



**AllWest Environmental, Inc.**

Specialists in Physical Due  
Diligence and Remedial Services

530 Howard Street, Suite 300  
San Francisco, CA 94105  
Tel 415 391.2510  
Fax 415 391 2008

**Alameda County**

FEB 11 2003

**Environmental Health**

**2002 ANNUAL GROUNDWATER MONITORING  
& RISK ASSESSMENT REPORT**

*900 Central Avenue  
Alameda, California*

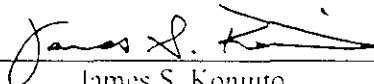
*2/11/03*

Prepared for:

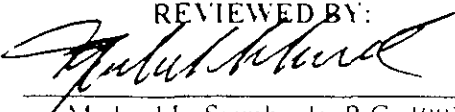
Mr. David Thompson  
c/o Ms. Kate Friend, Esq.  
Ryan, Andrada & Lifter  
300 Lakeside Drive  
Oakland, CA 94612

ALLWEST PROJECT No 22002 28  
January 31, 2003

PREPARED BY:

  
James S. Konuto  
Project Manager

REVIEWED BY:

  
Michael L. Siembieda, R.G. 4007  
Senior Project Manager



AllWest

## TABLE OF CONTENTS

I.	EXECUTIVE SUMMARY .....	Page 1
II.	INTRODUCTION .....	Page 2
	A. Site Location and Setting .....	Page 2
	B. Site Geology and Hydrogeology .....	Page 3
	C. Previous Investigations .....	Page 4
	D. Purpose and Scope of Work .....	Page 4
III.	MONITORING ACTIVITIES .....	Page 5
	A. Monitoring Well Groundwater Sampling .....	Page 5
IV.	MONITORING FINDINGS .....	Page 6
	A. Groundwater Elevation & Flow Direction Measurements .....	Page 6
	B. Groundwater Analytical Results .....	Page 6
	C. Discussion of Findings .....	Page 8
V.	WELL SURVEY .....	Page 8
VI.	CONCEPTUAL SITE MODEL .....	Page 10
	A. Potential Primary and Secondary Contaminant Source Areas .....	Page 11
	B. Potential Migration Pathways .....	Page 12
	C. Potential Receptors .....	Page 13
VII.	RISK BASED SCREENING LEVEL ASSESSMENT .....	Page 13
VIII.	CONCLUSIONS .....	Page 14
IX.	REPORT LIMITATIONS .....	Page 15
X.	REFERENCES .....	Page 16



## TABLE OF CONTENTS

(Continued)

### TABLES

- Table 1 - Summary of Groundwater Elevation Measurements
- Table 2 - Summary of Analytical Results

### FIGURES

- Figure 1 - Site Location Map
- Figure 2 - Site Plan with Monitoring Wells
- Figure 3.1 - Groundwater Elevations, 3/29/02
- Figure 3.2 - Groundwater Elevations, 7/15/02
- Figure 3.3 - Groundwater Elevations, 10/3/02
- Figure 3.4 - Groundwater Elevations, 12/9/02
- Figure 4 - Petroleum Hydrocarbon Concentration Map
- Figure 5 - Conceptual Site Model

### LABORATORY RESULTS

- Analytical Reports and Chain-of-Custody Documents, 12/9/02

### APPENDICES

- Appendix A - Groundwater Sampling Logs
- Appendix B - Well Survey Location Maps and Well Survey Results Table
- Appendix C - Authorization for Reliance and General Conditions



## 2002 ANNUAL GROUNDWATER MONITORING & RISK ASSESSMENT REPORT

*900 Central Avenue  
Alameda, CA*

### I. EXECUTIVE SUMMARY

This report presents the results of groundwater monitoring activities and a risk assessment completed for the property at 900 Central Avenue, Alameda, California (Property). The monitoring complies with the request of Alameda County Environmental Health Services (ACEHS) to monitor the shallow groundwater quality in the vicinity of underground storage tanks (USTs) formerly located at the site.

The purpose of the groundwater monitoring program was to document that concentrations of total petroleum hydrocarbons detected in the subsurface and associated with the former use of underground storage tanks at the property are at levels that do not pose an unacceptable risk to human health or the environment. The overall goal was to verify stabilization of the petroleum hydrocarbon plume and to obtain site closure from the ACEHS.

Three groundwater monitoring wells are located at the Property. Monitoring well MW-1 is located at the northwest corner of the property, down gradient from the former UST. Monitoring wells MW-2 and MW-3 are located approximately 40 feet east and 40 feet south of MW-1, respectively. Groundwater at the property is encountered at approximately 12 feet below ground surface (bgs). Please see Figure 2 for monitoring well locations.

During each of the monitoring events, groundwater samples were collected and analyzed for total petroleum hydrocarbons in the gasoline, diesel and motor oil ranges (TPH-g, TPH-d, and TPH-mo), benzene, toluene, ethylbenzene, and xylene (BTEX) compounds and methyl tertiary butyl ether (MTBE). Data on physical properties of the groundwater, such as groundwater surface elevation, groundwater temperature, pH and conductance were also collected during each sampling event.

Since monitoring began in November 1998 TPH-g, BTEX and TPH-d have only been consistently detected in well MW-1. Concentrations of TPH-g detected in well MW-1 have fluctuated between non-detectable levels measured during March 1999 and 2002, to maximum concentrations of 42,000 ppb detected during the July, October and December 2002 sampling events.

A comparison of site specific maximum groundwater values for the petroleum hydrocarbons detected during the current monitoring period (March 2002 through December 2002) with Risk-

Based Screening Levels (RBSLs) developed by the San Francisco Bay Regional Water Quality Control Board (RWQCB) indicate exceedence of RBSLs for TPH-g and BTEX compounds detected in well MW-1 only.

Based on 2002 sampling data and previous investigations, we conclude that:

- Historic operations of former underground storage tanks (USTs) at the Property resulted in a release of petroleum hydrocarbons that impacted subsurface conditions in the vicinity of the former UST. No ongoing source is present;
- Concentrations of TPH-g, BTEX, TPH-d and TPH-mo in wells MW-2 and MW-3 are at non-detectable levels, or levels that do not pose an unacceptable risk to human health or the environment;
- The groundwater monitored by MW-1 appears to be local and relatively stabilized, remaining within the area of the former UST, and is not migrating southerly toward well MW-3.
- Based on a comparison of site specific maximum results and current health risk based screening levels, it is unlikely that the residual petroleum hydrocarbons in the on-site groundwater pose an unacceptable risk to the health of on-site building tenants, however, the volatilization of benzene from potential off-site plume migration potentially poses a risk to human health of off-site building tenants, located down gradient and across 9<sup>th</sup> Street.

## **II. INTRODUCTION**

This report presents the results of four groundwater monitoring events and a risk assessment completed at the property at 900 Central Avenue, Alameda, California. The monitoring was performed to comply with the request of Alameda County Environmental Health Services (ACEHS) for reinitiating monitoring of the shallow groundwater quality in the vicinity of underground storage tanks (USTs) formerly located at the site. Sampling events occurred in March, July, October and December 2002. Historical trends since monitoring began in November 1998 are also presented. Included in this report is an abbreviated site setting and investigation history, a description of field activities, a summary of analytical results, our interpretation of the data, and an assessment of risk utilizing RBSLs developed by the San Francisco Bay RWQCB. Supporting information such as site figures, sampling logs, and laboratory reports are attached as appendices.

### **A. Site Location and Setting**

The subject property is located at 900 Central Avenue in the central-southern portion of the City of Alameda, California in a predominantly residential area. The subject property is at the southeast corner of Central Avenue and Ninth Street. Site improvements consist of a two-story, wood-frame duplex apartment building with surrounding landscaped areas. The

location of the site is graphically depicted on Figure 1 and a generalized site plan is presented on Figure 2.

The site is situated in central part of the island of Alameda. The Island was at one time connected to the mainland but dredging in 1876 cut a shipping channel linking the Oakland Inner Harbor with San Leandro Bay. Extensive infilling has significantly enlarged the island especially to the North, at the former location of the Alameda Naval Air station. Filling also has occurred approximately 1,000 feet south of the site where fill was placed to create new land for development.

#### Topography

The site is located at an approximate elevation of 25 feet above mean sea level. The topography slopes gently to the southwest to the San Francisco Bay located approximately 2,000 feet and to the south to a manmade water way located approximately 1,000 from the site.

### **B. Site Geology and Hydrogeology**

The site and the San Francisco Bay area is located in the Coast Range Geologic/Geomorphic Province. The province is characterized by a series of northwest trending structural mountains and basins (valleys) that have undergone a complex geologic history of sedimentation, folding, faulting, volcanism, uplift and erosion. The Bay is structurally controlled by the active San Andreas Fault located to the west and the Hayward fault to the east.

Locally the site is underlain by a yellowish brown, fine grained, silty sand that is known as the Merritt Sand. The Merritt Sand is a Quaternary aged, wind blown dune sediment, deposited during the last glacial period when sea levels were 200 to 300 feet lower than current conditions. The Merritt Sand is approximately 80 feet thick in the vicinity of the site and is underlain by the San Antonio Formation which is comprised of sand and clay. Consolidated rocks of the Franciscan Assemblage occur at depths of 125 to 150 feet.

The Merritt Sand has been used locally as a source of groundwater. Numerous wells have been drilled in Alameda that have penetrated the Sand. Groundwater has been encountered at the site at an approximate depth of 12 feet bgs. Groundwater depths have seasonally varied approximately 3 feet, due to changes in recharge conditions. Groundwater flow direction has been consistently to the southwest, to the San Francisco Bay, and following the local topography. A cumulative summary of groundwater surface elevation measurements is presented on Table 1

### **C. Previous Investigations**

A site assessment conducted by Lowney Associates in 1994 indicated that the site was occupied by a gas station prior to development of the apartment building. Subsurface sampling detected gasoline and BTEX compounds in soil and groundwater samples collected from the northeast corner of the Property. Lowney Associates indicated that former USTs were located in the northeast quadrant of the Property.

A subsurface investigation conducted by AllWest in June 1997 confirmed the former UST was likely located offsite, in the public right-of-way and under the sidewalk of Central Avenue. The advancement of eight soil borings and chemical analysis of soil and groundwater samples indicated that the majority of contaminated groundwater beneath the site was limited to the northwest corner, and the extent of the groundwater plume may extend beyond the property boundary and into 9<sup>th</sup> Street. The preliminary risk assessment indicated that the portion of groundwater plume beneath the subject property was unlikely to cause increased cancer risk to site occupants.

In March 1998, the ACEHS issued a letter requesting quarterly groundwater monitoring for a minimum of one year at the Property, requiring testing for the presence of TPH-g, BTEX and the fuel oxygenate methyl tert-butyl ether (MTBE). In November 1998 AllWest installed, developed and sampled groundwater monitoring wells MW-1, MW-2 and MW-3 at the subject site. The analytical results indicated no target analytes were detected in any of the collected groundwater samples except TPH-g and BTEX in MW-1. TPH-g was detected at concentration of 360 ppb, benzene at 5.8 ppb, toluene at 5.5 ppb, ethylbenzene at 9.2 ppb, and xylene at 40 ppb.

Quarterly groundwater monitoring was performed for 1 year at the subject property, beginning in November 1998. Historical groundwater elevation measurements and groundwater analytical results are included in Tables 1 and 2, respectively. No groundwater sampling was performed between September 1999 and February 2002.

### **D. Purpose and Scope of Work**

Quarterly monitoring was performed in 2002 to comply with the request of Alameda County Environmental Health Services (ACEHS) for reinitiating monitoring of the shallow groundwater quality in the former vicinity of underground storage tanks (USTs) located at the site.

The purpose of the groundwater monitoring program was to document that concentrations of total petroleum hydrocarbons detected in the subsurface and associated with the former use of underground storage tanks at the property are at levels that do not pose an unacceptable risk to human health or the environment. The overall goal was to verify horizontal and vertical stabilization of the petroleum hydrocarbon plume and to obtain site closure from the ACEHS.

The specific objectives are:

- Further assess the extent of petroleum hydrocarbons in the groundwater by sampling three groundwater wells for petroleum hydrocarbons for four quarters;
- Provide a conceptual site model (CSM) for the property;
- Compare site specific results to Tier 1 Risk Based Screening Levels (RBSLs) to assess if the residual contamination poses an unacceptable risk to human health or the environment; and
- Complete this report for review by ACEHS summarizing results of groundwater sampling, the CSM and the risk assessment.

### **III. MONITORING ACTIVITIES**

#### **A. Monitoring Well Groundwater Sampling**

Four groundwater monitoring events were conducted by AllWest during 2002, occurring on March 29, July 15, October 3 and December 10, 2002. Except for the October event, a representative groundwater sample was collected by AllWest from wells MW-1, MW-2 and MW-3. Well MW-2 was not sampled during October 2002 due to blockage of the well casing. The blockage was subsequently cleared and the well sampled in December.

Prior to well purging, an electric water level sounder was lowered into each well casing to measure the depth to the water to the nearest 0.01 feet. A clear poly bailer was then lowered into each well casing and partially submerged. Upon retrieval of the clear bailer, the surface of the water column retained in the bailer was examined for any floating product or product sheen. No floating product was observed on the surface of water retained in the bailer from any of the three wells, however, petroleum fuel odors were observed from well MW-1.

After initial measurements were completed and recorded, each of the wells were purged by a disposal bailer. Approximately 3 well volumes of groundwater were purged from each well. During the purging process, the groundwater physical property indicators (temperature, pH, and conductivity) were monitored periodically with a combination meter. Purging was considered complete when indicators were stabilized (consecutive readings within 10% of each other) and the purged water was free of sediment.

Groundwater sampling was conducted after the water level recovered to at least 80% of the initial level, recorded prior to purging. The groundwater sample was collected by using a disposable bailer that was discarded after each well sampling event to avoid cross-contamination. Upon retrieval of the disposable bailer, the retained water was carefully



transferred to appropriate pre-cleaned glassware furnished by the analytical laboratory. A special adapter fitted to the bottom end of the bailer was used to minimize the loss of volatile contaminants during transfer. All sample containers for volatile organic analysis were fitted with a Teflon lined septum/cap and filled such that no head space was present. After the water samples were properly transferred to the appropriate container, the containers were labeled and immediately placed on ice to preserve its chemical characteristics. A well sampling log for each well was maintained during the sampling events and copies of the logs are included in Appendix B.

Samples were field stored and transported in an insulated cooler filled with ice. The samples were then transferred to the laboratory. The samples were maintained under proper chain of custody documentation from the time of collection to the time of arrival at the laboratory.

To avoid cross-contamination, all groundwater sampling equipment that came in contact with the groundwater was thoroughly cleansed by washing it in Alconox (a non-phosphor detergent) solution and rinsed with distilled water prior to each well sampling event. Sample collection was by disposable bailers which were discarded after each well sampling event. All purged water was temporarily stored on-site in labeled DOT-approved 55-gallon steel drums awaiting test results to determine the proper disposal method.

#### **IV. MONITORING FINDINGS**

##### **A. Groundwater Elevation and Flow Direction Measurements**

Groundwater surface elevation of each well was measured during each monitoring event and summarized in Table 1. A review of the groundwater monitoring data indicate the groundwater elevations have remained within historical range. Some slight and temporary increase in the levels has been documented after winter precipitation and subsequent recharge to the system.

Figures 3.1 through 3.4 depict the groundwater flow direction during each monitoring event conducted in 2002. The groundwater flow direction was consistently to the west to southwest. The average groundwater gradient measured during the 2002 sampling was calculated at 0.006 feet per foot. No significant variations to groundwater flow direction were noted between sampling events this period and are consistent with previous (1999) measurements. The observed groundwater conditions are in agreement with the reported regional hydrogeologic conditions.

##### **B. Groundwater Analytical Results**

All groundwater samples collected during this monitoring period were forwarded to STL Laboratory of Pleasanton, California, a state certified analytical laboratory, for chemical analyses. The groundwater samples were analyzed for total petroleum hydrocarbons in the

gasoline, diesel and motor oil ranges (TPH-g, TPH-d, and TPH-mo), BTEX compounds and MTBE by EPA Method 8015M/8021B. Analyses were performed on a standard one-week turn-around-time schedule. Analytical results of all groundwater samples collected during this monitoring period and previous results are summarized in Table 2 and shown graphically on Figure 4.

To account for naturally occurring organics in petroleum samples analytical laboratories use a silica gel clean-up procedure to remove the organics prior to analysis. AllWest requested this procedure be employed after the laboratory reported non-standard chromatograph patterns for diesel range hydrocarbons in samples collected from MW-1 in January and April 2002.

TPH-g was detected in well MW-1 at concentrations from ND<50 ppb to 42,000 ppb during the 2002 sampling period. Benzene detections ranged from a maximum of 2,600 ppb in October to ND<0.5 ppb in April 2002. Toluene detections ranged from a maximum of 3,300 ppb in October to ND<0.5 ppb in April 2002. Ethylbenzene detections ranged from a maximum of 1,800 ppb in April to ND<0.5 ppb in April 2002. Total xylene detections ranged from a maximum of 10,000 ppb in October to ND<0.5 ppb in April 2002. TPH-mo and MTBE were not detected in any samples.

Analytical results for well MW-2 did not detect TPH-g, BTEX, TPH-d, TPH-mo or MTBE during 2002, except for minute detections of toluene and xylene in December at concentrations of 0.92 ppb and 0.77 ppb, respectively. No groundwater samples were collected in October 2002 due to a well casing blockage at the time of sampling.

Analytical results for well MW-3 did not detect TPH-g, BTEX, TPH-mo or MTBE during 2002, except for a minute detection of toluene in December at a concentration of 0.67 ppb. The detection of 110 ppb during the July 2002 sampling event was reported by the laboratory as not matching the standard chromatograph pattern for diesel range hydrocarbons. Subsequent analysis for TPH-d used a silica gel clean-up procedure. No TPH-d was detected in October or December 2002 sampling events.

