



Chevron U.S.A. Products Company

2410 Camino Ramon, San Ramon, California • Phone (510) 842-9500
Mail Address: P.O. Box 5004, San Ramon, CA 94583-0804

92 JUL 15 11 13 22

Marketing Department

July 13, 1992

Ms. Juliet Shin
Alameda County Health Care Services
80 Swan Way, Room 200
Oakland, CA 94621

**Re: Chevron Service Station #9-0290
1802 Webster Street, Alameda**

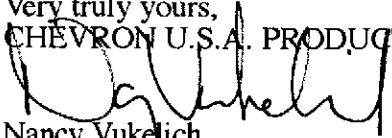
Dear Ms. Shin:

Enclosed we are forwarding a Work Plan for Soil and Ground Water Assessment dated June 17, 1992, prepared by our consultant Groundwater Technology, Inc. for the above referenced site. This work plan outlines additional work steps we propose to take at the site to delineate the extent of the hydrocarbon plume.

We would appreciate your review and formal concurrence prior to implementation of this work.

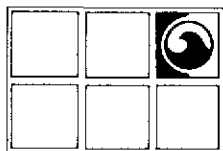
If you have any questions or comments, please do not hesitate to contact me at (510) 842-9581.

Very truly yours,
CHEVRON U.S.A. PRODUCTS COMPANY


Nancy Vukelich
Site Assessment and Remediation Engineer

Enclosure

cc: Mr. Eddy So, RWQCB-Bay Area
Ms. S. A. Willer
File (9-0290W1)



GROUNDWATER TECHNOLOGY, INC.

4057 Port Chicago Highway, Concord, CA 94520 (415) 671-2387

FAX: (415) 685-9148

June 17, 1992

Project No. 02030P087

Ms. Nancy Vukelich
Chevron U.S.A. Products Company
2410 Camino Ramon
San Ramon, CA 94583-0804

JUN 22 '92 L.A.M.

**RE: WORK PLAN FOR SOIL AND GROUNDWATER ASSESSMENT
CHEVRON SERVICE STATION # 9-0290
1802 WEBSTER STREET, ALAMEDA, CALIFORNIA**

Dear Ms. Vukelich:

In response to your request, Groundwater Technology, Inc. has prepared this work plan for additional soil and groundwater assessment to further evaluate the extent of dissolved petroleum hydrocarbons at the site referenced above. The scope of work consists of drilling three soil borings, installing three groundwater monitoring wells, sampling soil and groundwater, submitting the samples for laboratory analyses, and preparing a summary report.

**TASK 1: SITE-SPECIFIC HEALTH AND SAFETY PLAN / BACKGROUND REVIEW /
PERMITTING**

A Site-Specific Health and Safety Plan will be prepared by Groundwater Technology as required by the Occupational Health and Safety Administration (OSHA) Standard "Hazardous Waste Operations and Emergency Response" guidelines (29 CFR 1910.120). The Site-Specific Health and Safety Plan will be prepared by Groundwater Technology personnel, following a complete review of site conditions and any existing Site-Specific Health and Safety Plans for the site. The document will be reviewed and signed by all Groundwater Technology personnel and subcontractors performing work at the site.

Groundwater Technology will conduct a technical review of all pertinent information associated with the site. Monitoring well permit applications will be completed and submitted to the Alameda County Zone 7 Water Agency. An excavation permit from the City of Alameda and right-of-entry agreements will be obtained prior to drilling.

