HAGEMAN-SCHANK, INC.

Underground Contamination Investigations

3732 Mt. Diablo Blvd. Suite 372
Lafayette, California 94549
(415) 284-1661
FAX (415) 284-1664

December 10, 1990

REPORT OF GROUNDWATER SAMPLING

FORMER CHEVRON STATION
11727 MAIN STREET
SUNOL, CA

I. INTRODUCTION

The site location is 11727 Main Street, Sunol, CA. In conjunction with the former Chevron station, the site has historically operated four underground storage tanks:

one 550 gallon diesel
one 550 gallon regular gasoline
one 1000 gallon unleaded gasoline
one 1000 gallon premium gasoline

On February 7, 1990, all four underground storage tanks were removed by Hageman Schank, Inc., under permit from the Alameda County Environmental Health Department. The results of initial laboratory analyses performed upon samples of native soil collected from beneath the smallest diesel tank and the northern-most gasoline tank indicated concentrations

of total petroleum hydrocarbons (TPH) of 200 and 1100 parts per million (ppm), respectively. Further excavation at both of these locations resulted in soil samples with non-detectable concentrations of petroleum hydrocarbons.

A soil and groundwater investigation for the site was previously proposed by Hageman Schank, Inc., in a report entitled Proposal for Subsurface Investigation, Former Chevron Station, 11727 Main Street, Sunol, California, dated July 25, 1990. Included in this report were the results of an exploratory boring that was previously drilled on July 13, 1990, using an air-rotary drilling rig. The proposed scope of work involved the installation of one groundwater monitoring well and two soil borings on the site. It was proposed that the well would be installed within the previous exploratory boring.

The response by the Alameda County Department of Health to the proposed scope of work was presented in a letter dated October 3, 1990. In that letter, Scott Seery, Hazardous Materials Specialist, set the condition that two shallow groundwater monitoring wells must be installed on the site. Due to the difficult nature of the drilling, the uncertainty as to whether or not hollow stem augers could accomplish the installations, and the uncertainty as to the exact shallow groundwater table elevation beneath the site, only one well has been installed at the present time.

The location of the site is shown in Figure 1. A map of the site is shown in Figure 2. This map shows the layout of the facility, along with the locations of the previous tank excavations. The only structures remaining at the site are a pump island and a concrete pad (floor of previous lube room).

