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WORK PLAN
FOR
MONITORING WELL INSTALLATION
KRAGEN AUTO PARTS #336
4200 MACARTHER BOULEVARD
OAKLAND, CALIFORNIA

June 93

HARZA KALDVEER

Consulting Engineers

Harza Engineering Company of California

June 8, 1993

KE1462-1-1925, 23484

Northern Automotive
P.O. Box 6030
645 E. Missouri, Suite 400
Phoenix, Arizona 80512

Attention: Mr. Dave Slavin

RE: WORK PLAN FOR MONITORING WELL
INSTALLATION
KRAGEN AUTO PARTS #336
4200 MACARTHUR BOULEVARD
OAKLAND, CALIFORNIA


Dear Mr. Slavin:

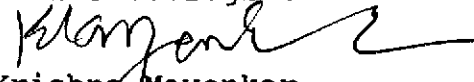
We are pleased to submit this work plan for installing one monitoring well at the Kragen Auto Parts #336, 4200 MacArthur Boulevard, Oakland, California. The purpose of the proposed scope of work is to construct and sample one monitoring well to further evaluate the extent of hydrocarbon contamination at the subject site. The work plan is prepared in accordance with the requirements of Alameda County Health Care Services.

We thank you for the opportunity to be of continued service to you. If you have any questions please do not hesitate to call.

Very truly yours,

KALDVEER ASSOCIATES, INC.


Randy P. Rowley, R.G./R.E.A.
Senior Geologist


Krishna Mayenkar
Vice President
Industrial and Harzardous
Waste Services

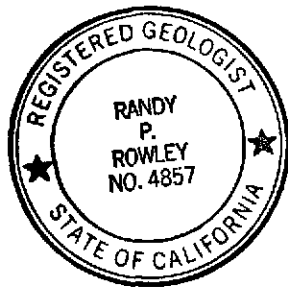
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Copies: Addressee (1)
Alameda County Health Care Services Agency (1)
Attention: Ms. Juliatt Shin

WORK PLAN
MONITORING WELL INSTALLATION

For
KRAGEN AUTO PARTS #336
4200 MACARTHER BOULEVARD
OAKLAND, CALIFORNIA

To
Northern Automotive
P.O. Box 6030
645 E. Mission, Suite 400
Phoenix, Arizona 80512




Randy P. Rowley, R.G.
Senior Geologist

June, 1993

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WORK PLAN FOR MONITORING WELL
INSTALLATION
KRAGEN AUTO PARTS #336
4200 MACARTHER BOULEVARD
OAKLAND, CALIFORNIA

INTRODUCTION

The proposed work will be performed at Kragen Auto Parts Store #336, located at 4200 MacArthur Boulevard in Oakland, California, (Figure 1). The investigation area is located in the vicinity of four former underground storage tanks (USTs) which were removed in April, 1988. The purpose of this work is to provide additional information on the possible presence of gasoline fuel, diesel fuel, or waste oil contamination in the subsurface soils or ground water in the vicinity of the former USTs. This work plan describes the proposed construction and sampling of one ground water monitoring well.

BACKGROUND

On April 12, 1988, four USTs were removed from the site by others. One of the tanks had contained waste oil, two were thought to have contained gasoline, and the fourth had contained either gasoline or diesel fuel. After the tanks were removed, Harza Kaldveer personnel collected seven soil samples from the excavation, in areas below each tank site. Soil samples were also collected from the excavated and stockpiled soils which had formerly surrounded the USTs. A water sample was collected from seepage water entering the excavation side-wall. The soil samples were analyzed for total petroleum hydrocarbon (TPH) as gasoline (Method 8015 modified), TPH as diesel (Method 8015 modified), benzene, toluene, ethylbenzene and xylene, (BTEX), by Method 8020, and oil and grease by Method 503E. The water sample was analyzed for the same constituents as the soil excluding oil and grease analysis.

Analytical results indicated that only one of seven soil samples contained detectable levels of hydrocarbons [52 parts per million (ppm) of oil and grease]; no gasoline or diesel was detected. The water sample contained 0.22 parts-per-million (ppm) of gasoline 0.76 parts-per-billion (ppb) of benzene, 1.2 ppb of toluene, 6.6 ppb of xylene, and 0.99 ppb of ethylbenzene. The stockpiled fill soils had some low levels of oil and grease (39 ppm), gasoline (230 ppm), and diesel (29 ppm).

The excavations at the former tank locations were backfilled with imported fill soil. The stockpiled soil was aerated at the site, and disposed offsite by others (Harza Kaldveer, August 26, 1988).

