



RECEIVED

By Alameda County Environmental Health at 8:09 am, Mar 13, 2007

Aqua Science Engineers, Inc. 208 West El Pintado, Suite C, Danville, CA 94526
(925) 820-9391 - Fax (925) 837-4853 - www.aquascienceengineers.com

March 9, 2007

RO0262
REMEDIAL ACTION WORKPLAN
FOR AN
OZONE-SPARGING REMEDIATION SYSTEM
ASE JOB NO. 3934
at
Albany Hill Mini Mart
800 San Pablo Avenue
Albany, California

Submitted by:
AQUA SCIENCE ENGINEERS, INC.
208 West El Pintado, Suite C
Danville, CA 94526
(925) 820-9391



Aqua Science Engineers, Inc. 208 West El Pintado, Suite C, Danville, CA 94526
(925) 820-9391 - Fax (925) 837-4853 - www.aquascienceengineers.com

TABLE OF CONTENTS

SECTION	PAGE
1.0 INTRODUCTION	1
2.0 SITE HISTORY AND BACKGROUND INFORMATION	1
2.1 March 1997 UST Removal & Installation	1
2.2 August 1999 Preliminary Soil and Groundwater Assessment	1
2.3 June 2001 Soil and Groundwater Assessment	2
2.4 June 2002 Soil and Groundwater Assessment	2
2.5 June 2002 Area Well Survey	2
2.6 Quarterly Groundwater Monitoring	3
2.7 October 2003 Area Conduit Study	3
2.8 August & October 2004 Soil and Groundwater Assessment	3
2.9 Replacement Well 5R and MW-10 Well Installation	4
2.10 Vapor Extraction and Ozone Sparging Well Installation	4
2.11 January and February 2006 Soil and Groundwater Assessment	4
2.12 Remediation Feasibility Tests & CAP Preparation	5
3.0 OZONE SPARGING DESCRIPTION	5
4.0 REMEDIAL SYSTEM DESIGN	5
4.1 Ozone-Sparging Wells	5
4.2 Ozone Generator	6
4.3 Manifold System	6
5.0 OPERATION MONITORING & REPORTING	6
6.0 SPECULATION OF SYSTEM EFFECTIVENESS	7
7.0 SCHEDULE	7

LIST OF FIGURES

- FIGURE 1 SITE LOCATION MAP
- FIGURE 2 SITE PLAN SHOWING USTs REMOVED IN 1997
- FIGURE 3 SITE PLAN SHOWING USTs INSTALLED IN 1997



Aqua Science Engineers, Inc. 208 West El Pintado, Suite C, Danville, CA 94526
(925) 820-9391 - Fax (925) 837-4853 - www.aquascienceengineers.com

LIST OF FIGURES (Continued)

- FIGURE 4 MONITORING WELL LOCATION MAP
- FIGURE 5 SOIL BORINGS DRILLED BY AARS, JUNE 2001
- FIGURE 6 SOIL BORINGS DRILLED BY ASE
- FIGURE 7 EXISTING VAPOR-EXTRACTION AND OZONE-SPARGING
WELL LOCATION MAP
- FIGURE 8 EXISTING AND PROPOSED OZONE-SPARGING WELL
RADIUS OF INFLUENCE MAP
- FIGURE 9 OZONE SPARGE WELL AND TRENCH LAYOUT MAP

TABLES

- TABLE ONE HISTORICAL GROUNDWATER ELEVATIONS
- TABLE TWO HISTORICAL MONITORING WELL ANALYTICAL DATA

APPENDICES

- APPENDIX A CAP APPROVAL LETTER FROM ALAMEDA COUNTY HEALTH
CARE SERVICES AGENCY, DATED NOVEMBER 8, 2006
- APPENDIX B REMEDIATION SYSTEM



Aqua Science Engineers, Inc. 208 West El Pintado, Suite C, Danville, CA 94526
(925) 820-9391 - Fax (925) 837-4853 - www.aquascienceengineers.com

1.0 INTRODUCTION

This submittal presents Aqua Science Engineers, Inc. (ASE) Remedial Action Plan (RAP) for the design, installation, and operation of an ozone-sparging remediation system at the Albany Hill Mini Mart located at 800 San Pablo Avenue in Albany, California (Figure 1). This RAP was initiated by Dr. Joginder Sikand, owner of the property, as requested by the Alameda County Health Care Services Agency (ACHCSA) in their letter dated November 8, 2006 (Appendix A).

2.0 BACKGROUND INFORMATION

The subject site is currently a mini market and gasoline service station. It is ASE's understanding that the site has operated as a gasoline and diesel service station since 1930. Dr. Sikand, the present owner, purchased the property in 1973. At that time, three underground fuel storage tanks (USTs) operated at the site. These tanks consisted of two 500-gallon regular gasoline USTs and one 1,000-gallon super gasoline UST. In 1986, the site was remodeled and the three old USTs were removed and were replaced by four new USTs. These new USTs consisted of two 10,000-gallon gasoline USTs, one 6,000-gallon gasoline UST, and one 2,000-gallon diesel UST. The automotive repair operation also ceased at that time.

2.1 March 1997 Underground Storage Tank (UST) Removal & Installation

In March 1997, Superior Underground Tank Services removed five USTs (Figure 2). These USTs consisted of the four USTs installed in 1986 and one 750-gallon UST, which was previously unknown and was found during excavation activities at the site. Soil samples collected from the excavations following the UST removal contained up to 3,800 parts per million (ppm) total petroleum hydrocarbons as gasoline (TPH-G), 820 ppm total petroleum hydrocarbons as diesel (TPH-D), and detectable concentrations of benzene, toluene, ethylbenzene and total xylenes (collectively known as BTEX) and methyl tertiary butyl ether (MTBE). Groundwater samples collected from the excavations also contained elevated concentrations of TPH-G, TPH-D, BTEX and MTBE.

A new 12,000 gallon UST was installed on-site in front of the mini mart. It is compartmented into 8,000 gallons for gasoline, and 4,000 gallons for diesel. A 10,000 gallon UST exists along the southern property line (Figure 3).

2.2 August 1999 Preliminary Soil and Groundwater Assessment

In August 1999, Advanced Assessment and Remediation Services (AARS) conducted a preliminary soil and groundwater assessment at the site. This assessment included the installation of monitoring wells MW-1, MW-2 and MW-3 at the site (Figure 4). Sediments encountered during drilling generally consisted of clay from the ground surface to approximately 13-feet below ground surface (bgs), and sand or silty sand from 13-feet bgs to the total depth explored of 25-feet bgs. Groundwater was encountered at approximately 17-feet bgs and rose to



Aqua Science Engineers, Inc. 208 West El Pintado, Suite C, Danville, CA 94526
(925) 820-9391 - Fax (925) 837-4853 - www.aquascienceengineers.com

approximately 10.5-feet bgs in the completed monitoring wells. Relatively low concentrations of hydrocarbons were detected in soil samples collected from MW-1, and no hydrocarbons were detected in soil samples collected from MW-2 and MW-3. Groundwater samples collected from the monitoring wells contained up to 1,500 parts per billion (ppb) TPH-G, 1,200 ppb TPH-D, 4.3 ppb benzene, 2.9 ppb toluene, 9.1 ppb ethylbenzene, and 28 ppb total xylenes. The highest concentrations were in monitoring well MW-1, with much lower or non-detectable concentrations in the other two wells. The groundwater flow direction during this assessment was calculated to be to the southeast.

2.3 June 2001 Soil and Groundwater Assessment

In June 2001, AARS conducted an additional soil and groundwater assessment at the site, which included the drilling of four soil borings (SB-1 through SB-4), Figure 5. Hydrocarbons were detected in soil samples collected from approximately 10-feet bgs in all four borings. The highest concentrations were in SB-1, which contained 2,300 ppm TPH-G, 550 ppm TPH-D, 5.3 ppm benzene, 78 ppm toluene, 45 ppm ethylbenzene, and 330 ppm total xylenes. Elevated petroleum hydrocarbon concentrations were detected in groundwater samples collected in all four borings. The highest concentrations were in SB-2 and SB-4, which contained up to 8,900 ppb TPH-G, 19,000 ppb TPH-D, 1,400 ppb benzene, 1,900 ppb toluene, 280 ppb ethylbenzene, 1,300 ppb total xylenes, and 4,500 ppb MTBE.

2.4 June 2002 Soil and Groundwater Assessment

In June 2002, AARS conducted an additional soil and groundwater assessment at the site, which included the installation of six additional monitoring wells (MW-4 through MW-9), Figure 4. Hydrocarbons were detected in soil samples collected from all of these borings, with the highest concentrations detected in the soil samples collected from 11-feet bgs in MW-4 and 15-feet bgs in MW-9. All of the hydrocarbon concentrations in soil were well below the concentrations detected in previous boring SB-2. The groundwater samples collected from these new monitoring wells contained up to 24,100 ppb TPH-G, 19,000 ppb TPH-D, 2,300 ppb benzene, 1,900 ppb toluene, 1,050 ppb ethylbenzene, 5,410 ppb total xylenes, and 12,000 ppb MTBE.

2.5 June 2002 Area Well Survey

In June 2002, AARS also conducted an area well survey that identified wells within a 2,000-foot radius of the site. AARS listed seven wells in the site vicinity. However, all of the wells are over 2,000-feet from the site and none of the wells are domestic, municipal, irrigation or other water supply wells.



Aqua Science Engineers, Inc. 208 West El Pintado, Suite C, Danville, CA 94526
(925) 820-9391 - Fax (925) 837-4853 - www.aquascienceengineers.com

2.6 Quarterly Groundwater Monitoring

Between August 1999 and February 2003, groundwater samples were collected from the site monitoring wells on an approximate quarterly sampling schedule. The analytical results are tabulated in Tables One and Two.

2.7 October 2003 Area Conduit Study

In October 2003, ASE conducted a study of underground utility conduits in the site vicinity to determine if any of these conduits could be a potential preferred pathway for the movement of groundwater contamination in the site vicinity. This study was conducted by reviewing Underground Service Alert (USA) markings in the site vicinity, reviewing documents such as as-built drawings supplied by the city and individual utility companies, and contacting individuals that would have knowledge of the individual utility lines. None of the water, natural gas, electric, telephone, cable TV, or Caltrans communication conduits could be potential conduits based on their depth and the depth to groundwater in the site vicinity. There is a sewer line beneath San Pablo Avenue that, although currently above all historical depths to water, could potentially have been above the potentiometric surface during periods of extremely high water levels. However, since it appears that the actual water level is well below the potentiometric surface at the site, ASE does not believe that this line presents a potential preferred pathway for the movement of groundwater even during periods of a high water table.

