Versar INC.

May 5, 1994

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ALCO
HAZMAT

Mr. Scott Seery
Hazardous Materials Specialist
Alameda County Health Care Services Agency
UST Local Oversight Program
80 Swan Way, Room 200
Oakland, California 94621

Subject: WORKPLAN TO INSTALL ONE MONITORING WELL AND PERFORM FOUR QUARTERS OF GROUNDWATER MONITORING.
SANTA RITA PROPERTY, FORMER UNDERGROUND STORAGE TANK #9 SITE.
Versar Job Number 2241-019

Dear Mr. Seery:

This workplan has been prepared to present the scope of work for the installation of one monitoring well and the performance of four quarters of monitoring at the County's Santa Rita property, former underground storage tank (UST) #9 site. The scope of work was prepared by Versar, Inc. (Versar) on behalf of the County of Alameda General Services Agency (GSA), under the direction of Mr. Peter Kinney, to monitor the potential impact to the groundwater by the petroleum hydrocarbons released at the site. Information used to develop this workplan was based on information and reports supplied to Versar by the GSA. Our Statement of Limitations is included as Attachment A.

Background

The site is located in a section of the former Santa Rita property referred to as the "Old Greystone area" (see Figure 1). A diesel UST, designated Tank #9, was removed and the soil beneath sampled. Tank #9 was formerly associated with support buildings at the jail facility. Soil sampling results indicated a total petroleum hydrocarbon as diesel (TPH-D) concentration of 180 parts per million (ppm) directly below the tank. The County over-excavated approximately 4 feet beneath the tank and resampled the soil. The soil resampling results indicated that TPH-D concentrations dropped to approximately 9 ppm. The lead regulatory agency, Alameda County Health Care Services Agency, reviewed the data and

310 ppm ? edge of pool ?

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requested that one monitoring well be installed downgradient of the excavation location and four quarters of groundwater monitoring be performed.

SCOPE OF WORK

The proposed scope of work consists of the following tasks:

Task 1.0 - Permitting and Health and Safety Plan Preparation

The Alameda County Flood Control, Zone 7, will require a drilling permit prior to installation of the monitoring well. Versar will obtain this permit prior to beginning field activities. Versar will also develop a Site Health and Safety Plan prior to initiating field activities. This site specific Health and Safety Plan will be prepared to set forth procedures for safe conduct during completion of the field investigation. The Health and Safety Plan is designed to minimize risks to Versar personnel and their subcontractors caused by potential exposure to hazardous materials or unsafe work conditions.

Task 2.0 - Monitoring Well Installation

Information contained in the "Quarterly Monitoring Report, First Quarter 1994, Old Greystone Fueling Area, Santa Rita Correctional Facility", prepared by Environmental Science & Engineering, Inc., indicates that the local groundwater gradient in this area is to the southeast. The fueling area is adjacent to the Tank #9 site. This information, supplied to Versar by the GSA, will be used to locate the monitoring well downgradient from the excavation area for the #9 UST. The well will be located to the southeast of the former tank location, within 10 feet of the former excavation limits. The final well placement will be determined in the field based on access conditions.

During the installation of the groundwater monitoring well, soil samples will be collected at a maximum of 5-foot intervals, at any lithologic changes, and in areas of obvious contamination for visual identification and classification. The locations and depths of the samples will be determined in the field and will be based on the soil type encountered. These data will help confirm soil classifications and assure that selected screen sizes and the monitoring well filter pack are compatible with the aquifer material. Soil samples will be collected using a California-modified split-spoon sampler lined with stainless steel or brass sample tubes. Soil sample collection will be accomplished by driving the sampler approximately 18 inches into undisturbed soils below the lead auger. Upon retrieval of the sampler at each sample interval, the lowest sample tube will be removed, the ends of the sample tube will be covered with aluminum foil or teflon wrap, capped with plastic end-caps,

labeled for identification purposes, and immediately placed in an insulated chest with ice, pending shipment to the laboratory for analysis. Chain-of-custody procedures will be used, including the use of chain-of-custody forms, to document sample collection, handling and transport to the laboratory. A second sample tube from the sampler will be retained for head-space screening of organic vapors using an organic vapor analyzer (OVA).

The soil boring will be logged by a Versar geologist working under the direction of a California State-registered geologist. A log of the boring will be generated in the field to record descriptions of the soil types, sample depths and designations, and any observed significant features related to the presence of petroleum hydrocarbons or other hazardous materials.

In order to reduce the potential for cross-contamination, the downhole sampling equipment will be washed between sampling events in a laboratory-grade detergent solution, rinsed in a two-tapwater bath, and final rinsed with deionized water. Additionally, the augers and associated drilling equipment will be pressure-washed with a hot pressure washer prior to beginning drilling. Soil cuttings and equipment rinseate generated during this investigation will be deposited and sealed in 55-gallon U.S. Department of Transportation (DOT) - approved drums, then labeled and stored on-site pending receipt of laboratory analytical results and evaluation of disposal alternatives.

