ALISTO ENGINEERING GROUP

ALCO
HAZMAT
93 NOV 23 AM 9:06

November 19, 1993

Mr. Scott Seery
Alameda County
Health Care Services Agency
80 Swan Way, Room 200
Oakland California 94621

10-190-01-001

Subject: Work Plan for Preliminary Site Investigation
Former Mobil Oil Station 04-FGN
14994 East 14th Street
San Leandro, California

Dear Mr. Seery:

On behalf of Mobil Oil Corporation, enclosed is the work plan to conduct a preliminary site investigation at former Mobil Oil Station 04-FGN, 14994 East 14th Street, San Leandro, California.

Please call me or Steve Pao of Mobil Oil Corporation if you have any questions or need additional information.

Sincerely,

ALISTO ENGINEERING GROUP

William G. Shipp
Project Geologist

Enclosures

cc: Steve Pao, Mobil Oil Corporation
Steven Ritchie, Regional Water Quality Control Board
Fuk and Ying Sit
Bertram Kubo

1777 OAKLAND BOULEVARD, SUITE 200 • WALNUT CREEK, CA 94596 • (510) 295-1650 • FAX (510) 295-1823
CONTRACTORS LICENSE NO. A-652544

WORK PLAN
FOR
PRELIMINARY SITE INVESTIGATION

Former Mobil Oil Station 04-FGN
14994 East 14th Street
San Leandro, California

Project No. 10-190-01-001

Prepared for:

Mobil Oil Corporation
3800 West Alameda Avenue, Suite 2000
Burbank, California

Prepared by:

Alisto Engineering Group
1777 Oakland Boulevard, Suite 200
Walnut Creek, California

November 19, 1993

William G. Shipp
Project Geologist

Al Sevilla, P.E.
Principal

WORK PLAN
FOR
PRELIMINARY SITE INVESTIGATION

Former Mobil Oil Station 04-FGN
14994 East 14th Street
San Leandro, California

Project No. 10-190-01-001

November 19, 1993

INTRODUCTION

Mobil Oil Corporation retained Alisto Engineering Group to prepare a work plan for a preliminary site investigation at former Mobil Oil Station 04-FGN, 14994 East 14th Street, San Leandro, California. The work plan is based on available reports and information. The proposed scope of work will be conducted in accordance with the guidelines and requirements of the Alameda County Health Care Services Agency (ACHCSA) and the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB).

PROJECT BACKGROUND

In September 1987, Alameda County Environmental Health Department collected and analyzed soil samples from a Pacific Gas and Electric Company (PG&E) excavation in the sidewalk southeast of the site. Laboratory analysis detected 45,000 parts per million (ppm) total oil and grease (TOG) (Subsurface 1987).

On September 29, 1987, six soil borings were drilled to depths ranging from 9.5 to 13.5 feet below grade in the area near the PG&E excavation, as shown in Figure 2. A soil sample was also collected at 3 feet below grade from the PG&E excavation. Up to 320 ppm total petroleum hydrocarbons as gasoline (TPH-G) and 8,000 ppm TOG were detected in the samples. Tetrachloroethylene at 6.6 ppm, trichloroethylene at 15 ppm, and trans-1,2-dichloroethylene at 8 ppm were detected in the sample collected at 5 feet below grade in Boring 6 (Subsurface 1987).

On March 31, 1988, a soil boring was drilled to 24 feet below grade and converted into groundwater Monitoring Well MW-1. Groundwater was encountered during drilling at 12 feet below grade. The soil samples collected from the boring were not submitted for chemical analysis. Up to 29,000 parts per billion (ppb) dissolved-phase TPH-G, ethylbenzene, and total xylenes were detected in the water samples collected from the well. A search of 70,000 compounds within the Wiley/NBS spectral data library detected up to 240 ppb propylbenzene, ethylcyclobutane, 2-methylpentane, 2-methylbutane, 2,3-dimethylpentene,

2-methylhexane, 3-methylhexane, and 2,5,6-trimethyloctane. The report indicated that the area around the PG&E excavation was subsequently overexcavated as shown in Figure 1. The depth of the overexcavation and laboratory results of soil sampling are not available at this time (Subsurface 1988).

On January 31, 1989, the monitoring well at the site was sampled. Up to 11,200 ppb dissolved-phase TPH-G, benzene, ethylbenzene, and total xylenes were detected in the samples collected from the well. No purgeable halocarbons were detected (Subsurface 1989). The results of soil and groundwater analysis are presented in Tables 1 and 2.

