SITE ASSESSMENT
WORKPLAN
July 27, 1995

Former USA Gasoline Station #57
10700 Macarthur Boulevard
Oakland, California

Alton Project No. 41-0034-00

Prepared For:

USA GASOLINE CORPORATION
30101 Agoura Court, Suite 200
Agoura Hills, California

By:

ALTON GEOSCIENCE
30A Lindbergh Avenue
Livermore, California 94550

ALTON GEOSCIENCE
THE RESULTS TEAM

July 27, 1995

USA Gasoline Corporation
30101 Agoura Court, Suite 200
Agoura Hills, California 91301-4311

Alton Project No. 41-0034

ATTN: MR. SRIKANTH DASAPPA

SITE: FORMER USA GASOLINE STATION #57
10700 MACARTHUR BOULEVARD
OAKLAND, CALIFORNIA

RE: SITE ASSESSMENT WORKPLAN

Dear Mr. Dasappa:

Alton Geoscience submits this Site Assessment Workplan for former USA Gasoline Station #57, located at 10700 Macarthur Boulevard in Oakland, California.

1.0 OBJECTIVES

The planned site assessment activities will be performed to:

- Further characterize the lateral and vertical extent of hydrocarbons in soil at the site; and
- Further characterize the lateral extent of dissolved-phase hydrocarbons at the site.

2.0 SITE DESCRIPTION

Present Site Use: The site is currently vacant.

Past Site Use: The site was formerly a retail fuel station dispensing gasoline and diesel fuel from four underground storage tanks (USTs) located in the southern portion of the site. On July 19, 1994, four USTs (three 12,000-gallon tanks containing gasoline, and one 8,000-gallon tank containing diesel fuel) were excavated and removed from the site.

Future Site Use: There are plans to redevelop the shopping center which occupies the site and surrounding property.

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Livermore, California 94550
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Adjacent Property: The site is located in the southeast corner of the Foothill Square shopping center, which is bounded on the north by 106th Avenue, on the east by Foothill Boulevard, on the south by 108th Avenue, and on the west by Macarthur Boulevard. The immediate vicinity of the site is an asphalt parking area. Residences are located south of the site, across 108th Avenue. Highway 580, a multi-lane, limited access freeway, is located east of the site, across Foothill Boulevard.

Geography: The site is located in the City of Oakland, California, approximately 1 mile north of downtown San Leandro, at an elevation of approximately 80 feet above mean sea level (National Geodetic Vertical Datum [NGVD]-1929). The site is near the eastern edge of the East Bay Plain; the Berkeley Hills rise abruptly east of the site. The topography in the site vicinity slopes to the southwest.

Regional Geology: The site is located in the East Bay Plain, in the eastern part of the San Francisco Bay area. Much of the East Bay Plain is underlain by the Temescal formation and the Alameda formation, which are of Pleistocene age (California Department of Water Resources [DWR], 1975). The Temescal formation consists of interfingering layers of clayey gravel, sandy silty clay, and various clay-silt-sand mixtures. The formation varies in thickness to a maximum of approximately 60 feet. Underlying the Temescal formation is the Alameda formation, which consists of unconsolidated continental and marine gravels, sands, silts, and clays, with some shells and organic material in places. The formation has a maximum known thickness of 1,050 feet (Radbruch, 1957).

Regional Hydrogeology: The site is located in the East Bay Plain Groundwater Area, a subarea of the Santa Clara Valley Area. Groundwater occurs in unconsolidated Quaternary alluvium, including the Alameda formation (DWR, 1975).

Groundwater Quality and Usage: Most water used in the area is imported from the Sierra Nevada by the East Bay Municipal Utilities District. Scattered wells supply individual dwellings, and a few commercial and industrial developments (DWR, 1975).

3.0 CURRENT SITE CONDITIONS

- Three onsite groundwater monitoring wells (S-1 ,S-2, and MW-3) are present at the site (Figure 1).

- The static water levels measured in the monitoring wells on July 24, 1995 were approximately 13 feet below grade (fbg), however, groundwater is believed to exist under confined or semi-confined conditions below a depth of approximately 20 fbg (Alton Geoscience, 1995). The hydraulic gradient is directed locally to the north (Figure 1).

- Gasoline-range soil hydrocarbons have been detected in soil beneath the site in the area of the former USTs (maximum total petroleum hydrocarbons as gasoline [TPH-G] concentration of 4,500 parts per million [ppm]). Over-excavation of the tank cavity was performed by USA Gasoline and samples collected in October 1994 indicated that a maximum concentration of 2,400 ppm TPH-G remained at the southern edge of the excavation. Diesel-range soil hydrocarbons have been detected beneath the former diesel UST (maximum concentration of total petroleum hydrocarbons as diesel [TPH-D] of 230 ppm) (Western Geo-Engineers, 1994). Soil hydrocarbon concentrations were found in low to non-detectable amounts in borings drilled in the area of the former pump islands (Table 1).

- Dissolved-phase hydrocarbons were detected in groundwater samples collected from Monitoring Wells S-1, S-2, and MW-3 (a maximum of 24,000 parts per billion [ppb] TPH-G and 6,000 ppb TPH-D were present in S-2) (Table 2). The lateral extent of the dissolved-phase plume is not yet fully characterized.

4.0 PLANNED FIELD ACTIVITIES

4.1 PRE-FIELD WORK ACTIVITIES

Groundwater monitoring well permits will be acquired prior to drilling. Underground Service Alert (USA) will be notified approximately 5 days prior to field activities to mark underground utilities at the proposed drilling locations.

