AEI CONSULTANTS
Environmental & Civil Engineering

3210 Old Tunnel Road, Suite B, Lafayette, CA 94549
Phone: (925) 283-6000 Fax: (925) 283-6121

November 11, 2002

1202449

Alameda County
NOV 14 2002
Environmental Health

Mr. Barney Chan
ACHCSA
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94501

Subject: **Well Installation and Sampling Report**
796 66th Avenue
Oakland, CA
AEI Project No. 5526

Dear Mr. Chan:

Enclosed is the final report for the Cruise America property.

Also enclosed are the previously mentioned reports. These are the only documents we discovered when we performed our initial Phase I on the property. There are also several maps, not attached to any particular report. Our research did not reveal any information about the current disposition of the diesel contaminated soil, or whether the former gasoline and diesel tanks got regulatory closure.

AEI never issued final reports for the advancement of soil borings SB-1 through SB-11. Copies of the analytical results are included in the tables of the enclosed reports. Copies of the original analytical documents were enclosed with the workplan. Please let me know if you require additional copies.

Please call Peter or me at (925) 283-6000 if you have any questions.

Sincerely,

Nathan Garfield
Staff Geologist

November 11, 2002

MONITORING WELL INSTALLATION REPORT

796 66th Avenue
Oakland, California 94621

Project No. 5526

Prepared For

Cruise America Inc.
11 West Hampton Avenue
Mesa, Arizona 85210

Prepared By

AEI Consultants
3210 Old Tunnel Road, Suite B
Lafayette, CA 94549
(800) 801-3224

AEI

TABLE OF CONTENTS

1.0 INTRODUCTION

AEI Consultants (AEI) has prepared this report on behalf of Cruise America Inc. and documents the groundwater investigation performed at the property located at 796 66th Avenue in Oakland, California (Figure 1: Site Location Map). The investigation was conducted to further characterize the extent and the magnitude of the dissolved hydrocarbon plume in the groundwater beneath the site. A total of six temporary soil borings and five monitoring wells were installed.

2.0 SITE DESCRIPTION AND BACKGROUND

The site is currently occupied by Cruise America, an RV rental and repair facility. Currently, two buildings exist on the site, surrounded by paved vehicle storage areas. Cruise America acquired the property from McGuire Huster in August 1988.

In February 1987, three underground storage tanks (USTs) were removed from the property by Applied GeoSystems. The tanks consisted of one (1) 1,000 gallon gasoline UST, one (1) 5,000 gallon gasoline UST, and one (1) 8,000 gallon diesel UST. The former locations of the tanks are shown on Figure 2. Soil sample analyses following removal of the tanks indicated that a release of both gasoline and diesel had occurred at the site.

Records were reviewed at the Oakland Fire Services Agency, Office of Emergency Services, for information regarding the investigation and/or cleanup of the release. No records were available at the Alameda County Health Care Services Agency (ACHCSA) although they had a file number for the USTs, nor were any records available at the Regional Water Quality Control Board (RWQCB).

A total of six groundwater monitoring wells and approximately 14 temporary soil borings had been installed at the site between 1987 and 1988 to investigate impacted groundwater associated with both the diesel and gasoline releases. Groundwater samples reportedly contained concentrations of 60,000 µg/l of total hydrocarbons, and fuel product sheen was observed.

A geotechnical investigation was performed on the property in July 1988 by Kaldveer Associates. According to field observations, significant hydrocarbon odor was detected in seven of the borings advanced; however, chemical analyses were not performed.

In August 1988, Purcell, Rhodes, & Associates excavated soil from the area of the former diesel UST and dispensing system. Excavation sidewall and bottom soil samples and soil samples from the stockpiled soil reportedly contained concentrations of total petroleum hydrocarbons (TPH) ranging from non-detect to 3,400 mg/kg. The soil was reportedly aerated on the western portion of the property; however, final sampling or the disposition of the soil is not known. In addition, groundwater with free phase fuel present was reportedly removed from the excavation (assumed to be the diesel UST excavation); however, no details were available on the liquid removal.

The monitoring wells mentioned above could not be located in July 2001, and are assumed to have been decommissioned and/or buried under asphalt surfacing. Laboratory reports were incomplete or not included, and site plans were not to scale or incomplete in the reports reviewed by AEI.

In July 2001, AEI performed a Phase II investigation on the site that included advancing six (6) soil borings (labeled SB-1 through SB-6). Although low concentrations of TPH as gasoline (TPH-g) and TPH as diesel (TPH-d) were reported in the groundwater beneath the site, high levels of methyl tertiary butyl ether (MTBE) were detected in boring SB-1.

In September of 2001, AEI advanced five (5) additional soil borings (labeled SB-7 through SB-11) in order to determine the source of the high levels of MTBE found in SB-1. Samples collected from SB-7 and SB-8 did not contain MTBE above laboratory reporting limits. MTBE concentrations varied from 630 µg/L in SB-9 to 13,000 µg/L in SB-10. These data indicated a leak in the 10,000-gallon gasoline UST on the southern portion of the property as the most likely source of the MTBE.

AEI removed the 10,000-gallon gasoline UST in November of 2001. Concentrations of TPH-g in four of the five soil samples ranged from 4.1 mg/kg to 280 mg/kg. Concentrations of MTBE and benzene, toluene, ethylbenzene, and xylenes (BTEX) were also detected in the five soil samples. Elevated concentrations of TPH as gasoline and MTBE were present in the groundwater sample at 44,000 µg/L and 42,000 µg/L, respectively. Elevated concentrations of BTEX were also present in the groundwater sample.

Based on these elevated concentrations of hydrocarbon contamination, the site was referred to the Alameda County Environmental Health, Local Oversight Program (LOP) for oversight. Mr. Barney Chan of the LOP requested a workplan to further define the extent of the hydrocarbon plume. AEI submitted the workplan on July 11, 2002 and received approval on July 17, 2002.

The site currently has a single waste oil UST. The collection of soil and/or groundwater samples near this tank was not within the scope of this investigation.

3.0 GEOLOGY AND HYDROGEOLOGY

The site is located 80 feet north of Damon Slough, at an elevation of approximately 10 feet above mean sea level (amsl). The site is level, and the local topography slopes very gently to the south.

The near surface sediments encountered during well installation activities consisted of sandy and gravely clays to approximately 7 to 10 feet below ground surface (bgs), underlain by a black, silty clay with less gravel. The water table was encountered in the temporary borings between approximately 5 and 13 feet bgs.

Soil boring SB-17 was advanced to a depth of 50 feet bgs, and revealed an apparent aquitard, consisting of a stiff sandy clay from 29 to 45 feet bgs. Below the aquitard was a three foot layer of sandy clay underlain by well-graded gravely sands to the end of the borehole. The second water bearing zone was encountered at 45.5 feet bgs.

Well locations were surveyed relative to each other and the elevations of the tops of the well casings were surveyed with respect to mean sea level by Morrow Surveying (California Professional Land Surveyor No.5161) on October 10, 2002.

Water level measurements were made during the first groundwater monitoring and sampling episode conducted on September 30, 2002. Water table elevations ranged between 2.77 and 5.57 feet amsl. The hydraulic gradient was calculated at 0.005 ft/ft with a flow direction toward the south south east. Groundwater elevation data from MW-2 were not used for this calculation due to the low water level measured, and the slow recharge rate during purging and sampling of the well.

4.0 PERMITS

Prior to the start of drilling activities, well construction permits were submitted and approved on September 10, 2002 by Mr. James Yoo of the Alameda County Public Works Agency (ACPWA). Copies of the permit documentation are included in Appendix A.

5.0 SOIL BORING AND WELL INSTALLATION

On September 6, 2002 a total of six (6) borings (labeled SB-12 through SB-17) were advanced using a GeoProbe® direct push-drilling rig. Five (5) of the borings were advanced to a depth of 10 feet bgs. Boring SB-17 was advanced to 50 feet bgs using a dual casing to prevent downward migration of contaminants.

On August 2, 2002, a total of five (5) soil borings were advanced and converted to groundwater monitoring wells (MW-1 through MW-5). Please refer to Figure 2 for locations of the newly constructed wells. These borings were advanced with a hydraulic rotary drill rig running hollow-stem augers. Either 8.5" or 10.5" augers were used depending upon well casing diameter.

Soil samples were collected at appropriate intervals in each boring. Soil samples obtained during drilling activities were screened in the field via sensory perceptions and a portable organic vapor meter. The borings were logged using the unified soil classification system (USCS). Please refer to Appendix B for detailed logs of the borings, including depth of samples collected. Soil samples were either cut from the direct push liners or sealed within brass liners using Teflon® tape and plastic caps, and stored over ice during transportation to the laboratory. Cuttings generated during the drilling and well installation activities were stored on-site in sealed, labeled 55-gallon drums.

In order to collect a groundwater sample from the temporary borings (SB-12 through SB-17), a ¾" diameter slotted PVC casing was inserted into each boring upon reaching the target depth. Groundwater samples were collected in a stainless steel bailer, and poured into 40-mL VOA vials. The groundwater samples were capped so that there was no head space or visible air bubbles within the vials, then placed in a cooler with wet ice to await transportation to the laboratory. Following sample collection, the temporary PVC casing was removed and each boring was backfilled with neat cement grout.

Well MW-1 was constructed of 4" diameter casing. The remaining four wells were constructed of 2" diameter casing. All five wells were advanced to a total depth of 14 feet. The wells were constructed with 10 feet of 0.020" factory-slotted well screen and 4 feet of flush threaded blank Schedule 40 PVC casing that was installed through the hollow augers. The well screen in each well was fitted with a flush-threaded bottom cap. No. 2/16 Monterey sand was poured through the auger to form a sand pack from the bottom of the well to one foot above the slotted well screen. Approximately 1 foot of bentonite pellets were placed above the sand and hydrated with tap water. The remainder of the boring was filled to 0.5 feet below grade with neat cement grout. A flush mounted traffic rated well box was installed over the casing, and an expanding, locking inner cap was placed on the casing top. Refer to the boring logs (Appendix B) for an illustration of well construction details.

6.0 WELL DEVELOPMENT AND SAMPLING

The five newly installed wells were developed on September 24, 2002. The wells were developed by first using a surge block to clear the sand pack and screen of any fines, and then a minimum of 10 well volumes of water were pumped from each well.

Groundwater samples were collected from the wells on September 30, 2002. No hydrocarbon odor or product sheen were observed during the sampling of the wells. Depth to groundwater was measured prior to sampling activities. Prior to the collection of water samples, at least three well volumes of water were purged from each well. Please refer to Appendix C for Groundwater Well Sampling Field Forms, which include details on the sampling of each well.

The groundwater samples were collected from each well using clean disposable plastic bailers. Water was poured from the bailers into 40 ml VOA vials and capped so that neither headspace nor air bubbles were visible within the sample containers. The samples were labeled and placed on ice and transported under chain of custody protocol for analysis to McCampell Analytical Inc. (DOHS Certification Number 1644) of Pacheco, California.

7.0 SAMPLE ANALYTICAL RESULTS

7.1 Soil

From each boring, a soil sample collected between 4 and 5 feet bgs was analyzed for TPH-g (EPA Method 5030/8015), BTEX and MTBE by EPA Method 5030/8020, and total lead (TTLC extraction [EPA 6010]). An additional soil sample from SB-17, collected 39 feet bgs, was analyzed for the same parameters. Samples SB-12 5', SB-13 4', SB-14 4', MW-4 4', and MW-5 5' were reanalyzed for soluble lead (STLC extraction) due to their high total lead concentrations.