SCOPE OF WORK

The scope of work to conduct a preliminary site investigation includes: drilling two soil borings for installation of two groundwater monitoring wells; sampling and analyzing soil and groundwater at the site; and preparing a report presenting the findings and conclusions of the investigation.

Task 1: Acquire Necessary Permits

The necessary drilling and groundwater well installation and site access permits will be procured; underground utilities will be located; and field activities will be scheduled before beginning work.

Task 2: Drill Exploratory Soil Borings and Install Groundwater Monitoring Wells

To investigate the lateral and vertical extent of soil and groundwater contamination, two exploratory soil borings will be drilled using a truck-mounted CME 75 drilling rig equipped with 10-inch-diameter hollow-stem augers.

Soil samples will be collected from the borings at 5-foot intervals and at significant stratigraphic changes beginning at 5 feet below grade and continuing to the total depth of the boring. Soil samples will be collected from a split-spoon sampler lined with stainless steel or brass tubes and logged in the field by a qualified geologist or engineer using the Unified Soils Classification System (USCS). Each sample will also be field screened using a photo-ionization detector or combustible gas indicator to assist in selecting the samples for laboratory analysis. The samples selected for analysis will be sealed airtight with Teflon or aluminum sheeting, plastic caps, and adhesive tape, and placed immediately into a cooler containing blue or dry ice.

The proposed wells will be installed and constructed based on site-specific hydrogeologic conditions and the nature of contamination encountered. The two borings will be converted into 4-inch-diameter groundwater monitoring wells to depths of approximately 10 to 15 feet below the top of the first

saturated zone. The wells will be constructed using 4-inch-diameter, Schedule 40, PVC casing, with 0.010-inch perforations, and the associated filter pack. An approximately 1-foot-thick bentonite spacer will be installed above the sand pack, and the remainder of the annulus will be sealed with Portland Type I/II neat cement. The top of each well will be secured with a watertight locking cap and utility box finished flush with the ground surface.

Task 3: Develop, Sample, and Survey Groundwater Monitoring Wells

Well development will be performed to: (1) consolidate and stabilize the filter pack; (2) optimize well production; and (3) reduce the turbidity of subsequent groundwater samples. The proposed wells will be developed during drilling before installation of the bentonite spacer and neat cement seal. Additionally, well development will be accomplished by alternately using a surge block and submersible pump or bailer to evacuate the water and sediments. Development will continue to a maximum of 10 saturated well volumes or until the groundwater is relatively free of sediments.

The wells will be sampled a minimum of 72 hours after well development and installation of the neat cement seal. Before sampling, water level measurements at each well will be recorded, and the wells will be observed for free product or sheen. The wells will then be purged to allow groundwater representative of the aquifer to enter. Purging will be accomplished using a bailer or pump so as not to agitate the groundwater or expose it to air. Purging will continue until a minimum of 3 and a maximum of 10 saturated well casing volumes have been evacuated and indicator parameters have stabilized. Indicator parameters will be pH, temperature, and specific conductivity. Stabilization of the indicator parameters will be determined when they vary no more than the following values:

- pH - 0.2 units
- Temperature - 0.5 degrees Celsius
- Specific conductivity - 10 percent

The samples will be placed in an iced cooler and transported to a state-certified laboratory for analysis. The purged water from sampling and development, as well as decontamination rinsate, will be stored onsite in Department of Transportation approved 55-gallon drums for transport and disposal.

To calculate the hydraulic gradient and groundwater flow direction of the shallow aquifer, each well will be surveyed from the top of the casing to within 0.01 foot accuracy in reference to an established benchmark or a common datum.

Task 4: Analyze Soil and Groundwater Samples

Selected soil and groundwater samples will be transported to a state-certified laboratory and analyzed on a standard 2-week turnaround time for:

- TPH-G using Environmental Protection Agency (EPA) Methods 5030/8015 (modified)
- Benzene, toluene, ethylbenzene, and total xylenes using EPA Method 8020
- TOG using EPA Method 5520 DF
- Total petroleum hydrocarbons as diesel using EPA Methods 5030/8015 (modified)

Additionally, groundwater samples collected from Monitoring Well MW-1 will be analyzed for the following:

- Halogenated volatile organics using EPA Method 8010
- Volatile organics using EPA Method 8240

Task 5: Evaluate Data and Laboratory Results

On completion of sample analysis, a detailed evaluation of results and available information will be conducted to assess the nature and extent of petroleum hydrocarbons in the soil and groundwater. This will include the following:

- Interpretation of geologic and hydrogeologic characteristics of the water-bearing formation and the nature of subsurface contamination.
- Preparation of groundwater potentiometric surface maps, hydrocarbon concentration maps, and hydrogeologic cross sections.
- Assessment of the extent of hydrocarbons in the soil and/or groundwater.