**TASK 2: SOIL BORINGS / SAMPLING AND ANALYSES / MONITORING WELL
INSTALLATION**

Groundwater Technology will drill three (3) soil borings using a truck-mounted drill rig equipped with 8-inch-diameter hollow-stem augers (Figure 1). **The soil borings will be drilled to approximately 25 feet below grade or 10 feet below the water table. The water table is expected to be encountered at a depth of approximately 15 feet.** The hollow-stem augers will be steam cleaned between each boring, and all sampling equipment will be properly cleaned between sample intervals. The drilling will be completed in one day. Soil samples will be collected at five-foot depth intervals and notable lithologic changes, utilizing an 18-inch California split-spoon sampler lined with 2-inch-diameter by 6-inch-long brass sample tubes. Groundwater Technology standard operating procedures (SOP) are included in Attachment A. Each soil sample will be screened for volatile compounds utilizing a photoionization detector (PID). The soil samples will be logged using the Unified Soil Classification System by a Groundwater Technology field geologist, working under the supervision of a California registered geologist. **One sample from every sampling interval will be sealed with aluminum foil, capped with a plastic cap, taped, labeled, and placed on ice in an insulated container.** All soil generated through drilling will be stored and covered by polyethylene plastic pending characterization and disposal at a licensed facility.

Groundwater Technology will select two soil samples from each soil boring utilizing the previously noted field screening techniques. Each sample will be analyzed by a State-certified laboratory for benzene, toluene, ethylbenzene and total xylenes (BTEX), and total petroleum hydrocarbons-as-gasoline (TPH-G) by EPA-approved methods 5030/8020/8015.

Groundwater Technology personnel will install a groundwater monitoring well within each soil boring. Each well will be constructed of two-inch diameter, schedule 40 PVC casing with flush threads and 15 feet of 0.020-inch-slot well screen. The well screen for the monitoring wells will be installed approximately five feet above and ten feet below the current water table to permit entry of separate-phase hydrocarbons (SP), if present, and to allow for seasonal fluctuation of the water table. A sand filter will be placed around the well screen to a height of two feet above the top of the screen. Each well will be completed with a bentonite seal and cement grout (containing 2 to 3 percent bentonite) to grade. Each wellhead will be protected by a locking cap and a traffic-rated street box with a water-tight bolted lid. Typical groundwater monitoring well construction diagram is presented in Attachment B.

TASK 3: WELL DEVELOPMENT / SURVEYING / GROUNDWATER MONITORING

The monitoring well will be developed to remove fine-grained sediments from the well and filter pack, approximately 48 hours following installation. Water from the development process will be retained on-site in Department of Transportation (DOT)-approved 55-gallon drums pending proper disposal.

Approximately 24 hours following the development procedure, the water table will be monitored to determine static water levels and the thickness of any SP, if present. The water table levels will be measured using an ORS Environmental Equipment INTERFACE PROBE™ Well Monitoring System, consisting of a dual optical sensor and electrical conductivity probe, that distinguishes between water and petroleum products.

Top of casing (TOC) elevation and horizontal position of each well will be surveyed relative to an established or assumed benchmark. The survey data will be used with the depth to water measurements to determine water table elevation in each monitoring well and to estimate the local groundwater flow direction and gradient.

TASK 4: WELL PURGING / WATER SAMPLING / ANALYSIS

Subsequent to groundwater monitoring, three to five well casing volumes of water will be removed from each well prior to sampling. Measurements of pH and conductivity will be taken prior to sampling. Groundwater Technology personnel will collect groundwater samples from each site monitoring well. Each water sample will be analyzed for BTEX, TPH-G, and TPH-as-diesel fuel using EPA-approved methods 5030/8020/8015. All work will be conducted according to Groundwater Technology's SOPs (Attachment A).

TASK 5: REPORT PREPARATION

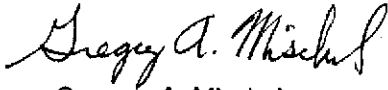
Groundwater Technology will prepare an assessment report summarizing the data collected. The report will include descriptions of all methodologies, laboratory results, and site specific graphics.

TASK 6: PROJECT SCHEDULE

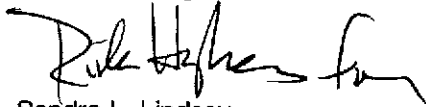
Groundwater Technology is prepared to begin work on this project immediately in accordance with the work plan approval by Alameda County Health Care Services.

Please contact Chevron and our Concord office at (510) 671-2387 if you have questions or comments about this work plan.