Hydrocarbon impacted soil was limited in extent. TPH-g was detected in four of the samples analyzed. The only significant concentration of TPH-g occurred in sample SB-13 4' (15,000 mg/kg). The three other samples containing detectable levels of TPH-g (SB-16 4', SB-17 4', and MW-4 4') ranged from 73 to 1.2 mg/kg. The samples containing detectable levels of TPH-g also contained MTBE, ranging from 1.5 to 2.0 mg/kg.

Sample SB-13 4' also contained significant concentrations of BTEX compounds. Minor concentrations of BTEX compounds were identified in SB-16 4', SB-17 4', MW-4 4', and MW-5 4'.

Elevated concentrations of lead were detected in soil samples collected on the north side of the former excavation (SB-12 through SB-14, MW-4 and MW-5). Please refer to Table 3 for details of the soil sample analytical results.

7.2 Groundwater

Groundwater samples collected from the temporary borings and during the first sampling episode were analyzed for TPH-g (EPA Method 5030/8015), BTEX and MTBE (EPA Method 5030/8015), and Oxygenated Volatile Organics and Lead Scavengers (EPA 8260). Groundwater samples collected from the temporary soil borings were also analyzed for dissolved lead (EPA 6010).

Concentrations of TPH-g were detected as high as 13,000 µg/L in SB-13, but were below laboratory detection limits in MW-2 and MW-3. Significant levels of MTBE (12 to 51,000 µg/L) were found in all water samples except those collected from MW-2 and MW-3. BTEX compounds were detected in SB-12, SB-13, SB-15, SB 16, SB-17, and MW-1. The highest concentrations of BTEX were in SB-13.

Sample SB-17-W 47' contained 150 of MTBE, 90 µg/L of TPH-g, and elevated concentrations of BTEX compounds.

The groundwater sample analytical data are summarized in Tables 3 and 4. Laboratory results and chain of custody documentation are included in Appendix C.

8.0 RECEPTOR SURVEY

The Department of Water Resources (DWR) performed a well survey of all production wells within 2,000 feet of the site. This survey located 12 well drillers' reports. From these reports, eight wells were located. The remaining three reports are from unknown locations including nine test holes at the Continental Can Company, an analysis of incrustating solids, and a 1,025 foot deep well for the Santa Cruz Fruit Packing Company. In addition to the information from the DWR survey, the Alameda County Health Care Services Agency provided on the Damon and Fitchburg well groups, which were historically used as a municipal water supply. Their exact locations are unknown. Figure 1 shows the locations of all wells identified in relation to the study site. The well data collected are summarized in the table below.

Exhibit 1: Nearby Wells

Location	Site ID #	Distance (feet)	Direction	Depth (feet)	Screen Interval	Use
Fitchburg well group (20 wells?)	1	~ 950	Southeast	NA	NA	Municipal
Damon well group	2	~ 2,470	Northeast	NA	NA	Municipal
American Brass & Iron Foundry	3	3,325	Southeast	495	450-495	Industrial
EBMUD	4	3,040	Northwest	30	5-30	Test Well
PG&E	5	3,325	North	120	NA	NA
PG&E	6	2,280	North	120	NA	NA
Coliseum OW-2	7	2280	Southeast	82.5	62-82	Observation
Coliseum OW-03A	8	1,710	Southeast	82.5	62-82	Observation
Coliseum OW-5B	9	1,140	Southeast	102	92-102	Observation
Coliseum OW-06A	10	1,330	South	98	77.5-97.5	Observation
Coliseum OW-7	11	1,140	South	72.4	52-72	Observation

Site # were assigned arbitrarily. NA – Information not available

The two municipal well groups are the Damon group and the Fitchburg group. The exact locations and screen intervals of both well groups remain unknown. Without this information it cannot be determined whether the MTBE detected in the deeper aquifer in SB-17 represents a threat to these wells as a result of vertical migration.

The test well at the East Bay Municipal Utility District (EBMUD) yard is located more than 3,000 feet from the site and is well outside the area impacted by this release.

Although the use of the two Pacific Gas and Electric (PG&E) wells is unknown, they are located more than 2,000 feet upgradient of the site, and should not be impacted by this release.

Small concentrations of MTBE may be detected in the five observation wells located around the Oakland Coliseum. Since these wells are not production wells, small concentrations of MTBE in them should not pose a risk to human health.

9.0 SUMMARY AND RECOMMENDATIONS

This investigation was designed to further assess the extent and stability of the dissolved phase hydrocarbon plume identified during the removal of a 10,000-gallon gasoline UST from the property in November of 2001.

AEI advanced a total of six (6) temporary soil borings and installed five (5) permanent groundwater monitoring wells. Temporary borings SB-12 through SB-16 were advanced to a total depth of 10 feet bgs. SB-17 was advanced to 50 feet bgs, and AEI identified a second aquifer located 45.5 feet bgs. The monitoring wells were all constructed to a total depth of 14 feet bgs.

Based on soil sample analytical data, it is apparent that significant hydrocarbon impact soil remains in the vicinity of the former 10,000-gallon gasoline UST. The major concentrations of hydrocarbons remaining in the soil occur in the vicinity of SB-13, however high concentrations of TPH-g were reported in the three sidewall samples and in Disp-East 3' collected during the tank removal activities. Although high levels of lead exist in the soil (SB-12 4', SB-13 4', SB-14 4', MW-4 4', MW-5 5', and South 6 ½'), water sample data collected from the temporary borings indicate this lead has not significantly impacted the groundwater. Interim corrective action may be prudent to prevent further groundwater impact.

Considerable hydrocarbon concentrations are present in groundwater beneath the site. The most significant contaminant is MTBE. Despite the anomalous water level measurement from MW-2, it is apparent that groundwater flows southeast toward Damon Slough with a gradient of 0.005 ft/ft. The highest levels of contamination were found in the area of the former gasoline UST, but were also elevated in the upgradient direction (MW-4, MW-5, SB-9 and SB-1). MW-2 and MW-3 were the farthest downgradient, and were non-detect for all hydrocarbon compounds with the exception of a minor amount of MTBE (0.84 µg/L) in the water sample from MW-2. This indicates that the contaminant plume is has not impacted the waters of Damon Slough. Dissolved MTBE concentrations are plotted on Figure 7.

Cursory investigation of underground utilities at the site revealed storm drains and sewer lines on the site that may lead from the vicinity of MW-4 north toward 66th Avenue. If such a preferential pathway exists it may explain the upgradient migration of MTBE observed in SB-1 and SB-9.

The groundwater sample collected from SB-17-W 47' indicates that this release has migrated vertically; however, these concentrations are significantly lower than those in the shallower water table.

The plume boundaries have been defined to the south by the non-detect results in MW-2 and MW-3, and to the north by results from SB-2, SB-3 and SB-7. The plume is loosely defined to the west since the September 2001 soil borings in the region of the former diesel UST on the western portion of the property (SB-4 through SB-6) did not identify any MTBE. The extent of contamination has not been defined to the east.

None of the wells identified by the DWR well survey are believed to be significantly impacted or to present a risk to human health.

Continued groundwater monitoring and sample collection are recommended to assess the mobility of the contaminants. The next episode of sampling is scheduled for December 2002.

10.0 REFERENCES

1. *Underground Storage Tank Removal Draft Report* March 4, 2002 issued by AEI Consultants.
2. *Site Investigation Workplan* July 11, 2002 issued by AEI Consultants.
3. *Workplan – Site Investigation : Addendum* August 6, 2002 issued by AEI Consultants.

11.0 REPORT LIMITATIONS AND SIGNATURES

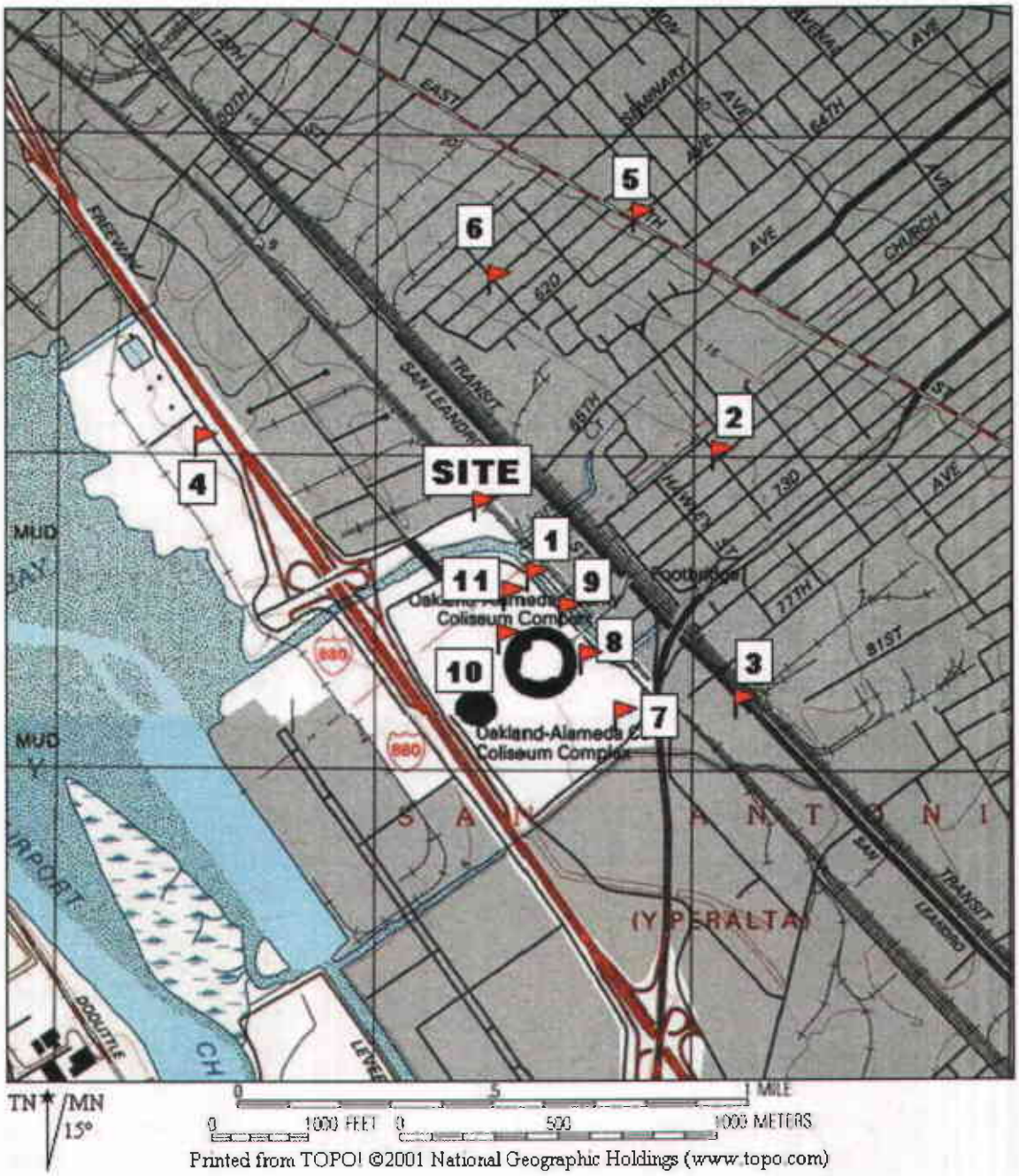
This report presents a summary of work completed by AEI, including observations and descriptions of site conditions. Where appropriate, it includes analytical results for samples taken during the course of the work. The number and location of samples are chosen to provide required information, but it cannot be assumed that they are entirely representative of all areas not sampled. All conclusions and recommendations are based on these analyses, observations, and the governing regulations. Conclusions beyond those stated and reported herein should not be inferred from this document.

