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aqua science engineers inc.

**FAX BEING SENT BY:**

**Aqua Science Engineers, Inc.**
2411 Old Crow Canyon Road, #4
San Ramon, CA 94583
Phone (510) 820-9391
Fax (510) 837-4853

DATE: 6-20-96

TO: Madhulla Logan

FROM: Robert Kitay

NUMBER OF PAGES TO FOLLOW: 24

**********Please Phone If This FAX Is Received Incomplete**********

MESSAGE:

The hard copy is in the mail.

aqua science engineers inc.

June 19, 1996

# WORKPLAN
for a
# SOIL AND GROUNDWATER ASSESSMENT
at
Zima Center Corporation
2951 High Street
Oakland, California

Submitted by:
AQUA SCIENCE ENGINEERS, INC.
2411 Old Crow Canyon Road, #4
San Ramon, CA 94583
(510) 820-9391

REGISTERED PROFESSIONAL ENGINEER
DAVID M. SCHULTZ
No. 38738
Exp. 4-97
CIVIL
STATE OF CALIFORNIA

## INTRODUCTION

This submittal outlines Aqua Science Engineer's, Inc. (ASE) workplan for a soil and groundwater assessment at the Zima Center Corporation located at 2951 High Street in Oakland, California (Figure 1). The proposed site assessment activities were initiated by Mr. Mohammad A. Mashhoon, owner of the property, as required in a letter from the Alameda County Health Care Services Agency (ACHCSA) dated March 11, 1996 (Appendix A).

## PROPOSED SCOPE OF WORK (SOW)

Based on the requirements of the ACHCSA, ASE's proposed SOW is as follows:

1) Prepare a workplan and health and safety plan for review and approval from the appropriate regulatory agencies.

2) Obtain the necessary drilling permit from the Alameda County Flood Control and Water Conservation District (Zone 7).

3) Drill five soil borings at the site to approximately 20-feet below ground surface (bgs) using a Geoprobe or similar type of drill rig.

4) Collect soil and groundwater samples from each boring and analyze one soil and one groundwater sample from each boring at a CA-EPA certified analytical laboratory for total petroleum hydrocarbons as gasoline (TPH-G) by modified EPA Method 5030/8015 and benzene, toluene, ethylbenzene and total xylenes (BTEX) and MTBE by EPA Method 8020.

5) Backfill each boring with neat cement.

6) Collect groundwater samples from monitoring well MW-4 and analyze the groundwater sample for TPH-G by modified EPA Method 5030/8015 and BTEX and MTBE by EPA Method 8020.

7) Prepare a report presenting the methods and findings of this assessment.

Details of the assessment are presented below.

*TASK 1 - PREPARE A SITE SAFETY PLAN*

Based on the site history and the analytical results of the soil and groundwater samples collected during the previous site investigation, ASE has prepared a site-specific safety plan. A nearby hospital is designated in the site safety plan as the emergency medical facility of first choice. A copy of the site specific Health and Safety Plan is appended to this report (Appendix B).

*TASK 2 - OBTAIN NECESSARY PERMITS*

ASE will obtain a drilling permit from the Alameda County Flood Control and Water Conservation District (Zone 7). ASE will also notify Underground Service Alert (USA) to have underground utility lines marked in the site vicinity.

*TASK 3 - DRILL FIVE SOIL BORINGS AT THE SITE*

ASE will drill five soil borings at the locations shown on Figure 2. The borings will be drilled using a Geoprobe or similar type drill rig. The drilling will be directed by a qualified ASE geologist. Undisturbed soil samples will be collected at least every 5-feet, at lithographic changes, and from just above the water table for subsurface hydrogeologic description and possible chemical analysis. The samples will be described by the ASE geologist according to the Unified Soil Classification System. The samples will be collected in brass or acetate tubes using a drive sampler advanced ahead of the boring as the boring progresses. Each sample will be immediately removed from the sampler, trimmed, sealed with Teflon tape and plastic caps, secured with duct tape, labeled with the site location, sample designation, date and time the sample was collected, and the initials of the person collecting the sample. The samples will be placed into an ice chest containing wet ice for delivery under chain of custody to a CAL-EPA certified analytical laboratory.

Soil from the remaining tubes not sealed for analysis will be removed for hydrogeologic description and will be screened for volatile compounds with an organic vapor meter (OVM). The soil will be screened by emptying soil from one of the tubes into a plastic bag. The bag will be sealed and placed in the sun for approximately 10 minutes. After the hydrocarbons have been allowed to volatilize, the OVM will measure the vapor through a small hole, punched in the bag. These OVM readings will be used as a screening tool only since these procedures are not as rigorous as those used in an analytical laboratory.

All sampling equipment will be cleaned in buckets with brushes and a TSP or Alconox solution, then rinsed twice with tap water. Rinsates will be contained on-site in 55-gallon DOT 17H drums for future disposal by the client.

*TASK 4 - COLLECT GROUNDWATER SAMPLES FROM EACH BORING AND ANALYZE THE SOIL AND GROUNDWATER SAMPLES*

A groundwater sample will be collected from each boring. Drilling will be halted at the water table and a Powerpunch or similar type device will be utilized to collect groundwater samples from the boring. The groundwater samples will be contained in 40-ml volatile organic analysis (VOA) vials without headspace, preserved with hydrochloric acid, labeled with the site location, sample designation, date and time the samples were collected, and the initials of the person collecting the samples, placed in protective foam sleeves, and cooled in an ice chest with wet ice for transport to a state-certified analytical laboratory under chain-of-custody.

At least one soil sample from each boring, as well as each groundwater sample, will be analyzed at a CAL-EPA certified analytical laboratory for TPH-G by modified EPA Method 5030/8015, and BTEX and MTBE by EPA Method 8020. The soil sample analyzed will be chosen based on field observations such as odors, staining and OVM readings. If no field indications of contamination are present, the unsaturated sample closest to the water table will be analyzed.

*TASK 5 - BACKFILL THE BORINGS WITH NEAT CEMENT*

Following collection of the soil and groundwater samples, the boreholes will be backfilled with neat cement placed by tremie pipe.

*TASK 6 - COLLECT GROUNDWATER SAMPLES FROM MONITORING WELL MW-4*

ASE will sample groundwater monitoring well MW-4. Prior to purging and sampling, the groundwater surface will be checked for sheen or free-floating hydrocarbons. The thickness of any free-floating hydrocarbons will be measured with an acrylic bailer which will be lowered slowly to the groundwater surface and filled approximately half full for direct observation. The well will then be purged of at least four well casing volumes of groundwater. The temperature, pH and electrical conductivity of evacuated water will be monitored during the well purging, and purging will continue beyond four well casing volumes if these parameters have

not stabilized. Groundwater samples will be collected using a disposable polyethylene bailer. Groundwater will be decanted from the bailer into 40-ml VOA vials without headspace, preserved with hydrochloric acid, labeled with the site location, sample designation, date and time the samples were collected, and the initials of the person collecting the samples, placed in protective foam sleeves, and cooled in an ice chest with wet ice for transport to a state-certified analytical laboratory under chain-of-custody. Purged groundwater will be stored on-site in sealed and labeled DOT 17H drums for disposal by the client at a later date.

The groundwater samples will be analyzed at a CAL-EPA certified analytical laboratory for TPH-G by modified EPA Method 5030/8015, and BTEX and MTBE by EPA Method 8020.