#### Laboratory QA/QC

A review of laboratory internal quality assurance/quality control (QA/QC) reports indicates the method blank and sample spike data are within the laboratory recovery limits. The laboratory QA/QC report indicated that the groundwater samples were analyzed within the acceptable EPA holding time. A copy of the laboratory analytical reports and chain-of-custody records for the October 2002 sampling event are presented in the Laboratory Results section of this report.

Detections of TPH-d during July and October 2002 sampling events were reported by the laboratory as not matching the standard chromatograph pattern for diesel range hydrocarbons.

### C. Discussion of Findings

Analytical results for well MW-1 indicate that TPH-g, BTEX and TPH-d concentrations were at or near historical highs during the last 3 quarters of sampling (see Table 2). Analytical results for wells MW-2 and MW-3 did not detect TPH-g, BTEX, TPH-mo or MTBE at levels that pose an unacceptable risk to human health or the environment during 2002. This is in agreement with previous sampling results performed in 1998 and 1999.

The detection of a low levels of TPH-d in MW-3 during July 2002 appears suspect because the result was reported by the laboratory as not matching the standard chromatograph pattern for motor oil or diesel range hydrocarbons. Analysis of samples for and TPH-d during October and December 2002 used a silica gel clean-up procedure, and these compounds were not detected.

### V. WELL SURVEY

To assess if groundwater in the vicinity of the subject property is being used as a drinking or potable water source, AllWest reviewed the California Department of Water Resources (DWR), Alameda County Public Works Agency (ACPWA), and the Geotracker on-line databases to locate recorded wells in the area. The search area was set at one thousand feet radius. The search area was conservatively selected since, based on contaminant data distributions and degradational trends, it is unlikely that contaminants from the subject site have migrated any significant distance from the subject property.

The DWR well database is organized by Township and Range followed by Section and Tract Numbers. The entire ¼ mile radius of the subject property is located within Township 2 South (T2S), Range 4 West (R4W). Each Township and Range is subdivided into 36 Sections numbered 1 through 36. Each Section is divided into 16 Tracts labeled A through R less the letters I and O. The number after the Tract Number letter designates when the well was installed relative to other wells, if any, within this Tract. For example, a State Well Number, T2S/R4W-11J1, would represent a well in Township 2 South, Range 4 West, Section 11, Tract J and was the first well installed in this Tract.

The subject property is located in T2N/R4W-11S. According to a one-half mile radius search conducted by the California DWR and ACPWA, approximately 88 records were located for wells located in Sections 11 and 12. Of these recorded well sites, 23 are located within the 1,000 foot search radius. Only three sites are located downgradient of the subject property. A summary of our findings are presented in Appendix C. Information on the three down gradient wells are as follows:

#### Well #18

This well, T2S/R4W-11K1, was constructed in 1958 for Mrs. Valle, located at 801 San Antonio Avenue. AllWest researched City Directories and Phone Books for 1958 and a Mario Valle was listed at 801 San Antonio Avenue in Alameda. According to the DWR

Well Data sheet, a 36-inch diameter casing well of unknown depth is located on the premises. It is estimated that this well was located approximately 600 feet to the southwest of the subject site. AllWest requested file reviews at the San Francisco Bay Regional Water Quality Control Board (RWQCB) and ACPWA to verify the current status of this well. Ms. Melinda Wong of the RWQCB and Mr. Marlon Magallan of the ACPWA noted that they have no information on this well. Field reconnaissance by AllWest was unable to locate this well. Based on lack of any current information, the ambiguous description on the DWR form, inability to verify the well status in the field, age of the well, and direction and distance considerations, it is unlikely that this well, if still in existence, is impacted from the petroleum hydrocarbons originating from the subject property.

#### Well #19

This well, T2S/R4W-11K2, was constructed on November 13, 1987 for Mr. Lawrence Picetti, located at 920 Centennial Avenue. AllWest researched City Directories and Phone Books for 1987 and a Lawrence Picetti was listed in Alameda but a different address (1269 Caroline St., Alameda) was listed. The 1986 Haines Directory list, Mr. Jason Brooks was listed as the tenant at 920 Centennial Avenue, and in 1987 and 1989 no tenant was listed. It is estimated that this well was located approximately 300 feet to the west and cross-gradient of the subject site. According to the DWR Well Drillers Report, a 6-inch diameter casing, 70-foot deep irrigation well is located on the premises. AllWest requested file reviews at the San Francisco Bay Regional Water Quality Control Board (RWQCB) and ACPWA to verify the current status of this well. Ms. Melinda Wong of the RWQCB and Mr. Marlon Magallan of the ACPWA noted that they have no information on this well. AllWest's field reconnaissance located the pump house for this well, but could not gain interior access. Based on lack of any current information, inability to verify the well status in the field, DWR description as an irrigation well rather than a domestic, residential or municipal supply well, there is a low probability that this well is impacted from the petroleum hydrocarbons originating from the subject property.

#### Well #21

This well, T2S/R4W-11Q1, was constructed on February 22, 1991 for Chevron USA, Inc., located at 900 Otis Drive. AllWest researched City Directories and Phone Books for 1991 and a Chevron Station was listed in Alameda for the address at 900 Otis Drive. It is estimated that this well was located approximately 1,750 feet to the south of the subject site. According to the DWR Well Drillers Report, a 4-inch diameter casing, 20-foot deep dewatering well is located on the premises. AllWest requested file reviews at the San Francisco Bay Regional Water Quality Control Board (RWQCB) and ACPWA to verify the current status of this well. Ms. Melinda Wong of the RWQCB and Mr. Marlon Magallan of the ACPWA noted that they have no information on this well. Field reconnaissance by AllWest was unable to locate this well. Based on the well's past use as a dewatering well, it is likely that it was used as part of a remedial system at the service station. Based on lack of any current information, inability to verify the well status in the field and distance

considerations, it is unlikely that this well is impacted from the petroleum hydrocarbons originating from the subject property.

In summary, no active groundwater supply wells were identified for domestic, residential or municipal water supply or uses in the proximity of the petroleum hydrocarbon impact originating from the subject property. A well survey location map, well survey overlay map and well survey results table are included in Appendix B.

#### GeoTracker Database

AllWest reviewed files contained in the GeoTracker on-line database as part of this investigation. GeoTracker is the geographic information system (GIS) interface to the Geographic Environmental Information Management System (GEIMS), a data warehouse which tracks regulatory data about underground fuel tanks, fuel pipelines, and public drinking water supply wells.

The GeoTracker database did not list any municipal supply wells within one mile of the subject property.

The GeoTracker database listed two Leaky Underground Fuel Tank (LUFT) sites within one mile of the subject property. LUFT sites typically contain numerous monitoring and extraction wells for remedial investigations and clean-ups but rarely contain groundwater production wells for other uses. The two LUFT sites include the subject property at 900 Central Avenue and a former Chevron Station at 900 Otis Drive. The former Chevron Station site received closure status from the Alameda Local Oversight Program on February 2, 1999. Closed sites are those which only had limited soil or groundwater contamination but have since been successfully remediated. Based on the type of wells and closed status of the site, it is unlikely that any groundwater wells listed in the GeoTracker database have been impacted by the subject property.

## **VI. CONCEPTUAL SITE MODEL**

A Conceptual Site Model (CSM) was completed to evaluate if the residual petroleum hydrocarbons in the soils and groundwater on the subject property pose an unacceptable risk to human health or the environment. Primary and secondary sources, migration pathways and receptor locations are presented in the following sections. A graphic representation of the CSM illustrating sources, pathways and receptors is presented as Figure 5.

## A. **Potential Primary and Secondary Contaminant Source Areas**

### Primary Sources

Based on existing site data, the primary source for the petroleum hydrocarbons is the previous gas station operations and associated underground storage tanks formerly located at the subject property. Currently there are no active primary sources of petroleum hydrocarbons or MTBE located at the subject property.

### Secondary Sources

Released contaminants have migrated resulting in secondary contaminant sources. These secondary sources may potentially include sediment, surface/subsurface soils and groundwater. The secondary sources are discussed in the following sections.

### Sediment

Sediments are generally classified as recent deposits of soil, mud, dust and miscellaneous debris which accumulates on man made surfaces by wind or water. Sediments observed on the subject property are limited to small amounts on the asphalt driveway and concrete sidewalk lot surrounding the subject buildings.

Based on the unlikely migration routes from the former primary source or from secondary subsurface sources to sediments in the driveway areas of the subject property, sediments in the driveway and sidewalk areas are not considered a secondary contaminant source.

### Surface Soils

Surface soils are conservatively defined by the San Francisco Bay RWQCB (December 2001) as those soils which extend from the surface to depths of 3 meters (approximately 10 feet) bgs. These include soils underlying the subject building and asphalt driveway, the lawn areas and those exposed in the landscaped areas of the subject property. Based on existing data, the surface soils are not a secondary source of petroleum hydrocarbons.

### Subsurface Soils

Subsurface soils are generally defined as those soils which extend from depths of approximately 3 meters bgs to the top of the first occurrence of groundwater. Static ground water in the shallow water-bearing zone is at approximately 11 feet bgs as per AllWest measurements taken in groundwater well MW-1. Based on existing data, the subsurface soils occurring from approximately 20 feet bgs to 10 feet bgs in the vicinity of MW-1 are a secondary source of petroleum hydrocarbons. The subsurface soils occurring in the areas of the other two wells are not a secondary source of petroleum hydrocarbons.

### Groundwater

Based on existing site data, the shallow groundwater zone in the vicinity of monitoring well MW-1 has been impacted by petroleum hydrocarbons and is considered a secondary source for contamination. Based on analytical data collected from these wells the shallow groundwater zone in the vicinity of monitoring wells MW-2 and MW-3 is not considered a secondary source of petroleum hydrocarbons.

#### **B. Potential Migration Pathways**

The primary migration pathway is the initial release of petroleum hydrocarbons from the former gas station facility into the site soils and shallow groundwater. Potential secondary pathways include dermal exposure, ingestion, or inhalation of vapors or particulates from subsurface soils; and the inhalation of vapors or ingestion of the perched groundwater.

#### Primary Source Pathways

No automobile fueling operations have occurred on the property since the three USTs were abandoned in place in 1975. Infiltration of petroleum hydrocarbons to the soils and groundwater beneath the sidewalk next to the subject property from the previous gas station operations is considered a significant but former primary migration pathway.

#### Potential Subsurface Soil Pathways

Contamination present in the subsurface soils may impact other matrices through volatilization into indoor and outdoor air and the infiltration into the groundwater.

The primary subsurface soil migration pathway is the volatilization of petroleum hydrocarbons into indoor building air. Volatilization of petroleum hydrocarbons from soil into residential structures is considered to be a possible pathway since the known extent of impacted soil is located on the subject property.

Dermal or particulate inhalation pathways are considered unlikely since the site is developed with a duplex apartment structure which is covered by a building and garage, asphalt driveway, or landscaped areas and no new development plans are being considered which might disturb the soil.

#### Potential Groundwater Pathways

Contamination present in the shallow groundwater may impact other matrices through 1) volatilization into indoor and outdoor air via subsurface and surface soils, 2) intermixing with the vadose zone soils through capillary fringe processes, or 3) infiltration into deeper groundwater zones through vertical migration. Of these potential pathways, the volatilization of petroleum hydrocarbons from groundwater into indoor air via subsurface soils and building foundations are considered likely pathways.

### C. Potential Receptors

Based on groundwater flow direction, potential on-site receptors do not include tenants within the duplex residential structure at 900 Central Avenue. Petroleum hydrocarbon detections are limited to the area in the vicinity of well MW-1, which is located down and cross gradient from the residential structure. Based on the potential for petroleum hydrocarbons to migrate within the shallow groundwater zone, potential off-site receptors include tenants of residences to the west, located across 9<sup>th</sup> Street, through the volatilization of petroleum hydrocarbons from surface/subsurface soils and groundwater into indoor buildings.

No on-site groundwater drinking well or ecological receptors were noted on the subject property.

## VII. RISK BASED SCREENING LEVEL ASSESSMENT

Site specific maximum groundwater values for the petroleum hydrocarbons detected in well MW-1, which monitors the shallow groundwater zone, during the current monitoring period (January 2002 through October 2002) were compared to RBSLs developed by the San Francisco Bay RWQCB, *Application of Risk-Based Screening Levels and Decision Making to Sites with Impacted Soil and Groundwater, Interim Final, December 2001*.

Under most circumstances, the presence of a chemical at a concentration below the corresponding RWQCB's RBSL can be assumed to not pose a significant threat to human health and the environment. These conservative levels take into account site specific factors such as the current and future use of the property, the current and potential use of groundwater as a drinking water source, the nature of the impacted soils and the acceptable cancer risk to protect human health.

One exposure pathway was considered for this risk assessment. The volatilization of BTEX compounds in the shallow groundwater zone to impact off-site tenants, located across 9<sup>th</sup> Street in indoor buildings. These residential buildings are approximately 100 feet southwest of MW-1. Based on the distance from MW-1, the concentrations of petroleum hydrocarbons are expected to be significantly less due to natural attenuation processes

Other potential pathways were not considered for this risk assessment. Dermal or particulate inhalation pathways were considered unlikely since the sites in the vicinity are developed with residential structures which are covered by buildings and garages, asphalt driveways or landscaped areas and no new development plans are being considered which might disturb the soils. The drinking water pathway was also considered unlikely since based on the Well Survey, no drinking water wells are likely to be impacted by petroleum hydrocarbons detected in the shallow groundwater zone at the Property. Lastly, ecological receptors were



not considered since no surface water bodies have been impacted by petroleum hydrocarbons originating from the Property.

#### On-site Groundwater Concentrations Comparison to RBSLs

As presented on Table 2, the maximum concentrations of benzene, toluene, ethylbenzene and xylene in the shallow groundwater detected during the current monitoring period were 2,600 ppb, 3,300 ppb, 1,800 ppb and 10,000 ppb, respectively. These concentrations were detected in groundwater samples collected from monitoring well MW-1, located at the northwest corner of the property, near the former UST. Analytical results from well MW-1 represent "worst case scenario" conditions for the Property.

The RBSLs for indoor air impacts for coarse grained sediments in a residential setting for a drinking water source in 1 and million ( $10^{-6}$ ) cancer risk for BTEX compounds are 84 ppb, 76,000 ppb, 170,000 ppb and 150,000 ppb, respectively. The maximum site value for benzene measured in MW-1 exceeds its  $10^{-6}$  RBSL. Volatilization of benzene poses a potential risk to human health of off-site building tenants, located down gradient and across 9<sup>th</sup> Street.

The maximum site values for toluene, ethylbenzene and xylenes measured in MW-1 are well below their  $10^{-6}$  RBSLs. Volatilization of these three petroleum hydrocarbon compounds are unlikely to pose an unacceptable risk to human health of on-site building tenants.

### VIII. CONCLUSIONS

Review of 2002 analytical results for MW-1 indicate detections of TPH-g, benzene, toluene, ethylbenzene, total xylenes, and TPH-d with concentrations of ND<50 to 42,000 parts per billion (ppb), ND<5 to 2,600 ppb, ND<0.5 to 3,300 ppb, ND<0.5 to 1,800 ppb, ND<0.5 to 10,000 ppb and 61 to 8,400 ppb, respectively. Yearly analytical results for MW-1, MW-2 and MW-3 indicate no detections of TPH-mo or MTBE. No groundwater samples were collected from MW-2 in October 2002 due to a well casing blockage at the time of sampling.

Since monitoring began in November 1998 TPH-g, BTEX and TPH-d have only been consistently detected in well MW-1. Concentrations of TPH-g detected in well MW-1 have fluctuated between non-detectable levels measured during March 1999 and 2002, to maximum concentrations of 42,000 ppb detected during the July, October and December 2002 sampling events.

A comparison of site specific maximum groundwater values for the petroleum hydrocarbons detected during the current monitoring period (March 2002 through December 2002) with Risk-Based Screening Levels (RBSLs) developed by the San Francisco Bay Regional Water Quality Control Board (RWQCB) indicate exceedence of RBSLs for TPH-g and BTEX compounds detected in well MW-1 only.

Based on 2002 sampling data and previous investigations, we conclude that:

- Historic operations of former underground storage tanks (USTs) at the Property resulted in a release of petroleum hydrocarbons that impacted subsurface conditions in the vicinity of the former UST. No ongoing source is present;
- Concentrations of TPH-g, BTEX, TPH-d and TPH-mo in wells MW-2 and MW-3 are at non-detectable levels, or levels that do not pose an unacceptable risk to human health or the environment;
- The groundwater monitored by MW-1 appears to be local and relatively stabilized, remaining within the area of the former UST, and is not migrating southerly toward well MW-3.
- Based on a comparison of site specific maximum results and current health risk based screening levels, it is unlikely that the residual petroleum hydrocarbons in the on-site groundwater pose an unacceptable risk to the health of on-site building tenants, however, the volatilization of benzene from potential off-site plume migration potentially poses a risk to human health of off-site building tenants, located down gradient and across 9<sup>th</sup> Street.

## IX. REPORT LIMITATIONS

The work described in this report is performed in accordance with the Environmental Consulting Agreement between *Mr. David Thompson* and AllWest Environmental, signed February 12, 2002. AllWest has prepared this report for the exclusive use of *Mr. David Thompson* for this particular project and in accordance with generally accepted practices at the time of the work. No other warranties, certifications or representation, either expressed or implied are made as to the professional advice offered. The services provided for *Mr. David Thompson* were limited to their specific requirements; the limited scope allows for AllWest to form no more than an opinion of the actual site conditions.