4.2 DRILLING AND SOIL SAMPLING

As many as 4 borings will be drilled and converted to groundwater monitoring wells. One well will be installed upgradient of the former tank cavity, and three wells will be installed downgradient of the former tank cavity. Approximate locations are shown on Figure 2. The wells will be drilled to an approximate depth of 40 fbg. Soil samples will be collected at 5-foot intervals for soil description, field hydrocarbon vapor testing, and possible laboratory analysis. Field hydrocarbon vapor testing will be performed using a portable Combustible Gas Indicator (CGI).

Select soil samples will be analyzed for the following:

- TPH-G using EPA Method 8015 modified for gasoline;
- TPH-D using EPA Method 8015 modified for diesel; and
- benzene, toluene, ethylbenzene, and total xylenes (BTEX) using EPA Method 8020

4.3 GROUNDWATER MONITORING WELL CONSTRUCTION

The groundwater monitoring wells will be drilled using a truck-mounted hollow-stem auger drill rig. The wells will be constructed using 4-inch-diameter PVC casing with an expected screened interval extending from approximately 20 to 40 fbg. Well construction details and development procedures are outlined in Appendix A.

4.4 ELEVATION SURVEY AND FLUID-LEVEL MONITORING

Well top elevations will be surveyed relative to MSL a ~~county or city benchmark to the nearest 0.01 foot by a licensed surveyor~~. Fluid levels in the monitoring wells will be measured to obtain data regarding the depth to groundwater and presence of free product, if any. Field procedures are described in Appendix A.

4.5 GROUNDWATER SAMPLING

Groundwater samples will be collected from both newly installed and existing monitoring wells which do not contain free product, in accordance with standard regulatory protocol.

Groundwater samples will be analyzed for the following:

- TPH-G using EPA Method 8015 modified for gasoline;
- TPH-D using EPA Method 8015 modified for diesel; and
- BTEX using EPA Method 8020

All laboratory analyses will be performed by a state-certified laboratory. Chain of custody protocol will be followed for all samples selected for analysis, thus providing a continuous record of sample possession prior to actual analysis.

4.6 SOIL AND GROUNDWATER DISPOSAL

Soil generated during drilling activities will be stored onsite on, and covered by, plastic sheeting pending evaluation of treatment and/or disposal options. Fluids generated during well development, equipment decontamination, and groundwater sampling activities will stored onsite in Department of Transportation (DOT)-approved drums pending transport and offsite disposal or recycling.

4.7 SITE ASSESSMENT REPORT

Alton Geoscience will prepare and submit a report on the site assessment activities, including boring logs, laboratory analytical results, well construction details, well permits, findings, and conclusions.

5.0 WORK SCHEDULE

Planned activities will be performed according to the following schedule:

- Expected agency approval of workplan by: September 1, 1995
- Drill borings and install wells by: September 15, 1995
- Perform groundwater sampling by: September 25, 1995
- Submit site assessment report by: October 31, 1995

6.0 SITE SAFETY PLAN

A site safety plan designed to promote project personnel safety and preparedness during the activities described in this workplan is included in Appendix B.

7.0 LIST OF ATTACHMENTS

- Figure 1: Groundwater Elevation Contour Map, July 24, 1995
- Figure 2: Proposed Monitoring Well Locations
- Appendix A: General Field Procedures
- Appendix B: Site Safety Plan

If you have any questions regarding this workplan, please call us at (510) 606-9150.