These services were performed in accordance with generally accepted practices in the environmental engineering and construction field that existed at the time and location of the work.

Sincerely,

Nathan Garfield
Staff Geologist

Joseph P. Derhake
Senior Project Engineer, Principal



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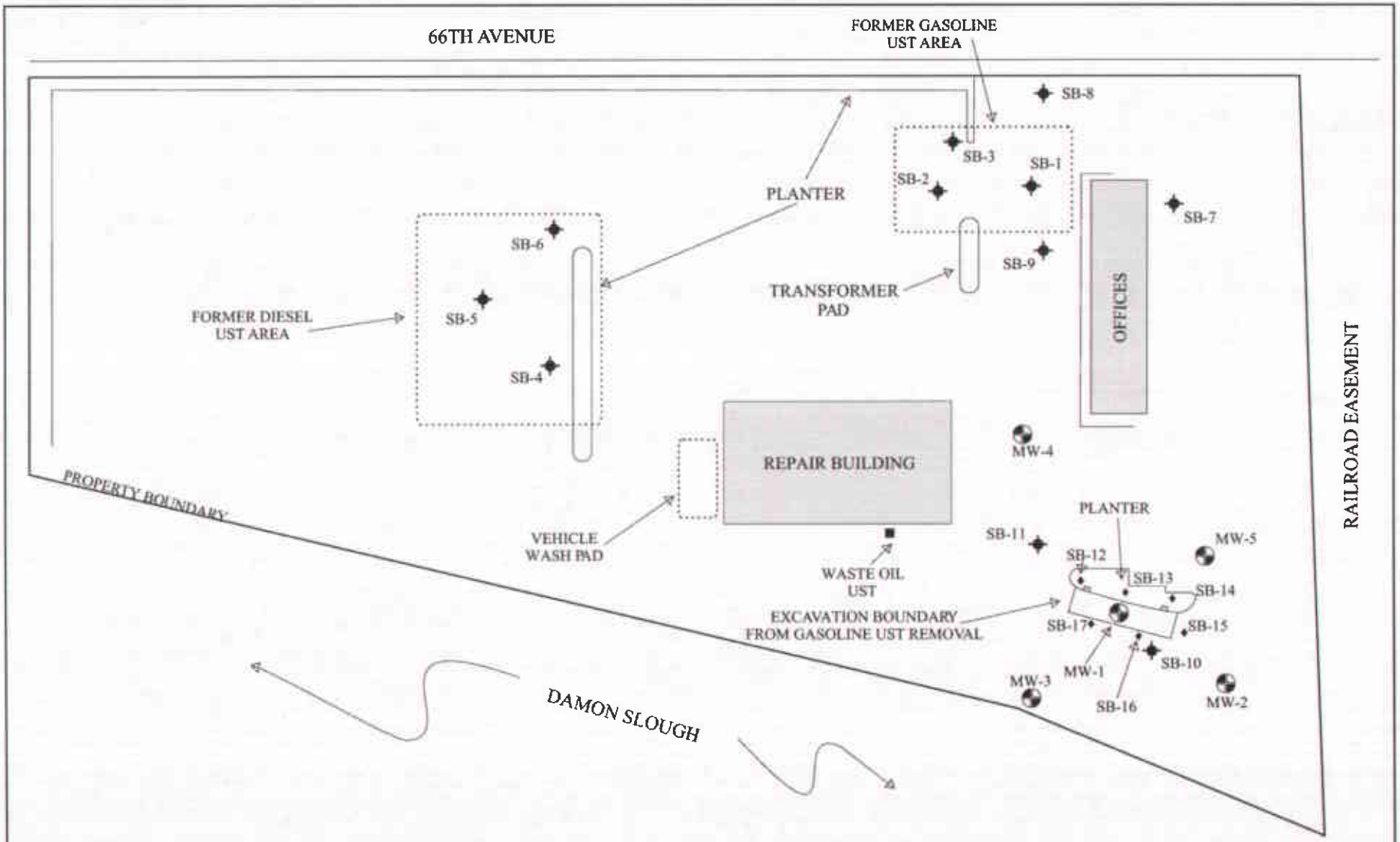
SITE LOCATION MAP
SHOWING NEARBY WELL LOCATIONS

796 66TH AVENUE
OAKLAND, CALIFORNIA

FIGURE 1
PROJECT NO. 5526



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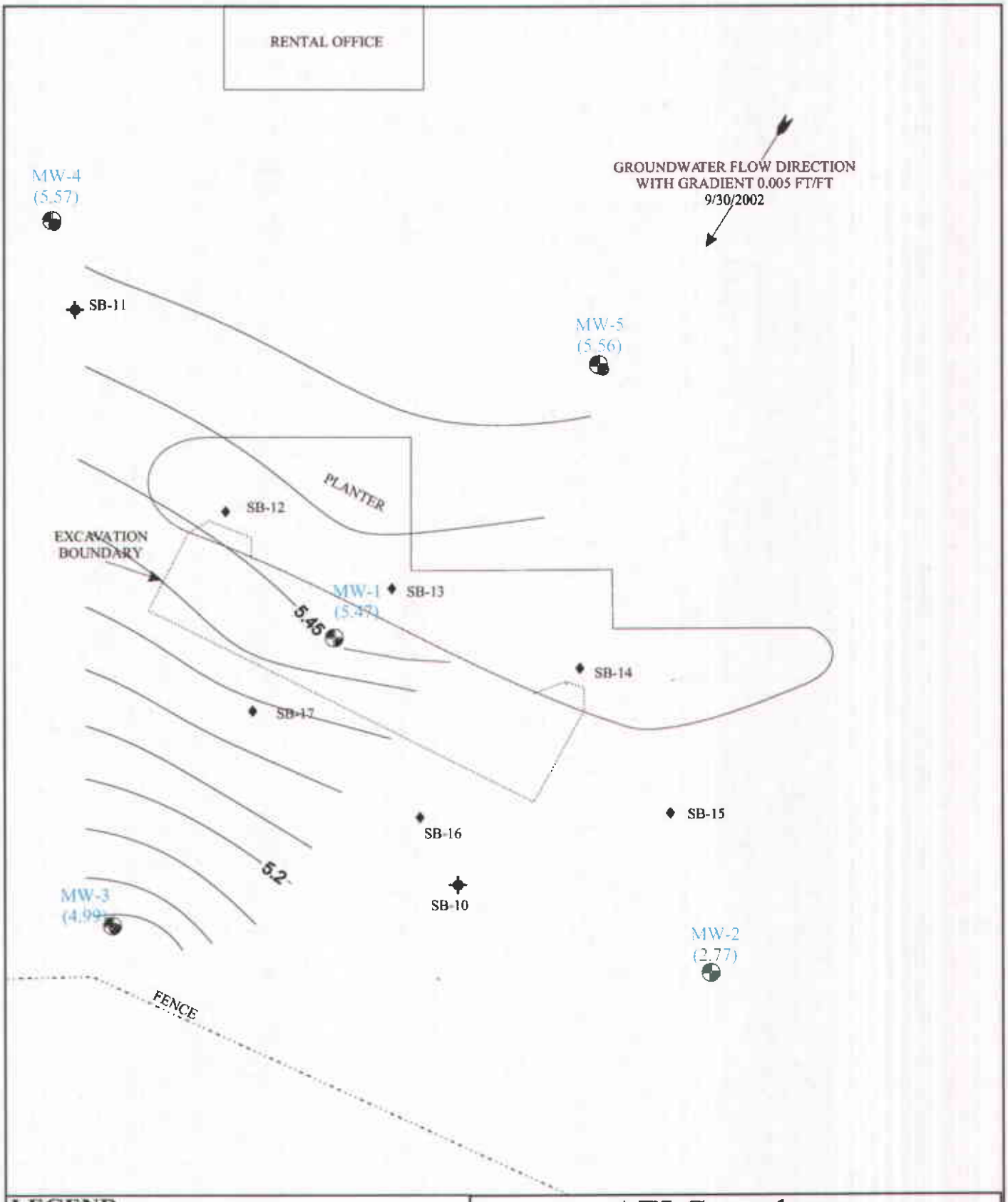
3210 OLD TUNNEL ROAD, SUITE B, LAFAYETTE, CA

SITE PLAN

796 66th AVENUE
OAKLAND, CALIFORNIA

FIGURE 2
AEI PROJECT NO 5311



LEGEND

MW-X MONITORING WELL LOCATION

CONTOURS DRAWN IN SURFER v. 7.0

CONTOUR INTERVAL IS 0.05 FEET

NOTE: DATA FROM MW-2 NOT USED IN CONTOUR GENERATION

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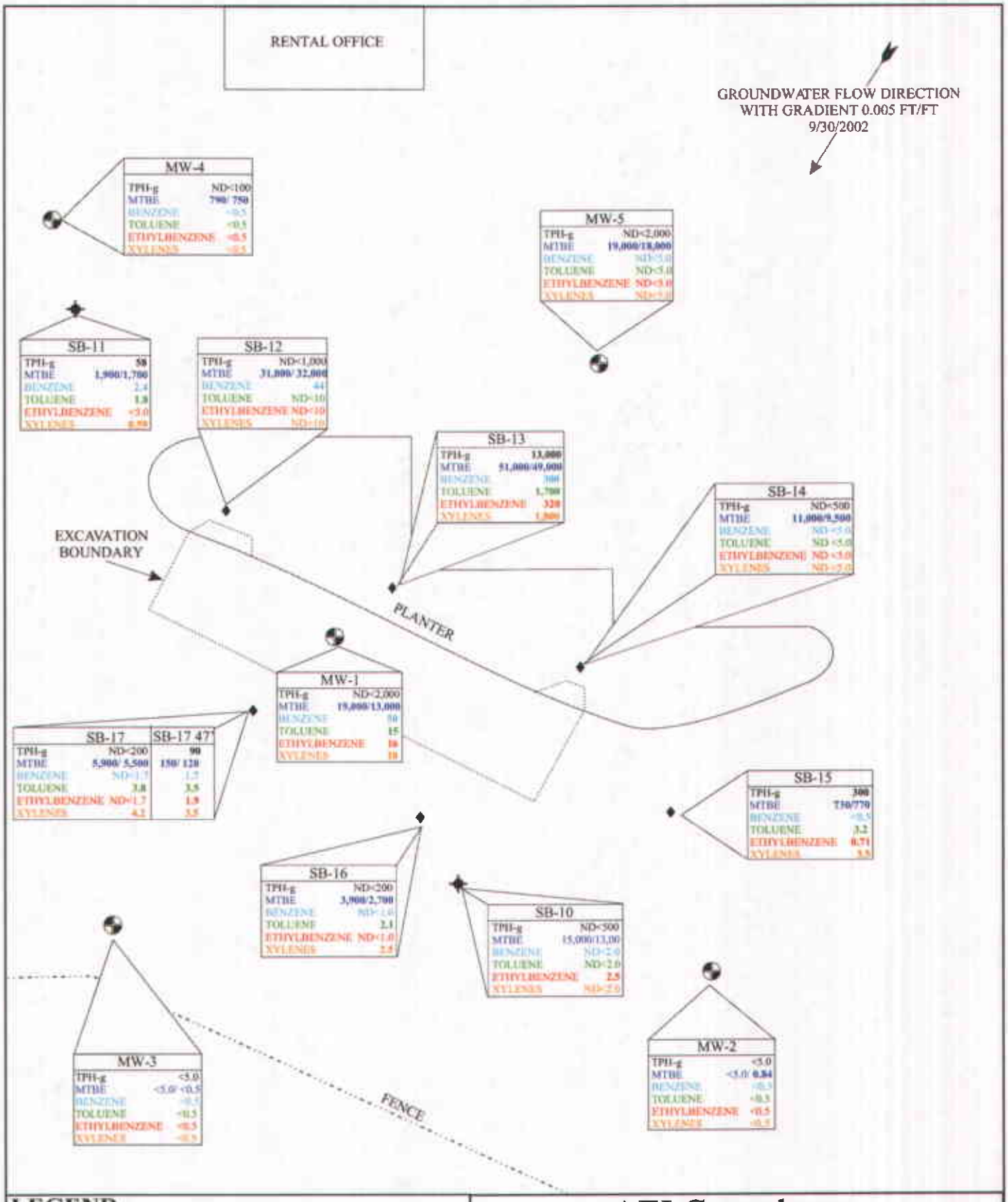
SCALE: 1" = 20'	DRAWN BY: N. GARFIELD	DATE: 10/21/2002