The monitoring well will be installed in the completed soil boring using a truck-mounted hollow-stem-auger drill rig equipped with 10-inch outside diameter augers. The well will be constructed using 4-inch diameter schedule 40 PVC flush threaded well casing. The monitoring well will be completed approximately 10 feet below the top of saturated material using fifteen feet of 0.010-inch machine slotted well screen. A silica sand filter pack shall be placed around the well screen extending to a minimum of two feet above the top of the well screen. The sand will be tremied if in excess of 30 feet in thickness. An annular seal consisting of one foot of bentonite chips will be placed above the sand pack. A bentonite/cement grout seal will be placed to one foot below the surface. A traffic rated vault box with one foot of concrete will be placed at the surface (see figure 2). The total depth of the well is anticipated to be approximately 35 feet.

After a period of 72 hours have been allowed for the annular seal to set, the well will be developed. The well development will be accomplished by pumping groundwater from the well until the hydrologic parameters of temperature, pH, conductivity, and turbidity stabilize.

Measurement of hydrologic parameters will be conducted following the withdrawal of each well volume of groundwater. Stabilization will be indicated when each of the hydrologic parameters is determined to be within ten percent of the previous measured parameter. Well development water shall be stored in DOT approved containers at the site pending receipt of laboratory analytical results.

Task 3.0 - Quarterly Groundwater Monitoring

On a quarterly basis, for a period of one year, the 4-inch diameter groundwater monitoring well will be purged and sampled in accordance with federal, state, and local regulations. Upon completion of well purging, the water level will be allowed to recover at least 80% and stabilize. Prior to purging the well, the groundwater level measurement will be taken each quarter. Field logs will be maintained by Versar during the purging event. Versar will collect groundwater samples using dedicated equipment. All well purge water will be stored onsite in 55-gallon DOT approved drums. The well purge water will be stored until the completion of laboratory analysis that will help to determine disposal options. Versar is estimating that approximately 35 gallons of well purge water will be generated during each of the four site visits.

Versar will collect a groundwater sample from the monitoring well during each quarterly sampling event. Groundwater samples will be submitted to a California state-certified laboratory for analysis. All groundwater samples will be analyzed for TPH-D (Department of Health Services Method) and benzene, toluene, ethylbenzene and xylenes (BTEX) (EPA Method 8020). In addition, one quality assurance/quality control (QA/QC) sample will be analyzed for each sampling event. All laboratory analysis will be conducted on a normal turnaround basis.

Upon receipt of the analytical results each quarter, Versar will prepare a report which documents the current site monitoring and sampling activities, the results of the analytical testing, and the groundwater level measurements.

Task 4.0 - Disposal of Investigation Derived Waste and Development Water

The actual disposal of any investigation derived waste development water cannot be determined prior to the completion of the laboratory analysis. Based on the presence or absence of any contamination, Versar will recommend appropriate disposal options available

to the County of Alameda. The actual volume of waste development water can be highly variable. However, based upon our knowledge of general conditions in this geographical area and well size and depth information, Versar is estimating that approximately 25 cubic feet of soil will be generated during the well installation and 35 gallons of wastewater will be generated during each sampling event. Versar will collect up to three samples of drummed soil cuttings for TPH-D and BTEX analysis. Characterization of development water will be based on groundwater monitoring analytical data.

If laboratory analysis indicated that no contaminants are present, the soil cuttings will be disposed as non-hazardous waste at an appropriate landfill and the waste development water may be disposed of into the local sanitary sewer system. Versar recommends that prior approval be obtained from the local sanitary district. Versar will submit a request to the local sanitary district on the behalf of the County of Alameda for disposal of the wastewater as nonhazardous waste into the local sanitary sewer.

If you have any questions or concerns regarding this workplan, please contact either of the undersigned at (916) 962-1612.

Sincerely,
Versar, Inc.

Michael P. Sellens
Geoscience Program Manager
R.P.G. No. 4714

John Russell
Geologist

Versar INC.

ATTACHMENT A

Versar INC.

STATEMENT OF LIMITATIONS

The data presented and the opinions expressed in this report are qualified as follows:

- The sole purpose of the investigation and of this report is to assess the physical characteristics of the Site with respect to the presence or absence of oil or hazardous materials and substances in the environment as defined in the applicable state and federal environmental laws and regulations and to gather information regarding current and past environmental conditions at the Site.