*TASK 7 - PREPARE A SUBSURFACE ASSESSMENT REPORT*

ASE will submit a report outlining the methods and findings of this assessment. The report will be submitted under the seal of state registered civil engineer or geologist. This report will include a summary of all work completed during this assessment including tabulated soil and groundwater analytical results, conclusions and recommendations. Copies of the analytical report and chain of custody will be included as appendices.

**SCHEDULE**

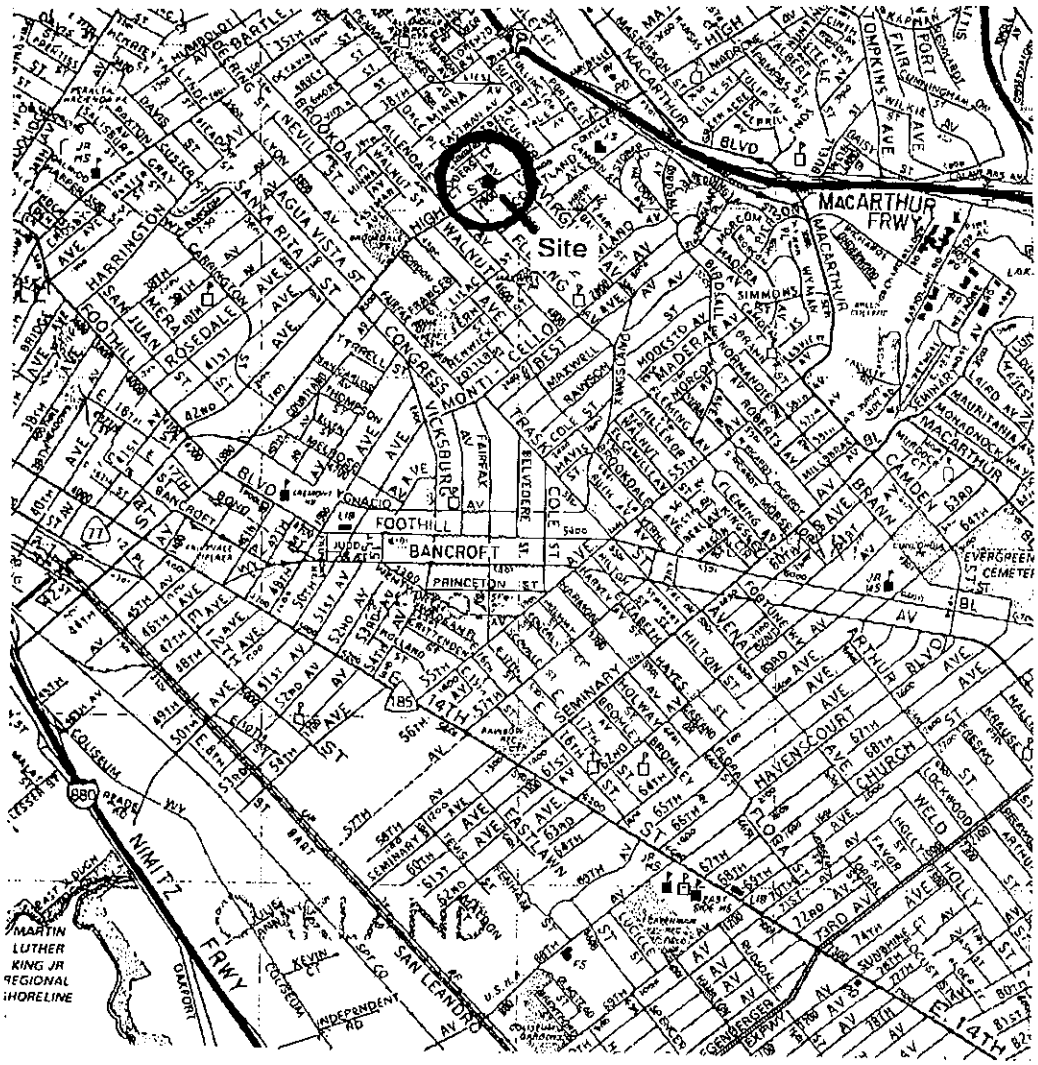
ASE plans to begin field activities within seven days of the approval of this workplan by the ACHCSA. Drilling is tentatively scheduled for June 27, 1996.

Should you have any questions or comments, please call us at (510) 820-9391.

Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.

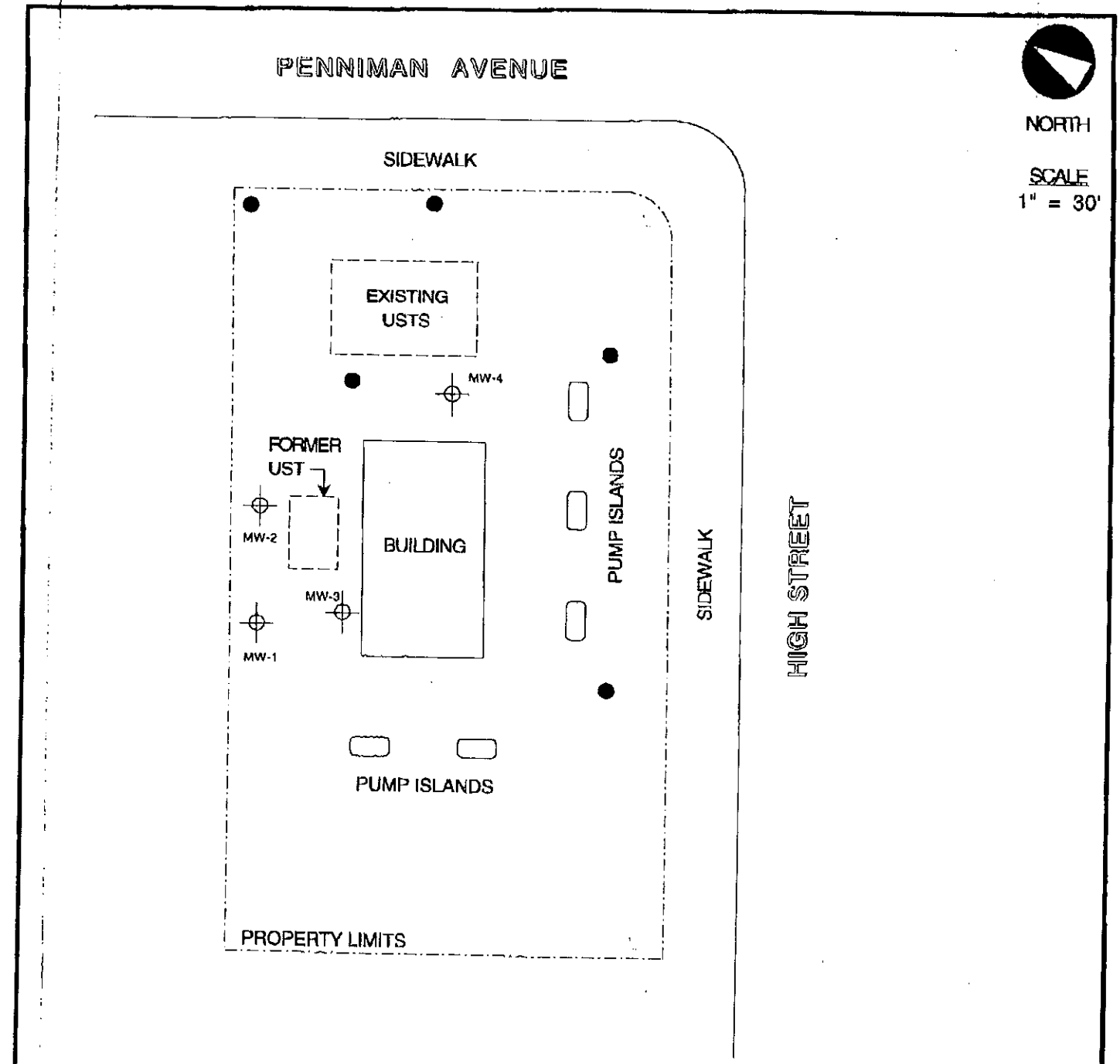
Robert E. Kitay, R.E.A.
Project Geologist