Sincerely,

ALTON GEOSCIENCE

for

Ailsa S. Le May
Geologist

Matthew W. Katen, RG
Senior Project Geologist

41-0034/USA16.WP

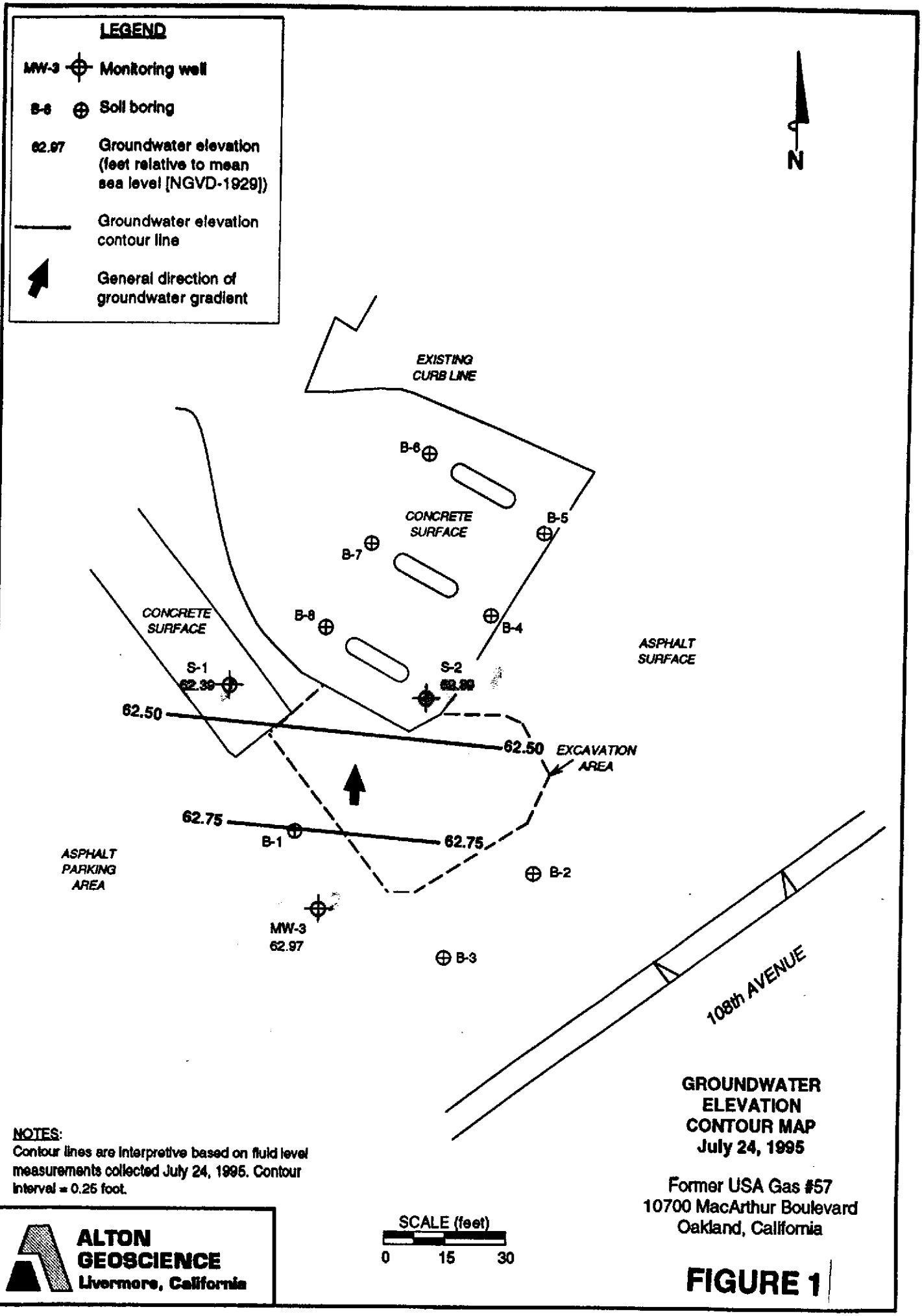
8.0 REFERENCES

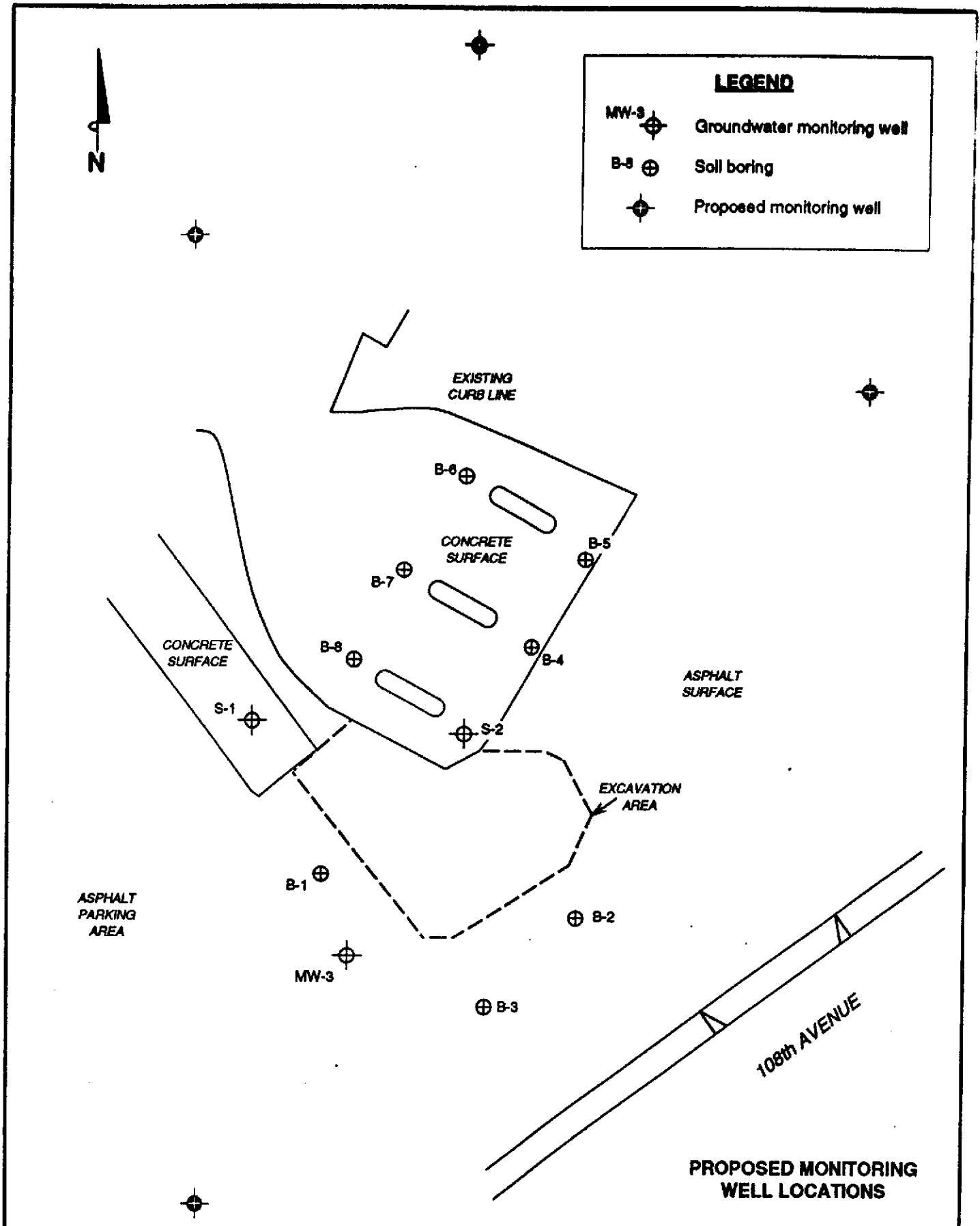
Alton Geoscience, April 24, 1995, Supplementary Site Assessment Report, Former USA Gasoline Station # 57.

California Department of Water Resources (DWR), October 1975, Sea-Water Intrusion in California; Inventory of Coastal Groundwater Basins, Bulletin No. 63-5.

Radbruch, Dorothy H., 1957, Areal and Engineering Geology of the Oakland West Quadrangle, California, United States Geologic Survey Miscellaneous Geologic Investigations Map I-239.

