aqua science engineers inc.

R0321

September 5, 2003

QUARTERLY GROUNDWATER MONITORING REPORT
JULY 2003 GROUNDWATER SAMPLING
ASE JOB NO. 3412

at

Former Chan's Shell Station
726 Harrison Street
Oakland, CA 94602

Prepared by:
AQUA SCIENCE ENGINEERS, INC.
208 W. El Pintado
Danville, CA 94526
(925) 820-9391

1.0 INTRODUCTION

Site Location (Site), See Figure 1
Former Chan's Shell Station
726 Harrison Street
Oakland, CA 94602
(510) 444-6583

Responsible Party
Kin Chan
4328 Edgewood Avenue
Oakland, CA 94602

Environmental Consulting Firm
Aqua Science Engineers, Inc. (ASE)
208 W. El Pintado
Danville, CA 94526
Contact: Robert Kitay, Senior Geologist
(925) 820-9391

Agency Review
Contact: Mr. Barney Chan
Alameda County Health Care Services Agency (ACHCSA)
1131 Harbor Bay Pkwy., Suite 250
Alameda, CA 94502
(510) 567-6700

California Regional Water Quality Control Board (RWQCB)
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612
Contact: Mr. Chuck Headlee
(510) 622-2433

The following is a report detailing the results of the July 2003 quarterly groundwater sampling at the former Chan's Shell Station. This sampling was conducted as required by the ACHCSA and RWQCB. ASE has prepared this report on behalf of Kin Chan, property owner. This report is intended to supplement the ASE report: "Report of Soil and Groundwater Assessment" dated January 8, 1999.

2.0 GROUNDWATER FLOW DIRECTION AND GRADIENT

On July 18, 2003, ASE measured the depth to groundwater in five site monitoring wells and one site extraction well using an electric water level sounder. The surface of the groundwater was also checked for the presence of free-floating hydrocarbons or sheen. No free-floating hydrocarbons or sheen were observed in any site well. As requested by the ACHCSA, the groundwater gauging and sampling was coordinated with Cambria Environmental Technology, Inc., (Cambria). Cambria is investigating the adjacent property, located at 706 Harrison Street, referred to in this report as the former ARCO station. Groundwater elevation data for both sites is presented in Tables One and Two. The groundwater elevation data provided by Cambria for the former ARCO station is significantly higher than that measured at Former Chan's Shell, and could not be correlated. A groundwater potentiometric surface map illustrating elevation data at Former Chan's Shell is presented as Figure 2. The groundwater flow direction is generally to the south/southwest with a gradient of approximately 0.011-feet/foot. This gradient and flow direction are consistent with previous findings and the former ARCO station data.

3.0 GROUNDWATER SAMPLE COLLECTION AND ANALYSIS

Prior to sampling, monitoring wells MW-1, MW-3, MW-4, MW-5, and extraction well EW-1 were purged of three well casing volumes of groundwater using dedicated polyethylene bailers or a submersible pump. Groundwater monitoring well MW-2 is no longer being sampled at the site in accordance with ASE's recommendation in the April 2001 quarterly groundwater monitoring report and the May 14, 2001 letter from the ACHCSA. Petroleum hydrocarbon odors were noted during the purging and sampling of monitoring wells MW-1, MW-3, MW-5, and extraction well EW-1. The parameters pH, temperature, and conductivity were monitored during the well purging, and samples were not collected until these parameters stabilized. Groundwater samples were collected from each well using dedicated polyethylene bailers. The samples were decanted from the bailers into 40-ml volatile organic analysis (VOA) vials, pre-preserved with hydrochloric acid. The samples were capped without headspace, labeled, and placed in coolers with wet ice for transport to Severn Trent Laboratories (STL) San Francisco of Pleasanton, California (ELAP #2496) under appropriate chain-of-custody documentation. Well sampling field logs are presented in Appendix A.

The well purge water was placed into 55-gallon steel drums, labeled, and left on-site for temporary storage until proper off-site disposal could be arranged.

The groundwater samples were analyzed by STL San Francisco for total petroleum hydrocarbons as gasoline (TPH-G) by EPA Method 5030/8015M, benzene, toluene, ethylbenzene and total xylenes (collectively known as BTEX) by EPA Method 8021B and methyl tertiary butyl ether (MTBE) by EPA Method 8021B. The analytical results for this and previous sampling periods are presented in Table Three. The certified analytical report and chain-of-custody documentation are included as Appendix B. Current analytical data for the former ARCO station is summarized in Table Four.

4.0 CONCLUSIONS

Hydrocarbon concentrations in extraction well EW-1 continued to decrease, while concentrations have increased in the remaining sampled wells with monitoring well MW-1 containing the highest levels to date. The TPH-G, BTEX and/or MTBE concentrations detected in the groundwater samples collected from all monitoring and extraction wells sampled remain in excess of Environmental Screening Levels (ESLs) as presented in the "Screening For Environmental Concerns at Sites With Contaminated Soil and Groundwater" document prepared by the California Regional Water Quality Control Board, San Francisco Bay Region dated July 2003.

5.0 RECOMMENDATIONS

ASE recommends continued groundwater monitoring on a quarterly basis. The next groundwater sampling is scheduled for October 2003. Additionally, ASE has received approval from the ACHCSA for a workplan to conduct in-situ chemical oxidation of hydrocarbons in soil and groundwater and is currently awaiting pre-approval of the costs from the California Underground Storage Tank Cleanup Fund.

6.0 REPORT LIMITATIONS

The results presented in this report represent the conditions at the time of the groundwater sampling, at the specific locations where the groundwater samples were collected, and for the specific parameters analyzed by the laboratory. It does not fully characterize the site for contamination resulting from sources other than the former underground storage tanks and associated plumbing at the site, 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-DHS certified laboratory. The independent laboratory is solely responsible for the contents and conclusions of the chemical analysis data.

Aqua Science Engineers appreciates the opportunity to provide environmental consulting services for this project, and trust that this report meets your needs. Please feel free to call us at (925) 820-9391 if you have any questions or comments.