# SITE LOCATION MAP

ZIMA CENTER CORPORATION
2951 HIGH STREET
OAKLAND, CALIFORNIA

AQUA SCIENCE ENGINEERS, INC. | FIGURE 1




LEGEND

MW-1 EXISTING MONITORING WELL

PROPOSED SOIL BORING

# PROPOSED SOIL BORING LOCATION MAP

ZIMA CENTER CORPORATION
2951 HIGH STREET
OAKLAND, CALIFORNIA

AQUA SCIENCE ENGINEERS, INC. | FIGURE 2

# APPENDIX A

Alameda County Health Care Services Agency Letter

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

RAFAT A. SHAHID, DIRECTOR

DEPARTMENT OF ENVIRONMENTAL HEALTH
1131 Harbor Bay Parkway
Alameda, CA 94502-6577
(510)567-6700

March 11, 1996

**Mr. Mohammad Mashoon**
2951 High St,
Oakland, CA - 94619

**STID 1038**

**RE: 2951 High Street, Oakland, CA**

Dear Mr. Mashoon:

I am in receipt of the Quarterly Groundwater Monitoring report dated, December 19, 1995 for the above referenced site. All the pertinent records submitted to this Department has been reviewed for site evaluation.

In March 1990, a phase II investigation was conducted by McLaren Hart on the referenced property in response to the occurrence of a surface spill during a tank overfill, and observed surface stains on the site. Also, an on-site sump located east of the fuel tanks in a depressed area was full to capacity with a liquified material whose surface appeared to be covered with an undetermined thickness of gasoline. The report indicates that the sump's content was removed on February 15, 1990 by Haber Oil and the integrity of the sump's floor and walls were not known at the time of the removal. Subsequently, 1 soil boring was installed approximately 10 feet downgradient from the underground storage tank (UST) area which was converted into a monitoring well. Gasoline was found upto 460 ppm in the soil samples collected at the depth of 5 ft although no gasoline was found at the depths of 10 and 15 ft in the same boring. Gasoline and benzene were found in the groundwater samples at concentrations of 1200 ppb and 72 ppb respectively.

United Soil Engineering report, dated April 12, 1990 mentions that a subsurface investigation consisting of two exploratory borings was conducted on March 23, 1990 in response to signs of oil spillage on the property. Soil samples were collected from depths of 5 feet and 12 feet from the two borings. The laboratory results of the soil samples collected at depths of 5 feet indicate concentrations of 620 ppm and 59 ppm of low boiling hydrocarbons and 1900 ppb of benzene. The concentrations decreased in the 12 feet samples.

In September 1993, a 300 gallon waste oil tank was removed. Samples collected during the removal indicated gasoline up to 40 ppm, and benzene up to 130 ppb. About 30 cubic yards of soil was removed from the waste oil tank area and confirmation soil samples collected at the bottom of the excavation indicated concentrations of gasoline and oil and grease up to 3 ppm and 3700 ppm respectively. No benzene was found. Perchloroethylene was found at concentrations ranging form 5 ppb to 42 ppb.

In August 1994, 4 soil boring were drilled and 3 of them were converted into monitoring wells. The monitoring wells have been sampled for 4 quarters since February 1995. Benzene has consistently been found in monitoring well, MW-2 at concentrations of up to 110 ppb.

Based on the site evaluation, this Department has identified the following concerns:

1. Although petroleum hydrocarbons has consistently been identified in the soil and groundwater sample collected near the fuel underground storage tanks, no remediation has yet been conducted and the extent of soil and groundwater contamination has not been defined.

2. Also, no information has been submitted about the status of the sump mentioned in the McLaren Hart report.

*Please submit a work plan to this Department within 30 days from the date of this letter to address the above concerns* and include the following requirements as part of your proposal:

1. At least one monitoring well should be located downgradient (based on a northerly groundwater flow) to the existing fuel USTs..

2. Since the soil samples collected in the previous investigations around the USTs were found to contain significant concentrations of petroleum hydrocarbons, the extent of this contamination has to be defined.

3. Based on the concentrations of petroleum hydrocarbons found in the soil samples, an adequate source removal plan should be included.

4. Include information on the status of the sump referenced in the McLaren Hart's report. Also, submit adequate disposal records for the gasoline pumped out of this sump.

5. Since benzene has consistently been found in monitoring well, MW-2, continue monitoring this well on a quarterly frequency and report the groundwater flow data for every quarter. Also in the future, monitoring well, MW-4 should be included in the quarterly monitoring events. However, monitoring wells, MW-1 and MW-3 can be monitored on a semi-annual frequency.

Please be advised that this is a formal request for technical reports pursuant to California Water Code Section 13267 (b). If you have any questions, you may reach me at (510) 567-6764.

Sincerely,

Madhulla Logan

Madhulla Logan
Hazardous Material Specialist

# APPENDIX B

## Health and Safety Plan

aqua science engineers inc.

# HEALTH & SAFETY PLAN

for:

**Zima Center Corporation**
**2951 High Street**
**Oakland, California**

prepared by:

Aqua Science Engineers, Inc.
2411 Old Crow Canyon Road, #4
San Ramon, California 94583
(510) 820-9391

# AQUA SCIENCE ENGINEERS, INC.
# HEALTH & SAFETY PLAN
# for the
# ZIMA CENTER CORPORATION JOBSITE

## A. GENERAL DESCRIPTION

Site: ZIMA CENTER CORPORATION, 2951 HIGH STREET, OAKLAND, CA

Work Scope:

ASE will drill five soil borings at the site and collect groundwater samples for analyses.

SAFETY POLICY:

This Health and Safety Plan is written specifically for the ZIMA CENTER CORPORATION jobsite, located at 2951 High Street in Oakland, California. All persons on site will follow OSHA safe operating practices as outlined in 29 CFR 1910 and 1926, as well as established guidelines from their respective companies or organizations.

Plan Prepared by: Robert Kitay Date: 6/19/96

Plan Approved by: David Schultz Date: 6/19/96

Background Review Done? Complete: 6/19/96
Preliminary:

Overall Hazard Level: Serious: Low: XXX
Moderate: Unknown:

Project Organization:
Site Manager for A.S.E.: Robert Kitay
A.S.E. Safety Officer: David Allen
Other A.S.E Personnel: Scott Ferrimen

## B. SITE/WASTE CHARACTERISTICS

Waste Type(s): Solid: XXX Sludge: Liquid: XXX Gas:

Characteristics: HYDROCARBON RESIDUALS, TOXIC

Site Parameter:

A MINIMUM BOUNDARY OF THREE FEET SURROUNDING THE BORINGS IS TO BE MAINTAINED IN AS MUCH AS IS POSSIBLE.