The conclusions and recommendations contained in this report are made based on observed conditions existing at the site, laboratory test results of the submitted samples, and interpretation of a limited data set. It must be recognized that changes can occur in subsurface conditions due to site use or other reasons. Furthermore, the distribution of chemical concentrations in the subsurface can vary spatially and over time. The results of chemical analysis are valid as of the date and at the sampling location only. AllWest cannot be held accountable for the accuracy of the test data from an independent laboratories nor for any analyte quantities falling below the recognized standard detection limits for the method utilized by the independent laboratories.

## X. REFERENCES

1. Alameda County Health Care Services, Letter to Mr. David Thompson, RE. QMR for 900 Central Avenue, Alameda, California, December 3, 2001.
2. Alameda County Health Care Services, Letter to Mr. David Thompson, Former Property Owner, RE. 900 Central Avenue, Alameda, California, February 22, February 17, 1999.
3. Alameda County Health Care Services, Letter to Mr. David Thompson, Former Property Owner, RE. 900 Central Avenue, Alameda, California, August 3 and March 9, 1998.
4. AllWest, Quarterly Groundwater Monitoring Report - Third Quarter 2002, 900 Central Avenue, Alameda, California, October 25, 2002.
5. AllWest, Quarterly Groundwater Monitoring Report - Second Quarter 2002, 900 Central Avenue, Alameda, California, August 8, 2002.
6. AllWest, Quarterly Groundwater Monitoring Report - First Quarter 2002, 900 Central Avenue, Alameda, California, June 26, 2002.
7. AllWest, Groundwater Monitoring and Risk Assessment Workplan, 900 Central Avenue, Alameda, California, March 8, 2002.
8. AllWest, Quarterly Groundwater Monitoring Reports - First through Third Quarters 1999, 900 Central Avenue, Alameda, California, March 31, July 2 and October 14, 1999 (#98115.23)
9. AllWest, Monitoring Well Installation and Sampling Report, 900 Central Avenue, Alameda, California, February 2, 1999 (#98115.23).
10. AllWest, Subsurface Investigation Report, 900 Central Avenue, Alameda, California, February 2, 1999 (#97217.23).
11. Environmental Protection Agency, Region 9, Preliminary Remedial Goals, 1999.
12. GeoTracker Database, <<[www.geotracker.swrcb.ca.gov/reports/luft](http://www.geotracker.swrcb.ca.gov/reports/luft)>>
13. Lowney Associates, Subsurface Investigation Report, 900 Central Avenue, Alameda, California, 1994.
14. Haines Cross-Referenced Directories, Oakland 1986, 1987, 1988, 1989 and 1991, City of Oakland Public Library, Oakland, California.
15. San Francisco Bay Regional Water Quality Control Board, Risk Based Screening Levels, in Application of Risk-Based Screening Levels and Decision Making to Sites with Impacted Soil and Groundwater, Interim Final, December 2001

# TABLES

Table 1

SUMMARY OF GROUNDWATER ELEVATION MEASUREMENTS

900 Central Avenue, Alameda, California

Well Number	Well Casing Elevation <sup>2</sup>	Date of Measurement	Depth to Groundwater <sup>3</sup>	Groundwater Surface Elevation <sup>2</sup>
MW-1	+ 25.17'	11/27/1998	11.77'	+ 13.40'
		03/12/1999	6.59'	+ 18.58'
		06/01/1999	8.71'	+ 16.46'
		09/03/1999	11.79'	+ 13.38'
		03/29/2002	8.32'	+ 16.85'
		07/15/2002	11.39'	+ 13.78'
		10/03/2002	12.88'	+ 12.29'
		12/10/2002	13.34'	+ 11.83'
MW-2	+ 25.12'	11/27/1998	11.76'	+ 13.45'
		03/12/1999	6.53'	+ 18.59'
		06/01/1999	8.56'	+ 16.56'
		09/03/1999	11.60'	+ 13.52'
		03/29/2002	8.10'	+ 17.02'
		07/15/2002	10.92'	+ 14.17'
		10/03/2002	>12.12'	Dry
		12/10/2002	13.10'	+ 12.02'
MW-3	+ 24.58'	11/27/1998	11.41'	+ 13.17'
		03/12/1999	6.01'	+ 18.57'
		06/01/1999	8.16'	+ 16.42'
		09/03/1999	11.27'	+ 13.31'
		03/29/2002	7.78'	+ 16.80'
		07/15/2002	10.82'	+ 13.76'
		10/03/2002	12.28'	+ 12.30'
		12/10/2002	12.88'	+ 11.70'

Notes

- 1 Wells MW-1, MW-2 and MW-3 were installed on November 16, 1998
- 2 Feet above mean sea level (MSL)
- 3 Below the top of well casing
- 4 'Dry' indicates that no water was in the well at the time of measurement. 12.12' is the depth to the bottom of the well

Table 2

SUMMARY OF ANALYTICAL RESULTS

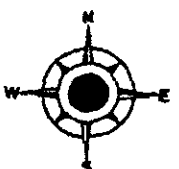
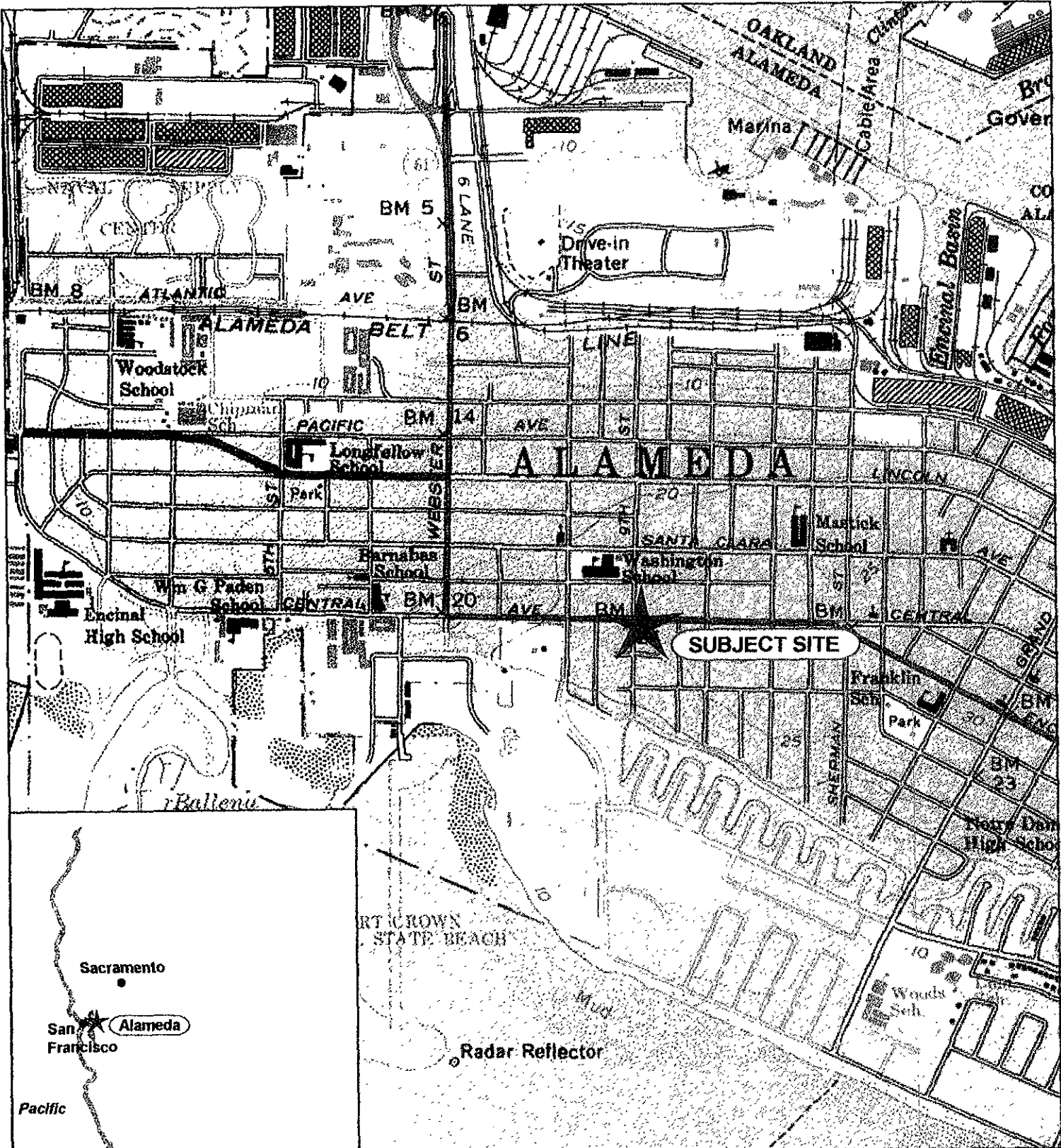
900 Central Avenue, Alameda, California

Well Number	Sampling Date	TPH-g	Benzene	Toluene	Ethyl-benzene	Xylene	MTBE	TPH-d	TPH-mo
MW-1	11/27/1998	360	5.8	5.5	9.2	40	<5	<50	<500
	03/12/1999	<50	<0.5	<0.5	<0.5	<0.5	<5	<50	<500
	06/01/1999	930	<0.5	19	52	230	<5	540	<500
	09/03/1999	14,000	300	1,900	890	5,600	<5	2,100	<500
	03/29/2002	<50	<0.5	<0.5	<0.5	<0.5	<0.5	61	<610
	07/15/2002	39,000	1,700	2,900	1,800	7,800	<10	4,200*	<5000
	10/03/2002	42,000	2,600	3,300	1,800	10,000	<500	8,400*	<2500
	12/10/2002	37,000	2,100	2,100	14	7,300	<100	8,000*	<2500
MW-2	11/27/1998	<50	<0.5	<0.5	<0.5	<0.5	<5	<50	<500
	03/12/1999	<50	<0.5	<0.5	<0.5	<0.5	<5	<50	<500
	06/01/1999	<50	<0.5	<0.5	<0.5	<0.5	<5	<50	<500
	09/03/1999	<50	<0.5	<0.5	<0.5	1.8	<5	<50	<500
	03/29/2002	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<500
	07/15/2002	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<500
	10/03/2002	NS	NS	NS	NS	NS	NS	NS	NS
	12/10/2002	<50	<0.5	0.92	<0.5	0.77	<5	<50	<500
MW-3	11/27/1998	<50	<0.5	<0.5	<0.5	<0.5	<5	<50	<500
	03/12/1999	<50	<0.5	<0.5	<0.5	<0.5	<5	<50	<500
	06/01/1999	<50	<0.5	<0.5	<0.5	<0.5	<5	<50	<500
	09/03/1999	<50	<0.5	<0.5	<0.5	<0.5	<5	<50	<500
	03/29/2002	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<500
	07/15/2002	<50	<0.5	<0.5	<0.5	<0.5	<0.5	110*	<500
	10/03/2002	<50	<0.5	<0.5	<0.5	<0.5	<5	<50	<500
	12/10/2002	<50	<0.5	0.67	<0.5	<0.5	<5	<50	<500
MCLs		n/a	1(5)	150 (1,000)	700 (700)	1,750 (10,000)	5	n/a	n/a
RBSLs		100	1.0	40	30	13	5	100	100

Notes

1. TPH-g, TPH-d, and TPH-m stands for total petroleum hydrocarbons in the gasoline, diesel, and motor oil range, respectively
2. All concentrations are in units of µg/L, equivalent to parts per billion (ppb)
3. <x stands for non-detected at or above the method reporting limit of x
4. Analytical results were reported by Chromalab. Analytical methods are U.S. EPA methods 8015-mod and 8020
5. MCLs stands for maximum contaminant levels in ppb. First MCL listed is California Department of Health Services primary MCL, and the MCL listed in parenthesis is U.S. EPA primary MCL. MCL values are in ppb. n/a stands for no MCL available
6. RBSLs stands for risk-based screening levels in ppb
7. NS stands for not sampled, due to a dry well at the time of sampling
8. \* = Hydrocarbon reported does not match the pattern of the laboratory's gasoline or diesel standard

# FIGURES



NOT TO SCALE



PROJECT NO.  
22002.28

SITE LOCATION MAP	
FIGURE 1	
900 CENTRAL AVENUE	
ALAMEDA, CALIFORNIA	
SOURCE: USGS TOPO	
PREPARED BY:	ELIZA YU
DATE:	10/10/02



CENTRAL AVENUE



APPROXIMATE SCALE  
0 5 10 15

NINTH STREET

SIDEWALK



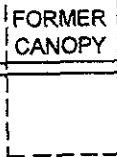
SUSPECT  
FORMER  
UST

SIDEWALK

MW-1

MW 2

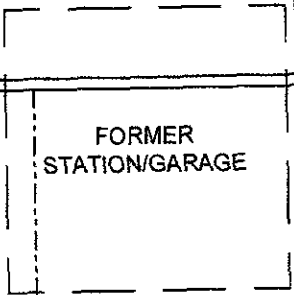
GROUNDWATER FLOW DIRECTION  
(1999)



FORMER  
CANOPY

MW 3

APARTMENT  
BUILDING



FORMER  
STATION/GARAGE

LEGEND



- SUSPECT LOCATION OF FORMER UNDERGROUND TANKS



- APPROXIMATE LOCATION OF FORMER STRUCTURE



MW-1 - GROUNDWATER MONITORING WELL

----- - FENCE LINES



**AllWest**

SITE PLAN WITH MONITORING WELLS

FIGURE 2

900 CENTRAL AVENUE

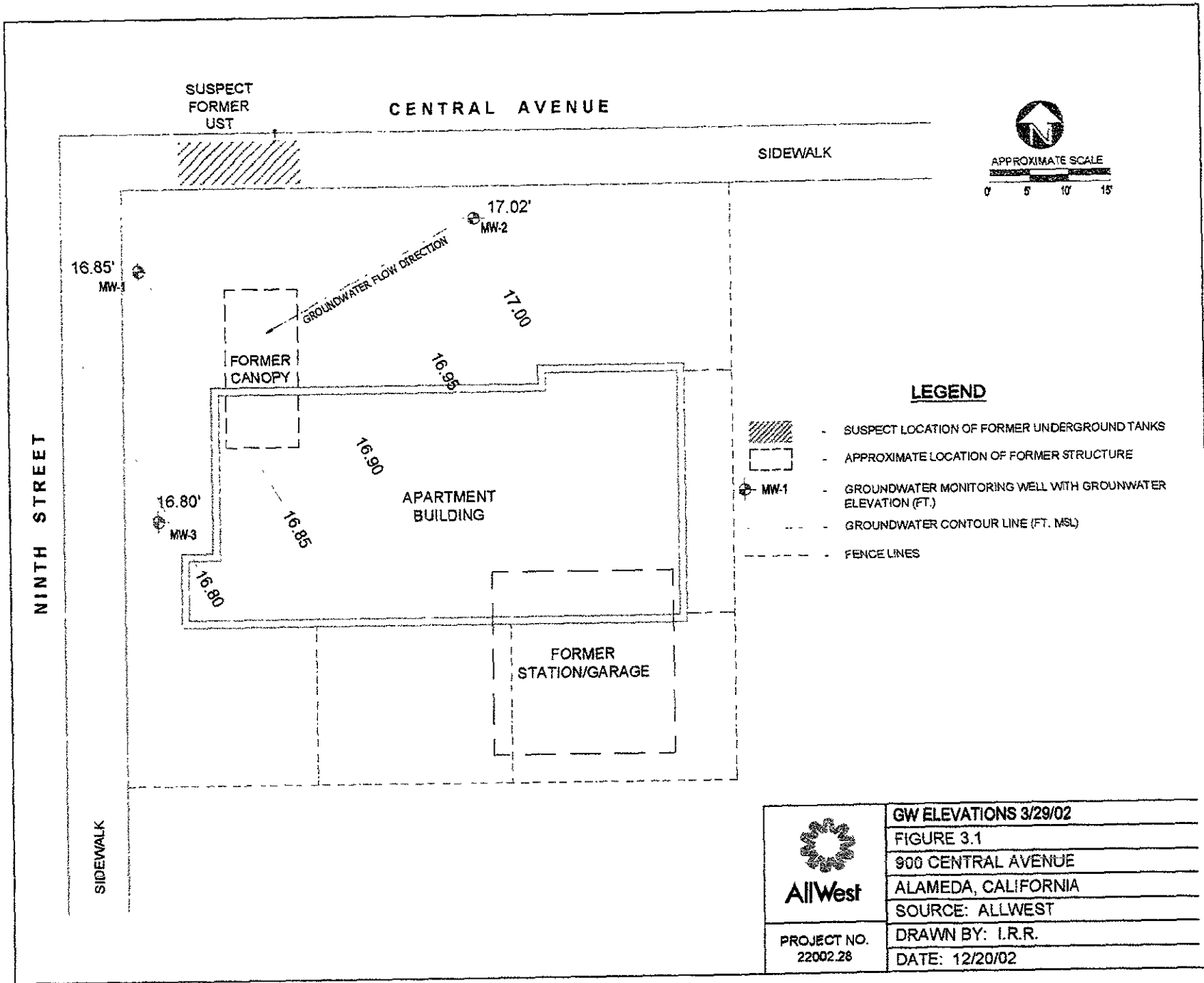
ALAMEDA, CALIFORNIA

SOURCE: ALLWEST

DRAWN BY: J.K.M. TINGIN

DATE: 03/08/02

PROJECT NO.  
22002.28



CENTRAL AVENUE



APPROXIMATE SCALE  
0 5 10 15

SIDEWALK

SUSPECT FORMER UST

NINTH STREET

SIDEWALK

13.78'  
MW-1

13.76'  
MW-3

14.17'  
MW-2

FORMER CANOPY

APARTMENT BUILDING

FORMER STATION/GARAGE

GROUNDWATER FLOW DIRECTION






14.00

13.90

13.80

14.10

**LEGEND**

-  - SUSPECT LOCATION OF FORMER UNDERGROUND TANKS
-  - APPROXIMATE LOCATION OF FORMER STRUCTURE
-  MW-1 - GROUNDWATER MONITORING WELL WITH GROUNDWATER ELEVATION (FT)
-  - GROUNDWATER CONTOUR LINE (FT. MSL)
-  - FENCE LINES