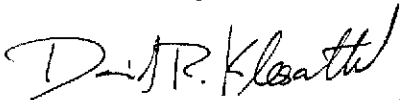
Sincerely,
GROUNDWATER TECHNOLOGY, INC.



Gregory A. Mischel
Project Geologist



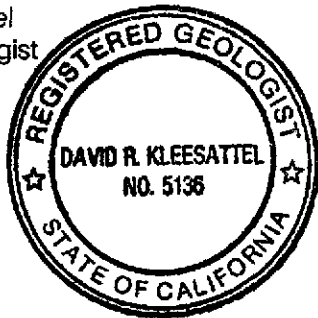
Sandra L. Lindsey
Project Manager

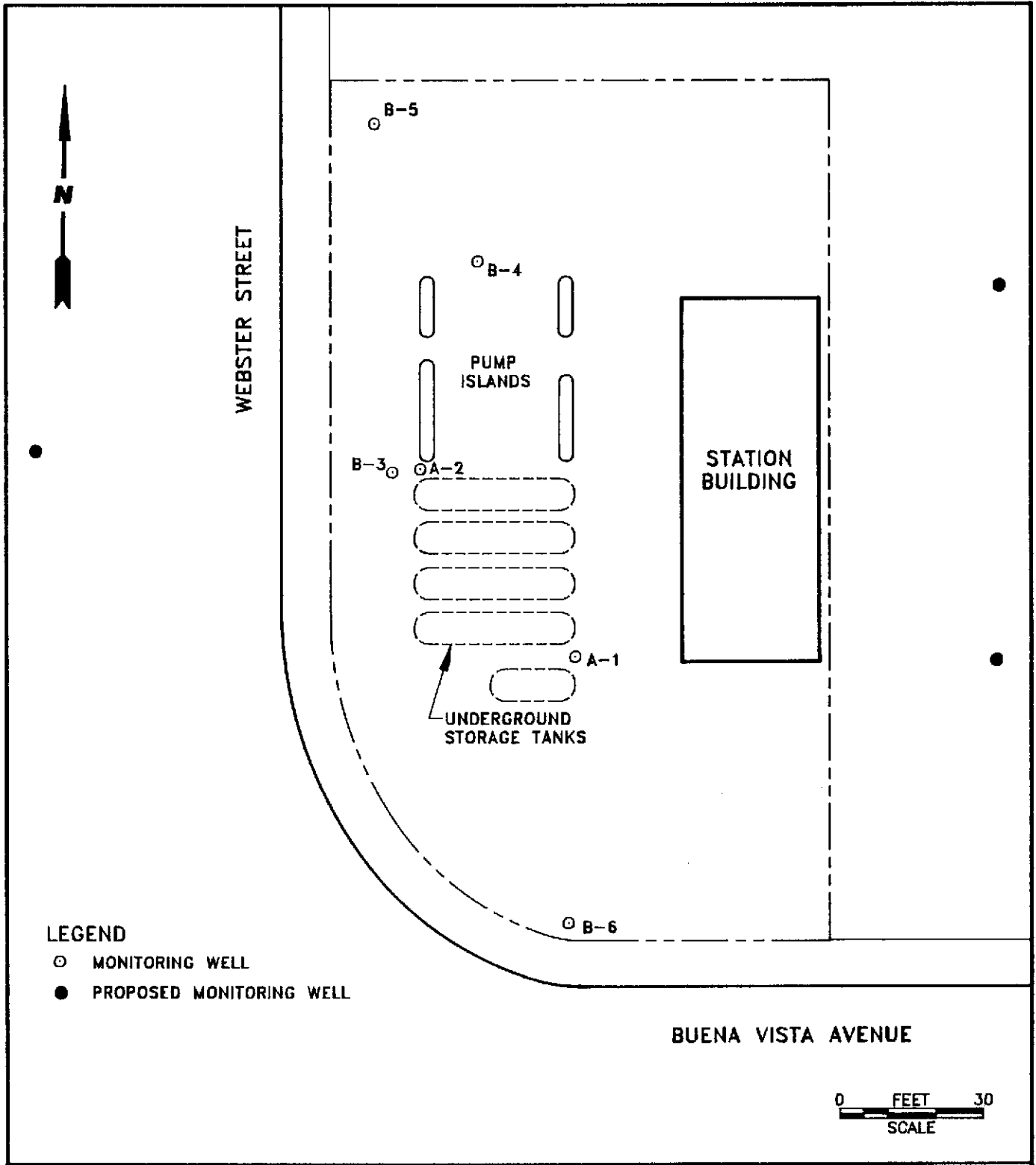


David R. Kleesattel
Registered Geologist


GAM/SLL/DRK:

Attachments
0290WPL.1





- LEGEND**
- MONITORING WELL
 - PROPOSED MONITORING WELL

 GROUNDWATER TECHNOLOGY		4057 PORT CHICAGO HWY. CONCORD, CA 94520 (510) 671-2387		PROPOSED MONITORING WELL LOCATION MAP			
CLIENT: CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION No. 9-0290			LOCATION: 1802 WEBSTER STREET ALAMEDA, CALIFORNIA		REV. NO.: 0	DATE: 6/16/92	
PM	PE/RG	DESIGNED GM	DETAILED ML	ACAD FILE: SP692	PROJECT NO.:	02030P087	FIGURE: 1

ATTACHMENT A

**GROUNDWATER TECHNOLOGY, INC.
STANDARD OPERATING PROCEDURES**

**GROUNDWATER TECHNOLOGY, INC.
STANDARD OPERATING PROCEDURE
CONCERNING GROUNDWATER MONITORING
SOP 8**

Groundwater monitoring of wells at the site shall be conducted using an ORS Environmental Equipment (ORS) INTERFACE PROBE™ and SURFACE SAMPLER™. The INTERFACE PROBE™ is a hand-held, battery-operated device for measuring depth to petroleum product and depth to water as measured from an established datum (i.e., top of the well casing which has been surveyed). Separate-phase hydrocarbon (product) thickness is then calculated by subtracting the depth to product from the depth to water. In addition, water elevations are adjusted for the presence of fuel with the following calculation:

$$(\text{Product Thickness}) (0.8) + (\text{Water Elevation}) = \text{Corrected Water Elevation}$$

Note: The factor of 0.8 accounts for the density difference between water and petroleum hydrocarbons.

