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**WORKPLAN
FOR
GROUNDWATER MONITORING WELL INSTALLATIONS AND SAMPLING**

Former Grand Auto Store
2512 70th Avenue
Oakland, Ca 94612

5-28-96

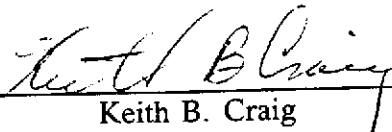
Prepared for:
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1400 North Fourth Street
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AllWest Project No. 96182.23

May 28, 1996

STIP
864

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12/31/97



TABLE OF CONTENTS

I.	INTRODUCTION	Page 1
	A. Background Information	Page 1
II.	PURPOSE AND SCOPE OF WORK	Page 2
III.	FIELD ACTIVITIES	Page 3
	A. Underground Utility Clearance	Page 3
	B. Borehole Installation	Page 3
	C. Soil Sampling	Page 3
	D. Groundwater Monitoring Well Installation	Page 4
	E. Groundwater Sampling Procedures	Page 4
IV.	QUALITY ASSURANCE/QUALITY CONTROL PROGRAM	Page 5
	A. Sample Preservation, Storage and Handling	Page 5
	B. Field Quality Control Samples	Page 5
	C. Chain-of-Custody Program	Page 5
	D. Decontamination Procedures	Page 6
V.	ANALYTICAL METHODS	Page 6
VI.	REPORT PREPARATION	Page 6
	FIGURES	
	Figure 1 Site Regional Map	
	Figure 2 Site Vicinity Map	
	Figure 3 Proposed Monitoring Well Location Map	
	APPENDICES	
	Appendix A - Example of Chain-of-Custody Document	
	Appendix B - Site Specific Health and Safety Plan	



AllWest

**WORKPLAN
FOR
GROUNDWATER MONITORING WELL INSTALLATIONS AND SAMPLING
2512 107th Avenue
Oakland California**

I. INTRODUCTION

This workplan describes a program to construct two groundwater wells and sample them, at the 2512 107th Avenue property in Oakland, California.

Included with this workplan are: 1) background information, 2) scope of proposed work, 3) descriptions of field procedures, sampling protocols, and analytical methods, and 4) project staff. Maps indicating the subject property's regional and vicinity locations, and the proposed area of subsurface investigation are presented in Figures 1 through 3. The Appendices include an example of the chain-of-custody document, and a site specific health and safety plan.

A. Background Information

The subject property is located at 2512 107th Avenue in Oakland, California and was formerly *Grand Auto*. There were formerly five hydraulic hoists and associated piping that were removed in 1993. Hydrocarbon impacted soil was excavated to the maximum depth and lateral extent allowed by a structural engineer. Soil sample analytical results from beneath pit T-3/T-4 indicated that 19,000- to 22,000-parts per million (ppm) of motor oil were present. Groundwater analytical results indicated that 4.8-ppm motor oil hydrocarbons were present. No other hydrocarbon constituents including diesel, benzene, toluene, ethylbenzene, and xylene were detected above their respective laboratory detection limits.

The *Alameda County Health Care Services* agency requested the installation of two groundwater monitoring wells in the hydraulically down-gradient direction from T-3/T-4. Four quarters of groundwater monitoring were additionally requested (See Appendix A). The site regional and vicinity maps are presented on Figures 1 and 2. The proposed groundwater monitoring well locations are presented on Figure 3.

II. PURPOSE AND SCOPE OF WORK

The objective of this work is to monitor the site's groundwater for potential impact by motor oil range hydrocarbon residuals. Monitoring will be conducted on a quarterly basis for at least one year. The scope of work consists of the following tasks:

- 1) *PACCAR, INC.* will retain *AllWest* to prepare a written workplan and a site specific health & safety plan to govern the proposed groundwater monitoring well installation and quarterly sampling activities. All pertinent permits will be obtained by *AllWest* prior to field activities.
- 2) *AllWest* will engage the service of *Underground Service Alert (USA)* to locate and clear underground utilities within the proposed excavation area so that the potential of accidental damage to underground utilities will be reduced.
- 3) *AllWest* will furnish adequate personnel, equipment, material to complete the proposed monitoring well installations, well development and sampling. *AllWest* will provide a site health & safety officer to implement the site specific health & safety plan.
- 4) Advance two borings hydraulically down-gradient from the former pit T/3-T/4 to a depth not to exceed 45-feet and convert the boring into a groundwater monitoring well. Soil samples will be collected every five-feet during drilling and submitted to the laboratory. One borehole will be located in the parking lane on Myers street and the other will be located in the parking area north of the building (See Figure 3). The well casing will be 2-inches in diameter.
- 5) Develop the newly installed monitoring wells and collect groundwater samples from each well for four quarters.
- 6) *AllWest* will collect soil and groundwater samples, maintain all samples under strict chain-of-custody, and transport the samples to a *State of California Department of Health Services (DHS)* certified analytical laboratory for chemical analyses. Groundwater samples will be analyzed for total petroleum hydrocarbons as motor oil (TPH-mo) for the four quarters, one quarter for polynuclear aromatics (PNAs). The purge water and soil drilling cuttings will be analyzed for Reactivity, Corrosivity and Ignitability (RCI), Total Petroleum Hydrocarbons as gasoline and diesel (TPH-g and TPH-d), the volatile organic constituents benzene, toluene, ethylbenzene, and xylene (BTEX), and the LUFT 5 metals for disposal purposes.
- 7) *AllWest* will prepare written quarterly report describing the field activities, summarizing analytical results, and providing opinions regarding the laboratory

results. The written report will be submitted to *PACCAR, INC.* as site closure documentation.

III. FIELD ACTIVITIES

A. Underground Utility Clearance

To avoid damaging underground utility installations during the course of soil excavation, *AllWest* will contact *Underground Service Alert (USA)*, an organization for public utility information, regarding the pending subsurface investigation. *USA* then will notify each of the public and private entities that maintain underground utilities in the drilling area to locate and mark their installations for field identification. A private utility locating company or the site's general contractor may be employed to verify marked utilities and to delineate any unmarked utilities.

B. Borehole Installation

Prior to the commencement of drilling, the *Alameda County Environmental Health Division* will be notified to allow for agency inspection as necessary. The borehole drilling will be performed by *Bay Area Exploration* of Cordelia, California, a drilling contractor with a current C-57 license (#522125). The borings will be drilled with 3.75-inch inside diameter (I.D.) and an 8.0-inch outside diameter hollow stem augers. During the drilling operation, a field geologist from *AllWest* will be present to maintain a boring log. The boring log will contain all pertinent information on drilling and soil conditions. The boring logs will be included in the final written report. A copy of the field boring log to be used, the boring log legend, and the Unified Soil Classification System (USCS) is included in Appendix A.

