aqua science engineers inc.

96 MAY -6 PM 4:25

May 1, 1998

① provide site plan with dg site. show landings, MWs, storm drains and other pertinent structures.
② SS with highest O&M readings, if any, should be taken to lab for analysis.

WORKPLAN
for a
DOWNGRADIENT GROUNDWATER ASSESSMENT
at
Custom Alloy Scrap Sales, Inc.
2711 Union Street
Oakland, California

Submitted by:
AQUA SCIENCE ENGINEERS, INC.
2411 Old Crow Canyon Road, #4
San Ramon, CA 94583
(925) 820-9391

INTRODUCTION

This submittal presents Aqua Science Engineers, Inc. (ASE)'s workplan for an off-site groundwater assessment at the property located at 2711 Union Street in Oakland, California (Figure 1). This property is currently being occupied by Custom Alloy Scrap Sales (CASS), a metal recycler. The proposed site assessment activities were initiated by Mr. James J. Cherry, attorney for Gardiner Manufacturing, as required in a letter from the Alameda County Health Care Services Agency (ACHCSA) dated March 31, 1998.

BACKGROUND INFORMATION

The site was previously occupied by Gardiner Manufacturing as a machining and press operation. Beginning in 1985, CASS occupied the property as a scrap metal recycling operation. CASS is currently the tenant on the property.

In August 1990, MacKinnon Environmental Consulting (MacKinnon) of Walnut Creek, California conducted a limited soil assessment at the site. Up to 4,000 parts per million (ppm) oil and grease (O&G) and 2,600 ppm total petroleum hydrocarbons as diesel (TPH-D) were detected in the soil samples collected during the assessment. No analyses for volatile organic compounds (VOCs) was performed during the MacKinnon assessment.

In March 1996, ASE drilled ten soil borings at the site (Figure 2). Up to 4,300 ppm TPH-D, 4,500 ppm O&G, 0.01 ppm toluene, 0.0092 ppm ethylbenzene, 0.011 ppm total xylenes, 0.055 ppm cis-1,2-dichloroethene (cis-1,2-DCE), 0.018 ppm trans-1,2-dichloroethene (trans-1,2-DCE) and 0.052 ppm trichloroethene (TCE) were detected in the soil samples collected during this assessment. Up to 7,100 parts per billion (ppb) O&G, 43 ppb vinyl chloride, 2.1 ppb 1,1-dichloroethene, 22 ppb 1,1-dichloroethane, 78 ppb cis-1,2-DCE, 15 ppb trans-1,2-DCE, 100 ppb TCE, 1 ppb tetrachloroethene (PCE), 21 ppb chlorobenzene, and 39 ppb 1,2-dichlorobenzene were detected in groundwater samples collected from the site. On June 17, 1996, Ms. Susan Hugo of the ACHCSA prepared a letter requesting additional soil and groundwater assessment activities at the site. Analytical results for soil and groundwater samples are tabulated in Tables One through Five.

In September 1996, ASE drilled four soil borings at the site and installed groundwater monitoring wells MW-1 through MW-4 in the borings. Up to 350 ppm TPH-D were detected in the soil samples collected from borings

MW-2 and MW-4, although the chromatogram pattern on these samples did not resemble the diesel standard. Motor oil range hydrocarbons were detected in the soil samples collected from boring MW-4. 0.048 ppm fluorene was detected in the soil sample collected from 6.0-feet below ground surface (bgs) in boring MW-4. Relatively high VOC concentrations were detected in groundwater samples collected at the site. The PCE, benzene, vinyl chloride, cis-1,2-DCE, trans-1,2-DCE and chlorobenzene concentrations exceeded California Department of Toxic Substances Control (DTSC) maximum contaminant levels (MCLs) for drinking water. The highest concentrations were detected in groundwater samples collected from monitoring well MW-2.

Groundwater samples were collected from the site wells in January, April and July 1997. The analytical results for groundwater samples are tabulated in Tables Four and Five. Depth to groundwater measurements and groundwater elevation data are tabulated in Table Six.

In February 1998, ASE prepared a Risk-Based Corrective Action (RBCA) assessment for the site. This RBCA evaluated risk related to the site contamination for several scenarios such as exposure of construction workers to contaminants and contaminants in soil and groundwater volatilizing into indoor and outdoor air. No unacceptable risks were found except for the on-site volatilization from groundwater to indoor air scenario (a scenario that does not currently exist) and an off-site volatilization from groundwater to indoor air scenario for the CASS properly across Poplar Street. In both scenarios, vinyl chloride was the compound providing an unacceptable risk. Based on these results, the ACHCSA issued a letter requesting a groundwater monitoring well off-site downgradient of the site.

