality Control Board San Francisco Bay Region 1515 Clay Street, Suite 1400 Oakland, California 94612 (510) 622-2300 Mr. Matthew Katen Alameda County Flood Control and Water Conservation District (Zone 7) 5997 Parkside Drive Pleasanton, California 94588 (925) 484-2600 Mr. Stephen Cusenza City of Pleasanton Public Works Department P.O. Box 520 Pleasanton, California 94588 (925) 931-5507

INTRODUCTION

At the request of ExxonMobil Refining and Supply Company (ExxonMobil), ETIC Engineering, Inc. (ETIC) has prepared this work plan for the replacement of one groundwater monitoring well at former Exxon Retail Site (RS) 7-3399, located at 2991 Hopyard Road, Pleasanton, California (Figure 1). This work plan has been prepared in response to a request from the Alameda County Department of Environmental Health (ACDEH) during a telephone conversation with ETIC.

Groundwater was pumped from several wells at the site in June and July 2000 to help estimate sustainable rates for a pump and treat system for remediation of petroleum hydrocarbons and methyl tertiary butyl ether (MTBE). During that period, a partial obstruction was discovered in MW9 at a depth of approximately 26 feet below ground surface (bgs), while trying to place a 4-inch submersible pump in the well. In August, a video camera was lowered into the well to investigate the obstruction. It has been inferred from the videotape that a breach in the casing has occurred at 26 feet bgs. What appears to be intermittently trickling water and biological growth can be observed along the casing wall beneath the damaged area. It was decided that the well be replaced to minimize its potential as a vertical conduit.

It is proposed that MW9 be abandoned according to well abandonment permit conditions specified by the Zone 7 Water Agency. Applications for well abandonment and for installation of a new well are being submitted. It is proposed that the replacement well be installed within 10 feet of MW9 and be screened over a similar depth interval. The proposed well installation is described in greater detail below.

Site background and geology were described in a work plan submitted in May 2000 for the installation of offsite wells in the vicinity of the site. Installation of the offsite wells has been completed and will be documented in a separate report.

PROPOSED SCOPE OF WORK

It is proposed that MW9 be pressure grouted to the surface.

The proposed well will be installed at the approximate location shown in Figure 1. The location may be moved slightly based on site conditions (access issues, subsurface obstructions [utilities], etc.). Well construction may be modified based on conditions encountered in the field.

The well is proposed to serve the same function as MW9 - monitoring of groundwater in Zone 1 in that area. The proposed well construction is presented in Figure 2. A copy of the MW9 boring log is included as Appendix A. The proposed well will be screened at a depth interval similar to MW9, but will be 6 inches in diameter.

A submersible pump will be installed in the well, and the well will be plumbed into a groundwater pump and treat system designed to remediate and control migration of hydrocarbons and MTBE in groundwater. It is anticipated that this well will be the primary well used to pump groundwater from Zone 1 as necessary. Groundwater will be pumped from at least two other wells: OW2, located in the backfill of the current underground storage tanks (USTs); and VR1, located in the excavation backfill of the former USTs, removed in 1988. Based on

current knowledge of site conditions, these wells are considered to be screened in areas of perched water, while Zone 1 is considered to be the first encountered true water table.

The borehole will be drilled with a truck-mounted rotary drill, using hollow-stem continuous-flight augers. The well installation procedures and sampling methods are described in Appendix B.

