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93 NOV 10 AM 11:00

November 5, 1993

Mr. Steve Chrissanthos
901 Lincoln Avenue
Alameda, CA 94501

RE: Work Plan for Monitoring Well Construction

Dear Mr. Chrissanthos:

Enclosed, please find the Work Plan for the installation of three additional monitoring wells and groundwater sampling at 2425 Encinal Avenue in Alameda, California, per request of Alameda County Health Agency - Hazardous Materials Section.

If you have any question regarding this Work Plan, please do not hesitate to contact me.

Sincerely,

Misty Kaltreider
Geologist

cc: Ms. Juliet Shin - Alameda County Health Care Services Agency
Mr. Richard Hiett - Regional Water Quality Control Board

Encl.

1000 Atlantic Avenue, Suite 110 • Alameda, CA 94501 • (510) 522-8188 • FAX: (510) 865-5731

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WORK PLAN
ADDITIONAL GROUNDWATER INVESTIGATION
2425 ENCINAL AVENUE
ALAMEDA, CALIFORNIA

Prepared for:

Mr. Steve Chrissanthos
901 Lincoln Avenue
Alameda, California 94501

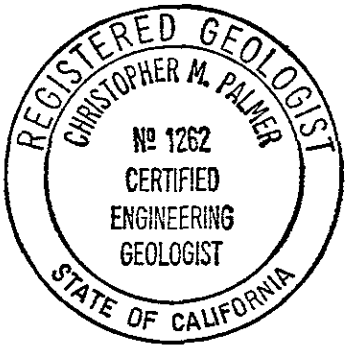
November 1993

Prepared by:

Misty Kaltreider
Misty Kaltreider
Project Geologist

Reviewed by:

Christopher M. Palmer
Christopher M. Palmer, CEG # 1262
Certified Engineering Geologist



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WORK PLAN
2425 ENCINAL AVENUE, ALAMEDA

1.0 Introduction

ACC Environmental Consultants, Inc. ("ACC") is pleased to present this Work Plan for additional groundwater investigation to Mr. Steve Chrissanthos ("Owner") for the site located at 2425 Encinal Avenue, Alameda, California (Figure 1). The object of this project is to install three additional monitoring wells to evaluate the extent of groundwater contamination.

2.0 Background

The site is presently occupied by Alameda Cellars, a commercial liquor store. In March 1990, two 10,000-gallon gasoline tanks were removed form the property. Analysis of the soil samples collected from beneath the two gasoline tanks indicated up to 710 parts per million (ppm) of Total Petroleum Hydrocarbons (TPH) as gasoline.

In December 1992, five borings were drilled on-site. Three of the borings were converted into monitoring wells MW-1, MW-2a, and MW-3. Analytical results of the soil collected during drilling and soil sampling indicated a maximum soil concentration of TPH as gasoline as 1,365 ppm. Benzene concentration was 18.9 ppm in the same sample.

Initial groundwater samples collected in January 1993 from the monitoring wells indicated a maximum TPH as gasoline concentration of 5,680 parts per billion (ppb) (MW-2a) and a maximum benzene concentration of 1,560 ppb (MW-1).

Additional soil investigation was conducted in May 1993 to evaluated the extent of contamination in the soil. Findings indicated the lateral extent of hydrocarbon impacted soil did not extend beyond the property boundaries along the northern, western and eastern sides. However, along the southern side, the impacted soil appears to extend into Park and Encinal Avenues. Field observations made during the additional investigation and soil sample analysis indicated the soil hydrocarbon plume is primarily around the former tank excavation and the former dispenser island. The vertical limit of hydrocarbons in the soil is estimated to occur at the present soil/groundwater level.

Analysis of "grab" groundwater samples collected from borings drilled during the additional investigation indicate the residual hydrocarbon from the former tank excavation and dispenser island is migrating off-site via the groundwater.

Additional groundwater samples collected from the on-site monitoring wells indicated elevated levels of constituents evaluated.

Per request of Alameda County Health Care Services - Hazardous Materials Division (ACHCS), a Preliminary Site Assessment will be conducted to further evaluate the groundwater contamination from the gasoline release on-site.

3.0 SCOPE OF WORK

ACC will drill three borings to evaluate the extent of groundwater contamination. The borings will be converted into a 2-inch diameter monitoring wells. The proposed locations of the additional wells are illustrated in Figure 2. The total depth of the wells will be approximately 15 to 20 feet below ground surface.

During drilling, undisturbed soil samples will be obtained for chemical analysis and geotechnical classification at five-foot intervals, distinct lithologic changes and at the soil/groundwater interface, beginning at five feet below grade to the bottom of the borings (see Appendix A, "Soil Sampling in Boreholes and During Construction of Monitoring Wells").

Two soil samples per boring will be submitted to a CAL-EPA certified accredited analytical testing laboratory for analysis of Total Petroleum Hydrocarbons as gasoline using EPA Test Method 5030 and benzene, toluene, ethylbenzene and total xylenes (BTEX) by EPA Test Method 8020. The well installation will be conducted in a manner consistent with Regional Water Quality Control Board requirements (see Appendix B, Well Construction).