Western Geo-Engineers, August 11, 1994, USA Station #57 Limited Over-excavation, Oakland, Alameda County, CA on 8/16/94 for USA Gasoline Corporation.


LEGEND
MW-3 Monitoring well
B-6 Soil boring
62.97 Groundwater elevation (feet relative to mean sea level [NGVD-1929])
Groundwater elevation contour line
General direction of groundwater gradient
N
EXISTING CURB LINE
B-6
CONCRETE SURFACE
B-5
B-7
B-8
B-4
CONCRETE SURFACE
ASPHALT SURFACE
S-1
62.39
S-2
62.50
62.50
EXCAVATION AREA
62.75
B-1
62.75
ASPHALT PARKING AREA
B-2
MW-3
62.97
B-3
108th AVENUE
NOTES:
Contour lines are interpretive based on fluid level measurements collected July 24, 1995. Contour interval = 0.25 foot.
ALTON GEOSCIENCE
Livermore, California
SCALE (feet)
0 15 30
GROUNDWATER ELEVATION CONTOUR MAP
July 24, 1995
Former USA Gas #57
10700 MacArthur Boulevard
Oakland, California
FIGURE 1
41-0034/New Plan 07/24/95



PROPOSED MONITORING WELL LOCATIONS

Former USA Gas #57
10700 MacArthur Boulevard
Oakland, California

SCALE (feet)
0 15 30

ALTON GEOSCIENCE
Livermore, California

FIGURE 2

41-0034/New Plan 07/24/95

Table 1

Summary of Soil Sample Analysis

Former USA Gas #57

Sample ID	Date	Depth (feet)	TPH-G (ppm)	TPH-D (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Total Xylenes (ppm)
B-1	2/28/95	5.5	ND	—	ND	ND	ND	ND
		9.5	44	—	0.12	ND	0.14	0.40
		13.0	540	55	2.6	10	7.5	48
		20.0	ND	—	0.012	0.016	ND	0.029
		25.0	3.9	—	0.048	0.14	0.062	0.37
		31.0	ND	—	ND	0.011	0.0057	0.045
		35.0	ND	—	0.014	0.018	0.012	0.079
		40.5	ND	ND	ND	ND	ND	ND
B-2	3/1/95	5.0	ND	—	ND	ND	ND	ND
		10.5	ND	—	ND	ND	ND	ND
		16.0	16	—	0.057	0.028	0.029	1.2
		21.0	110	—	0.96	0.41	0.33	1.5
		26.0	240	22	0.76	1.4	0.85	1.9
B-3	3/1/95	11.0	ND	—	ND	ND	ND	ND
		15.5	10	—	0.044	0.11	0.079	0.63
		20.5	15	1.3	0.041	0.37	0.15	1.1
B-4	3/2/95	3.0	ND	—	ND	ND	ND	ND
		6.0	ND	—	ND	ND	ND	ND
		12.0	ND	ND	ND	ND	ND	ND
B-5	3/2/95	5.5	ND	—	ND	ND	ND	ND
		12.0	ND	ND	ND	ND	ND	ND

Table 1

Summary of Soil Sample Analysis

Former USA Gas #57

Sample ID	Date	Depth (feet)	TPH-G (ppm)	TPH-D (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Total Xylenes (ppm)
B-6	3/2/95	4.0	33	5.3	0.093	0.065	0.33	2.0
		5.5	2.6	—	0.062	ND	0.030	0.047
		12.0	ND	—	ND	ND	ND	0.022
B-7	3/2/95	3.5	ND	ND	ND	ND	ND	ND
		5.0	ND	—	ND	ND	ND	ND
		12.0	ND	—	ND	ND	ND	ND
B-8	3/2/95	3.0	17	—	0.012	0.021	0.12	0.16
		5.5	ND	ND	0.019	ND	0.050	ND
		12.0	2.0	—	0.042	ND	ND	0.016
MW-3	2/28/95	5.5	ND	—	ND	ND	ND	ND
		11.5	1.9	—	0.026	0.011	0.0061	0.019
		13.5	240	12	0.41	0.64	2.0	5.4
		15.5	110	—	0.37	3.8	1.5	10
		21.5	3.0	—	0.26	0.24	0.059	0.50
		24.5	ND	—	0.030	0.0069	0.0056	0.016
		29.5	ND	—	ND	0.0054	ND	0.0092
		39.5	ND	—	ND	ND	ND	ND

NOTES:

ppm=	parts per million
TPH-G =	total petroleum hydrocarbons as gasoline
TPH-D =	total petroleum hydrocarbons as diesel
ND =	not detected at or above method detection limit
— =	not measured/not analyzed

