Re 2446

AUGEAS

November 27, 2002

Alameda County
DEC 04 2002
Environmental Health

Ms. Eva Chu
Alameda County
Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Subject: Workplan for Additional Site Investigation at Dublin Retail Center, 7900-7916 Dublin Boulevard, Dublin, California

Dear Ms. Chu:

Please find enclosed one copy of the above-referenced workplan for the subject site. Should you have any questions, please contact us at (831) 425-8007 or (650) 726-7700.

Sincerely,
AUGEAS CORPORATION

James Allen
Environmental Scientist

enclosure

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AUGEAS

November 19, 2002

Mr. Mark Mason
750 Battery Street, Suite 500
San Francisco, California 94111

SUBJECT: Workplan for Additional Site Investigation at Dublin Retail Center, 7900-7916 Dublin Boulevard, Dublin, California

Dear Mr. Mason:

On behalf of Mark Mason (property manger for Allan Sebanc [property owner]), Augeas Corporation (Augeas) has prepared this workplan for additional site investigation at the above-referenced property. This workplan was prepared pursuant to the September 16, 2002 directive from the Alameda County Environmental Health Services (ACEHS) requesting additional site assessment in the vicinity of the former underground storage tanks (USTs). The purpose of the proposed work is to further define the extent of petroleum hydrocarbons in soil and groundwater beneath the subject site. All proposed work will be conducted in accordance with guidelines established by the California Regional Water Quality Control Board (CRWQCB), City of Dublin, ACEHS, Zone 7 Alameda County Flood Control and Water Conservation District, Augeas Corporation's Standard Operating Procedures (SOPs) in Appendix A, and Site Specific Health and Safety Plan in Appendix B.

Proposed Scope Of Work

The following scope of work is proposed:

- Obtain all necessary agency permits and provide notification of scheduled operations prior to the commencement of field activities;
- Contact Underground Service Alert (USA) and/or a private utility locator to identify the work area for underground municipal utilities;
- Advance five (5) Geoprobe® soil borings to approximately 30 feet below ground surface (bgs) in the vicinity of the former USTs and dispenser islands;
- Collect soil samples at approximately 5-foot intervals during drilling activities for lithologic description and possible chemical analysis;
- Collect "grab" groundwater samples from three (3) of the five soil borings for chemical analysis;
- Analyze groundwater and selected soil samples for total petroleum hydrocarbons as gasoline (TPHg) and as diesel (TPHd) by EPA Method 8015M, benzene, toluene,

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ethylbenzene, and xylenes (BTEX) by EPA Method 8021, and fuel oxygenates (including MTBE) by EPA Method 8260M; and

- Prepare a written report presenting findings, conclusions, and recommendations.

Site Location and Description

The subject site is located at 7900-7916 Dublin Boulevard in Dublin, California (Figure 1). The property consists of one building with four units and an associated parking area. The existing building totals approximately 13,500 square feet in area. The property was formerly used as an ARCO service station from 1975 to 1984. Prior to the gas station, the property was vacant agricultural land. The locations of the building and other pertinent site features, including USTs, are shown on Figure 2.

Previous Work

Underground Storage Tank Removal

Local environmental agency records have no information regarding the removal of underground storage tanks (USTs), nor results from confirmatory soil sampling at the subject site. However, according to documents on file at the City of Dublin Building Department, the USTs and associated piping/fuel dispensers were removed in 1984 prior to the construction of the existing building. The only available field evidence suggesting excavation or over-excavation is a soils report prepared prior to the construction of the existing building (Cleary Consultants, Inc., 1984) stating that approximately 14 feet of fill material was imported to the site.

Phase I Environmental Assessment

In May 1998, Hillmann Environmental Company, Inc. (HECO) conducted a Phase I Environmental Assessment identifying possible areas of environmental concern and presenting recommendations for action at the subject property. The assessment included a site reconnaissance to identify sensitive receptors, existing physical structures, neighboring properties and their current usage, and any possible environmental liabilities. The assessment also included a complete file review, interviews with individuals familiar with site operations, and photographic documentation of current site and offsite conditions. HECO discovered groundwater beneath the site to be at a depth of approximately 25 feet below ground surface (bgs) and flowing toward the east-northeast. Environmental concerns noted by HECO included the lack of UST removal documentation pertaining to the former ARCO service

station at the site. HECO also identified the Chevron service station located approximately 600 feet northwest and upgradient of the subject property as having the potential to affect environmental conditions beneath the site. The Chevron service station is listed as an active LUST site with free phase product in groundwater. HECO recommended performing a limited phase II subsurface investigation to assess the absence or presence of residual petroleum hydrocarbons in soil and/or groundwater beneath the subject property as a result of previous site activities.

On August 31, 1998, Augeas personnel advanced one soil boring (B-1) to approximately 15 feet bgs, in the vicinity of the former pump island, using hand-held auger equipment. On September 2, 1998, Augeas personnel advanced one soil boring (B-2) to approximately 30 feet bgs, downgradient from boring B-1, using Geoprobe® technology. Soil samples were collected at 5-foot intervals, changes in lithology, and the soil/water interface. During the advancement of soil boring B-2, one "grab" groundwater sample (GW-1) was collected in order to evaluate groundwater beneath the site for the presence of petroleum hydrocarbons.

Soils encountered beneath the subject site were primarily mixtures of silts and clays with intermittent sand stringers. Groundwater was encountered at approximately 27 feet bgs. A site–specific groundwater gradient and flow direction could not be determined because no groundwater monitoring wells exist at this site. However, groundwater data from the nearby Chevron station indicated an easterly flow direction with fluctuations from east-northeast to southeast.

Concentrations of TPHg, TPHd, BTEX, and MTBE were not detected at or above laboratory detection limits in any of the soil samples analyzed. Analytical results for the "grab" groundwater sample (GW-1) indicated concentrations of TPHg at 440 micrograms per liter (µg/L), TPHd at 1,000 µg/L, and MTBE at 160 µg/L. Concentrations of benzene were not detected at or above laboratory limits in sample GW-1

A review of sensitive receptors in the site vicinity indicated only one water supply well located approximately 1/2 mile northwest (upgradient) of the subject property (Figure 1). The sensitive receptor survey also indicated that no surface water bodies were identified within a 1/4-mile radius of the subject site. Additionally, groundwater in the vicinity of this site has no beneficial use.