2.8 August and October 2004 Soil and Groundwater Assessment

Between August and October 2004, ASE drilled soil borings BH-A through BH-Q using a Geoprobe hydraulic sampling rig (Figure 6). A dual-wall sampler was advanced to allow drilling through the first water-bearing zone into the second water-bearing zone while minimizing the possibility of cross-contamination. Due to the difficulty in drilling with a dual-wall sampler, all of the borings met with refusal before reaching the planned depth. In general, the analytical results show that elevated hydrocarbon concentrations are present in street areas immediately adjacent to the site to the north and to the east.

The extent of hydrocarbons appeared to be completely defined to the southeast as hydrocarbon concentrations detected in boring BH-Q drilled on the western side of San Pablo Avenue south of the site were below ESLs, and to the east as all of the hydrocarbon concentrations detected in borings drilled on the eastern side of San Pablo Avenue were below ESLs. The extent of hydrocarbons to the west was not yet defined based on the results from BH-M. However, based on the long distance to the next possible drilling location to the west, and based on the topographic gradient and unlikely groundwater flow in that direction, ASE did not recommend any further definition of the extent of hydrocarbons to the west at this time. The extent of hydrocarbons to the north of the site was not yet defined. ASE recommended further definition of the extent of hydrocarbons to the north, further vertical definition of the extent of hydrocarbons at the site, and vapor extraction and sparging tests at the site.



Aqua Science Engineers, Inc. 208 West El Pintado, Suite C, Danville, CA 94526
(925) 820-9391 - Fax (925) 837-4853 - www.aquascienceengineers.com

2.9 Replacement of Monitoring Well MW-5 and Installation of Monitoring Well MW-10

Monitoring well MW-5 was destroyed during a sewer replacement project in San Pablo Avenue. In September 2005, California Trenchless, Inc. contracted Heilshorn Environmental Engineering (HE2) at the request of the City of Albany to replace this well. Initially, the replacement well was installed in the wrong location. This was discovered when the well was already nearing completion. This well is currently on-site and is called MW-10. A new replacement well near the location of destroyed monitoring well MW-5 was also constructed and is known as MW-5R (Figure 4). It should be noted that the original monitoring well MW-5 was not properly destroyed but rather the casing was pulled out by the contractor and then the hole was filled with compacted rock. The new sewer line was then built directly over the old well location. In addition, the contractor that installed the new sewer line mentioned that three USTs were located while installing the sewer line near the site. Two USTs were located adjacent to the gas station in the street. These USTs were left in place. One other UST, filled with cement, was located just south of the gas station. This UST was removed.

2.10 Vapor Extraction and Ozone Sparging Well Installation

In December 2005, ASE installed three vapor extraction wells and three ozone sparging wells at the site (Figure 7). These wells were subsequently used to conduct vapor extraction and air sparging feasibility tests at the site.

2.11 January and February 2006 Soil and Groundwater Assessment

Between January 30, 2006 and February 2, 2006, ASE drilled soil borings BH-R through BH-X using an EP Sonic drill rig (Figure 6). The EP Sonic drill rig used a conductor casing to seal off shallower water-bearing zones to minimize the possibility of cross-contamination while drilling deeper borings. Although more successful with drilling using the EP Sonic rig than previous attempts using a dual-wall sampler, several borings still met with refusal prior reaching the planned depth. In general, hydrocarbons were only detected in soil samples collected at depths above 20.5-feet bgs. None of the deeper soil samples contained concentrations of hydrocarbons exceeding ESLs. High concentrations of TPH-G and BTEX were detected in groundwater samples collected from boring BH-V north of the site. These concentrations are higher than hydrocarbon concentrations closer to the site. Relatively high MTBE concentrations were detected in boring BH-T, northwest of the site. Moderate TPH-G and total xylene concentrations were detected in groundwater samples collected from boring BH-X, south of the site. No significant MTBE concentrations have been detected in groundwater samples collected from borings south of the site. Based on these results, it was determined that additional assessment was needed to define the extent of hydrocarbons north of the site.



Aqua Science Engineers, Inc. 208 West El Pintado, Suite C, Danville, CA 94526
(925) 820-9391 - Fax (925) 837-4853 - www.aquascienceengineers.com

2.12 Remediation Feasibility Tests and Corrective Action Plan

In March 2006, ASE conducted a vapor-extraction (VE) test at the site. The data gathered during the VE test proved that the technology of vapor extraction would not be a useful tool to capture a sizeable radius of impacted vadose zone hydrocarbons.

In April 2006, ASE conducted an air sparging test at the site. Ozone-sparging well OS-2 was chosen as the injection well due to its proximity in relation to sparging wells OS-1 and OS-3. Monitoring wells MW-2 and MW-6 and vapor extraction well VE-2 were used for observation of influence from the injected air/helium mixture. The test consisted of measuring positive pressure in surrounding wells, measuring for helium that was injected in OS-2 as a tracer gas, and measuring water levels in monitoring wells at the site. As for positive pressure, the test showed a brief influence 20-feet away in MW-2, however, that influence was only measured for a period of approximately one hour. As for helium measurements, the test indicates a radius of influence of approximately 20-feet in OS-3. The water level rose 0.01-feet in MW-2, and 0.02-feet in MW-3 and MW-6 during the test.

Several remediation options were considered and discussed in ASE's Corrective Action Plan (CAP) dated June 28, 2006. ASE concluded that ozone-sparging would be the most cost-effective remediation strategy for the site.

3.0 OZONE SPARGING DESCRIPTION

Ozone sparging is the process of adding an ozone/air mixture into a water-bearing zone contaminated with organic compounds. The ozone acts as an oxidant, which will destroy organic hydrocarbons. Ozone can oxidize contaminants either directly or through the formation of hydroxyl radicals. In situ decomposition of ozone can also lead to beneficial oxygenation and biostimulation. In addition, since a gas is injected, it may be possible for some remediation to also take place in the vadose zone as well.

4.0 REMEDIATION SYSTEM DESIGN

4.1 Ozone-Sparging Wells

The proposed remediation system will incorporate the use of nine (9) ozone-sparge wells. Previous wells OS-1 and OS-3 will be used for ozone sparging. OS-2 will not be used because it does not fit within the preferred grid pattern. OS-2 will be properly destroyed. The locations of these wells are shown on Figure 8. A cross-sectional view of a typical ozone sparging well is included in Appendix B. ASE is assuming a conservative radius of influence of 15-feet based on data from the air-sparging test at the site. The wells will be located to destroy hydrocarbons surrounding and downgradient of the USTs. All nine ports on the ozone generation unit will be utilized.



Aqua Science Engineers, Inc. 208 West El Pintado, Suite C, Danville, CA 94526
(925) 820-9391 - Fax (925) 837-4853 - www.aquascienceengineers.com

The wells will be drilled with a drill rig equipped with 5-inch diameter hollow-stem augers. The wells will be constructed with 1-inch diameter PVC well casing. Ozone will be sparged from the casing through a 1.5-inch diameter by 18-inch long, 25 micron pore size sparge point. These sparge points will be placed, for the most part, at the bottom of the most permeable water-bearing zone in each well location. Based on a review of the boring logs, ASE believes that all or a majority of the sparge points will be placed at 26 to 27.5-feet below ground surface. Lonestar #2/16 or finer sand will be placed between the sparge point and the boring from the bottom of the boring to 1-foot above the top of the sparge point. A 2-foot thick bentonite layer will be placed on top of the sandpack, followed by a Portland cement sanitary seal to prevent surface water from infiltrating into the well. The wellheads will be piped directly into an ozone-sparging manifold, which will then be piped directly to the ozone generator.

4.2 Ozone Generator

The remediation system will utilize a Self-Contained Ozone Sparge Unit, Model OSU10-52, built by H2OEngineering of San Luis Obispo, CA. The OSU10-52 is a compact unit that generates an air/ozone mixture on-site. The unit will then pump the air/ozone mixture through nine ports, one port at a time, on a cycle set by a timer. The air/ozone flow is approximately 4 cubic feet per minute (cfm) at a pressure of up to 50 pounds per square inch (psi), although 20-30 psi is more typical. Each sparge point will receive the air/ozone mixture for anywhere from 15 to 60 minutes per cycle. The cycle timing will be programmed and cycle duration adjusted as needed. Each day, the OSU10-52 will provide up to 2.7 pounds of ozone per day at a concentration of 3,570 ppmv. The entire unit operates on 120-volt power. A diagram of the OSU10-52 is enclosed in Appendix B.

4.3 Manifold System

The air/ozone mixture will be pumped through double contained ozone-resistant teflon tubing from the OSU10-52 system to the sparging wells. Figure 9 shows the proposed pipe layout. This tubing consists of a 3/8-inch diameter inner transport tubing within a 1-inch schedule 40 PVC secondary-containment tube. This tubing is flexible and will be buried through narrow trenches cut through the concrete surface. The tubing will be placed into the trenches, buried with sand and covered with concrete.

5.0 OPERATION, MONITORING AND REPORTING

The system will operate continuously 24-hours a day, 7 days a week. The system will be checked daily for the first week of operation and weekly thereafter. During the first week of operation, dissolved oxygen will be measured in all site groundwater monitoring wells to verify that ozone is being distributed as designed. In addition to the scheduled quarterly groundwater monitoring at the site, ASE will also conduct interim groundwater sampling one month after system startup, 2 months after system startup and one sampling in the period between regularly scheduled quarterly monitoring periods approximately 4 months after system startup. Results of



Aqua Science Engineers, Inc. 208 West El Pintado, Suite C, Danville, CA 94526
(925) 820-9391 - Fax (925) 837-4853 - www.aquascienceengineers.com

the interim sampling will be reported in the normal quarterly report and will be addressed in detail in a report to be completed after 6-months of operation.

6.0 SPECULATION OF SYSTEM EFFECTIVENESS

ASE has had the opportunity to install, operate and maintain an ozone-sparging system similar to the one proposed in this document at a site in Tracy, California. The Tracy site had concentrations of MTBE and TBA within the same order of magnitude as the Albany Hill site. Within a few months of operation of the ozone-sparging system, the concentrations of hydrocarbons and oxygenates began dropping. After approximately 24 months of operation, the concentrations had dropped 3 orders of magnitude. ASE believes similar reductions would be achieved at the Albany Hill Mini Mart site.

At the point in time when hydrocarbon and oxygenate concentrations have dropped to a satisfactory level, ASE will likely request a period of system down-time, to determine if any rebounding of concentrations occur. If rebounding is not observed, ASE will likely request closure, and decommission the ozone-sparging system. The wells and delivery tubing will likely remain in place so that, in the event of a future need for remediation, the system could be returned to the site at a much lower cost.

7.0 SCHEDULE

ASE will submit costs for the installation and operation of this remediation system to the California Underground Storage Tank Cleanup Fund for cost pre-approval upon approval of this Remedial Action Workplan by the Alameda County Health Care Services Agency. ASE will begin construction of the remediation system immediately upon pre-approval of the costs from the UST Cleanup Fund.