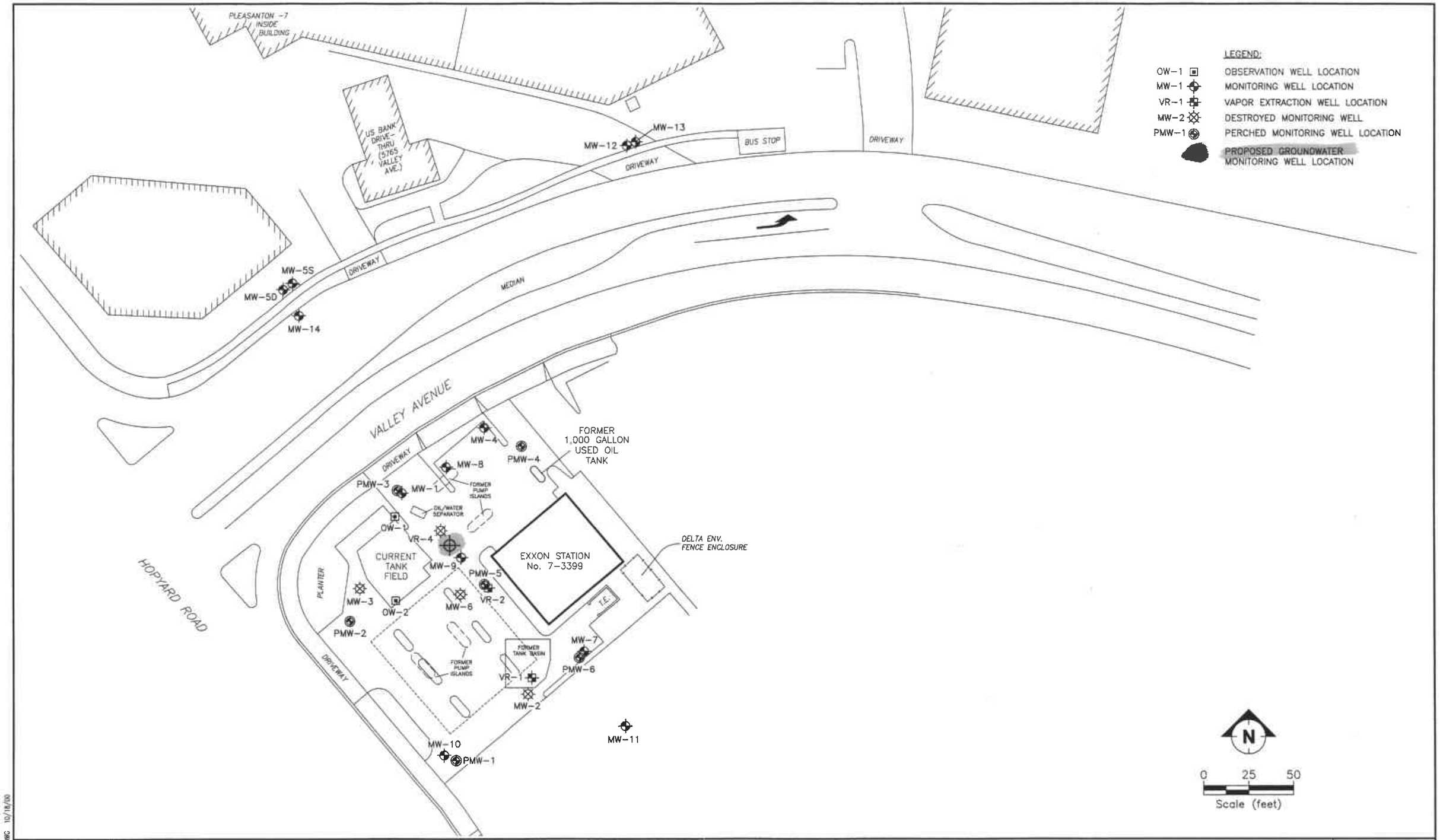
Soil samples will be collected and logged from the boring at intervals of 5 feet or less to characterize subsurface lithology. Selected soil samples will be retained for laboratory analysis. At least one soil sample from the vadose zone and one soil sample from near the point of first encountered water and/or the clay/silt – sand/gravel interface will be analyzed from the boring. Additional soil samples may be collected for laboratory analysis based on significant lithologic changes and/or field organic vapor analyzer measurements.

The well will be developed and groundwater sampled as outlined in Appendix B.

Soil and groundwater samples will be analyzed for Total Petroleum Hydrocarbons as gasoline (TPH-g) by modified EPA Method 8015, for benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8020, and for MTBE by EPA Method 8260.

REPORTING

The investigation results will be presented in a technical report. The technical report will include an investigation summary, soil boring log, analytical results, and site map.