## C. HAZARD EVALUATION

CHEMICAL HAZARDS

Potential chemical hazards include skin and eye contact or inhalation exposure to potentially toxic concentrations of hydrocarbon vapors. The potential toxic compounds that may exist at the site are listed below, with descriptions of specific health effects of each. The list includes the primary potential toxic constituents of gasoline and diesel known to be on site. Exposure levels and symptoms are taken from the NIOSH Pocket Guide to Chemical Hazards.

1. BENZENE

a. Colorless, clear, highly flammable liquid with characteristic odor.
b. High exposure levels may cause acute restlessness, convulsions, depression, respiratory failure. BENZENE IS A KNOWN CARCINOGEN.
c. Permissible exposure level (PEL) for a time weighted average (TWA) over an eight hour period is 1.0 ppm.

2. TOLUENE

a. Colorless liquid with a benzene-like odor.
b. High exposure levels may cause fatigue, euphoria, confusion, dizziness. TOLUENE IS LESS TOXIC THEN BENZENE.
c. PEL for a ten hour TWA is 100 ppm.

3. XYLENE

a. Colorless, flammable liquid with aromatic odors.
b. high exposure levels may case dizziness, drowsiness, narcosis.
c. PEL for a ten hour TWA is 100 ppm.

4. ETHYLBENZENE

a. Clear, colorless, highly flammable liquid with characteristic odor.
b. High exposure levels may cause irritation to skin, nose and throat, dizziness, constriction in chest, loss of consciousness, respiratory failure.
c. PEL for an eight hour TWA is 100 ppm.

ALL SUBSTANCES AS THEY EXIST ON SITE ARE EXPECTED TO BE STABLE.
PHYSICAL HAZARDS

Personnel shall maintain the maximum distance possible from the borings while performing their activities. Other on-site hazards include physical injuries due to the proximity of workers to engine-driven heavy equipment and tools. Heavy equipment used during drilling will include a drill rig. Only trained personnel will operate machines, tools and equipment; all will be kept clean and in good repair. Minimum safety apparel required around heavy equipment will include a hardhat, steel-toed boots and hearing conservation devices. ALL WORK WILL BE PERFORMED IN ACCORDANCE WITH OSHA GUIDELINES.

1. USE SAFETY EQUIPMENT, MASK RESPIRATORS WITH NIOSH APPROVED C-21 CARTRIDGES FOR ORGANIC VAPORS, AS NECESSARY.

2. HAVE AT LEAST ONE DRY CHEMICAL MODEL PA-200 A-B-C FIRE EXTINGUISHER PRESENT.

**LEVEL OF PROTECTION**

A contamination Reduction Zone (CRZ) will be maintained and adjusted as work proceeds and moves around the site. The workers on site will wear level 'D' protective clothing. (This protection level may be upgraded after on-site conclusions of data are completed). THE LEVEL OF PROTECTION FOR PERSONNEL WORKING IN THE AREA WILL BE UPGRADED IF; the organic vapor levels in the operator's breathing zone exceeds 5 ppm above background levels continuously for more then five minutes. This will be monitored by use of a hand-held Organic Vapor Meter (Gastech 1314 Oxygen/ppm Concentration Meter (PID) calibrated with Hexane). In this event, personnel protective equipment will include full face respirators with double-cartridge filters for organic vapors and particulates, in addition to hardhat, steel-toed boots and coveralls. If work proceeds in an environment where vapor concentrations exceed 200 ppm, a self contained breathing apparatus or airline respirator will be utilized by the personnel.

Levels of Protective Clothing are defined on the following pages as described in the "EPA Standard Operating Safety Guidelines":

LEVEL A PROTECTION

Components:

1) Pressure-demand, supplied air respirator that is MSHA and NIOSH approved. Respirators may be pressure demand, self contained breathing apparatus (SCBA), or pressure demand, airline respirator with an escape bottle for atmospheres with an extreme IDLH.

2) Fully encapsulating chemical resistant suit.

3) Inner, chemical resistant gloves.

4) Disposable gloves and boot covers, worn over the fully encapsulating suit.

5) 2-way radio communications is highly recommended.

LEVEL B PROTECTION

Components:

1) Pressure-demand, supplied air respirator that is MSHA and NIOSH approved. Respirators may be pressure demand, self contained breathing apparatus (SCBA), or pressure demand, airline respirator with an escape bottle for atmospheres with an extreme IDLH.

2) Chemical resistant clothing which includes overalls and long sleeved jacket or, hooded one or two piece chemical splash suit or disposable chemical resistant one piece suit..

3) Outer chemical resistant gloves.

4) Inner chemical resistant gloves.

5) Chemical resistant, steel toed and shank boots.

6) Disposable chemical resistant boot covers.

7) Hardhat.

8) 2-way radio communications is highly recommended.

LEVEL C PROTECTION

Components:

1) Air purifying respirator, full face, with twin cartridge or cannister equipped filters, that are MSHA and NIOSH approved.

2) Chemical resistant clothing which includes coveralls or, hooded one-piece or two-piece chemical splash suit or chemical resistant hood and apron; disposable chemical resistant coveralls.

3) Outer chemical resistant gloves.

4) Inner chemical resistant gloves.

5) Chemical resistant, steel toed and shank boots.

6) Disposable chemical resistant boot covers.

7) Hardhat.

LEVEL D PROTECTION

Components:

1) Coveralls.

2) Gloves.

3) Leather boots, shoes or chemical resistant, with steel toe and shank.

4) Safety glasses or chemical splash goggles.

5) Hardhat or face shield.

**SITE ENTRY PROCEDURES**

Any personnel entering the site will observe all conditions set forth by the owners/operators of the property, including vehicle travel speeds, restricted areas and conduct. Eating, drinking, smoking and other practices which increase the probability of hand-to-mouth transfer of contamination is prohibited in the work zone. All field personnel will be instructed to thoroughly wash their hands and face upon leaving the work area for breaks or cessation of day's activities.

## DECONTAMINATION PROCEDURES

If required, equipment and personnel decontamination areas will be designated by the Project Manager at the start of the project. To prevent the transfer of contamination from the work site into clean areas, all tools will be cleaned adequately prior to final removal from the work zone. Disposable protective clothing such as Tyvek coveralls, latex gloves, boot covers, etc. will be changed on a daily basis or at the discretion of the Project Manager on site. All disposable protective clothing will be put into plastic bags and disposed of in a proper manner. All respirator cartridges will be discarded and replaced with fresh units on a daily basis, disposal will be in the same manner as the protective clothing. Soil will be stockpiled in an area designated by the Project Manager, to be handled as agreed upon in the scope of work contract with the client.

In the event of a medical emergency, the injured party will be taken through decontamination procedures, if possible. However, the procedures may be omitted when it may aggravate or cause further harm to the injured party. Member of the work team will accompany the injured party to the medical facility to advise on matters concerning chemical exposure. The injured person will not transport themselves to the medical facility!

Personnel Protection Level will be Level 'D'. Protective clothing levels may be upgraded in the event that on site conclusions determine a greater then anticipated danger to personnel.

Site Entry: BARRICADES, CONES, OR BANNER GUARD MAY BE ERECTED TO CONTROL FOOT TRAFFIC AWAY FROM THE WORK ACTIVITY.

Decontamination-

Personnel and Equipment: IF REQUIRED, PERSONNEL AND EQUIPMENT WILL BE DECONTAMINATED A PER USEPA STANDARD OPERATING SAFETY GUIDELINES. A SMALLER MODIFIED DECONTAMINATION LINE MAY BE USED DUE TO SPACE RESTRICTIONS.