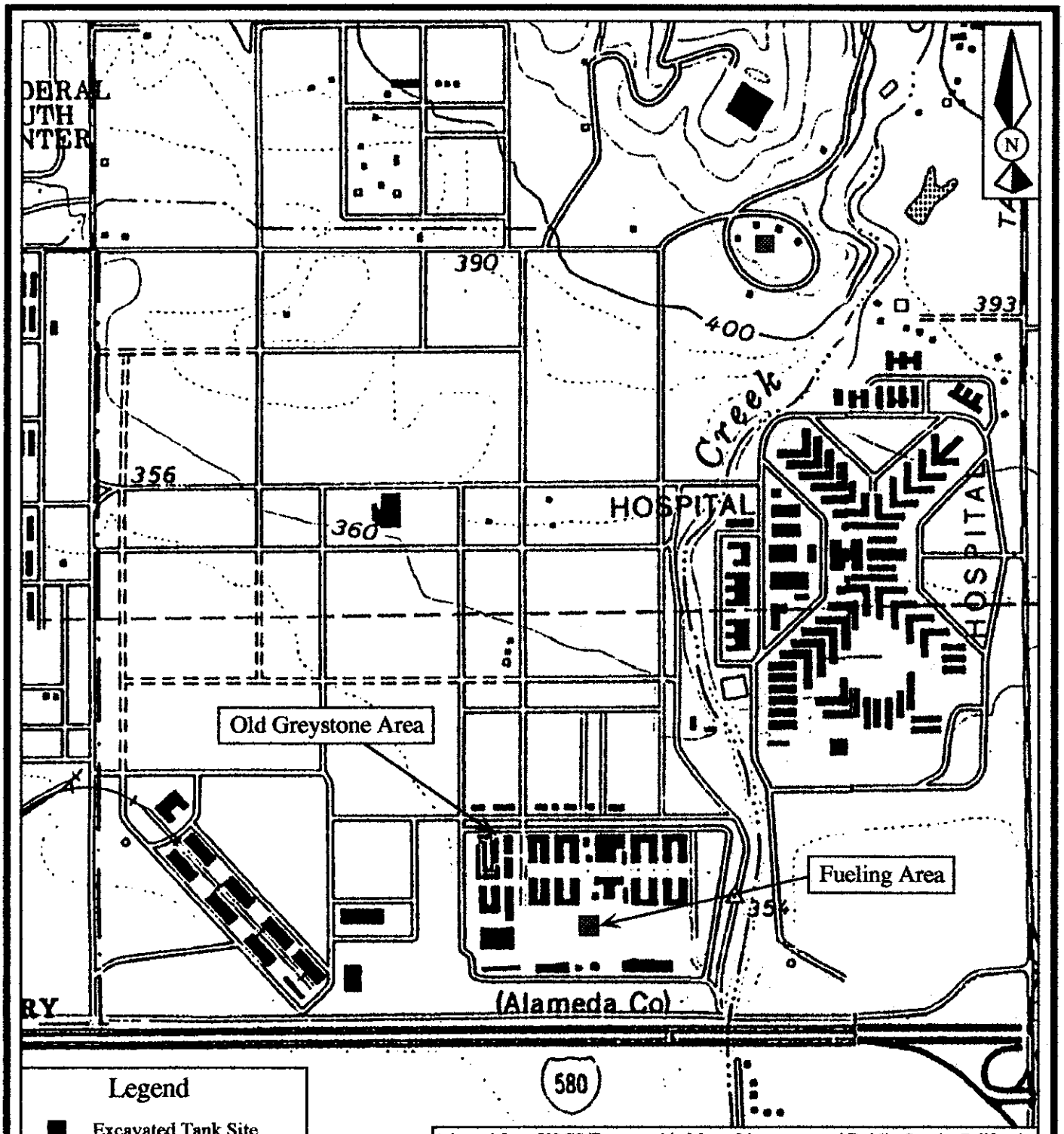
- Versar derived the data in this report primarily from visual inspections, examination of records in the public domain, interviews with individuals with information about the Site, and a limited number of environmental samples, as indicated by the Scope of Services for the Site. The passage of time, manifestation of latent conditions, or occurrence of future events may require further exploration at the Site, analysis of the data, and reevaluation of the findings, observations, conclusions, and recommendations expressed in the report.

- In preparing this report, Versar has relied upon and presumed accurate certain information (or the absence thereof) about the Site and adjacent properties provided by governmental officials and agencies, the Client, and others identified herein. Except as otherwise stated in the report, Versar has not attempted to verify the accuracy or completeness of such information.