4.0 DRILLING AND MONITORING WELL INSTALLATION

Drilling permits will be obtained from the Alameda County Water Conservation and Flood Control District - Zone 7 at least five days prior to drilling and sampling activities. The locations of the proposed borings will be marked with white paint. The District, Alameda County Health Department-Environmental Health Division and Underground Service Alert (USA) will be notified at least 48 hours prior to commencing work.

Three borings will be drilled to a depth of 15 to 20 feet below ground surface with a hollow stem auger as groundwater is estimated to occur 8 to 10 feet below ground surface. The well screening and construction will be contingent upon lithology encountered during drilling.

The borings will each be converted into two-inch monitoring wells. The monitoring wells will be screened with 0.020 slot Schedule 40 PVC from roughly 5 to 15 feet below the ground surface. Packing material consisting of # 2/12 sand will be used as annular fill and will be added from the bottom of the screened depth to at least one foot above the top of the screen. A surface seal consisting of bentonite/volclay grout will be added to the top of the sand pack. The wells will be completed with a traffic safe "Christy" box cemented over the top.

During drilling, cuttings will be placed in sealed 55-gallon drums, labeled and left on-site pending receipt of analytical results.

The specifics of the construction and development of the monitoring wells are discussed in detail in Appendix B, "Well Construction". Per Alameda County's Monitoring Well Guidelines, the wells will not be developed until at least 72 hours have elapsed after completion of construction. After development of each well, water samples will be collected and analyzed for Total Petroleum Hydrocarbons as gasoline EPA Test Method 5030 and benzene, toluene, ethylbenzene and total xylenes (BTEX) by EPA Test Method 602 (see Appendix C, Water Sampling in Wells and Boreholes).

Additionally, as specified in Alameda County regulations, the wells will not be sampled until at least 72 hours have elapsed following completion of well development. All purge water generated during the sampling process will be contained on site in DOT-approved 55-gallon drums. Disposal of this purge water will be governed by the laboratory results for the associated water sample.

4.1 Groundwater Monitoring

Subsequent to the installation of the monitoring wells, the newly installed wells will be surveyed to an established benchmark, with an accuracy of 0.01 foot. Additionally, groundwater elevations will be measured monthly for 6 consecutive months an then quarterly thereafter. Groundwater samples will be collected quarterly from the newly installed wells and the existing monitoring wells, and submitted to a CAL/EPA analytical laboratory for TPH as gasoline by EPA Test Method 5030 and BTEX by EPA Test Method 602.

Prior to each sampling event, the water level elevation in all the wells will be measured. ACC will collect, store, and transport the water samples in accordance with existing regulatory guidelines (see Appendix C, "Water Sampling in Wells and Boreholes").

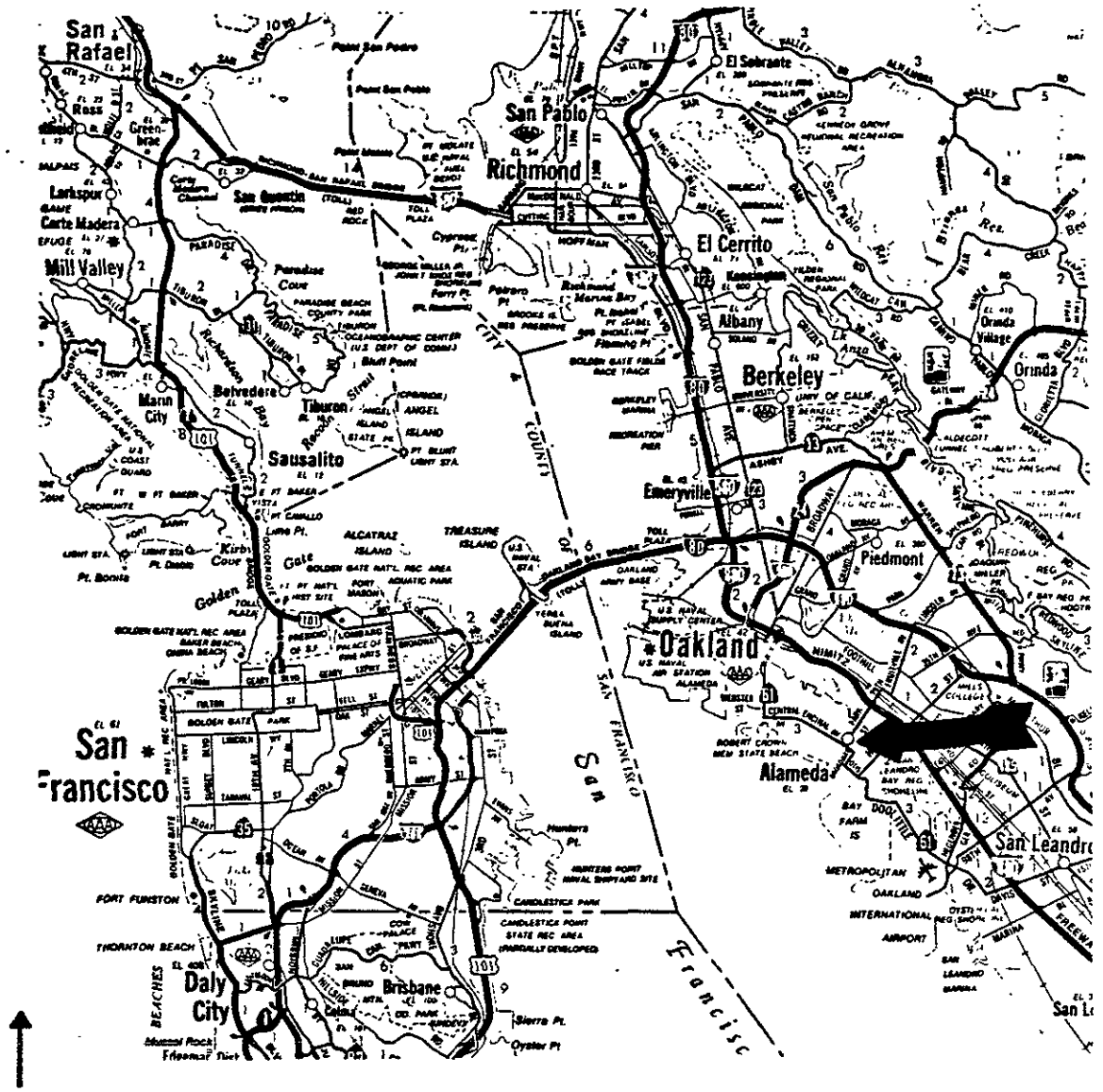
A report containing the analytical results will be submitted to Alameda County Environmental Health and the Regional Water Quality Control Board on a quarterly basis. The quarterly report will also include a maps showing the monthly groundwater gradient and analytical findings.

