Mobil Oil Corporation

3800 WEST ALAMEDA AVENUE, SUITE 700
BURBANK, CALIFORNIA 91505-4331

March 29, 1991

Mr. Rico Duazo
RWQCB - SF Bay Region
1800 Harrison Street, Room 700
Oakland, CA 94612

MOBIL OIL CORPORATION
FORMER S/S 10-H6J
1024 MAIN STREET
PLEASANTON, CALIFORNIA

Dear Mr. Duazo:

Enclosed for your information is the **Proposal for Phase III** Remedial Investigation and Feasibility Study, dated January 21, 1991, for subject location. This additional investigation is required to define the extent of the ground water contamination, excavate additional soil contamination that remains, sample the soil and ground water, perform an aquifer test, and prepare a report including a remedial system design.

An access agreement was sent today to the property owner of the house adjacent to the service station, along Stanley Blvd.

If you have any questions, please feel free to contact me at (818) 953-2519.

Sincerely,

David M. Noe

David M. Noe, P.E.
GW Projects Engineer

DMN/st
enclosure

cc: Mr. Rick Mueller (w/ enclosure)
Pleasanton Fire Department
P. O. Box 520
Pleasanton, CA 94566-0802

Mr. Barton and Mrs. Bonnie Yates (w/ enclosure)
Route 4, Box 320
Bonne Terre, MO 63628

Mr. Joe Ramia (w/ enclosure)
46-427 Holokaa
Kaneohe, HI 96744

PROPOSAL FOR PHASE III -

REMEDIAL INVESTIGATION AND FEASIBILITY STUDY

for

Former Mobil Oil Service Station 10-~~[illegible]~~ H6J
1024 Main Street
Pleasanton, California

January 21, 1991

PROPOSAL FOR PHASE III - REMEDIAL INVESTIGATION AND FEASIBILITY STUDY

Former Mobil Oil Service Station 10-FVK
1024 Main Street
Pleasanton, California

January 21, 1991

INTRODUCTION

This proposal presents the proposed scope of work to conduct remedial investigation and feasibility study at former Mobil Oil Service Station 10-H6J, located at 1024 Main Street, Pleasanton, California. The proposed scope of work is based on the findings from the Phase II - Site Investigation, recently completed by Alton Geoscience, Inc., to assess the nature and extent of hydrocarbons in the subsurface soil and/or ground water.

The remedial investigation/feasibility study is proposed to: (1) obtain additional information to conduct the five-step investigative process of the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB) and comply with the technical guidelines of the City of Pleasanton Fire Department (PFD) and Zone 7 - Alameda County Flood Control and Water Conservation District (Zone 7); (2) define the nature and extent of hydrocarbons detected in the ground water at the site; (3) develop and implement interim remediation as necessary; and (4) prepare a remedial action plan.

PROJECT BACKGROUND

In March 1989, a soil gas survey was conducted by Target Environmental Sevices at the site which indicated the presence of detectable levels of hydrocarbon vapors in the soil, primarily in the southwest corner of the pump islands.

In October 1989, Balch Petroleum, Inc. removed three underground gasoline storage tanks and one underground waste oil tank. It was reported that no diesel fuel was stored at the site. Visual observation revealed that the tanks were in relatively good condition, with no visible holes. Mobil Oil Corporation retained Alton Geoscience to collect soil samples from beneath the former tanks. Soil samples were collected at depths ranging from 8 to 22 feet below grade.

Laboratory analysis did not detect total petroleum hydrocarbons as gasoline (TPH-G) or diesel (TPH-D) in the soil sample collected from the former waste oil tank cavity. However, TPH was detected in the soil samples collected from the western boundary of the former gasoline tank cavity at concentrations ranging from 890 parts per million (ppm) to 2,400 ppm.

Between January and April 1990, Alton Geoscience conducted a Phase I - Site Investigation to assess the nature of hydrocarbons in the subsurface and/or ground water. Three ground water monitoring wells and five soil borings were installed as part of the investigation. Results of the investigation revealed that there may be two separate water-bearing zones at the site with a difference in water elevation of about 20 feet.

Analysis of the ground water samples collected from the three wells onsite revealed the presence of 1,2-dichloroethane up to 200 parts per billion (ppb), benzene ranging from 32 to 5,500 ppb, and TPH-G ranging from 2,100 to 64,000 ppb. The report presenting the results and findings of the Phase I - Site Investigation was submitted to the appropriate regulatory agencies in June 1990.