PROPOSED SCOPE OF WORK (SOW)

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

1) Prepare a workplan and a health and safety plan for approval by ACHCSA.

2) Obtain all necessary permits from the appropriate agencies including an Alameda County Public Works Agency (ACPWA) well construction permit, a City of Oakland encroachment permit and a City of Oakland excavation permit. ASE will also notify Underground Service Alert (USA) to have all known public utility lines marked.

3) Drill one (1) soil boring to approximately 25-feet below ground surface (bgs) downgradient of the site. Collect soil samples every 5-feet for hydrogeologic description.

4) Install a 2-inch diameter groundwater monitoring well in the boring.

5) Develop the groundwater monitoring well using surge block agitation and bailer evacuation.

6) Collect a groundwater sample from the newly installed monitoring well for analyses.

7) Analyze the groundwater sample collected from the newly installed well at a CAL-EPA certified environmental laboratory for volatile organic compounds (VOCs) by EPA Method 8010.

8) Survey the top of casing elevation of the new well relative to the existing site wells.

9) Prepare a report detailing the methods and findings of the groundwater investigation.

Details of the assessment are presented below.

TASK 1 - PREPARE A WORKPLAN AND HEALTH AND SAFETY PLAN

Based on the site history and the analytical results of the soil and groundwater samples collected during previous work at the site, ASE has prepared a site-specific health and 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 A).

TASK 2 - OBTAIN NECESSARY PERMITS

ASE will obtain a drilling permit from the Alameda County Public Works Agency (ACPWA). ASE will also obtain encroachment and excavation permits from the City of Oakland. ASE will notify Underground Service Alert (USA) to have underground utility lines marked in the site vicinity.

TASK 3 - DRILL ONE SOIL BORING DOWNGRADIENT OF THE SITE

ASE will drill one soil boring in Poplar Street downgradient of the site using a hollow-stem auger drill rig (Figure 2). 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. The samples will be described by the ASE geologist according to the Unified Soil Classification System. The samples will be collected in brass tubes using a split-barrel drive sampler advanced ahead of the auger tip by successive blows from a 140-lb. hammer dropped 30-inches. Soil will be screened for VOCs 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. No samples will be retained for laboratory analysis.

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 steel drums for future disposal by the client.

TASK 4 - COMPLETE THE BORING AS A MONITORING WELL

ASE will complete the boring described in Task 3 as a 2-inch diameter groundwater monitoring well. The well will be constructed with 2-inch diameter, flush-threaded, schedule 40, 0.020-inch slotted PVC well screen and blank casing. The well casing will be lowered through the augers and #3 Monterey sand will be placed in the annular space between the well casing and the borehole to approximately 2-feet above the screened interval. Approximately 1-foot of bentonite pellets will be placed on top of the sand pack and hydrated with deionized water. This bentonite layer will prevent the cement sanitary seal from infiltrating into the sand pack. Cement mixed with 3 to 5 percent bentonite powder by volume will be used to fill the annular space between the bentonite layer and the surface to prevent surface water from infiltrating into the well. The well head will be protected by a locking well plug and an at-grade, traffic-rated well box (See Figure 3 - Typical Monitoring Well).

The well will be screened to monitor the first water-bearing zone encountered. Wells will typically be screened with 5-feet of screen above the water table and 10 to 15-feet of screen below the water table.

TASK 5 - DEVELOP THE MONITORING WELL

The monitoring well will be developed after waiting at least 72 hours after well construction. The well will be developed using at least two episodes of surge block agitation and bailer evacuation. At least ten well casing volumes of water will be removed during the development, and development will continue until the water appears to be reasonably clear. The well development purge water will be stored on-site in sealed and labeled 55 gallon steel drums for disposal by the client at a later date.

