Alpha Geotechnical Consultants, Inc.
310 Main Street, Suite F
Pleasanton, California 94566

(415) 462-7772

LETTER OF TRANSMITTAL

DATE	JOB NO.
9-2-88	211-71-11

ATTENTION: Mr. Larry Seto

RE:

TO: Alameda County Hazardous Materials Management Program
80 Swan Way, Suite #200
Oakland, California 94621

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
1	9-2-88		Report Entitled: "Proposed Workplan"
			Jet Gas Station
			44 Lewelling Boulevard
			San Lorenzo, CA

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit_____copies for approval
☐ For your use ☐ Approved as noted ☐ Submit_____copies for distribution
☒ As requested ☐ Returned for corrections ☐ Return_____corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE _____ 19_____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS _____

RECEIVED
SEP 1 1988
HAZARDOUS MATERIALS
WASTE PROGRAM

COPY TO _____

SIGNED: Darrell Klingman

If enclosures are not as noted, kindly notify us at once.

Darrell Klingman

PROPOSED WORKPLAN
JET GAS STATION
44 LEWELLING BOULEVARD
SAN LORENZO, CALIFORNIA

AUG 1988

FOR

KAYO OIL COMPANY

900 S. CHEROKEE LANE

LODI, CALIFORNIA

AUGUST 30, 1988

JOB NO. 211-71-11

Alpha Consultants, Inc.

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Alpha Environmental Services, Inc.
310 Main Street, Suite F (415) 462-7772
Pleasanton, CA 94566 FAX (415) 462-7944

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August 30, 1988
Job No. 211-71-11

Mr. Mike Hansen
Kayo Oil Company
900 S. Cherokee Lane
Lodi, California 95240

Subject: Proposed Workplan
Jet Gas Station
44 Lewelling Boulevard
San Lorenzo, California

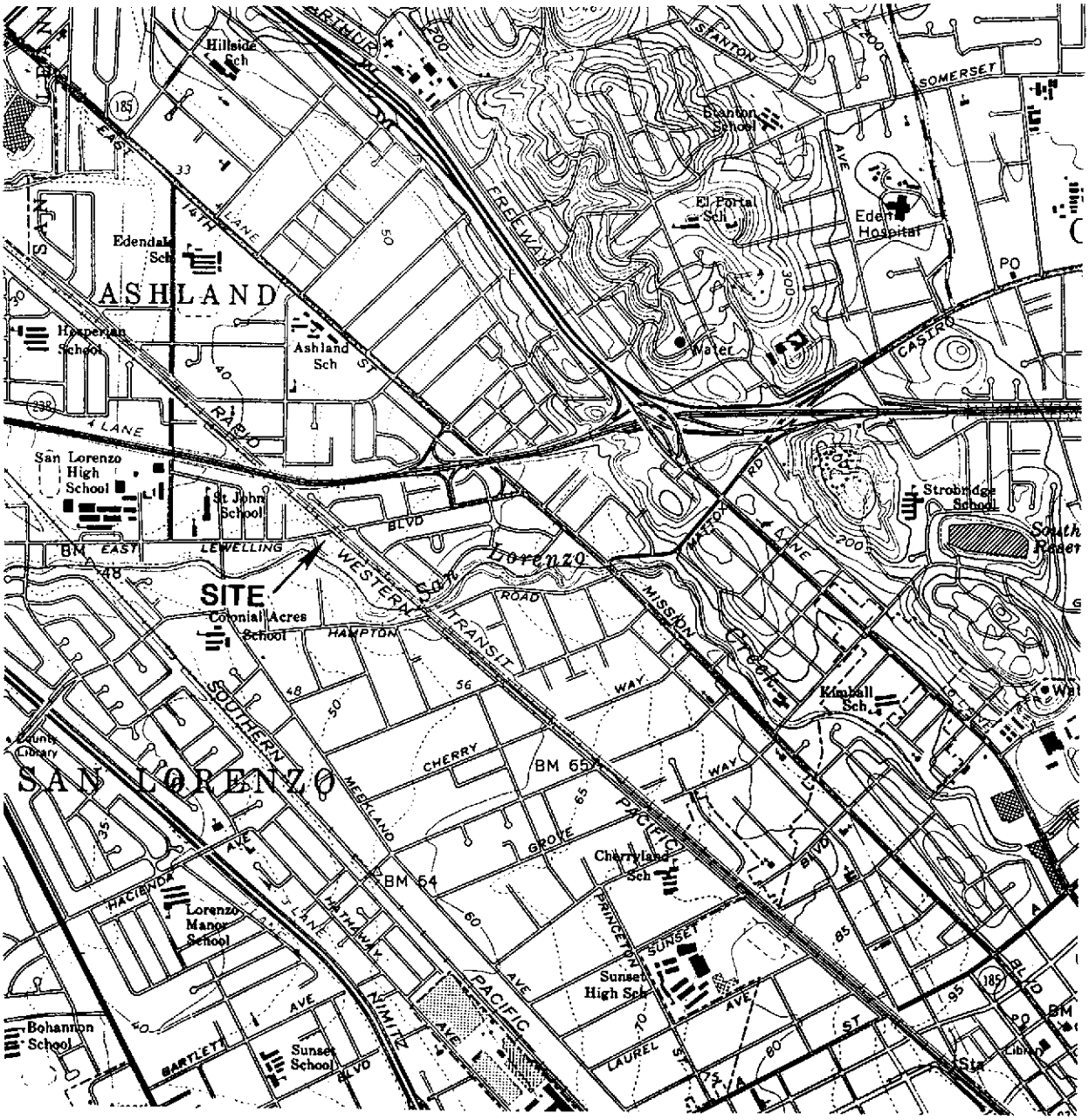
Dear Mr. Hansen:

INTRODUCTION

Kayo Oil Company's Jet Gas Station (formerly Econo Gas Station) is located at 44 Lewelling Boulevard in San Lorenzo (see Location Map, Figure 1). The station is located approximately 200 feet east of the intersection of Lewelling Boulevard and Via Granada in the City of San Lorenzo. Several investigations dating back to 1987 have been conducted by Kayo Oil Company's previous consultants to assess the impact from leakage in the underground storage tanks and piping system. The results of the investigations are presented in reports by Applied Geosystems in 1987 and 1988.

The following is a brief summary of the project site based on our review of reports provided by Kayo Oil Company and site visits:

1. The site contains three 10,000-gallon underground storage tanks which are located in the west-central portion of the property (see Site Plan, Figure 2). These tanks are approximately one-year old and store unleaded, super-unleaded, and regular-leaded gasoline fuel.

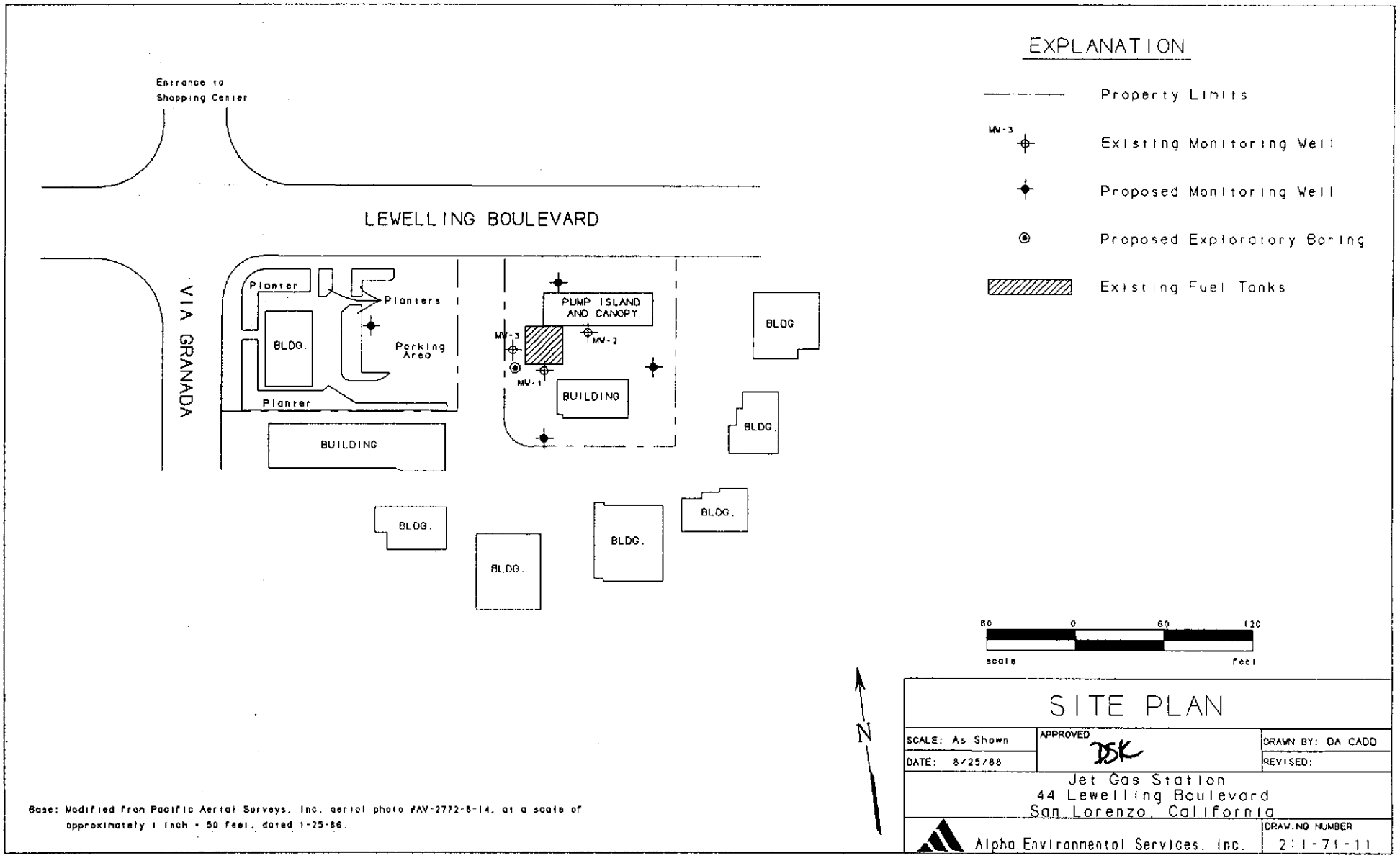


LOCATION MAP

Jet Gas Station
44 Lewelling Boulevard
San Lorenzo, California

BASE: A portion of the U.S.G.S. Hayward 7.5 minute quadrangle, dated 1959, photorevised 1980, scale 1:24,000.

Figure 1



Base: Modified from Pacific Aerial Surveys, Inc. aerial photo #AV-2772-8-14, at a scale of approximately 1 inch = 50 feet, dated 1-25-86.

Figure 2

2. Two 10,000-gallon tanks and one 7,500-gallon storage tank were excavated and removed from the site on April 28, 1987. Six soil samples (S-1 through S-6) were collected from beneath the tanks at a depth of approximately 14 feet. A seventh soil sample (S-17-NW) was collected beneath sample S-3 at a depth of about 17 feet. This additional excavation and sampling was performed due to the moderately high levels of gasoline constituents reported from sample S-3 (1136 ppm). The chemical analytical results from the seven soil samples collected during the tank removal operations are summarized in Table A.