The INTERFACE PROBE™ consists of a dual-sensing probe which utilizes an optical liquid sensor and electrical conductivity to distinguish between water and petroleum products. A coated steel measuring tape transmits the sensor's signals to the reel assembly where an audible alarm sounds a continuous tone when the sensor is immersed in petroleum product and an oscillating tone when immersed in water. The INTERFACE PROBE™ is accurate to 1/16th inch.

A SURFACE SAMPLER™ shall be used for visual inspection of the groundwater to note sheens (difficult to detect with the INTERFACE PROBE™), odors, microbial action, etc.

The SURFACE SAMPLER™ used consists of a 12-inch-long case acrylic tube with a Delrin ball which closes onto a conical surface creating a seal as the sampler is pulled up. The sampler is calibrated in inches and centimeters for visual inspection of product thickness.

To reduce the potential for cross contamination between wells, the monitorings shall take place in order from the least to the most contaminated wells. Wells containing separate-phase hydrocarbons (free product) should be monitored last. Between each monitoring the equipment shall be washed with laboratory-grade detergent and double rinsed with distilled water.

**GROUNDWATER TECHNOLOGY, INC.
STANDARD OPERATING PROCEDURE
CONCERNING WATER SAMPLING METHODOLOGY
SOP 9**

Before water sampling, each well shall be purged by pumping a minimum of four well volumes or until the discharge water indicates stabilization of temperature conductivity and pH. If the well is evacuated before four well volumes are removed or stabilization is achieved, the sample should be taken when the water level in the well recovers to 80 percent of its initial level.