C. Soil Sampling

Soil samples will be collected every five-feet of drilling. A two-inch diameter California Modified Split Spoon Sampler will be utilized for the collection of soil samples. *AllWest* will collect the soil samples in precleaned 2-inch diameter by 6-inch long brass liners. The brass liners will be carefully removed and the soil will be examined and logged. Selected soil samples will be field screened by a Organic Vapor Meter (OVM). The liners, acting as the soil sample containers, will be capped at both ends with Teflon sheets and plastic end caps, sealed with inert silicon tapes, labeled, and field stored in an ice chest chilled to 4°C with crushed ice.

At the conclusion of the soil sampling program, all soil samples will be transported to a state certified analytical laboratory for chemical analyses. Strict chain-of-custody protocols will be followed from sample collection to laboratory delivery.

D. Groundwater Monitoring Well Installation

A groundwater monitoring well will be installed in the borehole after the designated termination depth is reached. The well will be installed through the center of the hollow stem auger. The auger will be removed after the well casing and filter pack is placed. Both blank (non-perforated well casing pipe) and slotted (0.020 factory cut slots) well casing composed of 2-inch diameter schedule-40 PVC pipes will be employed. The screen casing section will extend approximately 10-feet below and 5-feet above the groundwater table. The blank section will complete the well casing to the ground surface.

The filter pack surrounding the well screen will be pre-washed #3 Monterey sand placed from the bottom of the well up to two-feet above the screen section. A one-foot thick bentonite seal will be placed above the filter pack to prevent surface water pinfiltration. The remaining length of the annular borehole space will be backfilled with neat cement grout up to two-feet below the ground surface. The uppermost two feet of the well casing will be protected by a traffic-rated Christy box set in concrete. A water-tight locking end-cap will be placed on top of the well casing to prevent surface water intrusion and unauthorized access. A diagram of typical groundwater monitoring well construction is included in Appendix A.

E. Groundwater Sampling Procedures

Each newly installed groundwater monitoring well will be developed at least 72-hours after the well installation to allow stabilization of the subsurface conditions. The well will be developed with the combination of surging and pumping. The physical characteristics of the groundwater, such as pH, temperature, and conductivity, will be monitored during well development. Well development will be considered complete when the groundwater is relatively sediment-free, at least ten well casing volumes have been extracted and groundwater characteristic indicators have stabilized.

Groundwater will be sampled from the developed wells after a proper purging process. The purpose of well purging is to remove stymied water from the well casing and to allow representative aquifer water to recharge the well. Prior to well purging, an electric water level sounder will be lowered into the well casing to measure the depth to the water to the nearest 0.01 feet. A clear teflon bailer will be lowered into the well casing and partially submerged. Upon retrieval of the clear bailer, the surface of the water column retained in the bailer will be carefully examined for any floating product or product sheen.

After all initial measurements are completed and recorded, the well will be purged by a decontaminated electrical submersible pump. A minimum of three-well casing volumes will be purged and groundwater characteristics (temperature, pH, and conductivity) will be monitored. Purging is considered complete when indicators are

stabilized (consecutive readings within 10% of each other) and the purged water is relatively free of sediments. All purged water will be temporarily stored on-site in 55-gallon drums awaiting test results to determine the proper disposal method.

Groundwater sampling will be conducted after the water level has recovered to at least 80% of the initial level, recorded prior to purging. The groundwater sample will be collected by a disposable bailer. Upon retrieval of the bailer, the retained water will be carefully transferred to appropriate containers furnished by the analytical laboratory. All sample containers will have a teflon lined septum/cap and be filled such that no headspace was present. The container will be labeled and immediately placed on ice to preserve the chemical characteristics of its content.

IV. QUALITY ASSURANCE / QUALITY CONTROL PROGRAM

A. Sample Preservation, Storage and Handling

To prevent the loss of constituents of interest, all samples will be preserved by storing them in an ice chest cooled to 4°C with crushed ice immediately after collection and during transportation to the laboratory. Strict chain-of-custody protocols will be followed through all stages of sample handling.

B. Field Quality Control Samples

To detect the occurrence of cross-contamination during sampling and to reduce the probability of false-positive results, a travel blank will be included with each shipment of samples sent to the laboratory. The travel blank is prepared by the analytical laboratory, consists of deionized laboratory water, and has traveled with the bottles from the laboratory to the field and back to the laboratory. The travel blank will be analyzed when cross-contamination is suspected.

A duplicate water sample will be collected from one of the monitoring wells. The sample will be submitted to the laboratory under blind conditions. The duplicate sample will only be analyzed if cross contamination or laboratory error is suspected.

C. Chain-Of-Custody Program

All samples collected for this project will be transported under strict chain-of-custody protocol. The chain-of-custody program allows for the tracing of the possession and handling of individual samples from the time of field collection until the laboratory receives the samples. The document includes the collector's signature, date and time of collection, sample number, number and type of sample containers including preservatives, parameters requested for analyses, signatures of persons and inclusive dates involved in the chain of possession. Upon delivery to the laboratory the document will also include the name of person receiving the samples, and date and

time samples were received. A sample copy of the chain-of-custody form is included in Appendix A.

D. Decontamination Procedures

To prevent cross contamination, all soil and groundwater sampling equipment that comes in contact with soil and/or groundwater will be thoroughly decontaminated prior to sampling. All brass liners are new and will be pre-cleaned prior to sampling. A factory wrapped disposable bailer will be used to collect the groundwater sample.

Decontamination of sampling equipment will be conducted utilizing an Alconox (or other phosphate-free detergent) solution and double rinsed with deionized water prior to usage.

V. ANALYTICAL METHODS

All samples collected during this investigation will be forwarded to a *California Department of Health Services (DHS)* certified independent analytical laboratory for chemical analyses. Groundwater samples will be analyzed for total petroleum hydrocarbons as motor oil (TPH-mo) by modified EPA method 8015 for each quarter and polynuclear aromatics by EPA method 8010 annually.

Dependent on the TSD facility, analyses for profile samples may include volatile organic compounds benzene, toluene, ethyl-benzene, and xylenes (BTEX) by EPA method 8020, the LUFT 5-metals by EPA method 6010/7000, total petroleum hydrocarbons as gasoline and diesel (TPH-g and TPH-d) by EPA method 8015, and reactivity, corrosivity, and ignitability (RCI).

VI. REPORT PREPARATION

A written report documenting well installation and quarterly groundwater monitoring program will be prepared by *AllWest* at the completion of the work. The report will contain descriptions of field activities, summary of laboratory results, and conclusions on the effectiveness of soil excavation. Also included in the report will be chain-of-custody documents and copies of the analytical laboratory reports. The report will be prepared and reviewed by a California registered civil engineer or geologist.