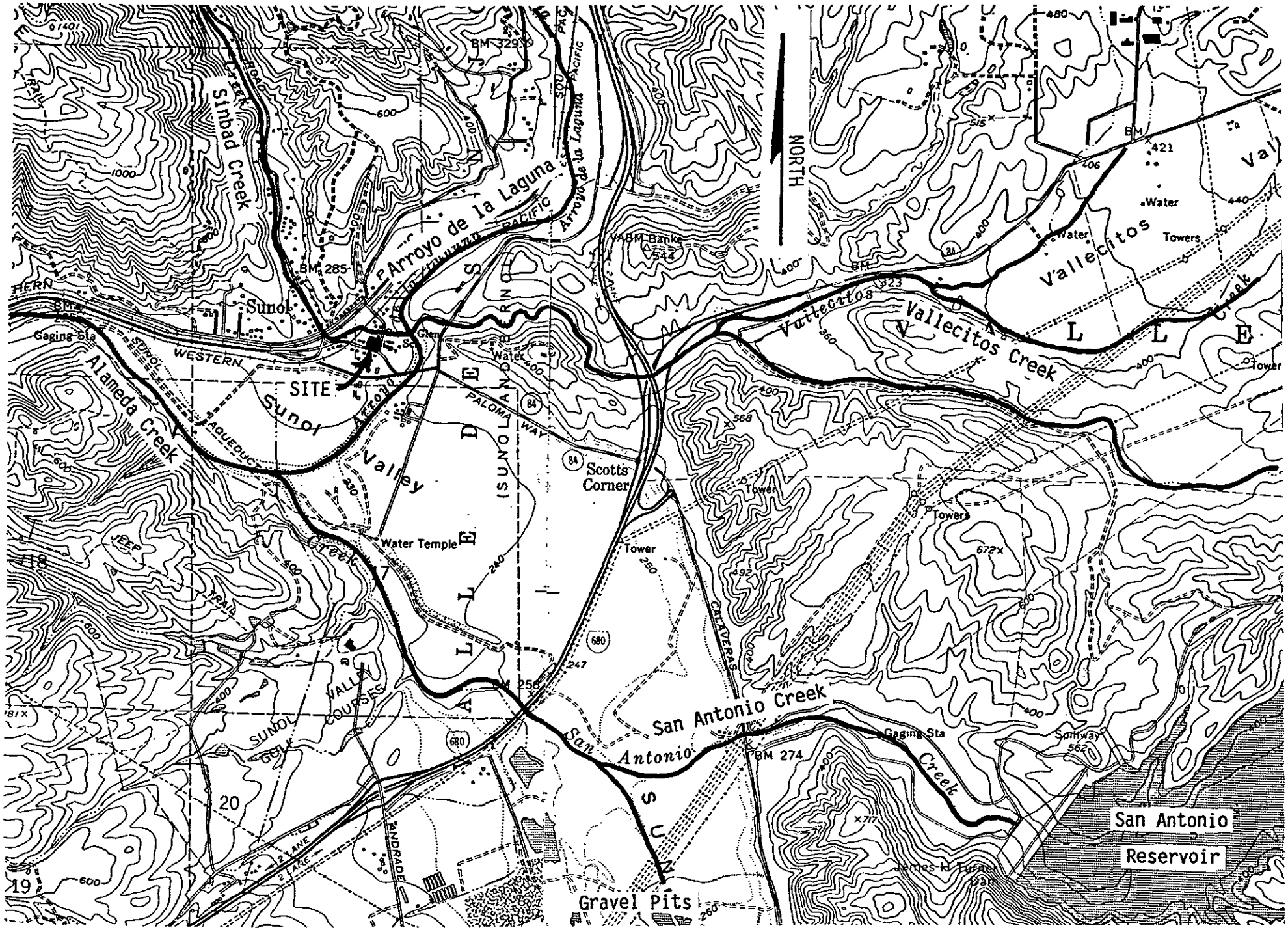


FIGURE 1. Site Vicinity Map

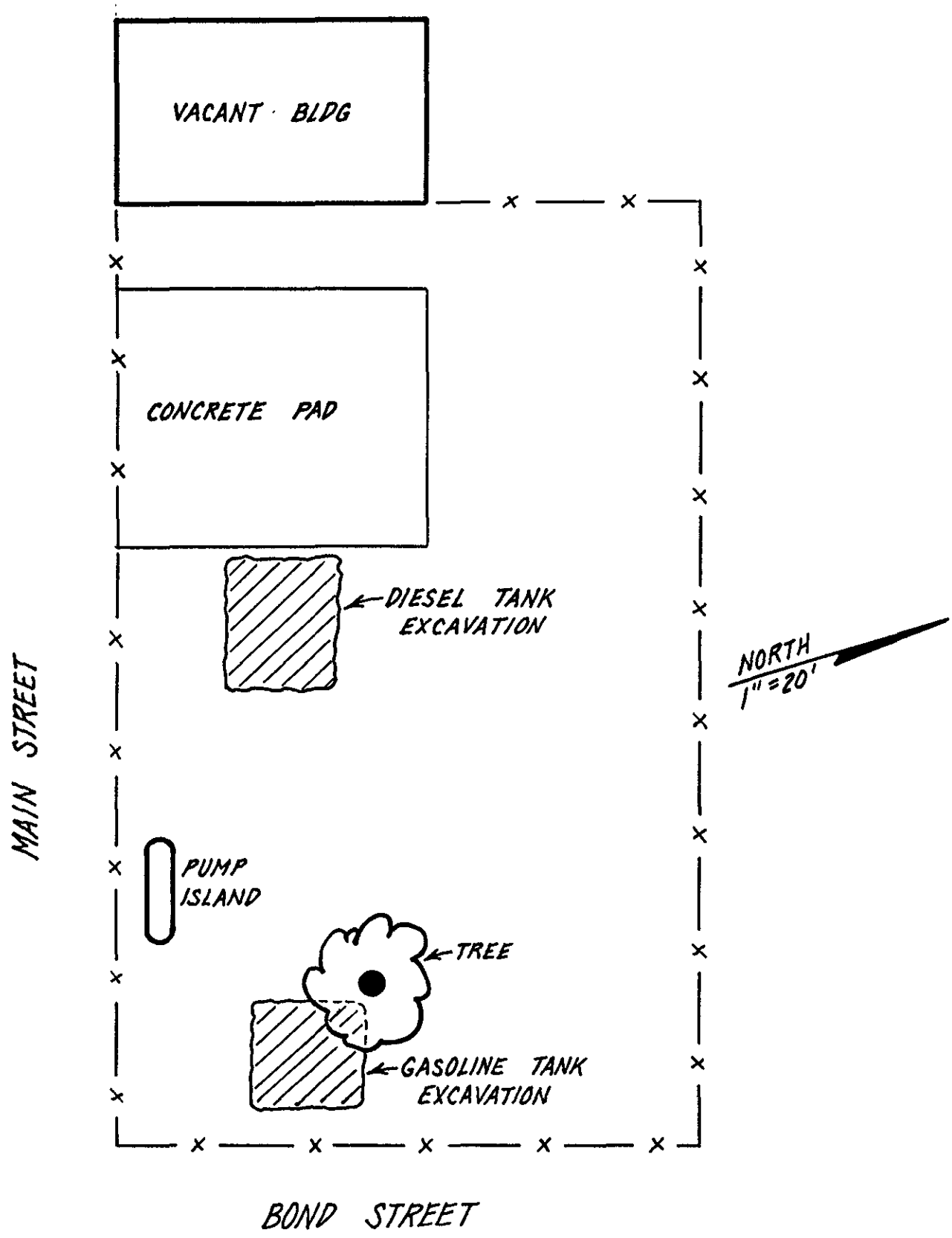


FIGURE 2.
Site Map

II. FIELD WORK

Monitoring Well Installation

Due to the concern about the ability of conventional hollow stem auger drilling equipment to advance a boring through the apparent cobble- and boulder-rich alluvium underlying the site, an exploratory boring was previously drilled on July 13, 1990, using an air-rotary drilling rig. During the entire boring, several locations of very difficult drilling were encountered (boulders). The majority of the subsurface material between these locations, however, consisted of very loose gravels. Shallow groundwater was encountered at approximately 70 feet below the ground surface. An attempt was made to complete a 2-inch monitoring well within the boring. Due to the very loose nature of the gravels, this was not possible. The boring was subsequently backfilled with clean Monterey sand.