Table 2

Summary of Groundwater Monitoring and Analysis

Former USA Gas #57

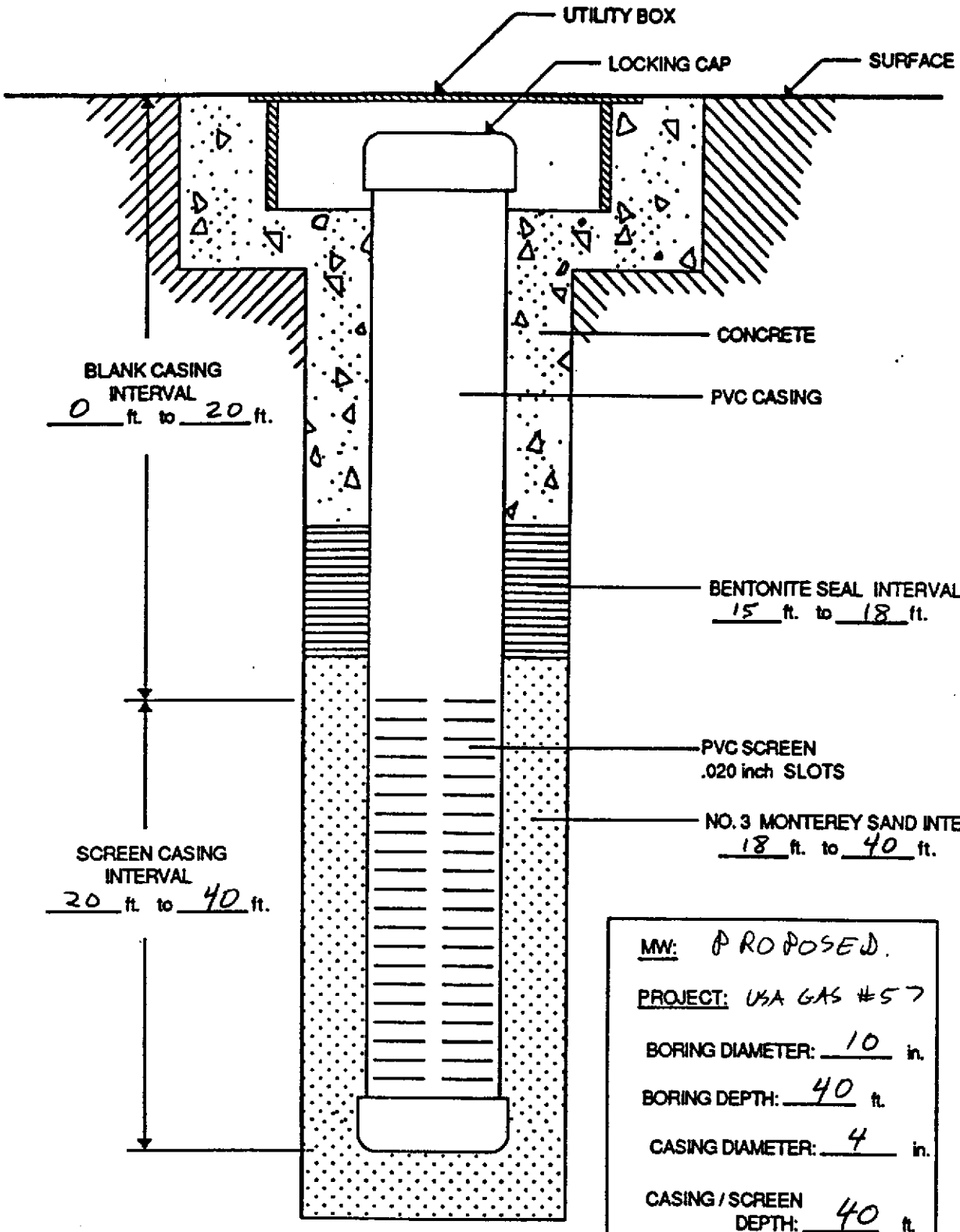
Well ID	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet)	TPH-G (ppb)	TPH-D (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Total Xylenes (ppb)
S-1	3/3/95	74.74	13.10	61.64	910	5,900	260	7.6	16	14
	7/24/95		12.35	62.39	—	—	—	—	—	—
S-2	3/3/95	76.86	15.39	61.47	24,000	6,000	1,900	440	600	2,500
	7/24/95		14.47	62.39	—	—	—	—	—	—
MW-3	3/3/95	76.30	13.99	62.31	2,500	1,600	540	92	36	200
	7/24/95		13.33	62.97	—	—	—	—	—	—

NOTES:
ppb = parts per billion
TPH-G = total petroleum hydrocarbons as gasoline
TPH-D = total petroleum hydrocarbons as diesel
— = not measured/not analyzed

APPENDIX A

GENERAL FIELD PROCEDURES

MONITORING WELL CONSTRUCTION DETAIL



MW: PROPOSED.

PROJECT: USA GAS #57

BORING DIAMETER: 10 in.

BORING DEPTH: 40 ft.

CASING DIAMETER: 4 in.

CASING / SCREEN DEPTH: 40 ft.

ALTON GEOSCIENCE
25A Technology Drive, Suite 200
Irvine, California 92718

Form #050
Effective Date: 2-25-91

NOTE: DRAWING IS NOT TO SCALE

GENERAL FIELD PROCEDURES

A description of the general field procedures used during site investigation and monitoring activities is presented below. For an overview of protocol, refer to the appropriate section(s).

DRILLING AND SOIL SAMPLING

Soil borings are drilled using continuous-flight, hollow-stem augers. Borings that are not completed as monitoring wells are grouted to within 5 feet of the ground surface with a cement/bentonite slurry. The remaining 5 feet is filled with concrete.

Soil samples are obtained for soil description, field hydrocarbon vapor screening, and possible laboratory analysis. Soil samples are retrieved from the borings by one of two methods: 1) continuously, using a 5-foot-long, continuous-core barrel sampler advanced into the soil ahead of the lead auger; sample tubes are driven into the core with a mallet, or 2) at 2.5- or 5-foot intervals, using a standard split-spoon sampler lined with four 1.5-inch-diameter stainless steel or brass sample inserts. The split-spoon sampler is driven approximately 18 inches beyond the lead auger with a 140-pound hammer dropped from a height of 30 inches.

For hand auger borings and hand-held, power-driven auger borings, soil samples are retrieved using a hand-driven slide hammer lined with a 1.5-inch-diameter stainless steel sample tube.

During drilling activities, soil adjacent to the laboratory sample is screened for combustible vapors using a combustible gas indicator (CGI) or equivalent field instrument. For each hydrocarbon vapor screening event, a 6-inch-long by 2.5-inch-diameter sample insert is filled approximately 1/3 full with the soil sample, capped at both ends, and shaken. The probe is then inserted through a small opening in the cap, and a reading is taken after approximately 15 seconds and recorded on the boring log. The remaining soil recovered is removed from the sample insert or sampler, and described in accordance with the Unified Soil Classification System. For each sampling interval, field estimates of soil type, density/consistency, moisture, color, and grading are recorded on the boring logs.

