aqua science engineers inc.

ENVIRONMENTAL PROTECTION
98 JUL -9 PM 3:06

STID 2360 ?

July 3, 1998

- what are potential sources - do historical search
- samples well(s) at Unocal Property ←
  at Custom Alloy for HVOCs.

REPORT
of
OFF-SITE SOIL AND GROUNDWATER ASSESSMENT
AND GROUNDWATER MONITORING RESULTS
ASE JOB NO. 2971
at
Custom Alloy Scrap Sales
2711 Union Street
Oakland, California

540-3839
1. HY Nakashima DTSC
oversight of cypress structure replacement
and VC investigation - Too far from subj. site.

Submitted by:
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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

1.0 INTRODUCTION

This report outlines the methods and findings of Aqua Science Engineers, Inc. (ASE)'s soil and 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 site assessment activities were initiated by Gardiner Manufacturing, owner of the property, as required by the Alameda County Health Care Services Agency (ACHCSA) in their letter dated March 31, 1998 (Appendix A). This report also presents the results of the latest groundwater sampling.

2.0 SITE HISTORY

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 (1,1-DCE), 22 ppb 1,1-dichloroethane (1,1-DCA), 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.

3.0 SCOPE OF WORK (SOW)

Based on the requirements of the ACHCSA, ASE's proposed was to:

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 20-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.

This report also presents the results of the latest groundwater monitoring event for the site.

4.0 DRILLING SOIL BORINGS AND COLLECTING SAMPLES

Prior to drilling, ASE obtained an Alameda County Public Works Agency (ACPWA) drilling permit and City of Oakland encroachment and excavation permits (Appendix B). ASE also notified Underground Service Alert (USA) to have underground public utilities in the vicinity of the site marked.

On June 9, 1998, Kvilhaug Well Drilling of Concord, California drilled soil boring MW-5 at the site using a Mobile B-61 drill rig equipped with 8-inch diameter hollow-stem augers. Groundwater monitoring well MW-5 was subsequently constructed in the boring. This boring location was chosen because, with a western groundwater flow component, this would be the location which could most effectively monitor the impact of VOC concentrations to an off-site building at the closest feasible point to the known impacted areas of the site. Any location southwest of this location would be expected to be possibly more downgradient but would be further from the known impacted areas on the site and further from off-site

buildings where there may be impact to workers. Any location further north would not be considered downgradient of the site.

Undisturbed soil samples were collected at 5-foot intervals as drilling progressed for lithologic and hydrogeologic description and for possible chemical analyses. The samples were collected by driving a split-barrel drive sampler lined with 2-inch diameter brass tubes ahead of the auger tip with successive blows from a 140-lb. hammer dropped 30-inches. One tube from each sampling interval was immediately trimmed, sealed with Teflon tape, plastic end caps and duct tape, labeled, sealed in a plastic bag and stored on ice for transport to Chromalab, Inc. of Pleasanton, California (ELAP #1094) under chain of custody. Soil from the remaining tubes was described by the site geologist using the Unified Soil Classification System (USCS) and was screened for volatile compounds with an Organic Vapor Meter (OVM). The soil was screened by emptying soil from one of the sample tubes into a plastic bag. The bag was then sealed and placed in the sun for approximately 10 minutes. After the hydrocarbons were allowed to volatilize, the OVM measured the vapor in the bag through a small hole punched in the bag. OVM readings are used as a screening tool only, since the procedures are not as rigorous as those used in the laboratory.

Drilling equipment was steam-cleaned prior to use, and sampling equipment was washed with a trisodium phosphate (TSP) solution between sampling intervals to prevent cross-contamination. Rinsate was contained on-site in sealed and labeled steel 55-gallon drums for future off-site disposal.

Sediments encountered during drilling generally consisted of silty clay from beneath the asphaltic concrete surface to 13-feet below ground surface (bgs), sandy gravel from 13-feet bgs to 18.5-feet bgs, and gravely sand from 18.5-feet bgs to the total depth explored of 21-feet bgs. Groundwater was encountered at approximately 6.8-feet bgs in the boring where it stabilized. The boring log and well construction details are included as Appendix C. Drill cuttings were contained in sealed and labeled 55-gallon steel drums.

5.0 ANALYTICAL RESULTS FOR SOIL

The soil sample collected from 6.5-feet bgs in boring MW-5 (the capillary zone) was analyzed by Chromalab, Inc. for VOCs by EPA Method 8010. The analytical results are tabulated in Table Two, and a copy of the certified analytical report and chain of custody form are included in Appendix D.

No VOCs were detected in the soil sample.

6.0 MONITORING WELL INSTALLATION, DEVELOPMENT AND SAMPLING

Groundwater monitoring well MW-5 was installed in boring MW-5. The well was constructed with 2-inch diameter, 0.020-inch slotted, flush-threaded, Schedule 40 PVC well screen and blank casing. The well is screened between 5-feet bgs and 20-feet bgs to monitor the first water bearing zone encountered. Lonestar #3 Monterey sand occupies the annular space between the borehole and the casing from the bottom of the boring to approximately 1-foot above the well screen. A 0.5-foot thick hydrated bentonite layer separates the sand from the overlying cement surface seal. The wellhead is secured with a locking wellplug beneath an at-grade traffic-rated vault.

On June 12, 1998, ASE staff geologist Charlie Rous developed monitoring well MW-5 using two episodes of surge-block agitation and bailer evacuation. Over ten well casing volumes of water were removed from the well during development, and evacuation continued until the water was relatively clear. No odors were present in groundwater purged from the monitoring well at the time of the well development.

On June 15, 1998, ASE staff geologist Charlie Rous collected groundwater samples from all five site monitoring wells (MW-1 through MW-5). Prior to sampling, the wells were purged of four well casing volumes of groundwater. The pH, temperature and conductivity of the purge water were monitored during evacuation, and samples were not collected until these parameters stabilized. Samples were collected from each well using pre-cleaned polyethylene bailers. The groundwater samples were decanted from the bailers into 40-ml volatile organic analysis (VOA) vials and 1-liter amber glass containers, preserved with hydrochloric acid (VOAs only), labeled, placed in protective foam sleeves, and stored on ice for transport to Chromalab, Inc. of Pleasanton, California under chain of custody. Well development and sampling purge water were contained in sealed and labeled 55-gallon steel drums and stored on-site for handling by the client at a later date. See Appendix E for a copy of the Field Logs.

7.0 GROUNDWATER ELEVATIONS

ASE surveyed the top of casing elevation of monitoring well MW-5 relative to the existing site wells on June 15, 1998. Depths to groundwater were measured in each well prior to sampling on June 15, 1998 with an electric

water level sounder. Depth to groundwater measurements are presented in Table Six, and groundwater elevation contours are plotted on Figure 3. Groundwater appears to flow primarily to the southwest in the western portion of the property with flow components to the north, northwest and west at the eastern contour line. The groundwater gradient beneath the site was between of 0.01 and 0.04-feet/foot.

8.0 ANALYTICAL RESULTS FOR GROUNDWATER

The groundwater samples were analyzed by Chromalab for TPH-G by modified EPA Method 5030/8015, TPH-D by modified EPA Method 3510/8015, BTEX and MTBE by EPA Method 8020, VOCs by EPA Method 8010 and polynuclear aromatic hydrocarbons (PNAs or PAHs) by EPA Method 8310. The groundwater sample collected from monitoring well MW-5 was analyzed for VOCs by EPA Method 8010 only. The analytical results are tabulated in Tables Four and Five, and copies of the certified analytical report and chain of custody form are included in Appendix F.

VOCs were detected in groundwater samples collected from all five groundwater monitoring wells. VOC concentrations detected in groundwater samples collected from monitoring wells MW-1 and MW-4 are generally consistent with previous results. VOC concentrations in groundwater samples collected from monitoring well MW-2 decreased slightly from previous sampling periods. VOC concentrations detected in groundwater samples collected from monitoring well MW-3 increased slightly from previous results. VOC concentrations detected in groundwater samples collected from monitoring well MW-5 are relatively high, although no vinyl chloride was detected. TPH-G was not detected in any of the groundwater samples. The only TPH-D concentration detected was 690 ppb TPH-D in the groundwater sample collected from monitoring well MW-4, where the chromatogram pattern did not resemble diesel but rather a heavier hydrocarbon such as oil. The only PNA detected was a very low concentration of chrysene of 0.25 ppb.

9.0 CONCLUSIONS AND RECOMMENDATIONS

VOC concentrations detected in groundwater samples collected from monitoring wells MW-1 and MW-4 are generally consistent with previous results. VOC concentrations in groundwater samples collected from monitoring well MW-2 decreased slightly from previous sampling periods. VOC concentrations detected in groundwater samples collected from monitoring well MW-3 increased slightly from previous results. VOC concentrations detected in groundwater samples collected from monitoring

well MW-5 are relatively high, and much higher than expected, although no vinyl chloride was detected. Since the TCE, 1,1-DCE, and 1,1,1-TCA concentrations detected in groundwater samples from off-site well MW-5 are the highest concentrations of these compounds detected at the site, these results suggest that there may be yet another source of VOCs in groundwater. This source would either be in the far northwest corner of the site near the gate or from an off-site upgradient source. If the source of these concentrations were located in the area previously thought of as the source area (near the location of the former presses), then the VOC concentrations detected in monitoring wells MW-1 and MW-2 would be expected to be higher than those detected downgradient of those locations in monitoring well MW-5.

ASE recommends that this site be placed on a semi-annual groundwater monitoring schedule. Based, on this schedule, the next sampling would be performed in December 1998.

10.0 REPORT LIMITATIONS

The results of this assessment represent conditions at the time of the soil and groundwater sampling, at the specific locations where the samples were collected, and for the specific parameters analyzed by the laboratory.

It does not fully characterize the site for contamination resulting from unknown sources, or for parameters not analyzed by the laboratory. All of the laboratory work cited in this report was prepared under the direction of an independent CAL-EPA certified laboratory. The independent laboratory is solely responsible for the contents and conclusions of the chemical analysis data.