5.0 HEALTH AND SAFETY PLAN

A site health and safety plan which encompasses the proposed work at the site and complies with the requirements of 29 CFR Part 1910.120 is presented in Appendix D.

6.0 TECHNICAL REPORTS

A technical report discussing the monitoring well installation and the initial groundwater sampling event at the site will be submitted to the client for their review and acknowledgement, prior to sending the report to Alameda County Environmental Health Department and the Regional Water Quality Control Board shortly after completion of the each sampling event. Additional reports detailing groundwater monitoring activities and results will be submitted on a quarterly basis thereafter.



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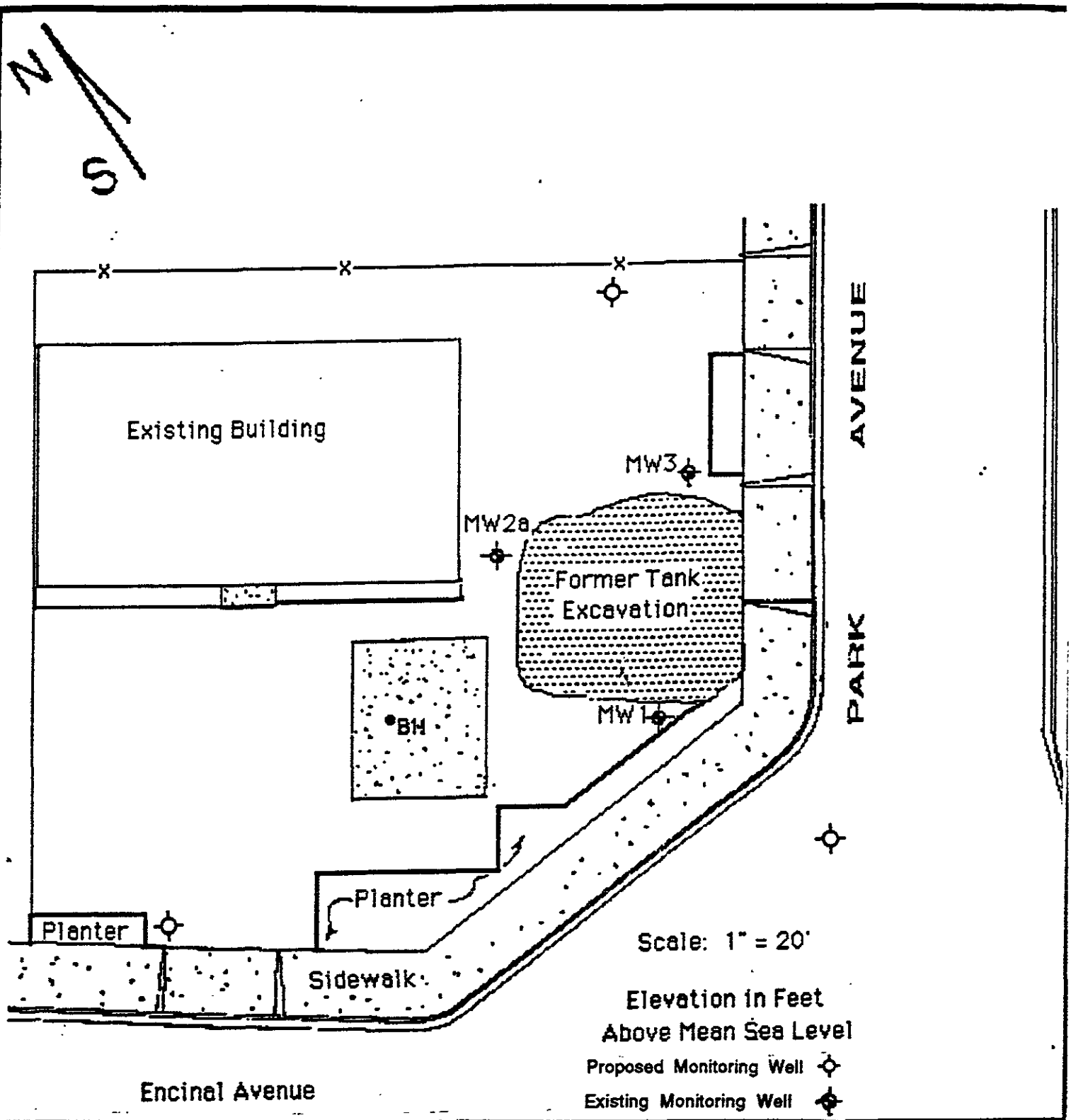
(Source: California State Automobile Association)