SOIL SAMPLE HANDLING

Soil sample handling follows the same basic protocol for both drilling and excavation activities. Upon retrieval, soil samples are immediately removed from the sampler, sealed with Teflon sheeting and polyurethane caps, and wrapped with tape. Each sample is labeled with the project number, boring/well number, sample depth, geologist's initials, and date of collection. After the samples have been labeled and documented in the chain of custody record, they are placed in a cooler with ice at approximately 4 degrees Celsius (°C) prior to and during transport to a state-certified laboratory for analysis. Samples not selected for immediate analysis may be transported in a cooler with ice and archived in a frostless refrigerator at approximately 4°C for possible future testing.

MONITORING WELL INSTALLATION

Monitoring wells are constructed of 4-inch-diameter, flush-threaded, Schedule 40 PVC blank and screened (0.020-inch slot size) casing. The screened interval will typically extend 10 feet above, and 15 feet below, the top of the groundwater table. The annular space surrounding the screened casing is backfilled with No. 2/12 or No. 3 Monterey sand (filter pack) to between 1 and 2 feet above the top of the screened section.

During well construction, the filter pack is completed by surging with a rig-mounted surge block. A 2-foot-thick bentonite annular seal is placed above the filter pack. The remaining annular space is grouted with Portland cement and/or bentonite grout to the surface. Limited-access, truck-rated, utility boxes are installed slightly above grade. Locking, watertight caps are installed to prevent unauthorized access to the well, and limit infiltration of surface fluids.

FLUID LEVEL MONITORING

Fluid levels are monitored in the wells using an electronic interface probe with conductance sensors. The presence of liquid-phase hydrocarbons is verified using a hydrocarbon-reactive paste. The depth to liquid-phase hydrocarbons and water is measured relative to the well box top or top of casing. Well box or casing elevations are surveyed to within 0.01 foot relative to a county or city bench mark.

GROUNDWATER PURGING AND SAMPLING

Typically, monitoring wells that contain no liquid-phase hydrocarbons are purged of groundwater prior to sampling so that fluids sampled are representative of fluids within the formation. Temperature, Ph, and specific conductance are typically measured after each well casing volume has been removed. Purging is considered complete when these parameters vary less than 10% from the previous readings, or when four casing volumes of fluid have been removed. Samples are collected without further purging if the well does not recharge within 2 hours to 80% of its volume before purging.

Purged water is either pumped directly into a licensed vacuum truck or temporarily stored in labeled drums prior to transport to an appropriate treatment or recycling facility. If an automatic recovery system (ARS) is operating at the site, purged water may be pumped into the ARS for treatment.

Groundwater samples are collected by lowering a 1.5-inch-diameter, bottom-fill, disposable polyethylene bailer just below the static water level in the well. The samples are carefully transferred from the check-valve-equipped bailer to 1-liter and 40-milliliter glass containers. The sample containers are filled to zero headspace and fitted with Teflon-sealed caps. Each sample is labeled with the project number, well number, sample date, and sampler's initials. Samples remain chilled at approximately 4°C prior to analysis by a state-certified laboratory.

CHAIN OF CUSTODY PROTOCOL

Chain of custody protocol is followed for all soil and groundwater samples selected for laboratory analysis. The chain of custody form(s) accompanies the samples from the sampling locality to the laboratory, providing a continuous record of possession prior to analysis.

DECONTAMINATION

Drilling and Soil Sampling

Drilling equipment is decontaminated by steam cleaning before being brought onsite. The augers are also steam cleaned before each new boring is commenced. Prior to use, the sampler and sampling tubes are brush-scrubbed in a Liqui-nox and potable water solution and rinsed in clean potable water. Sampling equipment and tubes are also decontaminated before each sample is collected to avoid cross-contamination between borings.

Groundwater Sampling

Purging and sampling equipment that could contact well fluids is either disposable, dedicated to a particular well, or cleaned prior to each use in a Liqui-nox solution followed by two tap water rinses.

APPENDIX B

SITE SAFETY PLAN

SITE SAFETY PLAN

Prepared for Activities Performed at:

Former USA Gasoline Station #57
10700 Macarthur Boulevard
Oakland, California

1.0 INTRODUCTION

This plan has been prepared in conformity with the Alton Geoscience Health and Safety Program. It addresses those activities associated with site assessment and will be implemented during the site investigations and related field work. Compliance with this Site Safety Plan (SSP) is required of all Alton Geoscience personnel and subcontractors who enter the site. The requirements and parameters identified in this SSP will be subject to modification as warranted by existing site conditions or as work progresses. However, no changes will be made without the prior approval of the Site Safety Officer.

2.0 SITE SAFETY OFFICER

The Site Safety Officer (SSO) has overall responsibility for the development, coordination, and implementation of the SSP and its conformity with the Alton Geoscience Corporate Health and Safety Plan. The SSO will also be responsible for field implementation of the SSP. This will include communicating the site-specific requirements to the project personnel, and assuring compliance with the Corporate Health and Safety Plan. In the event that the SSO is unable to perform these duties, the designated Alternate Safety Officer will be responsible.

3.0 SITE PERSONNEL

All project personnel for this site will be responsible for understanding and complying with the SSP requirements. Onsite personnel will have assigned responsibilities. The Project Geologist, assigned to supervise field work, will serve as the SSO. The SSO, or a designated alternate, will ensure that onsite personnel have received a copy of this SSP. The SSO will oversee compliance with this SSP. Additionally, the SSO will be responsible for initiating emergency response procedures, if necessary.

Prior to commencement of work, the SSO will conduct a site-specific training session (tailgate meeting) to make personnel aware of potential physical and chemical hazards and safe work practices. Material Safety Data Sheets (MSDS) will be made available.