Respectfully submitted,

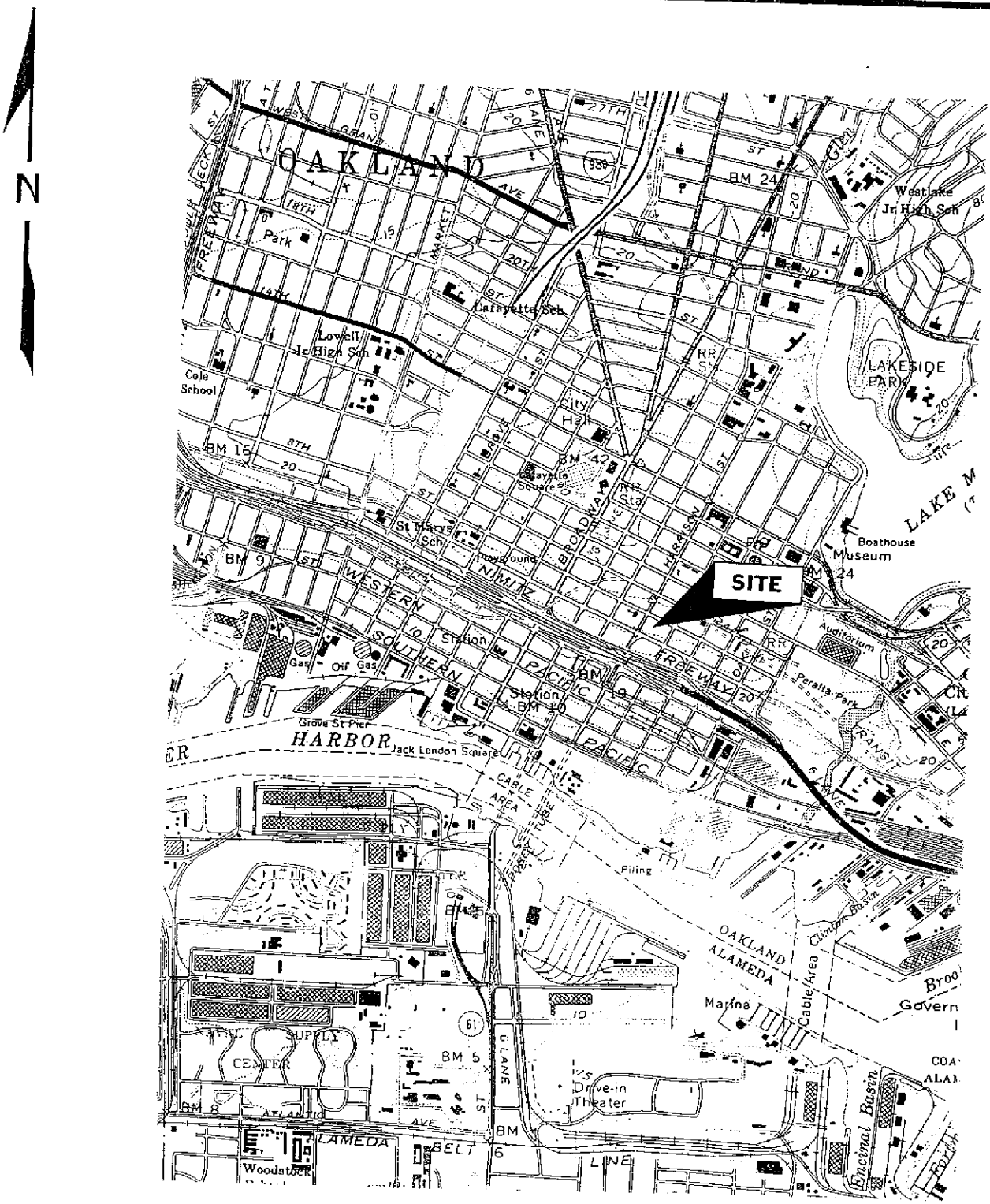
AQUA SCIENCE ENGINEERS, INC.

Damian Hricica
Project Geologist

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

Attachments: Figures 1 and 2
Appendices A and B

cc: Mr. Barney Chan, Alameda County Health Care Services
Mr. Chuck Headlee, RWQCB, San Francisco Bay Region