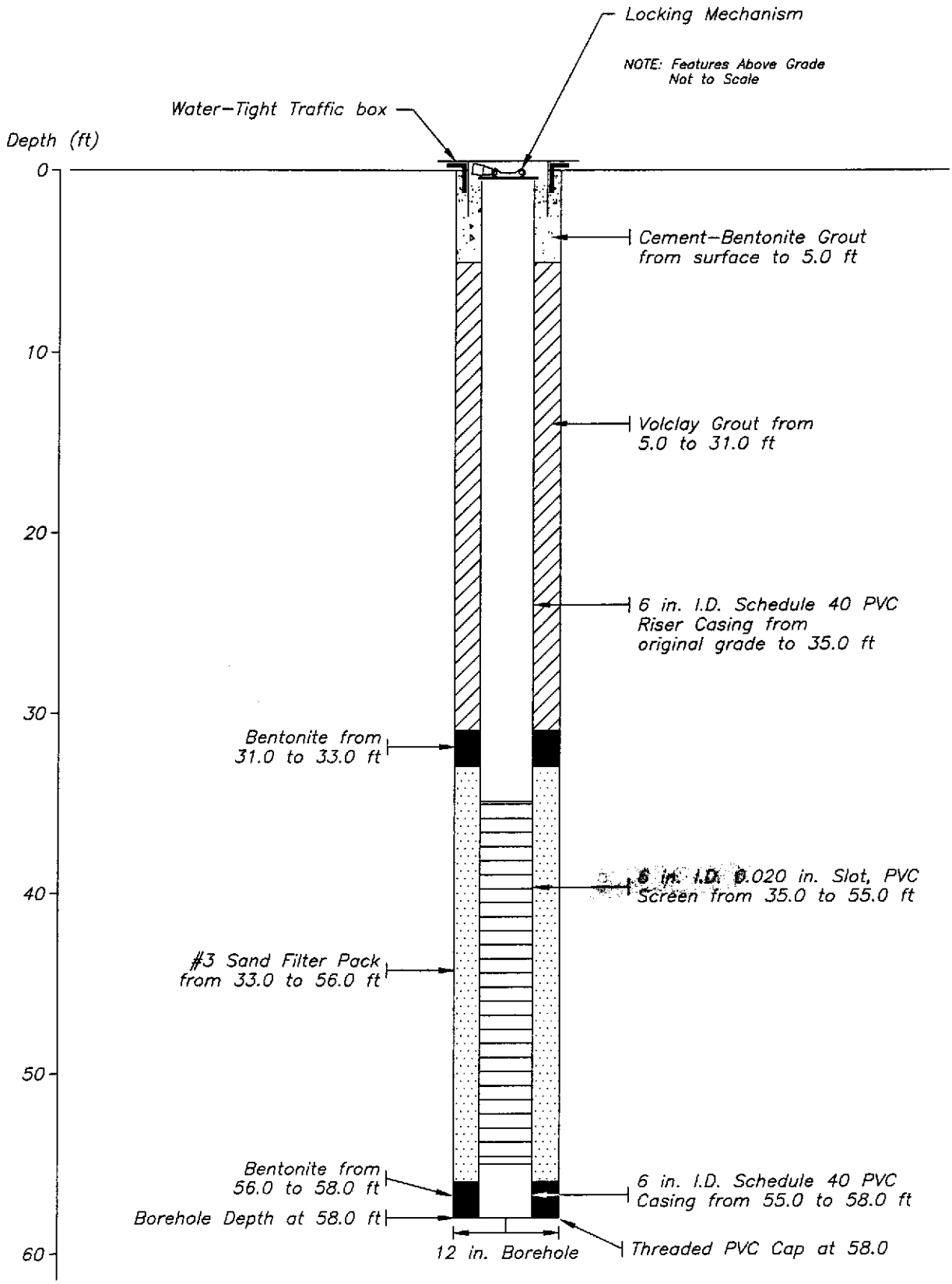


FILENAME: PROPWELL.DWG 10/18/00

ETIC Engineering, Inc.

SITE PLAN SHOWING PROPOSED GROUNDWATER MONITORING WELL LOCATION
EXXON RS 7-3399
2991 HOPYARD ROAD, PLEASANTON, CALIFORNIA

FIGURE: 1



ETIC Engineering, Inc.	PROPOSED WELL COMPLETION DIAGRAM FORMER EXXON RS 7-3399, 2991 HOPYARD ROAD, PLEASANTON, CALIFORNIA	FIGURE: 2

Appendix A

MW9 Boring Log

Total depth of boring: 57-1/2 feet **Diameter of boring:** 10 inches **Date drilled:** 10-4-89