TASK 6 - SAMPLE THE MONITORING WELL

After waiting 72 hours after the well development, ASE will sample the monitoring well. Prior to purging and sampling, the groundwater surface will be checked for the presence of 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. ASE will also measure the depth to groundwater in all site wells prior to purging water from any well. Prior to sampling, the well will 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 from the well using disposable polyethylene bailers. Groundwater will be decanted from the bailer into 40-ml glass volatile organic analysis (VOA) vials and sealed without headspace, preserved with hydrochloric acid, and labeled with the site location, sample designation, date and time the samples were collected, and the initials of the person collecting the samples. The samples will then be placed on ice for transport to the analytical laboratory under chain of custody. Purged groundwater will be stored on-site in sealed and labeled 55 gallon steel drums for disposal by the client at a later date.

TASK 7 - ANALYZE THE GROUNDWATER SAMPLES

The groundwater samples will be analyzed by a CAL-EPA certified analytical laboratory for VOCs by EPA Method 8010.

TASK 8 - SURVEY THE TOP OF CASING ELEVATION OF EACH WELL

ASE will survey the top of casing elevation of the new well relative to the pre-existing site wells. These elevations will be used with the depth to

groundwater measurements to determine the groundwater flow direction and gradient beneath the site.

TASK 9 - PREPARE A SUBSURFACE ASSESSMENT REPORT

ASE will prepare a subsurface assessment report outlining the methods and findings of this assessment. This report will include a summary of the results, the site background and history, description of the well construction, development and sampling, tabulated groundwater analytical results, conclusions and recommendations. Formal boring logs, analytical reports, and chain of custody documentation will be included as appendices. This report will be submitted under the seal of a California registered civil engineer or geologist.

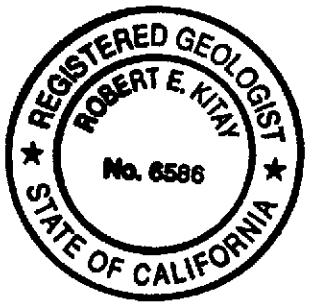
SCHEDULE

ASE plans to begin field activities immediately upon approval of this workplan by the ACHCSA.

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

Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.