FIGURES



May
1996

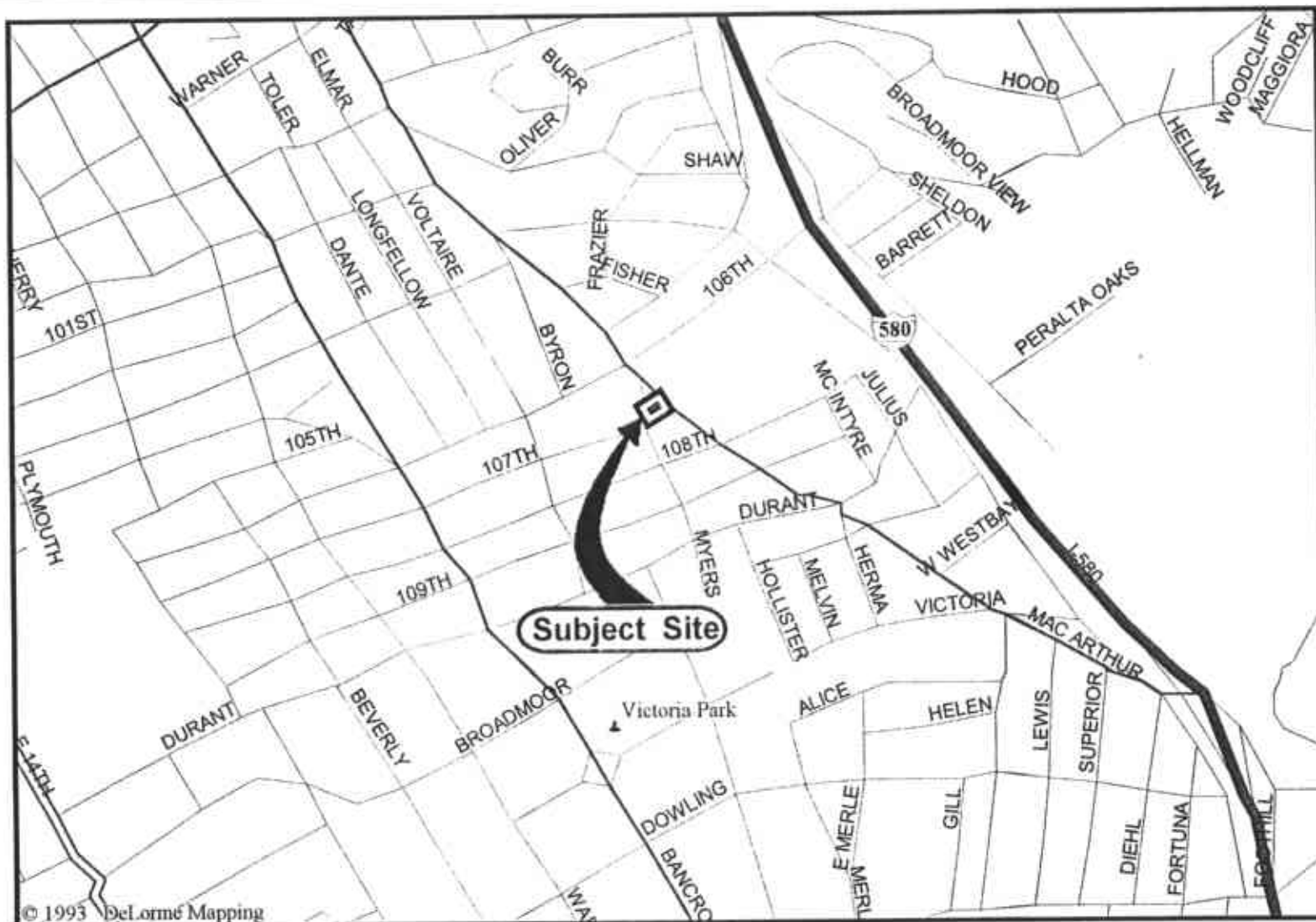
**Subject Site
Regional
Map**

Project
96182.23

Figure
1

2512 107th Avenue
Oakland, California

Source
DeLorme



© 1993 DeLorme Mapping



May
1996

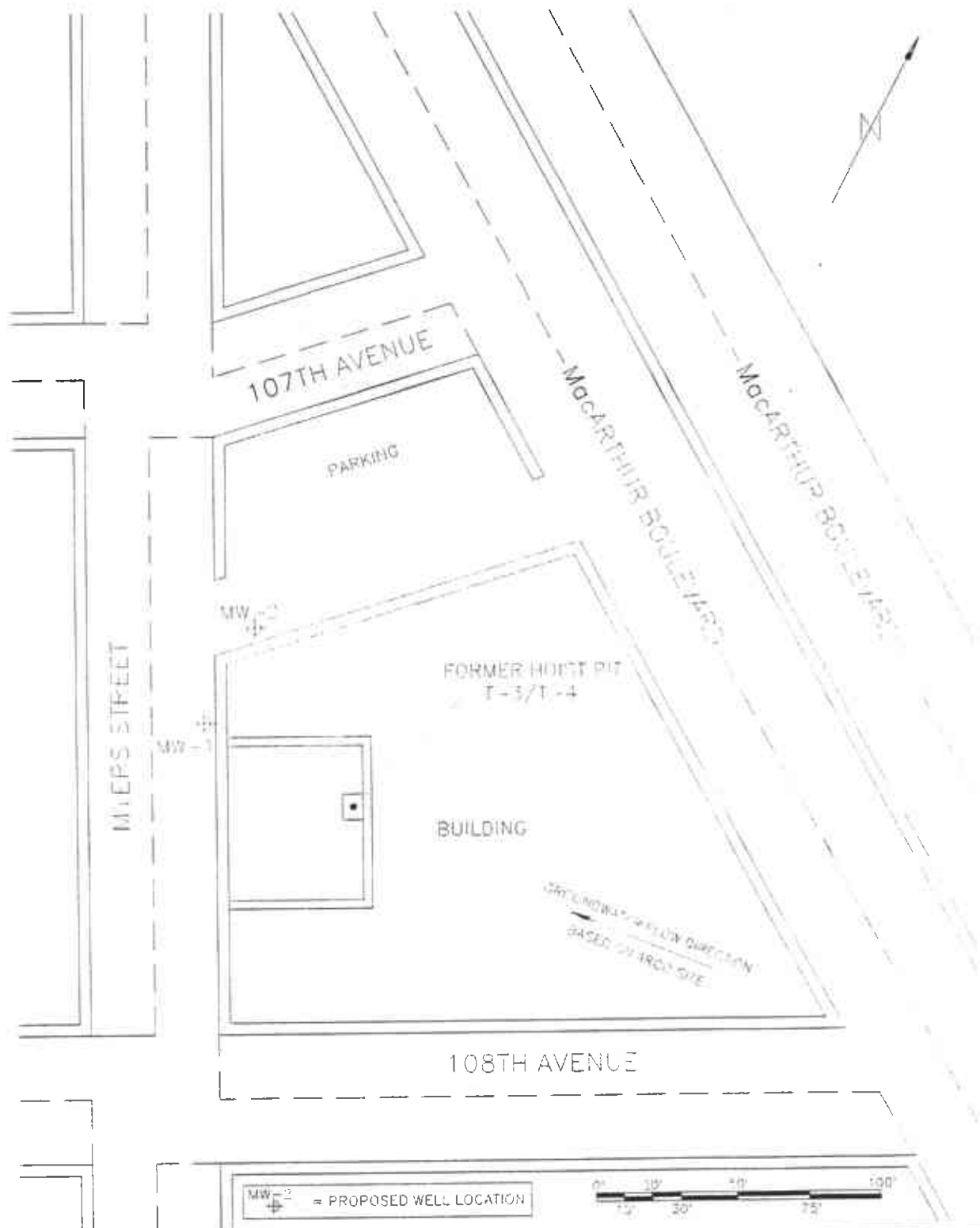
**Subject Site
Vicinity
Map**

Project No.
96182.23

Figure
2

2512 107th Avenue
Oakland, California

Scale
1" = 1300'