SITE LOCATION MAP

FORMER CHAN'S SHELL STATION
726 HARRISION STREET
OAKLAND, CALIFORNIA

Aqua Science Engineers | Figure 1

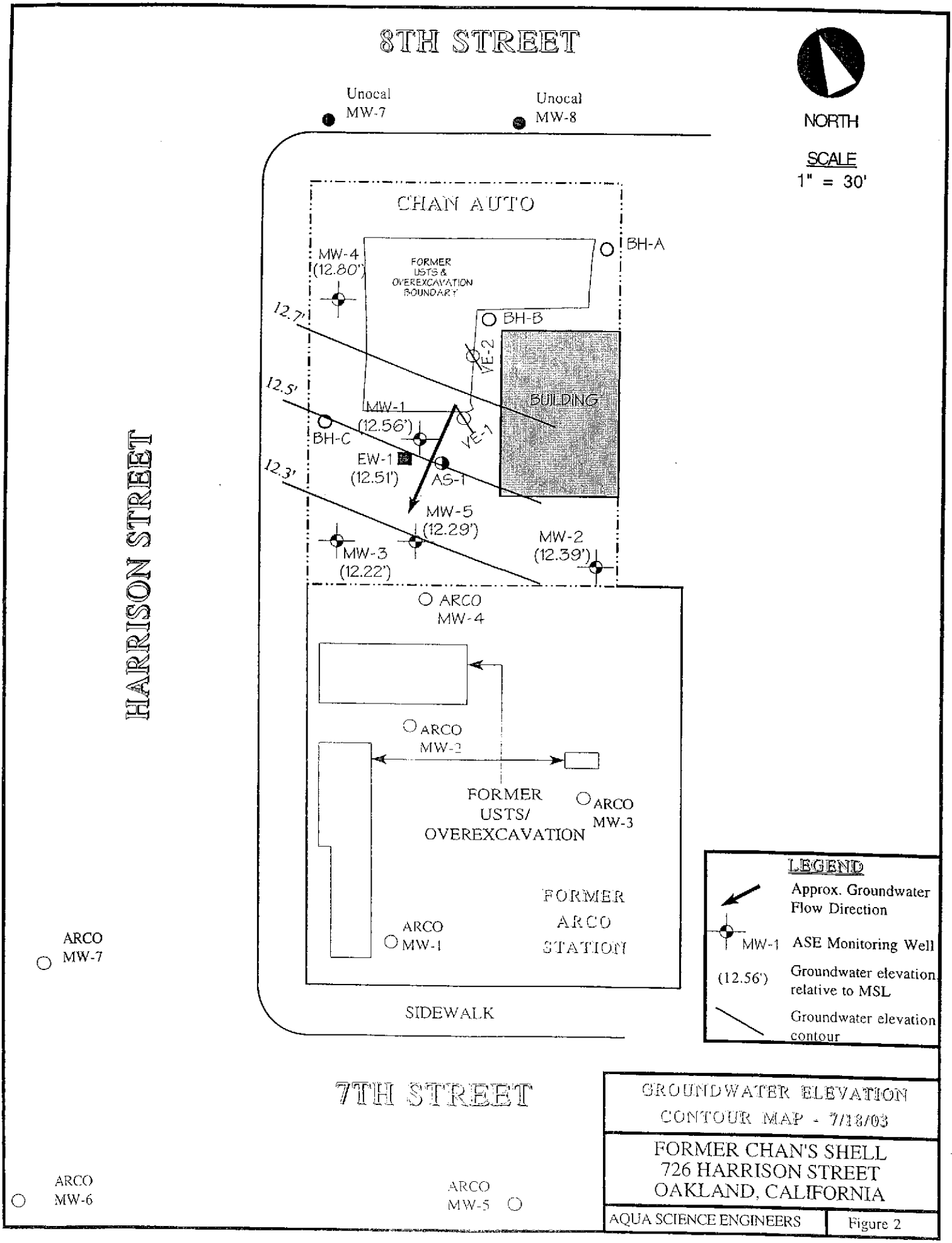

8TH STREET
Unocal MW-7
Unocal MW-8
NORTH
SCALE
1" = 30'
CHAN AUTO
MW-4 (12.80')
FORMER USTS & OVEREXCAVATION BOUNDARY
BH-A
BH-B
VE-2
VE-1
BUILDING
MW-1 (12.56')
BH-C
EW-1 (12.51')
AS-1
MW-5 (12.29')
MW-3 (12.22')
MW-2 (12.39')
12.7'
12.5'
12.3'
ARCO MW-4
ARCO MW-2
FORMER USTS/ OVEREXCAVATION
ARCO MW-3
FORMER ARCO STATION
ARCO MW-1
SIDEWALK
HARRISON STREET
ARCO MW-7
ARCO MW-6
ARCO MW-5
7TH STREET
LEGEND
Approx. Groundwater Flow Direction
MW-1 ASE Monitoring Well
(12.56') Groundwater elevation relative to MSL
Groundwater elevation contour
GROUNDWATER ELEVATION CONTOUR MAP - 7/18/03
FORMER CHAN'S SHELL
726 HARRISON STREET
OAKLAND, CALIFORNIA
AQUA SCIENCE ENGINEERS
Figure 2

TABLE ONE

Groundwater Elevation Data
Former Chan's Shell Station
726 Harrison St., Oakland, CA

Well ID	Date of Measurement	Top of Casing Elevation (Relative to Mean Sea Level)	Depth to Water (feet)	Groundwater Elevation (project data)
MW-1	12/15/1998	31.95*	17.32	14.63
	3/4/1999		15.52	16.43
	6/17/1999		16.9	15.05
	8/27/1999		17.39	14.56
	12/9/1999		18.03	13.92
	3/7/2000		15.11	16.84
	6/7/2000		16.66	15.29
	10/11/2000		18.08	13.87
	1/18/2001		17.96	13.99
	4/5/2001		16.35	15.60
	7/17/2001		16.94	15.01
	10/5/2001	28.98	17.35	11.63
	1/18/2002		15.40	13.58
	4/11/2002		15.76	13.22
	7/8/2002		16.17	12.81
	10/9/2002		16.72	12.26
	1/29/2003		16.26	12.72
	4/11/2003		16.56	12.42
	7/18/2003		**16.42**	**12.56**
MW-2	12/15/1998	32.40*	18.03	14.37
	3/4/1999		16.11	16.29
	6/17/1999		17.72	14.68
	8/27/1999	Inaccessible		
	12/9/1999	Inaccessible		
	3/7/2000	Inaccessible		
	6/7/2000		17.67	14.73
	10/11/2000		18.91	13.49
	1/18/2001		18.66	13.74
	4/5/2001		16.97	15.43
	7/17/2001		17.54	14.86
	10/5/2001	29.44	17.98	11.46
	1/18/2002		15.87	13.57
	4/11/2002		16.36	13.08
	7/8/2002		16.72	12.72
	10/9/2002		17.33	12.11
	1/29/2003		16.82	12.62
	4/11/2003		17.15	12.29
	7/18/2003		**17.05**	**12.39**
MW-3	12/15/1998	31.61*	17.26	14.35
	3/4/1999		15.47	16.14
	6/17/1999		16.92	14.69
	8/27/1999		17.40	14.21
	12/9/1999		18.01	13.60
	3/7/2000		16.15	15.46
	6/7/2000		16.85	14.76
	10/11/2000		18.07	13.54
	1/18/2001		17.89	13.72
	4/5/2001		16.21	15.40
	7/17/2001		16.90	14.71
	10/5/2001	28.64	17.32	11.32
	1/18/2002		15.35	13.29
	4/11/2002		15.82	12.82
	7/8/2002		16.15	12.49
	10/9/2002		16.67	11.97
	1/29/2003		16.19	12.45
	4/11/2003		16.49	12.15
	7/18/2003		16.42	12.22

TABLE ONE
Groundwater Elevation Data
Former Chan's Shell Station
726 Harrison St., Oakland, CA

Well ID	Date of Measurement	Top of Casing Elevation (Relative to Mean Sea Level)	Depth to Water (feet)	Groundwater Elevation (project data)
MW-4	12/15/1998	32.53*	17.59	14.94
	3/4/1999		15.88	16.65
	6/17/1999		17.14	15.39
	8/27/1999		17.65	14.88
	12/9/1999		18.28	14.25
	3/7/2000		15.41	17.12
	6/7/2000		17.09	15.44
	10/11/2000		18.33	14.20
	1/18/2001		18.23	14.30
	4/5/2001		16.69	15.84
	7/17/2001		17.32	15.21
	10/5/2001	29.58	17.71	11.87
	1/18/2002		15.85	13.73
	4/11/2002		16.14	13.44
	7/8/2002		16.56	13.02
	10/9/2002		17.09	12.49
	1/29/2003		16.65	12.93
	4/11/2003		16.93	12.65
	7/18/2003		16.78	12.80
MW-5	8/29/2001	29.06	17.42	11.64
	1/18/2002		15.68	13.38
	4/11/2002		16.17	12.89
	7/8/2002		16.51	12.55
	10/9/2002		17.10	11.96
	1/29/2003		16.58	12.48
	4/11/2003		16.87	12.19
	7/18/2003		16.77	12.29
EW-1	1/18/2002	28.89	15.35	13.54
	4/11/2002		15.73	13.16
	7/8/2002		16.13	12.76
	10/9/2002		16.70	12.19
	1/29/2003		16.20	12.69
	4/11/2003		16.52	12.37
	7/18/2003		16.38	12.51

* Top of casing elevation relative to arbitrary project datum

TABLE TWO

Groundwater Elevation Data
Former ARCO Station
706 Harrison St., Oakland, CA

Well ID	Date of Measurement	Top of Casing Elevation* (Relative to Mean Sea Level)	Depth to Water (feet)	Groundwater Elevation (project data)
MW-1	7/18/2003	29.15	14.50	14.65
MW-2	7/18/2003	30.51	16.84	13.67
MW-3	7/18/2003	29.77	14.80	14.97
MW-4	7/18/2003	31.18	17.08	14.10
MW-5	7/18/2003	28.04	14.28	13.76
MW-6	7/18/2003	29.10	15.47	13.63
MW-7	7/18/2003	29.67	15.19	14.48

Note: Top of casing elevations and data provided by Cambria Environmental Technologies, Inc.