The project site has subsequently been developed as a Kragen Auto Supply store and the former tank locations are partially covered by the new building and the adjoining asphalt parking lot.

In a letter from the Alameda County Health Care Services Agency (ACHCSA) to Kragen Auto Supply dated October 30, 1992, ACHCSA

HARZA KALDVEER

required an additional investigation of soil and ground water at the site. In their subsequent letter dated January 7, 1992, ACHCSA suggested that construction of a single down-gradient monitoring well at the site, and one year of quarterly ground water monitoring, would be acceptable to evaluate on site ground water quality. The present work plan describes the installation and sampling of that well.

WORK PLAN

This work plan describes the scope of work and procedures to construct and sample one monitoring well at the site.

TASK 1 Monitoring Well Construction and Water and Soil Sampling

1. Prior to initiating field work at the site, a copy of this Work Plan, including the attached Health and Safety Plan, will be submitted to the ACHCSA for review and approval. The Health and Safety Plan, prepared only for the proposed work is attached as Appendix I. All work will be performed in accordance with the approved Work Plan and the site Health and Safety Plan.
2. A soil boring will be drilled to a depth of about 35 feet using a continuous-flight hollow-stem auger. Soil samples will be collected during drilling at approximate 5 foot intervals for logging purposes, and three samples will be chosen for chemical analysis. The soil samples will be appropriately packed, refrigerated and transported to the chemical laboratory for testing. The augers, samplers and equipment will be steam-cleaned prior to performing the field investigation. See Appendix II for details of the drilling program. The proposed monitoring well location is shown on the Site Plan, Figure 2.
3. The exploratory boring will be used to construct a monitoring well. The well will be constructed, developed and sampled as detailed in Appendix III.
4. Three soil samples and one water sample will be analyzed for: 1) total petroleum hydrocarbons (TPH) as gasoline, 2) benzene, toluene, ethylbenzene and xylene, (BTEX), 3) TPH as diesel and 4) total oil and grease. Additionally, as requested by ACHSA, the water sample will be analyzed for volatile organic compounds, semi-volatile organic compounds, and metals (cadmium, chromium, lead, nickel, and zinc.) A California EPA certified analytical laboratory will be utilized to perform the analytical work. See Appendix IV for details of the laboratory analyses.

5. A report presenting a description of our investigation and our conclusions regarding the presence of contamination will be prepared for submittal to ACSHA.