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1996

**Proposed
Well
Locations**

Project
96182.23

Figure
3

2512 107th Avenue
Oakland, California

Source
AllWest



APPENDIX A



AllWest

AllWest Environmental, Inc.
Environmental Project and
Regulatory and Remediation Services
1500 Water Street, Suite 600
San Francisco, CA 94116
Tel: 415 391 2510
Fax: 415 391 2516

CLIENT JOB NUMBER

DESTINATION LABORATORY

PRESERVATIVES

ANALYSIS REQUESTED

FIELD CONDITIONS

COMPOSITE:

SPECIAL INSTRUCTIONS:

TURN AROUND TIME NOTE / FIELD READINGS

24 HOURS
48 HOURS
1 WEEK
2 WEEKS

Job Name:
Location:
Contact:

DATE TIME SAMPLE IDENTIFICATION METHOD MATRIX CONTAINER NO. TYPE

Table with columns for DATE, TIME, SAMPLE IDENTIFICATION, METHOD, MATRIX, CONTAINER NO., and TYPE. The table contains multiple empty rows for data entry.

ANALYZED CONSTITUENTS SAMPLE RETENTION TIME PRESERVATIVES (1) HCL (2) HNO3 (3) = COLD (4)

PREPARED BY (SIGN) PRINT NAME/COMPANY DATE RECEIVED BY (SIGN) PRINT NAME/COMPANY

SHIPMENT DATE TIME CONDITIONS COMMENTS SHIPPED VIA FLD X UFS OTHER AIR BILL



AllWest

West Environmental, Inc.

Log of Boring:

Project Name:

Project Number:

Drilling Date:

Drilling Contractor:

Drill Rig:

Auger:

Sampler:

Hammer:

Logged By:

Blow Count	OVM Reading	Sample Interval	Depth in Feet	Well Profile	USCS Code	Soil Description
			1 -			
			2 -			
			3 -			
			4 -			
			5 -			
			6 -			
			7 -			
			8 -			
			9 -			
			10 -			
			11 -			
			12 -			
			13 -			
			14 -			
			15 -			
			16 -			
			17 -			
			18 -			
			19 -			
			20 -			
			21 -			

Notes:

Drawn By:
MJ Cunningham
Reviewed By:
L Ching

APPENDIX B



AllWest Environmental, Inc.

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Diligence and Remedial Services

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SITE SPECIFIC HEALTH AND SAFETY PLAN
GROUNDWATER MONITORING WELL INSTALLATION AND SAMPLING


Former *Grand Auto* Store
2512 70th Avenue
Oakland, California

Prepared For:
PACCAR AUTOMOTIVE, INC.
c/o Mr. Raymond Elliot, REA, CHHM
1400 North Fourth Street
Renton, Washington 98055

ALLWEST PROJECT NO. 96182.23

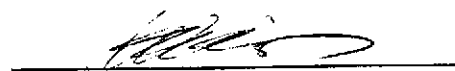
May 28, 1996

Prepared by:



Keith B. Craig
AllWest Project Manager

Approved by:



Long Ching
Health & Safety Manager



TABLE OF CONTENTS

I.	ENTRY OBJECTIVES	Page 1
II.	ON-SITE ORGANIZATION AND COORDINATION	Page 1
III.	SITE BACKGROUND	Page 1
IV.	HAZARDS	Page 2
V.	PERSONAL PROTECTION	Page 3
VI.	DECONTAMINATION PROCEDURES	Page 3
VII.	CHEMICAL OF CONCERN	Page 4
VIII.	MSDS INFORMATION	Page 5
IX.	GENERAL PROJECT SAFETY REQUIREMENTS	Page 5
X.	MEDICAL SURVEILLANCE	Page 7
XI.	SAFETY AND ORIENTATION MEETING	Page 7
XII.	WORK ZONES AND SECURITY MEASURES	Page 8
XIII.	TRAFFIC CONTROL	Page 8
XIV.	PROJECT PERSONNEL	Page 8
XV.	AMENDMENTS	Page 10
XVI.	EMERGENCY RESPONSE PROCEDURES	Page 10
XVII.	LIMITATIONS AND AUTHORITY STATEMENT	Page 11

TABLES, FIGURES AND ATTACHMENTS

Table 1 - Definition of Hazard Evaluation Guidelines

Figure 1 - Medical Emergency Facility Route Map

Attachment A - Agreement and Acknowledgement Statement Form
Attachment B - Site Health & Safety Plan Amendment Sheet



SITE SPECIFIC HEALTH & SAFETY PLAN

GROUNDWATER MONITORING WELL INSTALLATIONS AND SAMPLING

2512 107th Avenue
Oakland, California

I. ENTRY OBJECTIVES

AllWest and its subcontractors plan to construct, develop and monitor two groundwater monitoring wells at the former Grand Auto Store (subject property) located at 2512 107th Street in Oakland, California. AllWest will be on site to direct the overall project, collect soil and groundwater samples and observe field activities. Other subcontractors will be on site to perform soil utility clearance, drilling, and well construction.

II. ON-SITE ORGANIZATION AND COORDINATION

The following personnel are designated to carry out the job function(s):

Project Manager	AllWest
Health & Safety Manager	AllWest
Site Safety Officer	AllWest
Environmental Consultant	AllWest
Drilling Contractor	Bay Area Exploration, Inc.
Utility Contractor	California Utility Survey

Other personnel scheduled to be on site:

Owner's Representative

All personnel arriving/departing the site must notify the Project Manager and the site superintendent or foreman.

III. SITE BACKGROUND

Site Status: Active Inactive Unknown

Site Description:

The former Grand Auto store is currently vacant. Grand Auto utilized the building for the sale of retail automotive products and the repair of vehicles. The subject property is located south of the intersection of 107th Avenue and Myers Street at 2512 107th Avenue in Oakland, California.

There were formerly five hydraulic hoists and associated piping that were removed in 1993. Hydrocarbon impacted soil was excavated to the maximum depth and lateral extent allowed by a structural engineer. Soil sample analytical results from beneath pit T-3/T-4 indicated that 19,000- to 22,000-parts per million (ppm) of motor oil were present. Groundwater analytical results indicated that 4.8-ppm motor oil range hydrocarbons were present. No other hydrocarbon constituents including diesel, benzene, toluene, ethylbenzene, and xylene were detected above their respective laboratory detection limits.