A review of files from a Chevron Service Station (7007 San Ramon Valley Boulevard) located approximately 660 feet upgradient of the subject site, revealed free phase floating product on groundwater beneath this site and dissolved hydrocarbons including MTBE that extend off-site.

Proposed Additional Site Investigation

The following is a discussion of activities proposed for additional site investigation at the subject site. The purpose of the proposed work is to further define the extent of petroleum hydrocarbons in soil and groundwater beneath the subject site. The proposed tasks described herein are subject to regulatory agency review and approval.

Permitting

Prior to field activities, all necessary permits and workplan approvals will be obtained from the appropriate agencies. Also, all interested parties and appropriate agencies will be notified at least 72 hours prior to the commencement of field activities.

Underground Utility Locating

Boring locations will be marked and the Underground Service Alert (USA) and/or a private utility locator will be notified prior to commencement of fieldwork to identify the work area for underground municipal utilities.

Health and Safety

During field activities, field personnel will wear modified Level D health and safety gear, consisting of hardhats, gloves, safety glasses, and steel-toed boots for protection from overhead drilling equipment. Tyvek suits may be worn for protection against potentially impacted soil and groundwater. On-site health and safety issues will be the responsibility of the Project Manager and Site Health and Safety Officer. The Site Health and Safety Officer is responsible to inform all field personnel of current health and safety issues and will conduct daily health and safety tailgate meetings. A site-specific health and safety plan has been prepared and will be available for review during field activities (Appendix B).

Geoprobe® Soil Borings

A total of five (5) Geoprobe® soil borings (GP-1 through GP-5) will be advanced to depths of approximately 30 feet bgs in the vicinity of the former USTs and dispenser islands (Figure 2).

Drilling and sampling will be performed using a truck-mounted Geoprobe® drill rig, equipped with steam cleaned, 2.5-inch-diameter, push core drilling equipment. Upon completion of soil boring and sampling activities, the borings will be backfilled to surface grade with neat cement containing 5% bentonite. An Augeas geologist will be present to supervise the drilling and backfilling of the boreholes.

Soil Classification and Sample Collection

During drilling activities, soil from the borings will be described and classified under the Unified Soil Classification System (USCS). Soil samples will collected from the soil boring at approximately 5-foot intervals, at changes in lithology, and at the air/water interface as described in Appendix A. Selected soil samples will be submitted to a state-certified analytical laboratory for chemical analysis. Soil samples will also be field screened for volatile organic compounds (VOCs) using a photoionization detector (PID). Additionally, "grab" groundwater samples will be collected from three (3) of the five Geoprobe® soil boring for chemical analysis.

Chemical Analysis Protocol

Groundwater and selected soil samples will be submitted to a state-certified analytical laboratory for chemical testing. A chain-of-custody record initiated by the field personnel will accompany the samples to the analytical laboratory. The following chemical analysis protocol was selected based on agency directives and previous chemical usage at the subject facility. All soil and groundwater samples will be analyzed for TPHg and TPHd by EPA Method 8015M, BTEX by EPA Method 8021, and fuel oxygenates (including MTBE) by EPA Method 8260M.

Waste Management

Soil cuttings and rinseate water generated during drilling activities will be temporarily stored on-site in labeled, U.S. Department of Transportation (DOT)-approved 55-gallon drums pending proper disposal. All soil drums will be sampled, analyzed, and profiled for disposal under waste manifest at an appropriate disposal facility.

Report Preparation

A written report describing field activities, findings, conclusions, and recommendations will be prepared upon completion of the scope of work described herein. All reports and site plans will be prepared under the direction of a California Registered Geologist or Professional Engineer.

Project Schedule

This project will commence upon approval from ACEHS, as well as our client's authorization to proceed. Field activities will begin upon receipt of the necessary permits and workplan approval. Report preparation will commence upon completion of field activities and receipt of the laboratory analyses. Upon completion, the report will be submitted to ACEHS for review. The work described herein will be performed in accordance with the following timeline:

- Workplan approval: 2-4 weeks
- Permitting and scheduling: 1-2 weeks
- Fieldwork: 1-2 days
- Laboratory analysis: 5-7 days
- Report preparation: 2-3 weeks
- Agency review: 3-4 weeks

References

Augeas Corporation, April 12, 2002, "Site Investigation and Closure Documentation for Dublin Retail Center, 7900-7916 Dublin Boulevard, Dublin, California."

Hillman Environmental Company, Inc., June 3, 1998, "Phase I Environmental Site Assessment, Dublin Retail Center, 7900-7916 Dublin Boulevard, Dublin, California."

California Underground Storage Tank Regulations, May 5, 1994, Title 23, Division 3, Chapter 16.

Cleary Consultants, Inc., June 8, 1984, "Dublin Plaza Commercial Building, Dublin Boulevard and Regional Street, Dublin, California."

Diblee, T.W. Jr., 1980, Preliminary Geologic Map of the Diablo Quadrangle, Alameda and Contra Costa Counties, California, USGS OFR 80-546.

Limitations

This workplan was prepared under the supervision of a registered geologist. Site conditions are subject to change with time; therefore, our conclusions result only from the interpretation of present conditions and available site information. This workplan was prepared in accordance with accepted professional standards and technical procedures as certified below.

Should you have any questions, please contact Augeas at (831) 425-8007 or (650) 726-7700.