Work Limitations (time, weather):

NONE ARE ANTICIPATED, HOWEVER, PERSONNEL WORKING ON SITE MAY EXPERIENCE ELEVATED TEMPERATURES DURING THE WORK DAY. IN THE EVENT THAT AMBIENT TEMPERATURES REACH OR EXCEED 80

DEGREES FAHRENHEIT, THE FOLLOWING GUIDELINES ARE RECOMMENDED.

1. Periods of work should be reduced to no less then one hour time frames and separated by breaks intended to reduce personnel stress due to reduced natural ventilation from wearing protective clothing.

2. All personnel wearing level C protective clothing or greater, will be subject to medical monitoring of body temperature after work periods, by the following guidelines;

a. Heart Rate (HR) should be measured by counting the radial pulse rate for 30 seconds and doubling count for the correct pulse rate. This should be done as early as possible in the resting period. The HR at the beginning of the rest period should not exceed 110 beats per minute. If the HR is higher, the next work period should be shortened by 10 minutes, while the length of the rest period remains the same. If the HR is 100 beats per minute at the beginning of the next rest period, the following work period should be shortened by an additional 10 minutes.

b. Body temperatures should be measured orally with a clinical thermometer as soon as possible in each resting period. Oral Temperatures (OT) should not exceed 99 degrees Fahrenheit. If it does, the next work period should be reduced by 10 minutes while the length of the resting period remains the same. If the OT exceeds 99 degrees Fahrenheit at the beginning of the next work period, the following work period should be reduced by an additional 10 minutes. OT should be measured at the end of each rest period to ensure that the body's temperature has dropped below 99 degrees Fahrenheit.

Body Water Loss (BWL) from sweating, could result in dehydration and further complications and stress on personnel working in protective clothing under adverse weather conditions. It is strongly recommended that plenty of stress relief beverages be available on site to replace body fluids. Commercial drink mixes that provide electrolyte balancing solutions or water are adequate for replacing body fluids.

Alternate methods of heat stress reduction can be made available such as,

Portable showers or hose-down facilities,
Shelter cover to protect against direct sunlight,
Rotating teams of personnel wearing protective clothing,
Performing extremely arduous tasks early in the workday.

## EMERGENCY INFORMATION

In the event of an injury or suspected chemical exposure, the first responsibility of the Project Manager will be to prevent any further injury. This objective will normally require an immediate stop to work until the situation is remedied. The Project Manager may order the evacuation of the work party. Other primary responsibilities in the event of an accident will be the first aid and decontamination of the injured team member(s). The injured party will be moved to a designated safe area and initial first aid will be rendered.

Employees are asked to make every effort and take personnel responsibility to prevent accidents involving machinery or any other aspect of the job, either by individual action or by notifying the Project Manager immediately of any unsafe condition that may exist.

In the event of an unexpected hazardous material discovery on site, the following actions will be taken by any employee involved;

1. The person having uncovered the unexpected material will notify the Project Manager and other workers of the danger. The site will be cleared of personnel if deemed necessary by the Project Manager. If site evacuation is required, appropriate local agencies such as the Fire Department or Health Department will be notified as well.

2. Immediate action will be taken to contain the hazardous material, provided the workers involved are properly attired with adequate protective clothing to avoid exposure.

3. Proper containment procedures will be determined for the hazardous material encountered prior to cleanup commencing. All personnel involved in the containment effort will be properly protected to prevent exposure. Backup personnel will be similarly protected while monitoring the work being done for any additional dangers.

4. The container(s) will be staged on site, away from the major activity areas and in such a way that if loss of containment occurs, the material will be withheld from further spread by a secondary containment berm or vessel.

5. The owner or agent controller of the property will be notified promptly of the incident and will be apprised as to the options available for proper disposal.

# EXPOSURE SYMPTOMS AND FIRST AID

| EXPOSURE ROUTE | SYMPTOMS | FIRST AID |
|---|---|---|
| **Skin** | Dermatitis, itching redness, swelling | Wash immediately with soap and water contact ambulance if evacuation is needed. |
| **Eyes** | Irritation, watering | Flush with water, transport directly to emergency room, if necessary. |
| **Inhalation** | Vertigo, tremors | Move person to fresh air, cover source of exposure. |
| **Ingestion** | Nausea, vomiting | Call Poison Control Center, DO NOT INDUCE VOMITING, transport to medical facility. |

Local Resources:
HEALTH AND SAFETY CONTACT FOR ASE:

David Allen
Office: (510) 820-9391

Police : **911**
Fire

POISON CONTROL: SF (415) 476-6600
SJ (800) 798-0720

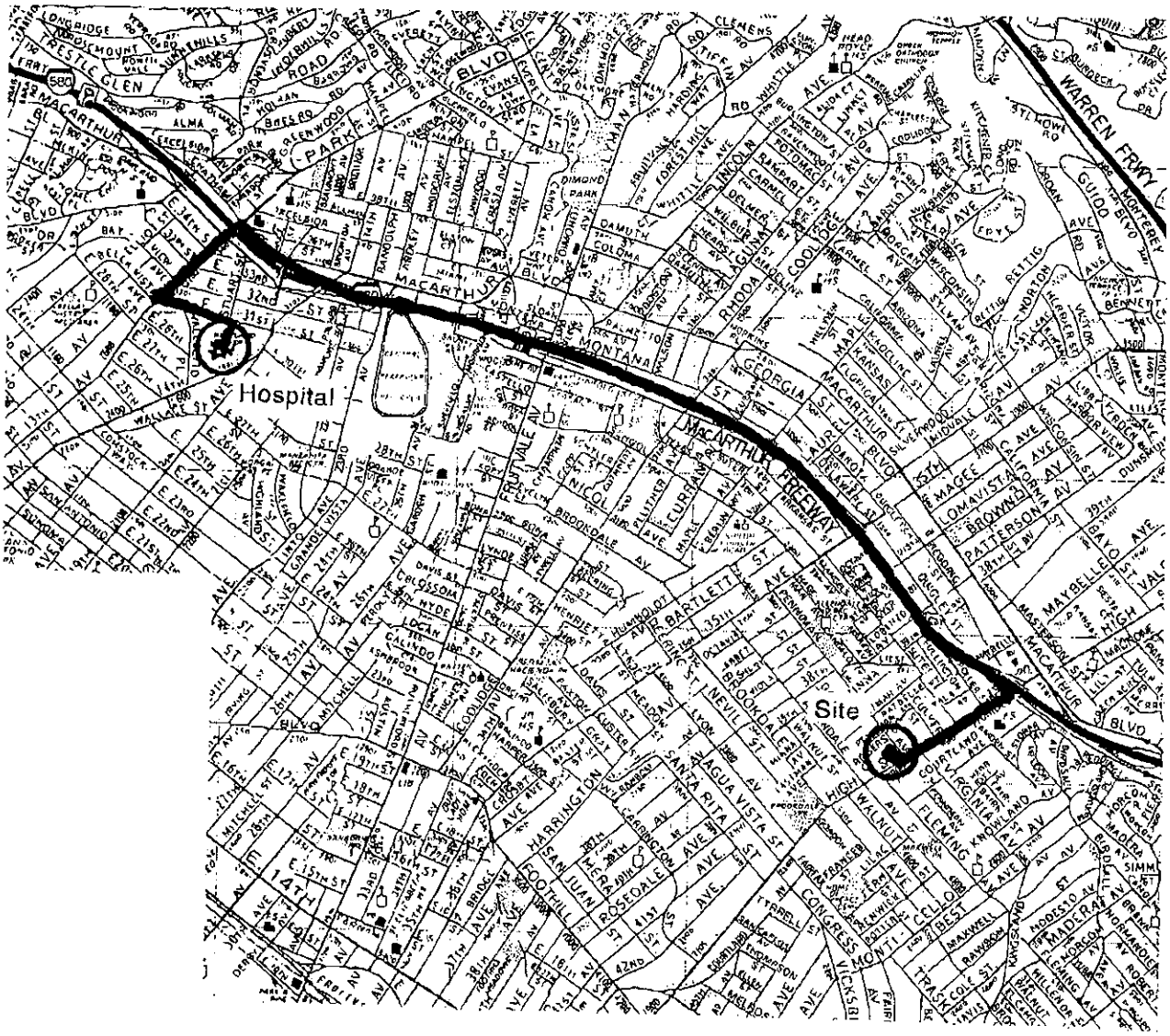
ROUTE TO NEAREST HOSPITAL

Exit site LEFT on High Street
LEFT onto 580 MacArthur Freeway
EXIT freeway on Park Street Exit
LEFT onto 13th Avenue
LEFT onto East 31st Street
HOSPITAL IS ON THE RIGHT SIDE

Hospital: HIGHLAND HOSPITAL
1411 EAST 31ST STREET, OAKLAND, CA

# (510) 437-4800

NORTH




# HOSPITAL ROUTE MAP

ZIMA CENTER CORPORATION
2951 HIGH STREET
OAKLAND, CALIFORNIA

AQUA SCIENCE ENGINEERS, INC. | FIGURE 1

## AQUA SCIENCE ENGINEERS INC.

### HAZARDOUS MATERIALS SITE SAFETY PLAN

The below signed personnel have read this plan, understand it's contents and agree to follow the guidelines set forth;

| EMPLOYEE NAME (print) | SIGNATURE | DATE |
|---|---|---|

**Zima - 2951 High St- Oakland,CA**

**March 9, 1990** - McClaren Hart performed a phase II. The property is currently owned by Lee's ARCO Service Station and has a pending sale. Four underground fuel tanks exists on-site. 2 ,4000 gallon unleaded gasoline tanks, and 2 6000 gallon gasoline tanks exists on site. Tank tests from August 2, 1988 prove that the 2 4000 gallon gasoline tank were not certiified tight. A surface spill had occurred on the property within last year and apparently, haber oil company, an ARCO distributor, had overfilled a tank during a delivery. The amount of product released is unknown. Numerous surface stains were observed and it is unlikely that the subsurface has been impacted from these stains. Major cracks in the asphalt were observed along previously trenched areas extending from the tank area to the side of the building and to the pump dispenser area. An on-site grated sump, located east of the fuel tanks in a depressed area was full to capacity with a liquified material whose surface appeared to be covered with an undetermined thickness of gasoline product. The integrity of the sump's floor and walls are not known. The sump's content was then removed on February 15, 1990 by haber oil.

McClaren Hart subsequently conducted a preliminary site inspection to determine if any residual surface contamination was evident and to evaluate the probability of a release to the subsurface. Soil samples were collected for possible analysis from 1 soil boring located approximately 10 feet downgradient from the tank farm area which was converted into a groundwater monitoring well.

| | Benzene | Toluene | Ethyl.B | Xylene | Gasoline |
|---|---|---|---|---|---|
| Soil 5ft | ND | 3ppm | ND | 15 | 460 |
| Soil 10 ft | 0.5 ppm | ND | ND | ND | ND |
| Soil 15 | All ND | | | | |
| Groundwater | 72 ppb | 33 ppb | ND | 140 ppb | 1200 ppb |

This report was received by the County in September 1994.

**April 12, 1990**

Contamination investigation conducted by USE Soil Engineering - 2 soil borings were drilled on site up to 12 to 14 feet. Two soil samples were collected from each boring and the samples results indicate

| | low boilin | high boiling | benzene | Toluene | Xylene |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| B-1 -1 | 620 | 120 ppm | 1900 ppb | 13000 ppb | 66000 ppb |
| B-1-2 | ND | ND | ND | 5.8ppb | 280 ppb |
| B-2-1 | 59ppm | 19 ppm | 5600 ppb | 120 ppb | 4800 ppb |
| B-2 -2 | ND | ND | 3ppb | 5 ppb | ND |

**Tank Removal** - one 300 ~~gallon waste~~ oil tank removed in Septemeber 13, 1993. Tank transported by H and H. 2 soil samples collected from 2 feet below the tank. one of the samples collected from B-1 at 9 feet detected gasoline at 40 ppm, benzene at 0.13 ppm and toluene at 0.33 ppm. Also, the soil samples detected some amounts of Cr at 130 ppm, lead at 10 ppm and nickel at 280 ppm.

**December 15, 1993 report** - About 30 cubic yards of soil was removed from the former waste oil tank area and soil samples were collected from 5 locations within the excavation to assess the presence of petroleum hydrocarbons. Very low levels of gasoline was detected less than 3 mg/kg. low levels of TEX compounds were detected in some of the sidewalls samples and stockpiled soil. No benzene was found. PCE was found in four of 6 soil samples . Concentrations ranged from 5 ppb to 42 ppb. TOG levels ranged from non detect to a maximum of 3700 ppm. The excavated soil was piled up on visqueen and was treated on-site in accorance with BAAQMD. The treated soil was hauled to an approved facility - about 18 cy.

**In August 1994,** 4 soil borings were drilled and 3 of them were converted to monitoring wells. They drilled 4 soil borings to a depth of 20 feet and collected soil samples at 5 feet intervals. All soil samples will be analyzed for TPH as diesel and gasoline, BTEX , metals, chlorinated hydrocarbons. Three of the borings were converted into monitoring wells to a depth of approximately 25 to 35 feet at proposed locations.

**July 27, 1995**- Spoke to Gas Station personnel and left message for Mashoon Mohammad. Mashoon says that he has installed the well in March 1995 and is going to send me the report. So lets see!

**August 11, 1995** - I received the preliminary site assessment for Zima dated March 8, 1995 and quarterly groundwater monitoring, dated June 13, 1995.
Also, Frank Hameedi in a phone conversation regarding zima told me that they are also getting hits of gasoline in the groundwater and it could be because of the gasoline tank. But no investigation has been done for the gasoline tank.
Four borings installed, out of which 3 of them were converted into monitoring wells. Three of the borings were converted into groundwater monitoring wells. All the soil samples were analyzed

for Total Petroleum Hydrocarbons as gasoline and diesel, BTEX, oiland grease and chlorinated hydrocarbons, and metals.

| MW-16ft | diesel/ oil | gasolin e | Benzene | Toluene | E | X |
|---|---|---|---|---|---|---|
| MW-1 - 6ft | ND/ND | ND | ND | ND | ND | ND |
| MW-1 - 11 | All ND | | | | | |
| MW-2-6 | All ND | | | | | |
| MW-2-11 | ND | 3.5 | ND | .005 | .0058 | .054 |
| MW-3-6 | All ND | | | | | |
| MW-3-11 | All ND | | | | | |
| MW-3-16 | All ND | | | | | |
| MW-4-6 | 110/200 | 1900 | 3.5 | 4.7 | 3.9 | 11 |
| MW-4-11 | ND | 4.6 | .048 | .026 | .037 | .06 |
| M/w-4-16 | All ND | | | | | |

not MW's only tested

Groundwater Samples

| | | | | | |
|---|---|---|---|---|---|
| MW-1 - | 280/600 ppb | ND | ND | ND | ND |
| MW-2 | 470/18000 ppb | ~~33~~ 3300 | 9.6 | 8 | 28 |
| MW-3 | All ND | | | | |

**November 16,1995** - Meeting with Mashood Mohammad and Robert Kitay of Aqua Science. He is going to be the new consultant.