On October 30, 1990, a shallow monitoring well was installed within the previous soil boring. The location of the monitoring well is shown in Figure 3. The well was installed with a truck-mounted drill rig using 8-inch hollow-stem augers.

At the time of the installation, shallow groundwater appeared to be at a much higher elevation. Shallow groundwater was encountered at a depth of approximately 33 feet beneath the site. Based upon this apparent groundwater level, well MW-1 was cased with 20 feet of 2-inch PVC slotted screen pipe (0.02" slots), and was completed to a depth of 65 feet below the ground surface. The annular space of the well was packed with #3 Monterey sand to approximately one foot above the top of the screened section. Approximately one foot of wetted

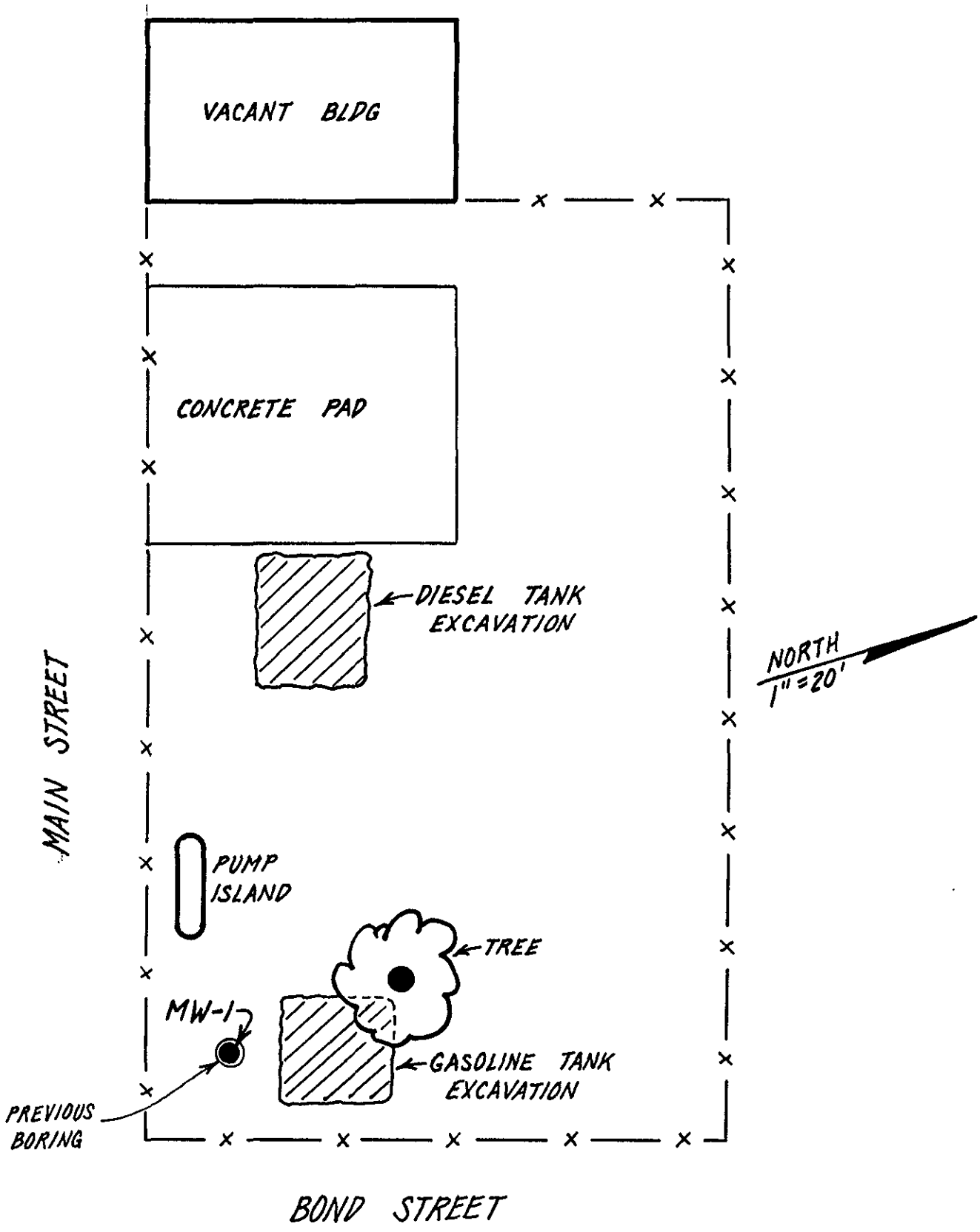


FIGURE 3.
Location of Shallow Groundwater Monitoring Well MW-1.

bentonite pellets were placed upon the sand pack, followed by a neat cement seal up to the ground surface. The well was fitted with a locking cap and steel traffic lid.

The original boring was logged in the field by a registered civil engineer (CE #34262), on July 13, 1990. The updated boring log is included in Attachment A. A well construction diagram for the monitoring well is shown in Attachment B. Included in Attachment A is a copy of the well permit issued by Zone-7, Alameda County Flood Control and Water Conservation District.

Monitoring Well Sampling

On November 9, 1990, the newly installed monitoring well was developed. During the development of the well, approximately 6 casing volumes of water were removed using a large diameter bailer. Field conductivity, temperature, and pH meters were present on-site during the monitoring well development. As the development proceeded, the three parameters were monitored.