[redacted] - Supplemental Site Investigation was conducted by Alton Geoscience between October and December 1990. Laboratory analysis of the soil samples collected from five additional soil borings revealed low to nondetectable concentrations of TPH-G, BTEX, and halogenated volatile organic compounds (HVOCs). However, soil samples collected at approximately 3 feet below grade, from beneath the pump dispensing islands, had concentrations of TPH-G ranging from nondetectable to 9,700 ppm. The extent of adsorbed-phase petroleum hydrocarbons in the soil appears to be limited to the central portion of the property, in the vicinity of the pump islands, and north/northeast of the former underground gasoline tanks.

The extent of dissolved-phase petroleum hydrocarbon constituents in the ground water at the former Mobil Oil site has not been defined at this time. Ground water samples from the five onsite monitoring wells had detectable levels of TPH-G ranging from 110 to 83,000 ppb, benzene ranging from 3 to 6,800 ppb, and 1,2-dichloroethane ranging from 2 to 460 ppb. Monitoring Well MW-2, located in the central portion of the property, had the highest levels of detectable hydrocarbons.

3.0 SCOPE OF WORK

The proposed remedial investigation and feasibility study will be conducted in accordance with applicable regulations and guidelines of the RWQCB, PFD, and Zone 7. The proposed scope of work has been divided into three parts:

Part 1 - Remedial Investigation and Feasibility Study
Part 2 - Ground Water Monitoring and Sampling
Part 3 - Interim Remedial Measure

Part 1 - Remedial Investigation and Feasibility Study

The remedial investigation and feasibility study will include additional investigative work to define the geology and hydrogeology, as well as the nature and extent of the petroleum hydrocarbons in the subsurface soil and/or ground water.

Task 1.1: Permitting and Pre-Field Planning

Prior to commencing with the field work, Alton Geoscience, Inc. will obtain permits for soil borings/ground water monitoring wells from the appropriate regulatory agencies. Permits for the installation and operation of a ground water remediation system will be submitted following preliminary design of the system.

Task 1.2: Geophysical Survey

To better characterize the geology and hydrogeology at and in the vicinity of the site, a geophysical survey using cone penetrometer testing (CPT) will be performed. This in-situ method will continuously log stratigraphic and geologic characteristics as a function of depth of the subsurface strata. This technique consists of a probe-driven piezocone (1.5-inches in diameter), which measures the bearing and strain resistance. These parameters are recorded continuously during the test.

A discrete sample interval of 0.1 foot is used to determine friction versus depth (ratio of strain resistance over bearing resistance). A low ratio value (combination of high bearing and low cohesion) is indicative of sands and gravels, while a high ratio value (combination of low bearing pressure and high cohesion pressure) is indicative of silts and clays. Profiles of the

subsurface can be generated from friction data. The CPT will also be used to measure pore pressure as a function of depth, to determine the permeable strata within the unsaturated zones, as well as determining the top of the water-bearing zone. Ground water samples will also be collected in conjunction with the CPT, using the hydropunch or BAT system. The water samples will be analyzed for petroleum hydrocarbon constituents.

Task 1.3: Install Ground Water Monitoring Wells

Based on the results of Task 1.2, **four to six additional ground water monitoring wells will be installed; two to three in the deeper water-bearing,** [redacted] to assess the extent of hydrocarbon constituents in ground water on and offsite.

The monitoring wells will be installed using a CME 75 truck mounted drilling rig with 8 or 10-inch continuous flight hollow stem augers. The total depths and design of the wells will be determined based on the results of the CPT. All soil cuttings will be placed either in 55-gallon containers or on 8-millimeter plastic sheets and covered properly to prevent leachate run-off and aeration. The soil will be properly disposed of offsite, based on results of soil sample analysis.

During drilling, soil samples will be collected at 5-foot intervals, and at significant lithologic changes. The samples will be collected using a split-spoon sampler lined with clean brass liners. One sample will be removed from the steel liner and placed in a sealable plastic bag, sealed, and allowed to volatilize for field screening using a Gastechtor Model 1238 Combustible Gas Indicator (CGI), which is calibrated using a 40% hexane mixture. The CGI will be used for qualitative screening of samples.

The second sample from the sampling device will be collected for laboratory analysis. This sample will remain in the brass liner, wrapped with aluminum foil, capped with plastic caps, labeled, wrapped with cellophane tape, and placed immediately into an iced cooler. The third liner will be used for lithologic logging in the field and possible physical analysis.

The ground water monitoring wells will be installed to a depth of about 20 feet below the top of the first saturated zone encountered. Each monitoring well will be constructed of clean, 2-inch-diameter Schedule 40 PVC pipe, with 0.020-inch machine slotting in the final 20 feet, with the appropriate gravel pack, in accordance with the PFD and RWQCB guidelines.