TABLE THREE

Certified Analytical Results for GROUNDWATER Samples
Former Chan's Shell Station
726 Harrison St., Oakland, CA
All results are in parts per billion (ppb)

Well ID & Dates Sampled	TPH-G	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
MW-1						
7/3/1997	18,000	2,700	350	450	900	7,400
12/5/1998	18,000	1,500	270	260	560	14,000
3/4/1999	44,000	2,800	400	440	960	43,000
6/17/1999	33,000	2,200	250	460	660	25,000
8/27/1999	6,000	1,000	97	190	230	14,000/ 16,000*
12/9/1999	15,000	1,500	160	220	420	17,000
3/7/2000	9,300	1,500	210	66	530	12,000
6/7/2000	26,000**	1,700	< 250	360	580	30,000
10/11/2000	13,000**	1,600	< 100	140	160	19,000
1/18/2001	14,000**	450	< 100	110	230	9,600
4/5/2001	38,000	2,200	180	290	590	35,000
7/17/2001	35,000**	1,800	< 100	300	170	35,000
10/5/2001	17,000	1,500	210	420	790	27,000
1/18/2002	18,000	1,500	120	160	220	22,000
4/11/2002	41,000	2,700	210	340	380	30,000
7/8/2002	36,000	2,800	140	360	300	31,000
10/9/2002	30,000	1,700	310	< 100	< 100	19,000
1/29/2003	26,000	2,400	< 100	310	520	20,000
4/11/2003	22,000	1,700	< 100	270	580	16,000
7/18/2003	**40,000**	**3,200**	**290**	**480**	**830**	**39,000**
MW-2						
12/5/1998	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5
3/4/1999		Inaccessible due to car parked over well				
6/17/1999	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5
8/27/1999		Inaccessible due to car parked over well				
12/9/1999		Inaccessible due to car parked over well				
3/7/2000		Inaccessible due to car parked over well				
6/7/2000	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0
10/11/2000	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0
1/18/2001	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0
4/5/2001	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0
7/17/2001			No Longer Sampled			
MW-3						
12/5/1998	6,500	< 50	50	60	50	3,900
3/4/1999	2,800	< 25	< 25	< 25	< 25	1,600
6/17/1999	1,000	< 10	< 10	< 10	< 10	1,400
8/27/1999	230	< 0.5	0.51	0.5	1	1,500/ 1,600*
12/9/1999	870**	< 0.5	< 0.5	< 0.5	< 0.5	2,100
3/7/2000	150**	4	< 0.5	< 0.5	< 0.5	830
6/7/2000	140**	< 0.5	< 0.5	< 0.5	< 0.5	1,100
10/11/2000	620**	< 5.0	< 5.0	< 5.0	< 5.0	1,500
1/18/2001	1,200**	< 5.0	< 5.0	< 5.0	< 5.0	1,000
4/5/2001	1,700**	< 5.0	< 5.0	< 5.0	< 5.0	1,900
7/17/2001	1,400**	< 10	< 10	< 10	< 10	1,700
10/5/2001	< 1,000	< 10	< 10	< 10	< 10	1,700
1/18/2002	1,600	26	20	16	54	2,100
4/11/2002	2,600	21	16	< 10	21	2,300
7/8/2002	2,800	< 10	< 10	< 10	< 10	3,800
10/9/2002	6,000	< 50	< 50	< 50	< 50	4,900
1/29/2003	1,800	< 10	< 10	< 10	< 10	2,300
4/11/2003	2,900	< 25	< 25	< 25	< 25	3,100
7/18/2003	3,400	< 10	< 10	< 10	< 10	3,200

TABLE THREE

Certified Analytical Results for GROUNDWATER Samples
Former Chan's Shell Station
726 Harrison St., Oakland, CA
All results are in parts per billion (ppb)

Well ID & Dates Sampled	TPH-G	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
MW-4						
12/5/1998	880	3	< 0.5	< 0.5	< 0.5	950
3/4/1999	3,800	< 25	< 25	< 25	< 25	3,700
6/17/1999	2,700	< 25	< 25	< 25	< 25	2,700
8/27/1999	440	4.7	1.1	0.58	1.3	1,600/ 1,700*
12/9/1999	1,100**	< 2.5	< 2.5	< 2.5	< 2.5	1,700
3/7/2000	< 250	< 2.5	< 2.5	< 2.5	< 2.5	1,700
6/7/2000	530**	8.8	< 2.5	< 2.5	< 2.5	440
10/11/2000	700**	3.9	< 2.5	< 2.5	< 2.5	680
1/18/2001	2,000**	< 2.5	< 2.5	< 2.5	< 2.5	780
4/5/2001	810**	< 2.5	< 2.5	< 2.5	< 2.5	620
7/17/2001	880**	< 2.5	< 2.5	< 2.5	< 2.5	570
10/5/2001	550**	< 2.5	< 2.5	< 2.5	< 2.5	710
1/18/2002	960**	< 5.0	< 5.0	< 5.0	< 5.0	1,300
4/11/2002	1,100**	< 5.0	< 5.0	< 5.0	< 5.0	550
7/8/2002	1,200**	< 5.0	< 5.0	< 5.0	< 5.0	890
10/9/2002	1,300**	< 5.0	< 5.0	< 5.0	< 5.0	880
1/29/2003	530**	< 1.0	< 1.0	< 1.0	< 1.0	190
4/11/2003	690**	< 2.5	< 2.5	< 2.5	< 2.5	310
7/18/2003	**1,600****	**< 10**	**< 10**	**< 10**	**< 10**	**1,300**
MW-5						
8/29/2001	14,000	1,300	470	230	800	14,000
1/18/2002	24,000	3,200	1,300	390	1,500	5,700
4/11/2002	23,000	2,700	980	38	950	4,300
7/8/2002	19,000	3,300	25	360	1,100	2,100
10/9/2002	24,000	2,800	990	360	820	2,400
1/29/2003	17,000	2,100	1,400	380	1,400	< 250
4/11/2003	26,000	2,900	2,200	590	2,200	630
7/18/2003	**26,000**	**3,500**	**1,700**	**480**	**1,300**	**1,300**
EW-1						
1/18/2002	11,000	1,000	< 100	220	350	6,700
4/11/2002	17,000	1,000	< 100	120	140	9,700
7/8/2002	21,000	1,300	< 100	< 100	200	12,000
10/9/2002	12,000	900	< 25	< 25	200	9,200
1/29/2003	12,000	860	73	130	500	4,500
4/11/2003	8,700	890	< 25	< 25	82	5,400
7/18/2003	**8,200**	**650**	**77**	**99**	**140**	**4,300**
ESL	400	46	130	290	13	1,800

Notes:

* EPA Method 8020/EPA Method 8260 (MTBE confirmation)

** Hydrocarbon reported in the gasoline range does not match the laboratory gasoline standard

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

Most current data is in Bold

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

TABLE FOUR

Certified Analytical Results for GROUNDWATER Samples
Former ARCO Station
706 Harrison St., Oakland, CA
All results are in parts per billion (ppb)

Well ID & Dates Sampled	TPH-G	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
MW-1 7/18/2003	<50	<0.5	<0.5	<0.5	<0.5	<5.0
MW-2 7/18/2003	57,000	2,100	8700	2200	10000	<50*
MW-3 7/18/2003	<50	<0.5	<0.5	<0.5	<0.5	<5.0
MW-4 7/18/2003	<50	<0.5	<0.5	<0.5	<0.5	0.74*
MW-5 7/18/2003	<50	<0.5	<0.5	<0.5	<0.5	<5.0
MW-6 7/18/2003	<50	<0.5	<0.5	<0.5	<0.5	<5.0
MW-7 7/18/2003	<50	<0.5	<0.5	<0.5	<0.5	<5.0
ESL	400	46	130	290	13	1,800

Notes:

* EPA Method 8260

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

Most current data is in Bold

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

APPENDIX A

Well Sampling Field Logs

aqua science engineers inc.