The *Alameda County Health Care Services* agency requested the installation of two groundwater monitoring wells in the hydraulically down-gradient direction from T-3/T-4. Four quarters of groundwater monitoring were additionally requested. Concentrations of Total Petroleum Hydrocarbons as diesel (TPH-d) was reported as 1,300 parts per million (ppm) in the area of the proposed site excavation.

Waste Types: Liquid Solid Sludge Gas None

Waste Characteristics: Corrosive Flammable Inert
 Volatile Reactive Toxic
 Radioactive Irritant Other

Waste Categories: Wastes that may be encountered during the proposed work are soil containing petroleum hydrocarbons (motor oil).

IV. HAZARDS

Hazards Rating: High Moderate Low Unknown

Chemical Hazards/Toxic Substances Likely To Be Encountered: Chemical hazards likely to be encountered on site are limited to soil contaminated with petroleum hydrocarbons (Motor Oil). Observe the necessary precautions while handling this material.

Reactivity, Stability, Flammability Of Substance(s) Exist On Site: Information indicate that soil at the site may contain petroleum hydrocarbons from subsurface leaking of hydraulic hoists. The most likely type of petroleum hydrocarbons is motor oil. Soil and water contaminated with this type of material has a low potential to be

flammable and irritable. Refer to Table 1, Definition of Hazard Evaluation Guidelines and MSDS sheets for additional information.

Physical Hazards Likely To Be Encountered: Physical hazards likely to be encountered on site includes: falling objects, moving machinery and tripping. Observe site safety procedures while on site.

Area Affected: All of the work areas included in this groundwater monitoring well installation program are likely to be impacted by both chemical and physical hazards.

Weather Conditions Anticipated: Possible adverse weather conditions to be anticipated on site are low to high temperatures, strong winds, and a strong possibility of rain. The work areas are exposed and may be affected by adverse weather conditions.

V. PERSONAL PROTECTION

The level of personal protection designated here should be considered the minimal acceptable level. Project personnel may elect to upgrade the level of protection at their discretion.

Level of Protection Required: A B C D (Minimum)

Level D protection includes hard hats, safety glasses, and steel toed boots.

Personal Protective Equipment: A minimum of Level D protection will be required on site for all personnel. Safety glasses, hearing protection, and neoprene gloves will be worn if conditions warrant them. The presence of volatile organic compounds will be monitored with an Organic Vapor Meter (OVM). Should the level of volatile hydrocarbons present in the breathing zone increase to 5 ppm, Level C protection will be required. Level C protection includes PVC boots, a tyvek suit, an air purifying respirator with combination cartridges (volatile hydrocarbons and particulates), and protective gloves in addition to the Level D protection.

Equipment: Health and Safety related equipment to be used on site includes: two 20 BC type Fire Extinguishers, one Organic Vapor Meter (OVM), and one First Aid Kit. The equipment will be provided by the CONTRACTOR.

VI. DECONTAMINATION PROCEDURES

All operations conducted at this site have the potential to contaminate monitoring equipment and personal protective equipment (PPE). To prevent the transfer of

contamination to vehicles, administrative areas and personnel, the following procedures must be followed:

- **Equipment Decontamination**

Whenever possible, equipment should be decontaminated with a solution of Alconox or soap and thoroughly rinsed with water prior to leaving the site. This must be done within the designated decontamination area outside of the level D exclusion zone.

- **Personal Decontamination**

Level D

Segregated equipment drop

Wash/rinse outer boot (as appropriate)

Wash/rinse chemical resistant outer glove, then remove (as appropriate)

Remove hard hat, goggles/safety glasses/face shield

Remove and throw out inner disposable gloves in designated lined receptacles (as appropriate)

Level C

Segregated equipment drop

Wash/rinse outer boots

Wash/rinse chemical resistant outer gloves, then remove

Remove outer boots and place to dry (if reusable)

Remove chemical resistant suit (remove by rolling down the suit)

Remove first pair(s) of disposable gloves

Remove respirator/hard hat/face shield dispose of cartridges and wash respirator

Remove last pair of disposable gloves

Level A and B work will not be permitted on-site.

VII. CHEMICAL OF CONCERN

Potential health effects from a chemical exposure are dependant on several exposure factors such as: toxicity of substances, duration of exposure, concentration during exposure and the overall health of the person exposed.

The hazardous chemicals encountered during this investigation are anticipated to be: medium boiling point petroleum hydrocarbons (motor oil). The following is a health analysis of the chemical.

- Motor Oil

Exposure to motor oil is usually via skin contact or by ingestion. Motor oil is not readily absorbed into the body through skin contact but is readily absorbed by ingestion. Exposure to motor oil may result in skin rash, dizziness, flushing of the face, drowsiness, incoordination, abnormal gait, tremor, confusion, respiratory depression, and cardiac arrhythmias. Long-term high level exposure to diesel may lead to liver and kidney damage.

VIII. MSDS INFORMATION

Material Safety Data Sheets (MSDS) on chemical substances encountered at the site shall be made available to all persons (including subcontractors) working at the site. For emergency situation not specifically addressed by this site safety plan refer to MSDS recommendations for action information.

IX. GENERAL PROJECT SAFETY REQUIREMENTS

Project activities will be conducted in accordance with the following minimum safety requirements:

Eating, drinking, and smoking will be restricted to designated areas.

Gross decontamination and removal of all personal protective equipment will be performed prior to leaving the site within the designated areas. Contaminated clothing will be removed and collected in a drum for disposal.

Shaking or blowing of potentially contaminated clothing or equipment to remove dust or other materials is not permitted.

The Site Safety Officer will be responsible for taking necessary steps to protect employees from physical hazards, including

- Falling objects, such as tools or equipment.
- Falls from elevations.
- Tripping over hoses, pipes, tools, or equipment.
- Slipping on wet or oily surfaces.
- Insufficient or faulty protective equipment.
- Insufficient or faulty equipment or tools.
- Collapsing sidewalls of excavation
- Rupturing of existing active pipelines

All personnel will be required to wash their hands and faces before eating, drinking or smoking.