Task 6: Prepare Report

A report presenting the results, findings, and conclusions of this preliminary site investigation will be submitted to the ACHCSA and RWQCB. The report will present analytical results, boring logs, field notes, and sampling protocol and documentation.

SITE SAFETY PLAN

All field procedures and activities related to the site investigation will be conducted in accordance with the attached site-specific safety plan. The site safety plan was developed in accordance with the applicable requirements of the California Environmental Protection Agency and the federal and state Occupational Safety and Health Administration.

IMPLEMENTATION SCHEDULE

The proposed preliminary site investigation will be completed and a report submitted within 75 days after receipt of written approval of the proposed work plan from the appropriate regulatory agencies.

The estimated schedule for completion of the tasks is as follows:

Task/Activity	Days After Work Plan Approval
- Acquire permits	15
- Drill soil borings and install wells	25
- Develop and sample wells	30
- Analyze samples	45
- Analyze data	60
- Prepare report	75

REFERENCES

Subsurface 1987. Preliminary Geotechnical Services Re. Soil Contamination, 150th Avenue and East 14th Street, San Leandro, California. Subsurface Consultants, Inc. October 26.

Subsurface 1988. Groundwater Monitoring Well Installation and Sample Analysis. 150th Avenue and East 14th Street Project, San Leandro, California. Subsurface Consultants, Inc. April 27.

Subsurface 1989. Groundwater Monitoring Well Sampling and Analysis, Sampling No. 2. 150th Avenue and East 14th Street Project, San Leandro, California. Subsurface Consultants, Inc. February 13.

TABLE 1 - SUMMARY OF RESULTS OF SOIL SAMPLING
FORMER MOBIL OIL STATION 04-FGN
14994 EAST 14TH STREET, SAN LEANDRO, CALIFORNIA

ALISTO PROJECT NO. 10-190

WELL ID	SAMPLE DEPTH (Feet)	DATE OF SAMPLING	TPH-G (ppm)	TOG (ppm)	PCE (ppm)	TCE (ppm)	TRANS-1,2-DCE	LAB
B-1	4.0	09/29/87	72	200	---	---	---	BCL
B-1	8.6	09/29/87	ND<10	ND<50	---	---	---	BCL
B-2	2.6	09/29/87	ND<10	ND<50	---	---	---	BCL
B-2	7.1	09/29/87	ND<10	ND<50	---	---	---	BCL
B-3	5.0	09/29/87	ND<10	ND<50	---	---	---	BCL
B-3	8.5	09/29/87	320	ND<50	---	---	---	BCL
B-4	4.5	09/29/87	ND<10	ND<50	---	---	---	BCL
B-4	10.5	09/29/87	ND<10	ND<50	---	---	---	BCL
B-5	4.0	09/29/87	ND<10	ND<50	---	---	---	BCL
B-5	8.0	09/29/87	ND<10	ND<50	---	---	---	BCL
B-6	5.0	09/29/87	ND<10	ND<50	6.6	15.0	8.0	BCL
B-6	9.1	09/29/87	ND<10	ND<50	---	---	---	BCL
PG&E Excavation	3.0	09/29/87	---	8000	---	---	---	BCL

ABBREVIATIONS:

TPH-G	Total petroleum hydrocarbons as gasoline	ppm	Parts per million
TOG	Total oil and grease	---	Not analyzed
PCE	Tetrachloroethylene	ND	Not detected above reported detection limit
TCE	Trichloroethylene	BCL	Brown and Caldwell Laboratories
Trans-1, 2-DCE	Trans-1,2-dichloroethylene		

TABLE 2 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
FORMER MOBIL OIL STATION 04-FGN
14994 EAST 14TH STREET, SAN LEANDRO, CALIFORNIA

ALISTO PROJECT NO. 10-190

WELL ID	DATE OF SAMPLING/ MONITORING	DEPTH TO WATER (Feet)	TPH-G (ppb)	TPH-D (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	TOG (ppb)	KEROSENE (ppb)	VOLATILE ORGANICS (ppb)	PURGEABLE HALOCARBONS (ppb)	LAB
MW-1 (a)	03/31/88	---	29000	ND<10000	ND<5.0	ND<5.0	550	640	ND<20000	ND<10000	ND (b)	---	CTL
MW-1	01/31/89	---	11200	---	260	ND<20	500	500	---	---	---	ND<1.0	CTL