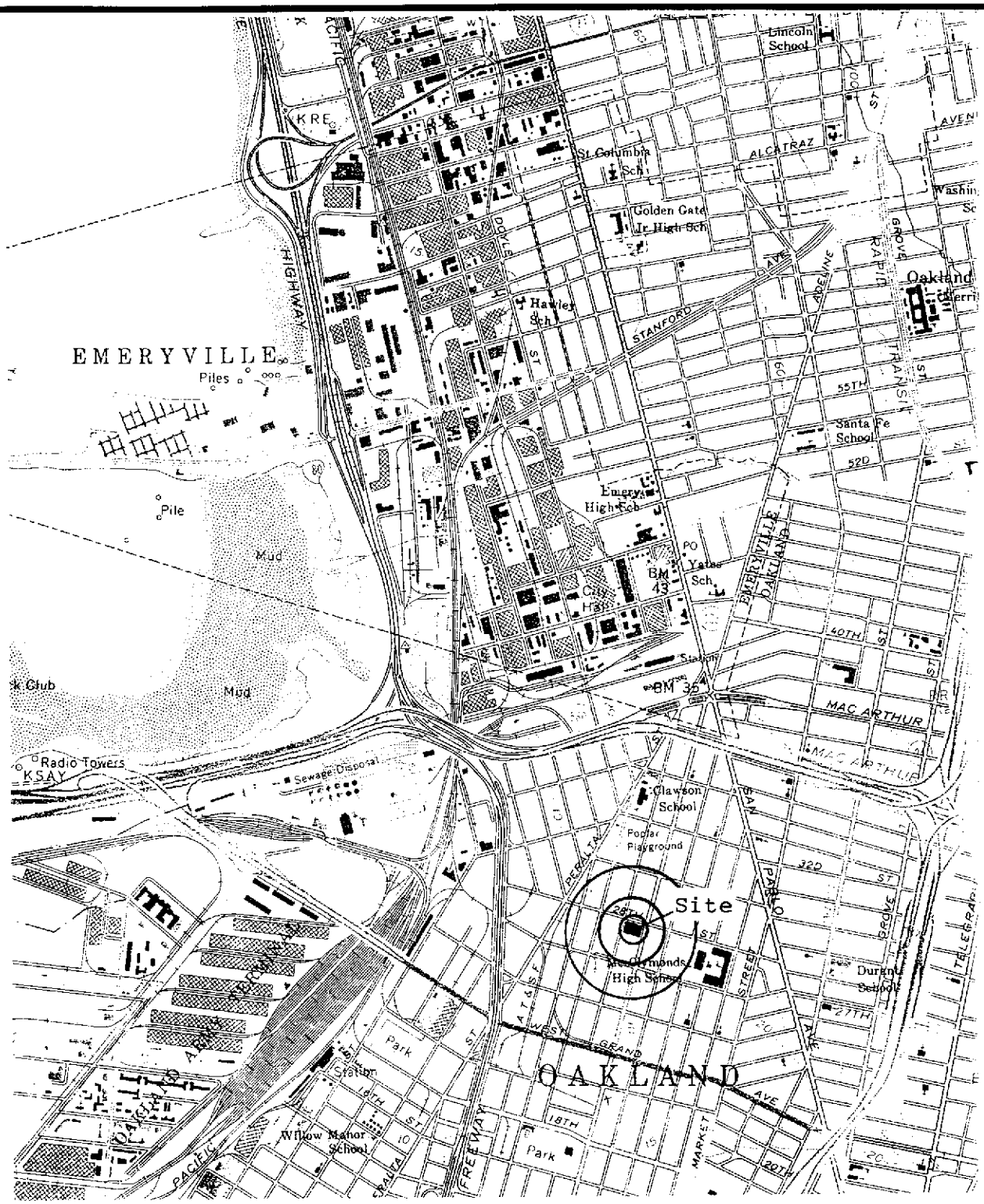


Robert E. Kitay, R.G., R.E.A.
Senior Geologist

cc: Ms. Katy Meador, 740A 14th Street, Suite 250, San Francisco, CA 94114

Mr. James J. Cherry, Law Offices of James J. Cherry, 1849 Bonanza Street, Walnut Creek, CA 94596

Ms. Christine K. Noma, Wendel, Rosen, Black & Dean, 1111 Broadway, 24th Floor, Oakland, CA 94607