Onsite personnel must initially complete a 40-hour hazardous materials training course, as required by the Code of Federal Regulations (CFR) 1910.120. Thereafter, personnel are required to annually complete an 8-hour refresher course. Additionally, personnel will be required to document their full understanding of this SSP before admission to the site, by signing the compliance log at the end of this SSP. Appropriate personal protective equipment will be available and used, as necessary, by onsite project personnel.

4.0 SITE BACKGROUND

The site is located in the San Francisco Bay area at an elevation of approximately 80 feet above mean sea level (msl). The topography is nearly flat, with a gentle slope to the southwest. The area surrounding the site is primarily residential and commercial development.

The site has been a fuel service station. Three underground storage tanks (UST) containing gasoline, and one UST containing diesel fuel, were removed from the site on July 19, 1994. Adsorbed-phase hydrocarbons have been detected in the soil beneath the site. Liquid-phase and dissolved-phase hydrocarbons have been detected in the groundwater beneath the site. The site is currently vacant.

5.0 POTENTIAL HAZARDS

The activities to be performed are investigative in nature. Physical and chemical hazards that may be encountered onsite include those associated with operating mechanical equipment and dealing with potentially hazardous chemicals. Probably the most immediate hazard is that of physical injury to onsite personnel from machinery. Hydrocarbons in various phases (adsorbed, dissolved, liquid, and/or vapor) may be present in the subsurface at the site. The hazard potential associated with the presence of hydrocarbons includes vapor build-up in, and/or escaping from, well bores, excavations, and contaminated soil stockpiled, and moved around the site.

5.1 PHYSICAL HAZARDS

Potential hazards to personal safety at the site include the following:

1. Explosion and fire
   Petroleum products are highly flammable. Liquid petroleum product readily vaporizes from standing pools or saturated soil. Ignition sources of any kind (e.g., engines, impact sparking, and heat or arc from inappropriate equipment or instrumentation) pose a major explosion and fire hazard.

2. Injury from operation of drilling and excavation equipment

3. Injury from collapse of excavation sidewalls

4. Electrocution from buried or overhead power lines

5. Noise exposure from the operation of heavy equipment

6. Heat stress

7. Cold exposure

8. Biologic hazards

5.2 CHEMICAL HAZARDS

Hazardous chemicals that may be encountered onsite include diesel and gasoline hydrocarbons. These chemicals are volatile, flammable, and moderately to extremely toxic. Potential hazards associated with petroleum hydrocarbons include inhalation, ingestion, and skin absorption of toxic vapors, liquids, or dusts.

Gasoline vapors in high 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 and dermatitis, and absorption of specific toxic petroleum fractions. Toxic petroleum hydrocarbon substances include the following volatile organic compounds (VOC): benzene, toluene, ethylbenzene, and total xylenes (BTEX). Benzene is a known human carcinogen and, along with toluene and xylenes, can cause damage to an unprotected individual's liver, kidneys, and central nervous system. Ethylbenzene is a skin irritant in vapor and liquid form.

6.0 HAZARD ASSESSMENT

Consistent efforts will be made throughout the project to evaluate the chemical and physical hazards described above. Fire and explosion hazards will be evaluated in the following manner.

6.1 FIRE AND EXPLOSION

A direct-reading portable combustible gas indicator (CGI), which measures VOC concentrations in ppm or as a percentage of the lower explosive limit (LED), will be used to evaluate the possible formation of flammable atmospheres in and around the work area.

7.0 HAZARD REDUCTION

7.1 GENERAL PROCEDURES

Underground utilities will be located and identified prior to any operation; power lines and pipelines will be shut down, locked out, and tagged, as appropriate.

During excavation, handling, stockpiling, and backfilling, the working areas, excavated material, and unpaved roadways will be watered down (if necessary) until the surface is moist, and maintained in a moist condition to minimize dust.

No confined space entry is anticipated during the course of these operations. However, if such a situation is encountered, workers are prohibited from entering confined spaces until the company plan dealing with confined spaces is implemented.

7.2 SAFETY INSPECTIONS

Walk-through safety inspections of the work area will be conducted daily before the start of work and as conditions change. The results of these surveys will be communicated to the work crews during regularly scheduled "tailgate" safety meetings. The safety procedures and the day's planned operations will be discussed at these sessions.

7.3 ENVIRONMENTAL CONTROLS

In the event that CGI readings anywhere on the site exceed 10 percent of the LED, work will be suspended, monitoring will be continued as necessary to isolate the area of concern, and any or all of the following environmental controls will be implemented as appropriate:

1. Vapors from pooled petroleum product will be suppressed (if necessary) by spraying with foam, appropriate chemical suppressant, or carbon dioxide in gas form or dry ice.

2. Air movers will be used to ventilate the areas of concentration to below 10 percent LED.

3. Borings emitting excessive VOC concentrations will be ventilated, capped, or shut in as necessary.

4. Contaminated soil will be covered with clean soil and/or sprayed with water or deodorizing chemicals in order to reduce vaporization of VOC.

5. Drilling equipment will be bonded and grounded during the operations to control ignition sources.

7.4 ENGINEERING CONTROLS

Access to work areas will be limited by the SSO to essential personnel. Drilling areas will be cordoned off with delineators, barriers, and/or taping. Excavated soil will be stockpiled and covered, or stored in closed drums or roll-off bins. Purged water will be stored in closed drums. Drums and/or roll-off bins containing soil or water will be clearly labeled. Hydrocarbon-affected soil or water will be removed from the site at the earliest opportunity.