ACC Environmental Consultants, Inc. 1000 Atlantic Avenue, Suite 110 Alameda, California 94501		Location Map 2425 Encinal Avenue Alameda, California	
Project No. 6039-3	Date: 12/04/92	Dn by: MRD	Figure 1



ACC Environmental Consultants, Inc. 1000 Atlantic Avenue, Suite 110 Alameda, California 94501	Proposed Monitoring Well Locations Alameda Cellars 2425 Encinal Avenue Alameda, California

Project No. 6039-4	Date: 10/11/93	Dn by: CM	Figure 2

APPENDIX A

SOIL SAMPLING IN BOREHOLES AND DURING CONSTRUCTION OF MONITORING WELLS

SOIL SAMPLING IN BOREHOLES AND DURING CONSTRUCTION OF MONITORING WELLS

U.S. Environmental Protection Agency standards serve as the foundation for all field sampling operations performed by ACC. EPA SW 846 is the primary publication from which procedures are derived. While some aspects of field and laboratory work may be delegated to the CAL EPA-Department of Toxic Substances Control (DTSC), the Bay Area Regional Water Quality Control Board, and the Health Services Agency - Department of Environmental Health establish the general and specific criteria for sampling.

SAMPLE INTERVALS

Undisturbed soil samples will be obtained for chemical analysis and geotechnical classification at five-foot intervals or at distinct lithologic changes, beginning at five feet below grade.

COLLECTION DEVICES

Samples will be collected using a 2-inch or 2.5-inch inside diameter Modified California Split Spoon Sampler containing three, six-inch-long or two three-inch-long between two six-inch-long brass tubes. The sample collection device and tubes will be decontaminated before and after each use by steam cleaning or by an Alconox solution wash, tap water rinse and deionized water rinse. The sampler will be driven ahead of the auger using a 140-pound drop hammer. The average blow counts required to drive the sampler the last 18 inches will be recorded on the boring logs.

PRESERVATION AND HANDLING

After collection, sample tubes will be labeled, sealed at each end with Teflon sheeting and PVC end caps, placed in ziplock bags and stored in an ice filled cooler to be delivered under chain-of-custody to a State-certified laboratory by the next business day.

SOILS CLASSIFICATION

Soil exposed at the ends of each brass tube will be examined by a geologist for obvious signs of contamination and classified according to the Unified Soil Classification System. These observations will be recorded in the boring logs.

Selection of samples for laboratory analysis will be based primarily on headspace readings using a Photo ionization device (PID) and position within the boring. In general, samples with headspace readings over 50 ppm or that have visual or olfactory indications of contamination will be submitted for analysis. One sample will also be selected from one or two sampling intervals below the apparent lower limit of contamination to obtain a "zero line" value. In addition, the sample closest to the depth of the storage tank invert will be submitted for analysis. If the water table is above the tank invert, the sample closest to the water table will be selected.

SAMPLE LABELING AND CHAIN OF CUSTODY

Samples selected for analysis will be labeled with self-adhesive, pre-printed labels indicating project name (or number), sample number, boring/well number, sample depth, date and time of sample collection, and required analyses. The same information will be recorded on the chain of custody.

APPENDIX B

WELL CONSTRUCTION

GENERAL PRACTICES

Each monitoring well will be designed to register the potentiometric surface, facilitate soil sampling, and permit water sampling. ACC's standard procedures for well installation and soil/water sampling meet or exceed guidelines set forth by the EPA, California State Regional Water Quality Control Board, and the Alameda County Department of Environmental Health. Drilling, construction, and completion of all exploratory borings and monitoring well will be in conformance with procedures in this appendix.

DRILLING PROCEDURES

Monitoring wells will be drilled with a hollow-stem, continuous-flight auger. All boring and logging will be supervised by a geologist with special attention given to the avoidance of cross contamination of underlying aquifers. The following procedures used by ACC geologist prevent pollution of clean aquifers underlying contaminated zones:

1. Drilling will cease if five feet of saturated impermeable material is encountered. It will be assumed that any significant saturated, impermeable layer, such as a clay layer, is an aquitard separating the shallow and deep aquifers and should not be penetrated.

2. Drilling will be terminated 20 feet below any perched or unconfined water table.

3. Drilling will be terminated at 45 feet below ground surface if groundwater is not encountered. This is above nearly all deep aquifers currently supplying groundwater in the Bay Area.