AllWest

GW ELEVATIONS 7/15/02

FIGURE 3-2

900 CENTRAL AVENUE

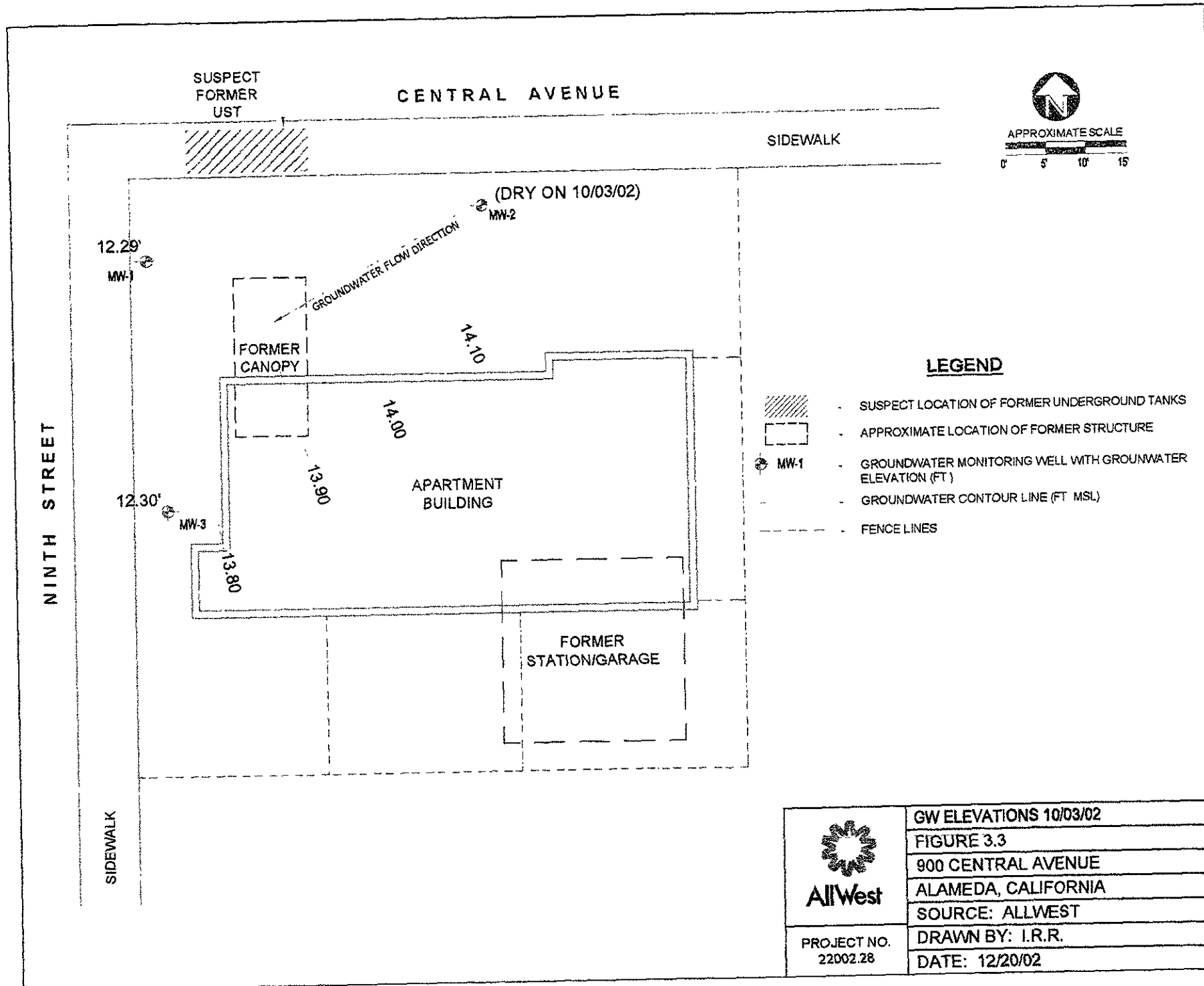
ALAMEDA, CALIFORNIA

SOURCE: ALLWEST

PROJECT NO.  
22002.28

DRAWN BY: I.R.R.

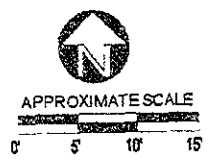
DATE: 12/20/02



SUSPECT FORMER UST

CENTRAL AVENUE

SIDEWALK



(DRY ON 10/03/02)  
MW-2

GROUNDWATER FLOW DIRECTION

12.29'  
MW-1

FORMER CANOPY

14.10

14.00

APARTMENT BUILDING




12.30'  
MW-3

13.90

13.80


FORMER STATION/GARAGE

**LEGEND**

-  - SUSPECT LOCATION OF FORMER UNDERGROUND TANKS
-  - APPROXIMATE LOCATION OF FORMER STRUCTURE
-  MW-1 - GROUNDWATER MONITORING WELL WITH GROUNDWATER ELEVATION (FT)
- - - - - GROUNDWATER CONTOUR LINE (FT MSL)
- - - - - FENCE LINES

NINTH STREET

SIDEWALK

 <b>AllWest</b>	GW ELEVATIONS 10/03/02
	FIGURE 3.3
	900 CENTRAL AVENUE
	ALAMEDA, CALIFORNIA
	SOURCE: ALLWEST
	DRAWN BY: I.R.R.
PROJECT NO. 22002.28	DATE: 12/20/02

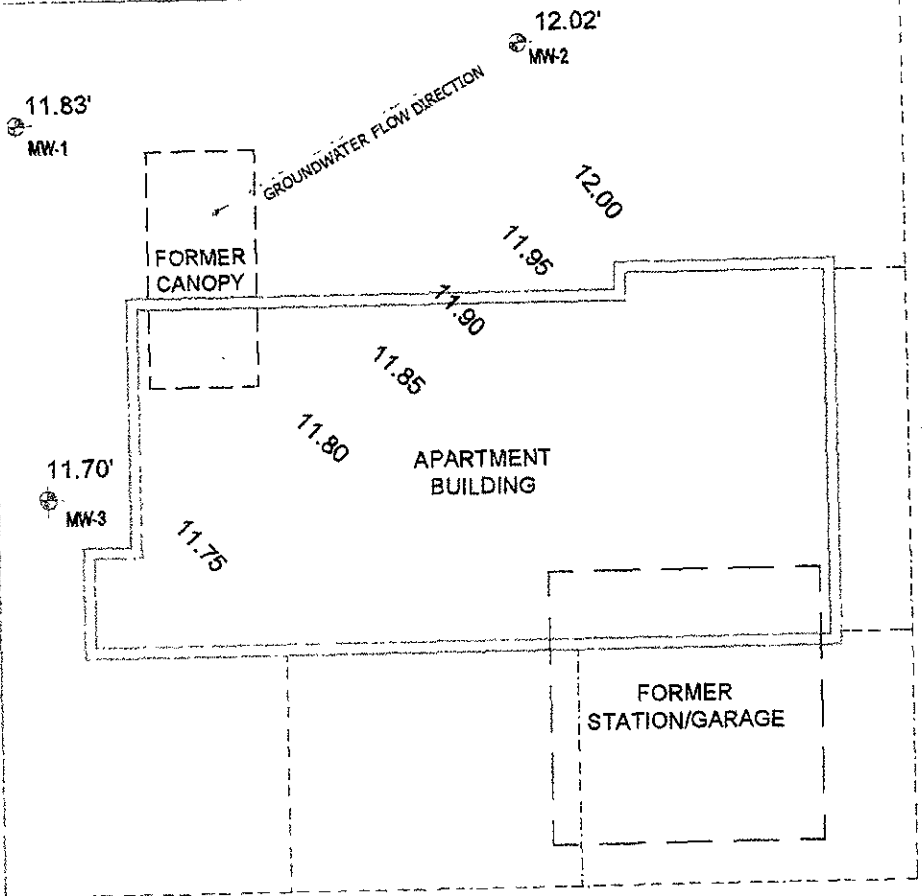
SUSPECT  
FORMER  
UST

CENTRAL AVENUE






APPROXIMATE SCALE  
0' 5' 10' 15'

SIDEWALK




**LEGEND**

-  - SUSPECT LOCATION OF FORMER UNDERGROUND TANKS
-  - APPROXIMATE LOCATION OF FORMER STRUCTURE
-  MW-1 - GROUNDWATER MONITORING WELL WITH GROUNDWATER ELEVATION (FT.)
- - - GROUNDWATER CONTOUR LINE (FT. MSL)
- - - FENCE LINES

NINTH STREET

SIDEWALK

 <b>AllWest</b>	GW ELEVATIONS 12/10/02
	FIGURE 3.4
PROJECT NO. 22002.28	900 CENTRAL AVENUE
	ALAMEDA, CALIFORNIA
	SOURCE: ALLWEST
	DRAWN BY: I.R.R.
	DATE: 12/20/02

SUSPECT FORMER UST

CENTRAL AVENUE



APPROXIMATE SCALE  
0 5 10 15

SIDEWALK

	3/29/02	7/15/02	10/3/02	12/10/02
TPHg=	<50	39,000	42,000	37,000
TPHd=	61	5,200*	8,400*	8,000*
TPHm=	ND<510	ND<5000	ND<2,500	ND<2,500
B=	<0.5	1,700	2,500	2,100
T=	<0.5	2,900	3,300	2,100
E=	<0.5	1,800	1,800	4
X=	<0.5	7,800	16,000	7,300
MTBE=	<0.5	<10	<500	<100

	3/29/02	7/15/02	10/3/02	12/10/02
TPHg=	<50	<50	NS	<50
TPHd=	<50	<50	NS	<50
TPHm=	<500	<500	NS	<500
B=	<0.5	<0.5	NS	<0.5
T=	<0.5	<0.5	NS	0.92
E=	<0.5	<0.5	NS	<0.5
X=	<0.5	<0.5	NS	0.77
MTBE=	<0.5	<0.5	NS	<0.5

	3/29/02	7/15/02	10/3/02	12/10/02
TPHg=	<50	<50	<50	<50
TPHd=	<50	110*	<50	<50
TPHm=	<500	<500	<500	<500
B=	<0.5	<0.5	<0.5	<0.5
T=	<0.5	<0.5	<0.5	0.67
E=	<0.5	<0.5	<0.5	<0.5
X=	<0.5	<0.5	<0.5	<0.5
MTBE=	<0.5	<0.5	<5	<5

NINTH STREET

FORMER CANOPY

APARTMENT BUILDING

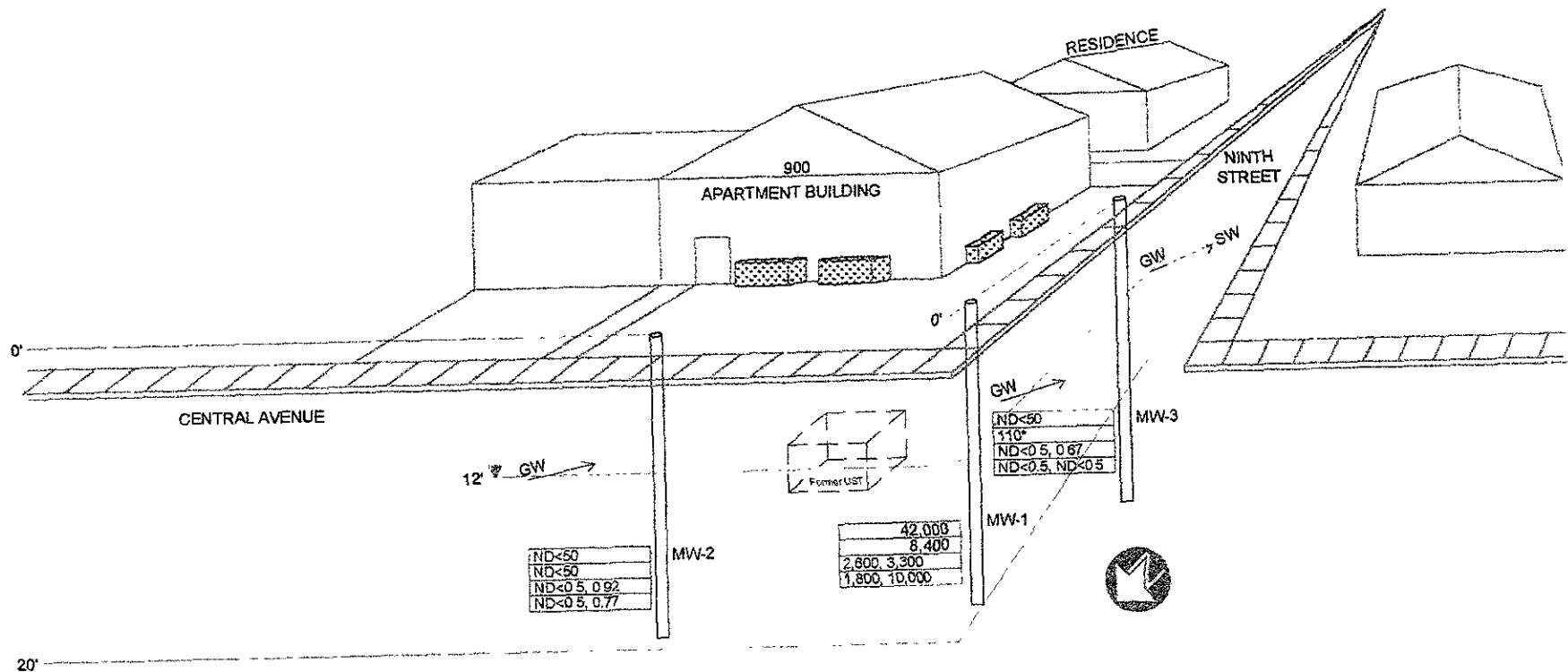
FORMER STATION/GARAGE

GROUNDWATER FLOW DIRECTION

**LEGEND**

- MW-1 - GROUNDWATER MONITORING WELL
- TPHg - TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
- TPHd - TOTAL PETROLEUM HYDROCARBONS AS DIESEL
- TPHm - TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL METHYL TERTIARY BUTYL ETHER
- MTBE - ALL CONCENTRATIONS IN PARTS PER BILLION (ppb)
- \* - SEE TABLE 2 NOTES
- B - BENZENE
- T - TOLUENE
- E - ETHYLBENZENE
- X - XYLENES
- ND - NOT DETECTED AT REPORTING LIMITS
- NS - NOT SAMPLED

	PETROLEUM HYDROCARBON CONCENTRATION MAP
	FIGURE 4
<p>PROJECT NO. 22002.28</p>	900 CENTRAL AVENUE ALAMEDA, CALIFORNIA
	SOURCE: ALLWEST PREPARED BY: ELIZA YU (12/23/02)



ND<50
ND<50
ND<0.5, 0.92
ND<0.5, 0.77

42,000
8,400
2,800, 3,300
1,800, 10,000

ND<50
110*
ND<0.5, 0.67
ND<0.5, ND<0.5

**LEGEND**

- MAX GROUND WATER TPH-G RESULTS IN PPB
- MAX GROUNDWATER TPH-D RESULTS IN PPB
- MAX GROUNDWATER BTEX RESULTS IN PPB
- \* - SEE TABLE 2 NOTES



**CONCEPTUAL SITE MODEL**

**FIGURE 5**  
**900 CENTRAL AVENUE**  
**ALAMEDA, CALIFORNIA**  
**SOURCE: ALLWEST**  
**DRAWN BY: I.R.R.**  
**DATE: 12/22/02**

PROJECT NO.  
22002.28

# LABORATORY RESULTS



**Allwest Environmental**

December 18, 2002

530 Howard Street, Suite #300  
San Francisco, CA 94105

Attn.: James Koniuto

Project#: 22002.28

Project: Central Monitor

Attached is our report for your samples received on 12/11/2002 12:20  
This report has been reviewed and approved for release. Reproduction of this report  
is permitted only in its entirety.

Please note that any unused portion of the samples will be discarded after  
01/25/2003 unless you have requested otherwise.

We appreciate the opportunity to be of service to you. If you have any questions,  
please call me at (925) 484-1919.