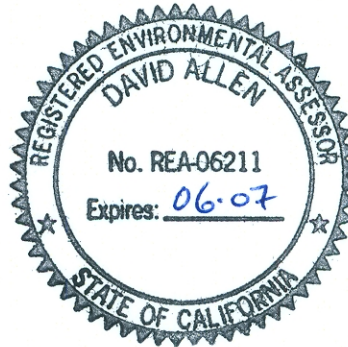
Aqua Science Engineers, Inc. 208 West El Pintado, Suite C, Danville, CA 94526
(925) 820-9391 - Fax (925) 837-4853 - www.aquascienceengineers.com

Should you have any questions or comments, please call us at (925) 820-9391.

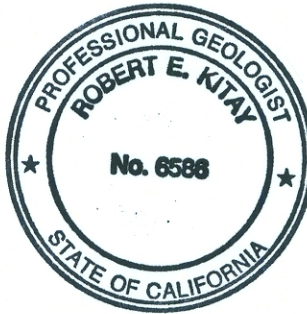
Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.

David Allen, R.E.A.
Vice President



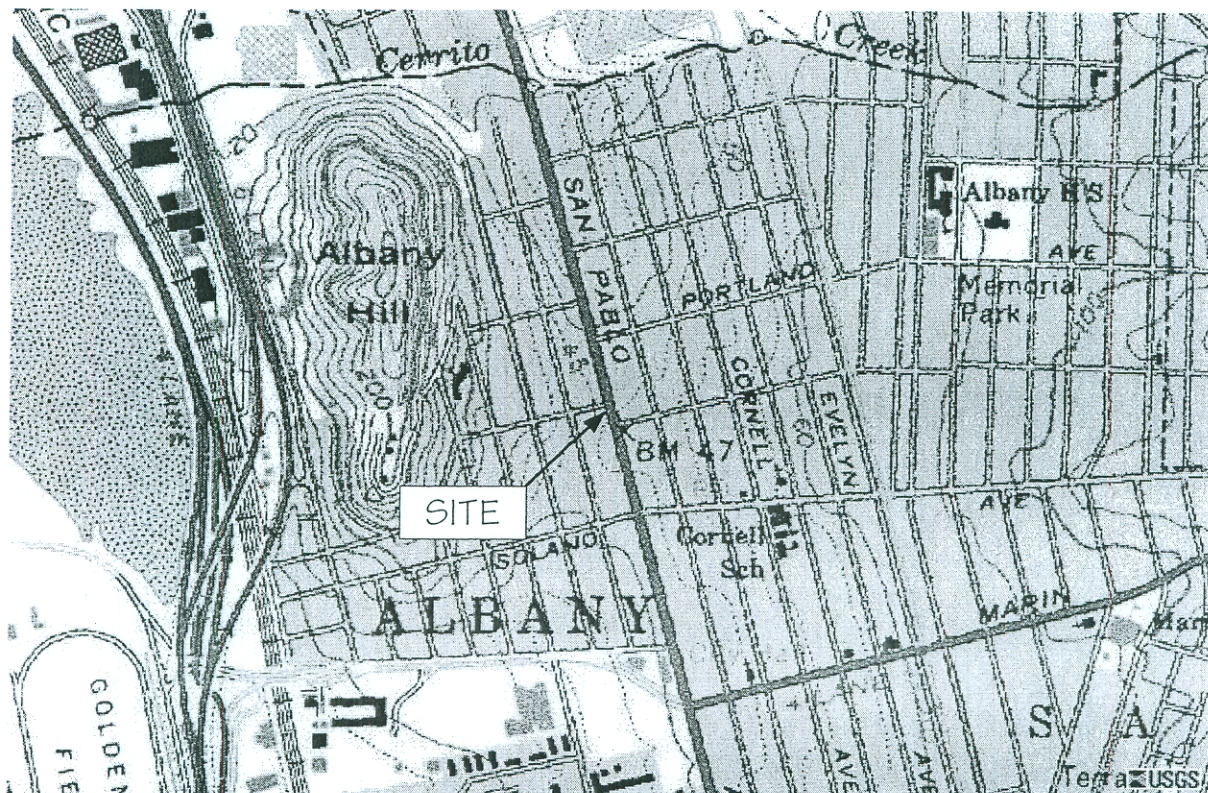
Robert E. Kitay, P.G., R.E.A.
Senior Geologist





Aqua Science Engineers, Inc. 208 West El Pintado, Suite C, Danville, CA 94526
(925) 820-9391 - Fax (925) 837-4853 - www.aquascienceengineers.com

FIGURES



LOCATION MAP

ALBANY HILL MINI MART
800 SAN PABLO AVENUE
ALBANY, CALIFORNIA

AQUA SCIENCE ENGINEERS, INC.

Figure 1



NORTH

SCALE: 1" = 20'

WASHINGTON AVENUE

SIDEWALK

STORE

STORE

ALBANY
HILL
MINI
MART

UST #5

UST #4

UST #1

UST #2

UST #3

OVEREXCAVATION
BOUNDARIES

UNITED
TRANSMISSION

Dispensers

SAN PABLO AVENUE

SITE PLAN SHOWING USTs REMOVED IN 1997

ALBANY HILL MINI MART
800 SAN PABLO AVENUE
ALBANY, CALIFORNIA

AQUA SCIENCE ENGINEERS

Figure 2



NORTH

SCALE: 1" = 20'

WASHINGTON AVENUE

SIDEWALK

STORE

STORE

ALBANY
HILL
MINI
MART

4,000 GAL
DIESEL

8,000 GAL
SUPREME

10,000 GAL
REGULAR

UNITED
TRANSMISSION

Dispensers

Dispensers

SAN PABLO AVENUE

SITE PLAN SHOWING USTs INSTALLED IN 1997

ALBANY HILL MINI MART
800 SAN PABLO AVENUE
ALBANY, CALIFORNIA

AQUA SCIENCE ENGINEERS

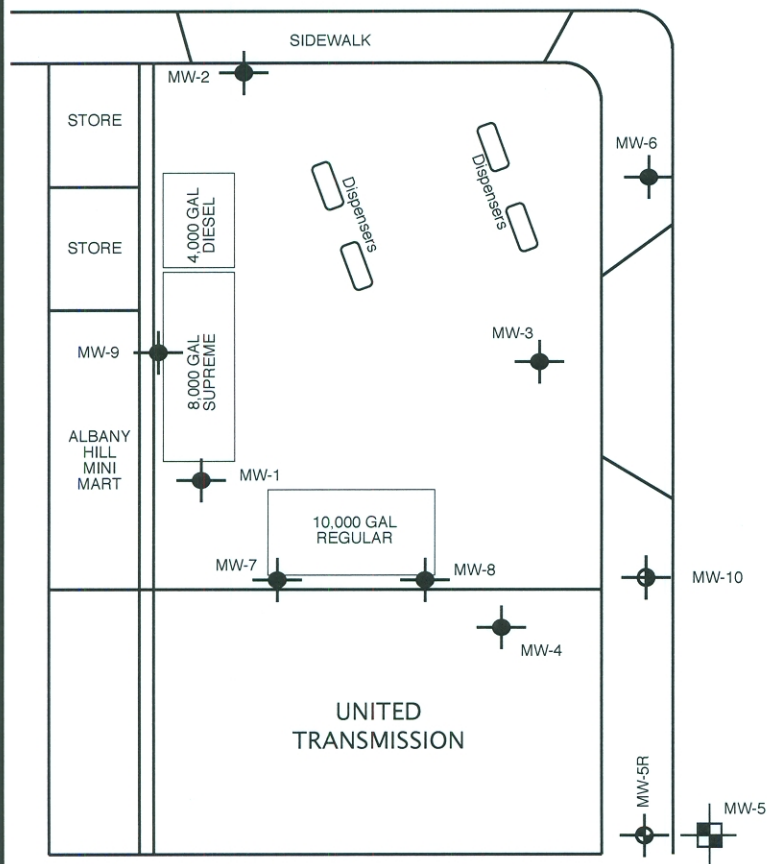
Figure 3



NORTH

SCALE: 1" = 20'

WASHINGTON AVENUE



SAN PABLO AVENUE

LEGEND

-  MW-9 MONITORING WELL, INSTALLED BY AARS
-  MW-5R MONITORING WELL, INSTALLED BY HE2
-  MW-10 MONITORING WELL, INSTALLED BY ASE
-  MW-5 MONITORING WELL, DESTROYED

MONITORING WELL LOCATION MAP

ALBANY HILL MINI MART
800 SAN PABLO AVENUE
ALBANY, CALIFORNIA

AQUA SCIENCE ENGINEERS

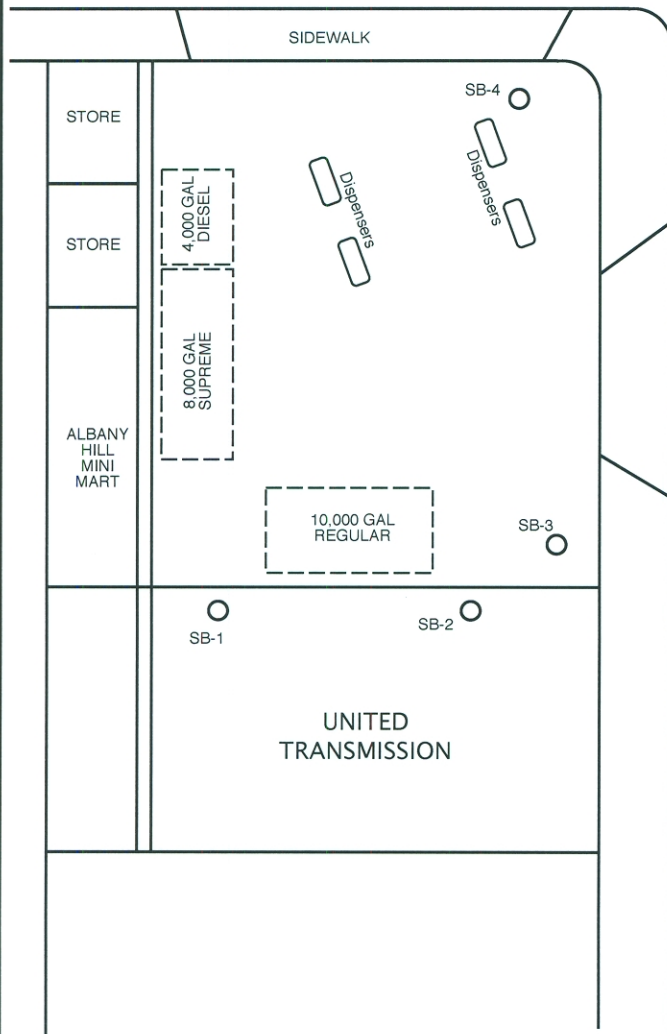
Figure 4



NORTH

SCALE: 1" = 20'