On November 13, 1990, the newly installed monitoring well was sampled. Prior to groundwater sampling, the well was purged by bailing approximately 4 casing volumes of water. Field conductivity, temperature, and pH meters were present on-site during the monitoring well sampling. As the purging process proceeded, the three parameters were monitored. Purging continued until readings appeared to have reasonably stabilized. After the water level in the well had attained 80% or more of the original static water level, a groundwater sample was collected using a clean teflon bailer. The water samples were placed inside appropriate 1 liter bottles and 40 mL VOA vials free of any headspace. The samples were

immediately placed on ice, then transported under chain-of-custody to Chromalab Laboratory in San Ramon, California.

At the time each monitoring well was sampled, the following information was recorded in the field: 1) depth-to-water prior to purging, using an electrical well sounding tape, 2) identification of any floating product, sheen, or odor prior to purging, using a clear teflon bailer, 3) sample pH, 4) sample temperature, and 5) specific conductance of the sample.

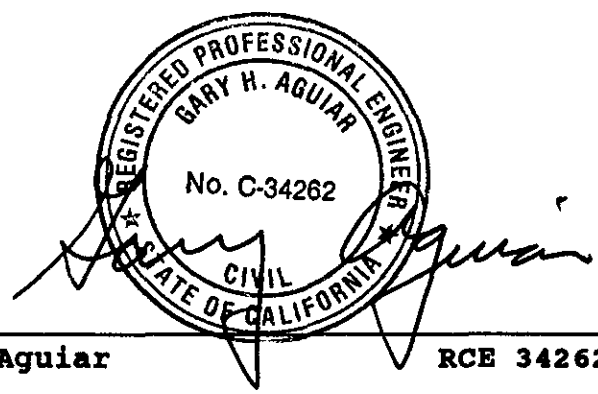
All water removed from the well during development and purging was drummed and stored on-site until the results of laboratory anaylses were obtained. Depending upon these results, the water will be sewered as a non-hazardous liquid waste in accordance with local sewering agency permit requirements, or else it will be transported as a hazardous liquid waste under proper manifest to an appropriate TSD facility for treatment and disposal.

Copies of the monitoring well sampling logs are included as Attachment C.

III. ANALYTICAL RESULTS

All analyses were conducted by a California State DOHS certified laboratory in accordance with EPA recommended procedures. All Groundwater soil samples were analyzed for Total Petroleum Hydrocarbons as Gasoline, Total Petroleum Hydrocarbons as Diesel, and BTXE (EPA methods 8015 and 602).

Table 1 presents the results of the laboratory analysis of the groundwater sample collected from monitoring well MW-1. As shown in this table, trace concentrations of dissolved Diesel (840 ug/L) were detected in shallow groundwater sample. No detectable concentrations of Gasoline, Benzene, Toluene, Ethyl Benzene, or Xylenes were found in the shallow groundwater sample collected from well MW-1. A Copy of the laboratory certificate is included in Attachment D.



Gary Aguiar **RCE 34262**

Bruce Hageman

TABLE 1. Shallow Groundwater Sampling Results.
(sampled 11-13-90)

Well	Diesel (ug/L)	Gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethy-benzene (ug/L)	Xylenes (ug/L)
MW-1	840	ND	ND	ND	ND	ND
Detect Limit	50	0.5	0.5	0.5	0.5	0.5

ATTACHMENT A

Boring Log

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
5997 PARKSIDE DRIVE • PLEASANTON, CALIFORNIA 94566 • (415) 484-2600

31 October 1990

Hageman-Aguiar, Inc.
3732 Mt. Diablo Boulevard, Ste. 372
Lafayette, CA 94549

Gentlemen:

Enclosed is Groundwater Protection Ordinance permit 90642 for a monitoring well construction project at 11727 Main Street in Sunol for Jim O'Laughlin.

Please note that permit condition A-3 requires that a well construction report be submitted after completion of the work. The report should include drilling and completion logs, location sketch, and permit number.

If you have any questions, please contact Todd Wendler or Craig Mayfield at 484-2600.

Very truly yours,

Jim Dixon
General Manager

By J. Killingstad, Chief
Water Resources Engineering

TW:mm
Enc.

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

5997 PARKSIDE DRIVE • PLEASANTON, CALIFORNIA 94566 • (415) 484-2600

GROUNDWATER PROTECTION ORDINANCE PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

(1) LOCATION OF PROJECT
11727 Main Street
Sunol, CA 94586

(2) CLIENT
Name Jim O'Laughlin
Address 199 Bond St Phone
City Sunol, CA Zip 94586

(3) APPLICANT
Name Hageman-Aguiar, Inc.
3732 Mt Diablo Blvd, Suite 372
Address Phone 284-1661
City Lafayette Zip 94549

(4) DESCRIPTION OF PROJECT
Water Well Construction ___ Geotechnical ___
Cathodic Protection ___ Well Destruction ___

(5) PROPOSED WATER WELL USE
Domestic ___ Industrial ___ Irrigation ___
Municipal ___ Monitoring ___ Other ___
Monitoring Well

(6) PROPOSED CONSTRUCTION
Drilling Method:
Mud Rotary ___ Air Rotary ___ Auger X
Cable ___ Other ___

WELL PROJECTS
Drill Hole Diameter 8 in. Depth(s) 80 ft.
Casing Diameter 2 in. Number
Surface Seal Depth 50 ft. of Wells 1
Driller's License No. C57 #487000

GEOTECHNICAL PROJECTS
Number ___
Diameter ___ in. Maximum Depth ___ ft.

