

3461 ROBIN LANE
P. O. BOX 518
CAMERON PARK
CALIFORNIA
9 5 6 8 2
916 • 677 • 1695

Mr. T.M. Gerow
Alameda County
Division of Environmental Health
470 27th Street
Oakland, CA 94612

April 14, 1986

SUBJECT: SUBSURFACE INVESTIGATION, LEAK MONITORING AND
LEAK RESPONSE PLAN FOR SAFETY-KLEEN CORPORATION
OAKLAND SERVICE FACILITY
404 MARKET STREET, OAKLAND, CA

Dear Ted:

In response to our telephone conversation on Friday, I have enclosed a copy of the underground storage tank monitoring plan for the Safety-Kleen Corporation, Oakland Service Facility. The facility has two 6,000 gallon and one 10,000 gallon underground tanks that store mineral spirits. We have proposed monitoring Alternative No. 4 consisting of a subsurface investigation to obtain soil samples and the installation of groundwater monitoring wells. Let me know if you have any questions regarding this plan. I will contact you by April 25, 1986.

Sincerely,

Mark Montgomery
Mark S. Montgomery

MSM:da

Enclosure

cc: Mr. Robert Wachsmuth, Safety-Kleen Corporation

RECEIVED
APR 15 1986

ENVIRONMENTAL HEALTH
ADMINISTRATION

SUBSURFACE INVESTIGATION,
LEAK MONITORING AND LEAK RESPONSE PLAN

for

SAFETY-KLEEN CORPORATION
OAKLAND SERVICE FACILITY
404 Market Street
Oakland, California



I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly registered Engineer under the laws of the State of California.

CULP/WESNER/CULP
CONSULTING ENGINEERS
3461 Robin Lane
Cameron Park, California
(916) 677-1695

RECEIVED
APR 15 1986
ENVIRONMENTAL HEALTH
ADMINISTRATION

893

December, 1985

**SUBSURFACE INVESTIGATION,
LEAK MONITORING AND LEAK RESPONSE PLAN**

INTRODUCTION

This plan describes the work to be done and the procedures to be used to establish the current and past integrity of three underground tanks at the Safety-Kleen Corporation, Oakland Service Facility, Oakland, California. The tankage consists of two 6,000-gallon steel tanks and one 10,000-gallon steel tank. Each tank is 8 feet in diameter. The tank inverts are at 12 feet below grade. The tanks were installed in February 1970. The tanks are located at the facilities yard, under a 6-inch concrete slab. Figure 1 presents the site plan.

The proposed monitoring plan is Alternative No. 4 as described in Table 4.1 of "California Underground Storage Tank Regulations," from the California State Water Resources Control Board, August, 1985. This alternative consists of a subsurface investigation to establish the current integrity of the tanks and to obtain soil and water samples that will determine if the underground tanks have leaked. Finally, monitoring wells will be placed in the boreholes around the underground tanks and a leak monitoring program instituted.

The following presents the rationale for the selection of Alternative 4. The facility is approximately 1,800 feet north of the Oakland Inner Harbor, at an elevation of 12 to 15 feet above sea level (see Figure 2, Vicinity Map). Groundwater at the site is assumed to be at sea level. A review of Department of Water Resources well logs revealed no domestic, municipal, agricultural, or industrial water supply wells within one mile of the facility. Consequently, we proposed that Alternative 4 would be the appropriate monitoring alternative for this site.

Drilling and soil sampling will be performed by:

J.H. Kleinfelder & Associates
Geotechnical Consultants
2825 East Myrtle Street
Stockton, CA 95205