WELL SAMPLING FIELD LOG

Project Name and Address: CHAW AUTO
Job #: 3412 Date of sampling: 7/18/03
Well Name: MW-1 Sampled by: DH
Total depth of well (feet): 27.21 Well diameter (inches): 2
Depth to water before sampling (feet): 16.42
Thickness of floating product if any: —
Depth of well casing in water (feet): 10.79
Number of gallons per well casing volume (gallons): 1.8
Number of well casing volumes to be removed: 3
Req'd volume of groundwater to be purged before sampling (gallons): 5.5
Equipment used to purge the well: BAILER
Time Evacuation Began: 1050 Time Evacuation Finished: 1105
Approximate volume of groundwater purged: 7.3
Did the well go dry?: NO After how many gallons: —
Time samples were collected: 1120
Depth to water at time of sampling: 19.46
Percent recovery at time of sampling: —
Samples collected with: BAILER
Sample color: CLEAR Odor: HC
Description of sediment in sample: SILT

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
1.8	68.2	5.96	598
3.6	68.1	6.19	712
5.6	67.1	6.41	713
7.3	66.9	6.37	761

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
MW-1	3	40mL VOA	HCl	Y	

aqua science engineers inc.

WELL SAMPLING FIELD LOG

Project Name and Address: CHMW AUTO
Job #: 3412 Date of sampling: 7/18/03
Well Name: MW-2 Sampled by: DH
Total depth of well (feet): — Well diameter (inches): 2
Depth to water before sampling (feet): 17.05
Thickness of floating product if any:
Depth of well casing in water (feet):
Number of gallons per well casing volume (gallons):
Number of well casing volumes to be removed:
Required volume of groundwater to be purged before sampling (gallons):
Equipment used to purge the well:
Time Evacuation Began: Time Evacuation Finished:
Approximate volume of groundwater purged:
Did the well go dry? After how many gallons:
Time samples were collected:
Depth to water at time of sampling:
Percent recovery at time of sampling
Samples collected with:
Sample color: Odor
Description of sediment in sample:

NOT SAMPLED THIS QUARTER

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis

aqua science engineers inc.

WELL SAMPLING FIELD LOG

Project Name and Address: CHANS AUTO
Job #: 3412 Date of sampling: 7/18/05
Well Name: MW-3 Sampled by: DH
Total depth of well (feet): 29.66 Well diameter (inches): ____
Depth to water before sampling (feet): 16.42
Thickness of floating product if any: —
Depth of well casing in water (feet): 13.24
Number of gallons per well casing volume (gallons): 2.3
Number of well casing volumes to be removed: 3
Req'd volume of groundwater to be purged before sampling (gallons): 6.8
Equipment used to purge the well: BAILER
Time Evacuation Began: 1430 Time Evacuation Finished: 1445
Approximate volume of groundwater purged: ~~6.8~~
Did the well go dry?: NO After how many gallons: ____
Time samples were collected: 1450
Depth to water at time of sampling: 16.99
Percent recovery at time of sampling: —
Samples collected with: BAILER
Sample color: CLR Odor: SLIGHT HC
Description of sediment in sample: —

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
2.3	71.1	5.33	466
4.6	67.7	5.27	561
6.8	67.3	5.16	566

SAMPLES COLLECTED

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

aqua science engineers inc.

WELL SAMPLING FIELD LOG

Project Name and Address: CHAN AVE
Job #: 3412 Date of sampling: 7/18/03
Well Name: MW-4 Sampled by: DH
Total depth of well (feet): 29.46 Well diameter (inches): 2
Depth to water before sampling (feet): 16.78
Thickness of floating product if any: —
Depth of well casing in water (feet): 12.68
Number of gallons per well casing volume (gallons): 2.2
Number of well casing volumes to be removed: 3
Req'd volume of groundwater to be purged before sampling (gallons): 6.6
Equipment used to purge the well: BAILER
Time Evacuation Began: 1520 Time Evacuation Finished: 1525
Approximate volume of groundwater purged: 6.6
Did the well go dry?: NO After how many gallons: —
Time samples were collected: 1535
Depth to water at time of sampling: 16.96
Percent recovery at time of sampling: —
Samples collected with: BAILER
Sample color: CLR Odor: —
Description of sediment in sample: —

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
2.2	73.4	5.28	778
4.4	70.3	6.08	597
6.6	70.3	6.40	598

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
MW-4	3	40mL VOA	HCl	Y	

aqua science engineers inc.

WELL SAMPLING FIELD LOG

Project Name and Address: CHAN AVE
Job #: 3417
Well Name: MW-5
Date of sampling: ~~7/17/03~~ 7/18/03
Sampled by: DH
Total depth of well (feet): 28.50
Well diameter (inches): 2
Depth to water before sampling (feet): 16.77
Thickness of floating product if any: —
Depth of well casing in water (feet): 11.73
Number of gallons per well casing volume (gallons): 2.0
Number of well casing volumes to be removed: 3
Req'd volume of groundwater to be purged before sampling (gallons): 6
Equipment used to purge the well: BAILER
Time Evacuation Began: 945
Time Evacuation Finished: 1010
Approximate volume of groundwater purged: 6
Did the well go dry?: NO
After how many gallons: —
Time samples were collected: 1015
Depth to water at time of sampling: 18.15
Percent recovery at time of sampling: —
Samples collected with: BAILER
Sample color: CLR
Odor: NC
Description of sediment in sample: SILT

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
2	66.9	6.21	1030
4	~~64.9~~ 66.7	6.25	1038
6	66.7	7.26	1034

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
MW-5	3	40ml VOA	HCL	Y	

aqua science engineers inc.