(7) ESTIMATED STARTING DATE 10-30-90
ESTIMATED COMPLETION DATE 10-30-90

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

APPLICANT'S SIGNATURE Gary Aguiar Date 10-26-90

FOR OFFICE USE

PERMIT NUMBER 90642
LOCATION NUMBER

Approved Todd A. Wendler Date 25 Oct 90
Todd N. Wendler

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as t arrive at the Zone 7 office five days prior t proposed starting date.
2. Notify this office (484-2600) at least one da prior to starting work on permitted work an before placing well seals.
3. Submit to Zone 7 within 60 days after completio of permitted work the original Department o Water Resources Water Well Drillers Report o equivalent for well projects, or bore hole log and location sketch for geotechnical projects Permitted work is completed when the last surfac seal is placed or the last boring is completed.
4. Permit is void if project not begun within 9 days of approval date.

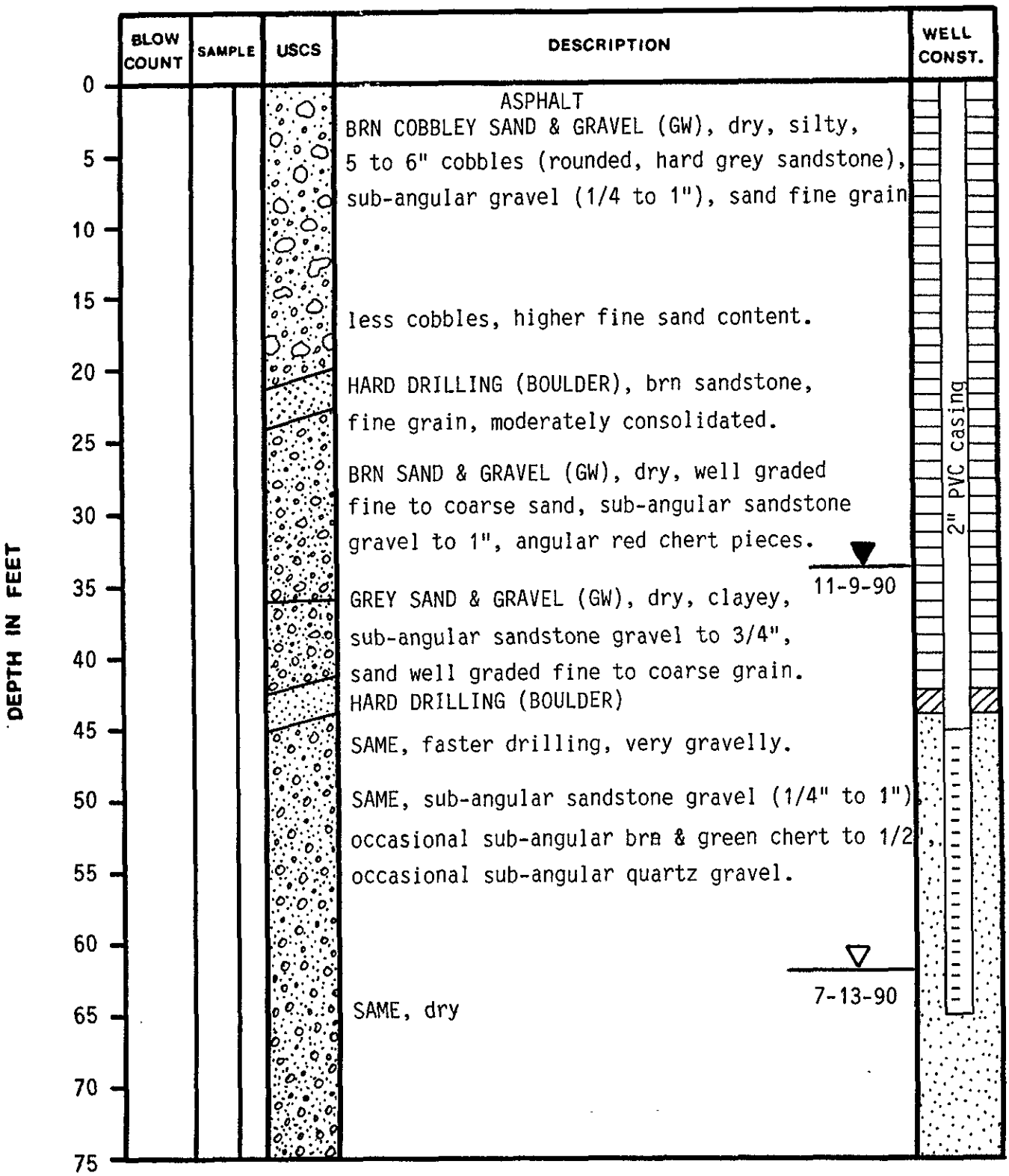
(B.) WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches o cement grout placed by tremie, or equivalent.
2. Minimum seal depth is 50 feet for municipal an industrial wells or 20 feet for domestic, irriga tion, and monitoring wells unless a lesser dept is specially approved.

C. GEOTECHNICAL. Backfill bore hole with compacted cut tings or heavy bentonite and upper two feet with com pacted material.