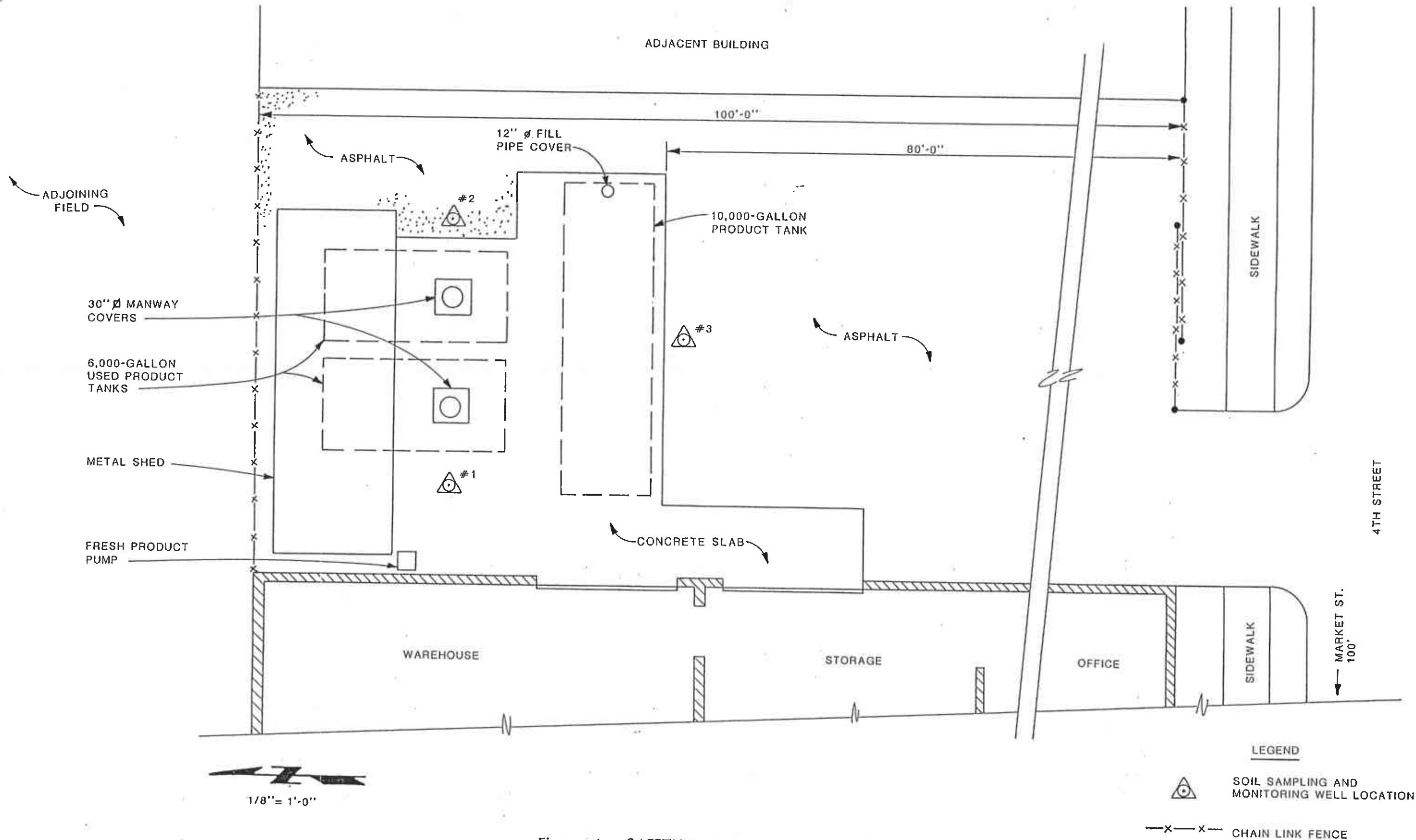


Figure 1. SAFETY-KLEEN SERVICE FACILITY SITE PLAN
OAKLAND, CALIFORNIA

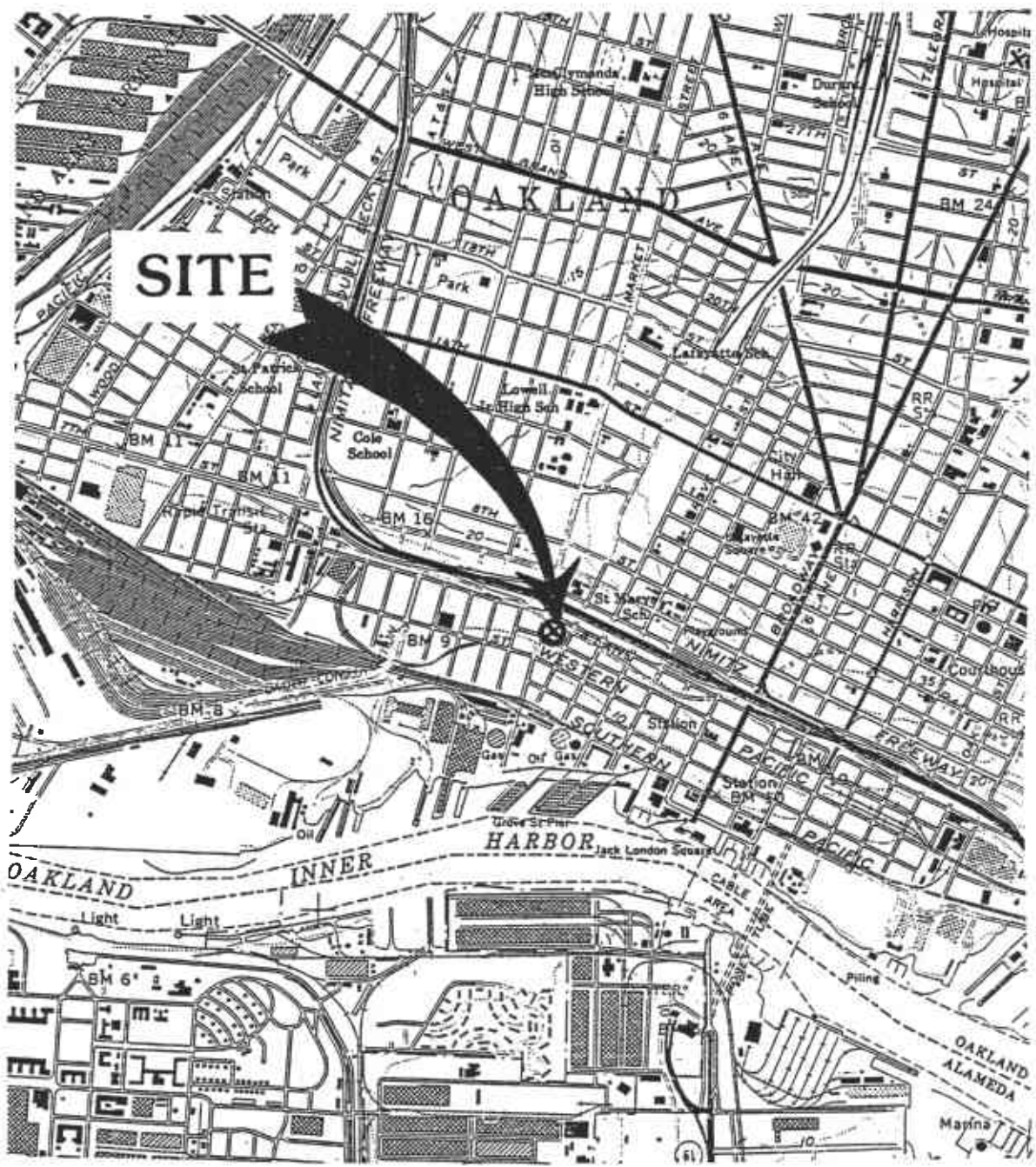


Figure 2. VICINITY MAP

or:

Anderson Geotechnical Consultants, Inc.
631 Commerce Drive
Roseville, CA 95842

Laboratory analyses will be performed by:

Anlab
Analytical Laboratory
1914 S. Street
Sacramento, CA 95814

SOIL SAMPLING

Three vertical soil borings surrounding the underground tanks are proposed. These are indicated on the site plan (Figure 1). Soil samples at the boreholes will be taken at depths of 10, 15, and 20 feet below grade, or until groundwater is reached. The soil samples will be logged, capped immediately with aluminum foil and a plastic cap and placed on ice. The samples will then be transported to the laboratory for extrusion and analysis.