You can also contact me via email. My email address is: [vvancil@stl-inc.com](mailto:vvancil@stl-inc.com)

Sincerely,



Vincent Vancil  
Project Manager

**TEPH w/ Silica Gel Clean-up**

Allwest Environmental

Attn.: James Koniuto

530 Howard Street, Suite #300  
San Francisco, CA 94105  
Phone: (415) 391-2510 Fax: (415) 391-2008

Project: 22002.28  
Central Monitor

Received: 12/11/2002 12:20

**Samples Reported**

Sample Name	Date Sampled	Matrix	Lab #
MW-1	12/10/2002 15:30	Water	1
MW-2	12/10/2002 14:22	Water	2
MW-3	12/10/2002 15:00	Water	3

TEPH w/ Silica Gel Clean-up

Allwest Environmental  
Attn.: James Koniuto

530 Howard Street, Suite #300  
San Francisco, CA 94105  
Phone: (415) 391-2510 Fax: (415) 391-2008

Project: 22002.28  
Central Monitor

Received: 12/11/2002 12:20

Prep(s): 3510/8015M Test(s): 8015M  
Sample ID: MW-1 Lab ID: 2002-12-0236 - 1  
Sampled: 12/10/2002 15:30 Extracted: 12/11/2002 09:17  
Matrix: Water QC Batch#: 2002/12/11-01.10

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Diesel	8000	250	ug/L	5.00	12/15/2002 15:58	ndp
Motor Oil	ND	2500	ug/L	5.00	12/15/2002 15:58	
<b>Surrogates(s)</b>						
o-Terphenyl	NA	60-130	%	5.00	12/15/2002 15:58	sd

**TEPH w/ Silica Gel Clean-up**

Allwest Environmental  
Attn.: James Koniuto

530 Howard Street, Suite #300  
San Francisco, CA 94105  
Phone: (415) 391-2510 Fax: (415) 391-2008

Project: 22002.28  
Central Monitor

Received: 12/11/2002 12:20

Prep(s): 3510/8015M                      Test(s): 8015M  
Sample ID: **MW-2**                              Lab ID: 2002-12-0236 - 2  
Sampled: 12/10/2002 14:22                      Extracted: 12/11/2002 09:17  
Matrix: Water                                      QC Batch#: 2002/12/11-01.10

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Diesel	ND	50	ug/L	1.00	12/13/2002 13:19	
Motor Oil	ND	500	ug/L	1.00	12/13/2002 13:19	
<b>Surrogates(s)</b> o-Terphenyl	82.1	60-130	%	1.00	12/13/2002 13:19	

**TEPH w/ Silica Gel Clean-up**

Allwest Environmental  
Attn.: James Koniuto

530 Howard Street, Suite #300  
San Francisco, CA 94105  
Phone: (415) 391-2510 Fax: (415) 391-2008

Project: 22002.28  
Central Monitor

Received: 12/11/2002 12:20

Prep(s): 3510/8015M	Test(s): 8015M
Sample ID: <b>MW-3</b>	Lab ID: 2002-12-0236 - 3
Sampled: 12/10/2002 15:00	Extracted: 12/11/2002 09:17
Matrix: Water	QC Batch#: 2002/12/11-01.10

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Diesel	ND	50	ug/L	1.00	12/13/2002 17:18	
Motor Oil	ND	500	ug/L	1.00	12/13/2002 17:18	
<b>Surrogates(s)</b> o-Terphenyl	78.5	60-130	%	1.00	12/13/2002 17:18	

**TEPH w/ Silica Gel Clean-up**

Allwest Environmental  
Attn.: James Koniuto

530 Howard Street, Suite #300  
San Francisco, CA 94105  
Phone: (415) 391-2510 Fax: (415) 391-2008

Project: 22002.28  
Central Monitor

Received: 12/11/2002 12:20

**Batch QC Report**

Prep(s): 3510/8015M  
Method Blank  
MB: 2002/12/11-01.10-001

Water

Test(s): 8015M  
QC Batch # 2002/12/11-01.10  
Date Extracted: 12/11/2002 09:17

Compound	Conc.	RL	Unit	Analyzed	Flag
Diesel	ND	50	ug/L	12/11/2002 18:23	
Motor Oil	ND	500	ug/L	12/11/2002 18:23	
<b>Surrogates(s)</b> o-Terphenyl	79.8	60-130	%	12/11/2002 18:23	

**TEPH w/ Silica Gel Clean-up**

Allwest Environmental

Attn.: James Koniuto

530 Howard Street, Suite #300  
San Francisco, CA 94105  
Phone: (415) 391-2510 Fax: (415) 391-2008

Project: 22002.28  
Central Monitor

Received: 12/11/2002 12:20

**Batch QC Report**

Prep(s): 3510/8015M

Test(s): 8015M

**Laboratory Control Spike**

**Water**

**QC Batch # 2002/12/11-01.10**

LCS 2002/12/11-01.10-002

Extracted: 12/11/2002

Analyzed: 12/11/2002 17:04

LCSD 2002/12/11-01.10-003

Extracted: 12/11/2002

Analyzed: 12/11/2002 17:44

Compound	Conc. ug/L		Exp.Conc.	Recovery		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD		%	Rec.	RPD	LCS
Diesel	1190	1280	1250	95.2	102.4	7.3	60-130	25		
<i>Surrogates(s)</i> o-Terphenyl	20.2	20.9	20.0	100.9	104.3		60-130	0		

**TEPH w/ Silica Gel Clean-up**

Allwest Environmental

Attn.: James Koniuto

530 Howard Street, Suite #300

San Francisco, CA 94105

Phone: (415) 391-2510 Fax: (415) 391-2008

Project: 22002.28

Central Monitor

Received: 12/11/2002 12:20

---

**Legend and Notes**

---

**Result Flag**

ndp

Hydrocarbon reported does not match the pattern of our Diesel standard

sd

Surrogate recovery not reportable due to required dilution.

Severn Trent Laboratories, Inc.

STL San Francisco \* 1220 Quarry Lane, Pleasanton, CA 94566

Tel 925 484 1919 Fax 925 484 1096 \* www.stl-inc.com \* CA DHS ELAP# 2496

12/17/2002 16 24

Page 7 of 7



**Gas/BTEX Compounds by 8015M/8021**

Allwest Environmental

Attn.: James Koniuto

530 Howard Street, Suite #300  
San Francisco, CA 94105  
Phone: (415) 391-2510 Fax: (415) 391-2008

Project: 22002.28  
Central Monitor

Received: 12/11/2002 12:20

**Samples Reported**

Sample Name	Date Sampled	Matrix	Lab #
MW-1	12/10/2002 15:30	Water	1
MW-2	12/10/2002 14:22	Water	2
MW-3	12/10/2002 15:00	Water	3

**Gas/BTEX Compounds by 8015M/8021**

Allwest Environmental

Attn.: James Koniuto

530 Howard Street, Suite #300  
San Francisco, CA 94105  
Phone: (415) 391-2510 Fax: (415) 391-2008

Project: 22002.28  
Central Monitor

Received: 12/11/2002 12:20

Prep(s):	5030	Test(s):	8015M
	5030		8021B
Sample ID:	MW-1	Lab ID:	2002-12-0236 - 1
Sampled:	12/10/2002 15:30	Extracted:	12/13/2002 23:33 12/17/2002 15:11 12/17/2002 15:11
Matrix:	Water	QC Batch#:	2002/12/13-01.05 2002/12/13-01.05 2002/12/17-01.04

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	37000	2500	ug/L	50.00	12/13/2002 23:33	
Benzene	2100	10	ug/L	20.00	12/17/2002 15:11	
Toluene	2100	10	ug/L	20.00	12/17/2002 15:11	
Ethyl benzene	14	10	ug/L	20.00	12/17/2002 15:11	
Xylene(s)	7300	10	ug/L	20.00	12/17/2002 15:11	
MTBE	ND	100	ug/L	20.00	12/17/2002 15:11	
<b>Surrogates(s)</b>						
4-Bromofluorobenzene	108.5	50-150	%	1.00	12/17/2002 15:11	
4-Bromofluorobenzene-FID	106.5	50-150	%	1.00	12/13/2002 23:33	

**Gas/BTEX Compounds by 8015M/8021**

Allwest Environmental

Attn.: James Koniuto

530 Howard Street, Suite #300  
San Francisco, CA 94105  
Phone: (415) 391-2510 Fax: (415) 391-2008

Project: 22002.28  
Central Monitor

Received: 12/11/2002 12:20

Prep(s): 5030	Test(s): 8015M
5030	8021B
Sample ID: MW-2	Lab ID: 2002-12-0236 - 2
Sampled: 12/10/2002 14:22	Extracted: 12/13/2002 19:24
Matrix: Water	QC Batch#: 2002/12/13-01.04

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	12/13/2002 19:24	
Benzene	ND	0.50	ug/L	1.00	12/13/2002 19:24	
Toluene	0.92	0.50	ug/L	1.00	12/13/2002 19:24	
Ethyl benzene	ND	0.50	ug/L	1.00	12/13/2002 19:24	
Xylene(s)	0.77	0.50	ug/L	1.00	12/13/2002 19:24	
MTBE	ND	5.0	ug/L	1.00	12/13/2002 19:24	
<b>Surrogates(s)</b>						
Trifluorotoluene	101.1	58-124	%	1.00	12/13/2002 19:24	
4-Bromofluorobenzene-FID	83.7	50-150	%	1.00	12/13/2002 19:24	

**Gas/BTEX Compounds by 8015M/8021**

Allwest Environmental

Attn.: James Koniuto

530 Howard Street, Suite #300  
San Francisco, CA 94105  
Phone: (415) 391-2510 Fax: (415) 391-2008

Project: 22002.28  
Central Monitor

Received: 12/11/2002 12:20

Prep(s): 5030 Test(s): 8015M  
5030 8021B  
Sample ID: MW-3 Lab ID: 2002-12-0236 - 3  
Sampled: 12/10/2002 15:00 Extracted: 12/13/2002 19:48  
Matrix: Water QC Batch#: 2002/12/13-01.04

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	12/13/2002 19:48	
Benzene	ND	0.50	ug/L	1.00	12/13/2002 19:48	
Toluene	0.67	0.50	ug/L	1.00	12/13/2002 19:48	
Ethyl benzene	ND	0.50	ug/L	1.00	12/13/2002 19:48	
Xylene(s)	ND	0.50	ug/L	1.00	12/13/2002 19:48	
MTBE	ND	5.0	ug/L	1.00	12/13/2002 19:48	
<b>Surrogates(s)</b>						
4-Bromofluorobenzene	110.3	50-150	%	1.00	12/13/2002 19:48	
4-Bromofluorobenzene-FID	109.5	50-150	%	1.00	12/13/2002 19:48	

**Gas/BTEX Compounds by 8015M/8021**

Allwest Environmental  
Attn.: James Koniuto

530 Howard Street, Suite #300  
San Francisco, CA 94105  
Phone: (415) 391-2510 Fax: (415) 391-2008

Project: 22002.28  
Central Monitor

Received: 12/11/2002 12:20

**Batch QC Report**

Prep(s): 5030  
Method Blank

Water

Test(s): 8015M  
QC Batch # 2002/12/13-01.04

MB: 2002/12/13-01.04-003

Date Extracted: 12/13/2002 10:33

Compound	Conc.	RL	Unit	Analyzed	Flag
Gasoline	ND	50	ug/L	12/13/2002 10:33	
Benzene	ND	0.5	ug/L	12/13/2002 10:33	
Toluene	ND	0.5	ug/L	12/13/2002 10:33	
Ethyl benzene	ND	0.5	ug/L	12/13/2002 10:33	
Xylene(s)	ND	0.5	ug/L	12/13/2002 10:33	
MTBE	ND	5.0	ug/L	12/13/2002 10:33	
<b>Surrogates(s)</b>					
4-Bromofluorobenzene	106.9	50-150	%	12/13/2002 10:33	
4-Bromofluorobenzene-FID	107.6	50-150	%	12/13/2002 10:33	

**Gas/BTEX Compounds by 8015M/8021**

Allwest Environmental

Attn.: James Koniuto

530 Howard Street, Suite #300  
San Francisco, CA 94105  
Phone: (415) 391-2510 Fax: (415) 391-2008

Project: 22002.28  
Central Monitor

Received: 12/11/2002 12:20

**Batch QC Report**

Prep(s): 5030  
Method Blank

Water

Test(s): 8015M  
QC Batch # 2002/12/13-01.05

MB: 2002/12/13-01.05-003

Date Extracted: 12/13/2002 10:01

Compound	Conc.	RL	Unit	Analyzed	Flag
Gasoline	ND	50	ug/L	12/13/2002 10:01	
Benzene	ND	0.5	ug/L	12/13/2002 10:01	
Toluene	ND	0.5	ug/L	12/13/2002 10:01	
Ethyl benzene	ND	0.5	ug/L	12/13/2002 10:01	
Xylene(s)	ND	0.5	ug/L	12/13/2002 10:01	
MTBE	ND	5.0	ug/L	12/13/2002 10:01	
<b>Surrogates(s)</b>					
Trifluorotoluene	106.0	58-124	%	12/13/2002 10:01	
4-Bromofluorobenzene-FID	86.9	50-150	%	12/13/2002 10:01	

**Gas/BTEX Compounds by 8015M/8021**

Allwest Environmental

Attn.: James Koniuto

530 Howard Street, Suite #300  
San Francisco, CA 94105  
Phone: (415) 391-2510 Fax: (415) 391-2008

Project: 22002.28  
Central Monitor

Received: 12/11/2002 12:20

**Batch QC Report**

Prep(s): 5030

Method Blank

MB: 2002/12/17-01.04-001

Water

Test(s): 8015M

QC Batch # 2002/12/17-01.04

Date Extracted: 12/17/2002 10:54

Compound	Conc.	RL	Unit	Analyzed	Flag
Gasoline	ND	50	ug/L	12/17/2002 10:54	
Benzene	ND	0.5	ug/L	12/17/2002 10:54	
Toluene	ND	0.5	ug/L	12/17/2002 10:54	
Ethyl benzene	ND	0.5	ug/L	12/17/2002 10:54	
Xylene(s)	ND	0.5	ug/L	12/17/2002 10:54	
MTBE	ND	5.0	ug/L	12/17/2002 10:54	
<b>Surrogates(s)</b>					
4-Bromofluorobenzene	113.6	50-150	%	12/17/2002 10:54	
4-Bromofluorobenzene-FID	114.4	50-150	%	12/17/2002 10:54	

**Gas/BTEX Compounds by 8015M/8021**

Allwest Environmental  
Attn.: James Koniuto

530 Howard Street, Suite #300  
San Francisco, CA 94105  
Phone: (415) 391-2510 Fax: (415) 391-2008

Project: 22002.28  
Central Monitor

Received: 12/11/2002 12:20

**Batch QC Report**

Prep(s): 5030

Test(s): 8015M

**Laboratory Control Spike**

**Water**

**QC Batch # 2002/12/13-01.04**

LCS 2002/12/13-01.04-004

Extracted: 12/13/2002

Analyzed: 12/13/2002 10:57

LCSD 2002/12/13-01.04-005

Extracted: 12/13/2002

Analyzed: 12/13/2002 11:21

Compound	Conc. ug/L		Exp.Conc.	Recovery		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD		%	Rec.	RPD	LCS
Gasoline	454	456	500	90.8	91.2	0.4	75-125	20		
<i>Surrogates(s)</i>										
4-Bromofluorobenzene-FID	550	553	500	110.0	110.6		50-150			



**Gas/BTEX Compounds by 8015M/8021**

Allwest Environmental

Attn.: James Koniuto

530 Howard Street, Suite #300  
San Francisco, CA 94105  
Phone: (415) 391-2510 Fax: (415) 391-2008

Project: 22002.28  
Central Monitor

Received: 12/11/2002 12:20

**Batch QC Report**

Prep(s): 5030

Test(s): 8021B

**Laboratory Control Spike**

**Water**

**QC Batch # 2002/12/13-01.04**

LCS 2002/12/13-01.04-006

Extracted: 12/13/2002

Analyzed: 12/13/2002 11:45

LCSD 2002/12/13-01.04-007

Extracted: 12/13/2002

Analyzed: 12/13/2002 12:09

Compound	Conc. ug/L		Exp.Conc.	Recovery		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD		%	Rec.	RPD	LCS
Benzene	110	108	100.0	110.0	108.0	1.8	77-123	20		
Toluene	107	105	100.0	107.0	105.0	1.9	78-122	20		
Ethyl benzene	103	102	100.0	103.0	102.0	1.0	70-130	20		
Xylene(s)	304	299	300	101.3	99.7	1.6	75-125	20		
<b>Surrogates(s)</b>										
4-Bromofluorobenzene	577	573	500	115.4	114.6		50-150	0		

Severn Trent Laboratories, Inc.

STL San Francisco \* 1220 Quarry Lane, Pleasanton, CA 94566

Tel 925 484 1919 Fax 925 484 1096 \* www.stl-inc.com \* CA DHS ELAP# 2496

12/18/2002 14:01

**Gas/BTEX Compounds by 8015M/8021**

Allwest Environmental

Attn.: James Koniuto

530 Howard Street, Suite #300  
San Francisco, CA 94105  
Phone: (415) 391-2510 Fax: (415) 391-2008

Project: 22002.28  
Central Monitor

Received: 12/11/2002 12:20

**Batch QC Report**

Prep(s): 5030

Test(s): 8015M

**Laboratory Control Spike**

**Water**

**QC Batch # 2002/12/13-01.05**

LCS 2002/12/13-01.05-004

Extracted: 12/13/2002

Analyzed: 12/13/2002 10:33

LCSD 2002/12/13-01.05-008

Extracted: 12/13/2002

Analyzed: 12/13/2002 12:45

Compound	Conc. ug/L		Exp Conc.	Recovery		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD		%	Rec.	RPD	LCS
Gasoline	494	481	500	98.8	96.2	2.7	75-125	20		
<b>Surrogates(s)</b> 4-Bromofluorobenzene-FID	515	466	500	103.0	93.2		50-150			

Severn Trent Laboratories, Inc.

STL San Francisco \* 1220 Quarry Lane, Pleasanton, CA 94566

Tel 925 484 1919 Fax 925 484 1096 \* www.stl-inc.com \* CA DHS ELAP# 2496

12/18/2002 14:01

Page 10 of 13

**Gas/BTEX Compounds by 8015M/8021**

Allwest Environmental  
Attn.: James Koniuto

530 Howard Street, Suite #300  
San Francisco, CA 94105  
Phone: (415) 391-2510 Fax: (415) 391-2008

Project: 22002.28  
Central Monitor

Received: 12/11/2002 12:20

**Batch QC Report**

Prep(s): 5030

Test(s): 8021B

**Laboratory Control Spike**

**Water**

**QC Batch # 2002/12/13-01.05**

LCS 2002/12/13-01.05-009

Extracted: 12/13/2002

Analyzed: 12/13/2002 11:38

LCSD 2002/12/13-01.05-010

Extracted: 12/13/2002

Analyzed: 12/13/2002 12:10

Compound	Conc. ug/L		Exp.Conc.	Recovery		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD		%	Rec.	RPD	LCS
Benzene	101	93.3	100.0	101.0	93.3	7.9	77-123	20		
Toluene	99.6	92.7	100.0	99.6	92.7	7.2	78-122	20		
Ethyl benzene	100	93.8	100.0	100.0	93.8	6.4	70-130	20		
Xylene(s)	301	282	300	100.3	94.0	6.5	75-125	20		
<b>Surrogates(s)</b>										
Trifluorotoluene	590	561	500	118.0	112.2		58-124	0		

Severn Trent Laboratories, Inc.