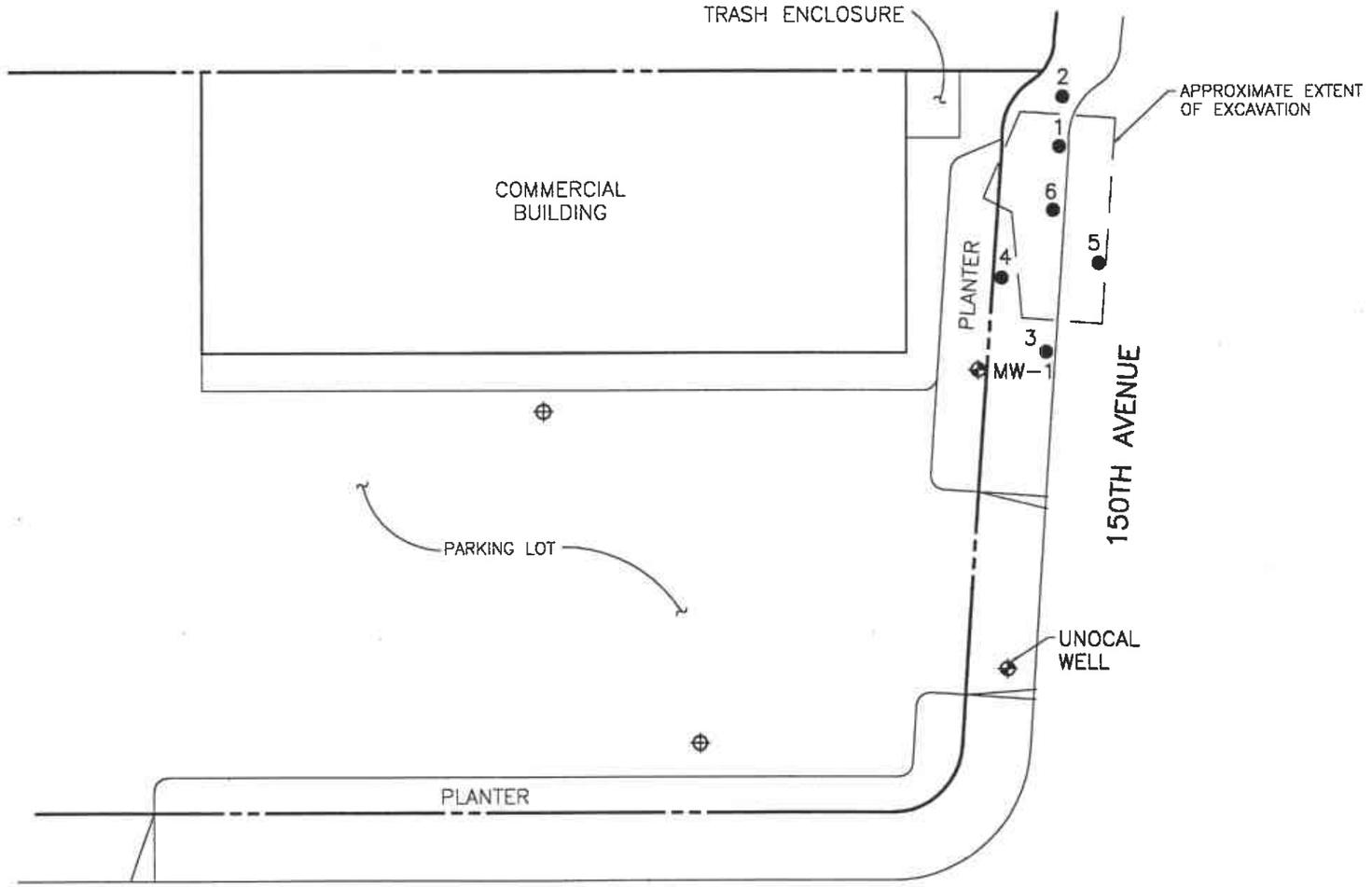
ABBREVIATIONS:

TPH-G	Total petroleum hydrocarbons as gasoline
TPH-D	Total petroleum hydrocarbons as diesel
B	Benzene
T	Toluene
E	Ethylbenzene
X	Total xylenes
TOG	Total oil and grease
ppb	Parts per billion
---	Not analyzed/measured
ND	Not detected above reported detection limit
CTL	Curtis & Tompkins, Ltd.