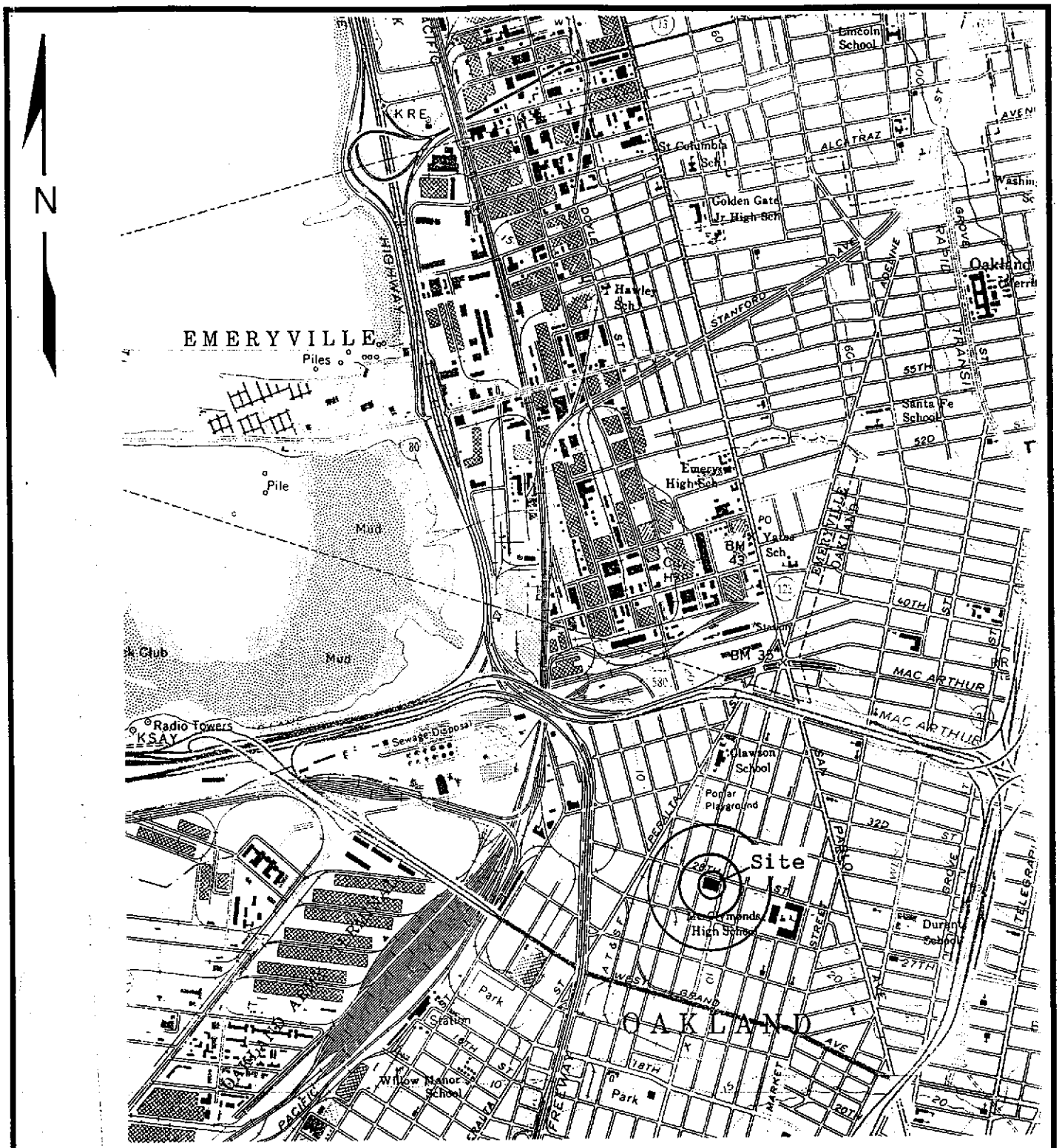
Should you have any questions or comments, please feel free to call us at (925) 820-9391.

Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.

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

Attachments: Figures 1 through 3
Appendices A through F

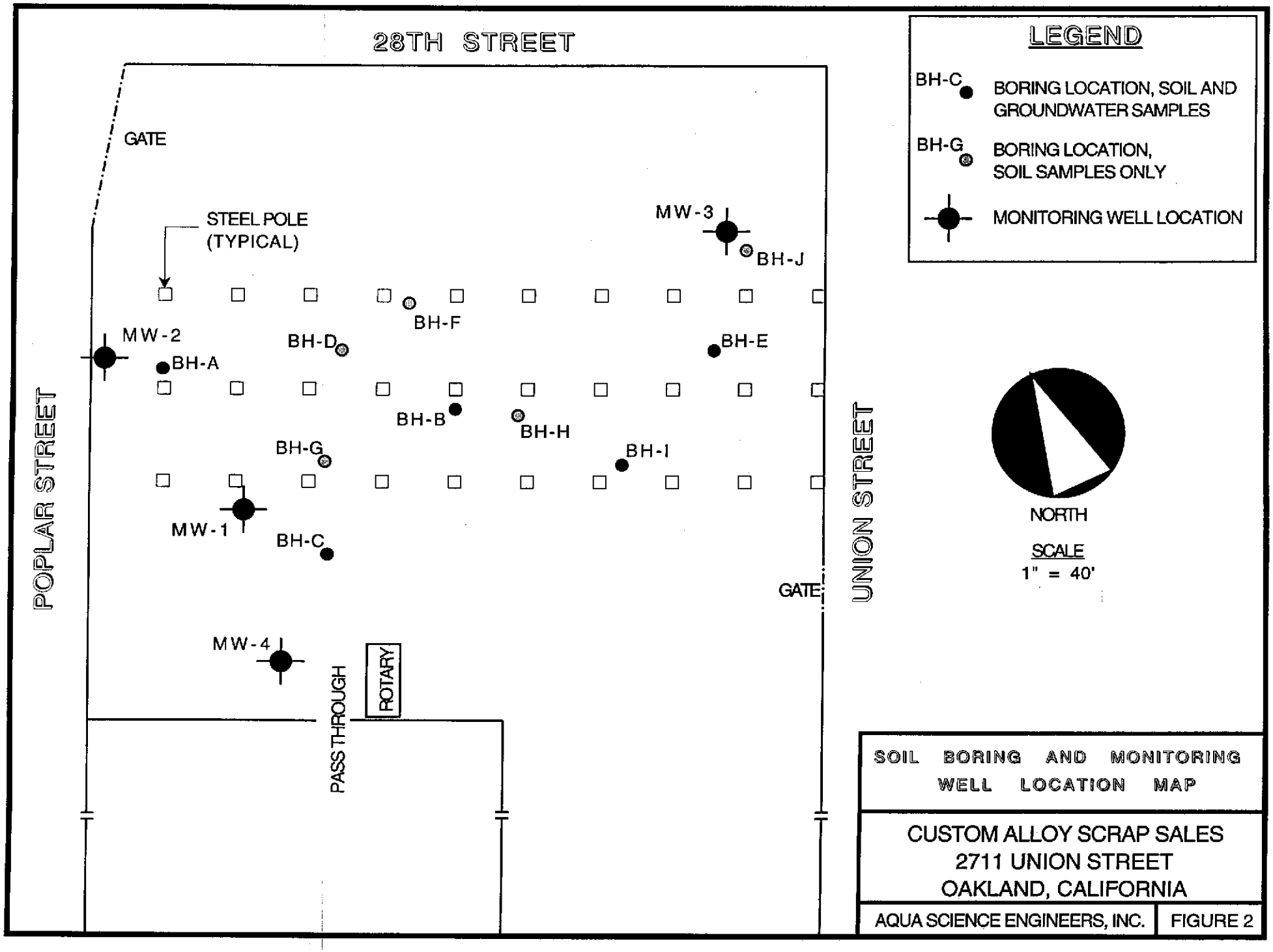


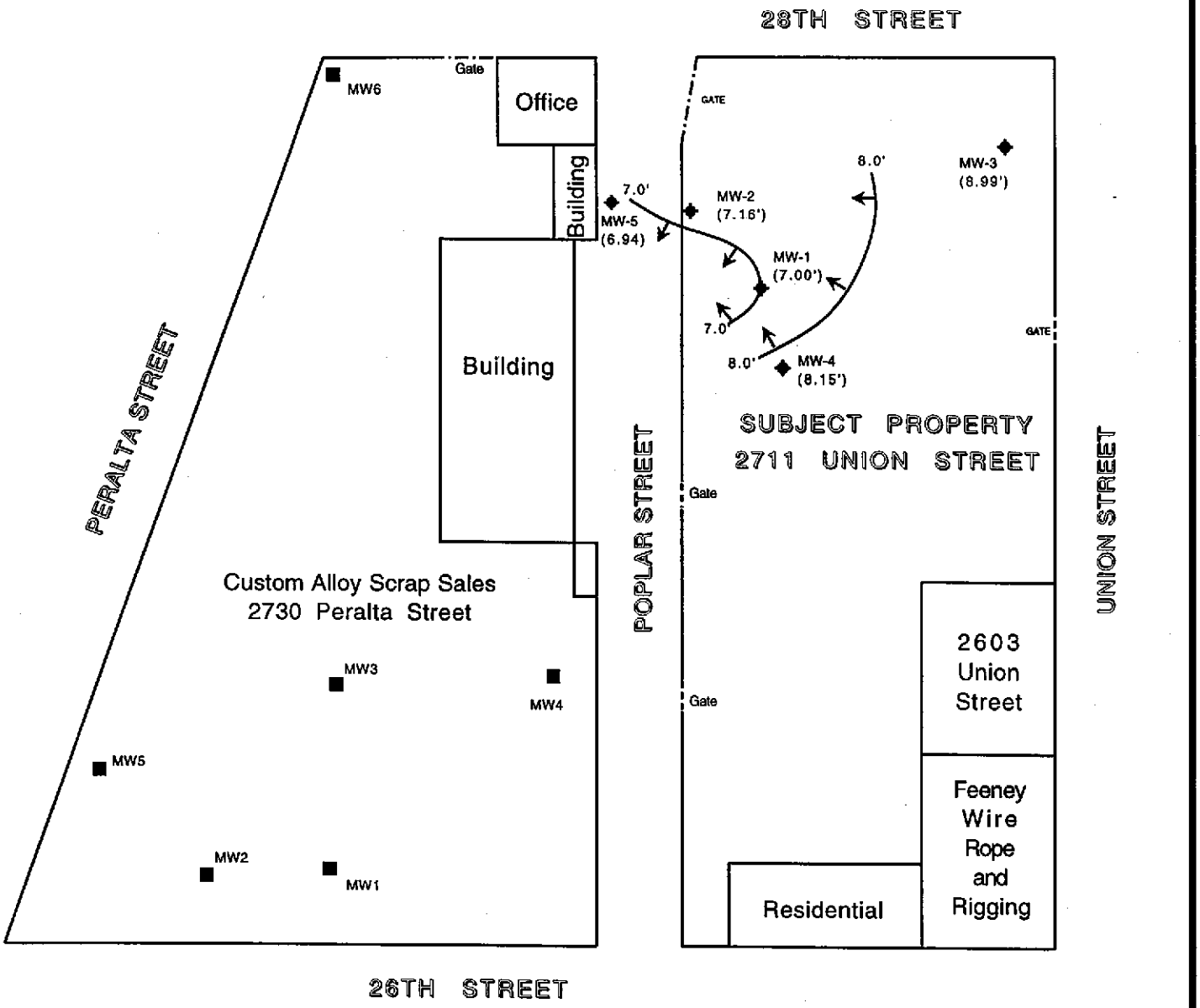
SITE LOCATION MAP

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-E
BH-A
BH-B
BH-H
BH-G
BH-I
MW-1
BH-C
POPLAR STREET
UNION STREET
GATE
MW-4
PASS THROUGH
ROTARY
LEGEND
BH-C
BORING LOCATION, SOIL AND GROUNDWATER SAMPLES
BH-G
BORING LOCATION, SOIL SAMPLES ONLY
MONITORING WELL LOCATION
NORTH
SCALE
1" = 40'
SOIL BORING AND MONITORING WELL LOCATION MAP
CUSTOM ALLOY SCRAP SALES
2711 UNION STREET
OAKLAND, CALIFORNIA
AQUA SCIENCE ENGINEERS, INC.
FIGURE 2



NORTH

SCALE

1" = 100'

LEGEND

MW-1 (7.00') ◆	Monitoring well location with groundwater elevation relative to site datum
7.0'	Groundwater elevation contour
←	Groundwater flow direction

GROUNDWATER ELEVATION CONTOUR MAP - 6/15/98

CUSTOM ALLOY SCRAP SALES
2711 UNION STREET
OAKLAND, CALIFORNIA

AQUA SCIENCE ENGINEERS, INC. | FIGURE 3

TABLE ONE
Summary of Chemical Analysis of **SOIL** Samples
All results are in **parts per million**