Soil samples taken at the different levels below grade will be first screened with an organic vapor analyzer (HNU Systems, Inc., Model PI 101 Photoionization Analyzer). This instrument has been proven to the engineer's satisfaction that it will detect the Safety-Kleen product. If no contamination is detected, the soil samples from each borehole will be composited for analysis.

An 8-inch diameter, hollow-stem, continuous flight auger will be used to bore to the desired sampling depth. Soil samples will be taken with a Modified California Sampler (i.e., split spoon sampler) with brass liners. The sampler and liners will be cleaned with trisodium phosphate (TSP) and rinsed before the start of the sampling, and after each sample has been taken.

Soil Sampling Procedure

- o Upon reaching the required sample depth, take a clean Modified California Sampler and insert a clean brass liner.

- o Place the sampler in a perpendicular position on the soil to be sampled.
- o Drive the sampler into the ground to the desired sample depth.
- o Record the length of the tube that penetrated the ground.
- o Rotate the sampler at least two revolutions to shear off the sample at the bottom.
- o Withdraw the sampler from the ground.
- o Remove the brass liner, cap with aluminum foil, tape, mark for identification, and immediately place the sample in an ice-filled cooler for transport to the laboratory.

Samples will be extruded from the brass liners only when they have arrived at the laboratory. The sampling and logging of each hole will be supervised and conducted by a registered engineering geologist, civil engineer, or their trained agent.

Soils removed by the soil test borings will be stored on-site in 30 gallon 17H drums. Soils stored in the drum will be maintained on-site until the laboratory results confirm or deny contamination and their disposition is approved by the regulatory agency. If the soils are contaminated, they will be manifested as hazardous waste to a licensed Class I landfill. If not contaminated, the soils will be made available as fill material.

MONITORING WELL CONSTRUCTION

A total of three monitoring wells adjacent to the underground tanks are proposed. Their locations are shown on the site plan. The monitoring wells will be cased using 2-inch I.D., PVC Sch. 40 pipe with threaded connections. The casing will have 0.020-inch slots from 5 feet below grade to 20 feet below groundwater. The expected monitoring well depth is 35 to 40 feet below grade. The annular space around the slotted part of the casing will be packed with pea gravel or coarse

sand. Then a 1-foot bentonite seal will be placed. The remainder of the annular space of the borehole, to within 1 foot of grade, will be sealed with concrete fill. A watertight, vandal resistant vault will top the well at grade. Figure 3 presents the monitoring well construction and installation.

Each VADOSE monitoring well will be identified by a corrosion-resistant tag affixed to the underside of the vault cover with the following information:

Well Number:	MW 1, 2 or 3
Well Owner:	Safety-Kleen Corp.
Well Type:	Monitoring Well
Well Depth:	35'-40'
Well Diameter:	Hole - 8", Casing - 2"
Screened Interval:	5'-40', 0.020" slots

WATER SAMPLING

Once the monitoring well is installed, the well will be developed by pumping or bailing for 5 to 10 well volumes. Water removed from the monitoring well will be stored on-site in 30 gallon drums. The estimated volume of water removed is 50 to 100 gallons. Drummed water will be stored on-site until the laboratory results confirm or deny contamination, and their disposal is approved by the regulatory agency. If the water is contaminated, it will be manifested as hazardous waste. If not contaminated the water will be discharged to a storm drain.

SAMPLE ANALYSIS

Once the sample has been collected, the field log book will be annotated and the sample transported to the laboratory. At this point a Chain of Custody record is prepared.