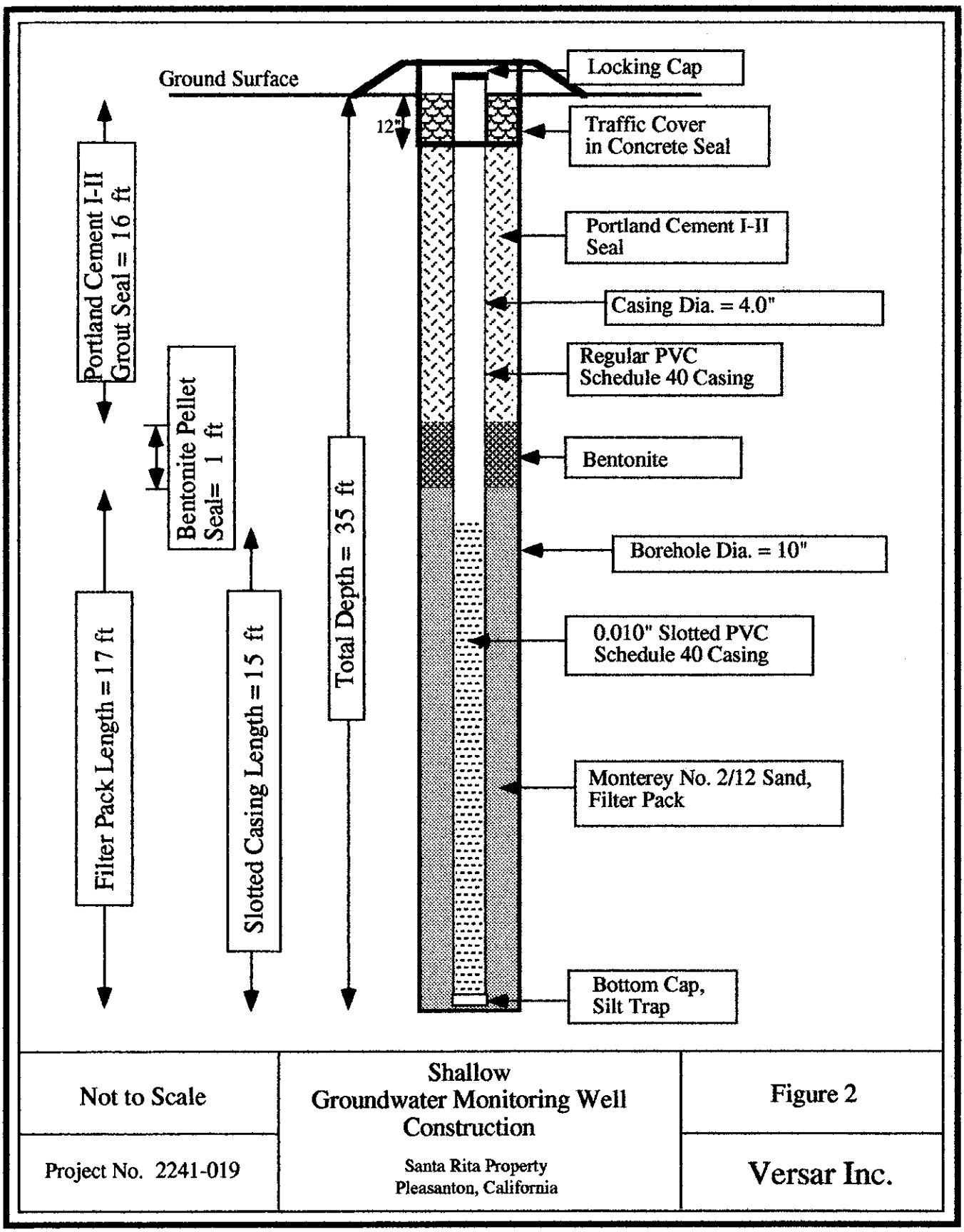
- The data reported and the findings, observations, conclusions, and recommendations expressed in the report are limited by the Scope of Services, including the extent of environmental sampling and other tests. The Scope of Services was defined by the requests of the Client, the time and budgetary constraints imposed by the Client, and the availability of access to the Site.

- Because of the limitations stated above, the findings, observations, conclusions and recommendations expressed by Versar in this report are limited to the information obtained and the surface and subsurface investigation undertaken and should not be considered an opinion concerning the compliance of any past or current owner or operator of the Site with any federal, state, or local law or regulation. No warranty or guarantee, whether express or implied, is made with respect to the data reported or findings, observations, conclusions, and recommendations expressed in this report. Further, such data, findings, observations, conclusions, and recommendations are based solely upon Site conditions in existence at the time of investigation.

- This report has been prepared on behalf of and for the exclusive use of the Client, and is subject to and issued in connection with the Agreement and the provisions thereof.



Legend		
■ Excavated Tank Site		
Adapted from USGS Topographic Maps, Livermore and Dublin Quads, California		
Not to Scale	Site Plan	Figure 1
Project No. 2241-019	Santa Rita Property Pleasanton, California	Versar, Inc.



Not to Scale	Shallow Groundwater Monitoring Well Construction	Figure 2
Project No. 2241-019	Santa Rita Property Pleasanton, California	Versar Inc.