Field operations personnel will be cautioned to inform each other of the non-visual effects of the presence of toxics, such as,

- Headaches
- Dizziness
- Nausea
- Blurred vision
- Cramps
- Irritation of eyes, skin, or respiratory tract
- Changes in complexion or skin discoloration
- Changes in apparent motor coordination
- Changes in personality or demeanor
- Excessive salivation or changes in pupillary response
- Changes in speech ability or pattern

Exposure To Cold Stress: Work schedules will be adjusted to provide sufficient rest periods in a heated area for warming up during operations conducted in cold weather. Also thermal protective clothing such as wind and/or moisture resistant outer wear is recommended to be worn. Dehydration, or the loss of body fluids, occurs in a cold environment and may increase the susceptibility of the worker to cold injury due to a significant change in blood flow to the extremities. Warm sweet drinks and soups should be provided at the work site to provide caloric intake and fluid volume. The intake of coffee should be limited (Adopted from TLV's and Biological Exposures Indices 1988-1989; ACGIH)

Exposure to Hot Temperature: Heatstroke and heat exhaustion can occur when a person is working in a hot environment, sitting in a hot automobile, or over-exerting while performing field duties such as monitoring or surveying. Work schedules will be adjusted to provide sufficient rest periods in a shaded area for cooling purposes. Avoiding direct sunlight will not necessarily protect a person from the ill effects of heat. It is possible to suffer heatstroke even when the temperature is fairly low. Excessive humidity can induce over-heating by interfering with the perspiration evaporation-cooling process of the body, causing excessive sweating and the loss of salt and water.

Heat Exhaustion

The signs and symptoms of heat stroke or heat exhaustion are variable with the developing condition. Headache, a light to severe dizziness, some mental confusion or loss of physical coordination; and pale, sweaty skin are all symptoms of heat exhaustion. To care for a person who has suffered heat exhaustion, move them to a cool place and keep them at rest. Fan the patient's body to expedite the cooling process, and watch for the signs of

shock. If the patient becomes unconscious, or fails to recover rapidly, alert the local emergency medical service (EMS).

Heat Stroke (a.k.a. "Sunstroke")

Heat stroke is a much more serious condition than heat exhaustion. The temperature of the body can rise to such a point that the victim's brain cells will start to die. The EMS system must be notified immediately upon determination that heat stroke has or is occurring. Symptoms of heatstroke are dry, hot skin, deep breaths followed by shallow breathing, dilated (large) pupils, loss of consciousness, and convulsions or twitching of the muscles. Care for the patient includes cooling the body as quickly as possible, in any manner possible. Removing the clothing and placing wetted towels or sheets over the patient will help cool the body down. If available, ice packs can be placed in strategic locations on the body, such as under the armpits, on the ankles, or resting on the neck, in order to speed the cooling. Remember that the EMS system must be alerted immediately upon the determination that heat stroke is occurring or has occurred.

Replacement of the electrolytes lost during sweating is very important. Copious amounts of liquids must be consumed to replace these and balance out the blood. Quikkick, Squincher, or Gatoraide are three examples of beverages that will allow the electrolyte balance to be restored. Many contractors will have drinks of this type available for their personnel, and the employees performing the work should be encouraged to drink as often as possible, even when they are not thirsty. Make sure that the proper drinks are specified. The choice of on-the-job clothing is very important. Cotton is a very good choice for hot summer weather. When working in Personal Protective Equipment such as Tyvek suits, it is essential to strip down as far as possible.

Careful monitoring of the employees engaged in demanding work during hot, humid days is a must to guard against the dangers of heat exhaustion and heat stroke, but as an employee of AllWest, you need to *protect yourself first* from the dangers of overheating in the field. Know the warning signs and first aid necessary to prevent heat stroke and heat exhaustion.

X. MEDICAL SURVEILLANCE

AllWest and their subcontractors engaged in project activities must be participants in a medical surveillance program and must be cleared by the examining physician(s) to wear respiratory protection devices and protective clothing for working with hazardous materials. The applicable requirements under 29 CFR 1910.120 of the Federal Administrative Code will also be observed.

XI. SAFETY AND ORIENTATION MEETING

Field personnel from AllWest and its subcontractors will attend a project-specific orientation meeting for safety issues and review the project tasks before beginning work. The meeting will be led by the site safety officer. In addition, fit-testing of respiratory protective devices will be conducted as part of the safety orientation meeting when the use of a respirator may be required.

XII. WORK ZONES AND SECURITY MEASURES

The area where active excavation work is being performed will be designated as an Exclusion Zone. Only essential personnel will be allowed into an Exclusion Zone. When it is practical and local topography allows, approximately 20 to 75 feet of space surrounding the Exclusion Zone will be designated as a Contamination Reduction Zone.

XIII. TRAFFIC CONTROL

Bay Area Exploration, Inc. is responsible for providing necessary traffic controls if required. Cones, wooden barricades, or a suitable alternative will be used to deny the public access to the Contamination Reduction Zone. If for any reason the safety of a member of the public (e.g., motorist or pedestrian) may be endangered, work will cease until the situation is remedied. Cones and warning signs will be used when necessary to redirect motorists or pedestrians.

XIV. PROJECT PERSONNEL

AllWest personnel will oversee and act accordingly during all phases of the project. The following management structure will be instituted for the purpose of successfully and safely completing this project.

Project Manager

The Project Manager will be responsible for implementing the project and obtaining any necessary personnel or resources for the completion of the project. Specific duties will include:

Coordinating the activities of CONTRACTOR and all subcontractors, to include informing them of the required personal protective equipment and insuring their signature acknowledging this Site Health and Safety Plan (Attachment A);

Selecting a Site Safety Officer and field personnel for the work to be undertaken on site;

Ensuring that the tasks assigned are being completed as planned and on schedule;

Providing authority and resources to ensure that the Site Safety Officer is able to implement and manage safety procedures;

Preparing reports and recommendations about the project to clients and affected AllWest Environmental, Inc. personnel;

Ensuring that persons allowed to enter the site (i.e., EPA, contractors, state officials, visitors) are made aware of the potential hazards associated with the substances known or suspected to be on site, and are knowledgeable as to the on-site copy of the specific site health & safety plan;

Ensuring that the Site Safety Officer is aware of all of the provisions of this site safety plan and is instructing all personnel on site about the safety practices and emergency procedures defined in the plan; and

Ensuring that the Site Safety Officer is making an effort to monitor site safety, and has designated a Field Team Leader to assist with the responsibility when necessary.

Health & Safety Manager

The Health & Safety Manager shall be responsible for the overall coordination and oversight of the site health and safety plan. Specific duties will include:

Approving the selection of the types of personal protective equipment (PPE) to be used on site of specific tasks;

Monitoring the compliance activities and the documentation processes undertaken by the Site Safety Officer;

Evaluating weather and chemical hazard information and making recommendations to the Project Manager about any modifications to work plans or personal protection levels in order to maintain safety;

Coordinate upgrading or downgrading PPE with Site Safety Officer, as necessary, due to changes in exposure levels, monitoring results, weather, other site conditions;

Approving all field personnel working on site, taking into consideration their level of safety training, their physical capacity, and their eligibility to wear the protective equipment necessary for their assigned tasks (i.e., Respirator Fit Testing Results); and

Overseeing the air monitoring procedures as they are carried out by site personnel for compliance with all company health and safety policies.