WASHINGTON AVENUE



SAN PABLO AVENUE

LEGEND



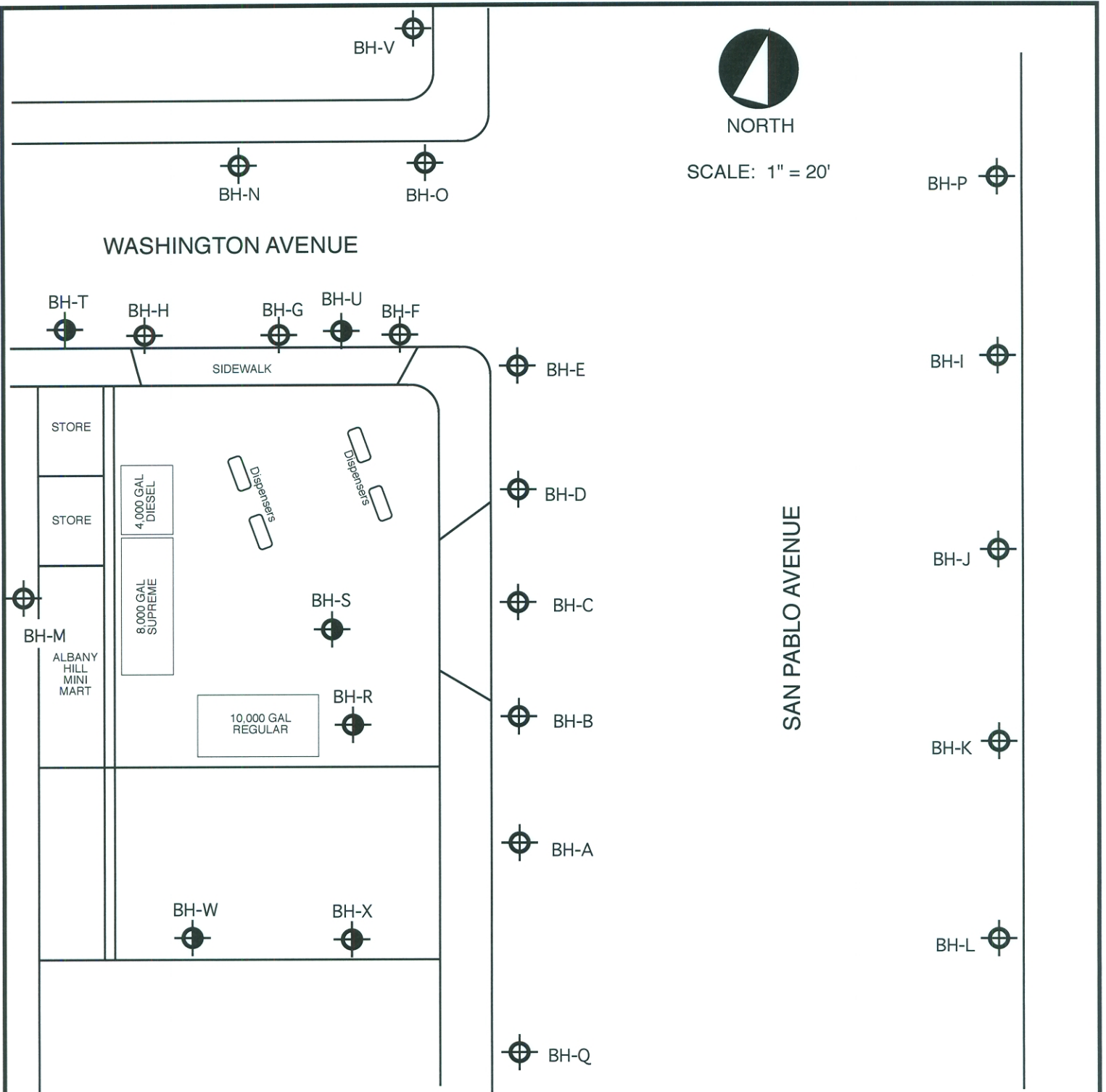
SOIL BORING, DRILLED BY AARS, JUNE 2001

SOIL BORINGS DRILLED
BY AARS - JUNE 2001

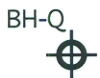
ALBANY HILL MINI MART
800 SAN PABLO AVENUE
ALBANY, CALIFORNIA

AQUA SCIENCE ENGINEERS

Figure 5



LEGEND



SOIL BORING, DRILLED BY ASE, BETWEEN AUGUST AND OCTOBER 2004



SOIL BORING, DRILLED BY ASE, BETWEEN JANUARY AND FEBRUARY 2006

SOIL BORINGS DRILLED BY ASE

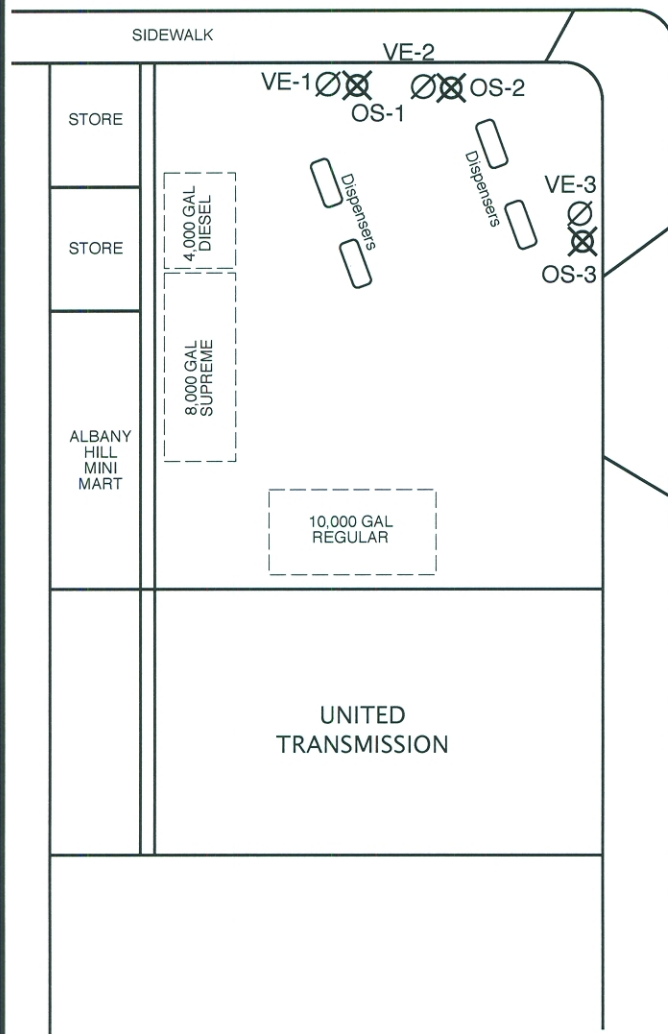
**ALBANY HILL MINI MART
800 SAN PABLO AVENUE
ALBANY, CALIFORNIA**



NORTH

SCALE: 1" = 20'

WASHINGTON AVENUE



SAN PABLO AVENUE

LEGEND

- OS-1 AIR-SPARGING WELL
- VE-1 VAPOR EXTRACTION WELL

EXISTING OZONE-SPARGING &
VAPOR EXTRACTION WELL
LOCATION MAP

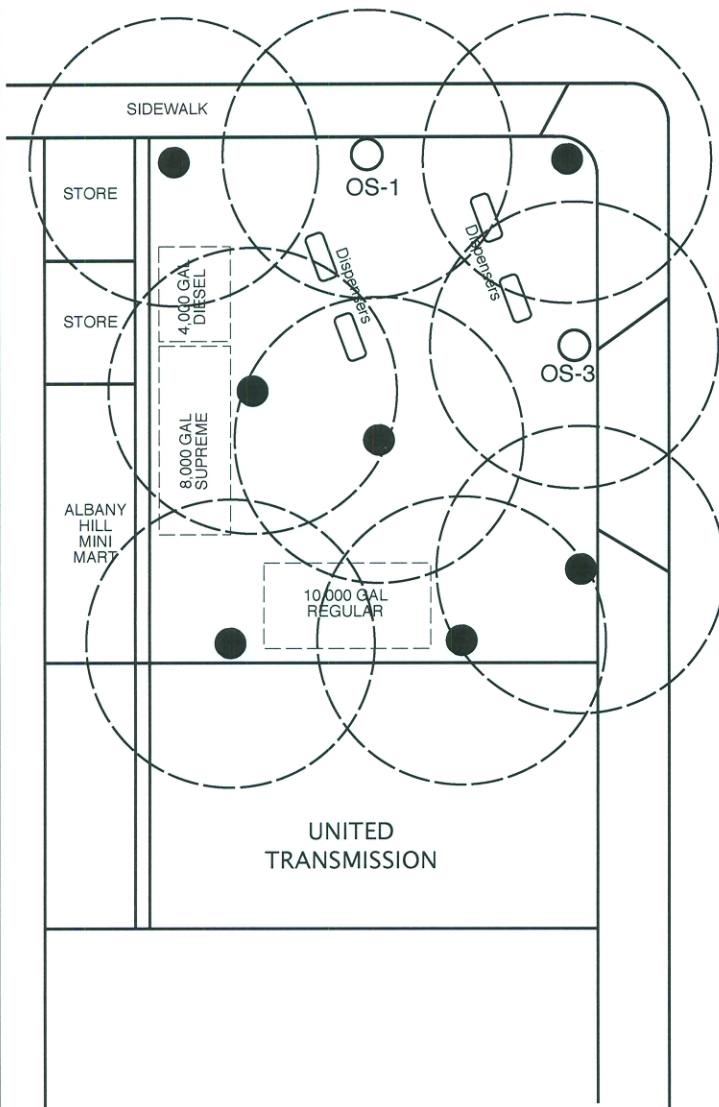
ALBANY HILL MINI MART
800 SAN PABLO AVENUE
ALBANY, CALIFORNIA



NORTH




SCALE: 1" = 20'