3. Three monitoring wells were installed in the immediate vicinity of the tank cluster by Applied Geosystems on May 26th and 27th, 1987 (see Site Plan, Figure 2). Review of the boring logs for the three monitoring wells shows that the wells were constructed using 2-inch diameter PVC screen and casing with the screened interval extending from approximately 10 feet to 35 feet below the existing grade. Ground water was encountered at a depth of approximately 15 feet and the aquifer materials reportedly consist of interbedded lenses of silt and clay.

4. Four soil samples collected from the boreholes were submitted for chemical analyses and were analyzed for total volatile hydrocarbons (TVH). The reported TVH concentrations ranged from 0.62 ppm (monitoring well MW-2 at 20 feet) to 904 ppm (monitoring well MW-1 at 20 feet). The soil chemical analytical test results are summarized in Table B.

TABLE A

SUMMARY OF SOIL ANALYTICAL TEST RESULTS FOR UNDERGROUND TANK REMOVAL PROGRAM

JET GASOLINE STATION
44 LEWELLING BOULEVARD
SAN LORENZO, CALIFORNIA

Sample ID	Date Sampled	Benzene (mg/kg)	Ethyl-benzene (mg/kg)	Toluene (mg/kg)	Xylenes (mg/kg)	TVH (mg/kg)	Comments
S-1	28-Apr-87	12	14	2	63	329	Sampled by Applied Geosystems
S-2	28-Apr-87	22	26	136	179	663	Sampled by Applied Geosystems
S-3	28-Apr-87	52	43	158	288	1136	Sampled by Applied Geosystems
S-4	28-Apr-87	16	19	8	116	510	Sampled by Applied Geosystems
S-5	28-Apr-87	ND	ND	ND	ND	1.64	Sampled by Applied Geosystems
S-6	28-Apr-87	0.14	0.21	0.08	0.31	4.22	Sampled by Applied Geosystems
S-17-NW	28-Apr-87	1.37	0.40	1.06	1.18	6.98	Sampled by Applied Geosystems

NOTES: 1) All results presented in parts per million.
2) ND = Not Detectable.