The top of each well shall be secured with a locking cap and well boxes finished flush with the ground surface. The proposed monitoring well locations are shown in Figure 2, Site Plan.

Task 1.4: Develop, Sample, and Survey Ground Water Monitoring Wells

Prior to development, a ground water sample will be collected from each additional well and visually inspected for free product or sheen. Any well with measurable free product will not be developed or sampled for analytical purposes. Each monitoring well will be properly developed and sampled in accordance with the PFD and RWQCB guidelines.

The wells will be developed using a surge block and by removing 10 casing volumes using a surface suction pump or a bailer. During development, conductivity, pH, and temperature readings will be taken to ensure that formation water has entered the well casing as evidenced by stabilization of these parameters. Development water will be properly stored onsite in containers, pending analysis for disposal.

Ground water samples will be collected from four to six newly installed wells, and eight existing monitoring wells, at least 72 hours after well development. Samples will be collected using a clean PVC bailer and poured slowly into appropriate containers. The samples will be labeled and placed into an iced cooler for transport to a California-certified analytical laboratory under chain of custody documentation.

As a quality control measure, a rinsate sample, a trip blank and one duplicate sample will be collected in the field and analyzed with the ground water samples from the wells.

Each well will be surveyed from top of casing to within 0.01 foot accuracy to mean sea level by a licensed land surveyor with respect to the nearest established benchmark. Depth to water in each well will be measured from the top of casing using an electronic sounder.

Task 1.5: Analyze Soil and Ground Water Samples

Soil and ground water samples will be transported to a California-certified laboratory under chain of custody documentation, and analyzed for TPH-G with BTEX distinction (EPA 5030 extraction, EPA Method 8020 for BTEX, and 8015 for TPH-G). All analysis will be performed on a 2-week turnaround time.

Task 1.6: Aquifer Analysis and Testing

From previous investigations, it is apparent that there are two discrete water-bearing zones located within 50 feet below grade, separated vertically and laterally by a less permeable clay unit. Based on results of previous slug testing and ground water monitoring results, there also may be no hydraulic connection between the two water-bearing zones. **To determine the hydrogeologic characteristics of these zones, at least an 8-hour pump test will be performed on a single well at the site.** Transducers, which record pressure, will be placed in four wells; the pumping well, and three observation wells (to be determined following completion of the above tasks).

A portable data logger will be programmed to record water levels from each pressure transducer, every minute for the first hour following startup of the submersible pump, and every 5 minutes thereafter during the 24-hour test duration. The data will then be analyzed using the AQTESOLV computer program.

Water produced during the pump test will be stored in an above ground tank, pending laboratory analysis and offsite disposal. The storage tank will be clearly labeled as to its contents and the responsible party. All necessary permits will be obtained for the above ground storage tank.

Task 1.7: Analyze Data and Laboratory Results

Upon completion of the sample analysis and aquifer testing, a detailed evaluation of results and information will be conducted to determine the extent and nature of subsurface contamination. The analysis will be completed in accordance with the requirements of the RWQCB. This will include interpretation of geologic and hydrogeologic information and assessment of the potential short and long-term impacts of contamination, if any, on the beneficial uses of ground water and surface water.

Task 1.8: Conduct Feasibility Study and Conceptual Design of Remediation Systems

Based on the results of Part 1, Alton Geoscience, Inc. will conduct a detailed feasibility study (FS) of alternative technologies for remediation of ground water from the site. The FS will include a detailed evaluation of alternative technologies, considering technical, economic, environmental, and legal factors. Economic comparison of alternatives will consider both capital and operating costs as well as the present worth or life cycle cost of each alternative.

Upon selection of the appropriate remediation alternative, a conceptual design of the selected system will be prepared including process layout, design parameters, an engineering cost estimate, equipment manufacturer's specifications, and the estimated implementation schedule.

Task 1.9: Prepare Report and Remedial Work Plan

A report presenting the findings, conclusions, and recommendations will be prepared and submitted to the PFD and RWQCB. The report will follow the RWQCB guidelines and will include the results of the feasibility study.

A remedial work plan will be prepared in accordance with the requirements of the RWQCB and PFD, and be submitted as part of the final report. The work plan will present the implementation details of the remediation system, a summary of previous site activities, a preliminary remediation system design, a summary of permitting

requirements, a site safety plan, the operation and maintenance requirements, and a schedule for implementation.

Part 2 - Ground Water Monitoring and Sampling

As required by the regulatory agencies, a quarterly monitoring and sampling program should be conducted for an initial period of 12 months or 4 quarters, at the completion of Part 1. The need for further monitoring or other courses of action will be evaluated at the completion of the initial monitoring program.