Site Safety Officer

The Site safety Officer shall be responsible for the implementation of the site safety plan on site. Specific duties will include:

Monitoring the compliance of field personnel for the routine and proper use of the PPE that has been designated for each task;

Routinely inspecting PPE and clothing to ensure that it is in good condition and is being stored and maintained properly;

Stopping work on the site or changing work assignments or procedures if any operation threatens the health and safety of workers or public;

Monitoring personnel who enter and exit the site and all controlled access points;

Reporting any signs of fatigue, work-related stress, or chemical exposures to the Project Manager and/or Health & Safety Manager;

Dismissing field personnel from the site if their actions or negligence endangers themselves, co-workers, or the public, and reporting the same to the Project Manager and/or Health & Safety Manager;

Reporting any accidents or violations of the site safety plan to the Project Manager and/or Health & Safety Manager, and documenting the same for the project in the project records;

Knowing emergency procedures, evacuation routes and the telephone numbers of the ambulance, local hospital, poison control center, fire and police departments;

Ensuring that all project-related personnel have signed the personnel agreement and acknowledgment form contained in this Site Health & Safety Plan;

Coordinate upgrading and downgrading PPE with the Health & Safety Manager, as necessary, due to changes in exposure levels, monitoring results, weather, and other site conditions; and

Perform air monitoring with approved instruments in accordance with requirements stated in this Site Health & Safety Plan.

XV. AMENDMENTS

Any changes in the scope of work of this project and/or site conditions must be amended in writing on the Site Health and Safety Plan Amendment Sheet (Attachment B) and approved by the Health and Safety Manager.

XVI. EMERGENCY RESPONSE PROCEDURES

In the event of an accident resulting in physical injury, first aid will be administered and the injured worker will be transported to the nearest hospital or emergency medical clinic for emergency treatment. A physician's attention is required regardless of the severity of the injury. Figure 1A contains the map showing the nearest medical emergency facility and the most direct route to the facility.

In the event of a fire explosion, or property damage, AllWest will be immediately notified. If necessary, local fire or response agencies will be called.

All subcontractors shall develop a contingency plan which address procedures to be followed in the event of fire, personal accidents and explosions which may result in environmental contamination. The plan shall be reviewed and approved by AllWest before work commences.

EMERGENCY TELEPHONE NUMBERS

Fire and Police:	911
Ambulance:	911
Bay Area Exploration, Inc.:	(707) 864-2131 Office
AllWest:	(415) 391-2510 and (415) 407-1476 mobile phone
Underground Service Alert (USA):	800-422-4133
CHEMTREC:	800-424-9300

Note: Only call CHEMTREC in an emergency. CHEMTREC is an Acronym for Chemical Transportation Emergency Center, a public service of the Chemical Manufacture's Association. CHEMTREC can usually provide hazard information warnings and guidance when given the identification number of the name of the product and the nature of the problem. CHEMTREC can also contact the appropriate experts.

MEDICAL:

Physician's Community Hospital
2800 Benedict Drive
San Leandro, California
(510) 357-8300 or 911

XVII. LIMITATIONS AND AUTHORITY STATEMENT

AllWest does not guarantee the health or safety of any persons entering this site. Due to the potential hazards of this site and the activity occurring thereon, it is not possible to discover, evaluate, and provide protection for all possible hazards which may be encountered. Strict adherence to the HEALTH & SAFETY guidelines set forth herein will reduce, but not eliminate, the potential for injury at this site. The HEALTH & SAFETY guidelines in this plan were prepared specifically for this site and should not be used on any other site without prior research and evaluation by personnel trained in HEALTH & SAFETY practices. AllWest's Project Manager will be responsible for implementing this plan. Both the Project Manager and the Health & Safety Manager of AllWest have the authority to audit site activities for compliance with this plan and may suspend, modify or halt contractors' work practices should they not meet the requirements specific to this plan.

KBC114: 96182-23.HSP

TABLE 1
DEFINITION OF HAZARD EVALUATION GUIDELINES

HAZARD: Airborne Contaminants

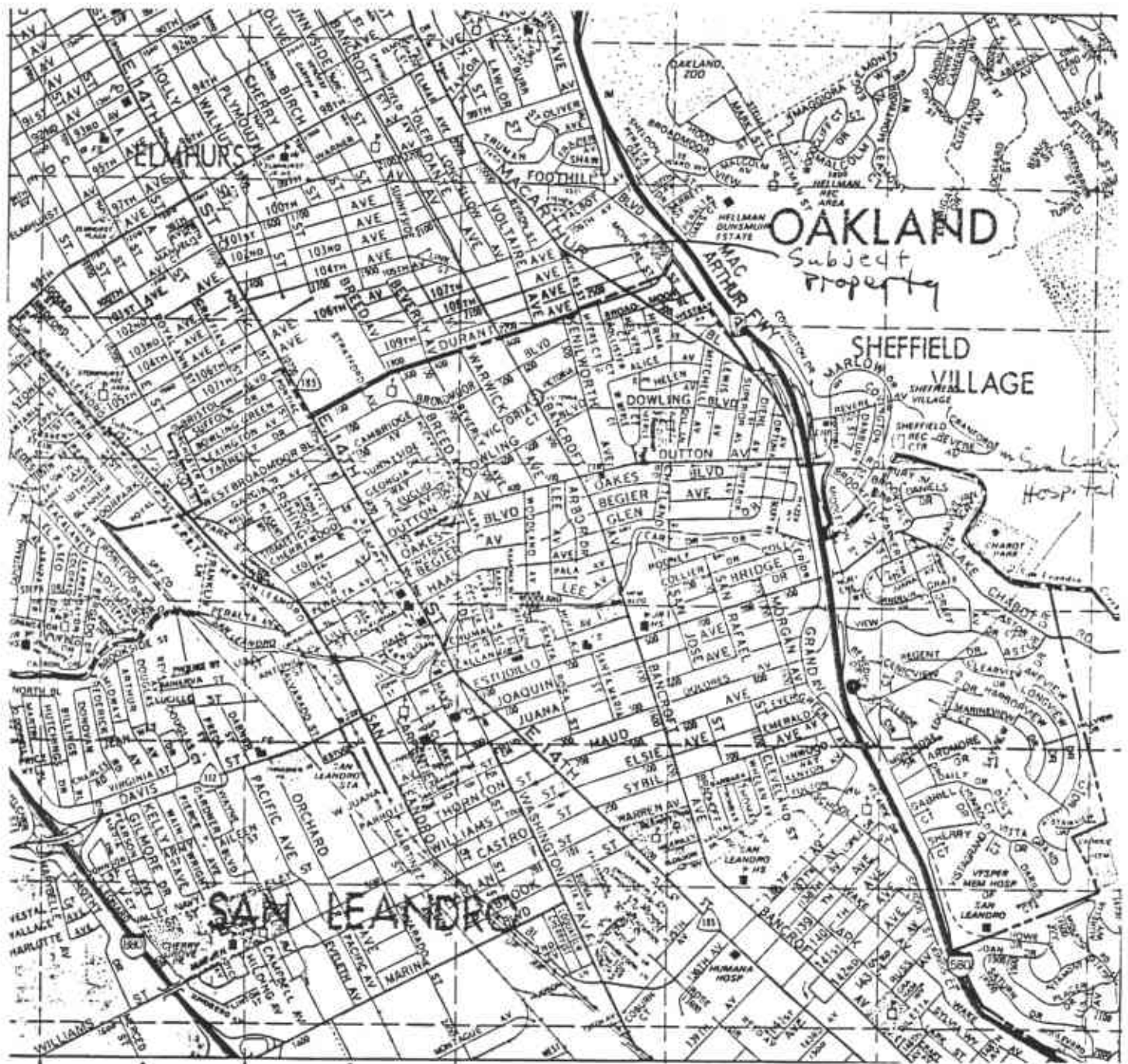
<u>Guideline</u>	<u>Explanation</u>
Threshold Limit Value Time-Weighted Average (TLV-TWA)	The time-weighted average concentration for a normal 8-hour work day and a 40-hour work week, to which nearly all workers may be repeatedly exposed without adverse effect.
Permissible Exposure Limit (PEL)	Time-weighted average concentrations similar to (and in many cases derived from) the Threshold Limit Values >
Immediately Dangerous to Life and Health (IDLH)	"IDLH" or "immediately dangerous to life or health" means any atmospheric condition that poses an immediate threat to life, or which is likely to result in acute or immediate severe health effects. This includes oxygen deficiency conditions.