The drill rig operator and ACC geologist will discuss significant changes in material penetrated by the drill, changes in drilling conditions, hydraulic pressure, and drilling action. The ACC geologist will be present during the drilling of exploratory borings and will observe and record changes by time and depth, evaluate the relative moisture and content of the samples, and note water producing zones. This record will be used later to prepare a detailed lithologic log. Lithologic descriptions will include soil or rock type, color, grain size, texture, hardness, degree of induration, carbonate content, presence of fossils or other materials (gypsum, hydrocarbons), and other pertinent information. A copy of the logs will be retained in the field file at the project site.

Soil Cuttings

Soil cuttings generated during drilling will be placed in steel, DOT-approved drums. Drums will be labeled as to contents, suspected contaminants, date container filled, expected removal date, company dame and phone number of technical contact, and name of generator. Drums will be sealed and left on-site for subsequent disposal pending receipt of analytical results. Disposal of soil cuttings will be the responsibility of the owner/generator, although ACC may arrange for disposal if so requested.

SCREEN AND CASING

The monitoring well assembly will consist of new schedule-40 (minimum), flush-threaded, polyvinyl chloride (PVC) casing from the bottom of the boring to the ground surface. Casing will be shipped in protective wrappers.

From the base of the well to approximately five feet above the ground water surface, casing will consist of perforated casing (well screen); the remainder of the well will be solid PVC casing. Perforated casing (well screen) will be factory slotted. Screen sizes are intended to facilitate hydraulic connection between the monitoring well and the surrounding aquifer while retaining 70 to 90% of the filter pack material.

Upon completion of drilling, well casing will be assembled and lowered to the bottom of the boring. Since using glue to connect casing sections could cause false analytical interpretations of water quality, the casing will be connected with dry threads or slip joints. The bottom of the casing will be approximately flush with the bottom of the boring and will be capped with a threaded PVC cap or plug. Using the lithologic log for control, the ACC geologist will specify the exact depths of screened intervals so that the well screen is approximately opposite the water-bearing zone to be monitored.

Where possible, the casing will extend six inches above the ground surface. When monitoring wells are placed in traffic areas there they cannot extend above the surface, locking, pre-cast concrete or cast iron boxes and covers will be installed.

FILTER PACK

After the monitoring well assembly has been lowered to the specified depth, filter pack will be placed in the annular space between the well casing and borehole from the bottom of the well to approximately two feet above the top of the well screen. The depth to the top of the filter pack will be verified using the tremie pipe or a weighted steel tape. Filter pack will be at least 95% silica sand. Sand will be hard, durable, well-rounded, spherical grains that have been washed until free of dust and contamination.

American Society for Testing and Materials (ASTM) recommends the following guidelines for screen slot and filter pack selection based on the anticipated strata:

Anticipated Soil Type	Recommended Well Screen Slot Size (inches)	Recommended Filter Pack Material (U.S. sieve sizes)
Sand & Gravel	0.030	20 to 4
Silt & Sand	0.020	30 to 8
Clay & Silt	0.010	50 to 16

Reference: Development Methods for Water Wells: An Anthology: NWWA Water Well Journal, June 1988.

GROUT SEAL

A layer of bentonite pellets approximately one foot thick will be placed above the filter pack and charged with water. The depth to the top of the bentonite pellets layer will be verified using the tremie pipe or a weighted steel tape.

A cement-bentonite grout mixture will be tremied into the annular space from the bentonite seal to the top of the well. The grout material will be a mixture of Portland Type I/II cement (94 lb.) to five gallons of clean water or a sand-cement slurry with a minimum of 11 sacks of portland Type I/II cement per cubic yard. Only clean water from a municipal supply shall be used to prepare the grout. Well development will not begin until the grout has set for a minimum of 72 hours.

CAPPING WELLS

Following well construction, a steel or pre-cast concrete wall vault (or valve box) will be installed below ground surface. A metal tag containing well number and construction data will be permanently attached to the well vault. A steel well cover clearly marked "monitoring well" will be bolted to the vault. A suitable watertight, locking well cap will be fitted to the riser casing to prevent the entry of surface runoff or foreign matter.

WELL DEVELOPMENT

When well installation is complete, the well will be developed by surging, and/or bailing, and/or pumping to remove fines from the formation and filter pack. Well development generally restores natural hydraulic properties to the adjacent soils and improves hydraulic properties near the borehole so the water flows more freely in the well. At least three well volumes

casing volumes will be removed from the wells. There are at least two common methods for determining that water in casing storage has been removed and water is flowing freely from the aquifer: (1) Monitor water level while pumping. When the pumping water level has "stabilized," it is likely that little or no water from casing storage is being pumped. (2) Monitor the temperature, pH and conductivity of the water while pumping. When these parameters "stabilize," it is probable that little or no water from casing storage is being pumped and that most of the water is coming from the aquifer. ACC will use the latter method. During development, pH, specific conductance, and temperature of the return water from the water pump will be measured. Well development will proceed until these field-measured water quality parameters have stabilized and the water is, in the judgement of the geologist, at its greatest possible clarity.

Temperature, pH and specific conductance meters will be calibrated per manufacturer's guidelines. Calibration shall be documented in the field log book or data sheets and will include a description of the calibration method, identification number of equipment, and/or regents used in calibration.

Temperature will be measured with a mercury-filled, Centigrade-scaled, bimetallic-element thermometer, or electronic thermistor.

pH measurements will be made shortly after collection of the sample preferably within a few minutes.