Casing diameter: 4 inches **Length:** 54-1/2 feet **Slot size:** 0.020-inch

Screen diameter: 4 inches **Length:** 20 feet **Material type:** Sch 40 PVC

Drilling Company: Kvilhaug Well Drilling, Inc. **Driller:** Criss and Paul

Method Used: Hollow-Stem Auger **Field Geologist:** Mark Armstrong

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Concrete (6 inches) underlain by sand (2 inches).	
				SC	Fine to medium sandy clay, dark brown, damp, medium plasticity, very stiff.	
2						
4						
		6				
		7				
6	S-6	14	270			
				SP	Medium to coarse sand, gray-white and black, damp, loose.	
8						
				CL	Very silty clay, gray and red-brown mottled, damp, medium plasticity, stiff.	
10		4				
		6				
	S-11	4	201	CH	Silty clay, blue-gray and red-brown mottled, trace specks and thin streaks of black carbonaceous material, moist, high plasticity, stiff, trace filamentous rootlets.	
12						
14						
		7				
		10			Downward alternating blue-gray, green-gray, brown, and brown-black bands (1-inch-thick or greater) at 16 feet, reflecting downward increase in organic content, partially decayed rootlets, very stiff.	
16	S-16	12	124			
18				ML	Clayey silt, gray to dark gray, damp, medium plasticity, very stiff, trace roots.	
20		6				
		9				
	S-21	13	250			

(Section continues downward)

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LOG OF BORING B-9/MW-9

Exxon Station No. 7-3399
2991 Hopyard Road
Pleasanton, California

PROJECT NO. 18034-7

PLATE

P -

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
				ML	Clayey silt, gray to dark gray, damp, medium plasticity, very stiff, trace rootlets.	
22						
				CH	Silty clay, green–gray with red–brown mottling, grades downward to dark gray, trace partially decayed rootlets and specks and thin streaks of black carbonaceous material, damp, high plasticity, very stiff.	
24		6				
		8				
26	S–26	11	130			
				CL	Silty clay, green–gray with trace red–brown staining, damp, medium plasticity, very stiff.	
				CH	Silty clay, dark gray with red–brown mottling, trace specks of organic material and partially decayed rootlets, damp, high plasticity, very stiff.	
28						
30		10				
		10				
	S–31	13	22			
32						
34						
		6				
		12			Trace medium sand and gravel, hard.	
36	S–36	20	11		hard.	
		20		SM	Silty fine to medium sand (coarsens downward), gray–brown, damp, dense.	
		20				
38	S–38	25	340		Lens of silty sandy fine gravel at 38–1/2 feet.	
				SP	Fine to medium sand, gray–brown, damp, dense.	
40		20				
		25				
	S–41	25	110		Lens of silty sand at 41–1/2 feet.	
42						
				GW	Fine to coarse gravel, gray–brown, moist.	
44						
46						
48						
50						

(Section continues downward)

Applied GeoSystems

LOG OF BORING B-9/MW-9

Exxon Station No. 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE

P - 1(

PROJECT NO. 18034-7

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
				GW	Fine to coarse gravel, gray–brown, moist.	
52						
54				CH	Silty clay, green–brown, moist, high plasticity.	
56						
					Total Depth = 57–1/2 feet.	
58						
60						
62						
64						
66						
68						
70						
72						
74						
76						
78						
80						

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PROJECT NO. 18034-7

LOG OF BORING B-9/MW-9

Exxon Station No. 7-3399
2991 Hopyard Road
Pleasanton, California

PLAT

P -

Appendix B

Protocols for Well Drilling, Completion, Development, and Sampling

PROTOCOLS FOR WELL DRILLING, COMPLETION, DEVELOPMENT, AND SAMPLING

DRILLING

Prior to drilling, all boreholes will be cleared of underground utilities to a depth of at least 4 feet below ground surface (bgs) in "non-critical zones" and to 8 feet bgs in "critical zones". Critical zones are defined as locations that are within 10 feet from the furthest edge of any underground storage tank (UST), within 10 feet of the product dispenser islands, and the entire area between the UST field and the product dispenser islands. If only borings are being installed, an 8- to 12-inch-diameter circle will be cut in the surface cover at each boring location. If wells are being installed, a 10-inch circle to a 24-inch circle or a 2-foot by 2-foot square will be cut in the surface cover at each well location. A hole, greater than the diameter of the drilling tool being used, will then be cleared at each boring location, using a hand auger or vacuum excavation system. The vacuum system consists of a water lance, used to disturb native soil by injecting water into the soil, and a vacuum, used to remove the soil.

Boreholes are drilled with a truck-mounted rotary drill, using hollow-stem continuous-flight augers. The diameter of the augers is selected to provide an annular space between the boring wall and the well casing of no less than 2 inches.