WASHINGTON AVENUE



SAN PABLO AVENUE

LEGEND

- OS-1
-  EXISTING AIR-SPARGING WELL
 -  PROPOSED AIR-SPARGING WELL
 -  PRESUMED RADIUS OF INFLUENCE

OZONE-SPARGING WELL RADIUS OF INFLUENCE MAP

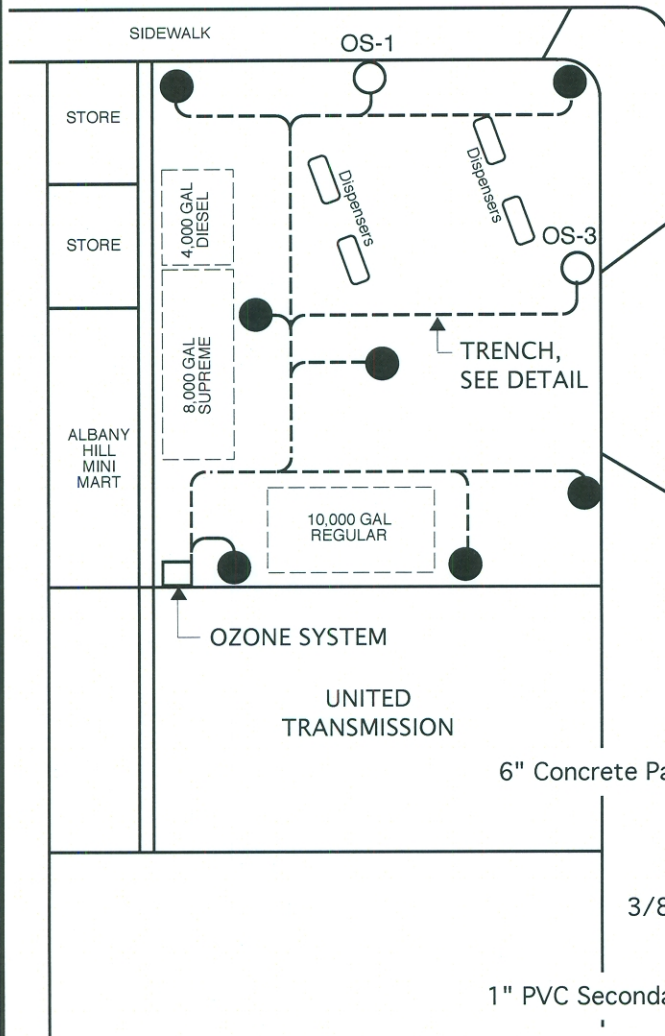
ALBANY HILL MINI MART
800 SAN PABLO AVENUE
ALBANY, CALIFORNIA



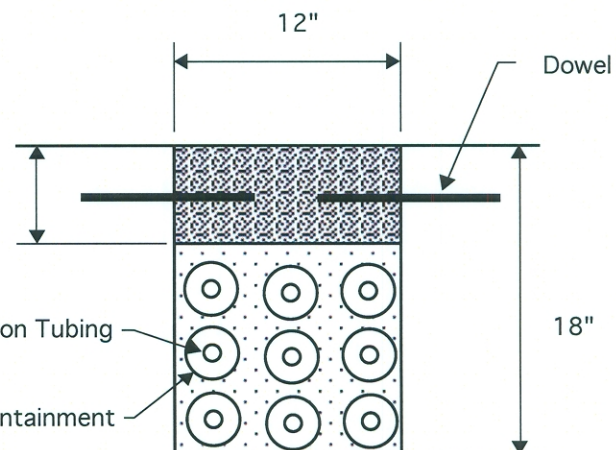
NORTH

SCALE: 1" = 20'

WASHINGTON AVENUE



SAN PABLO AVENUE



LEGEND

- OS-1
○ EXISTING AIR-SPARGING WELL
● PROPOSED AIR-SPARGING WELL

OZONE-SPARGE WELL AND TRENCH LAYOUT MAP

ALBANY HILL MINI MART
800 SAN PABLO AVENUE
ALBANY, CALIFORNIA

AQUA SCIENCE ENGINEERS

Figure 9



Aqua Science Engineers, Inc. 208 West El Pintado, Suite C, Danville, CA 94526
(925) 820-9391 - Fax (925) 837-4853 - www.aquascienceengineers.com

TABLES

TABLE ONE

Groundwater Elevation Data
Albany Hill Mini Mart
 800 San Pablo Avenue, Albany, CA

Well ID	Date of Measurement	Top of Casing Elevation* (feet)	Depth to Water (feet)	Groundwater Elevation (feet)
MW-1	8/6/99	101.68	11.95	89.73
	11/5/99		12.72	88.96
	2/7/00		10.34	91.34
	5/5/00		10.59	91.09
	8/3/00		11.75	89.93
	11/8/00		11.67	90.01
	2/8/01		11.20	90.48
	6/7/01		11.35	90.33
	9/7/01		11.71	89.97
	12/13/01		10.67	91.01
	6/13/02		11.42	90.26
	9/11/02		12.42	89.26
	2/14/03	46.42	10.69	35.73
	9/10/04		13.83	32.59
	12/7/04		12.18	34.24
	4/18/05		9.92	36.50
	6/20/05	48.82	10.64	35.78
	10/7/05		12.42	34.00
	12/7/05		11.51	34.91
	3/6/06		9.35	39.47
	6/27/06		10.07	38.75
	8/24/06		12.02	36.80
	11/20/06		12.02	36.80
	2/5/07		11.68	37.14
MW-2	8/6/99	101.57	10.83	90.74
	11/5/99		11.66	89.91
	2/7/00		9.23	92.34
	5/5/00		9.54	92.03
	8/3/00		10.69	90.88
	11/8/00		10.62	90.95
	2/8/01		10.17	91.40
	6/7/01		10.30	91.27
	9/7/01		10.65	90.92
	12/13/01		9.65	91.92
	6/13/02		10.37	91.20
	9/11/02		11.32	90.25
	2/14/03	45.31	9.59	35.72
	9/10/04		11.78	33.53
	12/7/04		11.13	34.18
	4/18/05		8.71	36.60
	6/20/05	47.71	9.60	35.71
	10/7/05		11.39	33.92
	12/7/05		11.49	33.82
	3/6/06		8.22	39.49
	6/27/06		9.45	38.26
	8/24/06		10.35	37.36
	11/20/06		10.87	36.84
	2/5/07		10.53	37.18

TABLE ONE
Groundwater Elevation Data
Albany Hill Mini Mart
800 San Pablo Avenue, Albany, CA

Well ID	Date of Measurement	Top of Casing Elevation* (feet)	Depth to Water (feet)	Groundwater Elevation (feet)
MW-3	8/6/99	100.33	10.58	89.75
	11/5/99		11.39	88.94
	2/7/00		9.05	91.28
	5/5/00		9.29	91.04
	8/3/00		10.43	89.90
	11/8/00		10.33	90.00
	2/8/01		9.94	90.39
	6/7/01		10.04	90.29
	9/7/01		10.31	90.02
	12/13/01		9.38	90.95
	6/13/02		10.03	90.30
	9/11/02		11.02	89.31
	2/14/03	45.08	9.40	35.68
	9/10/04		12.51	32.57
	12/7/04		11.86	33.22
	4/18/05		8.49	36.59
	6/20/05		9.34	35.74
	10/7/05		11.11	33.97
	12/7/05		10.22	34.86
	3/6/06	47.49	8.84	38.65
	6/27/06		6.07	41.42
	8/24/06		10.26	37.23
	11/20/06		10.52	36.97
	2/5/07		10.41	37.08
MW-4	6/13/02	100.05	10.18	89.87
	9/11/02		11.12	88.93
	2/14/03		9.51	35.69
	9/10/04	45.20	11.59	33.61
	12/7/04		10.91	34.29
	4/18/05		8.62	36.58
	6/20/05		9.45	35.75
	10/7/05		11.20	34.00
	12/7/05		10.30	34.90
	3/6/06	47.61	8.19	39.42
	6/27/06		9.71	37.90
	8/24/06		10.43	37.18
	11/20/06		10.70	36.91
	2/5/07		10.60	37.01
MW-5	6/13/02	98.37	8.88	89.49
	9/11/02		9.95	88.42
	2/14/03		8.66	35.46
	9/10/04	44.12	10.26	33.86
	12/7/04		10.79	33.33
	4/18/05		Well Destroyed by City During Street Construction	
	6/20/05		Well Destroyed by City During Street Construction	

TABLE ONE
Groundwater Elevation Data
Albany Hill Mini Mart
800 San Pablo Avenue, Albany, CA

Well ID	Date of Measurement	Top of Casing Elevation* (feet)	Depth to Water (feet)	Groundwater Elevation (feet)
MW-5R	10/7/05		10.94	
	12/7/05		9.97	
	3/6/06	47.36	4.93	42.43
	6/27/06		9.47	37.89
	8/24/06		10.10	37.26
	11/20/06		10.00	37.36
	2/5/07		10.21	37.15
MW-6	6/13/02	99.36	8.85	90.51
	9/11/02		9.82	89.54
	2/14/03	43.88	8.21	35.67
	9/10/04		10.33	33.55
	12/7/04		9.83	34.05
	4/18/05		7.08	36.80
	6/20/05		7.52	36.36
	10/7/05		10.92	32.96
	12/7/05		8.85	35.03
	3/6/06	46.27	6.22	40.05
	6/27/06		7.40	38.87
	8/24/06		9.15	37.12
	11/20/06		10.40	35.87
	2/5/07		9.20	37.07
MW-7	6/13/02	100.96	10.95	90.01
	9/11/02		11.90	89.06
	2/14/03	45.59	10.25	35.34
	9/10/04		12.35	33.24
	12/7/04		11.42	34.17
	4/18/05		9.34	36.25
	6/20/05		10.19	35.40
	10/7/05		12.96	32.63
	12/7/05	not sampled		
	3/6/06	48.36	8.92	39.44
	6/27/06		10.41	37.95
	8/24/06		11.21	37.15
	11/20/06		11.46	36.90
	2/5/07		11.34	37.02

TABLE ONE
Groundwater Elevation Data
Albany Hill Mini Mart
800 San Pablo Avenue, Albany, CA

Well ID	Date of Measurement	Top of Casing Elevation* (feet)	Depth to Water (feet)	Groundwater Elevation (feet)
MW-8	6/13/02	100.54	10.57	89.97
	9/11/02		11.53	89.01
	2/14/03	45.59	9.98	35.61
	9/10/04		11.98	33.61
	12/7/04		11.42	34.17
	4/18/05		8.99	36.60
	6/20/05		9.83	35.76
	10/7/05		11.60	33.99
	12/7/05		11.69	33.90
	3/6/06	47.99	8.58	39.41
	6/27/06		10.06	37.93
	8/24/06		10.77	37.22
	11/20/06		11.12	36.87
	2/5/07		10.97	37.02
MW-9	2/14/03	46.86	10.84	36.02
	9/10/04		12.97	33.89
	12/7/04		12.84	34.02
	4/18/05		9.75	37.11
	6/20/05		10.83	36.03
	10/7/05		12.59	34.27
	12/7/05		12.56	34.30
	3/6/06	49.24	10.24	39.00
	6/27/06		9.83	39.41
	8/24/06		11.91	37.33
	11/20/06		12.42	36.82
	2/5/07		11.95	37.29
MW-10	10/7/05		10.52	
	12/7/05	not sampled		
	3/6/06	46.90	7.46	39.44
	6/27/06		9.03	37.87
	8/24/06		9.75	37.15
	11/20/06		10.30	36.60
	2/5/07		9.83	37.07

Notes:

Data prior to September 10, 2004, including survey data, is based on tables compiled by AARS.