Masshoon took over this property from ARCO. According to Mashoon, ARCO did not notify him about the waste oil contamination. However due to a lawsuit, ARCO still owns a collateral for the property and ARCO demands that the cleanup be completed to give the deed back to Mashoon. So he wants to do whatever is needed to close the property.

I requested the following:

1. Atleast 1 quarter of groundwater monitoring should be conducted to get a total of 4. Right now MW- 2 is getting the highest hits and has benzene up to 39 ppb, gasoline upto 4600 ppb and 470 ppb of diesel. I need to decide if we can live with this concentration .

2. Are the wells screened well?

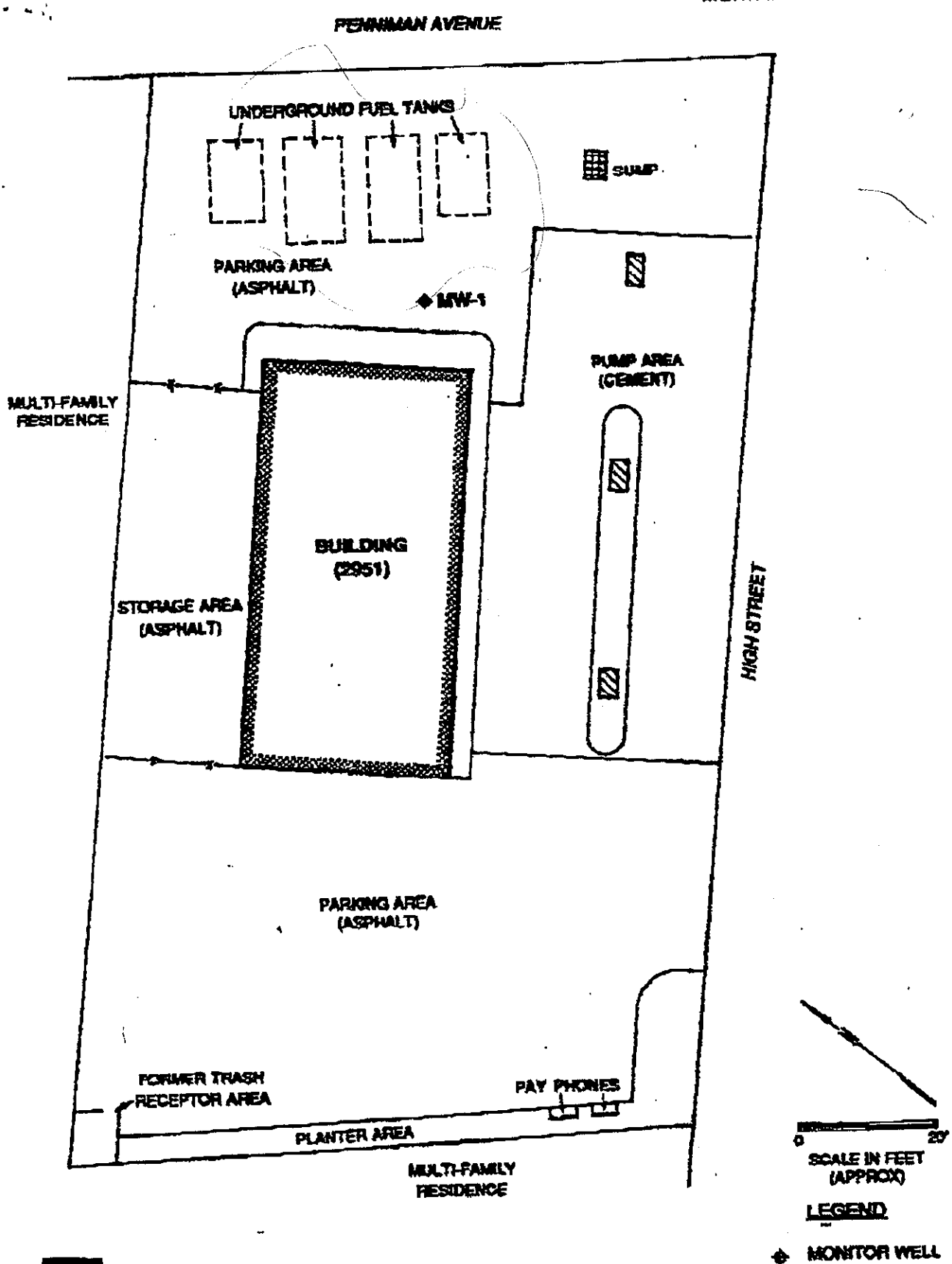
3. How come the waste oil tank is the only one we are concerned when we are getting hits of gasoline in the monitoring wells? I would need a rationale for this. But then Mashoon mentiond that 2 borings were drilled in 1990

around the gasoline tanks on sites (existing) when the tanks were upgraded by installation of extra lining. I have the report for this investigation and the 120 ppm of high end hydrocarbons and up to 59 ppb of benzene.

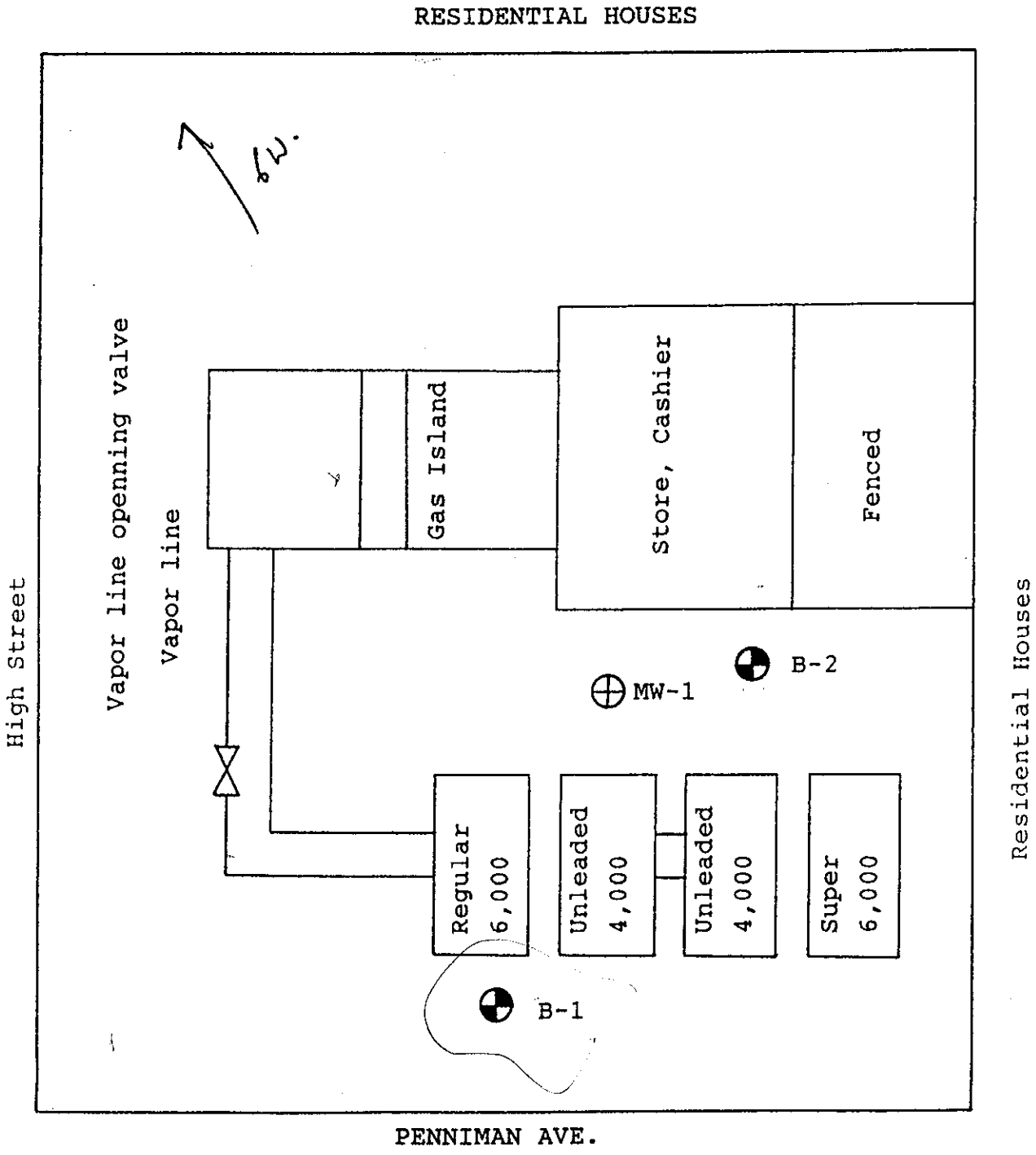
I told him these concentrations may warrant additional investigation. In response, he mentioned that significant amount of soil was removed. I required that they submit by a site map, the extent of soil excavated and the manifests. After I receive this, I need to evaluate the need for additional soil investigation around the gasoline tanks