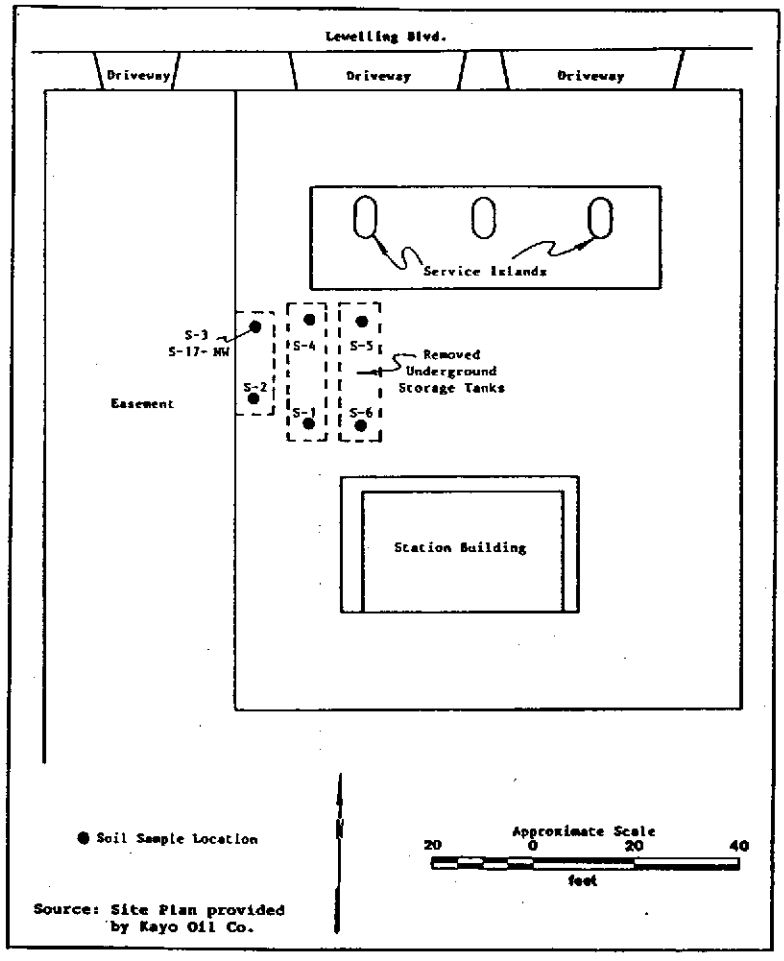


TABLE B

SUMMARY OF SOIL ANALYTICAL TEST RESULTS (ppm)

JET GASOLINE STATION

44 LEWELLING BOULEVARD

SAN LORENZO, CALIFORNIA

Boring or Well ID	Date Sampled	Depth (feet)	Benzene (mg/kg)	Ethyl-benzene (mg/kg)	Toluene (mg/kg)	Xylenes (mg/kg)	TVH (mg/kg)	Comments
MW-1	26-May-87	20.0	NA	NA	NA	NA	904.0	Sampled by Applied Geosystems
MW-2	26-May-87	20.0	NA	NA	NA	NA	0.62	Sampled by Applied Geosystems
MW-3	27-May-87	15.0	NA	NA	NA	NA	101.39	Sampled by Applied Geosystems
	27-May-87	20.0	NA	NA	NA	NA	9.40	Sampled by Applied Geosystems

NOTES: 1) All results presented in parts per million.

2) NA = Not Analyzed or Not Available.

5. The three monitoring wells (MW-1, MW-2, and MW-3) were sampled on a monthly basis between May and September, 1987. The wells were placed on a quarterly sampling schedule in December 1987. During the most recent sampling (June 1988), monitoring wells MW-1, MW-2, and MW-3 showed TVH concentrations of 34 ppm (34,000 ppb), 0.5 ppm (500 ppb), and 54 ppm (54,000 ppb), respectively. Benzene concentrations for monitoring wells MW-1, MW-2, and MW-3 were 290 ppb, less than 0.9 ppb, and 5,900 ppb, respectively. Free-floating product has not been observed in any of the monitoring wells. A summary of all of the ground water chemical analytical test results is included in Table C.

6. The ground-water flow direction beneath the site, based on water level data collected during the scheduled sampling events, has varied from northwest to southwest since May 1987. In June 1988 the direction of ground-water flow was to the northwest with a gradient of approximately 0.01 (i.e., about 1 vertical foot of elevation change per 100 horizontal feet).

7. The Regional Water Quality Control Board, San Francisco Bay Region (in a letter dated July 6, 1988) requested that Kayo Oil Company further delineate the vertical and lateral extent of the ground-water plume contaminated with gasoline at the subject site and summarize the findings in a formal report. The Board stated the report should also address the beneficial uses of the ground water and surface water in the site vicinity and discuss remedial alternatives.