WELL SAMPLING FIELD LOG

Project Name and Address: CHAN AUTO
Job #: 3412 Date of sampling: 7/18/03
Well Name: MW-1 Sampled by: DK
Total depth of well (feet): 28.45 Well diameter (inches): ~~4~~ 6
Depth to water before sampling (feet): 16.38
Thickness of floating product if any:
Depth of well casing in water (feet): 12.07
Number of gallons per well casing volume (gallons): 18.1
Number of well casing volumes to be removed: 3
Req'd volume of groundwater to be purged before sampling (gallons): 54.3
Equipment used to purge the well: SUB PUMP
Time Evacuation Began: 1310 Time Evacuation Finished: 1445
Approximate volume of groundwater purged: 55
Did the well go dry?: After how many gallons:
Time samples were collected: 1500
Depth to water at time of sampling: 18.14
Percent recovery at time of sampling:
Samples collected with: BAILER
Sample color: CLR Odor: NO
Description of sediment in sample: SILT

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
18	72.3	6.55	542
36	71.2	6.83	507
55	68.1	6.30	465

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
MW-1	3	40 mL VOA	HCl	Y	

APPENDIX B

Certified Analytical Report
and
Chain of Custody Documentation

SEVERN TRENT STL

Submission#: 2003-07-0647

Aqua Science Engineers, Inc.

July 28, 2003

208 West El Pintado Road
Danville, CA 94526

Attn.: Robert Kitay
Project: Chans
Site: Oakland

Dear Mr. Kitay,

Attached is our report for your samples received on 07/21/2003 16:53
This report has been reviewed and approved for release. Reproduction of this report is permitted only in its entirety.

Please note that any unused portion of the samples will be discarded after 09/04/2003 unless you have requested otherwise.
We appreciate the opportunity to be of service to you. If you have any questions, please call me at (925) 484-1919.
You can also contact me via email. My email address is: vvancil@stl-inc.com

Sincerely,

Vincent Vancil
Project Manager

SEVERN TRENT STL

Submission #: 2003-07-0647

Gas/BTEX Compounds by 8015M/8021

Aqua Science Engineers, Inc.
Attn.: Robert Kitay

208 West El Pintado Road
Danville, CA 94526
Phone: (925) 820-9391 Fax: (925) 837-4853

Project: Chans

Received: 07/21/2003 16:53
Site: Oakland

Samples Reported

Sample Name	Date Sampled	Matrix	Lab #
MW-1	07/18/2003 11:20	Water	1
MW-3	07/18/2003 14:50	Water	2
MW-4	07/18/2003 15:35	Water	3
MW-5	07/18/2003 10:15	Water	4
EW-1	07/18/2003 15:00	Water	5

SEVERN TRENT STL

Submission #: 2003-07-0647

Gas/BTEX Compounds by 8015M/8021

Aqua Science Engineers, Inc.
Attn.: Robert Kitay

208 West El Pintado Road
Danville, CA 94526
Phone: (925) 820-9391 Fax: (925) 837-4853

Project: Chans

Received: 07/21/2003 16:53
Site: Oakland

Prep(s):	5030 5030	Test(s):	8015M 8021B
Sample ID:	**MW-1**	Lab ID:	2003-07-0647 - 1
Sampled:	07/18/2003 11:20	Extracted:	7/23/2003 14:37
Matrix:	Water	QC Batch#:	2003/07/23-01.05

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	40000	13000	ug/L	250.00	07/23/2003 14:37	g
Benzene	3200	130	ug/L	250.00	07/23/2003 14:37	
Toluene	290	130	ug/L	250.00	07/23/2003 14:37	
Ethyl benzene	480	130	ug/L	250.00	07/23/2003 14:37	
Xylene(s)	830	130	ug/L	250.00	07/23/2003 14:37	
MTBE	39000	1300	ug/L	250.00	07/23/2003 14:37	
Surrogates(s)						
Trifluorotoluene	95.1	58-124	%	250.00	07/23/2003 14:37	
4-Bromofluorobenzene-FID	98.5	50-150	%	250.00	07/23/2003 14:37	

Gas/BTEX Compounds by 8015M/8021

Aqua Science Engineers, Inc.
Attn.: Robert Kitay

208 West El Pintado Road
Danville, CA 94526
Phone: (925) 820-9391 Fax: (925) 837-4853

Project: Chans

Received: 07/21/2003 16:53
Site: Oakland

Prep(s):	5030 5030	Test(s):	8015M 8021B
Sample ID:	**MW-3**	Lab ID:	2003-07-0647 - 2
Sampled:	07/18/2003 14:50	Extracted:	7/23/2003 11:51
Matrix:	Water	QC Batch#:	2003/07/23-01.01

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	3400	1000	ug/L	20.00	07/23/2003 11:51	dp
Benzene	ND	10	ug/L	20.00	07/23/2003 11:51	
Toluene	ND	10	ug/L	20.00	07/23/2003 11:51	
Ethyl benzene	ND	10	ug/L	20.00	07/23/2003 11:51	
Xylene(s)	ND	10	ug/L	20.00	07/23/2003 11:51	
MTBE	3200	100	ug/L	20.00	07/23/2003 11:51	
Surrogates(s)						
Trifluorotoluene	94.6	58-124	%	1.00	07/23/2003 11:51	
4-Bromofluorobenzene-FID	104.6	50-150	%	1.00	07/23/2003 11:51	

Gas/BTEX Compounds by 8015M/8021

Aqua Science Engineers, Inc.
Attn.: Robert Kitay

208 West El Pintado Road
Danville, CA 94526
Phone: (925) 820-9391 Fax: (925) 837-4853

Project: Chans

Received: 07/21/2003 16:53
Site: Oakland

Prep(s): 5030
5030

Test(s): 8015M
8021B

Sample ID: **MW-4**

Lab ID: 2003-07-0647 - 3

Sampled: 07/18/2003 15:35

Extracted: 7/23/2003 12:22

Matrix: Water

QC Batch#: 2003/07/23-01.01

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	1600	1000	ug/L	20.00	07/23/2003 12:22	dp
Benzene	ND	10	ug/L	20.00	07/23/2003 12:22	
Toluene	ND	10	ug/L	20.00	07/23/2003 12:22	
Ethyl benzene	ND	10	ug/L	20.00	07/23/2003 12:22	
Xylene(s)	ND	10	ug/L	20.00	07/23/2003 12:22	
MTBE	1300	100	ug/L	20.00	07/23/2003 12:22	
Surrogates(s)						
Trifluorotoluene	95.7	58-124	%	20.00	07/23/2003 12:22	
4-Bromofluorobenzene-FID	107.3	50-150	%	20.00	07/23/2003 12:22	