COMPOUND	BH-A 3.5'	BH-B 3.5'	BH-C 5.0'	BH-D 3.5'	BH-E 3.5'	BH-F 3.5'	BH-G 3.5'	BH-H 3.5'	BH-I 3.5'	BH-J 3.5'	PRG (Industrial)
TPH-G	**7.6***	<1	<1	<1	**1.6***	<1	<1	**1.8**	<1	<1	NE
TPH-D	**1,700***	<1	<1	<1	**2,100***	**150***	**69***	**4,300***	**42***	<1	NE
Oil & Grease	<50	<50	<50	<50	**3,900**	**4,500**	<50	**2,300**	<50	<50	NE
Toluene	<0.005	<0.005	<0.005	<0.005	<0.005	**0.01**	<0.005	<0.005	<0.005	<0.005	2,800
Ethylbenzene	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**0.0092**	<0.005	<0.005	690
Total xylenes	**0.016**	<0.01	<0.01	<0.01	**0.01**	**0.006**	<0.01	**0.011**	<0.01	<0.01	990
cis-1,2-DCE	<0.005	<0.005	<0.005	<0.005	<0.005	**0.055**	<0.005	<0.005	<0.005	<0.005	200
trans-1,2-DCE	<0.005	<0.005	<0.005	<0.005	<0.005	**0.018**	<0.005	<0.005	<0.005	<0.005	600
TCE	<0.005	<0.005	<0.005	**0.0093**	<0.005	**0.052**	<0.005	<0.005	<0.005	<0.005	17
Other VOCs	<0.005-<0.02	<0.005-<0.02	<0.005-<0.02	<0.005-<0.02	<0.005-<0.02	<0.005-<0.02	<0.005-<0.02	<0.005-<0.02	<0.005-<0.02	<0.005-<0.02	V
Cadmium	**0.34**	**0.30**	**0.34**	**0.25**	**1.1**	**0.29**	**0.27**	**0.65**	**0.34**	**0.31**	850
Chromium	**24**	**24**	**46**	**36**	**26**	**34**	**35**	**37**	**27**	**43**	450
Lead	**4.4**	**13**	**4.6**	**4.2**	**66**	**4.5**	**6.4**	**150**	**8.6**	**5.4**	1,000
Nickel	**20**	**21**	**24**	**19**	**23**	**21**	**15**	**24**	**21**	**22**	150
Zinc	**15**	**23**	**23**	**18**	**62**	**19**	**24**	**120**	**22**	**24**	100,000

Abbreviations:

TPH-G = Total petroleum hydrocarbons as gasoline
TPH-D = Total petroleum hydrocarbons as diesel
DCE = Dichloroethene
TCE = Trichloroethene
VOCs = Volatile organic compounds by EPA Method 8010
PRG = US EPA Region IX Preliminary Remediation Goal
NE = Not established
V = Varies; PRG depends on the compound

Notes:

* = Chromatogram pattern does not resemble standard.

Detectable concentrations in **bold**.
Non-detectable concentrations noted by the less than symbol (<) followed by the detection limit.

TABLE TWO
Summary of Chemical Analysis of **SOIL** Samples
All results are in **parts per million**

COMPOUND	MW-1 6.0'	MW-2 6.0'	MW-3 6.0'	MW-4 6.0'	MW-5 6.5'
Total petroleum hydrocarbons as Gasoline (TPH-G)	< 1.0	< 1.0	< 1.0	< 1.0	NA
Total petroleum hydrocarbons as Diesel (TPH-D)	< 1.0	**350****	< 1.0	**280***	NA
Benzene	< 0.0050	< 0.0050	< 0.0050	< 0.0050	NA
Toluene	< 0.0050	< 0.0050	< 0.0050	< 0.0050	NA
Ethylbenzene	< 0.0050	< 0.0050	< 0.0050	< 0.0050	NA
Total xylenes	< 0.0050	< 0.0050	< 0.0050	< 0.0050	NA
MTBE	< 0.0050	< 0.0050	< 0.0050	< 0.0050	NA
Fluorene	< 0.0050	< 0.025	< 0.0050	**0.048**	NA
Other SVOCs	< 0.005- < 0.015	< 0.025- < 0.075	< 0.005- < 0.015	< 0.025- < 0.075	NA
Vinyl Chloride	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
cis-1,2-Dichloroethene	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
trans-1,2- Dichloroethene	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Trichloroethene (TCE)	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Tetrachloroethene (PCE)	< 0.010	< 0.010	< 0.010	< 0.010	< 0.0050
Chlorobenzene	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Other VOCs	< 0.0050- < 0.010	< 0.0050- < 0.010	< 0.0050- < 0.010	< 0.0050- < 0.010	< 0.0050- < 0.050

Notes:

* = Chromatogram pattern does not resemble diesel standard.

** = Chromatogram pattern does not resemble diesel standard: hydrocarbons in motor oil range detected.

NA = Not analyzed

Detectable concentrations in **bold**.

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

TABLE THREE
Summary of Chemical Analysis of **GROUNDWATER** Samples
All results are in **parts per billion**

COMPOUND	BH-A	BH-B	BH-C	BH-E	BH-I	MCL
TPH-G	**95***	<50	**51***	<50	<50	NE
TPH-D	**3,800***	**7,100***	**2,600***	---	**2,000***	NE
Oil & Grease	<5,000	<8,000	<5,000	---	<5,000	NE
Ethylbenzene	<0.5	<0.5	<0.5	**0.9**	<0.5	680
Total xylenes	1.3	<1	<1	**1.3**	<1	1,750
Vinyl Chloride	**8.3**	**2.4**	**10**	**43**	<1	0.5
1,1-DCE	**2.1**	<1	<1	<1	<1	6
1,1-DCA	<1	**22**	**1.5**	<1	<1	5
cis-1,2-DCE	**55**	**3.4**	**78**	**75**	**1.3**	6
trans-1,2-DCE	**15**	<1	**3.3**	**6.7**	<1	10
TCE	**34**	<1	**100**	**9.1**	<1	5
PCE	1	<1	1	<1	<1	5
Chlorobenzene	**21**	<1	<1	<1	<1	NE
1,2-Dichlorobenzene	39	<5	<5	<5	<5	130**
Other VOCs	<1-<20	<1-<20	<1-<20	<1-<20	<1-<20	V
Cadmium	<2	---	<2	---	**2.3**	10
Chromium	<10	---	<10	---	<10	50
Lead	<3	---	<3	---	<3	50
Nickel	**240**	---	**130**	---	**1,000**	NE
Zinc	<20	---	<20	---	<20	NE

Abbreviations:

TPH-G = Total petroleum hydrocarbons as gasoline
TPH-D = Total petroleum hydrocarbons as diesel
1,1-DCE = Dichloroethene
1,1-DCA = Dichloroethane
TCE = Trichloroethene
PCE = Tetrachloroethene
VOCs = Volatile organic compounds by EPA Method 8010
MCL = California Department of Toxic Substances Control Maximum Contaminant Level for Drinking Water
--- = Not analyzed
NE = Not established
V = Varies; MCL depends on the compound

Notes:

* = Chromatogram pattern does not resemble standard
** = Recommended action level

Detectable concentrations in **bold**.
Non-detectable concentrations noted by the less than symbol (<) followed by the detection limit.

TABLE FOUR

Summary of Chemical Analysis of **WATER** Samples
TPH-G, TPH-D, BTEX and MTBE
(All Results are in **parts per billion**)

Sample I.D.	TPH-G	TPH-D	Benzene	Toluene	Ethyl Benzene	Total Xylenes	MTBE
MW-1							
10/03/96	83	<50	<0.5	<0.5	<0.5	<0.5	<5
01/07/97	<50	<50	<0.5	<0.5	<0.5	<0.5	<5
04/01/97	<50	<50	<0.5	<0.5	<0.5	<0.5	<5
07/08/97	<500	<50	<5	<5	<5	<5	<50
06/15/98	<50	<50	0.68	2.8	<0.5	<0.5	<5
MW-2							
10/03/96	210	2,000*	1.1	<0.5	<0.5	<0.5	130
01/07/97	320	3,200*	2.0	0.86	<0.5	<0.5	<50
04/01/97	<50	850*	1.1	<0.5	<0.5	0.52	<5
07/08/97	<2,500	740*	<25	<25	<25	<25	<25
06/15/98	<50	<620	2.4	0.66	<0.5	<0.5	<5
MW-3							
10/03/96	200	53	<0.5	1.4	<0.5	<0.5	<5
01/07/97	<50	<50	<0.5	0.68	<0.5	<0.5	<5
04/01/97	<50	<50	<0.5	0.61	<0.5	<0.5	<5
07/08/97	<50	<50	<0.5	<0.5	<0.5	<0.5	<5
06/15/98	<50	<50	<0.5	<0.5	<0.5	<0.5	<5
MW-4							
10/03/96	120	1,400*	<0.5	3.8	<0.5	<0.5	<5
01/07/97	<50	2,100*	<0.5	0.91	<0.5	<0.5	<5
04/01/97	<50	750*	<0.5	<0.5	<0.5	<0.5	<5
07/08/97	<1,000	590*	<10	<10	<10	<10	<100
06/15/98	<50	690*	1.6	4.6	<0.5	<0.5	<5
DTSC MCLs	NE	NE	1	100*	680	1,750	NE
EPA METHOD	5030/ 8015M	3510/ 8015M	8020	8020	8020	8020	8020

Notes:
DTSC MCL = California Department of Toxic Substance Control maximum contaminant level for drinking water.
NE = DTSC MCLs and RALs not established
* = Chromatogram pattern does not resemble diesel fuel; hydrocarbons in motor oil range detected.
** = DTSC recommended action level (RAL); MCL not established

TABLE FIVE

Summary of Chemical Analysis of **WATER** Samples
Volatile Organic Compounds (VOC's)
EPA Method 8240 or 8010
(All Results are in **parts per billion**)

Sample I.D.	VC	1,1-DCE	trans-1,2-DCE	cis-1,2-DCE	1,1-DCA	1,1,1-TCA	TCE	PCE	CB	1,3-DCB	1,4-DCB	1,2-DCB
MW-1												
10/03/96	<20	<20	<20	61	<20	<20	2,200	<20	<20	<20	<20	<20
01/07/97	2.0	0.70	2.7	73	<0.5	1.8	1,500	18	<0.5	<0.5	<0.5	<0.5
04/01/97	<10	<10	<10	71	<10	<10	1,500	18	<10	<10	<10	<10
07/08/97	<40	<40	<40	43	<40	<40	2,600	<40	<40	<40	<40	<40
06/15/98	<20	<20	<20	68	<20	<20	2,000	20	<20	<20	<20	<20
MW-2												
10/03/96	160	<20	47	200	<20	<20	220	<20	32	<20	<20	<20
01/07/97	95	4.5	42	290	4.7	<0.5	270	18	74	0.90	4.8	35
04/01/97	120	5.3	53	240	4.7	<0.5	200	16	97	1.4	7.4	64
07/08/97	170	<5.0	53	440	5.8	<5.0	440	26	75	<5.0	<5.0	33
06/15/98	48	<5.0	29	190	<5.0	<5.0	140	13	130	<5.0	<5.0	62
MW-3												
10/03/96	<20	<20	<20	<20	<20	<20	120	520	<20	<20	<20	<20
01/07/97	<20	<20	<20	<20	<20	<20	300	1,700	<20	<20	<20	<20
04/01/97	<20	<20	<20	<20	<20	<20	190	910	<20	<20	<20	<20
07/08/97	<20	<20	<20	<20	<20	<20	330	1,800	<20	<20	<20	<20
06/15/98	<20	<20	<20	26	<20	<20	700	4,400	<20	<20	<20	<20
MW-4												
10/03/96	<20	<20	<20	28	<20	<20	270	<20	<20	<20	<20	<20
01/07/97	1.7	<0.5	<0.5	58	<0.5	<0.5	18	<0.5	<0.5	<0.5	<0.5	<0.5
04/01/97	25	1.5	6.2	100	1.1	<0.5	18	<0.5	<0.5	<0.5	<0.5	<0.5
07/08/97	34	<2.0	7.2	160	<2.0	<2.0	24	<2.0	<2.0	<2.0	<2.0	<2.0
06/15/98	40	1.3	6.4	110	1.1	<0.5	14	<0.5	<0.5	<0.5	<0.5	<0.5
MW-5												
06/15/98	<20	43	<20	87	<20	160	3,700	<20	<20	<20	<20	<20
DTSC MCL	0.5	6	10	6	5	200	5	5	30	NE	5	NE