NOTES:

(a) A search of 70,000 compounds within the Wiley/NBS spectral data library also detected the following: propylbenzene at 240 ppb, ethylcyclobutane at 98 ppb, 2-methylpentane at 94 ppb, 2-methylbutane at 88 ppb, 2,3-dimethylpentane at 73 ppb, 2-methylhexane at 58 ppb, 3-methylhexane at 57 ppb, and 2,5,6-trimethyloctane at 57 ppb.

(b) Various detection limits.



LEGEND

- EXISTING GROUNDWATER MONITORING WELL
- PROPOSED GROUNDWATER MONITORING WELL
- SOIL BORING

NOTE:

LOCATIONS OF SOIL BORINGS, EXCAVATION AND MONITORING WELLS ARE APPROXIMATE.

SITE PLAN

MOBIL OIL CORPORATION
FORMER MOBILE SITE NO. 04-FGN
14994 EAST 14TH STREET
SAN LEANDRO, CALIFORNIA

PROPOSAL NO. 10-190

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

13190C--DWG 11-18-93 RMM 1=20

SITE SAFETY PLAN

FOR

Former Mobil Oil Station No. 04-FGN
14994 East 14th Street
San Leandro, California

Project No. 10-190-01

1.0 INTRODUCTION

This site safety plan (SSP), designed to address safety provisions during site investigation and well closure, provides procedures to protect onsite personnel from physical and chemical hazards resulting from drilling, abandonment, excavation, site restoration, groundwater monitoring and sampling, and system maintenance operations. The SSP establishes personnel responsibilities, general safe work practices and field procedures, personal protective equipment (PPE) standards, decontamination procedures, and emergency action plans.

This SSP conforms with health and safety requirements promulgated by the United States Occupational Safety and Health Administration (OSHA) and California Occupational Safety and Health Administration (Cal-OSHA). Alisto Engineering Group will conduct the proposed scope of work at the above property following the procedures set forth in this SSP.

2.0 RESPONSIBILITIES OF KEY PERSONNEL

Onsite personnel will have assigned responsibilities. The project manager, assigned to supervise field work, will serve as the site safety officer (SSO). The SSO or a designated alternative will ensure that all personnel have received a copy of the SSP. The SSO will be ensure that personnel understand and comply with the SSP. Additionally, the SSO will be responsible for initiating emergency response procedures, if necessary.

Before the work begins, the SSO will conduct a site-specific training session to ensure that personnel are aware of potential physical and chemical hazards and safe work practices.

Personnel must initially complete a 40-hour hazardous materials training course as required by Code of Federal Regulations (CFR) 1910.120. Thereafter, they are required to complete an 8-hour hazardous materials refresher course annually. Additionally, personnel will be required to document their full understanding of this SSP before admission to the site. Compliance with the SSP will be monitored at all times by the SSO. Appropriate PPE, listed in Section 7.0, will be available and used by onsite personnel.

Personnel will take reasonable precautions to avoid unforeseen hazards. They will be held responsible to perform only those tasks for which they are qualified. Each person will be responsible for strict adherence to all procedures described in the SSP. Any deviation will be reported to the SSO and corrected.

3.0 STANDARD OPERATING PROCEDURES

Onsite personnel will be briefed each day in "tail-gate" meetings as to the day's goals and equipment to be used. Anticipated contaminants, physical hazards, and emergency procedures will be reviewed. Appropriate PPE will be worn and verified correct by the SSO, including respirator fit. Health and safety procedures will be discussed.

A qualified drilling contractor will deliver and operate equipment. Only qualified personnel will have contact with this equipment. All personnel, including the drilling contractor and his employees, will be required to wear hard hats and steel-toed boots when close to drilling equipment. Additionally, safety glasses with side shields or goggles and hearing protection may be required. Nitrile or neoprene gloves will be worn by personnel collecting or handling samples, to prevent exposure to contaminants. Gloves will be changed between samples, and used ones discarded, to avoid cross-contamination.

Respiratory equipment will be worn if vapor contamination levels exceed action levels. No onsite smoking, open flame, or sparks will be permitted, to prevent accidental ignition of gasoline. All personnel will adhere to safety procedures and requirements.

4.0 JOB HAZARD ANALYSIS

Physical and chemical hazards which may be encountered onsite include those associated with operating mechanical equipment and dealing with potentially hazardous chemicals.