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

E. WELL DESTRUCTION. See attached.

9198



HAGEMAN SCHANK, INC.	BORING B-1 / Monitoring Well MW-1 11727 Main Street, Sunol	FIGURE 1 of 2
DATE 7/13/90	PROJECT NO.	
TOC ELEVATION Revised 10-30-90	EQUIPMENT 6" AIR ROTARY / 8" HOLLOW STEM AUGER	

BLOW COUNT	SAMPLE	USCS	DESCRIPTION	WELL CONST.
			GREY SANDY GRAVEL (GP), saturated, sub-angular 1/4" to 1/2", occasional coarse sand, grey sandstone gravel.	
			HARD DRILLING (BOULDER).	
			TOTAL DEPTH = 100 feet BLS	

DEPTH IN FEET

75
80
85
90
95
100

HAGEMAN SCHANK, INC.	BORING B-1 / Monitoring Well MW-1 11727 Main Street, Sunol	FIGURE 2 of 2
DATE 7/13/90	PROJECT NO.	
TOC ELEVATION Revised 10-30-90	EQUIPMENT 6" AIR ROTARY / 8" HOLLOW STEM AUGER	

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

October 3, 1990

DEPARTMENT OF ENVIRONMENTAL HEALTH
Hazardous Materials Program
80 Swan Way, Rm. 200
Oakland, CA 94621
(415)

Mr. Jim O'Laughlin
P.O. Box 400
Sunol, CA 94586

RE: FORMER CHEVRON STATION, 11727 MAIN STREET, SUNOL; REVIEW OF PRELIMINARY SITE ASSESSMENT (PSA) PROPOSAL

Dear Mr. O'Laughlin:

This Department is in receipt and has completed review of the July 25, 1990 Hageman-Schank, Inc. report of previous activities occurring July 13, 1990, and a proposed workplan for the investigation of subsurface contamination at the referenced site. The scope of the present work proposal includes the installation of one (1) ground water monitoring well and two (2) exploratory borings.

This workplan has been accepted for this phase of site assessment, with the adherence to the following list of conditions. These conditions should be followed in context with the attached Technical Opinion offered by Mr. Steve Luquire of the San Francisco Bay Regional Water quality Control Board (RWQCB):

1) A minimum of two (2) wells are required at this site because of the difficulty in determining a "best guess" downgradient ground water flow direction. The installation of a second well will provide a greater degree of confidence that one of the wells is in, or at some slight angle to, the down-gradient position from the former tank sites;

   One of these two wells should be installed near the northwest corner of the site, in close proximity to Bond Street and the property to the north; the second installed through the temporary sand backfill of the boring advanced July 13;

2) The use of mud rotary drill equipment is acceptable for drilling through those subsurface materials encountered beneath this site. The use of bentonite-based drill muds is discouraged. Undisturbed soil samples may be collected using a wireline core barrel during advancement of the northern-most well boring. The use of geophysical well logging techniques is strongly encouraged; conversely, the appropriateness of other well logging techniques used must be adequately supported;

3) Wells should be developed until temperature, pH, and conductivity have stabilized, and water is relatively clear;

4) Water sampling equipment should be cleaned between sampling points using a phosphate free detergent (e.g., Alconox) as opposed to trisodium phosphate (TSP);

5) Water levels of each well must be measured and recorded monthly for the next year, and then quarterly thereafter. Wells are to be sampled monthly for the first quarter. Monthly sampling may be reduced after the first three months to quarterly sampling provided concentrations of target compounds are nondetectable, or contaminant levels taper off or stabilize;

6) Please allow a minimum of 24-hours to lapse between well development and sampling.

7) Summary reports are to be submitted to this Department and the RWQCB quarterly for the duration of this project;

Please schedule field activities to begin within 30 days of the date of this letter. We will expect the submittal of a report documenting the results of this phase of the investigation within 30 days of the completion of field activities.

Should you have any questions regarding the content of this letter, Please call me at 415/271-4320.

Sincerely,

Scott O. Seery
Hazardous Materials Specialist

attachment

cc: Rafat A. Shahid, Assistant Agency Director, Environmental Health
Edgar Howell, Chief, Hazardous Materials Division
Gil Jensen Alameda County District Attorney's Office
Lester Feldman, RWQCB
Howard Hatayama, DHS
Bruce Hageman, Hageman-Schank, Inc.
files

STATE OF CALIFORNIA
GEORGE DEUKMEJIAN, Governor

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION
1800 HARRISON STREET, SUITE 700
OAKLAND, CA 94612

Phone: Area Code 415
464-1255

Scott Seery
Alameda county Health Care Services
Department of Environmental Health
Hazardous Materials Program
80 Swan Way, Room 200
Oakland, CA 94621

October 2, 1990
UST FILE (SLL)

Dear Mr. Seery,

RE: REQUEST FOR TECHNICAL OPINION 11727 MAIN ST., SUNOL SITE, ALAMEDA COUNTY

After reviewing the case file for the subject site I have the following comments and determinations:

1. A minimum of two monitoring wells are necessary to achieve downgradient monitoring due to the hydrologic conditions that exist at this site. The site is located at the junction of two creeks, therefore making assumptions of groundwater flow difficult. The proper placement of two wells at the site will insure that downgradiant monitoring is achieved.