Notes:
NE = DTSC MCL not established
VC = vinyl chloride
1,1-DCE = 1,1-dichloroethene
trans 1,2-DCE = trans-1,2-dichloroethene
cis 1,2-DCE = cis-1,2-dichloroethene
1,1-DCA = 1,1-dichloroethane
1,1,1-TCA = 1,1,1-trichlororethane
TCE = trichloroethene
PCE = tetrachloroethene
CB = chlorobenzene
1,3-DCB = 1,3-dichlorobenzene
1,4-DCB = 1,4-dichlorobenzene
1,2-DCB = 1,2-dichlorobenzene

TABLE SIX

Summary of Groundwater Well Survey Data

Well I.D.	Date of Measurement	Top of Casing Elevation (relative to project datum)	Depth to Water (feet)	Groundwater Elevation (project data)
MW-1	10-03-96	15.00	9.52	5.48
	01-07-97		6.74	8.26
	04-01-97		8.73	6.27
	07-08-97		9.19	5.81
	06-15-98		8.00	7.00
MW-2	10-03-96	15.44	9.75	5.69
	01-07-97		6.90	8.54
	04-01-97		8.96	6.48
	07-08-97		9.35	6.09
	06-15-98		8.28	7.16
MW-3	10-03-96	14.92	7.75	7.17
	01-07-97		4.27	10.65
	04-01-97		6.65	8.27
	07-08-97		7.21	7.71
	06-15-98		5.93	8.99
MW-4	10-03-96	14.98	8.73	6.25
	01-07-97		5.28	9.70
	04-01-97		7.64	7.34
	07-08-97		8.33	6.65
	06-15-98		6.83	8.15
MW-5	06-15-98	13.74	6.80	6.94

APPENDIX A

March 31, 1998 Letter
From The
Alameda County Health Care Services Agency

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

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

StID 269

March 31, 1998

Mr. Robert Kitay
Aqua Science Engineers, Inc
2411 Old Crow Canyon Rd, Suite 4
San Ramon, CA 94583

RE: Offsite Groundwater Monitoring for 2711 Union Street, Oakland, CA

Dear Mr. Kitay:

I have completed review of Aqua Science's February 1998 Risk Based Corrective Action Assessment (RBCA) report for the above referenced site. The assessment evaluated various exposure pathways for chemicals of concern which may pose additional risk to human health. Only the presence of vinyl chloride in groundwater posed potential risk to human health by way of vapor intrusion from groundwater to a potential future on-site industrial building and to a current off-site industrial building.

Currently there is a building across Poplar Street, in the downgradient direction of the referenced site, which may be impacted by the plume. To verify the concentration of vinyl chloride in groundwater off-site, a permanent off-site groundwater monitoring well should be installed. A workplan detailing proposed construction details and the location of the well should be submitted to this office for review within 60 days of the date of this letter, or **by June 1, 1998.** Please include a site plan indicating location of monitoring wells on-site with reference to monitoring wells and permanent structures which are currently located at the off-site property across Poplar Street.

If you have any questions, I can be reached at (510) 567-6762.

eva chu
Hazardous Materials Specialist

c: Eugene Teasley, c/o Mr. Claude Ames, 3667 Shafter Ave, Oakland, CA 94610
Ms. Christine Noma, Wendel-Rosen-Black & Dean, 1111 Broadway, 21st Floor, Oakland, CA 94607
Ms. Katy Meador, 740A 14th Street, #250, San Fancisco, CA 94114
Mr. James Cherry, 2030 Franklin, 5th Floor, Oakland, CA 94612

gardiner-4

APPENDIX B

Permits

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
951 TURNER COURT, SUITE 300, HAYWARD, CA 94545-2651
PHONE (510) 670-5575 ANDREAS GODFREY FAX (510) 670-5262
(510) 670-5248 ALVIN KAN

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 2711 Union Street
Oakland, CA

California Coordinates Source ______ ft. Accuracy ± ___ ft.
CCN ______ ft. CCE ______ ft.
APN ______

CLIENT
Name Gardiner Manufacturing c/o James Cherry
Address 1849 Bonanza Street Phone (925) 449-4033
City Walnut Creek, CA Zip 94596

APPLICANT
Name Aqua Science Engineers, Inc.
Attn: Robert Kitay Fax (925) 837-4853
Address 2411 old Crow Canyon Rd #4 Phone (925) 820-9391
City San Ramon, CA Zip 94583

TYPE OF PROJECT
Well Construction: Cathodic Protection ☐; Water Supply ☐; Monitoring ☒
Geotechnical Investigation: General ☐; Contamination ☐; Well Destruction ☐

PROPOSED WATER SUPPLY WELL USE
New Domestic ☐; Replacement Domestic ☐; Municipal ☐; Irrigation ☐; Industrial ☐; Other ______ ☐

DRILLING METHOD:
Mud Rotary ☐; Air Rotary ☐; Auger ☒; Cable ☐; Other ☐

DRILLER'S LICENSE NO. C-57 482390

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 2 in. Depth 30 ft.
Surface Seal Depth 5 ft. Number 1

GEOTECHNICAL PROJECTS
Number of Borings ______ Maximum
Hole Diameter ______ in. Depth ______ ft.

ESTIMATED STARTING DATE 6-9-98
ESTIMATED COMPLETION DATE 6-10-98

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68

APPLICANT'S SIGNATURE [signature] DATE 6-2-98

FOR OFFICE USE

PERMIT NUMBER 98WR225
WELL NUMBER ______
APN ______

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
(2.) Submit to ACPWA within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs and location sketch for geotechnical projects.
(3.) Permit is void if project not begun within 90 days of approval date

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

(C.) GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL
Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

E. CATHODIC
Fill hole above anode zone with concrete placed by tremie.

F. WELL DESTRUCTION
See attached.

G. SPECIAL CONDITIONS

APPROVED [signature] DATE 6/4/98

CITY OF OAKLAND
Office of Planning and Building

EXCAVATION PERMIT

TO EXCAVATE IN STREETS OR OTHER SPECIFIED WORK

CIVIL ENGINEERING

PERMIT NUMBER		SITE ADDRESS/LOCATION
X9800427		2911 Union ST / on Poplar St between 28th & 29th Sts
APPROX. START DATE	APPROX. END DATE	24-HOUR EMERGENCY PHONE NUMBER (Permit not valid without 24-Hour number)
6-9-98	6-9-98	/
CONTRACTOR'S LICENSE # AND CLASS		CITY BUSINESS TAX #
487000 A, C-57, HAZ		

ATTENTION:

1) State law requires that the contractor/owner call *Underground Service Alert (USA)* two working days before excavating. This permit is not valid unless applicant has secured an inquiry identification number issued by USA. The USA telephone number is 1 (800) 642-2444. UNDERGROUND SERVICE ALERT (USA) #: 175525

2) **48 hours prior to starting work, YOU MUST CALL (510) 238-3651 TO SCHEDULE AN INSPECTION.**

OWNER/BUILDER

I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Sec. 7031.5 Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License law Chapter 9 (commencing with Sec. 7000) of Division 3 of the Business and Professions Code, or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than $500):

☐ I, as an owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale).

☐ I, as owner of the property, am exempt from the sale requirements of the above due to: (1) I am improving my principal place of residence or appurtenances thereto, (2) the work will be performed prior to sale, (3) I have resided in the residence for the 12 months prior to completion of the work, and (4) I have not claimed exemption on this subdivision on more than two structures more than once during any three-year period. (Sec. 7044 Business and Professions Code).

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project, (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License law).

☐ I am exempt under Sec. _____, B&PC for this reason _____.

WORKER'S COMPENSATION

☐ I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof (Sec. 3700, Labor Code).

Policy # _____ Company Name _____

☐ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Worker's Compensation Laws of California (not required for work valued at one hundred dollars ($100) or less).

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Worker's Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked. This permit is issued pursuant to all provisions of Title 12 Chapter 12.12 of the Oakland Municipal Code. It is granted upon the express condition that the permittee shall be responsible for all claims and liabilities arising out of work performed under the permit or arising out of permittee's failure to perform the obligations with respect to street maintenance. The permittee shall, and by acceptance of the permit agrees to defend, indemnify, save and hold harmless the City, its officers and employees, from and against any and all suits, claims, or actions brought by any person for or on account of any bodily injuries, disease or illness or damage to persons and/or property sustained or arising in the construction of the work performed under the permit or in consequence of permittee's failure to perform the obligations with respect to street maintenance. This permit is void 90 days from the date of issuance unless an extension is granted by the Director of the Office of Planning and Building.

I hereby affirm that I am licensed under provisions of Chapter 9 of Division 3 of the Business and Professions Code and my license is in full force and effect (if contractor), that I have read this permit and agree to its requirements, and that the above information is true and correct under penalty of law.

Robert E. Kelley — ☐ Agent for ☐ Contractor ☐ Owner — Signature of Permittee

6-5-98 — Date

DATE STREET LAST RESURFACED	SPECIAL PAVING DETAIL REQUIRED?	HOLIDAY RESTRICTION? (NOV 1 - JAN 1)	LIMITED OPERATION AREA? (7AM-9AM & 4PM-6PM)
10/90	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO

ISSUED BY — DATE ISSUED: 6/5/98

CITY OF OAKLAND

OFFICE OF PLANNING & BUILDING • 1330 BROADWAY • OAKLAND, CALIFORNIA 94612

Administration	238-7200	Building Services	238-3587	Planning	238-3941
Engineering Services	238-2110	Operations	238-3443	Zoning	238-7206

Gardiner Manufacturing Company
C/O Robert E. Kitay
Aqua Science Engineers, Inc.
2411 Old Crow Canyon Road #4
San Ramon, CA 94583

Dear Applicant:

RE: MINOR ENCROACHMENT PERMIT FOR MONITORING WELL IN POPLAR STREET, OAKLAND

Enclosed are the Minor Encroachment Permit and Agreement and the Conditions For Granting a Minor Encroachment Permit allowing you to place one monitoring well within the public right-of-way area of Poplar Street.

Before the permit will become effective, however, it must be signed by the person(s) having the legal authority to do so, properly notarized with notary acknowledgment slip(s) attached, and returned to this office to the attention of Albert Hall for recordation.

You must also obtain a street excavation permit from the Engineering Information Counter, 2nd Floor, 1330 Broadway, prior to the start of the proposed work in the City right of way. For questions regarding the street excavation permit, call the Engineering Information Counter at (510) 238-4777 between 8 a.m. and 4 p.m., Monday through Friday.

If you have any other questions regarding this minor encroachment permit, please call Albert Hall at (510) 238-3238.