4.1 Physical Hazard Assessment

Physical hazards which may be encountered during drilling, excavation, site restoration, and system maintenance include the following:

1. Injury or limb amputation from falling objects, moving machinery, or equipment placed in a walk area.

2. Explosion and fires resulting from punctured natural gas pipelines or combustion of flammable/combustible liquids.

3. Electrocution from buried or overhead power lines.

4. Explosion in trenches or excavations containing flammable/combustible chemicals.

5. Asphyxiation or toxic inhalation resulting from entering confined spaces containing less than 19.5 percent oxygen or more than 25 percent oxygen or containing hazardous chemicals.

6. Hearing loss resulting from noise generated during operation of heavy equipment.

7. Heat stress associated with hot weather and/or use of PPE.

4.2 Chemical Hazard Assessment

Hazardous chemicals which may be encountered onsite include gasoline fuel hydrocarbons; benzene, toluene, ethylbenzene, and total xylenes (BTEX); and tetraethyl lead. These chemicals are volatile, flammable, and moderately to extremely toxic. They present a possible inhalation, absorption, and ingestion hazard. They may damage an unprotected individual's liver, kidneys, central nervous system, and bone marrow. Benzene is a known human carcinogen and ethylbenzene in vapor and liquid form is a skin irritant.

Gasoline vapors in concentrations greater than 300 parts per million (ppm) can cause eye, nose, and throat irritation, headaches, dizziness, and anesthesia. Skin contact with liquid gasoline may result in irritation, dermatitis, and absorption of specific toxic petroleum fractions.

OSHA and the American Conference of Governmental Industrial Hygienists (ACGIH) have established exposure limits for these chemicals. Threshold limit value (TLV) is the exposure limit determined by ACGIH to which a person may be repeatedly exposed without adverse effects. The permissible exposure limit (PEL) is the maximum permitted 8-hour time-weighted average (TWA) of airborne contaminant that a person may be exposed to. The short-term exposure limit (STEL) is a 15-minute TWA exposure which is not to be exceeded at any time during a workday even if the 8-hour TWA is below the PEL. The ceiling limit (CL) is the maximum concentration of an airborne contaminant to which a person may be exposed at any time.

PEL, STEL, and CL are measured in ppm and/or milligrams per meter cubed (mg/m^3). Exposure limits established by OSHA and ACGIH for contaminants which may become airborne at this site are listed in the following table. Values are from OSHA unless otherwise noted. For purposes of health and safety, the strictest established exposure limit will be used.

Compound	TLV (ppm)	PEL (ppm)	STEL (ppm)	CL (ppm)
Gasoline	300	500		
Benzene	1.0	5.0	0.10*	1.0*
Ethylbenzene	100	100	125	
Toluene	100	150	100	500
Total Xylenes	100	150	100	300

*Values specified by ACGIH.

5.0 SITE MONITORING

Physical and chemical hazards must be monitored at the site to ensure that employees are not exposed to hazardous situations. Monitoring will be performed during this project as described below.

5.1 Monitoring of Physical Hazards

Exposure to excessive heat, noise, and hazardous work conditions will be monitored throughout the project. Personnel entering areas where people cannot carry on a normal conversation will be required to wear hearing protection. If heat stress is anticipated due to hot weather or use of PPE, personnel will be monitored by the SSP and provided beverages, shaded rest areas, and breaks.

Work area safety inspections will be conducted by the SSO on a daily basis before start of work and as conditions change. Hazardous conditions reported to or observed by the SSO will be corrected immediately.

5.2 Exposure Monitoring Plan

Fire, explosive, and toxic inhalation hazards will be evaluated throughout the project. A direct-reading combustible gas indicator (CGI) or organic vapor meter (OVM) will be used to evaluate possible formation of flammable atmospheres in the work area. Continuous flammability measurements will be taken at the top of the boring near the work crew throughout well installation. Periodic measurements will be taken from soil piles, excavations, and confined areas where flammable/combustible vapors may accumulate. Work will be suspended if combustible readings exceed 10 percent of the lower explosive limit (LEL).

6.0 SAFETY PRACTICES AND PRECAUTIONS

Simple precautions will reduce or eliminate physical and chemical hazards associated with drilling, excavation, site restoration, and system maintenance. Precautions include using qualified and trained personnel; ensuring compliance with the SSP; ensuring proper engineering controls; good housekeeping procedures; using PPE; and familiarity with emergency response procedures.

To prevent injury from moving machinery, automobiles, fires, or other physical hazards, the following procedures will be implemented:

1. Keep drill rig and mast at least 50 feet away from overhead electrical power lines.

2. Identify underground utilities before work begins. Shut down, lock out, and tag power lines and pipelines as appropriate, particularly power supply and emergency "shutoffs" for dispenser pumps and associated delivery lines.