TABLE C

SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

JET GASOLINE STATION

44 LEWELLING BOULEVARD

SAN LORENZO, CALIFORNIA

Well ID	Date Sampled	Benzene (ug/L)	Ethyl-benzene (ug/L)	Toluene (ug/L)	Xylenes (ug/L)	TVH (ug/L)	Comments
MW-1	29-May-87	490	930	150	3790	18050	Sampled by Applied Geosystems
	14-Jul-87	560	950	120	3270	14750	Sampled by Applied Geosystems
	17-Aug-87	630	320	40	1130	12860	Sampled by Applied Geosystems
	01-Sep-87	558	562	84	1942	14269	Sampled by Applied Geosystems
	10-Dec-87	200	273	138	777	14000	Sampled by Applied Geosystems
	10-Mar-88	70	340	40	940	7300	Sampled by Applied Geosystems
	14-Jun-88	290	330	ND(10)	790	34000	Sampled by Applied Geosystems
MW-2	29-May-87	113	46	14	58	4870	Sampled by Applied Geosystems
	14-Jul-87	103	34	25	48	2207	Sampled by Applied Geosystems
	17-Aug-87	37.6	8.2	10.9	11.1	756	Sampled by Applied Geosystems
	01-Sep-87	75.3	16.4	14.2	27.6	1482.5	Sampled by Applied Geosystems
	10-Dec-87	28	38.1	40.6	100.3	1800	Sampled by Applied Geosystems
	10-Mar-88	9.2	7.3	3.1	2.6	1200	Sampled by Applied Geosystems
	14-Jun-88	ND(0.9)	2.2	ND(1)	5.7	500	Sampled by Applied Geosystems
MW-3	29-May-87	5400	1700	3900	5200	40300	Sampled by Applied Geosystems
	14-Jul-87	6880	1580	7080	4770	30320	Sampled by Applied Geosystems
	17-Aug-87	5930	1240	4180	3370	25620	Sampled by Applied Geosystems
	01-Sep-87	8540	1020	6660	3740	38210	Sampled by Applied Geosystems
	10-Dec-87	4240	890	2530	1860	25000	Sampled by Applied Geosystems
	10-Mar-88	3210	940	950	950	13400	Sampled by Applied Geosystems
	14-Jun-88	5900	450	7600	4600	54000	Sampled by Applied Geosystems

NOTES: 1) All results presented in parts per billion.

2) NA = Not Analyzed or Not Available.

3) ND = Not Detectable, detection limits shown in parentheses.

PROPOSED SCOPE OF WORK

In order to address the requests made by the Regional Water Quality Control Board, San Francisco Bay Region, our proposed scope of work includes:

1. Perform a review and assessment of existing data. This would involve review of the data from previous investigations, including, but not limited to available hydrogeologic data such as regional gradient maps, geologic maps, water well drillers reports, USGS and DWR water well data bases, Alameda County and City of San Lorenzo records, and available geotechnical reports for the Jet Gas Station site and vicinity. This data will be used to address the beneficial uses of the ground water and surface water in the immediate vicinity of the site.

2. To drill, log, sample, and install four additional monitoring wells (MW-4 through MW-7) at the locations shown on the Site Plan, Figure 2. The locations of the monitoring wells are designed to define the lateral limits of the ground-water contamination beneath the site. The wells will be constructed using 2-inch diameter, schedule-40 PVC and we anticipate the screened interval will be located at a depth from 10 to 30 feet below the existing grade. Additional construction details are shown on Figure 3, Typical Monitoring Well Construction. The field program will be approached in such a way that if gasoline odor or significant OVA

Typical Monitoring Well Construction

WELL LOG MW-

JOB NUMBER:_____ DATE DRILLED:_____

JOB NAME:_____ SURFACE ELEVATION:_____

DRILL RIG:_____ DATUM:_____

SAMPLER TYPE: _____ DRIVE WEIGHT: _____ HEIGHT OF FALL: _____

NOTE: Actual conditions may differ depending upon conditions encountered

Depth feet	Well Construction	Lab * Analysis	Blows Per Foot	Sample Depth	Sample Type	USCS Symbol	Description
	Concrete Apron						
	Locking steel cover						
	PVC cap						
10							
20	14 Sack Cement/ bentonite grout						
	Sch. 40 PVC Blank casing						
30	Bentonite Seal						
40	Centralizer						
	Slotted Sch. 40 PVC Screen, 0.01" or 0.02" Slots, Typically 4 Slots per Inch						
50							
60							
	Sand Pack						
70							
	Annular Space at least 2" but no greater than 6"						
80							
	Sch. 40 PVC Blank Casing						
90	Centralizer						
	Bentonite Seal						
100							
120							
140							
160							

Alpha Environmental Services, Inc.

Logged by:_____

Approved by:_____

Figure 3

readings are encountered during the drilling operation, Kayo Oil Company would be contacted and a decision could be made as to whether to complete the borehole as a monitoring well or to pursue a more distant location for the well.

3. To drill, log, and sample one exploratory boring (B-1) at the approximate location shown on the Site Plan, Figure 2. The exploratory boring is designed to determine the vertical extent of the plume beneath the site. Soil samples will be collected at 5-foot (or less) intervals and field tested for relative concentrations of total volatile hydrocarbons using an OVA meter. The borehole will be advanced until two successive samples collected below the water table yield non-detectable results using our OVA meter.