Very truly yours,

CALVIN N. WONG
Chief of Building Services

By Philip A. Grubstick
PHILIP A. GRUBSTICK
Engineering Services Manager

Enclosures

:ah

file: minenc.cov8

EXCAVATION

b Site 2711 UNION ST Parcel# 005 -0444-003-01 Appl# X9800427

Descr excavation to put-in a monitoring well (Okay by Albert Hall Permit Issued 06/05/98
) located on Poplar street between 26th and 28th street.

k Type EXCAVATION-PRIVATE P

USA # Util Ctl Job # Acctg#
Util Fund #

Applcnt Phone# Lic# --License Classes--

Owner GARDINER MFG CO
tractor AQUA SCIENCE ENGINEERS, INC. Y (415)820-9391 487000 A, C57
h/Engr
Agent
c Addr 2411 OLD CROW CANYON ROAD, SAN RAMON, CA , 94583

$246.00 TOTAL FEES PAID AT ISSUANCE
$41.00 Applic $205.00 Permit
$.00 Process $.00 Rec Mgmt
$.00 Gen Plan $.00 Invstg
$.00 Other

CITY OF OAKLAND

Date: 06/05/98 Amt Paid: $492.00
By: RJC Register R01 Receipt# 025361

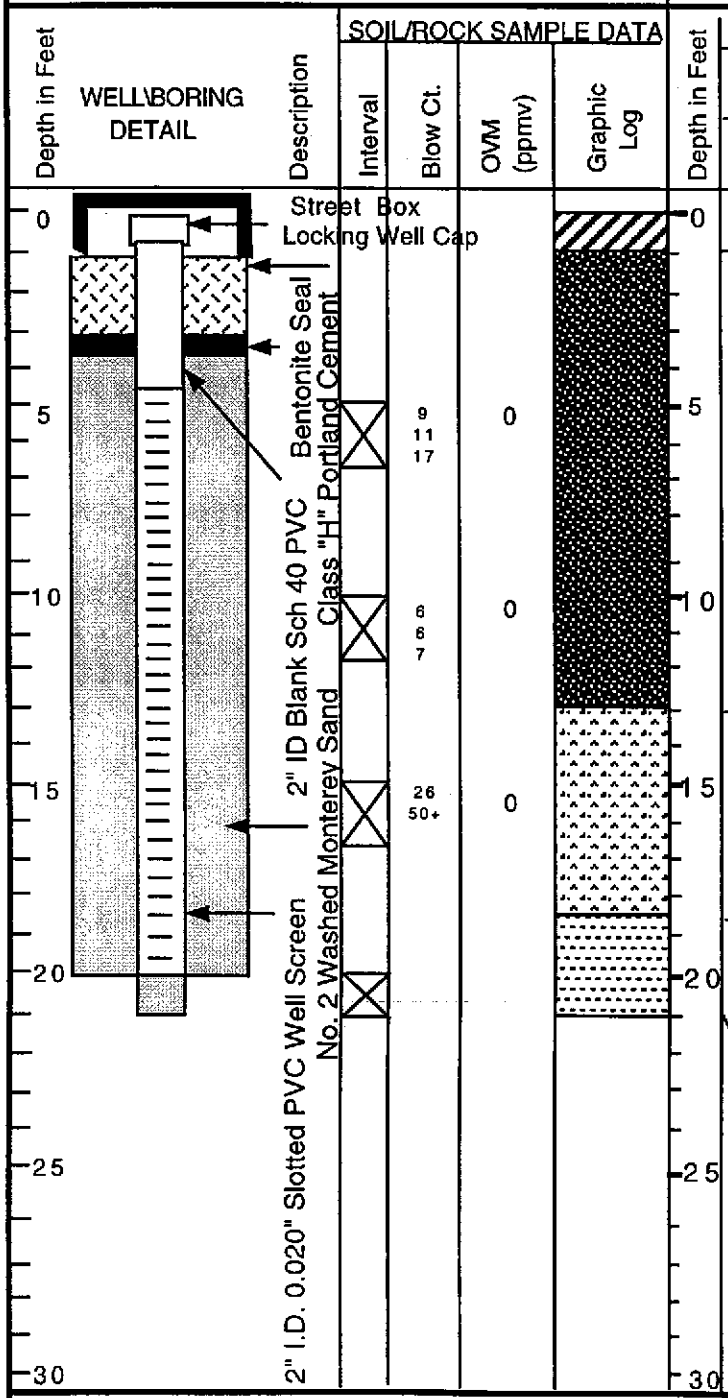
APPENDIX C

Boring Log and Well Construction Details

SOIL BORING LOG AND WELL COMPLETION DETAILS		Monitoring Well: MW-5
Project Name: Custom Alloy Scrap Sales	Project Location: 2711 Union Street, Oakland, CA	Page 1 of 1
Driller: Kvilhaug Well Drilling	Type of Rig: Mobile B-61	Size of Drill: 8" O.D. Hollow-Stem Augers
Logged By: Robert E. Kitay, R.G.	Date Drilled: June 9, 1998	Checked By: David M. Schultz, P.E.

WATER AND WELL DATA

Depth of Water First Encountered: 6.5'	Total Depth of Well Completed: 20.0'
Static Depth of Water in Well:	Well Screen Type and Diameter: 2" Diameter PVC
Total Depth of Boring: 21.0'	Well Screen Slot Size: 0.020"
	Type and Size of Soil Sampler: 2.0" I.D. California Sampler



DESCRIPTION OF LITHOLOGY

standard classification, texture, relative moisture, density, stiffness, odor-staining, USCS designation.

Asphaltic Concrete

Silty CLAY (CH); dark yellow brown; stiff; damp; 60% clay; 40% silt; high plasticity; very low estimated K; no odor

olive brown; moist at 5'

▼ *Groundwater First Encountered*

Sandy GRAVEL (GW); yellow brown; dense; wet; 60% subangular to angular pebbles to 0.5" diameter; 30% medium to coarse sand; 10% silt; non-plastic; high estimated K; no odor

Gravelly SAND (SW); yellow brown; dense; wet; 65-70% medium to coarse sand; 25-30% angular to subangular pebbles to 0.5" diameter; 5% silt; non-plastic; high estimated K; no odor

End of boring at 21.0'

APPENDIX D

Analytical Report and Chain of Custody Form
For Soil Sample

CHROMALAB, INC.

Environmental Services (SDB)

June 16, 1998 *Submission #:* 9806188

AQUA SCIENCE ENGINEERS INC
Atten: Robert Kitay
Project: CUSTOM ALLOY SCRAP SALES *Project#:* 2971
Received: June 10, 1998
re: One sample for Halogenated Volatile Organics by GC/MS analysis.
Method: *8010 Compounds by Method 8240A Nov 1990*

Client Sample ID: **MW-5 6.5'**
Spl#: 190219 *Matrix:* SOIL
Sampled: June 9, 1998 *Run#:* 13291 *Analyzed:* June 15, 1998

ANALYTE	RESULT (ug/Kg)	REPORTING LIMIT (ug/Kg)	BLANK RESULT (ug/Kg)	BLANK SPIKE (%)	DILUTION FACTOR
BROMODICHLOROMETHANE	N.D.	5.0	N.D.	--	1
BROMOFORM	N.D.	5.0	N.D.	--	1
BROMOMETHANE	N.D.	10	N.D.	--	1
CARBON TETRACHLORIDE	N.D.	5.0	N.D.	--	1
CHLOROBENZENE	N.D.	5.0	N.D.	97.1	1
CHLOROETHANE	N.D.	10	N.D.	--	1
2-CHLOROETHYLVINYLETHER	N.D.	50	N.D.	--	1
CHLOROFORM	N.D.	5.0	N.D.	--	1
CHLOROMETHANE	N.D.	10	N.D.	--	1
DIBROMOCHLOROMETHANE	N.D.	5.0	N.D.	--	1
1,2-DICHLOROBENZENE	N.D.	5.0	N.D.	--	1
1,3-DICHLOROBENZENE	N.D.	5.0	N.D.	--	1
1,4-DICHLOROBENZENE	N.D.	5.0	N.D.	--	1
1,1-DICHLOROETHANE	N.D.	5.0	N.D.	--	1
1,2-DICHLOROETHANE	N.D.	5.0	N.D.	--	1
1,1-DICHLOROETHENE	N.D.	5.0	N.D.	78.7	1
1,2-DICHLOROETHENE (CIS)	N.D.	5.0	N.D.	--	1
1,2-DICHLOROETHENE (TRANS)	N.D.	5.0	N.D.	--	1
1,2-DICHLOROPROPANE	N.D.	5.0	N.D.	--	1
CIS-1,3-DICHLOROPROPENE	N.D.	5.0	N.D.	--	1
TRANS-1,3-DICHLOROPROPENE	N.D.	5.0	N.D.	--	1
METHYLENE CHLORIDE	N.D.	5.0	N.D.	--	1
1,1,2,2-TETRACHLOROETHANE	N.D.	5.0	N.D.	--	1
TETRACHLOROETHENE	N.D.	5.0	N.D.	--	1
1,1,1-TRICHLOROETHANE	N.D.	5.0	N.D.	--	1
1,1,2-TRICHLOROETHANE	N.D.	5.0	N.D.	--	1
TRICHLOROETHENE	N.D.	5.0	N.D.	97.0	1
VINYL CHLORIDE	N.D.	5.0	N.D.	--	1
TRICHLOROTRIFLUOROETHANE	N.D.	5.0	N.D.	--	1
TRICHLOROFLUOROMETHANE	N.D.	5.0	N.D.	--	1

June Zhao
Analyst

for Michael Verona
Michael Verona
Operations Manager

1220 Quarry Lane • Pleasanton, California 94566-4756
(925) 484-1919 • Facsimile (925) 484-1096
Federal ID #68-0140157

06198/190219

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

SUBM #: 9806188 REP: PM
CLIENT: ASE
DUE: 06/17/98
REF #: 40288

istody 40288

DATE 6-9-98 PAGE 1 OF 1

SAMPLERS (SIGNATURE) (PHONE NO.)
Robert C. Kitay (925) 820-9391

PROJECT NAME Custom Alloy Scrap Sales NO. 2971
ADDRESS 2711 Union Street, Oakland, CA

ANALYSIS REQUEST

SPECIAL INSTRUCTIONS:

SAMPLE ID.	DATE	TIME	MATRIX	NO. OF SAMPLES	TPH-GASOLINE (EPA 5030/8015)	TPH-GASOLINE/BTEX (EPA 5030/8015-8020)	TPH-DIESEL (EPA 3510/8015)	PURGABLE AROMATICS (EPA 602/8020)	PURGABLE HALOCARBONS (EPA 601 8010)	VOLATILE ORGANICS (EPA 624/8240)	BASE/NUETRALS, ACIDS (EPA 625/8270)	OIL & GREASE (EPA 5520 E&F or B&F)	LUFT METALS (5) (EPA 6010+7000)	TITLE 22 (CAM 17) (EPA 6010+7000)	TCLP (EPA 1311/1310)	STLC- CAM WET (EPA 1311/1310)	REACTIVITY CORROSIVITY IGNITABILITY
MW5 6.5'	6/9	11:05	soil	1					X								

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY LABORATORY:
Robert E. Kitay 9:52	0952	1227	1227
(signature) (time)	(signature) (time)	(signature) (time)	(signature) (time)
Robert E. Kitay 6-10-98	B. Morrow 6/10/98	B. Morrow 6-9-98	C. Cassidy 6/10/98
(printed name) (date)	(printed name) (date)	(printed name) (date)	(printed name) (date)
Company- ASE	Company- Chronalab	Company- Chronalab	Company- Chronalab

COMMENTS:
5-DAY T.A.T.

APPENDIX E

Well Sampling Field Logs

aqua science engineers inc.