* Top of casing elevations were initially surveyed to an arbitrary benchmark. The elevations were resurveyed on November 11, 2002 with respect mean sea level.

TABLE TWO
Summary of Analytical Results for **GROUNDWATER** Samples
Albany Hill Mini Mart
800 San Pablo Avenue, Albany, CA
All results are in **parts per billion (ppb)**

Well ID or Sample Point	Date Sampled	TPH Gasoline	TPH Diesel	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TAME	TBA	MTBE	Other VOCs
MW-1	8/6/99	1,500	1,200	4.3	2.9	9.1	28	--	--	ND	--
	11/5/99	1,800	1,400	5.1	3.2	8.9	33	--	--	ND	--
	2/7/00	1,100	890	3.3	1.9	5.6	21	--	--	ND	--
	5/7/00	970	650	2.9	1.7	4.9	18	--	--	ND	--
	8/3/00	1,200	270*	190	43.0	41	160	--	--	360	--
	11/8/00	4,200	230*	990	200.0	130	560	--	--	840**	--
	2/8/01	2,800	380*	630	130.0	51	250	--	--	390	--
	6/7/01	650	190	97	13.0	20	62	--	--	320	--
	9/7/01	970	400	260	17.0	44	140	--	--	460	--
	12/13/01	291	< 50	91.7	1.4	17.4	7.2	--	--	499	--
	6/13/02	5,120	2,160*	1,860	22.0	316	318	--	--	325	--
	11/11/02	824	< 50	216	< 5	22	20	--	--	290	--
	2/14/03	1,783	590*	546	5.0	90	52	--	--	321	--
	9/10/04	900	82	210	8.4	52	23	< 0.5	5.1	220	< 0.5
	12/7/04	540	< 80	130	3.1	24	14	< 0.5	< 5.0	240	< 0.5
	4/18/05	1,600	< 200	390	3.6	32	57	< 0.5	< 5.0	240	0.53 1,2-DCA
	6/20/05	2,500	< 300	740	12.0	110	69	< 0.5	5.7	240	< 0.50
	10/7/05	520	130	97	26.0	11	28	< 0.50	< 5.0	190	< 0.50
	12/7/05	220	86	42	11.0	6.2	12	< 0.50	< 5.0	230	< 0.50
	3/6/06	180	69	63	1.6	3.8	2.3	< 0.50	< 0.50	180	< 0.50
	6/27/06	2,800	< 300	1,100	7.1	140	44	< 0.50	9.9	220	< 0.50
	8/24/06	3,200	< 200	1,100	6.6	170	16	< 2.0	< 9.0	250	< 2.0
	11/20/06	630	< 50	170	1.2	22	2.8	< 0.50	6.2	220	< 0.50
	2/5/07	570	< 50	180	1.0	23	3.4	< 0.50	< 5.0	180	< 0.50
MW-2	8/6/99	ND	340	ND	ND	ND	ND	--	--	ND	--
	11/5/99	ND	420	ND	ND	ND	0.7	--	--	ND	--
	2/7/00	ND	310	ND	ND	ND	0.6	--	--	ND	--
	5/7/00	ND	280	ND	ND	ND	< 1	--	--	ND	--
	8/3/00	460	70*	79	3.0	43	8	--	--	3,300	--
	11/8/00	200	120	57	2.0	13	8	--	--	3,000	--
	2/8/01	290	80	50	1.0	0.6	4	--	--	3,100	--
	6/7/01	210	80	18	0.6	3	5	--	--	2,000	--
	9/7/01	230	ND	51	ND	8	8	--	--	2,400	--
	12/13/01	172	ND	53	1.2	7.7	8.4	--	--	1,780	--
	6/13/02	86	< 50	6	6.7	1.1	4.5	--	--	1,830	--
	11/11/02	1,040	< 50	5	1.0	< 1	5	--	--	1,250	--
	2/14/03	82	< 50	8	< 1	1	< 3	--	--	1,520	--
	9/10/04	< 100	72	1.6	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	620	< 1.0
	12/7/04	< 150	86	17	< 1.5	< 1.5	< 1.5	< 1.5	< 7.0	540	< 1.5
	4/18/05	280	130	55	< 1.5	4.4	< 1.5	< 1.5	< 20	840	< 1.5
	6/20/05	200	100	34	< 0.90	2.4	2.7	< 0.90	5.2	540	< 0.90
	10/7/05	< 90	150	11	< 0.90	< 0.90	< 0.90	< 0.90	< 5.0	360	< 0.90
	12/7/05	< 90	110	1.5	< 0.90	< 0.90	< 0.90	< 0.90	< 5.0	500	< 0.90
	3/6/06	< 90	88	7.0	< 0.90	< 0.90	< 0.90	< 0.50	5.2	610	< 0.50
	6/27/06	270	150	49	< 0.50	5.1	3.4	0.58	8.9	540	< 0.50
	8/24/06	110	120	13	< 0.50	1.3	< 0.50	< 0.50	< 5.0	480	< 0.50
	11/20/06	56	< 50	5.6	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0	330	< 0.50
	2/5/07	98	< 50	28	< 0.50	< 0.50	< 0.50	0.61	< 5.0	500	< 0.50
MW-3	8/6/99	ND	ND	ND	ND	ND	ND	--	--	ND	--
	11/5/99	92	54	ND	ND	0.6	1.7	--	--	ND	--
	2/7/00	120	71	ND	0.6	0.8	2.2	--	--	ND	--
	5/7/00	100	68	ND	ND	0.7	1.9	--	--	ND	--
	8/3/00	910	300*	220	9.0	35	16	--	--	11,000**	--
	11/8/00	990	200	320	0.8	18	9	--	--	8,000	--
	2/8/01	990	110	180	21.0	7	24	--	--	5,200**	--
	6/7/01	370	140	62	4.0	8	13	--	--	6,600**	--
	9/7/01	460	ND	87	1.0	11	25	--	--	9,400**	--
	12/13/01	251	ND	66.8	0.9	2.6	8.4	--	--	6,610	--
	6/13/02	3,630	< 50	41	60.0	41	187	--	--	8,820**	--
	11/11/02	6,210	< 50	150	< 1	5	< 3	--	--	7,770	--
	2/14/03	176	< 50	31	< 1	2	< 3	--	--	5,040	--
	9/10/04	< 1,000	140	110	< 10	< 10	21	20	200	4,400	< 10
	12/7/04	1,000	150	310	19.0	24	50	21	< 100	4,000	< 10
	4/18/05	750	150	170	16.0	33	36	6.1	< 50	1,700	< 5.0
	6/20/05	680	120	140	9.7	20	38	7.4	< 20	1,900	< 4.0
	10/7/05	630	160	140	10.0	11	34	9.2	< 20	2,000	< 4.0
	12/7/05	550	200	128	6.4	7.2	10	11	56	2,400	< 4.0
	3/6/06	88	36	< 2.0	5.3	2.1	4.2	13	1,000	1,000	< 2.0
	6/27/06	7,400	< 1,500	2,800	12	190	56	9.8	110	760	< 4.0
	8/24/06	< 400	130	24	< 4.0	< 4.0	14	9.0	40	2,800	< 4.0
	11/20/06	< 400	< 50	42	< 4.0	4.4	8.7	7.3	71	1,700	< 4.0
	2/5/07	440	< 50	110	4.2	< 4.0	16	7.3	39	1,600	< 4.0

TABLE TWO
Summary of Analytical Results for **GROUNDWATER** Samples
Albany Hill Mini Mart
800 San Pablo Avenue, Albany, CA
All results are in **parts per billion (ppb)**