Sincerely,
AUGEAS CORPORATION

Joe Mangine
Project Geologist
joe@augeas.com

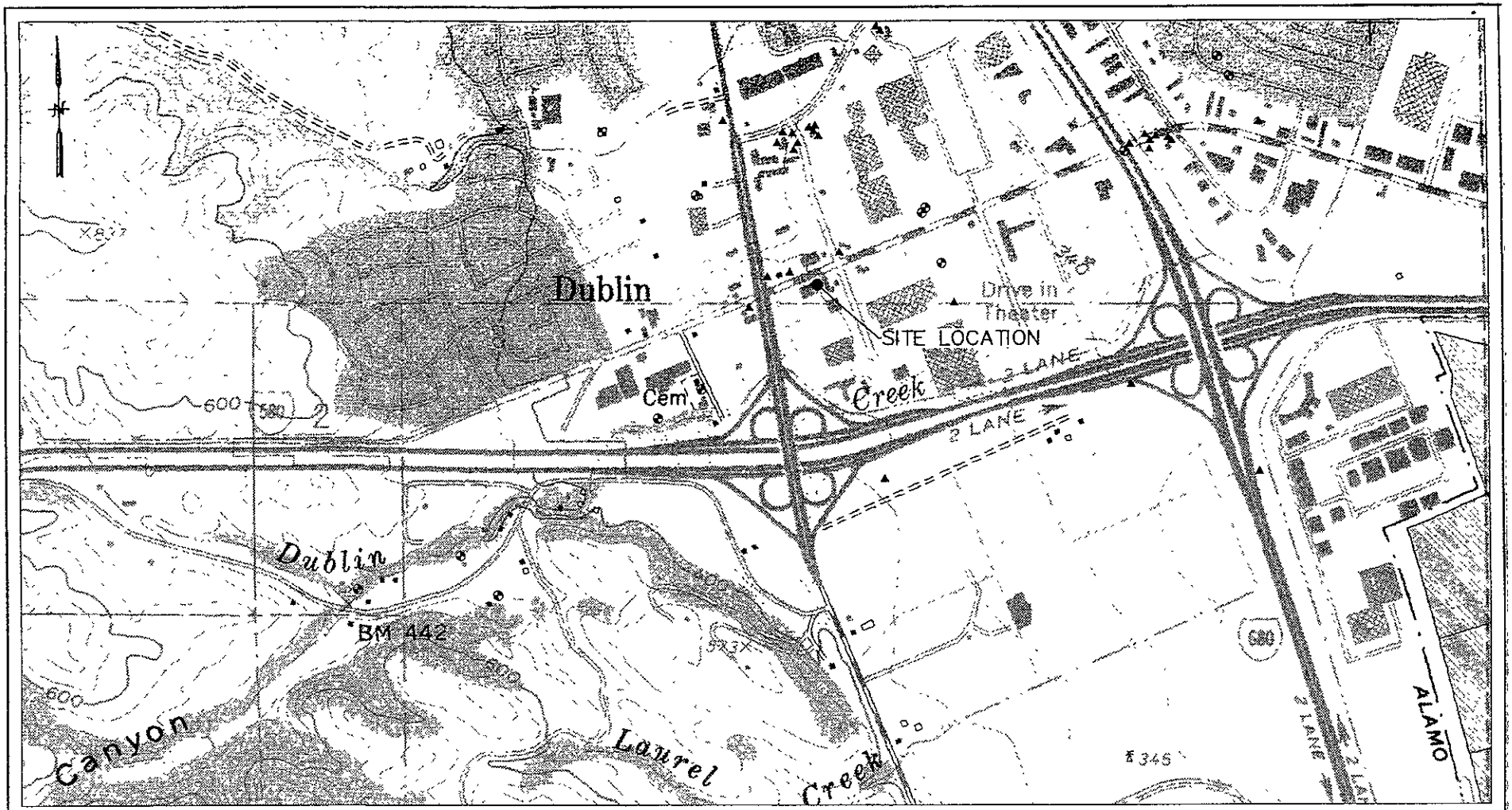
Keith M. McVicker, R.G. 6767
Vice President

enclosures: List of Figures
Figure 1, Vicinity Map
Figure 2, Site and Proposed Geoprobe Location Plan

List of Appendices
Appendix A: Augeas Corporation's Standard Operating Procedures
Appendix B: Site Specific Health and Safety Plan

831-425-8006 FAX

Figures



LEGEND:

- ▲ MONITORING WELL LOCATION
- UNKNOWN WELL LOCATION
- WATER SUPPLY WELL LOCATION

SCALE IN FEET
0 800 1600

AUGEAS
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HALF MOON BAY

VICINITY MAP

DUBLIN RETAIL CENTER
7900–7916 DUBLIN BLVD
DUBLIN, CALIFORNIA

2–19–02

FIGURE 1

DUBLIN AVENUE

DRIVEWAY

FORMER SERVICE ISLAND (TYP)

FORMER PRODUCT PIPING

FORMER UST PIT

B-1

FORMER SUMP

7916 SLEEP TRAIN

FORMER HYDRAULIC HOIST (TYP)

FORMER 550 GAL WASTE OIL UST

EXISTING BUILDING

7912 JENNY CRAIG

7908 LUGGAGE STORE

7904 STARBUCK'S COFFEE SHOP

SIDEWALK

B-2

DRIVEWAY

REGIONAL STREET

DRIVEWAY

EXISTING BUILDING

LEGEND:

B-1 ⊙ SOIL BORING LOCATION

⊕ PROPOSED GEOPROPBE LOCATION

N

SCALE IN FEET

0 30 60

BASE IMAGE REPRODUCED FROM AS-IS SERVICE STATION BLUEPRINT DATED 9-4-69

AUGEAS CORPORATION HALF MOON BAY

SITE AND PROPOSED GEOPROBE LOCATION PLAN

DUBLIN RETAIL CENTER
7900-7916 DUBLIN BLVD
DUBLIN, CALIFORNIA

11-18-02

FIGURE 2

7900 11/26 J:\Documents and Settings\Ron Pacher\Desktop\11260201 7900.dwg

Appendix A

Augeas Corporation's
Standard Operating Procedures

AUGEAS CORPORATION'S
STANDARD OPERATING PROCEDURES

Geoprobe Boring Installations and Sampling
Geoprobe soil borings are installed by pushing a clean, 2.5-inch diameter, 5-foot long, steel core barrel into undisturbed soil. The core barrel, equipped with a new, clean acetate liner, is pushed with the aid of a hydraulic hammer. The soil sample is collected in the acetate liner. The core barrel is removed from the borehole and the acetate liner is removed from the core barrel. The desired interval is immediately cut from the acetate liner, capped with Teflon® sheets and plastic caps. The sample is then labeled and placed on ice in a cooler. The core barrel is washed with an Alconox® solution and rinsed between each boring. These procedures minimize the potential for cross contamination and volatilization of volatile organic compounds (VOCs) prior to chemical analysis.

A portion of each sample is retained for field screening purposes. A small amount of soil (approximately 1 ounce) is placed in a plastic bag and placed in the sun for approximately 15 minutes. The bag is then pierced by the tip of a portable photo-ionization detector (PID) and the air in the bag is analyzed for total volatile hydrocarbons. The purpose of the field screening is to qualitatively determine the presence or absence of chemical organic compounds in order to aid in the selection of samples to be analyzed at the laboratory. The data is then recorded on the boring logs at the depth corresponding to the sampling point.