WELL SAMPLING FIELD LOG

Project Name and Address: Custom Alloy
Job #: 2971 Date of sampling: 6-15-98
Well Name: MW-1 Sampled by: CR
Total depth of well (feet): 24.39 Well diameter (inches): 2
Depth to water before sampling (feet): 8.00
Thickness of floating product if any: —
Depth of well casing in water (feet): 16.39
Number of gallons per well casing volume (gallons): 2.7
Number of well casing volumes to be removed: 3 4
Req'd volume of groundwater to be purged before sampling (gallons): 11
Equipment used to purge the well: Dedicated Bailer
Time Evacuation Began: 15:13 Time Evacuation Finished: 15:22
Approximate volume of groundwater purged: 11
Did the well go dry?: NO After how many gallons:
Time samples were collected: 15:25
Depth to water at time of sampling: 8.11
Percent recovery at time of sampling: 98
Samples collected with: Dedicated Bailer
Sample color: lt brown Odor: none
Description of sediment in sample: minor silt

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
3	61.2	8.3	830
6	61.3	8.2	740
9	61.9	8.0	740
11	61.7	8.2	810

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
MW-1	4	40mL VOA	HCl	Y	TPH-g/BTEX/fuel oxy/ 8010
MW-1	2	1 L Amber	HCl	Y	TPH-D / 8310

aqua science engineers inc.

WELL SAMPLING FIELD LOG

Project Name and Address: Custom Alloy
Job #: 2971 Date of sampling: 6-15-98
Well Name: MW-2 Sampled by: CR
Total depth of well (feet): 19.22 Well diameter (inches): 2
Depth to water before sampling (feet): 8.28
Thickness of floating product if any:
Depth of well casing in water (feet): 10.94
Number of gallons per well casing volume (gallons): 1.8
Number of well casing volumes to be removed: 4
Req'd volume of groundwater to be purged before sampling (gallons): 7
Equipment used to purge the well: Dedicated Bailer
Time Evacuation Began: 15:37 Time Evacuation Finished: 15:45
Approximate volume of groundwater purged: 7
Did the well go dry?: NO After how many gallons:
Time samples were collected: 15:50
Depth to water at time of sampling: 8.37
Percent recovery at time of sampling: 98
Samples collected with: Dedicated Bailer
Sample color: lt brown Odor: none
Description of sediment in sample: minor SILT

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
2	64.2	8.2	1030
4	63.1	8.0	1010
6	63.7	8.3	1000
7	64.0	7.9	990

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
MW-2	4	40mL VOA	HCl	Y	TPH-D/8010
MW-2	2	1 L Amber	HCl	Y	TPH-D/8310

aqua science engineers inc.

WELL SAMPLING FIELD LOG

Project Name and Address: Custom Alloy
Job #: 2971 Date of sampling: 6-15-98
Well Name: MW-3 Sampled by: CR
Total depth of well (feet): 24.71 Well diameter (inches): 2
Depth to water before sampling (feet): 5.93
Thickness of floating product if any: —
Depth of well casing in water (feet): 18.78
Number of gallons per well casing volume (gallons): 3.2
Number of well casing volumes to be removed: 4
Req'd volume of groundwater to be purged before sampling (gallons): 12
Equipment used to purge the well: Dedicated Bailer
Time Evacuation Began: 16:02 Time Evacuation Finished: 16:10
Approximate volume of groundwater purged: 12
Did the well go dry?: NO After how many gallons:
Time samples were collected: 16:15
Depth to water at time of sampling: 6.21
Percent recovery at time of sampling: 96
Samples collected with: Dedicated Bailer
Sample color: lt brown Odor: None
Description of sediment in sample: fine silt

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
4	60.1	8.1	1030
8	60.0	8.1	1000
10	59.9	8.0	990
12	61.0	8.2	1010

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
MW-3	4	40ml VOA	HCl	Y	TPH-G/BTEX/MTBE/8010
MW-3	2	1 L Amber	HCl	Y	TPH-D/8310

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aqua science engineers inc.

WELL SAMPLING FIELD LOG

Project Name and Address: Custom Alloy
Job #: 2971 Date of sampling: 6-15-98
Well Name: MW-4 Sampled by: CR
Total depth of well (feet): 21.25 Well diameter (inches): 2
Depth to water before sampling (feet): 6.83
Thickness of floating product if any: —
Depth of well casing in water (feet): 14.42
Number of gallons per well casing volume (gallons): 2.4
Number of well casing volumes to be removed: 4
Req'd volume of groundwater to be purged before sampling (gallons): 10
Equipment used to purge the well: Dedicated Bailer
Time Evacuation Began: 16:25 Time Evacuation Finished: 16:39
Approximate volume of groundwater purged: 10
Did the well go dry?: No After how many gallons:
Time samples were collected: 16:45
Depth to water at time of sampling: 7.02
Percent recovery at time of sampling: 97
Samples collected with: Dedicated Bailer
Sample color: lt brown Odor: None
Description of sediment in sample: SILT

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
3	62.0	8.1	1510
5	61.9	8.0	1500
8	61.8	7.9	1480
10	62.2	8.3	1490

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
MW-4	4	40 ml VOA	HCl	Y	TPH-g / BTEX / MTBE / 8010
MW-4	2	1 l Amber	HCl	Y	TPH-D / 8310

aqua science engineers inc.

WELL SAMPLING FIELD LOG

Project Name and Address: Custom Alloy
Job #: 2971 Date of sampling: 6-15-98
Well Name: MW-5 Sampled by: CR
Total depth of well (feet): ~~19.16~~ 19.16 Well diameter (inches): 2
Depth to water before sampling (feet): 6.80
Thickness of floating product if any: —
Depth of well casing in water (feet): 12.36
Number of gallons per well casing volume (gallons): 2.1
Number of well casing volumes to be removed: 4
Req'd volume of groundwater to be purged before sampling (gallons): 8
Equipment used to purge the well: Dedicated Bailer
Time Evacuation Began: 17:00 Time Evacuation Finished: 17:10
Approximate volume of groundwater purged: 8
Did the well go dry?: NO After how many gallons:
Time samples were collected: 17:15
Depth to water at time of sampling: 6.87
Percent recovery at time of sampling: 98
Samples collected with: Dedicated Bailer
Sample color: lt brown Odor: None
Description of sediment in sample: Silt

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
2	62.0	8.0	780
4	62.1	8.1	810
6	63.1	8.2	820
8	62.7	7.9	840

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
MW-5	3	40mL VOA	HCl	Y	8010

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APPENDIX F

Analytical Report and Chain of Custody Form
For Groundwater Samples

CHROMALAB, INC.

Environmental Services (SDB)

June 29, 1998 *Submission #:* 9806288

AQUA SCIENCE ENGINEERS INC

Atten: Charlie Rous

Project: CUSTOM ALLOY *Project#:* 2971
Received: June 17, 1998

re: One sample for Gasoline BTEX MTBE analysis.
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: **MW-4**
Spl#: 191434 *Matrix:* WATER
Sampled: June 15, 1998 *Run#:*13538 *Analyzed:* June 29, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	50	N.D.	94	1
MTBE	N.D.	5.0	N.D.	94	1
BENZENE	1.6	0.50	N.D.	95	1
TOLUENE	4.6	0.50	N.D.	95	1
ETHYL BENZENE	N.D.	0.50	N.D.	97	1
XYLENES	N.D.	0.50	N.D.	98	1

Vincent Vancil
Analyst

Michael Verona
Operations Manager

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CHROMALAB, INC.

Environmental Services (SDB)

June 29, 1998 *Submission #:* 9806288

AQUA SCIENCE ENGINEERS INC

Atten: Charlie Rous

Project: CUSTOM ALLOY *Project#:* 2971
Received: June 17, 1998

re: One sample for Gasoline BTEX MTBE analysis.
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: **MW-3**
Spl#: 191433 *Matrix:* WATER
Sampled: June 15, 1998 *Run#:*13538 *Analyzed:* June 29, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	50	N.D.	94	1
MTBE	N.D.	5.0	N.D.	94	1
BENZENE	N.D.	0.50	N.D.	95	1
TOLUENE	N.D.	0.50	N.D.	95	1
ETHYL BENZENE	N.D.	0.50	N.D.	97	1
XYLENES	N.D.	0.50	N.D.	98	1

Vincent Vancil
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CHROMALAB, INC.

Environmental Services (SDB)

June 29, 1998 *Submission #:* 9806288

AQUA SCIENCE ENGINEERS INC

Atten: Charlie Rous

Project: CUSTOM ALLOY *Project#:* 2971
Received: June 17, 1998

re: One sample for Gasoline BTEX MTBE analysis.
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: **MW-1**
Spl#: 191431 *Matrix:* WATER
Sampled: June 15, 1998 *Run#:*13538 *Analyzed:* June 29, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	50	N.D.	94	1
MTBE	N.D.	5.0	N.D.	94	1
BENZENE	0.68	0.50	N.D.	95	1
TOLUENE	2.8	0.50	N.D.	95	1
ETHYL BENZENE	N.D.	0.50	N.D.	97	1
XYLENES	N.D.	0.50	N.D.	98	1

Vincent Vancil
Analyst

Michael Verona
Operations Manager

CHROMALAB, INC.

Environmental Services (SDB)

June 29, 1998 *Submission #:* 9806288

AQUA SCIENCE ENGINEERS INC

Atten: Charlie Rous

Project: CUSTOM ALLOY *Project#:* 2971
Received: June 17, 1998

re: One sample for Gasoline BTEX MTBE analysis.
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: **MW-2**
Spl#: 191432 *Matrix:* WATER
Sampled: June 15, 1998 *Run#:*13538 *Analyzed:* June 29, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	50	N.D.	94	1
MTBE	N.D.	5.0	N.D.	94	1
BENZENE	2.4	0.50	N.D.	95	1
TOLUENE	0.66	0.50	N.D.	95	1
ETHYL BENZENE	N.D.	0.50	N.D.	97	1
XYLENES	N.D.	0.50	N.D.	98	1

Vincent Vancil
Analyst

Michael Verona
Operations Manager

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CHROMALAB, INC.

Environmental Services (SDB)

June 24, 1998 *Submission #:* 9806288

AQUA SCIENCE ENGINEERS INC

Atten: Charlie Rous

Project: CUSTOM ALLOY *Project#:* 2971
Received: June 17, 1998

re: 4 samples for TPH - Diesel analysis.
Method: *EPA 8015M*

Matrix: WATER *Extracted:* June 22, 1998
Sampled: June 15, 1998 *Run#:* 13395 *Analyzed:* June 23, 1998

Spl#	CLIENT SPL ID	DIESEL (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
191431	MW-1	N.D.	50	N.D.	85.2	1
191432	MW-2	N.D.	620	N.D.	85.2	1
191433	MW-3	N.D.	50	N.D.	85.2	1
191434	MW-4	690	50	N.D.	85.2	1

Note: Hydrocarbon reported is in the late Diesel Range and does not match our Diesel Standard.

Bruce Havlik
Analyst

Michael Verona
Operations Manager

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CHROMALAB, INC.

Environmental Services (SDB)

June 26, 1998 *Submission #:* 9806288

AQUA SCIENCE ENGINEERS INC

Atten: Charlie Rous

Project: CUSTOM ALLOY *Project#:* 2971
Received: June 17, 1998

re: One sample for Polynuclear Aromatics (PNAs) analysis.
Method: *SW846 Method 8310 Sept 1986*

Client Sample ID: **MW-1**
Spl#: 191431 *Matrix:* WATER *Extracted:* June 18, 1998
Sampled: June 15, 1998 *Run#:* 13360 *Analyzed:* June 23, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
NAPHTHALENE	N.D.	0.10	N.D.	79.2	1
ACENAPHTHENE	N.D.	0.10	N.D.	--	1
ACENAPHTHYLENE	N.D.	0.10	N.D.	--	1
FLUORENE	N.D.	0.10	N.D.	--	1
PHENANTHRENE	N.D.	0.10	N.D.	101	1
ANTHRACENE	N.D.	0.050	N.D.	--	1
FLUORANTHENE	N.D.	0.20	N.D.	--	1
PYRENE	N.D.	0.15	N.D.	107	1
BENZO(A)ANTHRACENE	N.D.	0.15	N.D.	--	1
CHRYSENE	N.D.	0.10	N.D.	108	1
BENZO(B)FLUORANTHENE	N.D.	0.10	N.D.	--	1
BENZO(K)FLUORANTHENE	N.D.	0.050	N.D.	--	1
BENZO(A)PYRENE	N.D.	0.10	N.D.	73.2	1
INDENO(1,2,3-CD)PYRENE	N.D.	0.10	N.D.	--	1
DIBENZO(A,H)ANTHRACENE	N.D.	0.10	N.D.	--	1
BENZO(G,H,I)PERYLENE	N.D.	0.10	N.D.	--	1

Bruce Havlik
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CHROMALAB, INC.