STL San Francisco \* 1220 Quarry Lane, Pleasanton, CA 94566

Tel 925 484 1919 Fax 925 484 1096 \* www.stl-inc.com \* CA DHS ELAP# 2496

12/18/2002 14:01

Page 11 of 13

**Gas/BTEX Compounds by 8015M/8021**

Allwest Environmental  
Attn.: James Koniuto

530 Howard Street, Suite #300  
San Francisco, CA 94105  
Phone: (415) 391-2510 Fax: (415) 391-2008

Project: 22002.28  
Central Monitor

Received: 12/11/2002 12:20

**Batch QC Report**

Prep(s): 5030

Test(s): 8021B

**Laboratory Control Spike**

**Water**

**QC Batch # 2002/12/17-01.04**

LCS 2002/12/17-01.04-002

Extracted: 12/17/2002

Analyzed: 12/17/2002 12:07

LCSD 2002/12/17-01.04-003

Extracted: 12/17/2002

Analyzed: 12/17/2002 12:31

Compound	Conc. ug/L		Exp. Conc.	Recovery		RPD	Ctrl. Limits %		Flags	
	LCS	LCSD		LCS	LCSD		%	Rec.	RPD	LCS
Benzene	113	109	100.0	113.0	109.0	3.6	77-123	20		
Toluene	111	107	100.0	111.0	107.0	3.7	78-122	20		
Ethyl benzene	108	103	100.0	108.0	103.0	4.7	70-130	20		
Xylene(s)	313	303	300	104.3	101.0	3.2	75-125	20		
<b>Surrogates(s)</b>										
4-Bromofluorobenzene	597	578	500	119.4	115.6		50-150	0		

**Gas/BTEX Compounds by 8015M/8021**

Allwest Environmental

Attn.: James Koniuto

530 Howard Street, Suite #300  
San Francisco, CA 94105  
Phone: (415) 391-2510 Fax: (415) 391-2008

Project: 22002.28  
Central Monitor

Received: 12/11/2002 12:20

**Batch QC Report**

Prep(s): 5030

Test(s): 8015M

**Laboratory Control Spike**

**Water**

**QC Batch # 2002/12/17-01.04**

LCS 2002/12/17-01.04-004

Extracted: 12/17/2002

Analyzed: 12/17/2002 11:19

LCSD 2002/12/17-01.04-005

Extracted: 12/17/2002

Analyzed: 12/17/2002 11:43

Compound	Conc. ug/L		Exp.Conc.	Recovery		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD		%	Rec.	RPD	LCS
Gasoline	510	516	500	102.0	103.2	1.2	75-125	20		
<b>Surrogates(s)</b> 4-Bromofluorobenzene-FID	570	580	500	114.0	116.0		50-150	0		

2007-12-0236

1220 Quarry Lane • Pleasanton CA 94566-4756  
 Phone: (925) 484-1919 • Fax: (925) 484-1096  
 Email: info@chtrmlab.com

Reference #: 79155

Date 12/10/02 Page 1 of 1

Report To

Attn: James Konito  
 Company All West Environmental  
 Address 530 Howard St. Ste. 300 S.F. CA  
 Phone 415-391-2510 Email jkonito@allwest.com  
 Sampled By J. Konito  
 Attn: J. Konito  
 Phone 415-391-2510

Sample ID	Date	Time	Mat	Pres	TPH (EPA 8015, 8020/8021) *Gas w/ *BTEX *MTBE	Purgeable Aromatics BTEX (EPA 8020/8021)	TEPH (EPA 8015M) *Silica Gel *Diesel *Motor Oil *Other	Fuel Oxygenates (B260B): *DCA, *EDB Full Oxygenate List *MTBE *BTEX	Purgeable Halocarbons (HVOCs) (EPA 8010/8021)	Volatile Organics GC/MS (VOCs) (EPA 8260A/B/8280B)	Semivolatiles GC/MS (EPA 8270)	Oil and Grease *Petroleum (EPA 1664) *Total	*Pesticides (EPA 8081) *PCBs (EPA 8082)	PNAs by *8270 *8310	CAM17 Metals (EPA 6010/7470/7471)	Metals: *Lead *LUFT *RCRA *Other	WET (STLC) *TCLP	Hexavalent Chromium pH (24h hold time for H <sub>2</sub> O)	Spec Conc *Alkalinity *TSS	Anions *CO <sub>3</sub> *SO <sub>4</sub> *NO <sub>3</sub> *F *Br *NO <sub>2</sub> *PO <sub>4</sub>	Number of Containers
MW-1	12/10/02	1530	L		X		X														4
MW-2		1422			X		X														4
MW-3		1500			X		X														4

Project Info

Project Name: Central Monitor  
 Project#: 2200.2.28  
 PO#: 2200.2.28  
 Credit Card#: [Blank]  
 # of Containers: 12  
 Lead Space [Blank]  
 Temp: [Blank]  
 Conforms to record [Blank]  
 Other [Blank]

Report:  Routine  Level 3  Level 4  EDD  
 Special Instructions / Comments:

Printed Name: J. Konito  
 Date: 12/11/02  
 Signature: [Signature]  
 Time: [Blank]  
 Company: [Blank]

Sample Receipt

1) Relinquished by: Dave Ford 11/16  
 Signature: Dave Ford  
 Time: 11/16  
 Printed Name: Dave Ford  
 Date: 12/11  
 Company: [Blank]

2) Relinquished by: [Blank]  
 Signature: [Blank]  
 Time: 12:30  
 Printed Name: J. Reppert  
 Date: 12/11  
 Company: Ge Cooper

Report:  Routine  Level 3  Level 4  EDD  
 Special Instructions / Comments:

Printed Name: [Blank]  
 Date: [Blank]  
 Signature: [Blank]  
 Time: [Blank]  
 Company: [Blank]

3) Relinquished by:

3) Received by: [Blank]  
 Signature: [Signature]  
 Time: 12:20  
 Printed Name: [Blank]  
 Date: [Blank]  
 Company: [Blank]

Report:  Routine  Level 3  Level 4  EDD  
 Special Instructions / Comments:

Printed Name: [Blank]  
 Date: [Blank]  
 Signature: [Signature]  
 Time: [Blank]  
 Company: [Blank]

# Appendix A

## GROUNDWATER MONITORING WELL SAMPLING FIELD LOG

Project No.: 22002.28 Project Name: Central Monitor  
 Well No.: MW-1 Well Location: 900 Central Ave., Alameda  
 Well Depth: 18.22 (ft.) Casing Diameter: 2 (in.)  
 Depth to Water: 13.34 (ft.) Date: 12/10/02 Time: \_\_\_\_\_  
 Water Column in Well: 4.88 (ft.) x 0.17 = Well Volume: 0.83 (gal.) x 3 = 2.5  
 Odor? Yes Free Product? No Thickness: N/A  
 Purging Method: Hand Pump  Submersible Pump  Bailer  Other

Time	pH	Conduc. (µS)	Temp. (°F)	Water Level	Volume Removed	Remarks
1510	5.12	950	64.0	NM	0.25	cloudy
1515	5.10	949	64.9		1.00	light gray, cloudy
1520	5.08	1021	65.3		2.00	"
1525	5.09	966	65.5	↓	2.50	"

Purging Start Time: 1510 Purging Stop Time: 1525  
 Total Volume Purged: 2.75 (gal.) Well Dewater? No  
 Water Level Prior to Sampling: NM (ft.) Time: \_\_\_\_\_  
 Sampling Method: Teflon Bailer  Disposable Bailer  Sampling Pump   
 Sample Collected: 3x40-ml and 2x1-liter Sample No.: MW-1

Remarks: TPH-g/BTEX/MTBE (EPA 8015/8021B), TPH-d,mo with silica gel clean-up (EPA 8015M)

Fuel odors observed from well. Rain during previous night

Sampler: J. Koniuto Date/Time: 12-10-02 1530



## GROUNDWATER MONITORING WELL SAMPLING FIELD LOG

Project No.: 22002.28 Project Name: Central Monitor  
 Well No.: MW-2 Well Location: 900 Central Ave., Alameda  
 Well Depth: 18.12 (ft.) Casing Diameter: 2 (in.)  
 Depth to Water: 13.10 (ft.) Date: 12/10/02 Time: 1350  
 Water Column in Well: 5.02 (ft.) x 0.17 = Well Volume: 0.85 (gal.) x 3 = 2.6  
 Odor? No Free Product? No Thickness: N/A  
 Purging Method: Hand Pump  Submersible Pump  Bailer  Other

Time	pH	Conduc. (µS)	Temp. (°F)	Water Level	Volume Removed	Remarks
1405	5.85	350	63.8	NM	0.25	light brown
1410	5.87	344	64.1		1.00	silty brown
1415	5.86	340	64.0		2.00	silty brown
1420	5.86	334	63.9	↓	3.00	"

Purging Start Time: 1405 Purging Stop Time: 1420  
 Total Volume Purged: 3.0 (gal.) Well Dewater? No  
 Water Level Prior to Sampling: NM (ft.) Time: —  
 Sampling Method: Teflon Bailer  Disposable Bailer  Sampling Pump   
 Sample Collected: 3x40-ml and 1x1-liter Sample No.: MW-2

Remarks: TPH-g/BTEX/MTBE (EPA 8015/8021B), TPH-d,mo with silica gel clean-up (EPA 8015M)

Rained during previous night.

Sampler: J. Koniuto Date/Time: 12-10-02 1422

# GROUNDWATER MONITORING WELL SAMPLING FIELD LOG

Project No.: 22002.28

Project Name: Central Monitor

Well No.: MW- 3

Well Location: 900 Central Ave., Alameda

Well Depth: 18.10 (ft.)

Casing Diameter: 2 (in.)

Depth to Water: 12.88 (ft.)    Date: 12/10/02    Time: 1435

Water Column in Well: 5.22 (ft.) x 0.17 =    Well Volume: 0.89 (gal.) x 3 = 2.7

Odor? No    Free Product? No    Thickness: N/A

Purging Method:    Hand Pump     Submersible Pump     Bailer     Other

Time	pH	Conduc. (µS)	Temp. (°F)	Water Level	Volume Removed	Remarks
1440	5.70	340	64.0	NM	0.25	clear
1445	5.68	344	64.4		1.00	light brown
1450	5.68	350	64.6		2.00	"
1455	5.67	356	64.8	∇	3.00	"

Purging Start Time: 1440

Purging Stop Time: 1455

Total Volume Purged: 3.0 (gal.)

Well Dewater? No

Water Level Prior to Sampling: NM (ft.)

Time:                     

Sampling Method:    Teflon Bailer     Disposable Bailer     Sampling Pump

Sample Collected: 3x40-ml and 2x1-liter    Sample No.: MW- 3

Remarks: TPH-g/BTEX/MTBE (EPA 8015/8021B), TPH-d.mo with silica gel clean-up (EPA 8015M)

Rained during previous night

Sampler: J. Koniuto

Date/Time: 12-10-02 1500

# Groundwater Monitoring Well Sampling Field Log

Project No.: 22002.28

Project Name: Central Monitor

Well No.: MW-1

Well Location: 900 Central Ave. Alameda

Well Depth: 18.23 (ft.)

Casing Diameter: 2 (in.)

Depth to Water: 12.88 (ft.)

Date: 10/3/02 Time: 1045

Water Column in Well: 5.35 (ft.)  $\times 17$  Well Volume: 0.91 (gal.)  $\times 3 = 2.7$

Odor? Yes Free Product? <sup>No.</sup> Slight sheen Thickness: N/A

Purging Method: Hand Pump  Submersible Pump  Bailer  Other

Time	pH	Conduc. (uS)	Temp. (°C/F)	Water Level	Volume Removed	Remark
1045	6.59	698	65.9	NM	0.25	clear
1050	6.61	686	66.8		1.0	salty brown
1055	6.62	682	67.0		2.0	light brown
1100	6.60	675	66.9	↓	2.7	"

Purging Start Time: 1045 Purging Stop Time: 1100

Total Volume Purged: 2.7 (gal.) Well Dewater? No

Water Level Prior to Sampling:      (ft.) Time:     

Sampling Method: Teflon Bailer  Disposable Bailer  Sampling Pump

Sample Collected: TPH-g/BICX, TPH-d, no Sample No.: MW-1

Remark:     

Sampler: JSK

Date/Time: 10/3/02 1100

# Groundwater Monitoring Well Sampling Field Log

Project No.: 22002.28

Project Name: Centrak Monitor

Well No.: MW-2

Well Location: 900 Central Ave. Alameda

Well Depth: 12.12 (ft.)

Casing Diameter: 2 (in.)

Depth to Water: DRY (ft.)

Date: 10/3/02 Time: 0955

Water Column in Well: NM (ft.)

Well Volume: NM (gal.)

Odor? No

Free Product? —

Thickness: —

Purging Method: Hand Pump  Submersible Pump  Bailer  Other

Time	pH	Conduc. (µS)	Temp. (°C)	Water Level	Volume Removed	Remark
<u>DRY WELL</u>						

Purging Start Time: NA

Purging Stop Time: NA

Total Volume Purged: \_\_\_\_\_ (gal.)

Well Dewater?

Water Level Prior to Sampling: \_\_\_\_\_ (ft.) Time: \_\_\_\_\_

Sampling Method: Teflon Bailer  Disposable Bailer  Sampling Pump

Sample Collected: None

Sample No.: \_\_\_\_\_

Remark: Dry well

Sampler: ISK

Date/Time: 10/3/02

# Groundwater Monitoring Well Sampling Field Log

Project No.: 22002.28

Project Name: Central Monitor

Well No.: MW-3

Well Location: 900 Central Ave. Alameda

Well Depth: 15.08 (ft.)

Casing Diameter: 2 (in.)

Depth to Water: 12.28 (ft.)

Date: 10/3/02 Time: 1015

Water Column in Well: 5.80 (ft.) x 17 Well Volume: 0.99 (gal.) x 3 = 3.0

Odor? No Free Product? No Thickness: NA

Purging Method: Hand Pump  Submersible Pump  Bailer  Other

Time	pH	Conduc. (µS)	Temp. (°C/F)	Water Level	Volume Removed	Remark
1020	7.15	375	67.2	NM	0.25	clean
1025	6.82	366	68.0	/	1.0	light brown
1030	6.59	364	68.0		2.0	"
1035	6.54	358	66.7		3.0	"

Purging Start Time: 1015 Purging Stop Time: 1035

Total Volume Purged: 3.0 (gal.) Well Dewater? No

Water Level Prior to Sampling:    (ft.) Time:   

Sampling Method: Teflon Bailer  Disposable Bailer  Sampling Pump

Sample Collected: TPH-g/STEX TPH-d w/o Sample No.: MW-3

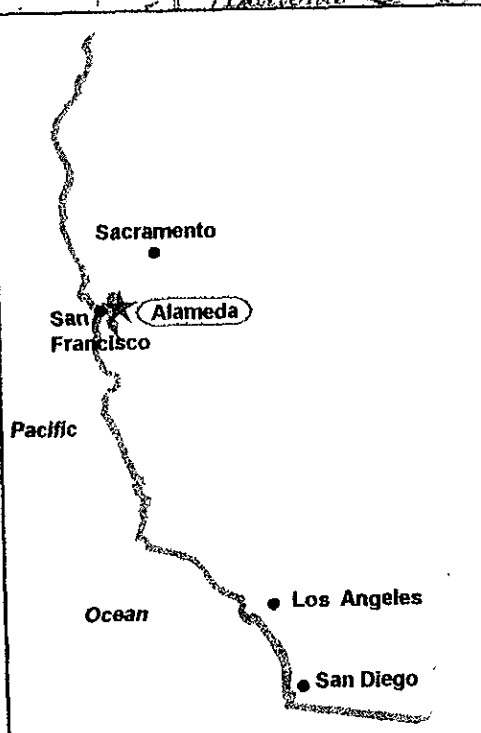
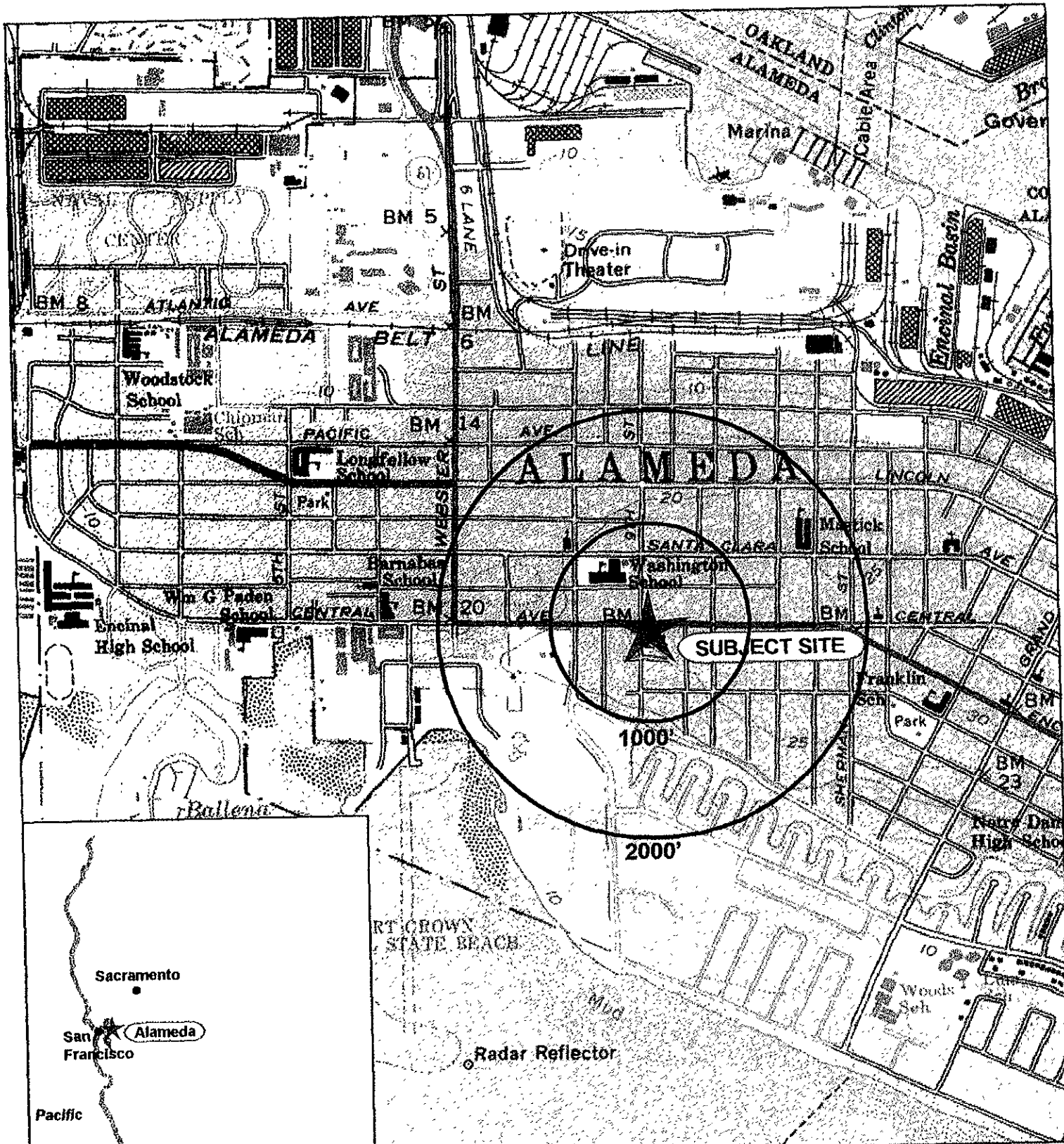
Remark:   