HAZARD: Explosion

<u>Guideline</u>	<u>Explanation</u>
Lower Explosive Limit (LEL)	The minimum concentration of vapor in air below which propagation of a flame will not occur in the presence of an ignition source.
Upper Explosive Limit (UEL)	The maximum concentration of vapor in air above which propagation of a flame will not occur in the presence of an ignition source.

HAZARD: Fire

<u>Guideline</u>	<u>Explanation</u>
Flash Point (flash pt.)	The lowest temperature at which the vapor of a combustible liquid can be made to ignite momentarily in air.



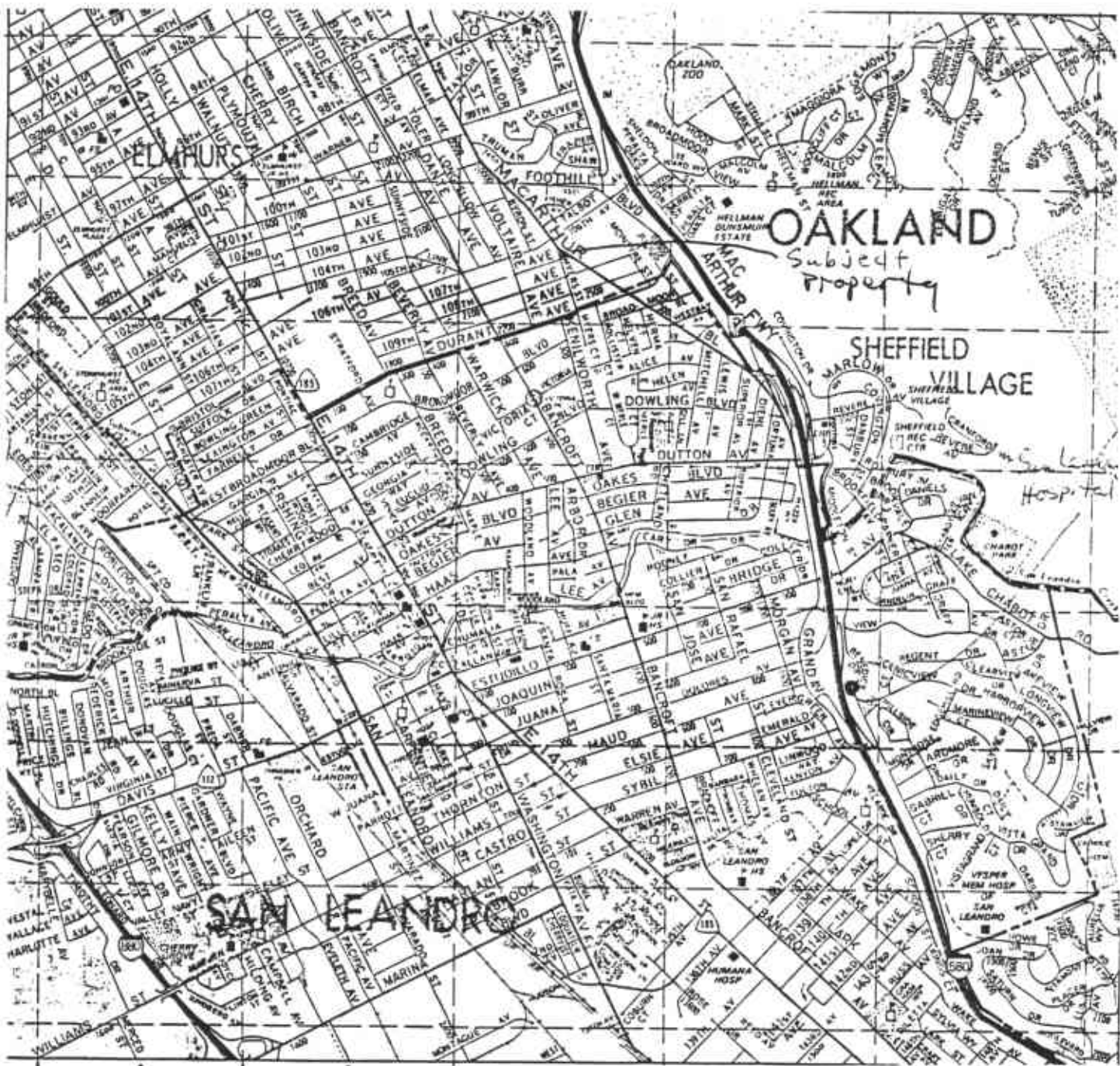
OAKLAND

Subject Property

SHEFFIELD VILLAGE

SAN LEANDRO

Hospital



ATTACHMENT A

AGREEMENT AND ACKNOWLEDGEMENT STATEMENT

Site Health and Safety Plan Agreement

AllWest personnel have the authority to stop work performed by all subcontractors at this site if any work is not performed in accordance with the requirements of this Site Health and Safety Plan.

AllWest's project personnel and subcontractor personnel are required to sign the following agreement prior to conducting work at the site.

1. I have read and fully understand the Site Health and Safety Plan and my individual responsibilities.
2. I agree to abide by the provisions of the Site Safety Plan.

Name

Signature

Company

Date

Name

Signature

Company

Date

Name

Signature

Company

Date

Name

Signature

Company

Date

ATTACHMENT B

SITE SAFETY PLAN AMENDMENT SHEET

Project Name: _____

Project Number: _____

Location: _____

Changes in field activities or hazards:

Proposed Amendment:

Proposed by: _____

Date: _____

Approved by: _____

Date: _____

Project Manager

Date: _____

Health & Safety Manager

Declined by: _____

Date: _____

Amendment Number: _____

Amendment Effective Date: _____