Gas/BTEX Compounds by 8015M/8021

Aqua Science Engineers, Inc.
Attn.: Robert Kitay

208 West El Pintado Road
Danville, CA 94526
Phone: (925) 820-9391 Fax: (925) 837-4853

Project: Chans

Received: 07/21/2003 16:53
Site: Oakland

Prep(s): 5030
5030

Test(s): 8015M
8021B

Sample ID: **MW-5**

Lab ID: 2003-07-0647 - 4

Sampled: 07/18/2003 10:15

Extracted: 7/23/2003 12:53

Matrix: Water

QC Batch#: 2003/07/23-01.01

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	26000	5000	ug/L	100.00	07/23/2003 12:53	
Benzene	3500	50	ug/L	100.00	07/23/2003 12:53	
Toluene	1700	50	ug/L	100.00	07/23/2003 12:53	
Ethyl benzene	480	50	ug/L	100.00	07/23/2003 12:53	
Xylene(s)	1300	50	ug/L	100.00	07/23/2003 12:53	
MTBE	1300	500	ug/L	100.00	07/23/2003 12:53	
Surrogates(s)						
Trifluorotoluene	93.3	58-124	%	100.00	07/23/2003 12:53	
4-Bromofluorobenzene-FID	100.2	50-150	%	100.00	07/23/2003 12:53	

Gas/BTEX Compounds by 8015M/8021

Aqua Science Engineers, Inc.
Attn.: Robert Kitay

208 West El Pintado Road
Danville, CA 94526
Phone: (925) 820-9391 Fax: (925) 837-4853

Project: Chans

Received: 07/21/2003 16:53
Site: Oakland

Prep(s): 5030
5030

Test(s): 8015M
8021B

Sample ID: **EW-1**

Lab ID: 2003-07-0647 - 5

Sampled: 07/18/2003 15:00

Extracted: 7/23/2003 13:24

Matrix: Water

QC Batch#: 2003/07/23-01.01

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	8200	2500	ug/L	50.00	07/23/2003 13:24	g
Benzene	650	25	ug/L	50.00	07/23/2003 13:24	
Toluene	77	25	ug/L	50.00	07/23/2003 13:24	
Ethyl benzene	99	25	ug/L	50.00	07/23/2003 13:24	
Xylene(s)	140	25	ug/L	50.00	07/23/2003 13:24	
MTBE	4300	250	ug/L	50.00	07/23/2003 13:24	
Surrogates(s)						
Trifluorotoluene	90.6	58-124	%	50.00	07/23/2003 13:24	
4-Bromofluorobenzene-FID	99.8	50-150	%	50.00	07/23/2003 13:24	

Gas/BTEX Compounds by 8015M/8021

Aqua Science Engineers, Inc.
Attn.: Robert Kitay

208 West El Pintado Road
Danville, CA 94526
Phone: (925) 820-9391 Fax: (925) 837-4853

Project: Chans

Received: 07/21/2003 16:53
Site: Oakland

Batch QC Report

Prep(s): 5030
Method Blank
MB: 2003/07/23-01.01-003

Water

Test(s): 8015M
QC Batch # 2003/07/23-01.01
Date Extracted: 07/23/2003 08:26

Compound	Conc.	RL	Unit	Analyzed	Flag
Gasoline	ND	50	ug/L	07/23/2003 08:26	
Benzene	ND	0.5	ug/L	07/23/2003 08:26	
Toluene	ND	0.5	ug/L	07/23/2003 08:26	
Ethyl benzene	ND	0.5	ug/L	07/23/2003 08:26	
Xylene(s)	ND	0.5	ug/L	07/23/2003 08:26	
MTBE	ND	5.0	ug/L	07/23/2003 08:26	
Surrogates(s)					
Trifluorotoluene	83.0	58-124	%	07/23/2003 08:26	
4-Bromofluorobenzene-FID	94.1	50-150	%	07/23/2003 08:26	

Gas/BTEX Compounds by 8015M/8021

Aqua Science Engineers, Inc.
Attn.: Robert Kitay

208 West El Pintado Road
Danville, CA 94526
Phone: (925) 820-9391 Fax: (925) 837-4853

Project: Chans

Received: 07/21/2003 16:53
Site: Oakland

Batch QC Report

Prep(s): 5030
Method Blank
MB: 2003/07/23-01.05-008

Water

Test(s): 8015M
QC Batch # 2003/07/23-01.05
Date Extracted: 07/23/2003 10:35

Compound	Conc.	RL	Unit	Analyzed	Flag
Gasoline	ND	50	ug/L	07/23/2003 10:35	
Benzene	ND	0.5	ug/L	07/23/2003 10:35	
Toluene	ND	0.5	ug/L	07/23/2003 10:35	
Ethyl benzene	ND	0.5	ug/L	07/23/2003 10:35	
Xylene(s)	ND	0.5	ug/L	07/23/2003 10:35	
MTBE	ND	5.0	ug/L	07/23/2003 10:35	
Surrogates(s)					
Trifluorotoluene	97.0	58-124	%	07/23/2003 10:35	
4-Bromofluorobenzene-FID	101.0	50-150	%	07/23/2003 10:35	

Gas/BTEX Compounds by 8015M/8021

Aqua Science Engineers, Inc.
Attn.: Robert Kitay

208 West El Pintado Road
Danville, CA 94526
Phone: (925) 820-9391 Fax: (925) 837-4853

Project: Chans

Received: 07/21/2003 16:53
Site: Oakland

Batch QC Report

Prep(s): 5030

Test(s): 8021B

Laboratory Control Spike **Water** **QC Batch # 2003/07/23-01.01**

LCS 2003/07/23-01.01-004 Extracted: 07/23/2003 Analyzed: 07/23/2003 08:57
LCSD 2003/07/23-01.01-008 Extracted: 07/23/2003 Analyzed: 07/23/2003 11:20

Compound	Conc. ug/L		Exp.Conc.	Recovery %		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD	%	Rec.	RPD	LCS	LCSD
Benzene	83.1	89.2	100.0	83.1	89.2	7.1	77-123	20		
Toluene	83.1	88.3	100.0	83.1	88.3	6.1	78-122	20		
Ethyl benzene	80.7	86.6	100.0	80.7	86.6	7.1	70-130	20		
Xylene(s)	240	254	300	80.0	84.7	5.7	75-125	20		
Surrogates(s)										
Trifluorotoluene	450	494	500	90.0	98.8		58-124			

Gas/BTEX Compounds by 8015M/8021

Aqua Science Engineers, Inc.
Attn.: Robert Kitay

208 West El Pintado Road
Danville, CA 94526
Phone: (925) 820-9391 Fax: (925) 837-4853

Project: Chans

Received: 07/21/2003 16:53
Site: Oakland

Batch QC Report

Prep(s): 5030

Test(s): 8015M

Laboratory Control Spike **Water** **QC Batch # 2003/07/23-01.01**

LCS 2003/07/23-01.01-006 Extracted: 07/23/2003 Analyzed: 07/23/2003 09:59
LCSD 2003/07/23-01.01-007 Extracted: 07/23/2003 Analyzed: 07/23/2003 10:29

Compound	Conc. ug/L		Exp.Conc.	Recovery %		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD	%	Rec.	RPD	LCS	LCSD
Gasoline	510	498	500	102.0	99.6	2.4	75-125	20		
Surrogates(s)										
4-Bromofluorobenzene-FID	525	515	500	105.0	103.0		50-150			