Retrieval of the water sample, sample handling and sample preservation shall be conducted according to Standard Operating Procedure 10 concerning "Sampling for Volatiles in Water." The sampling equipment used shall consist of a Teflon® and/or stainless steel samplers which meet U.S. Environmental Protection Agency (EPA) regulations. Glass vials with Teflon® lids should be used to store the collected samples.

To ensure sample integrity, each vial shall be filled with the sampled water in such a way that the water stands above the lip of the vial. The cap should then be quickly placed on the vial and tightened securely. The vial should then be checked to ensure that air bubbles are not present prior to labeling of the sample. Label information should include a sample identification number, job identification, date, time, type of analysis requested, and sampler's name. Chain-of-custody records shall be completed according to Standard Operating Procedure (SOP) 11 concerning chain of custody.

The vials should be immediately placed in high quality coolers for shipment to the laboratory. The coolers should be packed with sufficient ice or freezer packs to ensure that the samples are kept below 4° Celsius (C). To minimize sample degradation the prescribed analysis shall take place within seven days of sample collection unless specially prepared acidified vials are used.

To minimize the potential for cross contamination between wells, all the well development and water sampling equipment which contacts the groundwater shall be cleaned between each sampling. As a second precautionary measure, the wells shall be sampled in order of increasing contaminant concentrations (the least contaminated well first, the most contaminated well last) as established by previous analysis.

**STANDARD OPERATING PROCEDURE 10
CONCERNING SAMPLING FOR VOLATILES IN WATER
(DISSOLVED GASOLINE, SOLVENTS, ETC.)
SOP 10**

1. Use only vials properly washed and baked.
2. Use clean sampling equipment. Scrub with Alconox or equivalent laboratory detergent and water followed by a thorough water rinse. Complete with a distilled water rinse.

Sampling equipment which has come into contact with liquid hydrocarbons (free product) should be regarded with suspicion. Such equipment should have tubing and cables replaced and all resilient parts washed with laboratory detergent solution as indicated above. Visible deposits may have to be removed with hexane. Solvent washing should be followed by detergent washing, as indicated above.

This procedure is valid for volatile organic analysis only. For extractable organics (for example, pesticides, or base neutrals for U.S. Environmental Protection Agency [EPA] Method 625 a final rinse with pesticide-grade isopropyl alcohol), followed by overnight or oven drying will be necessary.

3. Take duplicate samples. Mark on forms as a single sample with two containers to avoid duplication of analyses.
4. Take a site blank using distilled water or known uncontaminated source. This sample will be run at the discretion of the project manager.
5. Fill out labels and forms as much as possible ahead of time. Use an indelible marker.
6. Preservatives are required for some types of samples. Use specially prepared vials marked as indicated below, or use the appropriate field procedure (SOP 12 for acidification). Make note on forms that samples were preserved. Always have extra vials in case of problems. Samples for volatile analyses should be acidified below pH 2 upright. Eye protection, foot protection, and disposable vinyl gloves are required for handling. Samples designated for expedited service and analyzed within seven (7) days of sampling will be acceptable without preservation. Acid-causing burns. Glasses or goggles (not contact lenses) are necessary for protection of the eyes. Flush eyes with water for 15 minutes if contact occurs and seek medical attention. Rinse off hands frequently with water during handling.

For sampling chlorinated drinking water supplies for chlorinated volatiles, samples shall be preserved with sodium thiosulfate. Use vials labeled "CONTAINS THIOSULFATE." No particular cautions are necessary.

7. Fill vial to overflowing with water, avoiding turbulence and bubbling as much as possible. Water should stand above lip of vial.
8. Carefully, but quickly, slip cap onto vial. Avoid dropping the Teflon® septum from cap by not inverting cap until it is in contact with the vial. Disc should have Teflon® face toward the water. Also avoid touching white Teflon® face with dirty fingers.
9. Tighten cap securely, invert vial, and tap against hand to see there are not bubbles inside.