Conductivity will be measured by dipping the conductivity prove in the water source or sample. The probe must be immersed above the vent. The temperature of the sample will be used to calculate specific conductance from the conductivity measurement. Conductivity will be reported in units of micromhos per centimeter (mmho/cm) at 25°C.

WELL PURGING AND WATER SAMPLING

Purging and sampling will not begin for at least 72 hours following construction to allow grout to set. Purging and sampling will be in accordance with procedures in Appendix D, Water Sampling in Wells, and Boreholes.

DOCUMENTATION

A well construction diagram for each monitoring well will be completed by the geologist and submitted to the project manager when the work has been completed. In addition, the details of well installation, construction, development, and field measurements of water quality parameters will be summarized as daily entries in a field notebook or data sheets which will be submitted to the project manager when the work has been completed.

DRILLING EQUIPMENT DECONTAMINATION PROCEDURES

The sampler and liners will be decontaminated before and after each use by steam cleaning or washing in an Alconox solution, followed by tap water and deionized water rinses. Only clean water from a municipal supply will be used for decontamination of drilling equipment. Sampler and liners will be sealed in plastic bags or other sealed containers to prevent contact with solvents, dust or other contamination.

All rinsate used in the decontamination process will be stored on site in steel DOT approved drums. Drums will be labeled as to contents, suspected contaminants, date container was filled, expected removal date, company name, contact and phone number. These drums will be sealed and left on-site for subsequent disposal pending receipt of analytical results.

APPENDIX C

WATER SAMPLING IN WELLS AND BOREHOLES

GENERAL CONSIDERATIONS

In general, the composition of water within the well casing and in close proximity to the well is not representative of groundwater quality. This may be due to contamination by drilling fluids or equipment or disparities between the oxidation-reduction potential in the well and the redox potential in the aquifer. To obtain a representative sample of groundwater, the well should be pumped or bailed until the well is thoroughly flushed of standing water and contains fresh water from the aquifer. One common procedure is to pump or bail the well until a minimum of three boring volumes (or alternatively, 10 well volumes) have been removed.

At the least, pumping should continue until water in casing storage has been removed. There are at least two common methods for determining that water in casing storage has been removed and water is flowing freely from the aquifer: (1) Monitor water level while pumping. When the pumping water level has "stabilized," it is likely that little or no water from casing storage is being pumped. (2) Monitor the temperature, pH and conductivity of the water while pumping. When these parameters "stabilize," it is probable that little or no water from casing storage is being pumped and that most of the water is coming from the aquifer. ACC utilizes the latter method.

PURGING

During each round of sampling, static water level will be measured prior to purging using an electronic sounder. All water-level measurements will be recorded to the nearest 0.01 foot with respect to mean sea level.

A minimum of three bore volumes will be purged from the well prior to sampling. Bore and well volumes will be calculated using the table in this Appendix. To ensure that water in the well has been exchanged, pumping or bailing shall commence at the top and work downward. The well will be allowed to return to 80% of the original water level before sampling.

Temperature, pH and specific conductance will be measured for each boring volume pumped. Purging will continue until these field-measured water quality parameters have stabilized and the water is, in the judgment of the geologist, representative of water in the aquifer. Data obtained from field water quality measurements will be recorded in the field log book or data sheets. A separate allotment of groundwater collected from the purge water outlet stream will be used for field measurements; samples intended for laboratory analysis will not be used.

Temperature, pH and specific conductance meters will be calibrated per manufactures guidelines. Calibration will be documented in the field log book or data sheets and will include a description of the calibration method, identification number of equipment, and/or regents used in calibration.

VOLUME OF WATER IN CASING OR HOLE

Diameter of Casing or Hole (inches)	Gallons per foot of Depth	Cubic Feet per foot of Depth	Liters per Meter of Depth	Cubic Meters per Meter of Depth
1	0.041	0.0055	0.509	0.509×10^{-3}
1.5	0.092	0.0123	1.142	1.142×10^{-3}
2	0.163	0.0218	2.024	2.024×10^{-3}
2.5	0.255	0.341	3.167	3.167×10^{-3}
3	0.367	0.0491	4.558	4.558×10^{-3}
3.5	0.500	0.0668	6.209	6.209×10^{-3}
4	0.653	0.0873	8.110	8.110×10^{-3}
4.5	0.826	0.1104	10.26	10.26×10^{-3}
5	1.020	0.1364	12.67	12.67×10^{-3}
5.5	1.234	0.1650	15.33	15.33×10^{-3}
6	1.469	0.1963	18.24	18.24×10^{-3}
7	2.000	0.2673	24.84	24.84×10^{-3}
8	2.611	0.3491	32.43	32.43×10^{-3}
9	3.305	0.4418	41.04	41.04×10^{-3}
10	4.080	0.5454	50.67	50.67×10^{-3}
11	4.937	0.6600	61.31	61.31×10^{-3}
12	5.875	0.7854	72.96	72.96×10^{-3}
14	8.000	1.069	99.35	99.35×10^{-3}
16	10.44	1.396	129.65	129.65×10^{-3}
18	13.22	1.767	164.18	164.18×10^{-3}
20	16.32	2.182	202.68	202.68×10^{-3}
22	19.75	2.640	245.28	245.28×10^{-3}
24	23.50	3.142	291.85	291.85×10^{-3}
26	27.58	3.687	342.52	342.52×10^{-3}
28	32.00	4.276	397.41	397.41×10^{-3}
30	36.72	4.909	456.02	456.02×10^{-3}
32	41.78	5.585	518.87	518.87×10^{-3}
34	47.16	6.305	585.68	585.68×10^{-3}
36	52.88	7.069	656.72	656.72×10^{-3}

1 Gallon = 3.785 Liters
1 Meter = 3.281 Feet
1 Gallon Water Weighs 8.33 lbs. = 3.785 Kilograms
1 Liter Water Weighs 1 Kilogram = 2.205 lbs.