2. Mud Rotary is not the preferred method of monitoring well drilling. However, this method may be appropriate due to the geology of the site. According to the technical reports in the file the site is underlain with thick layers of gravel, cobbles and boulders. These conditions present difficulties for the use of other more preferred methods. Therefore, Mud Rotary drilling is appropriate and acceptable if the following concerns are taken into account.

   A. Bentonite will absorb metals. If bentonite is used in the drilling mud, metals analysis will not initially be reflective of any metal contamination that may be present. Similarly, organic additives added to minimize fluid loss can interfere with organic-related parameters of laboratory analysis. Thorough well development will help to minimize these consideration.

   B. Undisturbed soil samples can be taken with this method of drilling using wireline core barrels.

C. Because the position of the water table can not be determined and only limited information on water-producing zones is directly available during drilling, geophysical well logging is encouraged for any mud rotary drilled well. It will greatly increase the accuracy of the drillers log and water-rated information. This suggestion should be evaluated in conjunction with the other consideration present at this site (level of contamination present, site location (recharge area?), financial abilities of the Discharger, etc.).

D. A boring should never be abandoned with sand! The Regional Board requires all borings not completed as wells to be properly abandoned with the appropriate grout mixture. I realize this was done at this site without your approval however, I feel it is appropriate and necessary to state the Regional Boards displeasure with this action.

I hope this letter addresses the areas stated in your request for Regional Board staff's opinion. If you have any questions concerning this letter or other matters please feel free to contact me at (415) 464-4222.

Sincerely,

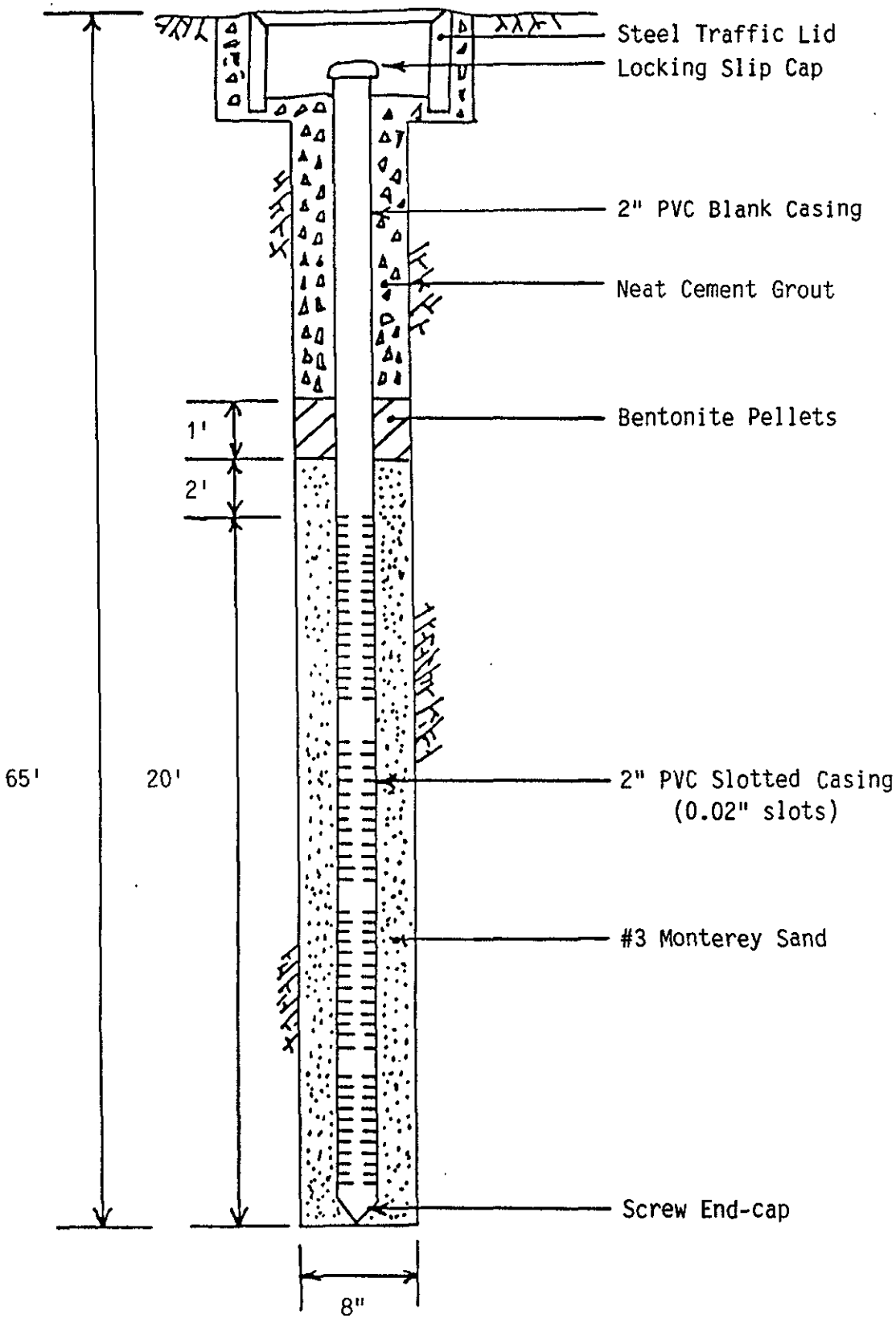
Steven LuQuire

Steven LuQuire
Environmental Specialist III

ATTACHMENT B

WELL CONSTRUCTION DIAGRAM

MONITORING WELL MW-1



ATTACHMENT C

WELL SAMPLING LOGS

WELL DEVELOPMENT LOG

Project/No. O'LAUGHLIN

Page 1 of 1

Site Location SUNOL

Date 11-9-90

Well No. 1

Weather SUNNY, 75°F

Time Began 12:00
Completed 14:30

EVACUATION DATA

Description of Measuring Point (MP) WELL BOX (AT GRADE)