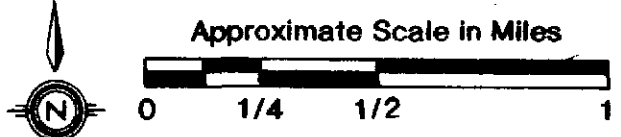
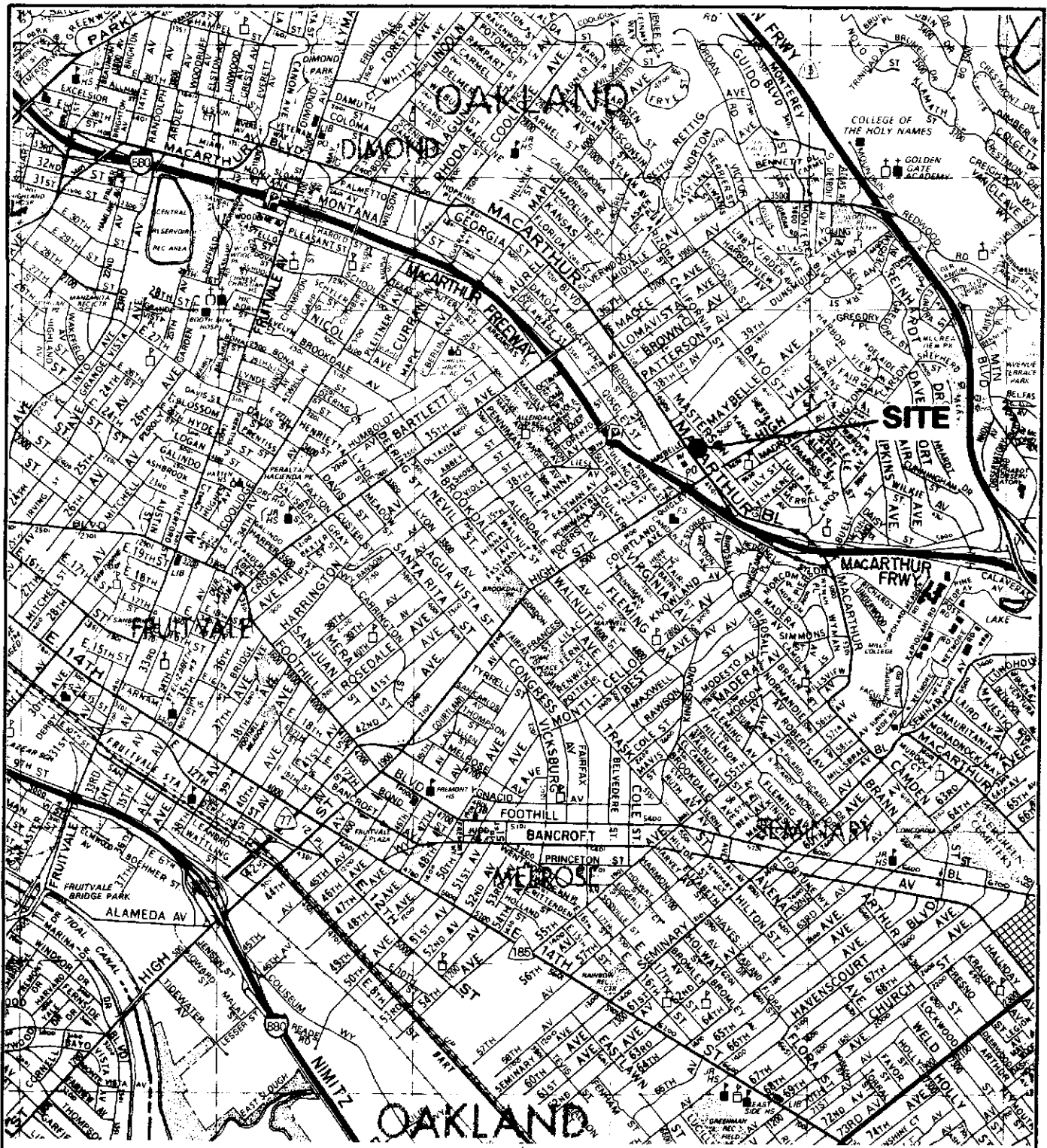
Please note that drilling cuttings, purge water, and cleanup wastes will be stored on the site in labeled drums. The analytical results of the soil and water samples may be sufficient for disposal characterization, however, depending on the results and the disposal facility criteria, additional sampling and analysis may be necessary prior to disposal.

TASK 2 One Year of Quarterly Monitoring

To complete one year of quarterly monitoring, we will perform three additional quarterly water sampling rounds. Each sampling event will consist of the following:

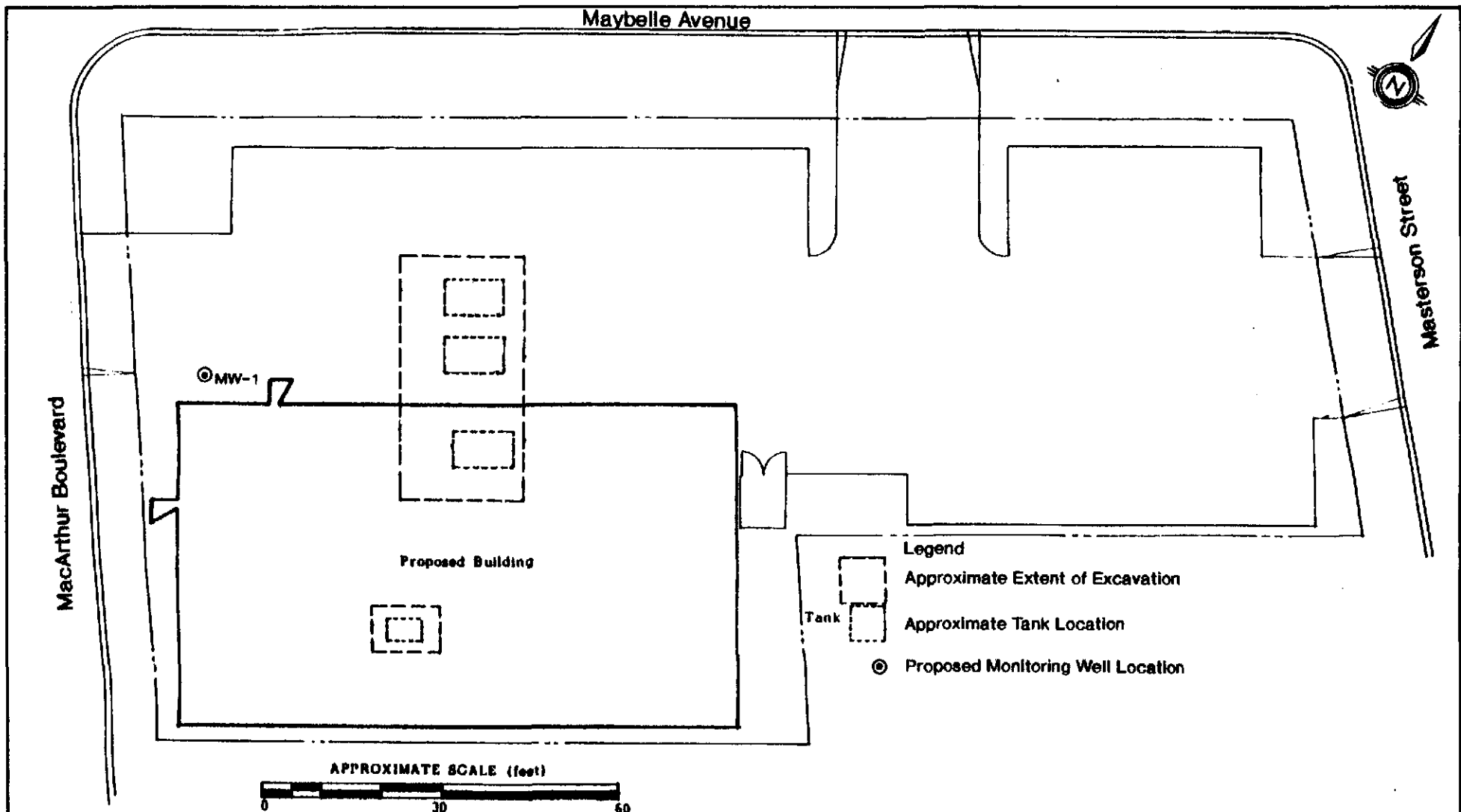
1. Collect a ground water sample as detailed in Appendix III.
2. Analyze the sample for TPH as gasoline, BTEX, TPH as diesel, and total oil and grease.
3. Submit a report describing the sampling procedures and analytical results.