7.5 PERSONAL PROTECTIVE EQUIPMENT

Field personnel involved in site assessment and remediation are required to be prepared with the following personal protective equipment:

- Hard hats
- Half-face air purifying respirators with organic vapor cartridges and dust/mist filters
- Safety glasses with side-shields, or splash goggles
- Tyvek coveralls and other suitable work clothing
- Chemical-resistant gloves
- Steel-toe boots or boot covers
- Ear plugs or other suitable hearing protection
- Traffic safety vests

7.6 PROTECTION FROM AIRBORNE TOXIC CHEMICALS

Workers will be required to wear half-face air purifying respirators with organic vapor cartridges under the following circumstances:

1. If the worker is continuously exposed throughout the day to VOC vapors that exceed the permissible exposure level - time-weighted average (PEL-TWA) for gasoline (300 ppm).

2. If the worker is exposed at any time to VOC vapors that exceed the permissible exposure level - short-term exposure limit (PEL-STEL) for gasoline (500 ppm).

Similar precautions will be taken with regard to other toxic chemicals, such as BTEX components.

7.7 OTHER PHYSICAL HAZARDS

In general, accidents will be prevented by personal protective equipment, environmental controls, engineering controls, and the exercise of reasonable caution during work activities. Other potential hazards and corresponding precautions include the following:

Physical Contact with Contaminated Soil

Workers who must come in direct contact with VOC-contaminated soil or groundwater for sampling purposes will be required to wear protective gloves and/or necessary protective clothing to prevent skin contact.

Noise Exposure

Project personnel entering high-noise areas will be required to wear hearing protection (ear plugs or muffs).

Heat Stress

Heat stress can impair worker coordination and judgement and directly impact health and safety. Heat stress is more likely when personal protective equipment is in use. Project personnel will be provided with beverages, shaded rest areas, and breaks, as needed, to prevent heat stress.

Cold Exposure

To guard against cold injury (frostbite and hypothermia), which is a danger when the temperature and wind-chill factor are low, employees will wear appropriate clothing, have warm shelter readily available, and maintain carefully scheduled work and rest periods.

Biological Hazards

The only biological factors anticipated during operations would be those posed by poisonous plants, insects, animals, and indigenous pathogens. Protective clothing and respiratory equipment can help reduce the chances of exposure. Thorough washing of any exposed body parts and equipment will help protect against infection.

8.0 EMERGENCY RESPONSE

The SSO will have controlling authority during an emergency. In the event that this person is not available, the Alternate Safety Officer will be in charge. Emergency response organizations, locations, and contacts are listed at the end of this SSP.

9.0 GENERAL SAFETY REQUIREMENTS

The following requirements will also be observed:

- The SSO has the authority to correct unsafe site conditions. Accidents, injuries, and potentially unsafe working conditions shall be reported to the SSO immediately.
- Eating, smoking, and drinking will be allowed only in designated offsite areas. Site personnel will wash their hands and faces thoroughly prior to eating or drinking.
- Respirators will be cleaned, sanitized, inspected, and maintained by employees after each use.
- Fire extinguishers will be onsite for use on equipment or small fires only.
- An adequately stocked first aid kit will be onsite during work activities.

Practical engineering and geological information, experience, and accepted practices will be employed, as necessary, to control site safety while carrying out the proposed site assessment and remediation work.

10.0 LIST OF KEY PERSONNEL

Site Safety Officer:	AILSA S. LE MAY Alton Geoscience
Alternate Safety Officer:	KEVIN KEENAN Alton Geoscience
Supervisor/Offsite Coordinator: (510) 606-9150	KATHERINE R. PRICE Alton Geoscience
Client Contact: (818) 865-9200	SRIKANTH DASAPPA USA Gasoline Corporation

EMERGENCY SERVICES

The following list provides the location and telephone number for emergency services in the vicinity of the project site. Directions to medical facilities are included below, and a map is attached at the end of this site safety plan.

LOCATION	TELEPHONE
Emergency Situation:	911
Medical Facilities:	
San Leandro Hospital 13855 E. 14th Street San Leandro, California	(510) 357-6500

From the site go south on Macarthur Boulevard for approximately 1.25 miles, then turn right (west) on Estudillo Avenue. Proceed west on Estudillo Avenue for approximately 1 mile, then turn left (south) on E. 14th Street. Proceed south on E. 14th Street for approximately 1 mile. The hospital is located on the right (west) side of E. 14th Street.

Fire Department:	
Oakland Fire Department 1605 Martin Luther King, Jr., Way Oakland, California	911
Police Department:	
Oakland Police Department 455 7th Street Oakland, California	911
Poison Control Center:	
Poison Center - Regional	(800) 523-2222
California State Office of Emergency Services:	(510) 646-5908
USA Dig Alert:	(800) 624-2444

SITE SAFETY PLAN COMPLIANCE LOG

For Activities Performed at:
Former USA Gasoline Station #57
10700 Macarthur Boulevard
Oakland, California

I have read and understand this Site Safety Plan and hereby agree to comply with all safety requirements outlined herein.

Signature: _____ Date: _____
Site Safety Officer, Alton Geoscience, Inc.

Signature: _____ Date: _____
Alternate Safety Officer, Alton Geoscience, Inc.

Print Name: _____
Signature: _____ Date: _____
Company: _____ Title: _____

Print Name: _____
Signature: _____ Date: _____
Company: _____ Title: _____

Print Name: _____
Signature: _____ Date: _____
Company: _____ Title: _____

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Print Name: _____
Signature: _____ Date: _____
Company: _____ Title: _____

Print Name: _____
Signature: _____ Date: _____
Company: _____ Title: _____

SITE SAFETY PLAN COMPLIANCE LOG

Former USA Gasoline Station #57

(Continued)

Print Name: ______________________________

Signature: ______________________ Date: ______________

Company: ______________________ Title: ______________

Print Name: ______________________________

Signature: ______________________ Date: ______________

Company: ______________________ Title: ______________

Print Name: ______________________________

Signature: ______________________ Date: ______________

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