10. Label vial, using indelible ink, as follows:
 - A. Sample I.D. No.
 - B. Job I.D. No.
 - C. Date and Time
 - D. Type of analysis required
 - E. Your name
11. Unless the fabric-type label is used, place Scotch™ tape over the label to preserve its integrity.
12. For chain-of-custody reasons, sample vial should be wrapped end-for-end with Scotch™ tape or evidence tape and signed with indelible ink where the end of the tape seals on itself. The septum needs to be covered.
13. Chill samples immediately. Samples to be stored should be kept at 4° Celsius (C) (30° Fahrenheit [F]). Samples received at the laboratory above 10°C (as measured at glass surface by a thermocouple probe), after overnight shipping, will be considered substandard, so use a high quality cooler with sufficient ice or freezer packs.
14. Fill out Chain-of-Custody Manifest and Analysis Request Form (see Chain of Custody Procedures, SOP 11).

GROUNDWATER TECHNOLOGY, INC.
STANDARD OPERATING PROCEDURE
CONCERNING SOIL SAMPLING METHODOLOGY
SOP 14

1. Soil samples should be collected and preserved in accordance with Groundwater Technology Standard Operating Procedure (SOP 15) concerning Soil Sample Collection and Handling when Sampling for Volatile Organics. A hollow stem soil auger should be used to drill to the desired sampling depth. A standard 2 inch diameter split spoon sampler 18 inches in length shall be used to collect the samples. The samples are contained in 2 inch diameter by 6 inch long thin walled brass tube liners fitted into the split spoon sampler (three per sampler).
2. The split spoon sampler should be driven the full depth of the spoon into the soil by a 140 pound hammer. The spoon shall then be extracted from the borehole and the brass tube liners containing the soil sample removed from the sampler. The ends of the liner tubes should be immediately covered with aluminum foil, sealed with a teflon or plastic cap, and taped with duct tape. After being properly identified with sample data entered on a standard chain of custody form the samples shall be placed on dry ice (maintained below 4~C) and transported to the laboratory within 24 hours.
3. One of the three soil samples retrieved at each sample depth shall be analyzed in the field using a photoionization detector and/or explosimeter. The purpose of the field analysis is to provide a means to choose samples to be laboratory analyzed for hydrocarbon concentrations and to enable comparisons between the field and laboratory analyses. The soil sample shall be sealed in a plastic bag and allowed to equilibrate with the air surrounding the soil for approximately 10 minutes. One of the two field vapor instruments shall be used to quantify the amount of hydrocarbon released to the air from the soils. The data shall be recorded on the drill logs at the depth corresponding to the sample point.

- C. The remaining 2 in 20 samples should be used by lab for spiking with reference materials for internal QC.