3. Bond and ground drilling and excavation equipment during all operations. Bond and ground handling and transportation equipment during loading of soils and pumping and transfer of leachate.

4. Maintain equipment in proper working order and inspect before each use.

5. Use spark-resistant tools in areas where an ignition source could start a fire.

6. Clean up spills or deposits of oil or flammable, combustible, or hazardous liquids.

7. Water down, if necessary, working areas, excavated material, and unpaved roadways during excavation, handling, stockpiling, and backfilling, to minimize dust.

8. Remove or properly contain waste materials daily. Store excavated materials in closed-top barrels or roll-off bins located onsite to prevent any volatile organic compounds (VOCs) from escaping into the atmosphere.

9. Remove materials which may fuel a fire or impede regress of a fire from the work area.

10. Keep access to the fire extinguisher clear. Use fire extinguishers on equipment or small fires only.

11. Maintain an adequately-stocked first-aid kit onsite at all times.

12. Keep the work area clean and free of obstacles.

13. Use a "buddy system" in areas of high automobile traffic.

14. Wear ear plugs in areas of high noise (whenever noise makes it difficult for a normal conversation to be carried on).

15. Do not use drugs or alcohol during response operations.

The following procedures must be followed when working with or around hazardous materials or soils which may be contaminated with hazardous chemicals:

1. Do not smoke, eat, drink, or engage in any other activity which would increase hand- to-mouth contact.

2. Wear respiratory protective equipment and clothing as deemed necessary by the SSO. Do not wear a respirator over facial hair as this prevents a proper seal.

3. Do not walk, sit, lean, or kneel in puddles, leachate, or discolored surfaces.

4. Wash hands and face when leaving the work area.

5. Wash the entire body if decontamination procedures are in effect for outer garments.

6. Clean, sanitize, inspect, and maintain respirators after each use.

7. Establish work areas including the hot (contaminated) zone, decontamination zone, and safe zone, as necessary. Minimize personnel and equipment in the hot zone.

8. Establish procedures for exiting the hot zone before beginning onsite activities.

7.0 PPE

PPE may be required to safely perform onsite work. Onsite personnel will have access to respirators with organic vapor cartridges. Replacement cartridges will be available onsite as needed. When handling samples, the geologist will wear nitrile or neoprene gloves. Personnel will wear hard hats and steel-toed boots when in the proximity of drilling equipment.

PPE required for this project includes:

1. Half-face air purifying respirator with organic vapor cartridges and dust/mist filters
2. Hard hat
3. Steel-toed boots or chemically-resistant booties
4. Safety glasses with side-shields or safety goggles
5. Nitrile or Neoprene gloves
6. Ear plugs or muffs
7. Coveralls or other suitable work clothing

8.0 WORK ZONES AND SECURITY MEASURES

Access to the site will be restricted to authorized personnel. Barricades and/or traffic cones will be placed to form a barricade at least 20 feet away from and surrounding the site during drilling operations. The SSO will be responsible for site security.

9.0 DECONTAMINATION MEASURES

The best method for protection is to avoid contamination. To achieve this, comply with the safety precautions discussed in Section 6.0. Drilling and sampling equipment will be

decontaminated by steam cleaning before being brought onsite. Sampling equipment will be decontaminated before each sample is collected and drilling equipment will be decontaminated before each boring is drilled.

The project geologist will oversee operations and log borings in consultation with drillers. He or she will also ensure that proper protocol is used when collecting and handling samples.

10.0 TRAINING

The SSO will conduct a pre-job training session to discuss all points of the SSP. The SSO will ensure that everyone fully understands site hazards before work begins. Onsite personnel will be trained in the following:

1. Anticipated hazards
2. Safety practices to be followed
3. PPE
4. Emergency procedures and location of posted phone numbers

Personnel must initially complete a 40-hour hazardous materials training course as required by CFR 1910.120. Thereafter, personnel are required to annually complete an 8-hour hazardous materials refresher course. Use of respirators must be in accordance with the written respiratory protection program. Personnel must be properly trained and fit-tested for the respirator worn.

11.0 MEDICAL SURVEILLANCE

According to CFR 29, 1910.120, paragraph (f), employees who wear respirators 30 days or more during 1 year or who have been exposed to hazardous substances or health hazards above established PELs are required to be medically monitored. Although airborne contamination levels are anticipated below permissible PELs, respirators fitted with organic vapor cartridges should be worn when a gasoline odor is present. Consequently, personnel must participate in a medical surveillance program.