Task 2.1: Ground Water Sampling and Analysis

Sampling and analysis of ground water will be performed on a quarterly basis. Water samples collected from each well will be analyzed at a California-certified laboratory for the following:

- TPH-G, using EPA Methods 5030/8015
- BTEX, using EPA Methods 5030/602
- HVOCs, using EPA Method 601

Prior to collection of the samples, each well will be purged following standard protocol. Purged ground water will be stored in containers for proper offsite disposal. Prior to sample collection, each well will be inspected for the presence of sheen or free-floating product.

Task 2.2: Ground Water Level Monitoring

Due to water discharges into the Arroyo del Valle Canal, resulting in fluctuations in the levels of the ground water in the two water-bearing zones at the site, it is recommended that the ground water level be monitored on a monthly basis for a period of at least 3 months. The water level information obtained from this task will aid in the correlation between surface water discharges into the canal with ground water elevations in the two water-bearing zones. These monthly water level measuremnts will also provide the necessary data to better define the ground water flow and gradient at the site.

Task 2.3: Prepare Quarterly Report

Following each monitoring and sampling event, a quarterly report will be prepared in accordance

with PFD and RWQCB guidelines. The reports will include the data from ground water level monitoring, analytical results, and a discussion of ground water flow direction and hydraulic gradient in response to the discharges in the canal.

Part 3 - Interim Remedial Measures

This activity is intended to provide interim remedial measures to control plume migration, if warranted, while the remedial investigation and feasibility study is being performed.

Task 3.1: Supervise Excavation of Soil Near Pump Islands

Based on the laboratory results of soil samples collected beneath the pump dispensing islands during the Phase II investigation, additional excavation of the soil in this area is necessary to remove remaining potential hydrocarbon sources onsite. During excavation, the soil will be screened in the field using either a portable gas chromatograph, photo ionization detector, or combustible gas indicator, to detect any volatile organic compounds. Soil with total hydrocarbon concentrations in excess of 100 ppm, as measured in the field, will be excavated.

Task 3.2: Supervise Backfilling of Soil Near Pump Islands

Alton Geoscience will supervise the backfilling and compaction of the excavated areas, which is expected to take 2 days. The excavation will be backfilled with clean fill material and compacted to 90% compaction. It is estimated that four compaction tests will be performed using standard ASTM methods.

Task 3.3: Investigate interim Treatment/Disposal Options

Alton Geoscience, Inc. will investigate options for interim remediation of ground water with dissolved-phase contaminants. If interim remediation is warranted, submit a separate proposal detailing an interim remediation work plan. Information obtained will be used in the remedial planning study.

Task 3.4: Interim Remedial Measure

In order to control further offsite plume migration, interim pumping will be conducted from MW-2 (the well with the highest levels of hydrocarbons). The initial interim remedial measure will be implemented during the pumping test. Pumped water will be stored onsite in above ground storage tank(s). The purged water in the storage tank will be sampled and disposed of appropriately. For water discharges into the sanitation system, Dublin/San Ramon Services District requires a maximum limit of 15 mg/L of total petroleum hydrocarbons.

4.0 SITE SAFETY PLAN

All field procedures and activities related to the conduct of the site investigation work will be in accordance with the site-specific site safety plan (SSP) to be developed for the project. The SSP will be developed in compliance with applicable requirements of the California Department of Health Services and the Federal and State Occupational Safety and Health Administration (OSHA and Cal-OSHA).

5.0 IMPLEMENTATION SCHEDULE

The remedial investigation and feasibility study proposed herein will be completed and a report submitted within 120 days after receipt of written approval of the proposed work plan from the appropriate agencies. The schedule for completion of major activities or tasks is as follows:

Activity	Estimated Work Days After Work Plan Approval
Permitting	10
Excavation and Backfilling	20
Geophysical Survey	45
Monitoring Well Installation	55
Sampling and Laboratory Analysis	70
Aquifer Analysis	75
Data Analysis	85
Report Preparation (including Remedial Work Plan)	120
Quarterly Monitoring and Sampling	150
First Quarterly Report Preparation	175

This schedule may be subject to revision depending on timely receipt of work plan approval and information required to complete the site investigation. Any changes to the schedule will be communicated in advance to the appropriate agencies and parties involved.