4. Survey the elevation and location of all monitoring wells and the exploratory boring.

5. Compile and analyze data and prepare an interpretive report. Data from the proposed wells and exploratory boring will enable a more precise assessment of local ground-water gradients and flow regimes and a better evaluation of the extent of hydrocarbon contamination. The results obtained from this study (e.g. ground-water regime, hydrocarbon contaminant levels with soil and water, gradient, etc.) will be evaluated along with previous investigative works to formulate alternatives for remedial action.

SCHEDULE

The subsurface investigation will be initiated as soon as possible after approval of this workplan, depending on drill rig availability and obtaining of permits and agency approval. We estimate that the field work can be completed in 3 days; laboratory results may take from 2 to 4 weeks. An interpretive report will be submitted approximately 6 weeks following the project commencement date. We will inform Kayo Oil Company of the field schedule.

PERSONNEL AND PROCEDURES

Subsurface exploration of the site will be performed by an Alpha Environmental Services, Inc. Geologist or Geotechnical Engineer working under the direction of an Alpha Environmental California Certified Engineering Geologist. Our field geologist will monitor the drilling program, log the borings, collect soil and groundwater samples, and coordinate delivery of the samples to a certified laboratory. Our licensed geologist will review the exploratory program, make a field visit during drilling, review the data, and participate in report preparation. Other associates of Alpha Environmental Services, Inc. such as hydrogeologists, engineers, geologists and technicians may provide services as needed.

The investigation procedures (drilling and sampling protocol, chain-of-custody, Health and Safety Plan, etc.) will follow the guidelines from the LUFT manual, RWQCB guidelines, etc. as demonstrated on other Kayo Oil Company sites and described in the following attachments.

DRILLING AND SAMPLING PROCEDURES

Borehole Advance

Exploratory borings and monitoring wells will be drilled using a drill rig equipped with hollow-stem, continuous-flight augers. All drill bits, drill rods, augers, etc. will be steam-cleaned prior to use. If the borehole is to be completed as a monitoring well, the borehole will be advanced approximately 15 feet below the water table. If an aquitard (i.e., stiff clay layer) is encountered below the water table, and is found not to be contaminated using field methods (e.g., organic vapor analyzer), then the vertical continuity of this clay layer will be verified by sampling and advancing the borehole 5 feet. If the clay layer is found to be less than 5 feet thick, the clay will be considered a localized clay lens and the borehole will be advanced to the designed depth. If the clay layer is found to be greater than 5 feet thick, the clay will be considered a continuous confining layer and the borehole will be plugged with bentonite or grout to the top of the clay. The monitoring well will be completed in the portion of the saturated zone overlying the clay layer. At the conclusion of drilling each borehole for the monitoring wells, the drill cuttings will be stockpiled on a portion of the property covered with asphalt and the soil piles will be covered and secured with plastic. It is anticipated that the drill cuttings derived from the monitoring wells will contain very low concentrations of gasoline constituents (if any) because the proposed wells are to be located a substantial distance from the contamination source. The drill cuttings derived from the exploratory boring (to be drilled near the center of the ground-water contamination plume) will be drummed and stored on-site until the chemical analytical results are obtained.

The boreholes will be logged and plotted on a site plan by a qualified field geologist under the supervision of a registered geologist or certified engineering geologist. All boring logs will be signed by the field geologist and by a registered geologist or certified engineering geologist.

Soil Sampling

Soil samples will be collected from each borehole between the ground surface and the water table (or bottom of the borehole), as deemed necessary. Relatively undisturbed samples will be taken at intervals no greater than 5-feet using a 2 1/2" I.D. split spoon sampler containing three 2 1/2" x 6" brass tube liners. Standard penetration samples and 5-foot continuous cores may also be collected for additional classification and consistency of data. The following procedures will be employed when collecting and handling soil samples:

1. Prior to sampling, the split spoon sampler and brass tube liners will be thoroughly washed with a trisodium phosphate solution and rinsed thoroughly with potable water.

2. The samples will be retained in the brass tube liners with the ends covered with aluminum foil. Plastic end caps will be emplaced and secured with several wraps of electrician's tape.

3. A sample label will be affixed to each sample which will include job name, job number, boring or monitoring well number, sample depth, date and time collected, and the name of the person who collected the sample. In addition, the brass tube shall also be marked with waterproof ink with the job number, boring or monitoring

well number, and sample depth. This additional labeling is to insure that the sample can be identified, should the affixed label come off.

4. If a 5-foot continuous core is collected, a sample may be collected by subsampling a portion of the core material and placing it in a brass tube (following the methods described in items 1-3).

5. A description of the sample will be entered on a boring log form. This description will at least include soil classification, color, moisture content and consistency (in relative terms), and estimated degree of hydrocarbon contamination (by visual/olfactory methods and by recording organic vapor analyzer readings).