All augers are pressure-washed or steam-cleaned before drilling begins and before each new borehole is drilled. All drill cuttings are either placed on and covered with plastic sheeting or contained in sealed 55-gallon drums. All fluids generated during cleaning of drilling equipment are contained in sealed 55-gallon drums. All waste generated during drilling activities is stored onsite until appropriate disposal is arranged. The drums are labeled with the site description (including owner's name) and date. The drill cuttings are disposed of at a proper facility based on results of soil sample analysis.

During drilling, an ETIC geologist generates a soil boring log for each borehole. The boring logs contain detailed geological information, including descriptions of the soils classified according to the Unified Soil Classification System (USCS), blow counts, organic vapor analyzer (OVA) readings, moisture content of the soils, and initial and static water levels.

SOIL SAMPLING

Soil samples are collected using a 2-inch-diameter by 18- or 24-inch-long modified California split-spoon sampler containing three or four 6-inch-long brass or stainless steel liners. The sampler and liners are scrubbed in potable water and Alconox or equivalent detergent and rinsed with potable water after use at each sampling interval.

At each sample depth, the sampler is driven 18 or 24 inches ahead of the augers into undisturbed soil. When the sampler is retrieved, either the lowermost or the middle sample liner is removed and the ends of the tube are covered with aluminum foil or Teflon tape and sealed with plastic caps. The soil-filled liner is labeled with the borehole number, sample depth, site location, date, and time. The samples are placed in zip-lock bags and stored in a cooler containing ice.

Soil from one of the liners is removed and placed in a sealed plastic bag. The soil is scanned with an OVA equipped with a flame ionization detector (FID), and the FID readings are noted on the soil

boring logs. The soil from the remaining liner(s) is examined and classified according to the Unified Soil Classification System.

Soil samples are delivered, under chain of custody, to a laboratory certified by the California Department of Health Services (DHS) for analyses.

WELL INSTALLATION

The boreholes are completed as groundwater monitoring wells, vapor extraction wells, groundwater extraction wells, or air sparging wells. The wells are typically constructed by installing Schedule 40 PVC flush-threaded casing through the inner opening of the auger. The screened interval consists of slotted casing of the appropriate slot size and length placed at depths depending on soil conditions encountered during drilling and the depth to groundwater. A threaded end plug or a slip cap secured with a stainless steel screw is placed on the bottom of the well.

A filter pack of clean sand of appropriate size is placed in the annular space around the well screen to approximately 1 to 2 feet above the top of the screen. The sand is placed through the inner opening of the augers as they are slowly removed. A transitional seal is completed above the sand pack by adding 1 to 2 feet of bentonite pellets and hydrating them with water. A surface seal is then created by placing neat cement grout containing less than 5 percent bentonite from the top of the bentonite seal to just below the ground surface.

The well is finished at the surface with a slightly raised, traffic-rated, watertight steel traffic box set in concrete. The traffic box is secured with bolts and the casing is further secured with a locking well cap.

WELL DEVELOPMENT

The wells are developed no less than 72 hours after completion. Development typically consists of surging the screened interval of the well with a flapper valve surge block of the same diameter as the well for approximately 15 minutes. The well is then purged with a vacuum truck and a dedicated PVC stinger or disposable tubing, an inertial pump, a submersible electric pump, a centrifugal pump, an air-lift pump, or a PVC bailer until at least 3 casing volumes are removed and the water is free of silt and apparent turbidity.

A record of the purging methods and volumes of water purged is maintained. All purge water is contained on the site in properly labeled 55-gallon drums. Purged water is transported to an appropriate treatment facility.

GROUNDWATER SAMPLING

The wells are sampled at least 24 hours after development. All samples are collected with a factory cleaned disposable bailer. The bailer is operated by hand using new rope or Teflon-coated stainless steel wire. The sampling personnel wear clean Nitrile gloves during sampling operations and while handling sample bottles.

The groundwater samples are emptied from the bailer directly into the sample bottles with a bottom-emptying device. The samples are collected in 40-ml glass VOA vials and/or 1-liter amber bottles with Teflon-lined septum caps as appropriate. The sample bottles contain appropriate

preservatives, typically hydrochloric acid. The VOA vials are filled to the top of the bottle so that there are no air bubbles.

The sample bottles are labeled with the well number, date, location, sampler's initials, and preservative used. The sample vials are placed in an iced cooler for delivery to the laboratory for analysis. Standard chain-of-custody procedures are followed.