Total Sounded Depth of Well Below MP 63.00

Depth to Water Below MP 33.23 Diameter of Casing 2"

Water Column in Well 29.77

Gallons in Well 4.9 Gallons Pumped During Development 30

Evacuation Method TEFLON BAILER

DEVELOPMENT / FIELD PARAMETERS

Color GREY Odor NONE

Appearance SLIGHT SILT

Time	Gallons	Temperature	Conductivity	pH	Clarity / Silt Content
12:15	6	20° C	1080	7.13	SLIGHT
13:10	6	18.0	925	7.03	HEAVY GRAY
13:55	6	18.0	1100	7.19	"
14:12	6	17.8	1300	7.25	"
14:30	6	18.2	12.90	7.24	SLIGHT

Field Personnel Keith Jay

WELL SAMPLING LOG

Project/No. O'LAUGHLIN Page 1 of 1

Site Location SUNOL

Date 11-13-90

Well No. MW-1

Weather SUNNY, 75°F Time Sampling Began 13:40
Completed 14:25

EVACUATION DATA

Description of Measuring Point (MP) WELL BOX (AT GRADE)

Total Sounded Depth of Well Below MP 65.45'

Depth to Water Below MP 33.24' Diameter of Casing 2"

Water Column in Well 32.21'

Gallons in Well 5.4' Gallons Pumped/Bailed Prior to Sampling 20

Evacuation Method TEFLON BAILER

SAMPLING DATA / FIELD PARAMETERS

Color CLEAR Odor NONE

Appearance NO GAS SHEEN Temperature 17.5°F (19.5°C)

Specific Conductance (umhos/cm) 820 pH 7.10

Sampling Method and Material TEFLON BAILER

FIELD ANALYSES:	Start	Mid	End
Time	13:40	13:56	14:20
Temperature	19.5°C	17.5	17.5
Conductivity	925	820	820
pH	7.27	7.26	7.10

Sampling Personnel Keith Jay

ATTACHMENT D

ANALYTICAL RESULTS: GROUNDWATER

CHROMALAB, INC.

Analytical Laboratory
Specializing in GC-GC/MS

- Environmental Analysis
- Hazardous Waste (#E694)
- Drinking Water (#955)
- Waste Water
- Consultation

November 20, 1990 ChromaLab File No.: 1190060

HAGEMAN-SCHANK, INC.

Attn: Keith Jay

RE: One water sample for Gasoline/BTEX and Diesel analyses

Project Name: O'LAUGHLIN - SUNOL, CA
Date Sampled: Nov. 13, 1990 Date Submitted: Nov. 13, 1990
Date Extracted: Nov. 16-19,1990 Date Analyzed: Nov. 16-19,1990

RESULTS:

Sample No.	Gasoline (µg/L)	Diesel (µg/L)	Benzene (µg/L)	Toulene (µg/L)	Ethyl Benzene (µg/L)	Total Xylenes (µg/L)
MW-1	N.D.	840	N.D.	N.D.	N.D.	N.D.
BLANK	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
SPIKE RECOVERY	93.8%	106.7%	105.5%	98.6%	91.0%	92.0%
DETECTION LIMIT	50	50	0.5	0.5	0.5	0.5
METHOD OF ANALYSIS	5030/ 8015	3510 8015	602	602	602	602

CHROMALAB, INC.

David Duong
Senior Chemist

Eric Tam
Laboratory Director

2239 Omega Road, #1 • San Ramon, California 94583
415/831-1788 • Facsimile 415/831-8798
Federal ID #68-0140157

CHAIN OF CUSTODY RECORD

PROJ. NO. | SAMPLERS: (Signature) Keith Jay

PROJECT NAME AND ADDRESS: O'LAUGHLIN

SUNOL, CA

ANALYSIS REQUESTED: TOTAL PETROLEUM HYDROCARBONS (GASOLINE) | BTX+E | VOC-EPA 8240 | TOTAL OIL & GREASE | TETRAETHYL LEAD | TPH-DIESEL

CROSS REFERENCE NUMBER	DATE	TIME	SOIL	WATER	STATION LOCATION	TOTAL PETROLEUM HYDROCARBONS (GASOLINE)	BTX+E	VOC-EPA 8240	TOTAL OIL & GREASE	TETRAETHYL LEAD	TPH-DIESEL	REMARKS
MW-1	11-8-90	14:25		X	MONITOR WELL	X	X				X	
		~~14:35~~		X								

CHROMALAB FILE # 1190060

RELINQUISHED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
Keith Jay	11-13-90 / 14:45		
RELINQUISHED BY: (Signature) Keith Jay	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
RELINQUISHED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
RELINQUISHED BY: (Signature)	DATE / TIME	RECEIVED FOR LABORATORY BY: (Signature) Dan Edwin	DATE 11/13/90 / TIME 14:45 PM