WATER TABLE ELEVATION

796 66TH AVENUE
OAKLAND, CALIFORNIA

FIGURE 3
AEI PROJECT NO 5526



LEGEND

- MW-X MONITORING WELL LOCATION
- SB-X SOIL SAMPLES COLLECTED 9/6/02
- WEST X SOIL SAMPLES COLLECTED 11/30/01
- SB-X SOIL SAMPLES COLLECTED 7/17 &9/28/01
- TPH-g Total Petroleum Hydrocarbons as gasoline
- MTBE Methyl Tertiary Butyl Ether
  Expressed as: result by EPA 8020/ result by EPA 8260
- LEAD Total Lead Expressed as TTLC/ STLC

Soil sample results in mg/kg
Groundwater results in µg/L , except lead (mg/L)

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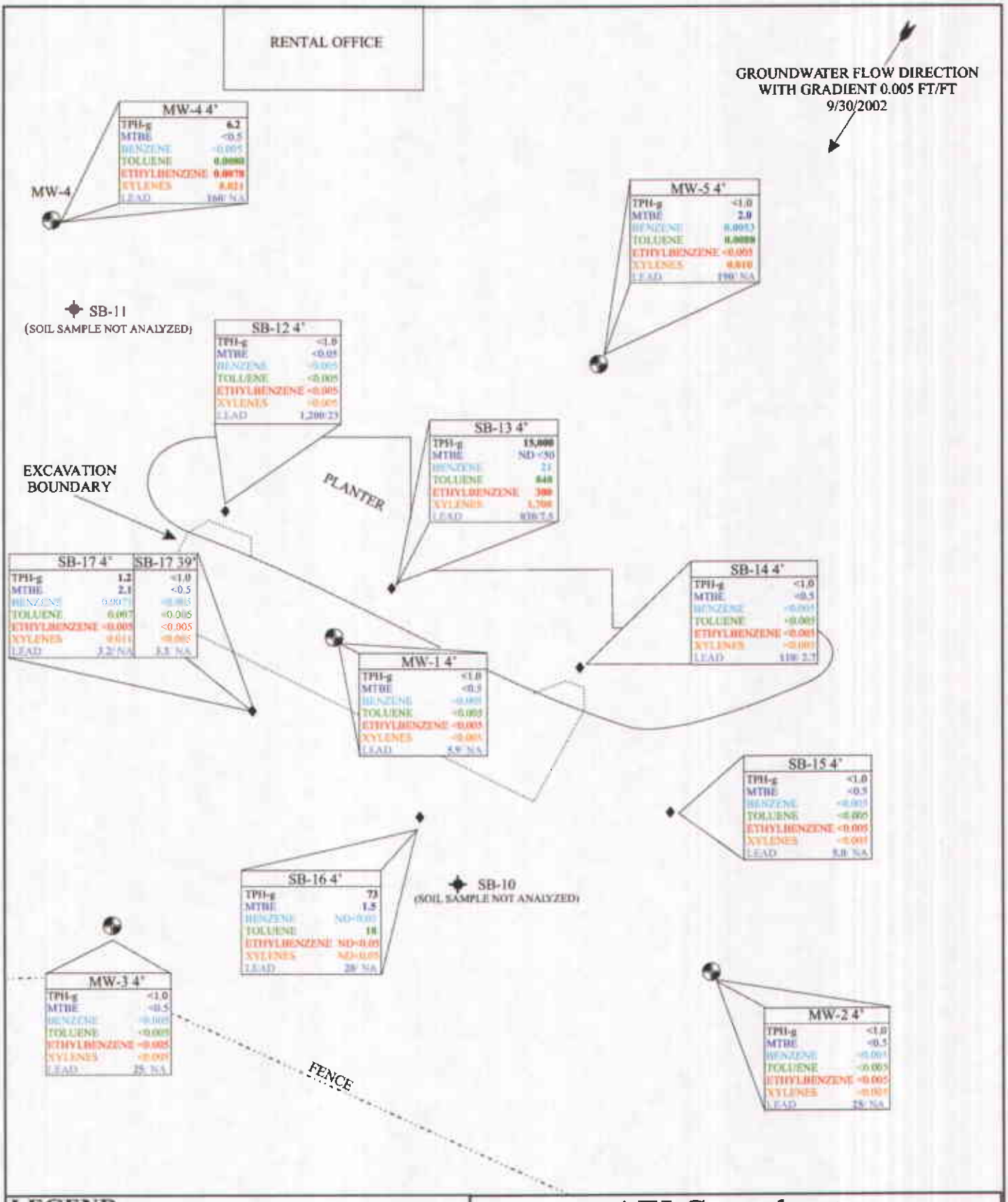
SCALE: 1" = 20' | DRAWN BY: N. GARFIELD | DATE: 10/21/2002

DISSOLVED HYDROCARBONS

796 66TH AVENUE
OAKLAND, CALIFORNIA

FIGURE 4
AEI PROJECT NO 5526



LEGEND

- MW-X MONITORING WELL LOCATION
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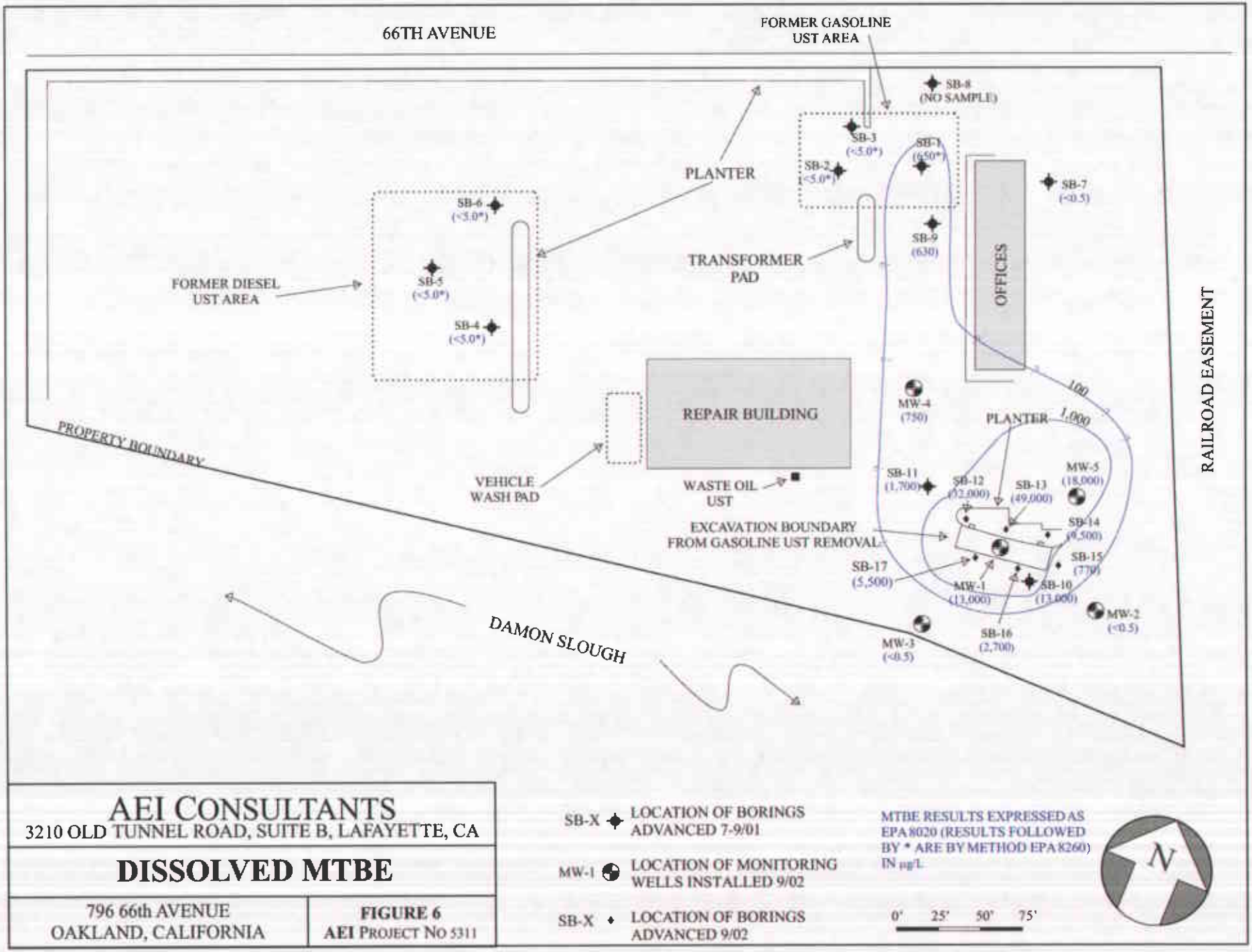
SCALE: 1" = 20'	DRAWN BY: N. GARFIELD	DATE: 10/21/2002