The Chain of Custody record is taken from the EPA document: **Samplers and Sampling Procedures for Hazardous Waste Streams**, January 1980. The record is shown as Figure 4. Samples will be controlled by Culp/Wesner/Culp and Anlab. Travel

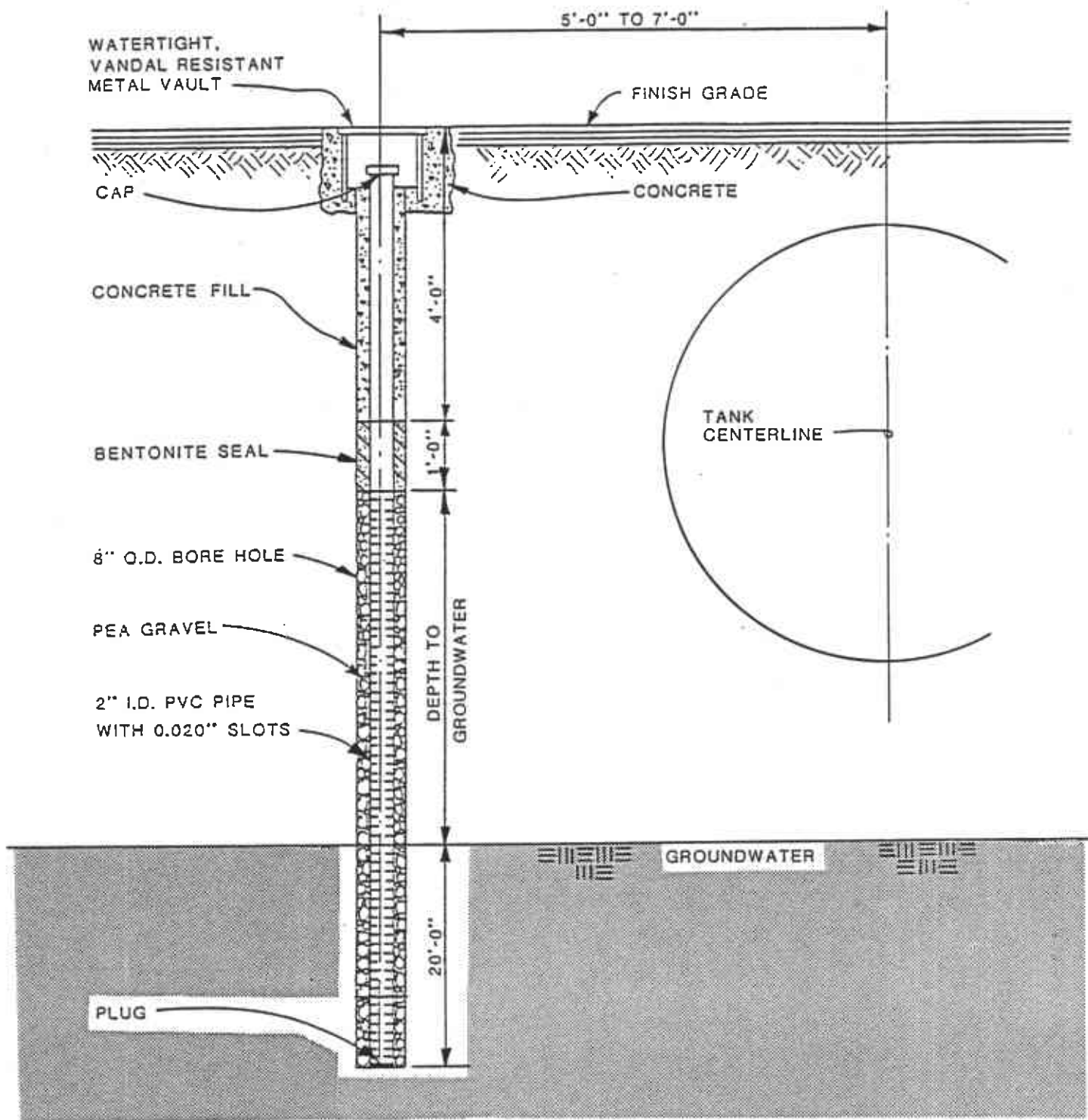


Figure 3. MONITORING WELL CONSTRUCTION
NTS

ANLAB
1914 S Street
Sacramento, CA 95814

CHAIN OF CUSTODY RECORD

SURVEY				SAMPLERS					
Station Number	Station Location	Date	Time	Sample Type			Seq. No.	No. of Containers	Analysis Required
				Water		Air			
				Comp	Grab				
Relinquished by:			Received by:				Date/Time		
Relinquished by:			Received by:				Date/Time		
Relinquished by:			Received by:				Date/Time		
Received for Laboratory by:							Date/Time		
Method of Shipment									

blanks will be included where appropriate. All samples will be refrigerated for transport to the laboratory.