* * * * *



BASE: By Thomas Brothers Maps, dated 1991

HARZA KALDVEER Consulting Engineers	SITE VICINITY MAP	
	KRAGEN AUTO #336 Oakland, California	
	PROJECT NO. KE1462-1-1925	DATE June 1993
		Figure 1



BASE: TOPOGRAPHIC & BOUNDARY SURVEY MAP, BY MICHAEL WARD VITTTOW, DATED 2/12/87.

HARZA KALDVEER
Consulting Engineers

SITE PLAN

KRAGEN AUTO #338
 Oakland, California

PROJECT NO.	DATE	Figure 2
KE1462-1-1925	June 1993	

APPENDIX I
HEALTH AND SAFETY PLAN

HEALTH AND SAFETY PLAN

PROJECT NO: KE1462-1-1925 FIELD ACTIVITIES DATE: Early June

CLIENT: Northern Automotive
Address: P.O. Box 6030, 645 E. Missouri, Suite 400, Phoenix,
Arizona, 80512

CONTACT PERSON: David Slavin TELEPHONE NO: 602-631-7360

JOB LOCATION: 4200 MacArthur Boulevard, Oakland

PROJECT DESCRIPTION: Installation and sampling of one monitoring well at the subject site.

PROJECT MANAGER: Randy P. Rowley

SITE HEALTH & SAFETY OFFICER: Randy P. Rowley or Designated Alternate

BACKGROUND: On April 12, 1988, four USTs were removed from the site. One soil sample of the seven samples collected from the excavation showed a detectable level of hydrocarbon contamination (52 ppm of oil and grease); no gasoline or diesel were detected. A water sample collected from the excavation contained 0.22 ppb gasoline, and benzene, toluene, ethylbenzene, xylene, at 0.76 ppb, 1.2 ppb, 9.9 ppb, and 6.6 ppb, respectively. Stockpiled fill soils had low levels of oil and grease, gasoline, and diesel. The stockpiled soil were aerated onsite and removed by others. The proposed investigation will consist of installing one monitoring well to monitor the previously identified gasoline and BTEX contamination in the soil and ground water.

CHEMICAL HAZARDS

<u>Chemical Name</u>	<u>Description</u>	<u>Persons Exposed; Potential Routes of Exposure</u>	<u>Symptoms of Acute Exposure</u>
Petroleum hydrocarbons	Liquid or semi-liquid in soil	Drilling and sampling personnel; Dermal and inhalation	nausea headache dizziness

Note:

Motor fuels may contain low quantities of benzene. Benzene is a California Proposition 65 listed chemical known to the State to cause cancer or reproductive harm.