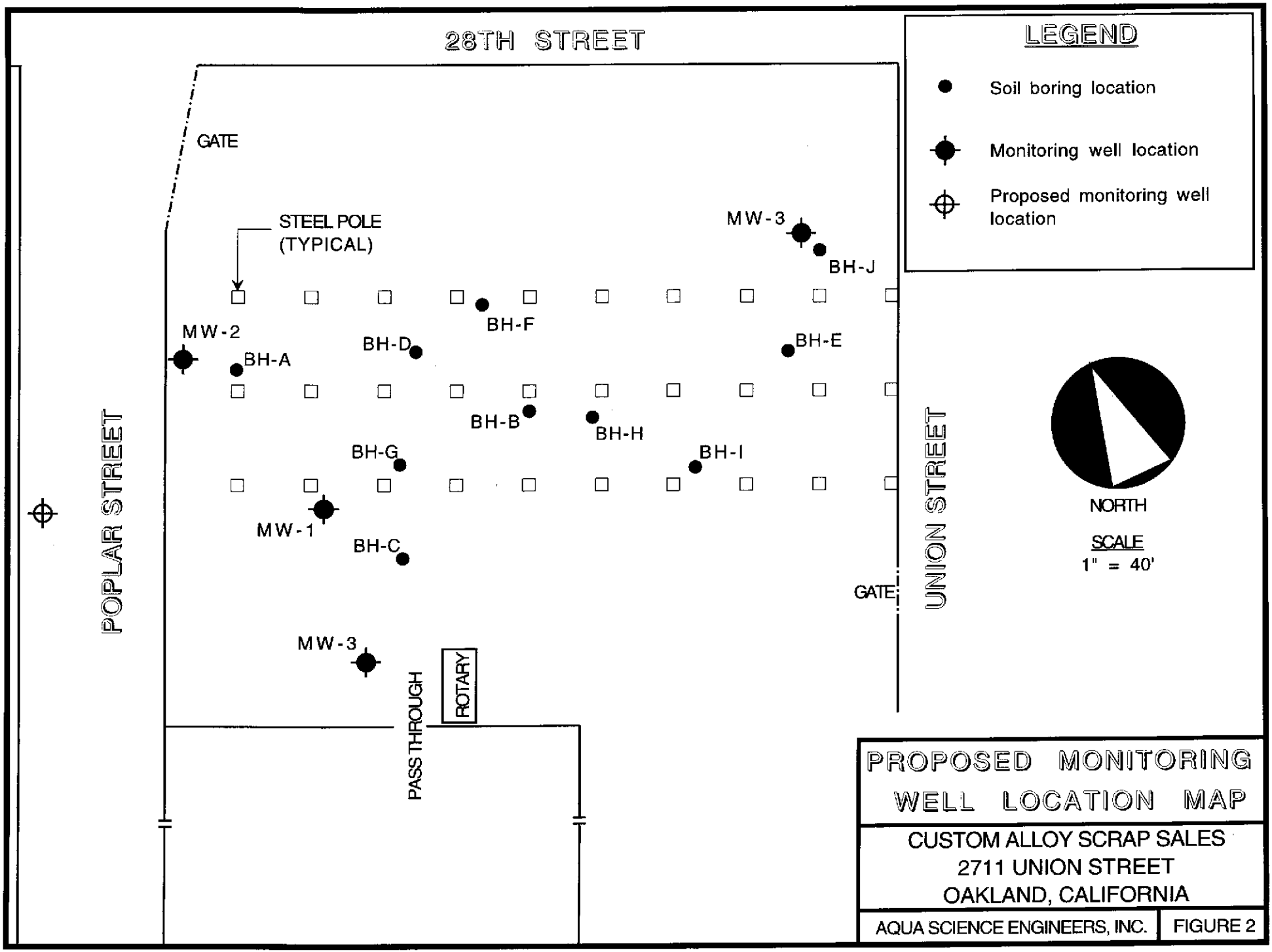


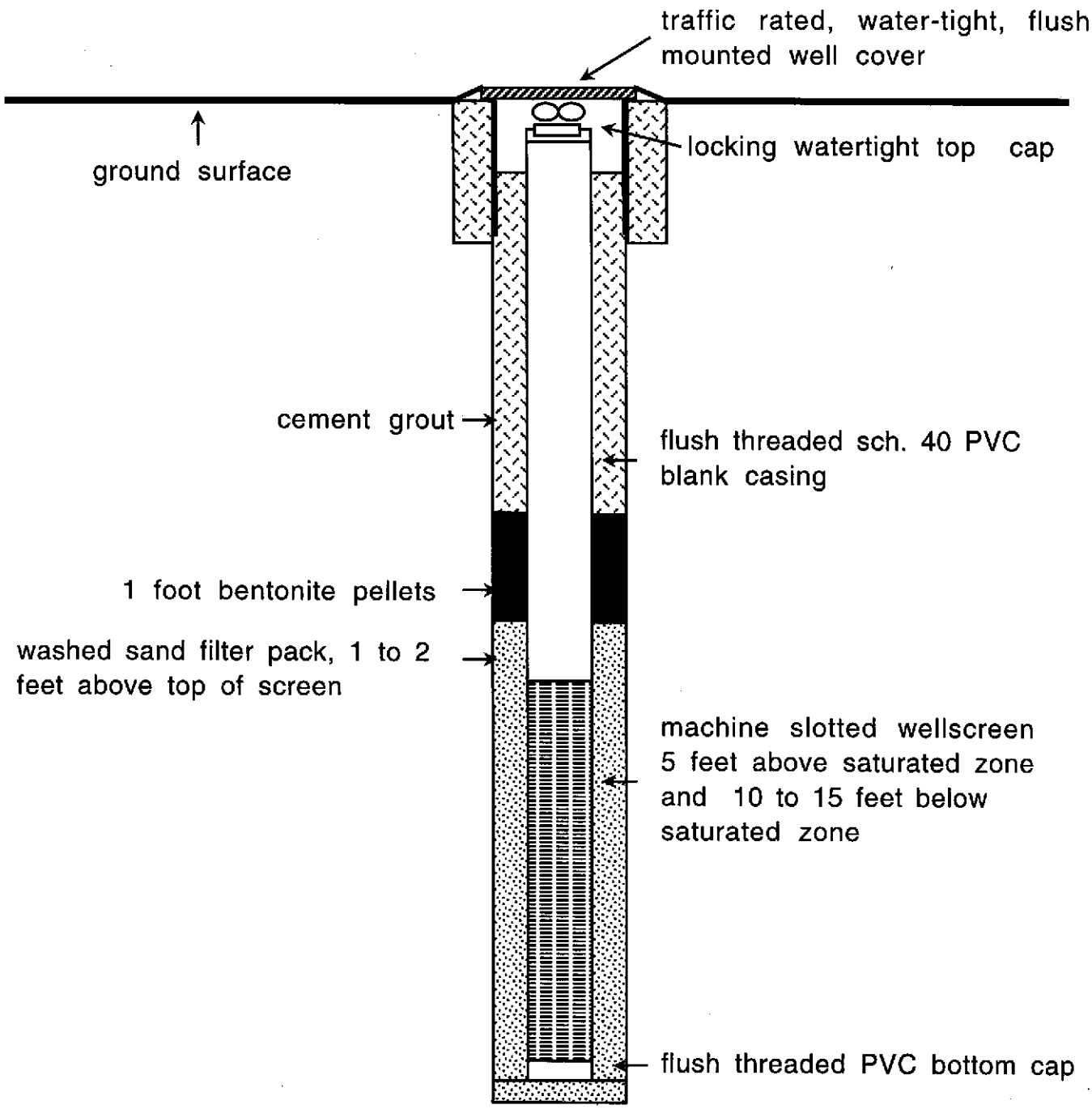
SITE LOCATION MAP

Custom Alloy Scrap Sales
Poplar and 28th Street
Oakland, California

Aqua Science Engineers, Inc. | Figure 1

BASE: USGS Oakland West 7.5 minute quadrangle topographic map, dated 1980, scale 1:24,000.


28TH STREET
GATE
STEEL POLE
(TYPICAL)
MW-3
BH-J
BH-F
MW-2
BH-D
BH-A
BH-E
BH-B
BH-H
BH-G
BH-I
MW-1
BH-C
GATE
POPLAR STREET
UNION STREET
MW-3
ROTARY
PASS THROUGH
LEGEND
Soil boring location
Monitoring well location
Proposed monitoring well location
NORTH
SCALE
1" = 40'
PROPOSED MONITORING WELL LOCATION MAP
CUSTOM ALLOY SCRAP SALES
2711 UNION STREET
OAKLAND, CALIFORNIA
AQUA SCIENCE ENGINEERS, INC.
FIGURE 2



TYPICAL
MONITORING WELL CONSTRUCTION
IN CROSS SECTION

Aqua Science Engineers | Figure 3

APPENDIX A

Health and Safety Plan

aqua science engineers inc.

HEALTH & SAFETY PLAN

for the

Custom Alloy Scrap Jobsite
Poplar and 28th Street
Oakland, California

prepared by

Aqua Science Engineers, Inc.
2411 Old Crow Canyon Road, #4
San Ramon, California 94583
(925) 820-9391

AQUA SCIENCE ENGINEERS, INC.
HEALTH & SAFETY PLAN
for the
CUSTOM ALLOY SCRAP JOBSITE

A. GENERAL DESCRIPTION

Site: 2711 Union Street, Oakland, California

Work Scope: Aqua Science Engineers will install one groundwater monitoring well at the site.

SAFETY POLICY:

This Health and Safety Plan is written specifically for the Custom Alloy Scrap Sales jobsite. 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: 5/1/98

Plan Approved by: David Schultz Date: 5/1/98

Background Review Done? Complete: 5/1/98

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: Charlie Rous

B. SITE/WASTE CHARACTERISTICS

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

Characteristics: HYDROCARBON AND SOLVENT RESIDUALS, TOXIC

Site Parameter:
THE BORING LOCATION IS IDENTIFIED AS THE EXCLUSION ZONE. A MINIMUM BOUNDARY OF THREE FEET IS TO BE MAINTAINED 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 and solvent 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 solvents 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 cause 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.

5. TRICHLOROETHENE

a. Colorless liquid with chloroform-like odor.
b. High exposure levels may cause headache, vertigo, visual disturbance.
c. PEL for an eight hour TWA is 25 ppm.

6. VINYL CHLORIDE

a. Colorless liquid with pleasant odor at high concentrations.
b. High exposure levels may cause irritation to eyes and skin, drowsiness.
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 includes 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.

Inspections of well location, the adjacent areas, and protective systems are to be made by a qualified person while personnel are on site.

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 THAN FIVE MINUTES (to be monitored by a hand-held OVM). 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 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.

8) 2-way radio communications is recommended.