The remainder of the acetate liner is then cut open and examined for lithology according to the Unified Soil Classification System under the supervision of a California Registered Geologist. Job location, boring location, boring name, date, soil types, observations and activities are recorded on the boring logs.

Upon completion of each soil boring, the hole is filled with a cement grout and bentonite mixture from the bottom of the boring to surface grade. The purpose of grouting the hole is to prevent future surface contamination from having a conduit to the groundwater table.

Water Sampling
Once the borings are advanced to the desired depth, water samples are collected. If the boring stays open, a clean stainless steel bailer is lowered into the boring to retrieve water samples. If the boring does not stay open, a new, clean, temporary, well casing and screen will be lowered into the boring to aid in water sample collection. The water is then carefully transferred from the bailer into the sample containers. The containers are then capped, labeled and placed on ice. After the water samples are collected, the temporary well casing and screen are removed from the boring and properly disposed of.

Dual Wall Sampling System
The Dual Wall split spoon or window sheath sampler is loaded with the desired sample liner/liners and installed inside the outer casing. Simultaneously, the outer drive casing and inner split spoon sample barrel are advanced 2, 4, or 5 feet, depending on sampling system application. As these tools are advanced, the inner sampling barrel collects the soil core sample. This sampler is then retrieved while the outer casing remains in place, protecting the integrity of the hole. A new sampler is lowered into place, and advanced further to collect the next soil sample. This process continues until a desired depth has been reached. The dual wall sampling system also provides discrete depth soil and groundwater sampling. Using a locked drive point, the dual wall sampling system is advanced, displacing the soils until a desired depth has been reached.

Hollow Stem Auger Drilling
During hollow stem auger drilling, soil samples are collected in 2-inch by 6-inch long brass tubes. Three brass tubes are placed in an 18-inch long split-barrel (spoon) sampler of the appropriate inside-diameter. The split-barrel sampler is driven its entire length, either hydraulically or using a 140-pound hammer, or until refusal is encountered. The sampler is extracted from the borehole and the brass tubes are immediately trimmed and capped with Teflon® sheets and plastic caps. The samples are then sealed, labeled, and placed in chilled storage (refrigerated) for delivery, under chain of custody to the state-certified analytical laboratory. These procedures minimize the potential for cross contamination and volatilization of volatile organic compounds (VOCs) prior to chemical analysis.

One soil sample collected at each sampling interval is analyzed in the field using either a portable photo-ionization detector (PID), flame ionization detector, organic vapor analyzer, catalytic gas detector, or an explosimeter. The purpose of the field screening is to qualitatively determine the presence or absence of chemical organic compounds in order to select the samples to be analyzed at the laboratory. The soil sample is sealed in either a brass tube, glass jar, or plastic bag to allow for some volatilization of VOCs. The PID is then used to measure the relative concentrations of VOCs within the container's headspace. The data is recorded on both field notes and the boring logs at the depth corresponding to the sampling point.

Other soil samples are collected to document the soil and/or stratigraphic profile beneath the project site, and estimate the relative permeability of the subsurface materials. All drilling and sampling equipment are decontaminated prior to use; all equipment is

either steam cleaned or washed in solution and rinsed twice in de-ionized water prior to use at each site and between boreholes to minimize the potential for cross-contamination.

In the event the soil samples cannot be submitted to the analytical laboratory on the same day of collection, the samples will be temporarily stored in a chilled ice cooler, or in a refrigerator at Augeas Corporation's office.

All soil borings are backfilled with a mixture of neat cement with 5% bentonite powder to surface grade.

SOIL CLASSIFICATION

Soil samples are classified according to the Unified Soil Classification System. Representative portions of the samples may be submitted under chain of custody to a state-certified analytical laboratory for further examination and verification of the in-field classification and analysis of soil mechanical and/or physical properties. The soil types are indicated on logs of either excavations or borings together with depths corresponding to the sampling points and other pertinent information.

MONITORING WELL INSTALLATION AND WELL DEVELOPMENT

1. Hollow Stem Auger Technique

Boreholes for monitoring wells are drilled using a truck-mounted, hollow-stem auger drill rig. The borehole diameter will be a minimum of 4-inches larger than to outside diameter of the casing when installing well screen. The hollow-stem auger provides minimal interruption of drilling while permitting soil sampling at desired intervals. Soil samples are collected by either hammering (with a 140-pound drop hammer) or hydraulically pushing a conventional spit-barrel sampler containing pre-cleaned 2-inch diameter brass tubes. An Augeas geologist or engineer will continuously log each borehole during drilling and will constantly check drill cuttings for indications of both the first recognizable occurrence of groundwater and volatile organic compounds using either a portable photolonization detector (PID), flame ionization detector (FID), or an explosimeter. The sampler is rinsed between samples and either steam cleaned or washed with all other drilling equipment between borings to minimize the potential for cross contamination.

Monitoring wells are cased with threaded, factory-perforated and blank Schedule 40 polyvinyl chloride (PVC). The perforated interval consists of slotted casing, generally with 0.02-inch wide by 1.5-inch long slots, with 42 slots per foot. A PVC cap may be secured to the bottom of the casing with stainless steel screws; no solvents or cements are used. Centering devices may be fastened to the casing to ensure even distribution of filter material and grout within the borehole annulus. The well casing is thoroughly washed and/or steam cleaned, or may be purchased as pre-cleaned, prior to installation.

After setting the casing inside the hollow-stem auger, sand or gravel filter material is poured into the annular space to fill from boring bottom to generally 1 foot above the perforated interval. A 1 - to 2-foot thick bentonite plug is set above this filter material to prevent grout from infiltrating the filter pack. Neat cement containing about 5 percent bentonite is then tremmied into the annular space from the top of the bentonite plug to near surface. A traffic-rated vault is installed around each wellhead for wells located in parking lots or driveways, while steel "stovepipes" are usually set over wellheads in landscaped areas.

After installation, the wells are thoroughly developed to remove residual drilling materials from the wellbore, and to improve well performance by removing fine material from the filter pack that may pass into the well. Well development techniques used may include pumping, surging, bailing, swabbing, jetting, flushing, and airlifting. All development water is collected either in drums or tanks for temporary storage, and properly disposed of pending laboratory analytical results. To minimize the potential of cross contamination between wells, all development equipment is either steam cleaned or properly washed prior to use. Following development, the well is allowed to stand undisturbed for a minimum of 24 hours before its first sampling.