6. Immediately after sample collection and labeling, the samples will be placed in a sturdy ice chest containing ice. The temperature in the chest will be maintained at or below 4 degrees C.

7. When the ice chest is full (or contains all the samples which will be placed in it), a completed chain-of-custody form will be inserted and the ice chest will be closed and sealed.

8. The sealed chest(s) will be transferred to the Alpha Environmental Services, Inc. Pleasanton office where the samples will be selected for chemical analyses. The samples selected for chemical analyses will then be delivered to a State of California-licensed testing laboratory and will be analyzed for total volatile hydrocarbons, benzene, ethylbenzene, toluene, and

xylenes. All remaining samples will be placed in a freezer for storage for no less than 14 days.

WELL CONSTRUCTION AND DEVELOPMENT

Construction

Two-inch diameter PVC casing and screen will be used to complete the ground-water monitoring wells (see Figure 3, Typical Monitoring Well Construction). The proper lengths of screen and blank casing will be thoroughly steam-cleaned and then threaded above ground prior to lowering inside the hollow-stem augers. The well screen will intersect the water table and account for seasonal variations within the aquifer unit. No glue will be used in this assembly.

The annular space between the well screen and the wall of the borehole will be packed with clean sand to provide filtration capacity and prevent movement of sand or silt into the well. The sandpack will extend about 1 to 2 feet above the top of the well screen. A 2-foot thick bentonite plug will be placed above the sandpack and the remaining annular space will be backfilled with cement grout containing about 5 percent bentonite. The grout will be pumped or tremied into the hole if necessary.

Each monitoring well will be protected against vandalism or the entry of surface fluids. All wellheads will be equipped with either a PVC slip cap or a threaded PVC plug. If a threaded PVC plug is used, it will be attached to the wellhead via a PVC slip-female adapter (attached to the well head with teflon tape and stainless steel screws). When possible, wellheads will be secured below the existing grade to minimize the traffic disruption at the service station. The wells will be finished with both a watertight security traffic box and a metal locking-cover (located inside the

traffic box).

Well Development

The monitoring wells will be initially developed using a 1.7-inch O.D. stainless steel bailer used to surge the water around the screened interval to remove fine particles from the casing and to stabilize the sandpack materials around the well screen. After several well volumes of water have been bailed from each well, the well will be either pumped or bailed until the discharge water is free of sand and silt. Development/purging water will be disposed of properly if found to be contaminated. On other Kayo sites, the contaminated purge water has been manifested and recycled by a State Registered Waste Hauler.

GROUND-WATER SAMPLING

Prior to purging, each well will be sampled with a clear teflon bailer in order to observe the possible presence of floating hydrocarbons. Purging will be accomplished by using a 1.7-inch O.D. pump or bailer. Approximately three to five casing volumes of ground water will be discharged from each well prior to sampling. The well will be properly purged when the physical parameters of the ground water (i.e., pH, temperature, and conductivity) have stabilized. If the well is evacuated prior to the removal of the planned "purge" volume, the sample will be collected when the water level is sufficient to provide a representative sample.

Samples will be collected using a stainless steel or clear teflon bailer and stored in a manner to minimize turbulence and the possible loss of volatile constituents. Samples recovered from each well will be decanted into two appropriately prepared 40-ml

volatile organic analysis (VOA) bottles. Care will be taken to avoid the presence of a headspace in any of the sample bottles. After collection, the sample bottles will be documented (i.e., chain-of-custody records), placed in a sealed ice chest maintained at or below 4 degrees Centigrade, and transported to a State of California testing laboratory for analyses. The samples will be analyzed for total volatile hydrocarbons, benzene, ethylbenzene, toluene, and xylenes.

QUALITY ASSURANCE/QUALITY CONTROL AND CHAIN-OF-CUSTODY PROCEDURES

In order to ensure successful sampling, Quality Assurance procedures must be carefully followed. The key points of the Quality Assurance procedures pertain to the submittal of quality assurance samples and document control.

QUALITY ASSURANCE SAMPLES

Quality Assurance samples will be used to evaluate the quality of the obtained data. Two distinct types of Quality Assurance samples will be used for this method.

1. Blind duplicates of soil and water samples will be submitted to the testing laboratory at a rate of 1 per 10 regular samples obtained.

2. Field blanks will be submitted at a rate of 1 per 10 ground-water samples submitted.

Additionally, it is mandatory that all phases of the laboratory's general Quality Assurance program and the specific Quality Control procedures dictated by the test methods be followed.