EMERGENCY PROCEDURES: Evacuate to open air in emergency situation. First Aid equipment is (ie: first aid kit, fire extinguisher, emergency eye wash) located with site safety officer.

Prepared by _____
Randy P. Rowley

Reviewed by _____
Krishna Mayenkar

Read by _____ Date _____

Read by _____ Date _____

Read by _____ Date _____

Read by _____ Date _____

Read by _____ Date _____

Read by _____ Date _____

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Read by _____ Date _____

APPENDIX II

EXPLORATORY BORING

A truck-mounted drill rig equipped with 8-inch diameter hollow-stem augers will be utilized to complete the boring. All equipment will be steam-cleaned prior to and subsequent to drilling, and the sampler will be cleaned with laboratory grade detergent and rinsed with clear and then distilled water between samples. Thus, cross-contamination will be minimized.

Soil samples will be collected from the borings at approximate five foot intervals using a 2-inch I.D. Modified California sampler containing thin brass liners. The sampler will be driven with a 140-pound hammer falling 30 inches. The number of blows required to drive the sampler the last 12 inches of an 18-inch drive are recorded as the penetration resistance (blows/foot) on the boring logs. All soil samples will be screened for volatile organic compounds using a photoionization detector (PID). The readings for each sample will be recorded on the log for that boring. Soil samples selected for possible chemical analysis will be collected in 2-inch diameter, 6-inch long, brass liners. These samples will be sealed with teflon-lined plastic lids. The containers will be labeled and immediately placed in refrigerated storage. A chain-of-custody form will be initiated in the field and accompany the samples to American Environmental Network (California), Inc., of Pleasant Hill, California, a California EPA certified laboratory.

Ground water is anticipated to be at a depth of about 20 feet. For monitoring well construction, we would extend our boring to a depth of about 35 feet unless a possible aquitard is encountered. The monitoring well is permitted with Alameda County Flood Control and Water Conservation District, Zone 7 (Permit Number 93277).

APPENDIX III

MONITORING WELL CONSTRUCTION

The boring will be converted to a monitoring well, utilizing 2" schedule 40 threaded PVC pipe and slotted screen. The perforations will extend approximately 15 feet below and 5 feet above the upper zone of saturation. The perforated section annulus will be packed with clean graded sand to a level approximately two feet above the highest screen slots, and a one foot thick bentonite plug will be placed above the sand pack as a seal against surface water infiltration. The remaining annulus will be backfilled with concrete to grade.

The well will be finished with a Cristy-type concrete or metal box grouted to match the existing grade and minimize surface water infiltration. The well will be sealed with a locking cap to prevent surface contamination and to guard against vandalism. No solvents or glues will be used during monitoring well construction.

Approximately 72 hours after installation, the well will be developed using a well development pump and/or bailer. Development will consist of periodic surging and removing several well volumes of water until field characteristics (i.e. temperature, pH, and specific conductance) have stabilized and the water exhibits relatively low turbidity. Water will be contained in a 55 gallon drum for storage onsite pending receipt of analytical results. A label will be affixed to the drum and will identify the contents, source, and telephone numbers of contact personnel.

At least 24 hours following the monitoring well development, well purging and ground water sampling will be performed.

MONITORING WELL SAMPLING

Following an initial water level measurement, the monitoring well will be sampled using a teflon bailer, or bladder or hand pump. Prior to sample collection, a minimum of four well volumes will be purged in an attempt to collect a representative formation sample. Should the well become completely evacuated during purging, samples will be collected after the well has recovered to 80 percent of its initial water elevation.

All samples collected will be placed in containers approved for the type of analyses required. Then, the samples will be labeled and immediately placed in refrigerated storage.

All samples will be labeled and a chain-of-custody form will be initiated by the sampler and accompany the samples to the analytical laboratory. All soil and water samples collected will be delivered to the laboratory approved by the California EPA, for the type of analysis to be performed.

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APPENDIX IV

SAMPLE ANALYSIS

Analyses of water and soil samples will be conducted by EPA approved methods and in accordance with "Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites", by Staff of North Coast, San Francisco Bay and Central Valley Regional Water Quality Control Boards, dated August, 1990 and revised October 1991.

<u>Test Name</u>	<u>EPA Test Method</u>
Total Petroleum Hydrocarbons as Gasoline	5030
Benzene, Toluene, Ethylbenzene, Xylene	8020
Total Petroleum Hydrocarbons as Diesel	3550
Total Oil and Grease	5520F/418.1
Volatile Organics	8240
Semi-volatile Organics	8270
Metals (cadmium, chromium, lead, nickel, zinc)	6000 & 7000

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