GROUNDWATER PURGING AND SAMPLING

Groundwater monitoring wells will be monitored, purged, and sampled to assess groundwater flow characteristics and quality. Groundwater monitoring, purging, sampling, handling, and preservation protocols will be performed in accordance with these standard operating procedures (SOPs), as well as local county and state guidelines. Quality assurance/quality control (QA/QC) procedures will be implemented to monitor and document analytical laboratory procedures. The following sections describe the procedures for specific groundwater monitoring, sampling, and analytical activities.

SAMPLE IDENTIFICATION AND CHAIN-OF-CUSTODY PROCEDURES

Sample identification and chain-of-custody procedures ensure sample integrity as well as document sample possession from time of collection to ultimate disposal. Each sample container submitted for analysis is labeled to identify the job number, date, time of sample collection, a sample number unique to the sample, any in-field measurements made, sampling methodology, name(s) of on-site personnel, and any other pertinent field observations also recorded on the field excavation or boring log.

Chain-of-custody forms are used to record possession of the sample from time of collection to arrival at the laboratory. During shipment, the person with custody or the samples will relinquish them to the next person by signing the chain-of-custody form(s) and noting the date and time. The sample control officer at the laboratory will verity sample integrity, correct preservation, confirm collection in the proper container(s), and ensure adequate volume for analysis.

When these conditions are met, the samples will be assigned unique laboratory log number(s) for identification throughout analysis and reporting. The log numbers will be recorded on the chain-of-custody forms and in the legally-required log book maintained in the laboratory. The sample description, date received, clients name, and fly other relevant information will also be recorded.

Sample Handling and Labeling

To avoid any possible chemical or physical change in a sample during collection and transport, the sample containers will consist of non-reactive materials and be lab-certified clean prior to sampling activities. Sample containers to be used for laboratory analysis will consist of 40-milliliter (ml) glass vials and/or 1-liter amber bottles depending upon requested chemical analysis. Samples will be collected until each container is completely full in order to maintain anaerobic conditions. Samples collected for analysis will be carefully placed into the 40-ml glass vials having Teflon®® septum lids. The liter bottles will be filled to prevent any air bubbles from being present in each vial after sealing the septum lid. Confirmation of the lack of air bubbles will be verified by inverting each vial.

Sample bottles will be labeled with the project name (site location), well number, time and date of sampling, and sampler's initials. All samples will be immediately placed into an insulated chilled ice cooler for temporary storage and transport to the laboratory. The ice chests will contain sufficient packing material which will protect the integrity of the samples for transportation. Samples will be handled in accordance with appropriate chain-of-custody procedures, as discussed herein.

Sample Preservation and Acidification

Sample preservation will be utilized in order to retard the physical and chemical alternations of unstable constituents within the sample medium. Sample preservation methods are limited and are generally intended to perform the following functions:

- Retard biological action;
- Retard hydrolysis of chemical compounds and complexes;
- Reduce volatility of constituents;
- Reduce absorption effects.

Preservation is usually limited to pH control, chemical addition, filtration, refrigeration, and freezing.

The glass vials and bottles used for the collection of groundwater samples for laboratory analyses will be acidified by the analytical laboratory prior to shipment of the sample bottles to the site. The glass vials will typically contain hydrochloric acid (HCL) for aromatic volatile organic compounds, or other preservative depending on contaminant, to act as a bacterial inhibitor for the chemical compound analyzed. Problems associated with sample preservation will be documented, as appropriate.

Temperature Control

Groundwater samples submitted for laboratory analyses will be sealed in proper sample containers, and then temporarily stored in an insulated ice chest containing crushed ice for transport to the analytical laboratory. Placement of the groundwater samples into a chilled ice chest inhibits bacterial growth in the samples and also slows the chemical and biological changes of a sample exposed to an oxidizing atmosphere. A thermometer indicating maximum temperature variances will be inserted into the ice chest(s) for documentation purposes during inspection at the time of delivery at the analytical laboratory.

Chain-of-Custody Documentation

Chain-of-custody (COC) procedures will be implemented for documenting and tracking the handling of soil and/or groundwater samples. The term "chain of custody" refers to a procedure of written documentation of sample acquisition, handling, and shipping of all samples potentially intended for enforcement or legal purposes. COC documents will include the following information:

- Company name and address;
- Project name and address;
- Name of project manager;
- Laboratory name;
- Name of sampler(s);
- Sample identification number, location, matrix, and type and number of sample container(s);
- Date and time of sample collection; and
- Required analysis and turnaround/reporting time

Field sampling personnel will visually inspect the groundwater samples to ensure that the samples are correctly labeled and that the sample integrity is maintained with no apparent leakage or incorrect packaging. Field sampling personnel will complete and sign the COC prior to sample transfer. The COC will accompany the samples to the analytical laboratory. This form will be placed inside a sealed, plastic bag and packed into the ice chest.

Whenever the samples are transferred from one party to another, both parties will sign the COC and record the date and time of transfer. COC records will be signed and completed between both parties prior to the sample shipment off-site to the designated state-certified analytical laboratory. After the samples are submitted to the laboratory, they will be assigned unique laboratory log numbers

for identification throughout analysis and reporting. The log numbers will be recorded on the chain-of-custody forms and in a logbook maintained by the laboratory. The sample description, date received, name of client, and other relevant information will also be recorded.

After the samples are analyzed, a copy of each completed form will accompany the data transmittal from the analytical laboratory. Completed COC forms will be reviewed by Augeas prior to insertion into the project files/reports.

Laboratory Coordination

The analytical laboratory will be contacted at least 48 hours prior to receipt of the samples. Following drop-off or shipment of the samples, a sample custodian at the laboratory will accept the samples and verify the receipt of the samples on the accompanying COC forms. The samples will be tracked on a laboratory sample custody log consisting of serially numbered, standard laboratory tracking report sheets. At least 24 hours after sample shipment, the laboratory will then be contacted to verify receipt of the samples and the estimated turnaround time for analysis. However, this final step may not be necessary if the samples are picked up by a courier from the laboratory, or the samples are delivered directly to the laboratory by the sampler. In the event the water samples cannot be submitted to the analytical laboratory on the same day of collection (i.e. due to weekends or holidays), the samples will be temporarily stored in either a chilled ice cooler or in a refrigerator at Augeas Corporation's office until the first opportunity for submittal to the laboratory.