Temperature will be measured with a mercury-filled, Centigrade-scaled, bimetallic-element thermometer, or electronic thermistor.

Acidity/alkalinity (pH) will be measured by dipping the pH probe in the water source or sample; pH will be measured soon after collection of the sample, preferably within a few minutes.

Conductivity will be measured by dipping the conductivity probe in the water source or sample. The temperature of the sample will be used to calculate specific conductance from the conductivity measurement. Measurements shall be reported in units of micromhos per centimeter at 25^{o}C.

SAMPLE COLLECTION

Wells and borings will be sampled using a new, clean, disposable Teflon bailer attached to new, clean string. Sample vials and bottles will be filled to overflowing and sealed so that no air is trapped in the vial or bottle. Once filled, samples shall be inverted and tapped to test for air bubbles. Samples will be contained in vials and bottles approved by the US EPA and the Regional Water Quality Control Board. Some analyses may require separate sample containers in accordance with EPA methods described in 40 CFR Part 136 and SW-846.

Water samples intended for volatile hydrocarbon analysis will be contained in 40 ml VOA vials prepared according to EPA Method 602 will contain a small amount of preservative (HCL) in the voa. Samples intended for analysis by EPA Method 601 and EPA 624 GCMS procedures will not be preserved. Water samples intended for low level diesel analysis will be stored in amber glass 1-liter bottles to reduce degradation by sunlight. Antimicrobial preservative (HCL) may be added to the sample if a prolonged holding time is expected prior to analysis.

Sample containers will be labeled with self-adhesive, pre-printed tags. Labels will contain the following information in waterproof ink:

- Project number (or name)
- Sample number (or name)
- Sample location (Well number, etc.)
- Date and time samples were collected
- Treatment (preservative added, filtered, etc.)
- Name of sample collector

All samples will stored in ice filled coolers to be delivered to an EPA/CAL accredited laboratory for analysis.

All purged water will be stored on site in steel, DOT-approved drums. Drums will be labeled as to contents, suspected contaminants, date container filled, expected removal date, company name, contact and phone number. The drums will be left on-site for subsequent disposal pending receipt of analytical results.

DOCUMENTATION

Sampling information will be recorded in ink in a bound notebook with consecutively numbered pages. Pages will not be removed for any reason. Alternatively, specially formatted field data sheets may be used to record the information collected during water quality sampling. Errata may be marked out with a single line and initialed by the person making the change. The log book and data sheets will be placed in the project file when sampling is completed.

FIELD EQUIPMENT DECONTAMINATION PROCEDURES

Bailers and string will be properly disposed of off-site. All other sampling equipment, such as buckets and stands, will be decontaminated after each use by washing in an Alconox solution, followed by tap water and deionized water rinses. Equipment will be sealed in plastic bags or sealed containers to prevent contact with solvents, dusts, or other types of contamination.

All rinsate used in the decontamination process will be stored on site in steel DOT-approved drums. Drums will be labeled as to contents, suspected contaminants, date container filled, expected removal date, company name, contact and phone number. These drums will be sealed and left on-site for subsequent disposal pending receipt of analytical results.

APPENDIX D

SITE SPECIFIC
HEALTH AND SAFETY PLAN

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ACC

SITE SAFETY PLAN

A. GENERAL INFORMATION

Project Title: **2425 Encinal Avenue, Alameda**

Project No.: **6039-5**

Project Manager: **Misty Kaltreider**

Location: **2425 Encinal Avenue, Alameda, California**

Prepared by/date: **Misty Kaltreider**

Approved by/date: _____

Scope of Work/Objective(s): **Soil Borings, installation of monitoring wells**

Proposed Date of Field Activities: _____

Documentation/Summary:

Overall Chemical Hazard:	Serious	[ ]	Moderate	[ ]
	Low	[X]	Unknown	[ ]
Overall Physical Hazard:	Serious	[ ]	Moderate	[X]
	Low	[ ]	Unknown	[ ]

- -

B. SITE/WASTE CHARACTERISTICS

Waste Types(s):

Liquid [X] Solid [X] Sludge [ ] Gas/Vapor [ ]

Characteristics:

Flammable/ Ignitible	[ ]	Volatile	[X]	Corrosive	[ ]	Acutely Toxic	[ ]
Explosive	[ ]	Reactive	[ ]	Carcinogen	[ ]	Radio-active	[ ]

Other: _____

Physical Hazards:

Overhead [ ] Confined Space [ ] Below Grade [ ] Trip/ Fall [X]

Puncture [ ] Burn [ ] Cut [ ] Splash [ ] Noise [X]

Other: **Hazards with Drilling**

Site History/Description and Unusual Features:
Drilling and Sampling within the Vicinity of former Tank Excavation.