Environmental Services (SDB)

June 26, 1998 *Submission #:* 9806288

AQUA SCIENCE ENGINEERS INC

Atten: Charlie Rous

Project: CUSTOM ALLOY *Project#:* 2971
Received: June 17, 1998

re: One sample for Polynuclear Aromatics (PNAs) analysis.
Method: *SW846 Method 8310 Sept 1986*

Client Sample ID: **MW-2**
Spl#: 191432 *Matrix:* WATER *Extracted:* June 18, 1998
Sampled: June 15, 1998 *Run#:* 13360 *Analyzed:* June 23, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
NAPHTHALENE	N.D.	0.10	N.D.	79.2	1
ACENAPHTHENE	N.D.	0.10	N.D.	--	1
ACENAPHTHYLENE	N.D.	0.10	N.D.	--	1
FLUORENE	N.D.	0.10	N.D.	--	1
PHENANTHRENE	N.D.	0.10	N.D.	101	1
ANTHRACENE	N.D.	0.050	N.D.	--	1
FLUORANTHENE	N.D.	0.20	N.D.	--	1
PYRENE	N.D.	0.15	N.D.	107	1
BENZO(A)ANTHRACENE	N.D.	0.15	N.D.	--	1
CHRYSENE	N.D.	0.10	N.D.	108	1
BENZO(B)FLUORANTHENE	N.D.	0.10	N.D.	--	1
BENZO(K)FLUORANTHENE	N.D.	0.050	N.D.	--	1
BENZO(A)PYRENE	N.D.	0.10	N.D.	73.2	1
INDENO(1,2,3-CD)PYRENE	N.D.	0.10	N.D.	--	1
DIBENZO(A,H)ANTHRACENE	N.D.	0.10	N.D.	--	1
BENZO(G,H,I)PERYLENE	N.D.	0.10	N.D.	--	1

Bruce Havlik
Analyst

Michael Verona FOR
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CHROMALAB, INC.

Environmental Services (SDB)

June 26, 1998 *Submission #:* 9806288

AQUA SCIENCE ENGINEERS INC

Atten: Charlie Rous

Project: CUSTOM ALLOY *Project#:* 2971
Received: June 17, 1998

re: One sample for Polynuclear Aromatics (PNAs) analysis.
Method: *SW846 Method 8310 Sept 1986*

Client Sample ID: **MW-3**
Spl#: 191433 *Matrix:* WATER *Extracted:* June 18, 1998
Sampled: June 15, 1998 *Run#:* 13360 *Analyzed:* June 23, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
NAPHTHALENE	N.D.	0.10	N.D.	79.2	1
ACENAPHTHENE	N.D.	0.10	N.D.	--	1
ACENAPHTHYLENE	N.D.	0.10	N.D.	--	1
FLUORENE	N.D.	0.10	N.D.	--	1
PHENANTHRENE	N.D.	0.10	N.D.	101	1
ANTHRACENE	N.D.	0.050	N.D.	--	1
FLUORANTHENE	N.D.	0.20	N.D.	--	1
PYRENE	N.D.	0.15	N.D.	107	1
BENZO(A)ANTHRACENE	N.D.	0.15	N.D.	--	1
CHRYSENE	N.D.	0.10	N.D.	108	1
BENZO(B)FLUORANTHENE	N.D.	0.10	N.D.	--	1
BENZO(K)FLUORANTHENE	N.D.	0.050	N.D.	--	1
BENZO(A)PYRENE	N.D.	0.10	N.D.	73.2	1
INDENO(1,2,3-CD)PYRENE	N.D.	0.10	N.D.	--	1
DIBENZO(A,H)ANTHRACENE	N.D.	0.10	N.D.	--	1
BENZO(G,H,I)PERYLENE	N.D.	0.10	N.D.	--	1

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CHROMALAB, INC.

Environmental Services (SDB)

June 26, 1998 *Submission #:* 9806288

AQUA SCIENCE ENGINEERS INC

Atten: Charlie Rous

Project: CUSTOM ALLOY *Project#:* 2971
Received: June 17, 1998

re: One sample for Polynuclear Aromatics (PNAs) analysis.
Method: *SW846 Method 8310 Sept 1986*

Client Sample ID: **MW-4**
Spl#: 191434 *Matrix:* WATER *Extracted:* June 18, 1998
Sampled: June 15, 1998 *Run#:* 13360 *Analyzed:* June 23, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
NAPHTHALENE	N.D.	0.10	N.D.	79.2	1
ACENAPHTHENE	N.D.	0.10	N.D.	--	1
ACENAPHTHYLENE	N.D.	0.10	N.D.	--	1
FLUORENE	N.D.	0.10	N.D.	--	1
PHENANTHRENE	N.D.	0.10	N.D.	101	1
ANTHRACENE	N.D.	0.050	N.D.	--	1
FLUORANTHENE	N.D.	0.20	N.D.	--	1
PYRENE	N.D.	0.15	N.D.	107	1
BENZO(A)ANTHRACENE	N.D.	0.15	N.D.	--	1
CHRYSENE	0.25	0.10	N.D.	108	1
BENZO(B)FLUORANTHENE	N.D.	0.10	N.D.	--	1
BENZO(K)FLUORANTHENE	N.D.	0.050	N.D.	--	1
BENZO(A)PYRENE	N.D.	0.10	N.D.	73.2	1
INDENO(1,2,3-CD)PYRENE	N.D.	0.10	N.D.	--	1
DIBENZO(A,H)ANTHRACENE	N.D.	0.10	N.D.	--	1
BENZO(G,H,I)PERYLENE	N.D.	0.10	N.D.	--	1

Bruce Havlik
Analyst

Michael Verona
Operations Manager

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CHROMALAB, INC.

Environmental Services (SDB)

June 25, 1998 *Submission #:* 9806288

AQUA SCIENCE ENGINEERS INC

Atten: Charlie Rous

Project: CUSTOM ALLOY *Project#:* 2971
Received: June 17, 1998

re: One sample for Volatile Halogenated Organics analysis.
Method: *SW846 Method 8240A Nov 1990*

Client Sample ID: **MW-1**
Spl#: 191431 *Matrix:* WATER
Sampled: June 15, 1998 *Run#:* 13473 *Analyzed:* June 23, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
VINYL CHLORIDE	N.D.	20	N.D.	--	40
CHLOROETHANE	N.D.	20	N.D.	--	40
TRICHLOROFLUOROMETHANE	N.D.	20	N.D.	--	40
1,1-DICHLOROETHENE	N.D.	20	N.D.	86.0	40
METHYLENE CHLORIDE	N.D.	200	N.D.	--	40
TRANS-1,2-DICHLOROETHENE	N.D.	20	N.D.	--	40
CIS-1,2-DICHLOROETHENE	68	20	N.D.	--	40
1,1-DICHLOROETHANE	N.D.	20	N.D.	--	40
CHLOROFORM	N.D.	120	N.D.	--	40
1,1,1-TRICHLOROETHANE	N.D.	20	N.D.	--	40
CARBON TETRACHLORIDE	N.D.	20	N.D.	--	40
1,2-DICHLOROETHANE	N.D.	20	N.D.	--	40
TRICHLOROETHENE	2000	20	N.D.	88.0	40
1,2-DICHLOROPROPANE	N.D.	20	N.D.	--	40
BROMODICHLOROMETHANE	N.D.	20	N.D.	--	40
2-CHLOROETHYL VINYL ETHER	N.D.	20	N.D.	--	40
TRANS-1,3-DICHLOROPROPENE	N.D.	20	N.D.	--	40
CIS-1,3-DICHLOROPROPENE	N.D.	20	N.D.	--	40
1,1,2-TRICHLOROETHANE	N.D.	20	N.D.	--	40
TETRACHLOROETHENE	20	20	N.D.	--	40
DIBROMOCHLOROMETHANE	N.D.	20	N.D.	--	40
CHLOROBENZENE	N.D.	20	N.D.	90.0	40
BROMOFORM	N.D.	80	N.D.	--	40
1,1,2,2-TETRACHLOROETHANE	N.D.	20	N.D.	--	40
1,3-DICHLOROBENZENE	N.D.	20	N.D.	--	40
1,4-DICHLOROBENZENE	N.D.	20	N.D.	--	40
1,2-DICHLOROBENZENE	N.D.	20	N.D.	--	40
TRICHLOROTRIFLUOROETHANE	N.D.	80	N.D.	--	40
CHLOROMETHANE	N.D.	40	N.D.	--	40
BROMOMETHANE	N.D.	40	N.D.	--	40

Oleg Nemtsov
Analyst

Michael Verona
Operations Manager

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Federal ID #68-0140157

CHROMALAB, INC.

Environmental Services (SDB)

June 25, 1998 *Submission #:* 9806288

AQUA SCIENCE ENGINEERS INC

Atten: Charlie Rous

Project: CUSTOM ALLOY *Project#:* 2971
Received: June 17, 1998

re: One sample for Volatile Halogenated Organics analysis.
Method: *SW846 Method 8240A Nov 1990*

Client Sample ID: **MW-2**
Spl#: 191432 *Matrix:* WATER
Sampled: June 15, 1998 *Run#:* 13473 *Analyzed:* June 23, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
VINYL CHLORIDE	48	5.0	N.D.	--	10
CHLOROETHANE	N.D.	5.0	N.D.	--	10
TRICHLOROFLUOROMETHANE	N.D.	5.0	N.D.	--	10
1,1-DICHLOROETHENE	N.D.	5.0	N.D.	86.0	10
METHYLENE CHLORIDE	N.D.	50	N.D.	--	10
TRANS-1,2-DICHLOROETHENE	29	5.0	N.D.	--	10
CIS-1,2-DICHLOROETHENE	190	5.0	N.D.	--	10
1,1-DICHLOROETHANE	N.D.	5.0	N.D.	--	10
CHLOROFORM	N.D.	30	N.D.	--	10
1,1,1-TRICHLOROETHANE	N.D.	5.0	N.D.	--	10
CARBON TETRACHLORIDE	N.D.	5.0	N.D.	--	10
1,2-DICHLOROETHANE	N.D.	5.0	N.D.	--	10
TRICHLOROETHENE	140	5.0	N.D.	88.0	10
1,2-DICHLOROPROPANE	N.D.	5.0	N.D.	--	10
BROMODICHLOROMETHANE	N.D.	5.0	N.D.	--	10
2-CHLOROETHYL VINYL ETHER	N.D.	5.0	N.D.	--	10
TRANS-1,3-DICHLOROPROPENE	N.D.	5.0	N.D.	--	10
CIS-1,3-DICHLOROPROPENE	N.D.	5.0	N.D.	--	10
1,1,2-TRICHLOROETHANE	N.D.	5.0	N.D.	--	10
TETRACHLOROETHENE	13	5.0	N.D.	--	10
DIBROMOCHLOROMETHANE	N.D.	5.0	N.D.	--	10
CHLOROBENZENE	130	5.0	N.D.	90.0	10
BROMOFORM	N.D.	20	N.D.	--	10
1,1,2,2-TETRACHLOROETHANE	N.D.	5.0	N.D.	--	10
1,3-DICHLOROBENZENE	N.D.	5.0	N.D.	--	10
1,4-DICHLOROBENZENE	N.D.	5.0	N.D.	--	10
1,2-DICHLOROBENZENE	62	5.0	N.D.	--	10
TRICHLOROTRIFLUOROETHANE	N.D.	20	N.D.	--	10
CHLOROMETHANE	N.D.	10	N.D.	--	10
BROMOMETHANE	N.D.	10	N.D.	--	10

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CHROMALAB, INC.