Laboratory Analytical Quality Assurance/Quality Control (QA/QC)

In addition to routine instrument calibration, replicates, spikes, blanks, spiked blanks, and certified reference materials are routinely analyzed at method-specific frequencies to monitor precision and bias.

Additional components of the laboratory QA/QC program included the following:

- Participation in state and federal laboratory accreditation/certification programs;
- Participation in both U.S. EPA Performance Evaluation studies and inter-laboratory performance evaluation programs;
- Standard operating procedures describing routine and periodic instrument maintenance; and
- Multi-level review of raw laboratory and client reports.

Decontamination and Waste Containerization

Various types of bailers will be used to purge monitoring wells and to obtain groundwater samples. Purging equipment will be decontaminated prior to use at each monitoring well. Groundwater samples will be obtained using the portable, dedicated sample bailers. Equipment used for water quality monitoring will also be decontaminated, where necessary and practical. Decontamination procedures on water quality monitoring equipment will be dependent upon equipment manufacturers' instructions and specifications. Decontamination procedures will take place at a pre-designated on-site location. Decontamination procedures will be recorded in the field logbook.

Decontamination procedures of the well purging equipment will be accomplished by rinsing the equipment in Liquinox® and water solution, followed by a triple rinse using de-ionized water. De-ionized water will be used for each rinse of the equipment. Rinsing of the equipment will take place with the use of 5-gallon buckets, that will placed on top of plastic sheeting laid along the ground surface in the pre-designated on-site decontamination location.

Water generated during well purging will be placed into DOT-approved 55-gallon waste drums. Excess water generated during groundwater sampling will also be placed into these waste drums. Waste drums containing the purge water and any excess water will be sealed and labeled, and then moved to a temporary centralized storage area, as designated by the manager of the site facilities. The drums will be labeled with the project name (site location), date of generation, well number, and type of matrix (i.e., purged groundwater). Arrangements for transport and disposal of the water will be made upon receipt of the analytical results. The water will be transported and disposed at an approved transport, storage, and disposal (TSD) facility. Health and safety equipment, such as Tyvek suits and nitrile gloves, worn during monitoring will also be placed into a 55-gallon waste drum at each facility.

Appendix B

Site Specific Health and Safety Plan

Site Specific Health and Safety Plan

Dublin Retail Center
7900-7916 Dublin Boulevard
Dublin, California

Introduction

The purpose of this Health and Safety Plan (HASP) is to ensure that all individuals engaged in site activities do so in a safe manner and in compliance with EPA, state and local regulations. The primary regulatory documents with which site personnel need to comply are OSHA 29 CFR, Part 1910, and the California Administrative Code, Title 8. In addition, all site work will comply with Augeas/A&A Rock Science's Health and Safety Program, all supporting Standard Operating Procedures, and Alameda County Environmental Health Services (ACEHS) guidelines. This HASP may be modified during actual field activities, if necessary, as more information and site-specific data are obtained.

Prior to beginning any work on-site, an approved copy of this HASP shall be provided to all employees and subcontractors by the Project Manager. Each subcontractor will be responsible for providing his own HASP. At a minimum, the subcontractor's HASP must meet the requirements of Augeas/A&A Rock Science HASP. Augeas/A&A Rock Science retains the right to review and approve each subcontractor's Health and Safety Plan prior to the beginning of fieldwork.

Purpose and Objectives

The purpose of this site-specific Health and Safety Plan is to provide guidelines and procedures to ensure the health and physical safety of those persons working at the site. While it may be impossible to eliminate all risks associated with site work, the goal is to provide state-of-the-art precautionary and responsive measures for the protection of on-site personnel, the general public and the environment. The HASP objectives are as follows:

a. Ensure the safety of all site personnel;
b. Protect the public and the environment;
c. Adhere to Augeas/A&A Rock Science health and safety policies and procedures.

Implementation

This site-specific Health and Safety Plan, and any additional HASP, will be reviewed by all site personnel prior to their scheduled fieldwork. Whenever the site-specific HASP is revised or amended, personnel will be instructed of changes and new procedures.

The site-specific Health and Safety Plan will be implemented in the field by Augeas/A&A Rock Science's Health and Safety Coordinator and/or designated Site Safety Officer (SSO).

Site Description and Background

The subject site is located at 7900-7916 Dublin Boulevard in Dublin, California. The property consists of one building with four units and an associated parking area. The property was formerly used as an ARCO service station from 1975 to 1984. Prior to the gas station, the property was vacant agricultural land.

Proposed Work

Augeas/A&A Rock Science has proposed to install five soil borings to further delineate the vertical and lateral extent of petroleum hydrocarbons in soil and groundwater beneath the subject site.

As required, all equipment (trucks, sampling equipment, excavation equipment) shall be decontaminated prior to exiting the work zone. Personnel decontamination shall be conducted as needed in accordance with the health and safety section of this plan.

Job Hazard Assessment

Chemical Health Hazards

Chemical	PEL/Ceiling/ IDLH	Known Concentrations in Soil, Water, Air	Signs/Symptoms
Benzene	1 ppm	Soil = not detected Water = not detected	Irritation of eyes, nose, and respiratory systems. Headache, giddiness, fatigue, anorexia, staggered gait, and dermatitis
Toluene	100 ppm	Soil = not detected Water = 21 ppb	Irritation of eyes and mucous membrane, headache, dermatitis, narcosis, and coma.
Xylene	100 ppm	Soil = not detected Water = 0.69 ppb	Irritation of eyes, nose, and throat, excitement, drowsiness, headache, dizziness, nausea ,vomiting, anorexia, staggered gait, and dermatitis.
Ethyl Benzene	300 ppm	Soil = not detected Water = not detected	Irritation of eyes and mucous membrane, headache, dermatitis, narcosis, and coma.
Gasoline	300 ppm	Soil = not detected Water = 440 ppb	Skin irritant, disturbance of eyes. Deep burning in the throat and respiratory track and bronchopneumonia. Repeated chronic dermal contact may result in drying of skin, lesions and other dermatologic conditions.
Diesel	100 mg/m^3	Soil = not detected Water = 1000 ppb	Irritation to skin. Prolonged breathing at high vapor concentrations can cause central nervous system effects
Bunker Fuel	100 mg/m^3		Irritation to skin. Prolonged breathing at high vapor concentrations can cause central nervous system effects
Lead			Prolonged exposure may result in anorexia, low weight, malnutrition, constipation, abdominal pain, colic, or anemia
Tetraethyl-lead	40 mg/m^3		Irritating to the eyes. Prolonged exposure may result in insomnia, anxiety, tremors, hypotension, nausea, low-weight, convulsions, and coma.