Locations of Chemicals/Waste: **In soil and water**

Estimated Volume of Chemicals/Waste: **Unknown**

Site Currently in Operation: Yes [X] No [ ]

- -

C. HAZARD EVALUATION

List and Evaluate Hazards By Task (ie. sampling/ drilling)

Physical Hazard Evaluation	Anticipated Level of Protection
Task 1. **Drilling**	**D**
Task 2. **Sampling**	**D**
Task 3. **Installing Monitoring Well**	**D**
Task 4. **Groundwater Sampling**	**D**

Modifications: _____

Chemical Hazard Evaluation:

Compound	PEL/TWA	Route of Exposure	Acute Symptoms	Odor Threshold/Desc.
gasoline	**300 ppm**	**inhalation dermal, ingestion**	**skin blisters, nausea, central nervous system disorder**	**Characteristic odor**

D. SITE SAFETY AND WORK PLAN

Site Control: Attach map of the site.

Perimeter identified? [Y] Site secured? [Y] Work areas identified? [Y]

Zone(s) of contamination identified? [N]

Air Monitoring:

Contaminant of Interest	Type of Sample	Monitoring Equipment	Frequency of Sampling
Gasoline	**air**	**HNu**	**Continous - as needed**

Decontamination procedures and solutions:

Tri-sodium phosphate and water, triple rinsed

Special Site Equipment: (Sanitary facilities, lighting, etc)

None anticipated

Site Entry Procedures and Special Considerations

Underground Services Alert (USA) notified to avoid underground utilities

Work Limitations (time of day, weather conditions, etc.)

None anticipated

General Spill Control, if applicable: **N/A**

Investigation-Derived Material Disposal (expendables, cuttings, etc.)

Drum cuttings and rinsate water in covered, labeled 55-gallon DOT certified drums.

Sample Handling Procedures:

Soil samples collected in brass tubes, teflon tape and plastic end caps taped to each end. All samples will be placed in ice-filled coolers until pick-up by laboratory.

E. EMERGENCY INFORMATION

Ambulance **911**

Hospital Emergency Room **(510) 523-4357**

Directions to Hospital (attach map) **Alameda Hospital - 2070 Clinton Avenue.**

Poison Control Center **911**

Police **911**

Fire Department **911**

Laboratory **ChromaLab Analytical**

UPS/Fed. Express **N/A**

Client Contact **Mr. Steve Chrissanthos (707) 522-2145**

Site Contact **Mr. Steve Chrissanthos (707) 522-2145**

SITE RESOURCES

Water Supply Source **On-site**

Telephone **On-site**

Cellular Phone, if available ---

Other ---

EQUIPMENT CHECKLIST

Protective Gear	Quantity	Instrumentation	Quantity
Respirator	[ ]	O2/Explosimeter	[ ]
Cartridges(type)	[ ]	PID (HNu)	[1]
Protective Suit type: **Tyvek**	[1]	Draeger Pump (tubes)	[ ]
Gloves (pr) type: **Nitrile**	[1]	Heat Stress Monitor	[ ]
Steel Toed Boots	[1]	Personal Sampling Pumps	[ ]

Hard Hat	[1]
Safety Glasses	[1]
Ear Plugs	[1]

First Aid Equipment	Quantity
First Aid Kit	[ ]
Portable eye wash	[ ]
Blood pressure monitor	[ ]
Fire extinguisher	[ ]

Miscellaneous	Quantity
Surveyor's tape	[1]
Fiberglass tape	[ ]
Rope/string (100')	[3]
Surveying Flags	[ ]
Camera/film	[1]
Banner tape	[ ]
Coolers	[1]
Teflon tape (roll)	[1]
Bottle labels (set)	[1]
Baggies (set)	[1]
Custody seals	[ ]
Chain of custody forms	[1]
Federal Express forms	[ ]
Bubble wrap	[ ]
Trash bags	[1]
Paper towels (roll)	[1]
Detergent/TSP (box)	[1]
Buckets	[3]
Brushes	[2]

Sampling Equipment	Quantity
Liter bottles	[6]
Half gallon bottles	[ ]
VOA bottles	[6]
String	[ ]
Hand bailers	[3]
Spoons	[ ]
Personal sampling pump supplies	[ ]
Shovel	[ ]

SITE SAFETY REVIEW

General Information

Date _____ Time _____ Project No. **6039-5**

Site **2425 Encinal Avenue, Alameda**

Location **2425 Encinal Avenue, Alameda, California**

Client Contact **Mr. Steve Chrissanthos (707) 522-2145**

Objectives **Soil Borings, installing monitoring wells**

Types of Chemicals Anticipated **Gasoline**

Topics Discussed

Physical Hazards **Typical Hazards assciated with drilling**

Chemical Hazards **Gasoline**

Personal Protection **Level D, modified as required**

Decontamination **Equipment to be decontaminated after each boring. Rinsate water will be drumed**

Special Site Considerations **None anticipated**

ATTENDEES

Name Printed	Signature

HOSPITAL LOCATION MAP