6.0 RESPONSIBLE PARTIES

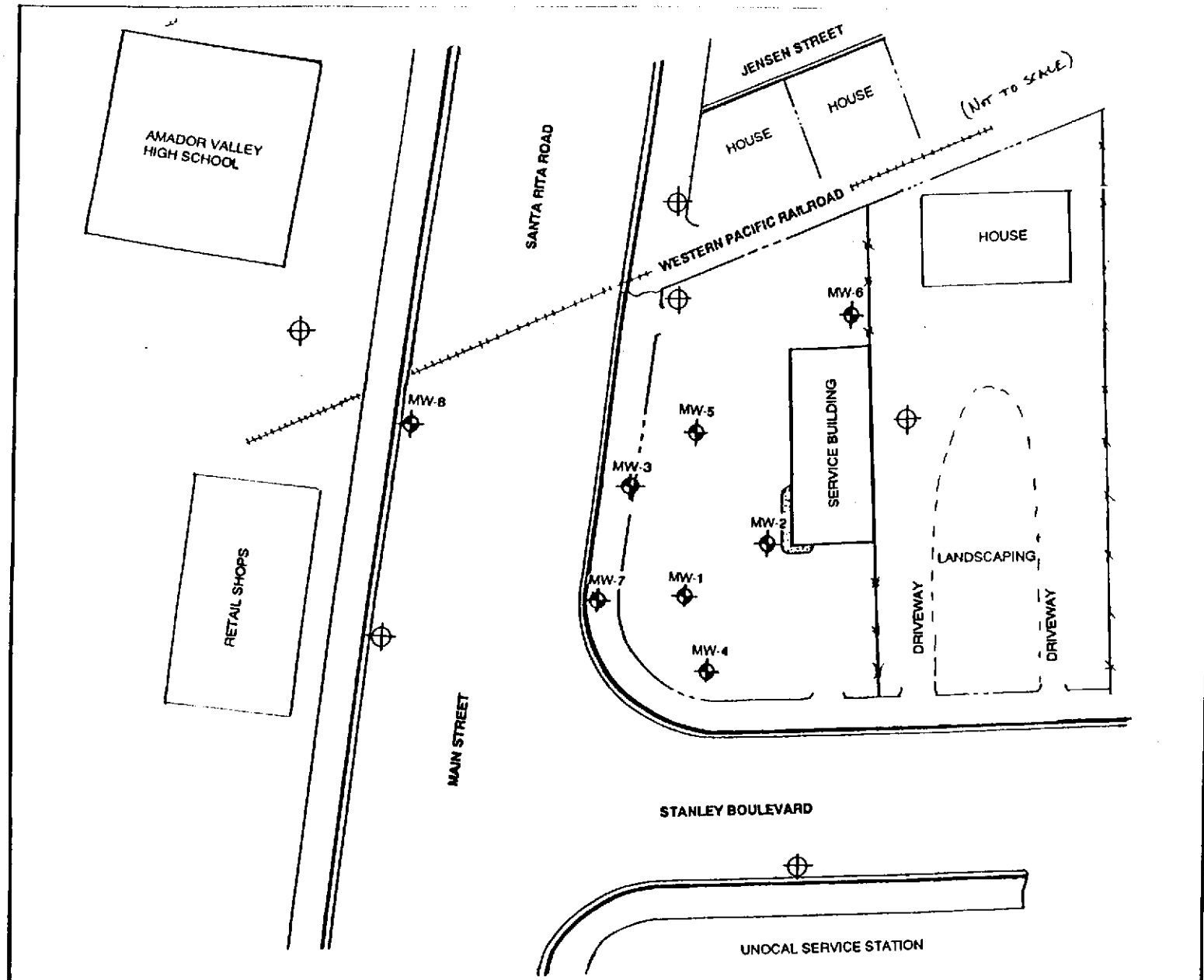
Responsible parties involved with the site investigation and installation of the tank monitoring system are:

- Mobil Oil Corporation
  ~~3800 West Alameda Avenue, Suite 700~~ 836B Southampton, #300
  ~~Burbank, California 91505-4331~~ Benicia, CA 94510

  Contact: Mr. Ed Hoepker
  Environmental Engineer
  (707) 745-6160

- Alton Geoscience, Inc.
  1000 Burnett Avenue, Suite 140
  Concord, California 94520

  Contact: Al Sevilla, P.E. or Cherie D'Andrea
  Regional Manager Senior Geologist
  (415) 682-1582



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LEGEND

- EXISTING GROUND WATER WELL
- PROPOSED GROUND WATER WELL
- PROPERTY LINE
- FENCE
- RAILROAD TRACKS

FIGURE 1: SITE PLAN

MOBIL OIL CORPORATION
FORMER MOBIL OIL SERVICE
STATION 10-H6J
PLEASANTON, CALIFORNIA

ALTON GEOSCIENCE
1000 Burnett Ave., Ste 140
Concord, CA 94520

3/29/91
proposal