Physical Hazards

Hazard	Mitigation Measure
Heavy Equipment Hazard	Heavy equipment will be in good working order and operated in accordance with recognized industry standards. Strive to keep a safe distance from heavy machinery so that you would not be in the path of a moving part if it were to swing suddenly. Always be aware of the movement of machinery around you. Approach vehicles from the driver's side. Make sure you are seen by the vehicle operator. Make eye contact.
Trip/Fall Hazard	Good housekeeping and shoes with traction will be worn.

Fire and Explosion Hazards
List Flammable or combustible materials kept on-site. Keep ignition sources away from the following materials.

Flammable (Flash Point < 100 °F)	Combustible (Flash Point < 200 °F)
Gasoline (43 °F)	Diesel (130 °F)

Flammability will be monitored by LEL meter.
List all oxidizers kept on-site: Unknown
Type and location of Fire Extinguisher: ABC fire extinguisher will be located in the support zone in the truck or outside.

Other Hazards

Vehicular Traffic: Employees exposed to vehicular traffic must be provided with high-visibility warning vests.

Falling Loads: Employees must not be permitted underneath loads handled by lifting or digging equipment.

Mobile Equipment: A warning system must be used for safety, when mobile equipment is operated near an excavation or when it is near the edge of an excavation, and the operator does not have a clear and direct view of the edge.

Materials and Equipment: Materials and equipment used for protective systems must be free from damage or defects, and must be used and maintained to be consistent with the manufacturer's recommendations.

__X__ *Noise:*

Activities likely to generate noise exceeding 85 Db: drilling Use hearing protection during these activities.

__X__ *Heat Stress*

Symptoms: Heat Cramps: Muscular pains and spasms.
Heat Exhaustion: Cool, pale, moist skin; dilated pupils, headache, sweating, nausea, dizziness, vomiting, near normal body temperature.
Heat Stroke: Hot, red skin; small pupils; high body temperature; reduced sweating

Mitigation: Cool place for breaks (in the shade or in trucks)
Whenever ambient temperatures exceed 80 °F, or whenever semipermeable or impermeable protective clothing is worn and ambient temperatures exceed 70 °F, monitoring the worker may include:

Calculate the workers heart rate at the beginning of the rest period. If the heart rate exceeds 110 beats/min shorten the next work cycle. If the heart rate still exceeds 110 beats/min during the next rest period, shorten the work cycle by 1/2 and continue monitoring.

Take frequent breaks in shaded areas. Remove PPE during breaks and provide plenty of drinking water. Record the time and duration of all breaks. Heat stroke victims must receive emergency medical care.

_____*Hypothermia/ Frostbite*

Symptoms: Hypothermia: Shivering, apathy, loss of consciousness, decreasing pulse and breathing rate.
Frostbite: White, then greyish yellow processing to greyish blue skin. Cold numb body parts.

Mitigation: Wear multi-layer cold weather clothing. Take frequent breaks in a warm sheltered area. Provide warm drinks. For frostbite victims, warm the injured part gradually, do not rub the affected area. Warm hypothermia victims and transport to emergency medical care.

Exposure Monitoring
All samples will be recorded in the exposure log. Copies of the exposure log are filed in the job file. All sampling instruments will be calibrated per the manufacturer's instructions on a daily basis.

Monitoring Equipment	Hazard Monitored	Sample Location	Sample Frequency	Action Level	Action
LEL	Combustable or explosive vapors	To be determined	Prior to removing each petroleum container	10 %	Suspend activities immediately if LEL readings are higher than 10

Personal Protective Equipment
As a minimum, Level D protection is required on all Augeas worksites. Level D includes: steel-toe boots, safety glasses, and a hard hat. For each task on this project, identify additional protective garments as requires, include the conditions (exposure levels, etc.) under which the level of PPE would be modified for each task.

Task(s)	Condition	Garment(s)
All	At all times	Steel-toe boots, safety glasses, and hard hat

Site Control and Communication

The site will be secured as follows: Traffic safety equipment and caution tape.

Work Zones will be marked as follows: Marked with florescent or caution tape and traffic safety equipment. Exclusion Zone is within 15 feet of rig. Only essential personnel will be allowed into an Exclusion Zone. When practical, 25 to 75 feet of space surrounding Exclusion Zones will be designated as Contamination Reduction Zones. Support Zone is all other area.

On-site communication:	Radio	____
	Verbal	X
	Hand Signals	X
	Other	____
Off-site communication:	Radio	____
	Telephone	X
	Other	____

The specific signal for an emergency is: Waving both arms overhead
The specific signal for an evacuation is: Wave personnel toward assembly point
Evacuation assembly point is: To be designated prior to work so a head count can be taken in the event of an evacuation.

Sanitation and Decontamination

Personal decontamination procedure: *Hands and face must be clean prior to eating, drinking, or smoking.*
Location of Wash Water: *Support Zone, or to designated prior to work start.*
Location of toilet: *Support Zone, or to designated prior to work start.*
Location of drinking water: *Support Zone, or to designated prior to work start.*
Equipment Decontamination Procedures: *Steam cleaned or washed with Alconox.*
Materials to be disposed of as Hazardous Waste: *Personal Protective Equipment.*

This hazard assessment is based on available information concerning chemical hazards suspected to be present at the site. The work to be performed will be conducted in accordance with EPA and CAL-OSHA regulations and VCEHD requirements.

Emergency Services

If an emergency should occur on-site, the Emergency System (911) should be activated. Two-way communication between the site and the emergency trauma center will be maintained via a portable cellular telephone. Emergency telephone numbers shall be posted on-site and a portable telephone unit made immediately available at all times. These numbers shall include the following:

Emergency

Ambulance	911
Police	911
Poison Control	(800) 346-5922
Kaiser Permanente Hospital	(925) 847-5367

Non Emergency

Alameda County Fire Prevention	(925) 833-6606
National Response Center	(800) 424-8802

Emergency/Contingency Plans and Procedures
In case of a medical emergency, transport the injured person(s) to the emergency room at the Kaiser Permanente Hospital. Directions to the hospital are as follows: drive southwest on Dublin Boulevard; turn left onto San Ramon Road; San Ramon Road becomes Foothill Road; turn left onto Stoneridge Drive; turn left onto Springdale Avenue; the hospital is located at 7601 Stoneridge Drive (see attached map). If required, summon emergency medical personnel by dialing 911. The project manager will remain in view of all field activities, and he will inform site personnel of a change in activities.