Gas/BTEX Compounds by 8015M/8021

Aqua Science Engineers, Inc.
Attn.: Robert Kitay

208 West El Pintado Road
Danville, CA 94526
Phone: (925) 820-9391 Fax: (925) 837-4853

Project: Chans

Received: 07/21/2003 16:53
Site: Oakland

Batch QC Report

Prep(s): 5030

Test(s): 8021B

Laboratory Control Spike **Water** **QC Batch # 2003/07/23-01.05**

LCS 2003/07/23-01.05-003 Extracted: 07/23/2003 Analyzed: 07/23/2003 08:26
LCSD 2003/07/23-01.05-004 Extracted: 07/23/2003 Analyzed: 07/23/2003 08:59

Compound	Conc. ug/L		Exp.Conc.	Recovery %		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD	%	Rec.	RPD	LCS	LCSD
Benzene	92.0	95.3	100.0	92.0	95.3	3.5	77-123	20		
Toluene	90.1	92.6	100.0	90.1	92.6	2.7	78-122	20		
Ethyl benzene	92.0	93.5	100.0	92.0	93.5	1.6	70-130	20		
Xylene(s)	274	281	300	91.3	93.7	2.6	75-125	20		
Surrogates(s)										
Trifluorotoluene	486	487	500	97.2	97.4		58-124			

Gas/BTEX Compounds by 8015M/8021

Aqua Science Engineers, Inc.
Attn.: Robert Kitay

208 West El Pintado Road
Danville, CA 94526
Phone: (925) 820-9391 Fax: (925) 837-4853

Project: Chans

Received: 07/21/2003 16:53
Site: Oakland

Batch QC Report

Prep(s): 5030

Test(s): 8015M

Laboratory Control Spike **Water** **QC Batch # 2003/07/23-01.05**

LCS 2003/07/23-01.05-005 Extracted: 07/23/2003 Analyzed: 07/23/2003 09:31
LCSD 2003/07/23-01.05-006 Extracted: 07/23/2003 Analyzed: 07/23/2003 10:03

Compound	Conc. ug/L		Exp.Conc.	Recovery %		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD	%	Rec.	RPD	LCS	LCSD
Gasoline	505	497	500	101.0	99.4	1.6	75-125	20		
Surrogates(s)										
4-Bromofluorobenzene-FID	546	546	500	109.2	109.2		50-150			

Gas/BTEX Compounds by 8015M/8021

Aqua Science Engineers, Inc.
Attn.: Robert Kitay

208 West El Pintado Road
Danville, CA 94526
Phone: (925) 820-9391 Fax: (925) 837-4853

Project: Chans

Received: 07/21/2003 16:53

Site: Oakland

Legend and Notes

Result Flag

dp

Sample contains discrete peak in addition to gasoline.

g

Hydrocarbon reported in the gasoline range does not match our gasoline standard.

2003-07-0647

76250

Aqua Science Engineers, Inc.
208 W. El Pintado Road
Danville, CA 94526
(925) 820-9391
FAX (925) 837-4853

Chain of Custody

PAGE 1 OF 1

SAMPLER (SIGNATURE)

PROJECT NAME CHANS JOB NO.

ADDRESS OAKLAND

ANALYSIS REQUEST

SPECIAL INSTRUCTIONS:

SAMPLE ID.	DATE	TIME	MATRIX	NO. OF SAMPLES	TPH-GAS / MTBE & BTEX (EPA 5030/8015-8020)	TPH-DIESEL (EPA 3510/8015)	TPH-DIESEL & MOTOR OIL (EPA 3510/8015)	PURGEABLE HALOCARBONS (EPA 601/8010)	VOLATILE ORGANICS (EPA 624/8240/8260)	SEMI-VOLATILE ORGANICS (EPA 625/8270)	OIL & GREASE (EPA 5520)	LUFT METALS (5) (EPA 6010+7000)	CAM 17 METALS (EPA 6010+7000)	PCBs & PESTICIDES (EPA 608/8080)	ORGANOPHOSPHORUS PESTICIDES (EPA 8140 EPA 608/8080)	FUEL OXYGENATES (EPA 8260)	Pb (TOTAL or DISSOLVED) (EPA 6010)	TPH-G/BTEX/5 OXY'S (EPA 8260)	TPH-G/BTEX/7 OXY'S / LEAD SCAVANGERS/ 1,2-DCP (EPA 8260)		
MW-1	7/18/03	1120	W	3	X																
MW-3		1450	W	3	X																
MW-4		1535	W	3	X																
MW-5		1015	W	3	X																
EW-1	V	1500	W	3	X																

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY LABORATORY:
(signature) 1120 (time)	(signature) (time) 1625	(signature) (time) 1653	(signature) (time) 1653
SAMIAM THICICA 7/21/03 (printed name) (date)	B Morrow 7/21/03 (printed name) (date)	B Morrow 7/21/03 (printed name) (date)	MARIE V. 7/21/03 (printed name) (date)
Company- ASE	Company- STL - SF	Company- STL - SF	Company- STL SP

COMMENTS:
1,2-DCP = 1,2-dichloropropane
2-6°C

TURN AROUND TIME
(STANDARD) 24Hr 48Hr 72Hr
OTHER:

STL

STL San Francisco

Sample Receipt Checklist

Submission #:2003- 07 - 0647

Checklist completed by: (initials) DSH Date: 07/22/03

Courier name: ☒ STL San Francisco ☐ Client _____

Custody seals intact on shipping container/samples	Yes___ No___	Not Present ✓
Chain of custody present?	Yes ✓ No___	
Chain of custody signed when relinquished and received?	Yes ✓ No___	
Chain of custody agrees with sample labels?	Yes ✓ No___	
Samples in proper container/bottle?	Yes ✓ No___	
Sample containers intact?	Yes ✓ No___	
Sufficient sample volume for indicated test?	Yes ✓ No___	
All samples received within holding time?	Yes ✓ No___	
Container/Temp Blank temperature in compliance (4^0 C ± 2)?	Temp: 2.0 °C Yes ✓ No___	
Water - VOA vials have zero headspace?	No VOA vials submitted___ Yes ✓ No___	

(if bubble is present, refer to approximate bubble size and itemize in comments as S (small ~O), M (medium ~ O) or L (large ~ O)

Water - pH acceptable upon receipt? ☒ Yes ☐ No

☐ pH adjusted– Preservative used: ☐ HNO_3 ☐ HCl ☐ H_2SO_4 ☐ NaOH ☐ ZnOAc

For any item check-listed "No", provided detail of discrepancy in comment section below:

Comments:

Project Management [Routing for instruction of indicated discrepancy(ies)]

Project Manager: (initials) _____ Date: ____/____/03

Client contacted: ☐ Yes ☐ No

Summary of discussion:

Corrective Action (per PM/Client):