Sampler: JSA

Date/Time: 10/3/02 1035

# Appendix B



NOT TO SCALE

**AllWest**

WELL SURVEY LOCATION MAP	
FIGURE 2	
900 CENTRAL AVENUE	
ALAMEDA, CALIFORNIA	
SOURCE: USGS TOPO	
PREPARED BY: ELIZA YU	
DATE: 10/10/02	

PROJECT NO.  
22002.28

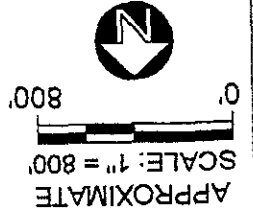
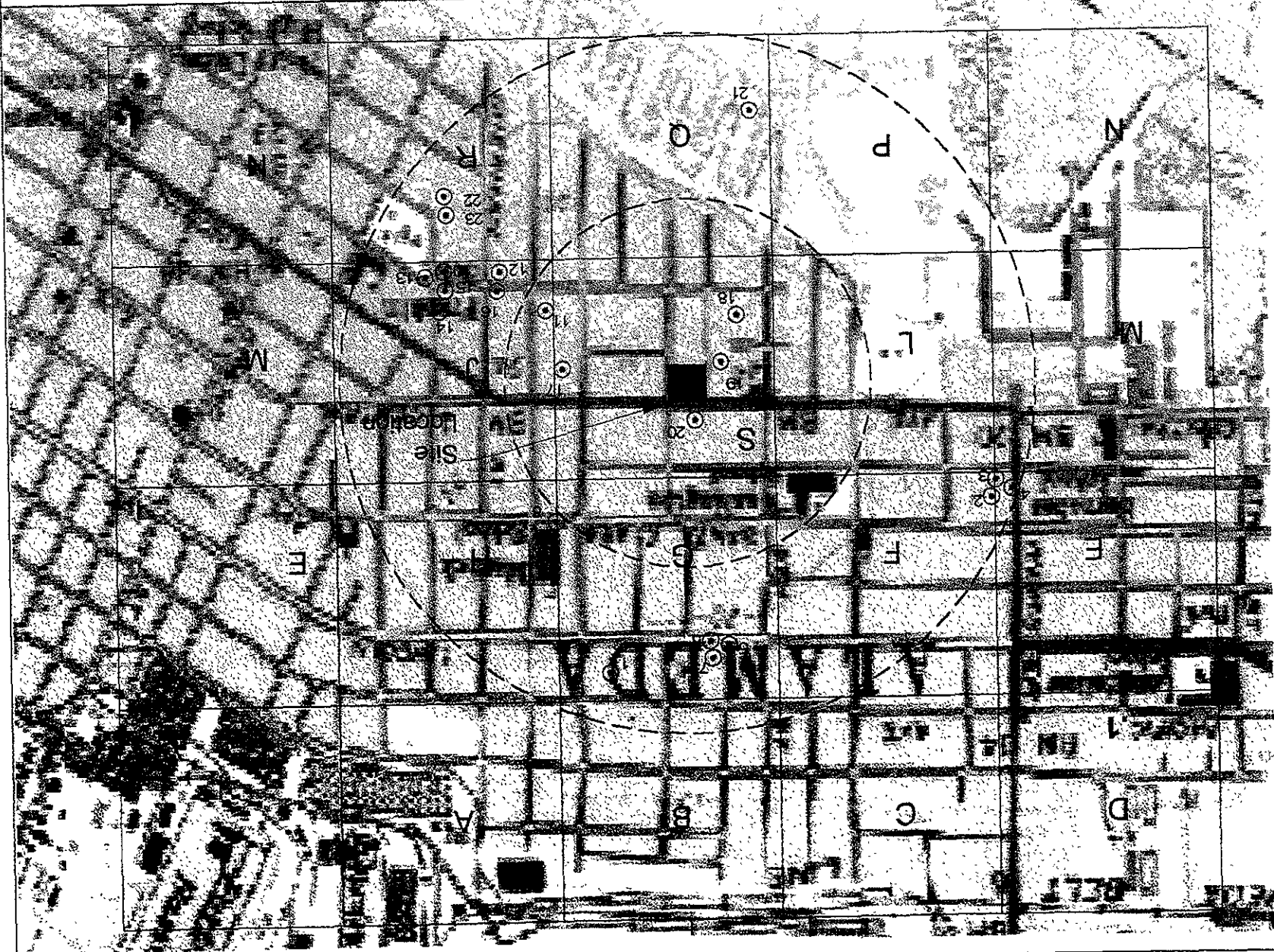
WELL SURVEY MAP	
900 CENTRAL AVENUE	
ALAMEDA, CALIFORNIA	
SOURCE: ALLWEST	
PROJECT NO.	22002.28
PREPARED BY: I.R.R. (10/02/02)	




AllWest

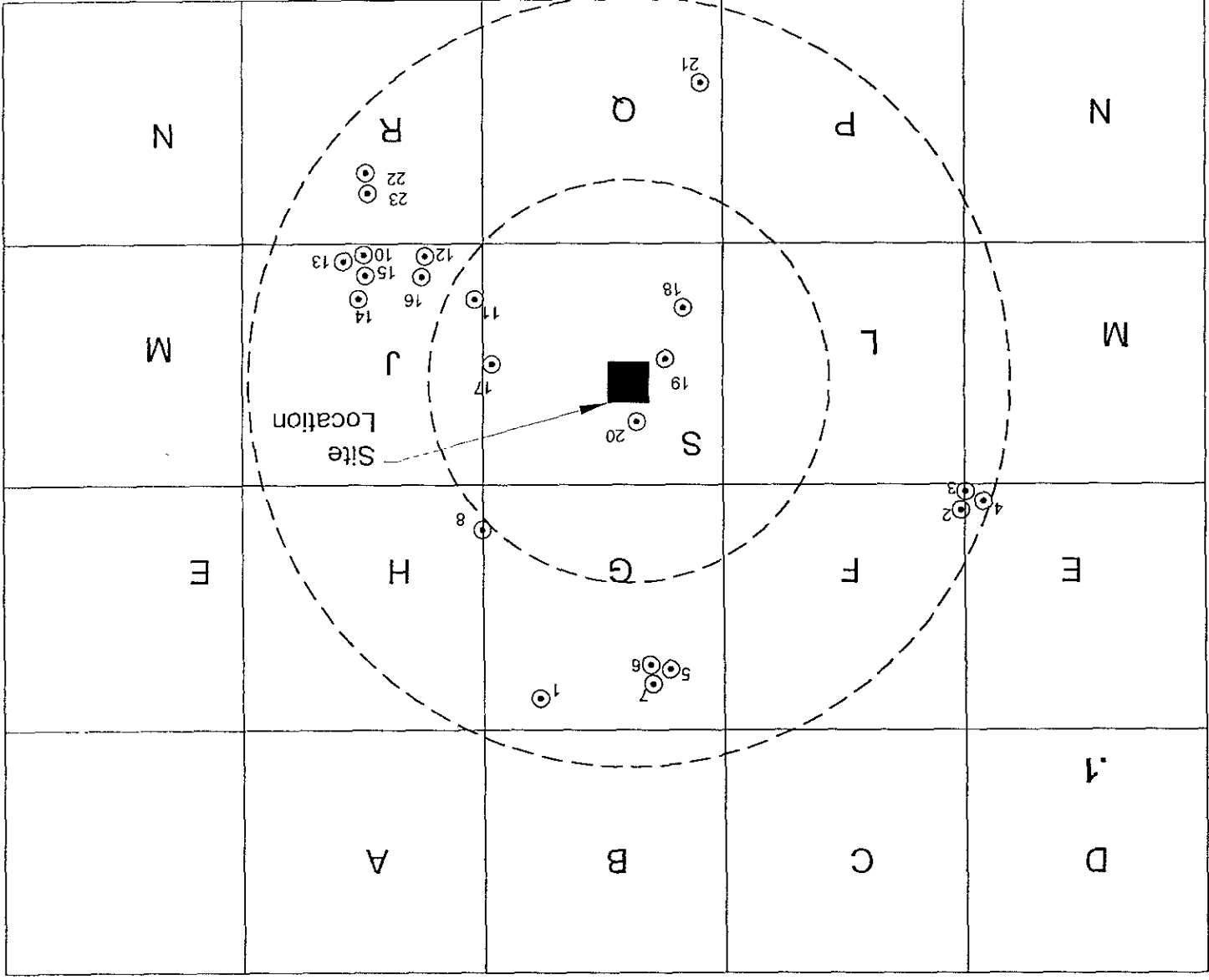
18 - Well Location

LEGEND

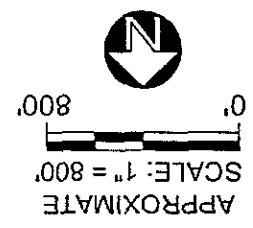




WELL SURVEY MAP OVERLAY	 <b>AllWest</b>	PROJECT NO. 22002.28
900 CENTRAL AVENUE		SOURCE: ALLWEST
ALAMEDA, CALIFORNIA		PREPARED BY: I.R.R. (10/02/02)



**LEGEND**  
 18 - Well Location



APPENDIX C  
WELL SURVEY RESULTS

900 Central Avenue, Alameda, California

ID	Well #	Township/ Range	Section	Total Depth	Screen Interval	Casing Diameter	Water Level	Use	Location	Dist (mile)	Dist (feet)
#1	3-1797	2S/4W	11A80	120	unknown	unknown	unknown	Cath Prot	Pacific Av S/O Chapin	0.35	1848
#2	MW-1	2S/4W	11F4	24	6-24	2	unknown	Mon	1435 Webster St/Taylor	0.38	2006
#3	MW-2	2S/4W	11F5	24	6-24	2	unknown	Mon	1435 Webster St/Taylor	0.38	2006
#4	MW-3	2S/4W	11F6	24	6-24	2	unknown	Mon	1435 Webster St/Taylor	0.38	2006
#5	MW-1	2S/4W	11G1	16.5	5-15	2	10	Mon	901 Lincoln Av	0.30	1584
#6	MW-2	2S/4W	11G2	18	8-18	2	10	Mon	901 Lincoln Av	0.30	1584
#7	MW-3	2S/4W	11G3	18	8-18	2	10	Mon	901 Lincoln Av	0.30	1584
#8	1-1837	2S/4W	11H	120	unknown	unknown	unknown	Cath Prot	Santa Clara E/O Verdi St	0.22	1162
#9	MW-3	2S/4W	11H4	20	5-20	4	7	Mon	1127 Lincoln Av E/O Bay S	0.40	2112
#10	unknown	2S/4W	11J1	70	55-70	4	14	Irrig	1205 Bay St	0.32	1690
#11	32175	2S/4W	11J2	68	unknown	4	15	Irrig	1036 San Antonio Av	0.18	950
#12	unknown	2S/4W	11J3	80	65-80	4	20	Irrig	1236 St Charles	0.25	1320
#13	unknown	2S/4W	11J4	75	53-73	4	14	Irrig	1224 Bay St	0.33	1742
#14	unknown	2S/4W	11J5	unknown	unknown	unknown	14	Irrig	1200 San Antonio Av	0.30	1584
#15	unknown	2S/4W	11J6	60	40-60	5	10	Irrig	1251 Bay St	0.25	1320
#16	unknown	2S/4W	11J7	60	40-60	5	10	Irrig	1261 St Charles	0.25	1320
#17	unknown	2S/4W	11J8	60	40-60	5	10	Irrig	1040 Fair Oaks Dr	0.15	792
#18	unknown	2S/4W	11K1	unknown	unknown	3	9		801 San Antonio Av	0.11	581
#19	unknown	2S/4W	11K2	70	24-70	6	18	Irrig	920 Centennial	0.05	264
#20	unknown	2S/4W	11K3	75	30-70	unknown	15	Mon	905 Central E/O 9th	0.05	264
#21	MV-1	2S/4W	11Q1	20	2-20	4	3	Dewater	900 Otis Dr	0.33	1742
#22	unknown	2S/4W	11R1	70	unknown	4	unknown	Irrig	1204 Bay	0.35	1848
#23	unknown	2S/4W	11R2	70	unknown	4	unknown	Irrig	1209 Bay	0.35	1848

<b>Regulatory History</b>	
<b>GRAY &amp; KAREN PEARCE (ALAMEDA)</b> 900 CENTRAL AVE ALAMEDA , CA 94501 <b>CASE STATUS: OPEN</b> (Show this Site on Map)	<b>Regional Board - Case #: 01-2273</b> SAN FRANCISCO BAY RWQCB (REGION 2) - <b>(BG)</b> <b>Local Agency (lead agency) - Case #: 6897</b> ALAMEDA COUNTY LOP - <b>(UNK)</b>
<b>Begin Date</b>	<b>Status</b>
1/1/1975	Leak Stopped
4/20/1994	Leak Discovery
9/19/1997	Leak Reported
1/23/1998	3B - Preliminary Site Assessment Underway
1/23/1998	System Entry
4/5/2001	Regulatory Review

[Geotracker Home](#) | [Site/Facility Finder](#) | [Case Finder](#) | [MTBE/Case Reports](#)

<b>Detailed Release Information</b>		
<b>GRAY &amp; KAREN PEARCE</b> (ALAMEDA) 900 CENTRAL AVE ALAMEDA , CA 94501 <b>CASE STATUS: OPEN</b> (Show this Site on Map)		<b>Regional Board - Case #: 01-2273</b> SAN FRANCISCO BAY RWQCB (REGION 2) - (BG) <b>Local Agency (lead agency) - Case #: 6897</b> ALAMEDA COUNTY LOP - (UNK)
<b>Case Type:</b> Soil Only		
<b>Enforcement Type:</b>		<b>Funding:</b> F
<b>How leak was discovered:</b> Tank Closure		<b>Method used to stop discharge:</b> Close Tank
<b>Interim:</b>		
<b>Cause of leak:</b> UNK		<b>Source of leak:</b> UNK
<b>SUBSTANCES RELEASED:</b>		
<b>Begin Date</b> UNKNOWN	<b>Substance</b> GASOLINE	<b>Quantity</b>

[Geotracker Home](#) | [Site/Facility Finder](#) | [Case Finder](#) | [MTBE/Case Reports](#)

**Regulatory History**

**CHEVRON (ALAMEDA)**  
900 OTIS DR  
ALAMEDA , CA 94501  
**CASE STATUS: CLOSED**  
(Show this Site on Map)

**Regional Board - Case #: 01-0388**  
SAN FRANCISCO BAY RWQCB (REGION 2) - (BG)  
**Local Agency (lead agency) - Case #: 598**  
ALAMEDA COUNTY LOP - (UNK)

Begin Date	Status
8/1/1989	Leak Discovery
8/1/1989	Leak Reported
8/1/1989	Leak Stopped
9/28/1990	System Entry
11/13/1997	8 - Verification Monitoring Underway
2/2/1999	9 - Case Closed
3/18/1999	Regulatory Review

[Geotracker Home](#) | [Site/Facility Finder](#) | [Case Finder](#) | [MTBE/Case Reports](#)

Detailed Release Information		
<b>CHEVRON (ALAMEDA)</b> 900 OTIS DR ALAMEDA , CA 94501 <b>CASE STATUS: CLOSED</b> (Show this Site on Map)		<b>Regional Board - Case #: 01-0388</b> SAN FRANCISCO BAY RWQCB (REGION 2) - (BC) <b>Local Agency (lead agency) - Case #: 598</b> ALAMEDA COUNTY LOP - (UNK)
<b>Case Type:</b> Other Groundwater		
<b>Enforcement Type:</b>	<b>Funding:</b> F	
<b>How leak was discovered:</b> Tank Closure	<b>Method used to stop discharge:</b> Close Tank	
<b>Interim:</b> Y = Interim Action Taken		
<b>Cause of leak:</b> Structural Failure	<b>Source of leak:</b> Tank	
SUBSTANCES RELEASED:		
Begin Date	Substance	Quantity
UNKNOWN	GASOLINE	

[Geotracker Home](#) | [Site/Facility Finder](#) | [Case Finder](#) | [MTBE/Case Reports](#)

# Appendix C



**AllWest Environmental, Inc.**

Specialists in Physical Due Diligence and Remedial Services

530 Howard Street, Suite 300  
San Francisco, CA 94105  
Tel 415 391 2510  
Fax 415 391.2008

**APPLICATION FOR AUTHORIZATION TO USE**

**REPORT TITLE:**

To: AllWest Environmental, Inc.  
530 Howard Street, Suite 300  
San Francisco, CA 94105

From (Applicant): \_\_\_\_\_  
(Please clearly identify name and address of person/entity applying for permission to use or copy this document)

Ladies and Gentlemen:

Applicant hereby applies for permission to rely upon *AllWest's* work product, as described above, for the purpose of (state here the purpose for which you wish to rely upon the work product)

Applicant only can accept and rely upon *AllWest* work product under the strict understanding that Applicant is bound by all provisions in the Terms and Conditions attached to the report. Every report, recommendation, finding, or conclusion issued by *AllWest* shall be subject to the limitations stated in the Agreement and subject report(s). If this is agreeable, please sign below and return one copy of this letter to us along with the applicable fees. Upon receipt and if acceptable, our signed letter will be returned. *AllWest* may withhold permission at its sole discretion or require additional re-use fees or terms.