Key Safety Personnel and Responsibilities
Project Manager
The Augeas Corporation Project Manager is the SSO for A&A. The SSO will ensure that site personnel have proper protective equipment available, that specific site hazards are noted, and that personnel have knowledge of the nearest hospital location. The site safety officer can stop work at the subject site upon determination that an eminent health or safety hazard exists. If a stop-work order is issued, Augeas Corporation will take appropriate steps to remedy the situation and resume site activities. Augeas Corporation's Project Manager is responsible for directing all project operations. The Project Manager is also responsible for ensuring that the safety personnel are given free access to all relevant site information that could impact health and safety. The project manager will remain in view of all field activities, and he will inform site personnel of a change in activities.

Employees
All A&A and Augeas Corporation employees working at the site are responsible for reading and understanding the HASP. Other subcontractors at the site are responsible for providing their own HASPs, which must incorporate, at a minimum, A&A's HASP. As described above, Augeas Corporation's SSO has the authority to ensure that subcontractor employees are following the A&A/Augeas Health and Safety Plan provisions.

Site Safety Briefing Procedures (Tailgate Meeting):
All field personnel from Augeas and the subcontractors must attend a safety orientation meeting prior to commencing field activities. The meeting will be scheduled and conducted by the SSO and is to include an overview of the site history, the potentially hazardous compounds, their potential mode of ingress into the body, protective equipment requirements, and emergency response equipment. All individuals who do not have respirators and who may be required to wear them, will not be allowed on the site until they are provided with and fit tested for respirators by their respective employers.

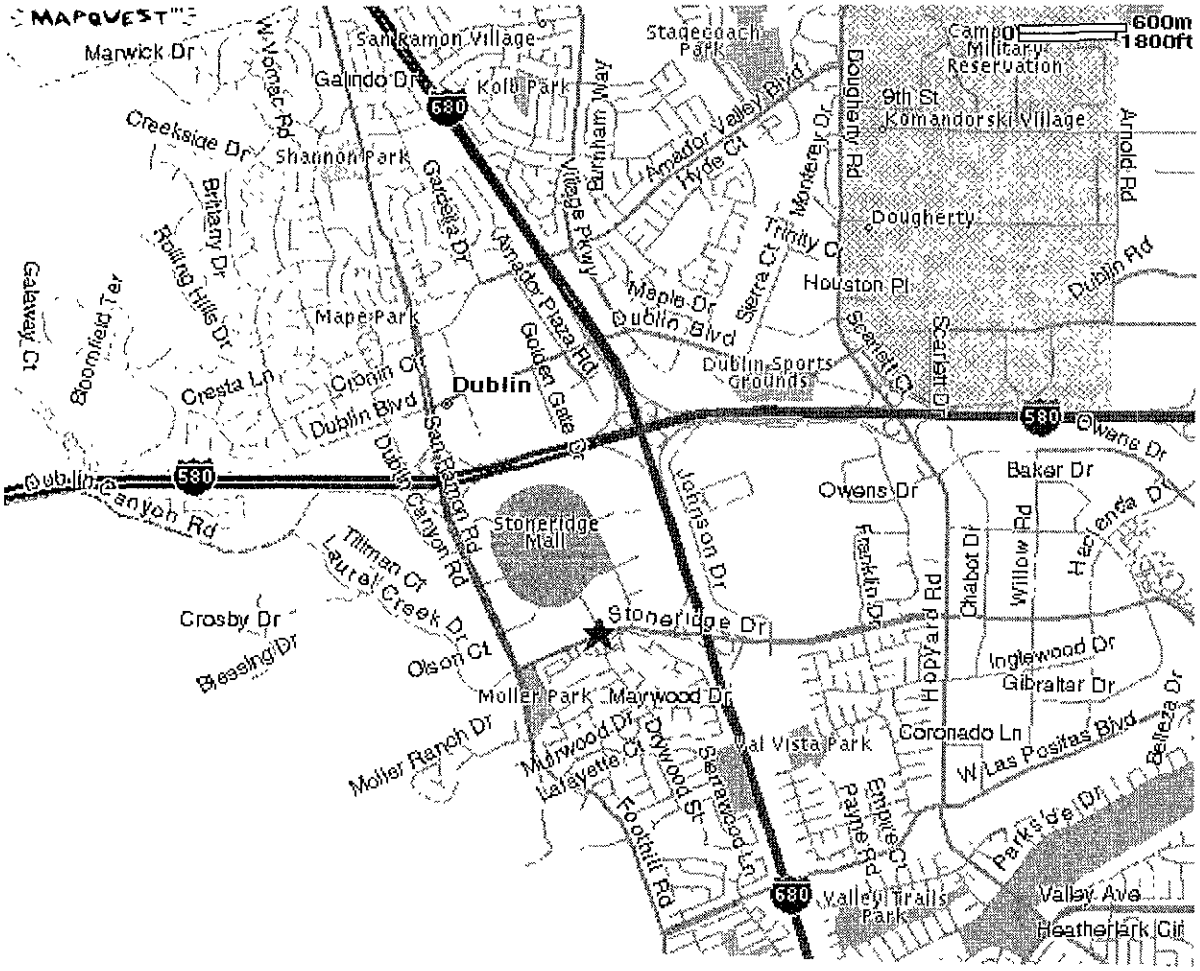
A tailgate meeting will be held every morning before the start of work and is to be attended by all personnel on-site. The purpose of the meeting is to discuss the day's work, potential hazards, and specific health and safety procedures to be utilized during the day.

Sign-Off

I have read the HASP and fully understand the hazards associated with the following job: 7900-7916 Dublin Boulevard, Dublin, California

I will comply with the minimum safety requirements set forth in the HASP. I agree to notify the responsible employee of Augeas should any unsafe acts be witnessed by me while I am on-site.

Print Name	Signature	Date



Augeas Corporation

Hospital Location Map

Site Address: 7900 Dublin Boulevard, Dublin, California