Analyses will be conducted by EPA and State-approved methods. The consultant has experience in sampling and analyzing for the mineral spirit product. We have found that the product behaves much like a volatile organic compound and can be quantitatively determined using EPA Method 8015 for soil and 615 for water.

SAFETY

There are two parts to the safety plan. One is safety at the site and the other is safety at the laboratory. At the site, drilling personnel and laboratory sampling personnel will wear protective Vycor clothing until the sample is safely containerized. The site is open so breathing apparatus are not required. However, dust masks and respirators will be available at the site.

Laboratory safety requires these samples to be extruded under a fume hood. Laboratory analysts will wear protective gloves. Once the samples are prepared for testing, standard laboratory procedures only are required.

LEAK MONITORING PLAN

The leak monitoring plan will consist of weekly observations of fluid in each monitoring well. The mineral spirits product is not water soluble and has a specific gravity of 0.8. Consequently, any leaked product can be seen as a definite layer on top of water. This layering has been witnessed by the Engineer.

The facility manager and the warehouseman will be instructed in testing of the monitoring wells. A clear teflon bailer will be provided for the testing. The warehouseman currently "sticks" the tanks weekly to determine the volume of product stored. Consequently, testing of the monitoring well should prove no scheduling problem. A logbook will be provided for recording of the monitoring well testing. Figure 5 presents a logbook entry form.

MONITORING WELL TESTING FORM

If contamination is observed contact Safety-Kleen Environmental Department (SKED) at: 1-800-323-5740, or 1-312-888-4660.

		Contamination Observed						SKED Contacted	
		MW 1		MW 2		MW 3			
Date	Tester	Yes	No	Yes	No	Yes	No	Date	Who Contacted

Figure 5. MONITORING WELL TESTING RECORD FORM

LEAK RESPONSE PLAN

This plan will be implemented in the event that groundwater contamination is observed.

1. Inform Branch Manager as to which monitoring well shows contamination.
2. Branch Manager will inform the Safety-Kleen Environmental Division (SKED) as to which tank is suspected of leaking. If Branch Manager is not available, contact SKED directly:

Business Hours: 1-800-323-5740 Ext. 2243, Attention: Robert Wachsmuth
Other Hours: 1-312-888-4660, Attention: Environmental Department

3. SKED will inform the:

Alameda County Division
of Environmental Health (ACDEH)
470 27th Street, Room 324
Oakland, CA 94612
(415) 874-6434

that a reportable unauthorized release has occurred and that SKED will initiate work to identify the extent of the release, where it came from, the estimated time it will take to complete containment and disposal, and the degree of the hazard created.

4. SKED will contact Hunter Environmental Services to perform a "Leak Locator" test on the suspected leaking tank. This integrity test will give one of three results:
 - A. No leak rate detectable. In this case, the adjacent tank(s) will also have an integrity test. If these tanks have no detectable leak rate, SKED will inform ACDEH of these results, and it will ascertain why the leak alarm sounded.

B. 0.05 gal/hr or less. SKED will inform ACDEH as to:

- 1) The calculated leak rate.
- 2) The accuracy of the integrity test.
- 3) Physical characteristic and hazard potential of the stored product.
- 4) Composition of the underground tank.
- 5) Geohydrology of the area, and the potential for product migration.
- 6) An explanation to account for the detected leak rate.

C. Greater than 0.05 gal/hr. SKED will:

- 1) Evacuate the contents of the tank.
- 2) Inform ACDEH as to the potential for tank repair.
- 3) Implement tank repair once ACDEH approval is received.