SOIL ANALYTICAL RESULTS

796 66TH AVENUE
OAKLAND, CALIFORNIA

FIGURE 5
AEI PROJECT NO 5526



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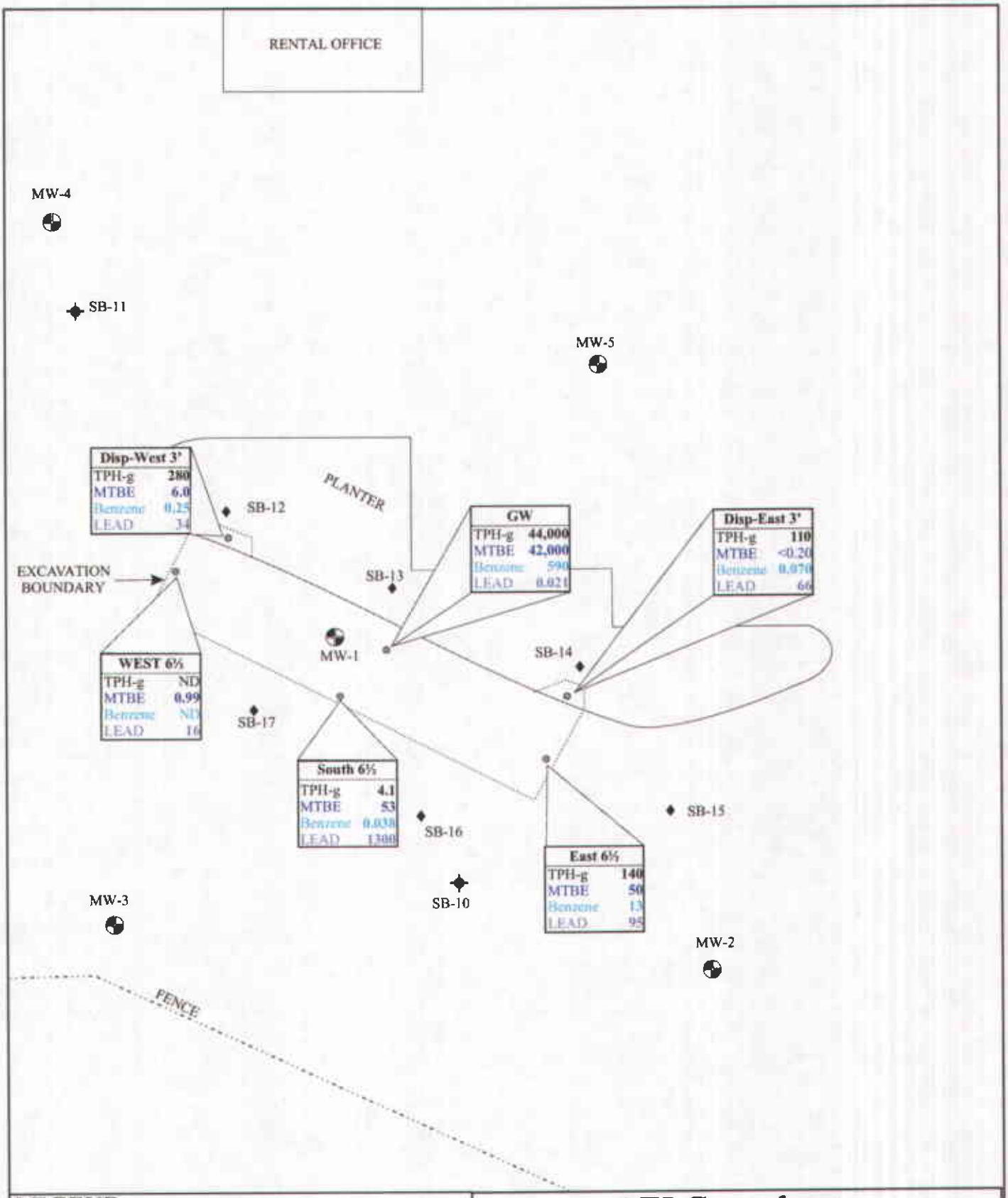
DISSOLVED MTBE

796 66th AVENUE
OAKLAND, CALIFORNIA

FIGURE 6
AEI PROJECT NO 5311



LEGEND

- MW-X MONITORING WELL LOCATION
- SB-X SOIL SAMPLES COLLECTED 9/6/02
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Soil sample results in mg/kg
Groundwater results in µg/L , except lead (mg/L)

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SCALE: 1" = 20'	DRAWN BY: N. GARFIELD	DATE: 10/21/2002

TANK REMOVAL ANALYTICAL RESULTS

796 66TH AVENUE
OAKLAND, CALIFORNIA

FIGURE 7
AEI PROJECT NO 5526

Table 1
Groundwater Elevation Data

Well ID	Date Collected	Well Elevation ft (amsl)	Depth to Water ft (TOC)	Water Table Elevation ft (amsl)
MW-1	9/30/02	10.88	5.41	5.47
MW-2	9/30/02	10.77	8.00	2.77
MW-3	9/30/02	10.20	5.21	4.99
MW-4	9/30/02	11.07	5.50	5.57
MW-5	9/30/02	11.18	5.62	5.56

All well elevations and depths to water are measured from the top of the casing (TOC)
ft (amsl) = feet above mean sea level

Table 2:
Soil Sample Analytical Data

Sample ID	Date	TPH-g mg/kg	TPH-d mg/kg	MTBE mg/kg	Benzene mg/kg	Toluene mg/kg	Ethylbenzene mg/kg	Xylenes mg/kg	Lead (mg/kg) TTLC	Lead (mg/kg) STLC
SB-1 7'	7/17/2001	<1.0	-	<0.05	<0.005	<0.005	<0.005	<0.005	-	
SB-2 6'	7/17/2001	<1.0	26	<0.05	<0.005	<0.005	<0.005	<0.005	-	
SB-2 10'	7/17/2001	<1.0	-	<0.05	<0.005	<0.005	<0.005	<0.005	-	
SB-3 4'	7/17/2001	<1.0	-	<0.05	<0.005	<0.005	<0.005	<0.005	-	
SB-4 6'	7/17/2001	<1.0	2.8	<0.05	<0.005	<0.005	<0.005	<0.005	-	
SB-5 4'	7/17/2001	5.0	13	<0.05	0.1600	0.058	0.11	0.21	-	
SB-5 7'	7/17/2001	9.7	37	<0.05	0.059	0.012	0.007	0.056	-	-
SB-6 7'	7/17/2001	1.5	11	<0.05	0.008	0.018	<0.005	<0.005	-	-
SB-6 15'	7/17/2001	<1.0	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005	-	-
SB-8 4'	9/28/2001	16	-	<0.05	0.053	0.11	0.031	0.14	-	-
SB-8 11'	9/28/2001	<1.0	-	<0.05	<0.005	<0.005	<0.005	<0.005	-	-
Disp-East 3'	11/30/2001	110	-	<0.20	0.07	1.2	0.16	5.2	-	-
Disp-West 3'	11/30/2001	280	-	6	0.25	7.5	4.1	26	-	-
South 6 1/2	11/30/2001	4.1	-	53	0.038	0.16	0.034	0.19	-	-
West 6 1/2	11/30/2001	<50	-	0.99	<0.005	0.014	0.011	0.046	-	-
East 6 1/2	11/30/2001	140	-	50	13	3.9	7.9	18	-	-
SB-12 5'	9/6/2002	<50	-	<0.05	<0.005	<0.005	<0.005	<0.005	1200	23
SB-13 4'	9/6/2002	15,000	-	ND<50	21	840	300	1700	830	7.5
SB-14 4'	9/6/2002	<50	-	<0.05	<0.005	<0.005	<0.005	<0.005	110	2.7
SB-15 4'	9/6/2002	<50	-	<0.05	<0.005	<0.005	<0.005	<0.005	5	-
SB-16 4'	9/6/2002	73	-	1.5	ND<0.05	0.18	ND<0.05	ND<0.05	20	-
SB-17 4'	9/6/2002	1.2	-	2.1	0.0073	0.007	<0.005	0.011	3.2	-
SB-17 39'	9/6/2002	<50	-	<0.05	<0.005	<0.005	<0.005	<0.005	3.3	-
MW-1 4'	9/19/2002	<1.0	-	<0.05	<0.005	<0.005	<0.005	<0.005	5.9	-
MW-2 4"	9/19/2002	<1.0	-	<0.05	<0.005	<0.005	<0.005	<0.005	25	-
MW-3 4'	9/19/2002	<1.0	-	<0.05	<0.005	<0.005	<0.005	<0.005	25	-
MW-4 4'	9/19/2002	6.2	-	<0.05	<0.005	0.0080	0.0078	0.021	160	-
MW-5 4'	9/19/2002	<1.0	-	2.0	0.0053	0.0088	<0.005	0.010	190	-
MDL		1.0	1.0	0.05	0.005	0.005	0.005	0.005	3	0.200

MDL = Method Detection Limit
ND = Not detected above the Method Detection Limit (unless otherwise noted)
ug/kg = micrograms per kilogram (ppb)
mg/kg = milligrams per kilogram (ppm)
- = Sample not analyzed by this method

Table 3:
Groundwater Sample Analytical Data

Sample ID	Date	TPH-g µg/L	TPH-d µg/L	MTBE(µg/L) (EPA 8020)	MTBE(µg/L) (EPA 8260)	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Xylenes µg/L	Lead mg/L
SB-1 W	7/17/2001	<50	-	650	-	0.63	<0.5	<0.5	<0.5	-
SB-2 W	7/17/2001	<50	-	<5.0	-	<0.5	<0.5	<0.5	<0.5	-
SB-3 W	7/17/2001	120	-	<5.0	-	<0.5	4.6	<0.5	<0.5	-
SB-4 W	7/17/2001	<50	990	<5.0	-	<0.5	<0.5	<0.5	<0.5	-
SB-5 W	7/17/2001	68	410	<5.0	-	<0.5	0.66	<0.5	<0.5	-
SB-6 W	7/17/2001	240	590	<5.0	-	<0.5	2.9	<0.5	<0.5	-
SB-7 W	9/28/2001	<50	-	<5.0	<0.5	<0.5	0.74	<0.5	<0.5	-
SB-9 W	9/28/2001	<50	-	670	630	<0.5	1.0	<0.5	<0.5	-
SB-10 W	9/28/2001	<500	-	15,000	13,000	<2.0	<2.0	2.5	<2.0	-
SB-11 W	9/28/2001	58	-	1,900	1,700	2.4	1.8	<0.5	0.79	-
GW*	11/30/2001	44,000	-	42,000	-	590	5100	640	3500	-
SB-12	9/6/2002	ND<1000	-	31,000	32,000	44	ND<10	ND<10	ND<10	<0.005
SB-13	9/6/2002	13,000	-	51,000	49,000	300	1700	320	1,800	<0.005
SB-14	9/6/2002	ND<500	-	11,000	9,500	ND<5.0	ND<5.0	ND<5.0	ND<5.0	<0.005
SB-15	9/6/2002	300	-	730	770	<0.5	3.2	0.71	3.5	0.039
SB-16	9/6/2002	ND<200	-	3,900	2,700	ND<1	2.1	ND<1	2.5	<0.005
SB-17	9/6/2002	ND<200	-	5,900	5,500	ND<1.7	3.8	ND<1.7	4.2	<0.005
SB-17-W 47'	9/6/2002	90	-	150	120	1.7	3.5	1.9	3.5	-
MW-1	9/30/2002	1,800	-	19,000	13,000	50	15	16	18	-
MW-2	9/30/2002	<50	-	<5.0	0.84	<0.5	<0.5	<0.5	<0.5	-
MW-3	9/30/2002	<50	-	<5.0	<0.5	<0.5	<0.5	<0.5	<0.5	-
MW-4	9/30/2002	ND<100	-	790	ND<10	<0.5	<0.5	<0.5	<0.5	-
MW-5	9/30/2002	ND<2,000	-	19,000	ND<250	ND<5.0	ND<5.0	ND<5.0	ND<5.0	-
MDL		50	50	5.0		0.5	0.5	0.5	0.5	0.005

MDL = Method Detection Limit
ND = Not detected above the Method Detection Limit (unless otherwise noted)
µg/L = micrograms per liter (ppb)
mg/L = milligrams per liter (ppm)
- = Sample not analyzed by this method
* Sample GW was collected from standing water within the tank excavation