Need to Ask Mashoon about the ARCO delivering Gasoline improperly. What was the interview for? ℓ mentions that ARCO freqently spilled gasoline during delivery.

FIGURE 2
SITE PLAN AND
MONITOR WELL LOCATION




McLaren




Approximate Location of Borehole

Approximate Location of Monitoring Well

Figure 2

File No. 8-93-558-ST

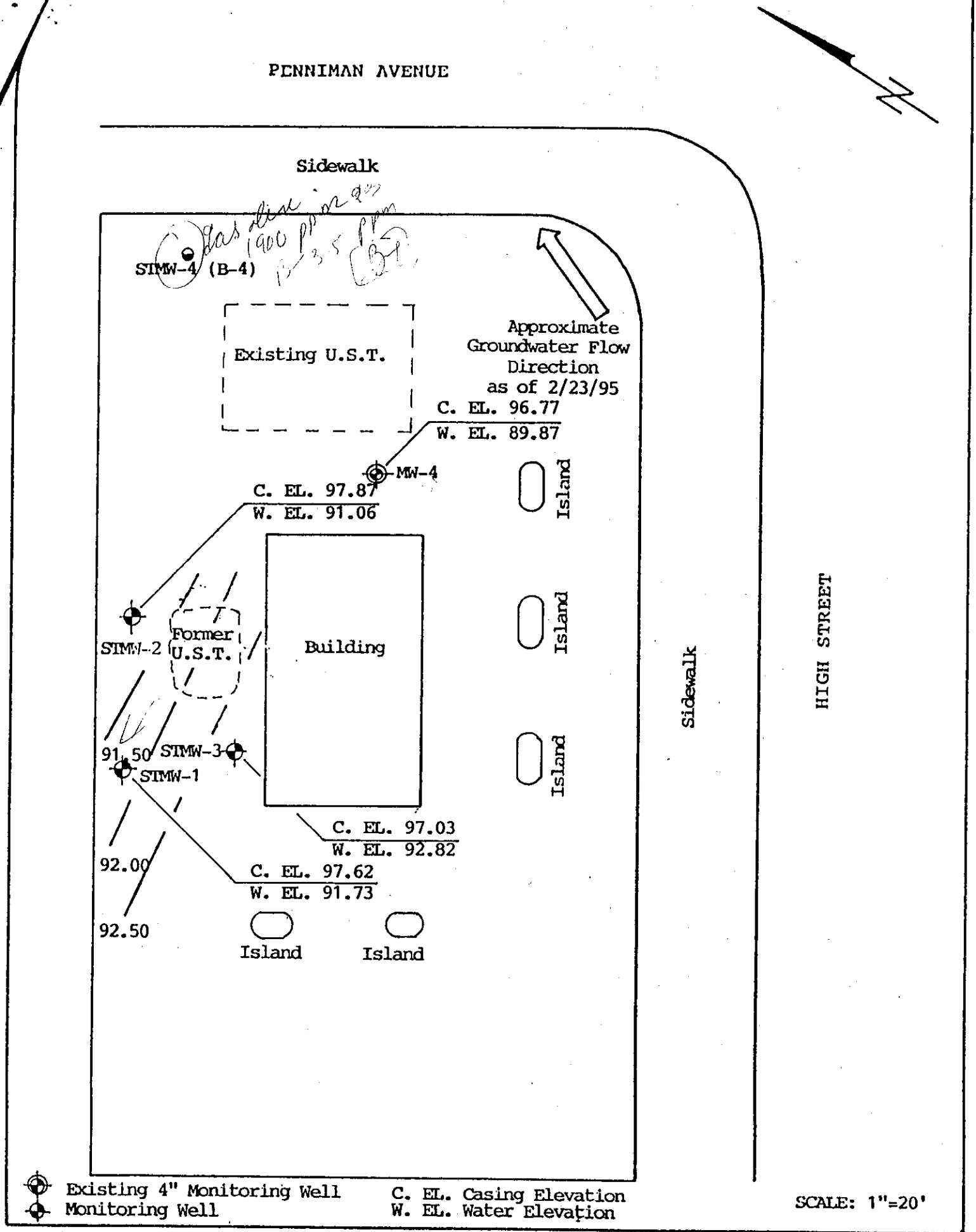



*Figure 2*

SOIL TECH ENGINEERING, INC.

M2

File No. 8-93-558-ST

TABLE 2
GROUNDWATER SAMPLES RESULTS
IN
MILLIGRAMS PER LITER (mg/L)

1. TPHd, TPHg, BTEX and TOG Results

| Date | Sample No. | TPHd | TPHg | B | T | E | X | TOG |
|---|---|---|---|---|---|---|---|---|
| 2/23/95 | STMW-1 | 0.28 | ND | ND | ND | ND | ND | 0.6 |
| | STMW-2 | 0.47 | 3.3 | 0.0096 | 0.013 | 0.008 | 0.028 | 18 |
| | STMW-3 | ND | ND | ND | ND | ND | ND | ND |
| | | | | | | | | |
| 5/26/95 | STMW-1 | ND | ND | ND | ND | ND | ND | ND |
| | STMW-2 | ND | 4.6 | 0.039 | 0.018 | 0.021 | 0.039 | ND |
| | STMW-3 | ND | ND | ND | ND | ND | ND | ND |
| | | | | | | | | |
| 8/23/95 | STMW-1 | ND | ND | ND | ND | ND | ND | ND |
| | STMW-2 | ND | ND | 0.015 | 0.006 | 0.01 | 0.015 | ND |
| | STMW-3 | ND | ND | ND | ND | ND | ND | ND |