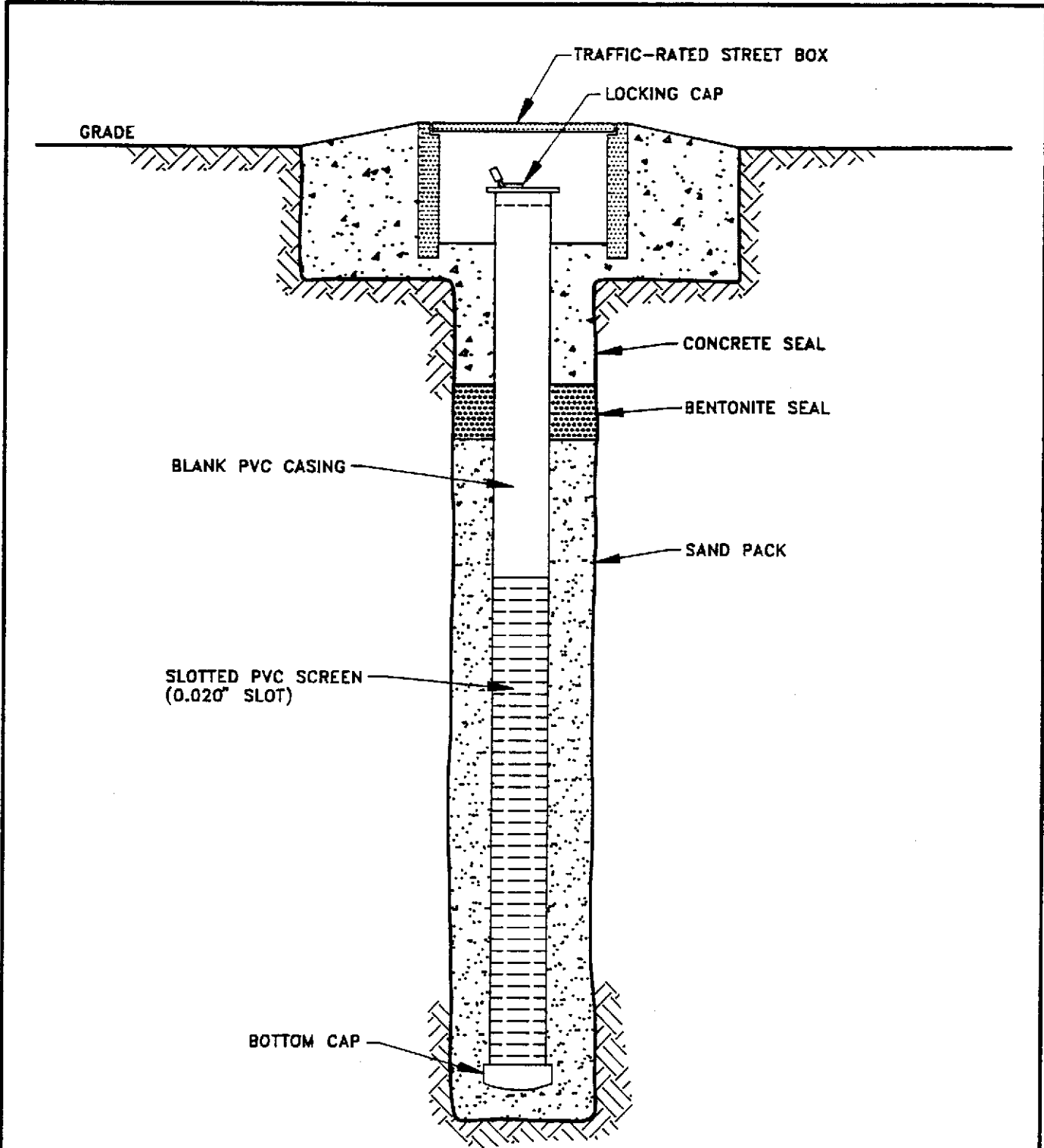
Other QC procedures can be specified at the project manager's discretion. See Table 3-2 (reference 2) attached.

- 5. Decontamination of equipment in the field requires a detergent wash, with a distilled water rinse.

REFERENCES

1. Soil Sampling Quality Assurance Users Guide, U.S. EPA Environmental Monitoring Systems Laboratory, Las Vegas, NV, EPA 600/4-84-043, May 1984.
2. Preparation of Soil Sampling Protocol. Techniques and Strategies, U.S. EPA, Environmental Monitoring Systems Laboratory, Las Vegas, NV, EPA 600/4-83-020, August 1983 (PB83-206979).
3. Test Methods for Evaluating Solid Waste, U.S. EPA, Office of Solid Waste and Emergency Response, Washington, D.C., SW 846, July 1982.





NOT TO SCALE

	GROUNDWATER TECHNOLOGY 4057 PORT CHICAGO HWY CONCORD, CA 94520 (510) 671-2387
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TYPICAL MONITORING WELL CONSTRUCTION

CLIENT:				LOCATION:		REV. NO.:	DATE:
						0	12/9/91
PM	PE/RG	DESIGNED	DETAILED	ACAD FILE:	PROJECT NO.:	FIGURE:	
			ML	MONWELL			