Table 4:
Groundwater Sample Fuel Oxygenate and Lead Scavenger Analytical Data

Sample ID	Date	Diisopropyl ether (DIPE) µg/L	Ethyl tert-butyl ether (ETBE) µg/L	Methyl-t-butyl ether (MTBE) µg/L	tert-Amyl methyl ether (TAME) µg/L	t-Butyl alcohol (TBA) µg/L	1,2-Dibromoethane (EDB) µg/L	1,2-Dichloroethane (1,2-DCA) µg/L
MW-1	9/30/2002	ND<500	ND<500	13,000	ND<500	ND<500	ND<500	ND<500
MW-2	9/30/2002	<0.5	<0.5	0.84	<0.5	<0.5	<0.5	<0.5
MW-3	9/30/2002	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-4	9/30/2002	ND<10	ND<10	750	ND<10	ND<100	ND<10	ND<10
MW-5	9/30/2002	ND<250	ND<250	18,000	ND<250	ND<2,500	ND<250	ND<250
MDL		0.5	0.5	0.5	0.5	5	0.5	0.5

MDL = Method Detection Limit

ND = Not detected above the Method Detection Limit (unless otherwise noted)

µg/L = micrograms per liter (ppb)

mg/L = milligrams per liter (ppm)

- = Sample not analyzed by this method

APPENDIX A

PERMIT DOCUMENTATION

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD CA. 94544-1395
PHONE (510) 670-~~5575 MARLON MAGALLANES/FRANK CODD (510) 670-~~ 510-670-6633 James Yoo
FAX (510)782-1939

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT: 796 66th Avenue, Oakland, CA 94621

CLIENT
Name: Cruise America / Cory Kauffman
Address: 11 West Hampton Ave. Phone: (480) 464-7300
City: Mesa, AZ Zip: 85210

APPLICANT
Name: AEI Consultants / Nathan Garfield
Fax: (925) 283-6121
Address: 3210 Old Tunnel Rd. Suite B Phone: (925) 283-6000
City: Lafayette, CA Zip: 94549

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

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

DRILLING METHOD:
Mud Rotary ☐ Air Rotary ☐ Auger ☐
Cable ☐ Other ☒ Direct Push

DRILLER'S NAME: Vironex

DRILLER'S LICENSE NO.: 705927

WELL PROJECTS
Drill Hole Diameter ______ in. Maximum
Casing Diameter ______ in. Depth ______ ft.
Surface Seal Depth ______ ft. Owner's Well Number ______

GEOTECHNICAL PROJECTS
Number of Borings: 6 Maximum
Hole Diameter: 2 in. Depth: 45 ft.

ESTIMATED STARTING DATE: 6 September 2002
ESTIMATED COMPLETION DATE: 7 September 2002

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

APPLICANT'S SIGNATURE [signature] DATE 8/19/2002

PLEASE PRINT NAME: Nathan Garfield

Rev.5-13-00

FOR OFFICE USE

PERMIT NUMBER: W02-0857
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 original Department of Water Resources-Well Completion Report.
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 (circled)
Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

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

F. WELL DESTRUCTION
Send a map of work site. A separate permit is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

APPROVED [signature] DATE 8-28-02

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD CA. 94544-1395
PHONE (510) 670-5554 MARLON MAGALLANES/FRANK CODD (510) 670-6783
FAX (510)782-1939

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 796 66TH Avenue
Oakland, CA 94621

CLIENT
Name Cruise America / Cory Kauffman
Address 11 West Hampton Ave Phone (480) 464-7300
City Mesa, AZ Zip 85210

APPLICANT
Name AEI Consultants / Nathan Garfield
Fax (925) 283-6121
Address 3210 Old Tunnel Rd Suite B Phone (925) 283-6000
City Lafayette, CA Zip 94549

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

PROPOSED WATER SUPPLY WELL USE
New Domestic ☐
Municipal ☐
Industrial ☐
Replacement Domestic ☐
Irrigation ☐
Other Monitoring ☒

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

DRILLER'S NAME Hew Drilling

DRILLER'S LICENSE NO. 604987

WELL PROJECTS
Drill Hole Diameter 10.5 in.
Casing Diameter 4" in.
Surface Seal Depth 2 ft.
Maximum Depth 14 ft.
Owner's Well Number MW-1

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

ESTIMATED STARTING DATE 9/18/02
ESTIMATED COMPLETION DATE 9/18/02

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

APPLICANT'S SIGNATURE [signature] DATE 9/9/02

PLEASE PRINT NAME Nathan Garfield

Rev.5-13-00

FOR OFFICE USE

PERMIT NUMBER W02-0888
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. (circled) Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources Well Completion Report.
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. (circled) 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 by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

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

F. WELL DESTRUCTION
Send a map of work site. A separate permit is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

APPROVED [signature] DATE 9-10-02

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD CA. 94544-1395
PHONE (510) 670-5554 MARLON MAGALLANES/FRANK CODD (510) 670-6783
FAX (510)782-1939

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 796 66TH Avenue
Oakland, CA 94621

CLIENT
Name Cruise America / Cory Kaffman
Address 11 West Hampden Ave Phone (480) 464-7500
City Mesa AZ Zip 85210

APPLICANT
Name AEI Consultants / Nathan Garfield 6121
Address 2500 Old Tunnel Rd Suite E Phone (925) 283-6000
City Lafayette, CA Zip 94549

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 monitoring ☒

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

DRILLER'S NAME HEW Drilling
DRILLER'S LICENSE NO. 604997

WELL PROJECTS
Drill Hole Diameter 8.25 in. Maximum Depth 14 ft.
Casing Diameter 2 in.
Surface Seal Depth 2 ft. Owner's Well Number MW-2

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

ESTIMATED STARTING DATE 9/18/02
ESTIMATED COMPLETION DATE 9/18/02

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

APPLICANT'S SIGNATURE _____ DATE 9/9/02
PLEASE PRINT NAME Nathan Garfield

Rev.5-13-00

FOR OFFICE USE
PERMIT NUMBER W02-0889
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 original Department of Water Resources-Well Completion Report.
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 by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

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

F. WELL DESTRUCTION
Send a map of work site. A separate permit is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

APPROVED _____ DATE 9-10-02

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD CA. 94544-1395
PHONE (510) 670-5554 MARLON MAGALLANES/FRANK CODD (510) 670-5783
FAX (510)782-1939

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 796 66th Avenue
Oakland, CA 94621

CLIENT
Name Cruise America / Gary Hoffman
Address 11 West Hampton Ave Phone (480) 464-7300
City Mesa, AZ Zip 85210

APPLICANT
Name AEI Consultants / Nathan Garfield 6121
Address 2500 Old Tunnel Rd Suite B Phone (925) 283-6000 Fax (925) 283-6121
City Lafayette, CA Zip 94549

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☐
Water Supply	☐	Contamination	☐
Monitoring	☒	Well Destruction	☐

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other Monitoring	☒

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☐	Auger	☒
Cable	☐	Other	☐		

DRILLER'S NAME Hew Drilling
DRILLER'S LICENSE NO. 604987

WELL PROJECTS
Drill Hole Diameter 8.25 in. Maximum Depth 14 ft.
Casing Diameter 2 in.
Surface Seal Depth 2 ft. Owner's Well Number MW-3

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

ESTIMATED STARTING DATE 9/18/02
ESTIMATED COMPLETION DATE 9/18/02

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

APPLICANT'S SIGNATURE _____ DATE 9/9/02
PLEASE PRINT NAME Nathan Garfield

Rev.5-13-00

FOR OFFICE USE
PERMIT NUMBER W02-0890
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 original Department of Water Resources Well Completion Report.
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 by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

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

F. WELL DESTRUCTION
Send a map of work site. A separate permit is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

APPROVED _____ DATE 9-10-02

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD CA. 94544-1395
PHONE (510) 670-5554 MARLON MAGALLANES/FRANK COBB (510) 670-6743
FAX (510)781-1939

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 796 66th Avenue
Oakland, CA 94621

CLIENT
Name Cruise America / Greg Kaffney
Address 11 West Hampton Ave Phone (480) 444-7800
City Mesa, AZ Zip 85210

APPLICANT
Name AEI Consultants / Nathan Gonfield 0121
Address 2500 Old Tunnel Rd. Suite E Phone (925) 283-6000
City Lafayette, CA Zip 94549

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☐
Water Supply	☐	Contamination	☐
Monitoring	☒	Well Destruction	☐

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other monitoring	☒

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☐	Auger	☒
Cable	☐	Other	☐		

DRILLER'S NAME Hew Drilling
DRILLER'S LICENSE NO. 604987

WELL PROJECTS
Drill Hole Diameter 8.25 in. Maximum
Casing Diameter 2 in. Depth 14 ft.
Surface Seal Depth 2 ft. Owner's Well Number MW-4

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

ESTIMATED STARTING DATE 9/18/02
ESTIMATED COMPLETION DATE 9/18/02

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

APPLICANT'S SIGNATURE _____ DATE 9/9/02
PLEASE PRINT NAME Nathan Gonfield

Rev.5-13-00

FOR OFFICE USE
PERMIT NUMBER 02-0891
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 original Department of Water Resources Well Completion Report.
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 by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

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

F. WELL DESTRUCTION
Send a map of work site. A separate permit is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

APPROVED _____ DATE 9-10-02

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD CA. 94544-1395
PHONE (510) 670-5554 MARLON MAGALLANES/FRANK COBB (510) 670-5783
FAX (510)782-1939

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 796 66th Avenue
Oakland, CA 94621

CLIENT
Name Cruise America / Cary Kaufman
Address 11 West Hampton Ave Phone (480) 980-7000
City Mesa AZ Zip 85210

APPLICANT
Name AEI Consultants / Nathan Garfield 6/21
Address 3210 Old Tunnel Rd Suite B Phone (925) 283-6000 Fax (925) 283-[illegible]
City Lafayette, CA Zip 94549

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☐
Water Supply	☐	Contamination	☐
Monitoring	☒	Well Destruction	☐

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other monitoring	☒

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☐	Auger	☒
Cable	☐	Other	☐		

DRILLER'S NAME New Drilling

DRILLER'S LICENSE NO. 604987

WELL PROJECTS
Drill Hole Diameter 8.25 in. Maximum
Casing Diameter 2 in. Depth 14 ft.
Surface Seal Depth 2 ft. Owner's Well Number MW-5

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

ESTIMATED STARTING DATE 9/18/02
ESTIMATED COMPLETION DATE 9/19/02

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

APPLICANT'S SIGNATURE [signature] DATE 9/4/02

PLEASE PRINT NAME Nathan Garfield

Rev 5-13-00

FOR OFFICE USE
PERMIT NUMBER WO2-0692
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 original Department of Water Resources-Well Completion Report.
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 by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

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

F. WELL DESTRUCTION
Send a map of work site. A separate permit is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

APPROVED [signature] DATE 9-10-02

APPENDIX B

SOIL BORING LOGS

Project No: 5526

Sheet: 1 of 1

Project Name: Cruise America

Log of Borehole: SB-12

Client:

Location:

Depth	USCS Symbol	USCS Label	Subsurface Description	Sample Label	Type	Blow/ft	Recovery	Well Data	Remarks
0			Ground Surface						
2		GC	***Brown gravely sand***						
4		SW		SB-12 5'	SS		40		moderate hydrocarbon odor PID = 35 ppm
6			***Black sandy gravel***	SB-12 7'	SS		90		saturated PID = 50 ppm
8		CL	***Black gravely clay***						
10			End of Borehole						
12									
14									