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. Excavated material and drill cuttings 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. <u>The injured person will not transport themselves to the medical facility!</u>

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 AS 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: (925) 820-9391

Police : **911**
Fire

POISON CONTROL: SF (415) 476-6600

ROUTE TO NEAREST HOSPITAL

Exit site, Travel north on Poplar Street
MERGE onto Peralta Street
RIGHT onto 34th Street
LEFT into emergency entrance just after
Andover Street and before Webster Street

HOSPITAL IS NEAR THE CORNER OF 34th STREET AND WEBSTER STREET

Hospital: MERRITT HOSPITAL
350 HAWTHORNE AVENUE, OAKLAND

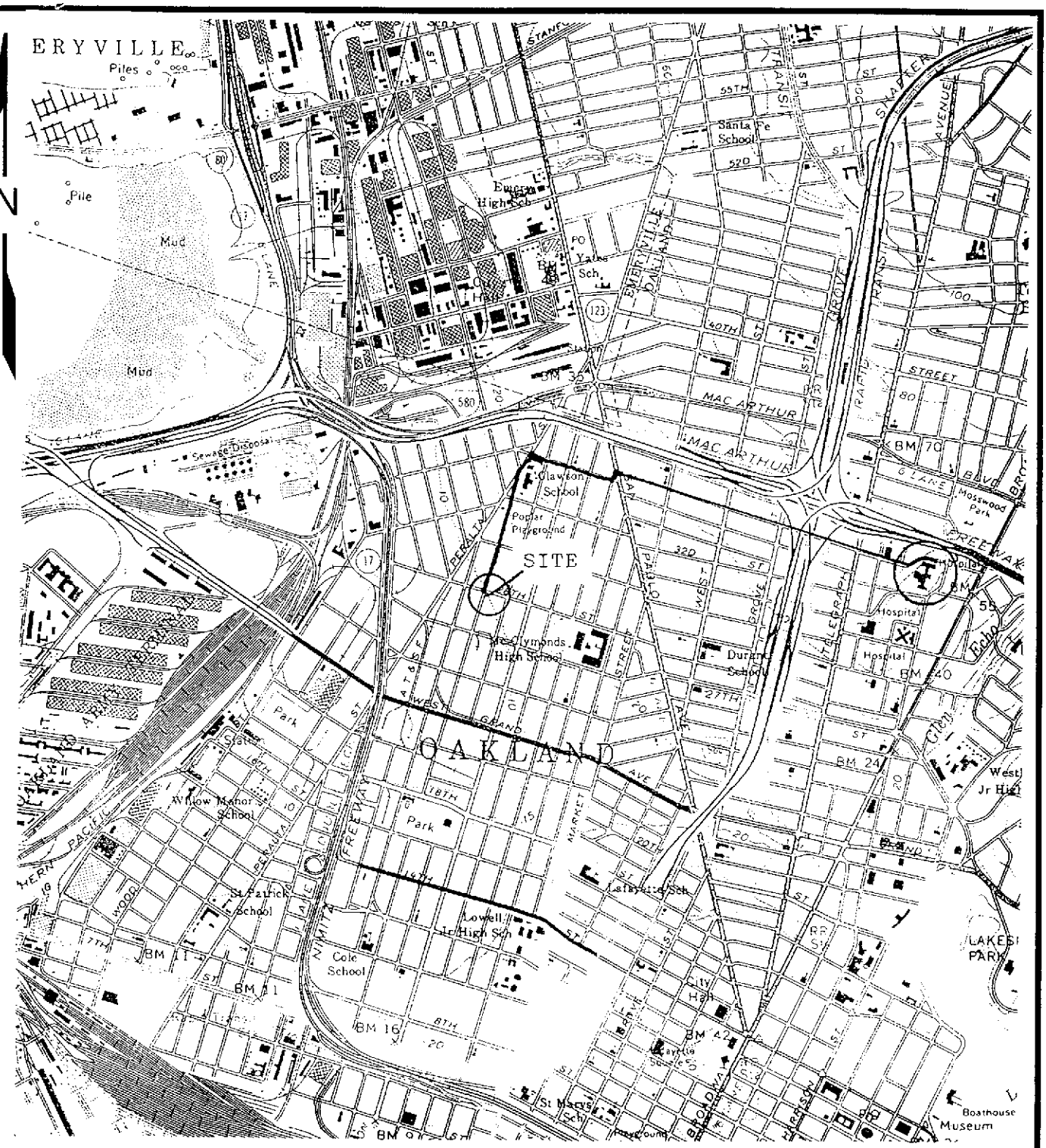
420-6080

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



HOSPITAL LOCATION MAP

Custom Alloy Scrap Sales
Poplar and 28th Street
Oakland, California

Aqua Science Engineers

BASE: USGS Oakland West 7.5 minute quadrangle topographic map, dated 1980, scale 1:24,000.