Well ID or Sample Point	Date Sampled	TPH Gasoline	TPH Diesel	Benzene	Toluene	Ethyl- benzene	Total Xylenes	TAME	TBA	MTBE	Other VOCs
MW-4	6/13/02	4,460	1,500*	425	409.0	115	730	--	--	32	--
	11/11/02	5,150	2,380*	2,010	74.0	399	252	--	--	< 20	--
	2/14/03	6,360	2,410*	1,560	82.0	274	573	--	--	< 1	--
	9/10/04	1,600	180	370	6.5	68	93	< 1.0	10	13	1.1 (DIPE)
	12/7/04	1,900	< 200	450	8.2	72	100	< 0.9	5.4	9.5	< 0.9
	4/18/05	10,000	< 800	1,500	27.0	420	900	< 1.5	15	18	< 1.5
	6/20/05	6,100	< 600	830	19.0	280	400	< 1.5	17	22	< 1.5
	10/7/05	3,200	<500	660	8.7	110	140	< 1.5	12	14	< 1.5
	12/7/05	1,000	< 200	220	2.5	48	37	< 0.5	< 5.0	12	< 0.5
	3/6/06	1,200	< 300	280	2.1	32	77	0.65	< 0.50	75	1.0 (DIPE) / 0.57(1,2-DCA)
	6/27/06	2,000	< 300	570	4.0	110	120	< 0.90	15	110	1.2(DIPE)
	8/24/06	2,500	< 300	830	6.5	120	120	< 0.90	18	95	< 0.90
	11/20/06	1,900	< 80	590	4.8	37	29	< 1.5	< 1.5	14	< 1.5
	2/5/07	2,700	< 80	970	4.4	53	62	< 1.5	< 1.5	45	< 1.5
MW-5	6/13/02	536	< 50	6.4	0.6	22	23	--	--	11	--
	11/11/02	3,270	1,230*	< 1	< 1	28	8	--	--	< 1	--
	2/14/03	1,260	610*	9	7.0	22	5	--	--	< 1	--
	9/10/04	1,300	150	2.4	< 0.50	0.77	< 0.50	< 0.50	< 5.0	< 0.50	< 0.50
	12/7/04	1,000	< 200	4.1	< 0.50	1.4	< 0.50	< 0.50	< 5.0	< 0.50	< 0.50
	4/18/05	Improperly Destroyed by City of Albany During Street Improvements									
MW-5R	10/7/05	760	<800	2	< 0.50	8.3	1.2	< 0.50	< 5.0	< 0.50	< 0.50
	12/7/05	5,200	< 2,000	36	1.0	320	15	< 0.50	< 5.0	< 0.50	< 0.50
	3/6/06	6,300	< 3,000	44	1.2	370	19	< 0.90	5.9	< 0.90	< 0.90
	6/27/06	5,100	< 2,000	53	1.3	370	17	< 0.50	5.6	< 0.50	< 0.50
	8/24/06	6,500	< 2,000	80	1.8	510	18	< 0.90	9.9	< 0.90	< 0.90
	11/20/06	5,400	< 600	160	2.4	370	100	< 0.90	10	81	< 0.90
	2/5/07	6,300	< 1,500	69	3.2	480	31	< 0.80	10	< 0.80	< 0.80
MW-6	6/13/02	2,980	1,460*	31	2.3	3.8	12	--	--	310	--
	11/11/02	3,570	1,210*	336	5	< 5	< 15	--	--	95	--
	2/14/03	3,770	1,620*	429	12	7	10	--	--	122	--
	9/10/04	< 1,000	390	2.7	< 0.50	< 0.50	< 0.50	2.3	48	280	< 0.50
	12/7/04	1,800	< 600	32	1.7	< 0.50	1.1	2.2	49	160	< 0.50
	4/18/05	1,200	1,400	34	1.3	< 0.50	0.90	0.86	19	36	< 0.50
	6/20/05	590	1,300	3.3	< 0.50	< 0.50	< 0.50	< 0.50	5.5	8.5	< 0.50
	10/7/05	470	1,300	6.8	< 0.50	< 0.50	< 0.50	0.67	20	82	< 0.50
	12/7/05	420	910	10	< 0.50	< 0.50	< 0.50	< 0.50	7.3	22	< 0.50
	3/6/06	790	590	3.2	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	4.3	< 0.50
	6/27/06	2,600	980	100	4.0	0.96	2.2	1.0	49	78	< 0.50
	8/24/06	1,200	960	57	2.3	< 0.50	1.1	0.82	34	64	< 0.50
	11/20/06	1,300	< 200	58	1.7	< 0.50	1.3	< 0.50	18	26	< 0.50
	2/5/07	1,200	< 200	49	1.8	< 0.50	1.6	0.9	45	67	< 0.50
	6/13/02	24,100	1,570*	2,310	657	945	5,430	--	--	951	--
	11/11/02	4,760	2,160*	1,820	21	316	1,141	--	--	702	--
	2/14/03	4,320	2,380*	1,020	7	223	293	--	--	1,410	--
MW-7	9/10/04	4,800	< 300	640	16	250	490	< 1.5	31	590	< 1.5
	12/7/04	990	< 300	140	3.4	49	70	4.0	< 20	960	< 2.0
	4/18/05	1,400	< 300	260	1.3	96	16	< 1.0	20	370	< 1.0
	6/20/05	1,900	< 200	320	1.0	130	24	< 0.50	17	370	< 0.50
	10/7/05	2,600	<800	190	4.7	91	200	<0.73	8.0J	310	< 0.50
	12/7/05	Not sampled. Inaccessable									
	3/6/06	640	< 200	85	0.88	24	30	< 0.50	8.0	150	< 0.50
	6/27/06	1,200	< 200	180	1.7	64	64	< 0.50	14	150	< 0.50
	8/24/06	990	< 200	120	0.96	36	51	< 0.50	13	180	< 0.50
	11/20/06	1,600	< 200	200	1.6	59	160	< 0.50	5.2	180	< 0.50
	2/5/07	2,300	< 200	390	2.6	120	140	< 0.50	15	190	< 0.50
MW-8	6/13/02	20,000	7,760*	2,200	1,140	1,050	4,090	--	--	12,000	--
	11/11/02	5,010	2,010*	187	< 1	15	< 3	--	--	16,600	--
	2/14/03	1,980	< 50	607	6	113	40	--	--	11,500	--
	9/10/04	< 2,000	200	110	< 20	26	49	25	< 200	8,600	< 20
	12/7/04	2,000	280	420	< 10	40	61	31	100	6,800	< 10
	4/18/05	< 1000	250	76	< 10	23	< 10	17	< 100	3,700	< 10
	6/20/05	1,300	300	190	< 7.0	21	40	19	< 40	3,400	< 7.0
	10/7/05	<700	200	85	< 7.0	9.3	8.3	23	< 40	4,400	< 7.0
	12/7/05	1,400	300	250	8.7	41	90	18	< 40	4,400	< 7.0
	3/6/06	Not sampled. Inaccessable									
	6/27/06	710	250	100	< 5.0	7.8	26	16	30	3,100	< 5.0
	8/24/06	540	260	74	< 5.0	5.4	45	15	< 25	2,700	< 5.0
	11/20/06	2,100	< 100	380	4.4	18	170	10	530	1,900	< 4.0
	2/5/07	1,700	< 100	560	3.9	7.5	80	2.7	970	630	< 1.0

TABLE TWO
Summary of Analytical Results for **GROUNDWATER** Samples
Albany Hill Mini Mart
800 San Pablo Avenue, Albany, CA
All results are in **parts per billion (ppb)**

Well ID or Sample Point	Date Sampled	TPH Gasoline	TPH Diesel	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TAME	TBA	MTBE	Other VOCs
MW-9	6/27/02	19,000	--	1,430	1,750	501	5,410	--	--	< 0.5	--
	11/11/02	19,000	13,200*	3,390	4,540	1,020	9,050	--	--	549	--
	2/14/03	21,300	8,200*	1,700	2,200	701	4,970	--	--	< 1	--
	9/10/04	12,000	< 1,500	890	37	280	2,000	< 5.0	< 50	< 5.0	< 5.0
	12/7/04	13,000	< 1,500	950	580	480	2,900	< 5.0	< 50	< 5.0	< 5.0
	4/18/05	9,600	< 1,000	620	180	260	1,400	< 2.5	< 25	< 2.5	< 2.5
	6/20/05	9,800	< 1,500	760	260	430	1,400	< 2.0	< 9.0	< 2.0	< 2.0
	10/7/05	3,400	<1000	350	170	100	480	< 0.50	<5.0	< 0.50	< 0.50
	12/7/05	5,600	< 1000	320	97	200	580	< 0.90	<5.0	< 0.50	< 0.50
	3/6/06	4,200	< 800	460	120	97	600	< 0.90	< 5.0	< 0.90	< 0.50
	6/27/06	8,100	< 1,000	710	330	390	1,700	< 0.50	< 5.0	< 2.0	< 0.50
	8/24/06	6,100	< 800	550	220	280	1,200	< 2.0	< 9.0	< 2.0	< 2.0
	11/20/06	5,200	< 400	310	98	130	850	< 1.0	< 5.0	< 1.0	< 1.0
	2/5/07	4,500	< 400	370	120	190	720	< 1.0	< 5.0	< 1.0	< 1.0
MW-10	10/7/05	470	330	17	<0.50	2	11	1.2	9.4J	210	<0.50
	12/7/05				Not sampled. Inaccessable						
	3/6/06	130	130	4.2	< 0.50	< 0.50	< 0.50	4.9	13	820	0.55 (DIPE)
	6/27/06	< 400	140	4.4	< 0.50	< 0.50	< 0.50	8.9	21	1,300	0.60 (DIPE)
	8/24/06	< 400	140	< 4.0	< 4.0	< 4.0	< 4.0	7.0	< 20	1,400	< 4.0
	11/20/06	< 150	< 50	2.5	< 1.5	< 1.5	< 1.5	3.3	10	750	< 1.5
	2/5/07	170	< 50	3	< 0.90	< 0.90	< 0.90	2.4	6.5	440	< 0.90
ESL		500	640	46	130	290	13	NE	NE	1,800	Varies

Notes:

Data prior to August 2004 is based on a table compiled by AARS - ASE has not checked results against original laboratory reports.

* Does not match diesel pattern

** Confirmed by GC/MS method 8260

ESL = Environmental screening levels presented in the "Screening For Environmental Concerns at Sites With Contaminated Soil and Groundwater (July 2003)" document prepared by the California Regional Water Quality Control Board, San Francisco Bay Region.

Most recent concentrations are in **Bold**.

Non-detectable concentrations noted by the less than sign (<) followed by the laboratory detection limit.

NE indicates that no ESL has been established for this compound.



Aqua Science Engineers, Inc. 208 West El Pintado, Suite C, Danville, CA 94526
(925) 820-9391 - Fax (925) 837-4853 - www.aquascienceengineers.com

APPENDIX A

CAP Approval Letter from the ACHCSA

ALAMEDA COUNTY
HEALTH CARE SERVICES

AGENCY

DAVID J. KEARS, Agency Director



ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

November 8, 2006

Dr. Joginder Sikand
1300 Ptarmigan Drive #1
Walnut Creek, CA 94595

Mr. Anis Rahman
Albany Hill Mini Mart
800 San Pablo Avenue
Albany, CA 94706

Subject: Fuel Leak Case No. RO0000262, Albany Hill Mini Mart, 800 San Pablo Avenue, Albany, CA

Dear Dr. Sikand and Mr. Rahman:

Alameda County Environmental Health (ACEH) staff has reviewed the fuel leak case file for the above-referenced site, including the documents entitled, "Response to Comments," dated September 13, 2006 and "Work Plan for Additional Soil and Groundwater Assessment," dated September 20, 2006 and submitted to ACEH on November 6, 2006. The "Work Plan for Additional Soil and Groundwater Assessment," dated September 20, 2006 proposes soil and groundwater sampling from one soil boring north of the site. The proposed scope of work to advance one soil boring off-site at 736 San Pablo Avenue is approved as discussed in technical comment 1 below. The "Response to Comments," presents a rough estimate of the mass of TPHg in the vadose zone and also presents a recommendation to implement ozone sparging at the site. Please see technical comment 2 below regarding the recommendation to implement ozone sparging for site remediation.

We request that you address the following technical comments, perform the proposed work, and send us the reports described below. Please provide 72-hour advance written notification to this office (e-mail preferred to jerry.wickham@acgov.org) prior to the start of field activities.

TECHNICAL COMMENTS

1. **Additional Investigation.** We concur with the proposed scope of work to advance one soil boring north of the site and collect soil and groundwater samples from the boring for analyses. Please present results from the soil boring in the report requested below.
2. **Ozone Sparging.** The "Response to Comments," dated September 13, 2006 and a previous report entitled "Report of Soil and Groundwater Assessment and Corrective Action Plan," dated June 28, 2006 both conclude that the site is suitable for ozone sparging and recommend designing an ozone sparging system for groundwater remediation at the site. Please present plans for the installation of an ozone sparging system in the Work Plan requested below.

3. **Request for Identification of Adjacent Property Owners.** Public participation is a requirement for the Corrective Action Plan process. In order to provide notification to potentially affected members of the public, please provide a list of all properties, which are currently or may in the future be directly or indirectly affected by the petroleum release from your site or the proposed corrective action. The list is to identify the properties by street address, parcel number, and property owner name. Please also provide a map showing the street address for each of the listed properties. A current mailing address is to be included for each property owner. ACEH will notify each of the property owners on the list of the proposed corrective action.
4. **Geotracker EDF Submittals.** A review of the SWRCB Geotracker website indicates that no data or reports have been submitted to Geotracker for your site since 2003. Pursuant to CCR Sections 2729 and 2729.1, beginning September 1, 2001, all analytical data, including monitoring well samples, submitted in a report to a regulatory agency as part of the LUFT program, must be transmitted electronically to the SWRCB Geotracker website via the internet. Additionally, beginning January 1, 2002, all permanent monitoring points utilized to collect groundwater samples (i.e. monitoring wells) and submitted in a report to a regulatory agency, must be surveyed (top of casing) to mean sea level and latitude and longitude accurate to within 1-meter accuracy, using NAD 83, and transmitted electronically to the SWRCB Geotracker website. Beginning July 1, 2005, electronic submittal of a complete copy of all reports is required in Geotracker (in PDF format). In order to remain in regulatory compliance, please upload all analytical data (collected on or after September 1, 2001) and a copy, in PDF format, of all reports prepared after July 1, 2005.