12.0 RECORD-KEEPING

Documentation will be kept on all personnel exposed to contaminant hazards on the job site according to OSHA regulations. This will include documentation that employees have received training on the SSP, respiratory protection, MSDS forms, and all emergency procedures. These will be reviewed during the pre-site training meeting.

Exposure records on each job will be kept for 30 years to meet regulatory requirements. Included will be names and social security numbers of employees, medical evaluations, on-the-job logs from entry to exit, first aid administered, visits onsite by non-employees, and personal air monitoring records.

13.0 EMERGENCY RESPONSE AND CONTINGENCY PLAN

In the event of accident, injury, fire, explosion, or other emergency, the project geologist, SSO, or designated representative will be responsible for coordinating emergency response activities. The responsible person will call: 911; the hospital during a medical emergency; and the appropriate government agencies. During an emergency, the following steps will be implemented:

1. The SSO will verbally notify onsite personnel of the emergency and direct personnel to perform any required duties, including shutdown of site utilities, if necessary.

2. If the emergency cannot be readily contained, extinguished, or controlled by onsite personnel, the SSO will call 911 and inform them of the location and details of the emergency situation.

3. **If evacuation is necessary, personnel will meet at the south corner of the intersection of East 14th Street and 150th Avenue.**

4. The SSO will notify the project manager and principal, if necessary.

5. The SSO and the project manager, will decide when to resume operations after an incident has been controlled.

13.1 Flammable Atmosphere

In the event that CGI or OVM readings on site exceed 10 percent LEL, work will be suspended, monitoring will be continued, the area will be isolated, and some or all of the following engineering controls will be implemented:

1. Contaminated soils will be sprayed down, if necessary, with deodorizing chemicals to reduce vaporization of volatile organic compounds or permeation of other gases.

2. Vapors from pooled petroleum product will be suppressed, if necessary, by spraying with foam or an appropriate chemical suppressant.

3. Portions of the stockpiled soil will be covered with plastic sheeting.

4. Air movers will be used to ventilate areas of concentration to below 10 percent LEL.

5. Wells emitting excessive chemical concentrations will be ventilated, capped, or shut in, as necessary.

13.2 Toxic Atmosphere

In the event that airborne concentrations of the chemicals of concern exceed the TLV, the above engineering control measures will be implemented to reduce concentrations to or below the TLVs, if practical. If such reduction is not possible, PPE will be used to limit worker exposure during operations.

In the event that airborne concentrations of the chemicals exceed twice the TLV, work will be suspended and appropriate engineering controls will be implemented to reduce concentrations to or below twice the TLV.

14.0 RESPONSIBLE PARTIES

Responsible parties involved with installation of the groundwater monitoring wells are:

- Mobil Oil Corporation
  3800 West Alameda Avenue, Suite 2000
  Burbank, California, 91505-4331

  Contact: Steve Pao
  (818) 953-2626

- Alisto Engineering Group
  1777 Oakland Boulevard, Suite 200
  Walnut Creek, California 94596

  Contact: William G. Shipp
  Project Geologist
  (510) 295-1650

15.0 SUMMARY OF SITE ORGANIZATION AND COORDINATION

- General:
  Site Safety Officer (SSO) - William G. Shipp
  Subcontractor - To Be Determined
  Driller -
  Driller's helper -

- Site Access Control -

  Activities will be on- and offsite, outside, and the work area will be well ventilated. The area will be barricaded at least 20 feet in all directions. Standard Caltrans lane or side walk closure procedures will be followed for work performed in the public right-of-way, if necessary.

16.0 EMERGENCY MEDICAL CARE AND PROCEDURES

- Nearest Emergency Medical Facility

  Name: Humana Hospital

  Address: 13855 East 14th Street, San Leandro

  Phone Number: (510) 357-6500

  Directions: Continue north on East 14th Street approximately 1.25 miles, Humana will be on the right.

- Emergency Telephone Numbers

  Fire Department: 911

  Police Department: 911

  Other: _____

I have read, understand, and agree to comply with the health and safety plan for the following project:

Former Mobil Oil Station No. 04-FGN
14994 East 14th Street, San Leandro, California

Signature: _____ Date: _____
Representing: _____
Title: _____

Signature: _____ Date: _____
Representing: _____
Title: _____

Signature: _____ Date: _____
Representing: _____
Title: _____

Signature: _____ Date: _____
Representing: _____
Title: _____

Signature: _____ Date: _____
Representing: _____
Title: _____