**FEES:** A \$500 coordination and reliance fee, payable in advance, will apply. If desired, for an additional \$75 report reproduction fee, we will reissue the report in the name of the Applicant; the report date, however, will remain the same. All checks will be returned if your request for reliance is not approved.

**REQUESTED BY**

**APPROVED BY**

\_\_\_\_\_  
Applicant Company

AllWest Environmental, Inc.

\_\_\_\_\_  
Print name and Title

\_\_\_\_\_  
Print Name and Title

\_\_\_\_\_  
Signature and Date

\_\_\_\_\_  
Signature and Date



## GENERAL CONDITIONS TO THE WORK AUTHORIZATION

### AGREEMENT

It is hereby agreed that the Client retains AllWest to act for and represent it in all matters set forth in the Work Authorization attached hereto (the "Work"). Such contracts of a retainer shall be subject to and is conditioned upon the following terms, conditions, and stipulations, which terms, conditions and stipulations will also apply to any further agreements, purchase orders, or documentation regarding the Work unless modified by a writing signed by both Parties to this Agreement. Signature by client on work authorization constitutes agreement with General Conditions as stated here.

It is recognized and agreed that AllWest has assumed responsibility only for making the investigations, reports and recommendations to the Client included within the Scope of Work. The responsibility for making any disclosures or reports to any third party and for the taking of corrective, remedial, or mitigative action shall be solely that of the Client.

### REIMBURSABLE COSTS/INTEREST AND ATTORNEYS FEES

1 Reimbursable Costs will be charged to the Client in addition to the fees for the basic services under this Agreement and all Additional Services under the Agreement. Reimbursable Costs include, but are not limited to, expenses for travel, including transportation, meals, lodging, long distance telephone and other related expenses, as well as the costs of reproduction of all drawings for the Client's use, costs for specifications and typewritten reports, permit and approval fees, automobile travel reimbursement, costs and fees of subcontractors, and soil and other materials testing. No overtime is accrued for time spent in travel. All costs incurred which relate to the services or materials provided by a contractor or subcontractor to AllWest shall be invoiced by AllWest on the basis of cost plus twenty percent (20%). Automobile travel reimbursement shall be at the rate of thirty-five cents (\$.35) per mile. All other reimbursable costs shall be invoiced and billed by AllWest at the rate of 1.1 times the direct cost to AllWest. Any rates set forth in this Agreement are subject to reasonable increases by AllWest upon giving thirty days' written notice to Client. Reimbursable costs will be charged to the client *only as outlined* in the attached proposal if the work is for Phase I Environmental Site Assessment. A client knowingly and willingly agrees to pay interest on the balance of on unpaid invoices overdue more than 30 days at a rate of 18% per annum and all attorney fees incurred by AllWest to secure payment of unpaid invoices. AllWest may waive such fees at its discretion.

### WARRANTY AND LIMITATION OF LIABILITY

2. AllWest hereby warrants that it will perform the Work with the usual degree and standard of care and skill observed by members of AllWest's profession in the same geographic area on projects of the type engaged in by AllWest. **Client's sole remedy under this Agreement shall be to request that AllWest repeat or correct any of the Work performed by AllWest which fails to meet these standards. AllWest's financial liability including attorney fees shall not exceed the dollar value of this agreement and shall be limited to direct damages.** All other damages such as loss of use, profits, anticipated profits and like losses are consequential damages for which AllWest is not liable. Client hereby releases AllWest from all liability and damage incurred by the Client or other people who are associated with the services provided by AllWest, or the employees, agents, contractors or subcontractors of AllWest, under this Agreement.

Further, Client hereby releases AllWest from any and all liability for risks or damages to the Project site. AllWest assumes no liability or duties regarding the Project site by reason of its performance of the Work at the Project. Client shall hold AllWest harmless from any liabilities or duties with respect to the work or the Project. Client shall further release, indemnify and hold AllWest harmless from any and all claims, liabilities or damages resulting from AllWest's use of technological or design concepts, or any other concepts or uses which, though acceptable and standard at the time the decision to use them was made, are unacceptable or nonstandard beginning at the time work commences or any time thereafter. If AllWest must incur additional expenses in the work by reason of the need to incorporate new or different technologies into the Work, whether necessitated by new laws, regulations or guidelines, or by the desire of Client, Client agrees to reimburse AllWest for such expenses, as well as provide compensation for AllWest's services at the rates set forth in the Work Authorization.

Client acknowledges that AllWest and its subcontractors have played no part in the creation of any hazardous waste, pollution sources, nuisance, or chemical or an industrial disposal problem, which may exist, and that AllWest has been retained for the sole purpose of assisting the Client in assessing any problem which may exist and in assisting the Client in formulating a remedial program, if such is within the Scope of Work which AllWest has assumed. Client recognizes that while necessary for investigations, commonly used exploration methods may penetrate through contaminated materials and serve as a connecting passageway between the contaminated material and an uncontaminated aquifer or groundwater, possibly inducing cross contamination. While backfilling with grout, or other means, according to a state of practice design, is intended to provide a seal against such passageways, it is recognized that such a seal may be imperfect and that there is an inherent risk in drilling borings or performing other exploration methods in a hazardous waste site.

AllWest shall not be required to sign any documents, no matter by whom requested, that would result in AllWest having to certify, guarantee, warrant or opine on conditions whose existence AllWest cannot ascertain. The CLIENT also agrees not to make resolution of any dispute with AllWest or payment of any amount due to AllWest in any way contingent upon AllWest signing any such documents.

### TERMINATION

3 This Agreement may be terminated by either party upon seven (7) days' written notice should the other party substantially fail to perform in accordance with its terms through no fault of the party initiating the termination. In the event of termination which is not the fault of AllWest, AllWest shall be paid no less than eighty percent (80%) of the contract price, provided, however, that if AllWest shall have completed more than eighty percent of the Work at the time of said termination, AllWest shall be compensated as provided in the Work Authorization for all services performed prior to the termination date which falls within the scope of work described in the Work Authorization and may as well, at its sole discretion and in accordance with said Schedule of Fees, charge Client its reasonable costs and labor in winding up its files and removing equipment and other materials from the Project.

AllWest may issue notice to other consultants, contractors, subcontractors and to governing agencies having jurisdiction over the Project and take other actions as are reasonably necessary in order to give notice that AllWest is no longer associated with the Project and to protect AllWest from claims of liability from the work of others.

## DOCUMENTS

4. Any documents prepared by AllWest, including but not limited to proposals, project specifications, drawings, calculations, plans and maps, and any ideas and designs incorporated therein, as well as any reproduction of the above are and shall remain the property of AllWest whether or not said documents are actually utilized in connection with the Project. The Client shall be permitted to retain a copy of any documents provided to the Client by AllWest, but said documents may not be used by the Client on other projects or for any other purpose, except the current one, except by agreement in writing with AllWest and with appropriate compensation to AllWest

Client shall furnish, or cause to be furnished to AllWest, all documents and information known to Client that relate to the identity, location, quantity, nature, or characteristics of any asbestos, PCBs, or any other hazardous materials or waste at, on or under the site. In addition, Client will furnish or cause to be furnished such reports, data, studies, plans, specifications, documents and other information on surface or subsurface site conditions, e.g., underground tanks, pipelines and buried utilities, required by AllWest for proper performance of its services. If CLIENT fails to provide AllWest with all hazardous material subject matter reports including geotechnical assessments in their possession during the period that AllWest is actively providing expertise (30 days post the final invoice), CLIENT shall release AllWest from any and all liability for risks and damages the CLIENT incurs resulting from their reliance on AllWest's professional opinion. AllWest shall be entitled to rely upon Client - provided documents and information in performing the services required in this Agreement; however, AllWest assumes no responsibility or liability for their accuracy or completeness. Client-provided documents will remain the property of the Client

## ACCESS TO PROJECT

5. Client grants to AllWest the right of access and entry to the Project at all times necessary for AllWest to perform the Work. If Client is not the owner of the Project, then Client represents that Client has full authority to grant access and right of entry to AllWest for the purpose of AllWest's performance of the Work. This right of access and entry extends fully to any agents, employees, contractors or subcontractors of AllWest upon reasonable proof of association with AllWest.

## CONFIDENTIAL INFORMATION

6. Both Client and AllWest understand that in conjunction with AllWest's performance of the Work on the project, both Client and AllWest's performance of the Work on the project, both Client and AllWest may receive or be exposed to Proprietary Information of the other. As used herein, the term "Proprietary Information" refers to any and all information of a confidential, proprietary or secret nature which may either be applicable to, or relate in any way to: (a) the personal, financial or other affairs of the business of each of the Parties, or (b) the research and development or investigations of each of the Parties. Proprietary Information includes, for example and without limitation, trade secrets, processes, formulas, data, know-how, improvements, inventions, techniques, software technical data, developments, research projects, plans for future development, marketing plans and strategies. Each of the Parties agrees that all Proprietary Information of the other party is and shall remain exclusively the property of that other party. The parties further acknowledge that the Proprietary Information of the other party is a special, valuable and a unique asset of that party, and each of the Parties hereto agrees that at all times during the terms of this Agreement and thereafter to keep in confidence and trust all Proprietary Information of the other party, whether such Proprietary Information was obtained or developed by the other party before, during or after the term of this Agreement. Each of the Parties agrees not to sell, distribute, disclose or use in any other unauthorized manner the Proprietary Information of the other party. AllWest further agrees that it will not sell, distribute or disclose information or the results of any testing obtained by AllWest during the performance of the Work without the prior written approval of Client unless required to do so by federal, state or local statute, ordinance or regulation

## ADDITIONAL SERVICES

7. In addition to the services to be performed by AllWest as described in the Work Authorization, the following items shall for the purposes of this Agreement be termed "Additional Services": (a) work resulting from changes in scope or magnitude of the Work as described therein, (b) work resulting from changes necessary because of construction cost overruns, (c) work resulting from implementation of alternative or different designs from that first contemplated by the Parties, (d) work resulting from corrections or revisions required because of errors or omissions in construction by the building contractors, (e) work due to extended design or construction time schedules, (f) layout surveys in review of in-place constructed elements, and (g) services as an expert witness in connection with any public hearing, arbitration or proceedings of a court of record with respect to the Work on the Project.

AllWest will be compensated by Client for any Additional Services as provided under the Work Authorization.

## DISPOSAL OF CONTAMINATED MATERIAL

8. Client understands and agrees that AllWest is not, and has no responsibility as, a generator, operator, treater, storer, transporter or disposer of hazardous or toxic substances found or identified at the site, including investigation-derived waste. The Client shall undertake or arrange for handling, removal, treatment, storage, treatment of hazardous material shall be the sole responsibility of Client. AllWest's responsibilities shall be limited to recommendations regarding such matters and assistance with appropriate arrangements if authorized by Client

## INDEPENDENT CONTRACTOR

9. Both Client and AllWest agree that AllWest will act as an independent contractor in the performance of the Work under this Agreement. All persons or parties employed by AllWest in connection with the Work are the agents, employees or subcontractors of AllWest and not of Client. Accordingly, AllWest shall be responsible for payment of all taxes arising out of AllWest's activities in performing the Work under this Agreement.

## NOTICES

10. (a) All notices, demands or requests provided for or permitted to be given pursuant to this Agreement must be in writing and shall be deemed to have been duly given on the date of service if served personally on the party to whom notice is to be given, or if mailed by first class certified mail, return receipt requested, and properly addressed as follows:

To Client,  
To AllWest: AllWest Environmental, Inc  
530 Howard Street, Suite 300  
San Francisco, California 94105

When either (i) the return receipt is signed by the addressee, (ii) the mailing is refused by the addressee, or (iii) the mailing is not delivered because the addresses moved and left no forwarding address.

b) By giving the other party to this Agreement ten (10) days' written notice thereof, the parties hereto and their respective successors and assigns shall have the right from time to time and at any time during the term of this Agreement to change their respective addresses and each shall have the right to specify its address or any other address within the United States of America.

#### ENTIRE AGREEMENT

11. This Agreement contains the entire agreement between the Parties pertaining to the subject matter contained in it and supersedes all prior and contemporaneous agreements, representations and understandings of the Parties. The terms of this Agreement are contractual and not a mere recital. The undersigned have carefully read and understand the contents of this Agreement and sign their names to the same as their own free act. This Agreement was entered into following negotiations between the Parties.

#### MODIFICATION / WAIVER / PARTIAL INVALIDITY

12. The terms of this Agreement may be modified only by a writing signed by both Parties. No consent or waiver, express or implied, by either party to or of any breach or default by another in the performance by the other of its obligations hereunder shall be deemed or construed to be a consent or waiver to or of any other breach or default in the performance by such other party of the same or any other obligations of such party hereunder. Failure on the part of either party to complain of any act or failure to act of the other, or to declare the other party in default, shall not constitute a waiver by such party of its rights hereunder. If any provision of this Agreement or the application thereof to any person or circumstances shall be invalid or unenforceable to any extent, the remainder of this Agreement and the application of such provisions to other persons or circumstances shall not be affected thereby and shall be enforced to the greatest extent permitted by law.

#### INUREMENT / TITLES / ATTORNEYS' FEES

13. Subject to any restrictions on transfers, assignments and encumbrances set forth herein, this Agreement shall inure to the benefit of and be binding upon the undersigned Parties and their respective heirs, executors, legal representatives, successors and assigns. Paragraph titles or captions contained in this Agreement are inserted only as a matter of convenience, and for reference only, and in no way limit, define or extend the provisions of any paragraph. If any legal action or any arbitration or other proceeding is brought for the enforcement of this Agreement, or because of an alleged dispute, breach, default or misrepresentation in connection with any of the provisions of this Agreement, the successful prevailing party shall be entitled to recover reasonable attorneys' fees and other costs incurred in that action or proceeding, in addition to any other relief to which it or they may be entitled. In addition, AllWest and Client shall be entitled to be reimbursed by the other for any attorneys' fees or other costs reasonably incurred in enforcing the terms of this Agreement in the event such fees are incurred without resorting to arbitration or litigation.

#### INTERPRETATION / ADDITIONAL DOCUMENTS

14. The words "Client" and "AllWest" as used herein shall include the plural as well as the singular. Words used in the neuter gender include the masculine and feminine. Words used in the masculine gender include the feminine and neuter. If there is more than one Client or Consultant, the obligations hereunder imposed on Client or AllWest or Consultant shall be joint and several. Although the printed provisions of this Agreement were drafted by the attorneys for AllWest, the terms of this Agreement were fully negotiated by the Parties and shall not be construed for or against the Client or AllWest but shall be interpreted in accordance with the general meaning of the language herein contained in an effort to reach the intended result. Each of the Parties hereto shall upon request execute and/or acknowledge and/or deliver to each other Party or to its representatives any and all further documents which may now or hereafter be necessary to enable any of the Parties to effectuate any of the provisions of this Agreement.

#### AUTHORITY

15. Each of the persons executing this Agreement on behalf of a corporation does hereby covenant and warrant that the corporation is duly authorized and existing under the laws of its respective state of incorporation, that the corporation has and is qualified to do business in its respective state of incorporation, that the corporation has the full right and authority to enter into this Agreement, that the Board of Directors if required pursuant to the bylaws or resolution of the corporation approved this Agreement, and that each person signing on behalf of the corporation is authorized to do so. If the Client is a joint venture or a general partnership, the signatories below warrant that said joint venture or general partnership is properly and duly organized and existing under the laws of the respective state of its formation and pursuant to the joint venture agreement or a partnership agreement as well as by virtue of the laws of the respective state of its formation, said signatory is a joint venturer or a general partner of said joint venture or general partnership and has the power and authority to bind the joint venture or the general partnership.

#### COUNTERPARTS / ABSENCE OF PARTNERSHIP OR JOINT VENTURE

16. This Agreement may be signed in counterparts by each of the Parties hereto and, taken together, the signed counterparts shall constitute a single document. It is expressly understood that the Client does not, in any way or for any purpose, become a partner of AllWest in the conduct of its business, or otherwise, or joint venturer or a member of a joint enterprise with AllWest. It is expressly understood that AllWest do not, in any way or for any purpose, become a partner of the Client in the conduct of Client's business, or otherwise, or joint venturer or a member of a joint enterprise with Client.

#### THIRD PARTY BENEFICIARIES / CONTROLLING LAW

17. There are no intended third party beneficiaries of this Agreement. The services, data & opinions expressed by AllWest are for the sole use of the client, are for a particular project and may not be relied upon by anyone other than the client. This Agreement shall be controlled by the laws of the State of California and any action by either party to enforce this Agreement shall be brought in San Francisco County, California.