Chain-of-Custody

All data, documents, samples, and information collected shall be accountable and retrievable at any given time during this investigation. Chain-of-Custody procedures will be generally used to identify and ensure traceability of the samples. They will also be used to document the handling and shipping procedures of the sample. Custody procedures will trace the sample from collection, through all custody transfers, and finally to the storage facility or the analytical laboratory, where the laboratory's internal procedures will govern until final disposition of the samples. This information will be recorded on the Chain-of-Custody form (Figure 4) which will remain with the samples at all times. Proper taping, locking, and sealing shall be used to prevent or detect tampering with the samples.

The Chain-of-Custody form(s) will be used for a packaged lot of samples (that is, more than one sample will most likely be recorded on a single form). If all of the samples in a given lot cannot be recorded on a single form, an additional form(s) will be used.

Alpha Environmental Services, Inc.

310 Main Street, Suite F • Pleasanton, California 94566 • (415) 462-7772

CHAIN OF CUSTODY/WORK ORDER

Testing Laboratory _____ Phone _____

Address _____

City, State, Zip _____

PROJECT NAME						NO. OF CON-TAINERS								REMARKS
JOB NUMBER														
SAMPLERS (Signature)														
SAMPLE I.D.	DATE	TIME	COMP	GRAB	LOCATION									

RELINQUISHED BY (Signature)	DATE	TIME	RECEIVED BY (Signature)	DATE	TIME
REPRESENTING:			REPRESENTING:		
RELINQUISHED BY (Signature)	DATE	TIME	RECEIVED BY (Signature)	DATE	TIME
REPRESENTING:			REPRESENTING:		
RELINQUISHED BY (Signature)	DATE	TIME	RECEIVED BY (Signature)	DATE	TIME
REPRESENTING:			REPRESENTING:		

Figure 4

HEALTH AND SAFETY

Alpha Environmental Consultants, Inc. is dedicated to insuring that its employees work within a safe and healthy environment at potentially hazardous sites. Alpha Environmental Services' Health and Safety program will be implemented during the subsurface exploration phase of this workplan.

Prior to the field work, the field geologist will be briefed on all job-related responsibilities and what protective clothing and safety precautions are required. Sampling, packaging, shipping, and Chain-of-Custody procedures will be reviewed and discussed. Background information pertaining to the job will be reviewed by the field geologist prior to the subsurface exploration. This will give the geologist an understanding of the nature of the materials to be sampled. During the briefing, questions will be encouraged and any appropriate suggestions will be implemented.

The geologist will be informed that independent actions are not allowed. During the field work, if circumstances arise which require deviation from the procedures established in the Health and Safety Plan, they must be approved by appropriate management and Health and Safety personnel prior to proceeding.

The field geologist will conduct a preliminary on-site evaluation prior to initiation of on-site activities. Additionally, the site will be monitored on a periodic basis to evaluate the potential for worker exposure and the required personal protection.

Air monitoring is the principle means of determining necessary levels of personal protection and other health and safety precautions. A flame ionization detector will be used to monitor total organic vapor concentrations in the air within the work area.

Action levels are as follows:

CONCENTRATION (above background)	ACTION REQUIRED
< 10 ppm	No action
> 10 ppm	Personnel within area where this concentration is exceeded must use respirator with organic vapor cartridges and wear goggles.
> 100 ppm	Activities shall be stopped, equipment removed, and borehole/excavation covered.

In the event of an emergency, the following numbers are applicable for this site:

Emergency Services: Fire - 911
Police/Sheriff - 911
Ambulance - 911

Nearest Emergency Hospital: Eden Hospital
Lake Chabot Road
Castro Valley, California
(415) 537-1234

*This hospital is located approximately 3 miles northeast of the site (take Lewelling Blvd. west to Mission Blvd., Mission Blvd. south to Mattox Road, Mattox Road east becomes Castro Valley Blvd., Castro Valley Blvd. east to Lake Chabot Road, turn north on Lake Chabot Road; hospital is on the left).

Standard Health and Safety precautions will be followed at all times, including:

1. Boots, hard hats, and safety glasses shall be worn in accordance with recognized safety practices.

2. Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-to-mouth transfer and ingestion of material will be prohibited in any area designated as contaminated.

3. Hands and face must be thoroughly washed upon leaving the work area and before eating, drinking, or any other activities.

4. Whenever decontamination procedures for outer garments are in effect, the entire body must be thoroughly washed as soon as possible after the protective garment is removed.

5. Contact with contaminated or suspected contaminated surfaces will be avoided.

6. Prescribed drugs will not be taken by personnel if the potential for absorption, inhalation, or ingestion of toxic substances exists unless specifically approved by a qualified physician. Alcoholic beverage intake will not be allowed.

7. Because of the increased potential for fatigue and/or heat prostration when wearing protective garments (due to dehydration, etc.), appropriate rest periods will be scheduled (if such protective garments are deemed necessary).

Respectfully submitted,

ALPHA ENVIRONMENTAL SERVICES, INC.

Darrell Klingman
Project Geologist

DK/kk:rw