Environmental Services (SDB)

June 25, 1998 *Submission #:* 9806288

AQUA SCIENCE ENGINEERS INC

Atten: Charlie Rous

Project: CUSTOM ALLOY *Project#:* 2971
Received: June 17, 1998

re: One sample for Volatile Halogenated Organics analysis.
Method: *SW846 Method 8240A Nov 1990*

Client Sample ID: **MW-3**
Spl#: 191433 *Matrix:* WATER
Sampled: June 15, 1998 *Run#:* 13473 *Analyzed:* June 23, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
VINYL CHLORIDE	N.D.	20	N.D.	--	40
CHLOROETHANE	N.D.	20	N.D.	--	40
TRICHLOROFLUOROMETHANE	N.D.	20	N.D.	--	40
1,1-DICHLOROETHENE	N.D.	20	N.D.	86.0	40
METHYLENE CHLORIDE	N.D.	200	N.D.	--	40
TRANS-1,2-DICHLOROETHENE	N.D.	20	N.D.	--	40
CIS-1,2-DICHLOROETHENE	26	20	N.D.	--	40
1,1-DICHLOROETHANE	N.D.	20	N.D.	--	40
CHLOROFORM	N.D.	120	N.D.	--	40
1,1,1-TRICHLOROETHANE	N.D.	20	N.D.	--	40
CARBON TETRACHLORIDE	N.D.	20	N.D.	--	40
1,2-DICHLOROETHANE	N.D.	20	N.D.	--	40
TRICHLOROETHENE	700	20	N.D.	88.0	40
1,2-DICHLOROPROPANE	N.D.	20	N.D.	--	40
BROMODICHLOROMETHANE	N.D.	20	N.D.	--	40
2-CHLOROETHYL VINYL ETHER	N.D.	20	N.D.	--	40
TRANS-1,3-DICHLOROPROPENE	N.D.	20	N.D.	--	40
CIS-1,3-DICHLOROPROPENE	N.D.	20	N.D.	--	40
1,1,2-TRICHLOROETHANE	N.D.	20	N.D.	--	40
TETRACHLOROETHENE	4400	20	N.D.	--	40
DIBROMOCHLOROMETHANE	N.D.	20	N.D.	--	40
CHLOROBENZENE	N.D.	20	N.D.	90.0	40
BROMOFORM	N.D.	80	N.D.	--	40
1,1,2,2-TETRACHLOROETHANE	N.D.	20	N.D.	--	40
1,3-DICHLOROBENZENE	N.D.	20	N.D.	--	40
1,4-DICHLOROBENZENE	N.D.	20	N.D.	--	40
1,2-DICHLOROBENZENE	N.D.	20	N.D.	--	40
TRICHLOROTRIFLUOROETHANE	N.D.	80	N.D.	--	40
CHLOROMETHANE	N.D.	40	N.D.	--	40
BROMOMETHANE	N.D.	40	N.D.	--	40

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CHROMALAB, INC.

Environmental Services (SDB)

June 25, 1998 *Submission #:* 9806288

AQUA SCIENCE ENGINEERS INC

Atten: Charlie Rous

Project: CUSTOM ALLOY *Project#:* 2971
Received: June 17, 1998

re: One sample for Volatile Halogenated Organics analysis.
Method: *SW846 Method 8260A Sept 1994*

Client Sample ID: **MW-4**
Spl#: 191434 *Matrix:* WATER
Sampled: June 15, 1998 *Run#:* 13472 *Analyzed:* June 24, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
VINYL CHLORIDE	40	0.50	N.D.	--	1
CHLOROETHANE	N.D.	0.50	N.D.	--	1
TRICHLOROFLUOROMETHANE	N.D.	0.50	N.D.	--	1
1,1-DICHLOROETHENE	1.3	0.50	N.D.	109	1
METHYLENE CHLORIDE	N.D.	5.0	N.D.	--	1
TRANS-1,2-DICHLOROETHENE	6.4	0.50	N.D.	--	1
CIS-1,2-DICHLOROETHENE	110	0.50	N.D.	--	1
1,1-DICHLOROETHANE	1.1	0.50	N.D.	--	1
CHLOROFORM	N.D.	3.0	N.D.	--	1
1,1,1-TRICHLOROETHANE	N.D.	0.50	N.D.	--	1
CARBON TETRACHLORIDE	N.D.	0.50	N.D.	--	1
1,2-DICHLOROETHANE	N.D.	0.50	N.D.	--	1
TRICHLOROETHENE	14	0.50	N.D.	106	1
1,2-DICHLOROPROPANE	N.D.	0.50	N.D.	--	1
BROMODICHLOROMETHANE	N.D.	0.50	N.D.	--	1
2-CHLOROETHYL VINYL ETHER	N.D.	0.50	N.D.	--	1
TRANS-1,3-DICHLOROPROPENE	N.D.	0.50	N.D.	--	1
CIS-1,3-DICHLOROPROPENE	N.D.	0.50	N.D.	--	1
1,1,2-TRICHLOROETHANE	N.D.	0.50	N.D.	--	1
TETRACHLOROETHENE	N.D.	0.50	N.D.	--	1
DIBROMOCHLOROMETHANE	N.D.	0.50	N.D.	--	1
CHLOROBENZENE	N.D.	0.50	N.D.	104	1
BROMOFORM	N.D.	2.0	N.D.	--	1
1,1,2,2-TETRACHLOROETHANE	N.D.	0.50	N.D.	--	1
1,3-DICHLOROBENZENE	N.D.	0.50	N.D.	--	1
1,4-DICHLOROBENZENE	N.D.	0.50	N.D.	--	1
1,2-DICHLOROBENZENE	N.D.	0.50	N.D.	--	1
TRICHLOROTRIFLUOROETHANE	N.D.	2.0	N.D.	--	1
CHLOROMETHANE	N.D.	1.0	N.D.	--	1
BROMOMETHANE	N.D.	1.0	N.D.	--	1

Oleg Nemtsov
Analyst

Michael Verona
Operations Manager

CHROMALAB, INC.

Environmental Services (SDB)

June 25, 1998 *Submission #:* 9806288

AQUA SCIENCE ENGINEERS INC

Atten: Charlie Rous

Project: CUSTOM ALLOY *Project#:* 2971
Received: June 17, 1998

re: One sample for Volatile Halogenated Organics analysis.
Method: *SW846 Method 8240A Nov 1990*

Client Sample ID: **MW-5**
Spl#: 191435 *Matrix:* WATER
Sampled: June 15, 1998 *Run#:* 13473 *Analyzed:* June 23, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
VINYL CHLORIDE	N.D.	20	N.D.	--	40
CHLOROETHANE	N.D.	20	N.D.	--	40
TRICHLOROFLUOROMETHANE	N.D.	20	N.D.	--	40
1,1-DICHLOROETHENE	43	20	N.D.	86.0	40
METHYLENE CHLORIDE	N.D.	200	N.D.	--	40
TRANS-1,2-DICHLOROETHENE	N.D.	20	N.D.	--	40
CIS-1,2-DICHLOROETHENE	87	20	N.D.	--	40
1,1-DICHLOROETHANE	N.D.	20	N.D.	--	40
CHLOROFORM	N.D.	120	N.D.	--	40
1,1,1-TRICHLOROETHANE	160	20	N.D.	--	40
CARBON TETRACHLORIDE	N.D.	20	N.D.	--	40
1,2-DICHLOROETHANE	N.D.	20	N.D.	--	40
TRICHLOROETHENE	3700	20	N.D.	88.0	40
1,2-DICHLOROPROPANE	N.D.	20	N.D.	--	40
BROMODICHLOROMETHANE	N.D.	20	N.D.	--	40
2-CHLOROETHYL VINYL ETHER	N.D.	20	N.D.	--	40
TRANS-1,3-DICHLOROPROPENE	N.D.	20	N.D.	--	40
CIS-1,3-DICHLOROPROPENE	N.D.	20	N.D.	--	40
1,1,2-TRICHLOROETHANE	N.D.	20	N.D.	--	40
TETRACHLOROETHENE	N.D.	20	N.D.	--	40
DIBROMOCHLOROMETHANE	N.D.	20	N.D.	--	40
CHLOROBENZENE	N.D.	20	N.D.	90.0	40
BROMOFORM	N.D.	80	N.D.	--	40
1,1,2,2-TETRACHLOROETHANE	N.D.	20	N.D.	--	40
1,3-DICHLOROBENZENE	N.D.	20	N.D.	--	40
1,4-DICHLOROBENZENE	N.D.	20	N.D.	--	40
1,2-DICHLOROBENZENE	N.D.	20	N.D.	--	40
TRICHLOROTRIFLUOROETHANE	N.D.	80	N.D.	--	40
CHLOROMETHANE	N.D.	40	N.D.	--	40
BROMOMETHANE	N.D.	40	N.D.	--	40

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SUBM #: 9806288 REP: PM
CLIENT: ASE
DUE: 06/24/98
REF #: 40421

istody

40421

DATE 6-15-98 PAGE 1 OF 1

SAMPLERS (SIGNATURE) (PHONE NO.) 820-9391

PROJECT NAME Custom Alloy NO. 2971

ADDRESS 2711 Union St., Oakland

ANALYSIS REQUEST

SPECIAL INSTRUCTIONS:

5 DAY TAT

SAMPLE ID.	DATE	TIME	MATRIX	NO. OF SAMPLES	TPH-GASOLINE (EPA 5030/8015)	TPH-GASOLINE/BTEX/MTBE (EPA 5030/8015-8020)	TPH-DIESEL (EPA 3510/8015)	PURGABLE AROMATICS (EPA 602/8020)	PURGABLE HALOCARBONS (EPA 601/8010)	VOLATILE ORGANICS (EPA 624/8240)	BASE/NUETRALS, ACIDS (EPA 625/8270)	OIL & GREASE (EPA 5520 E&F or B&F)	LUFT METALS (5) (EPA 6010+7000)	TITLE 22 (CAM 17) (EPA 6010+7000)	TCLP (EPA 1311/1310)	STLC-CAM MET (EPA 1311/1310)	REACTIVITY CORROSIVITY IGNITABILITY	PNA EPA 8310
MW-1	6-15-98	15:25	H_2O	4 VOA		X			X									
MW-2		15:50				X			X									
MW-3		16:15				X			X									
MW-4		16:45		↓		X			X									
MW-5		17:15		3 VOA					X									
MW-1		15:25		2 L			X											X
MW-2		15:50					X											X
MW-3		16:15					X											X
MW-4	↓	16:45	↓	↓			X											X

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY LABORATORY:	COMMENTS:
(signature) (time)	(signature) 1756 (time)	(signature) 1756 (time)	(signature) (time)	5 DAY TAT
Charlie Rous 6-16-98			C. Cassidy 17:50	
(printed name) (date)	(printed name) (date)	(printed name) (date)	(printed name) (date)	
Company- ASE	Company-	Company-	Company- CL 6-17-98	