TECHNICAL REPORT REQUEST

Please submit technical reports to Alameda County Environmental Health (Attention: Mr. Jerry Wickham), according to the following schedule:

- **January 26, 2007** – Work Plan for Ozone Sparging System
- **February 28, 2007** – Soil Boring Results Report

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

ELECTRONIC SUBMITTAL OF REPORTS

The Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program ftp site are provided on the attached "Electronic Report Upload (ftp) Instructions." Please do not submit reports as attachments to electronic mail.

Submission of reports to the Alameda County ftp site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) Geotracker website. Submission of reports to the Geotracker website does not fulfill the requirement to submit documents to the Alameda County ftp site. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitor wells, and other data to the Geotracker database over the Internet. Beginning July 1, 2005, electronic submittal of a complete copy of all necessary reports was required in Geotracker (in PDF format). Please visit the SWRCB website for more information on these requirements (http://www.swrcb.ca.gov/ust/cleanup/electronic_reporting).

PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

UNDERGROUND STORAGE TANK CLEANUP FUND

Please note that delays in investigation, later reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

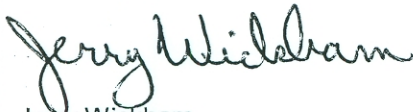
Dr. Joginder Sikand
Mr. Anis Rahman
November 8, 2006
Page 4

AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to \$10,000 per day for each day of violation.

If you have any questions, please call me at (510) 567-6791.

Sincerely,



Jerry Wickham
Hazardous Materials Specialist

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Sunil Ramdass
SWRCB Cleanup Fund
1001 I Street, 17th floor
Sacramento, CA 95814-2828

Robert Kitay
Aqua Science Engineers, Inc.
208 W. El Pintado
Danville, CA 94526

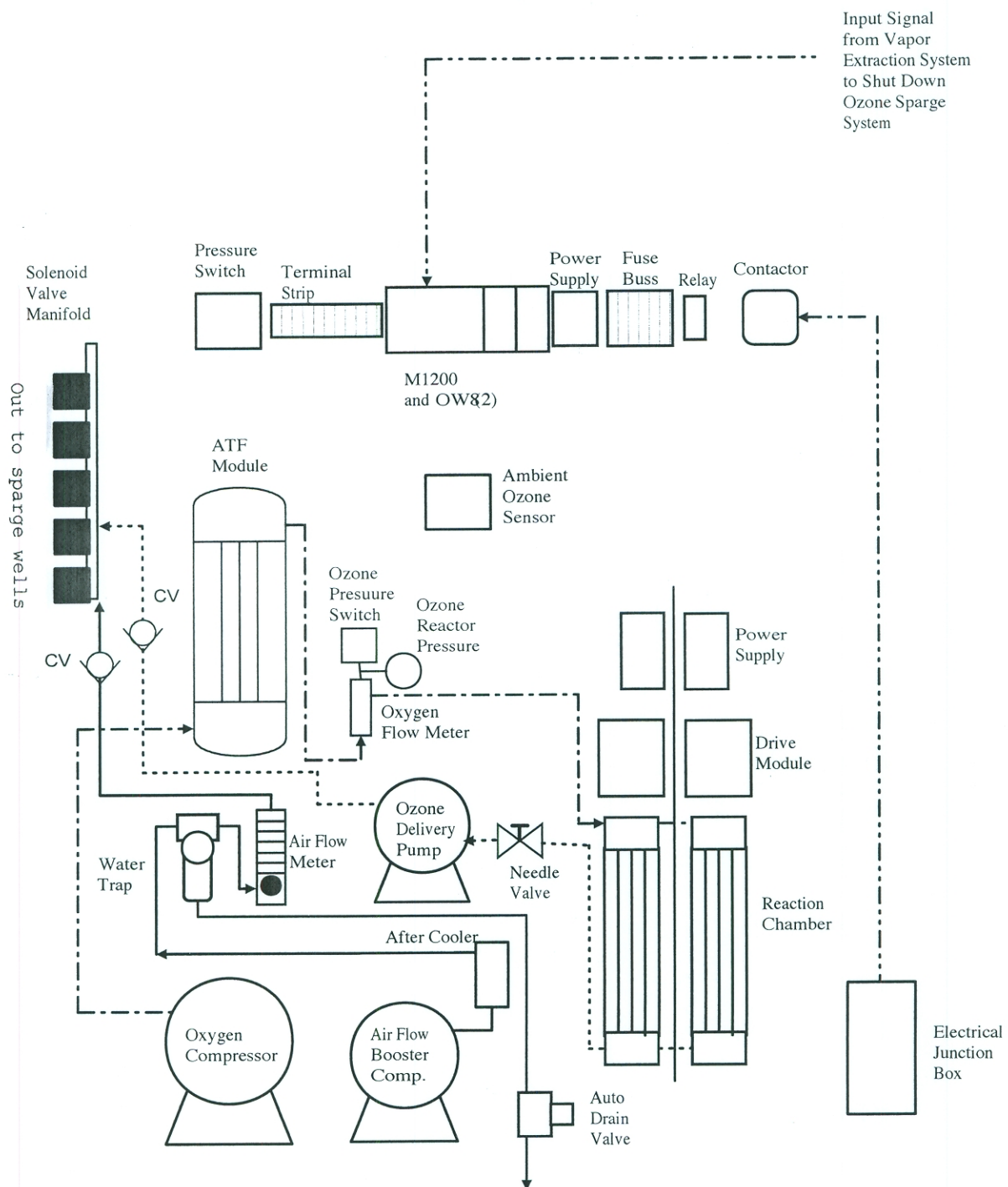
Donna Drogos, ACEH
Jerry Wickham, ACEH
File



Aqua Science Engineers, Inc. 208 West El Pintado, Suite C, Danville, CA 94526
(925) 820-9391 - Fax (925) 837-4853 - www.aquascienceengineers.com

APPENDIX B

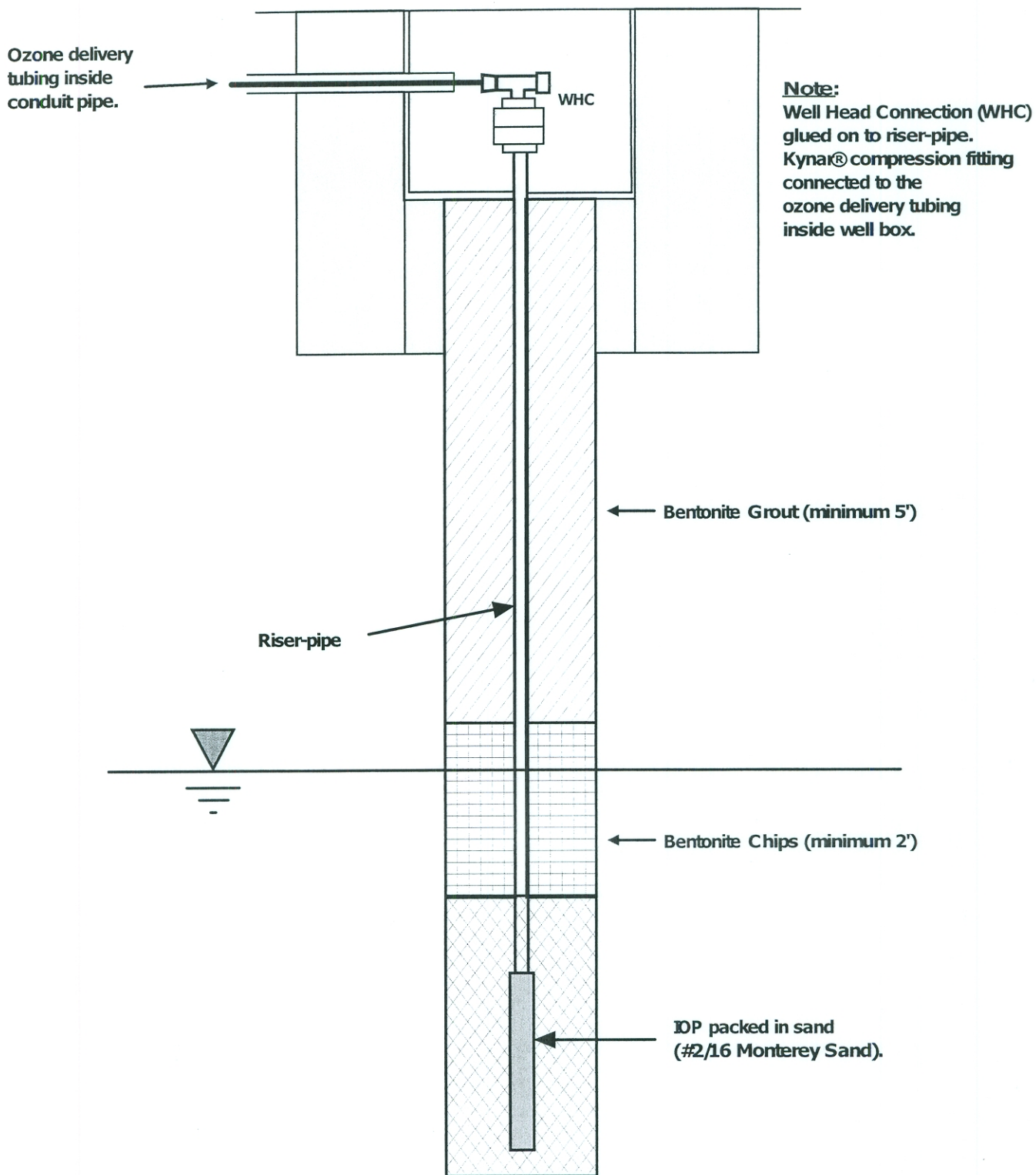
Remediation System Diagrams



H2O Engineering, Inc.
 265 Prado Road, Suite#1
 San Luis Obispo, CA 93401
 Phone: 805-547-0303
 Fax: 805-547-0113
www.h2oengineering.com



In Situ Oxidation Point (IOP) Sparge Well Installation Diagram



*This is a typical sparge well installation. Please check your state and local requirements for an engineering standard sparge well construction. California Department of Water Resources Bulletin No. 74-81 and 74-90: "Water Well Standards: State of California"

**This information is confidential, proprietary and/or privileged material. Any unauthorized review, distribution or other use of or the taking of any action in reliance upon this information is prohibited.

H₂O Engineering, Inc.
265 Prado Road, Suite #1
San Luis Obispo, CA 93401
805-547-0303
805-547-0113 Fax
www.h2oengineering.com