Drill Date 9/6/02

Drill Method: Direct Push

Total Depth: 10

Depth to Water: 6.40

Reviewed by: EW

Logged by: NG

AEI Consultants
3210 Old Tunnel Road, Suite B
Lafayette, CA 94549
(925) 283-6000

Project No: 5526

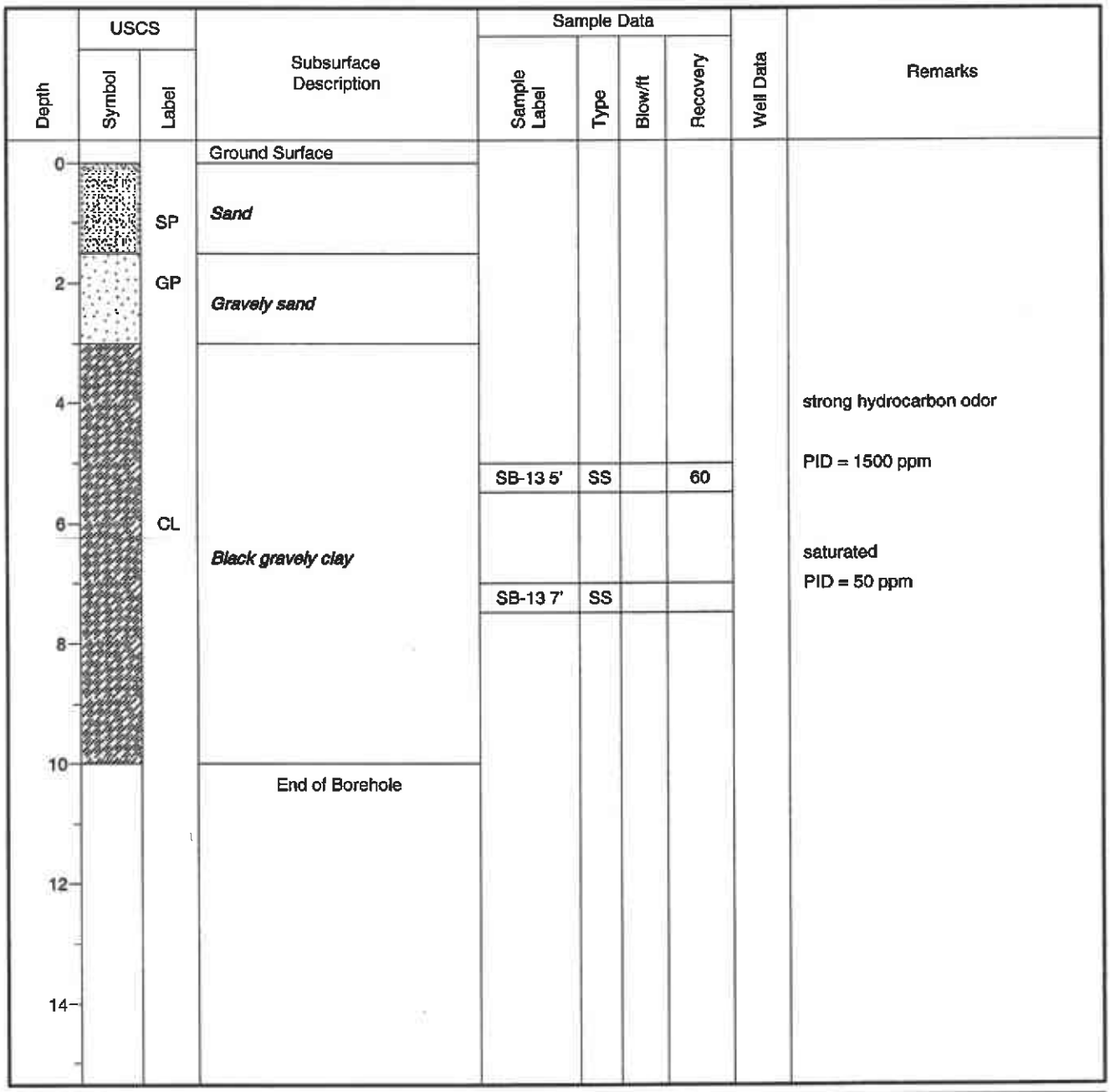
Sheet: 1 of 1

Project Name: Cruise America

Client:

Location:

Log of Borehole: SB-13



Drill Date 9/6/02

Drill Method: Direct Push

Total Depth: 10

Depth to Water: 6.15

Reviewed by: EW

Logged by: NG

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Lafayette, CA 94549
(925) 283-6000

Project No: 5526

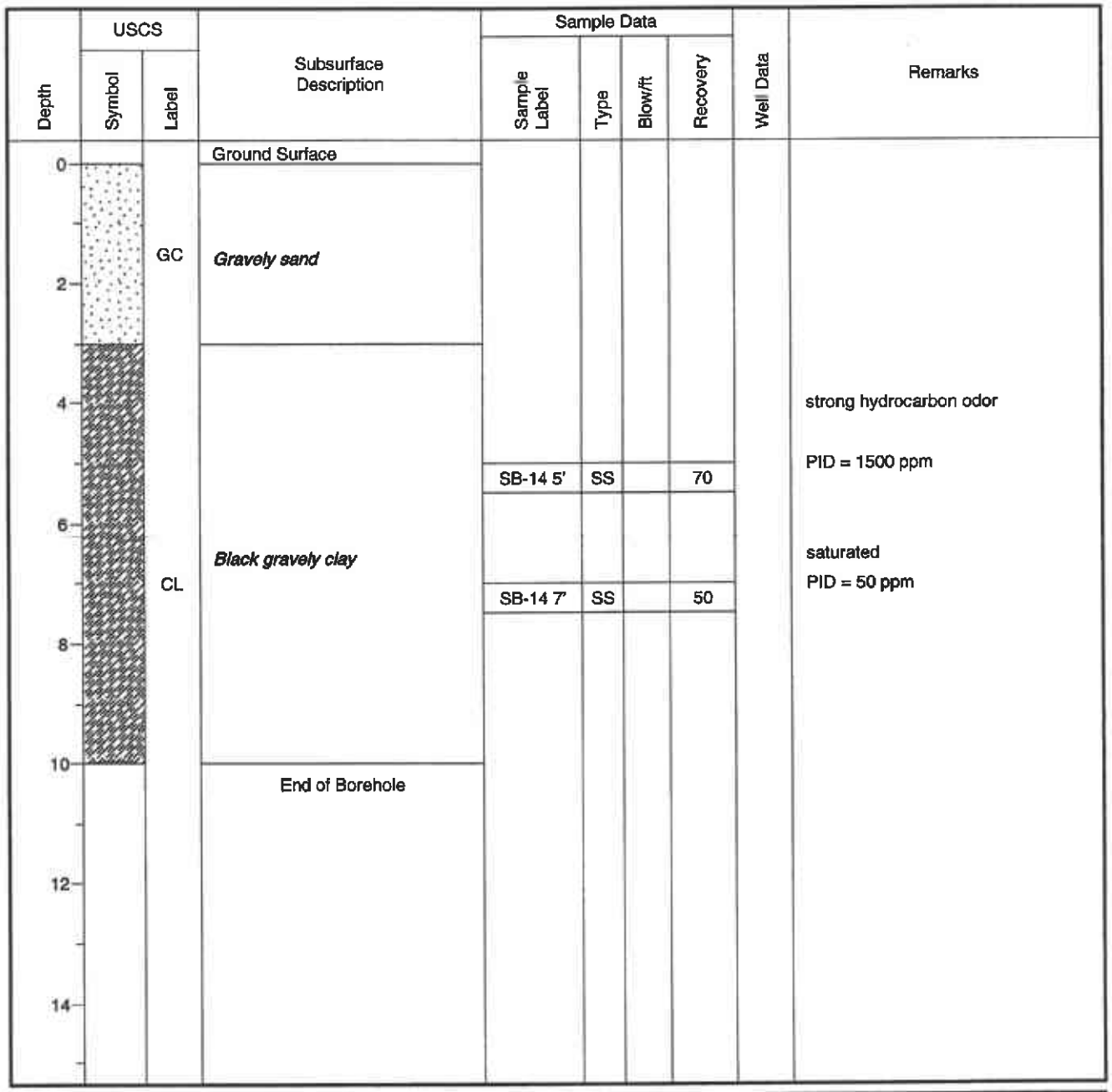
Sheet: 1 of 1

Project Name: Cruise America

Client:

Location:

Log of Borehole: SB-14



Drill Date 9/6/02

Drill Method: Direct Push

Total Depth: 10

Depth to Water: 5.98

Reviewed by: EW

Logged by: NG

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Project No: 5526

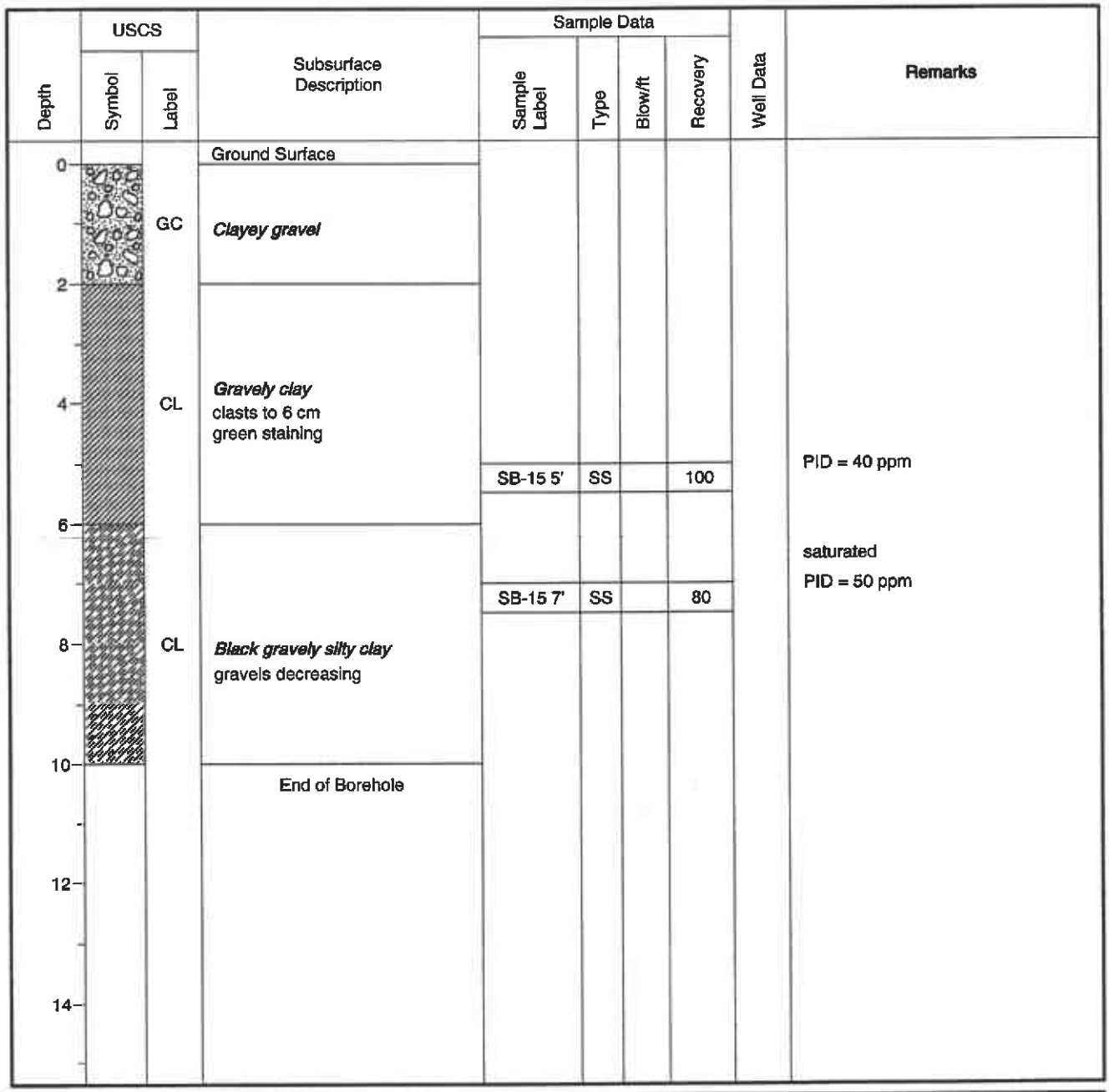
Sheet: 1 of 1

Project Name: Cruise America

Log of Borehole: SB-15

Client:

Location:



Drill Date 9/6/02

Drill Method: Direct Push

Total Depth: 10

Depth to Water: 5.45

Reviewed by: EW

Logged by: NG

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(925) 283-6000

Project No: 5526

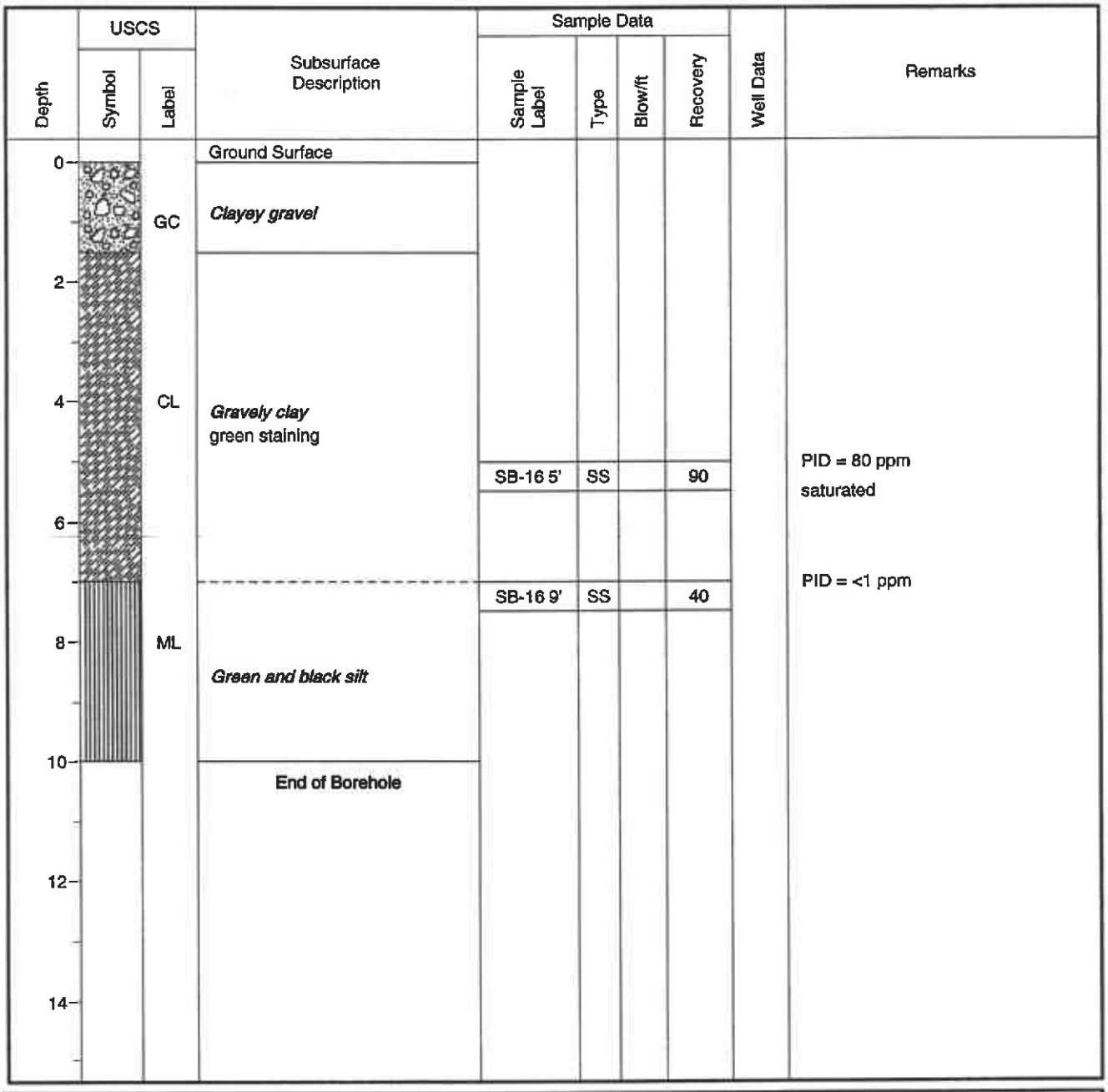
Sheet: 1 of 1

Project Name: Cruise America

Client:

Location:

Log of Borehole: SB-16



Drill Date 9/6/02

Drill Method: Direct Push

Total Depth: 10

Depth to Water: 5.35

Reviewed by: EW

Logged by: NG

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Lafayette, CA 94549
(925) 283-6000

Project No: 5526

Sheet: 1 of 2

Project Name: Cruise America

Client:

Location:

Log of Borehole: SB-17

Depth	USCS Symbol	USCS Label	Subsurface Description	Sample Label	Type	Blow/ft	Recovery	Well Data	Remarks
0			Ground Surface						
2		GC	***Clayey gravel***						
4		CL	***Gravely clay*** green staining	SB-17 5'	SS		80		PID = 10 ppm saturated moderate hydrocarbon odor
6									
8		OL	***Black silty clay*** Organic and anthropogenic debris	SB-17 9'	SS		70		PID = 50 ppm
10									
12		CL	***Soft Clay*** Organic rich						
14									sulfide odor
16		SC	***Sandy Clay***						
18									
20		OH	***Stiff organic clay***	SB-17 20'	SS		100		
22		CL							
24			***Brown gravely clay*** Gravels increase with depth						

Drill Date 9/6/02

Drill Method: Dual Cased Direct Push

Total Depth: 50

Depth to Water: 5.58, 45.5

Reviewed by: EW

Logged by: NG

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Project No: 5526

Sheet: 2 of 2

Project Name: Cruise America

Log of Borehole: SB-17

Client:

Location:

Depth	USCS Symbol	USCS Label	Subsurface Description	Sample Data: Sample Label	Sample Data: Type	Sample Data: Blow/ft	Sample Data: Recovery	Well Data	Remarks
27		SW	***Brown gravely clay*** Gravels increase with depth						
			Well graded sand						
29									
31			stiffens-less sand rounded clasts 2-3cm <5%						
33									
35									
37		CH	***Stiff sandy clay*** plastic						
39				SB-17 39'	SS		100		
41			softer, more fine sand and silt						
43									
45									wet
47		CL	***Sandy clay*** soft, cohesive						
49		SW	***Well-graded gravely sand***						

Drill Date 9/6/02

Drill Method: Dual Cased Direct Push

Total Depth: 50

Depth to Water: 5.58, 45.5

Reviewed by: EW

Logged by: NG

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Project No: 5526

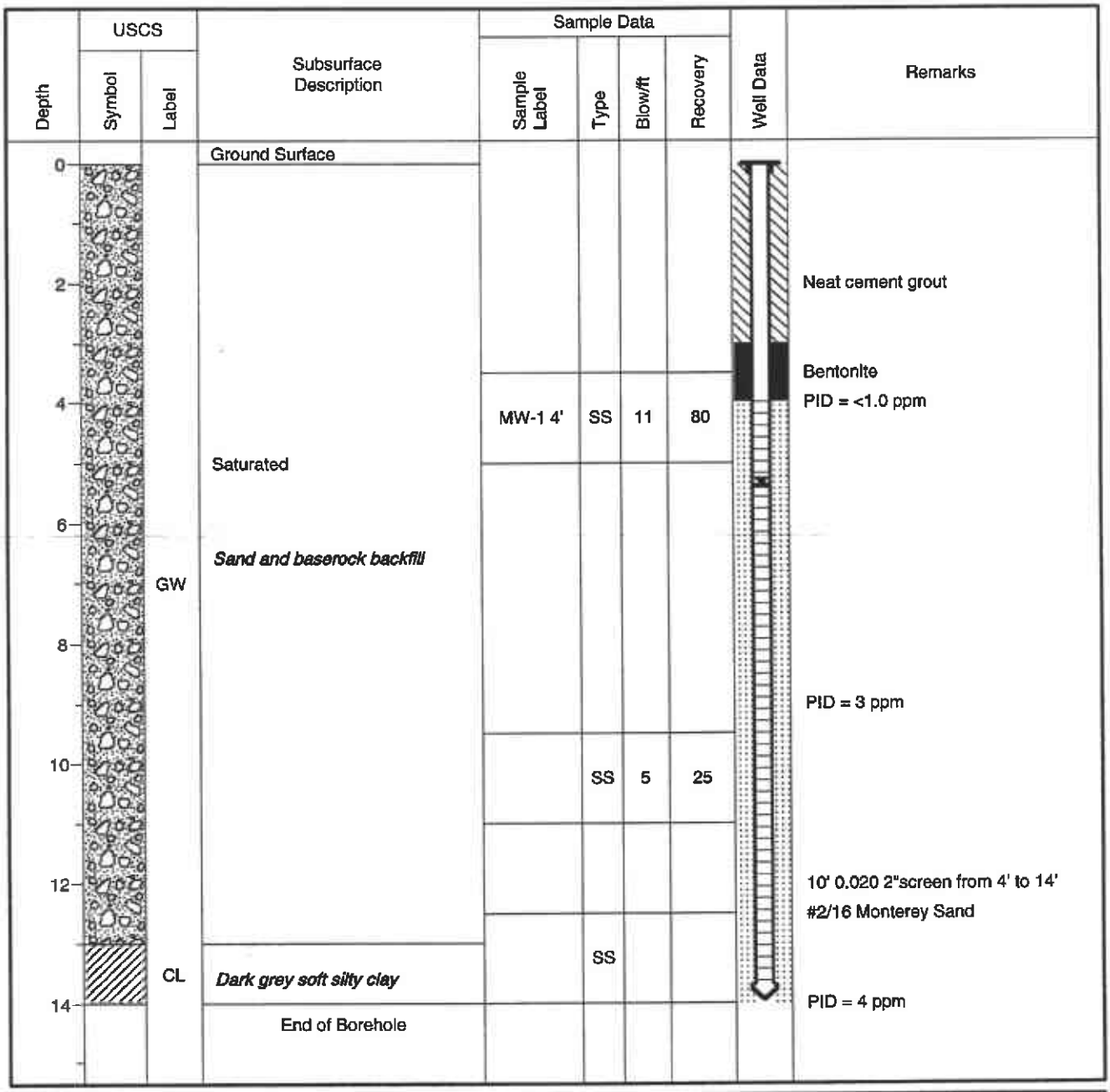
Sheet: 1 of 1

Project Name: Cruise America

Client:

Location:

Log of Borehole: MW-1



Drill Date 9/18/02

Drill Method: HSA

Total Depth: 14

Depth to Water: 5.4

Reviewed by: EW

Logged by: NG

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Lafayette, CA 94549
(925) 283-6000

Project No: 5526

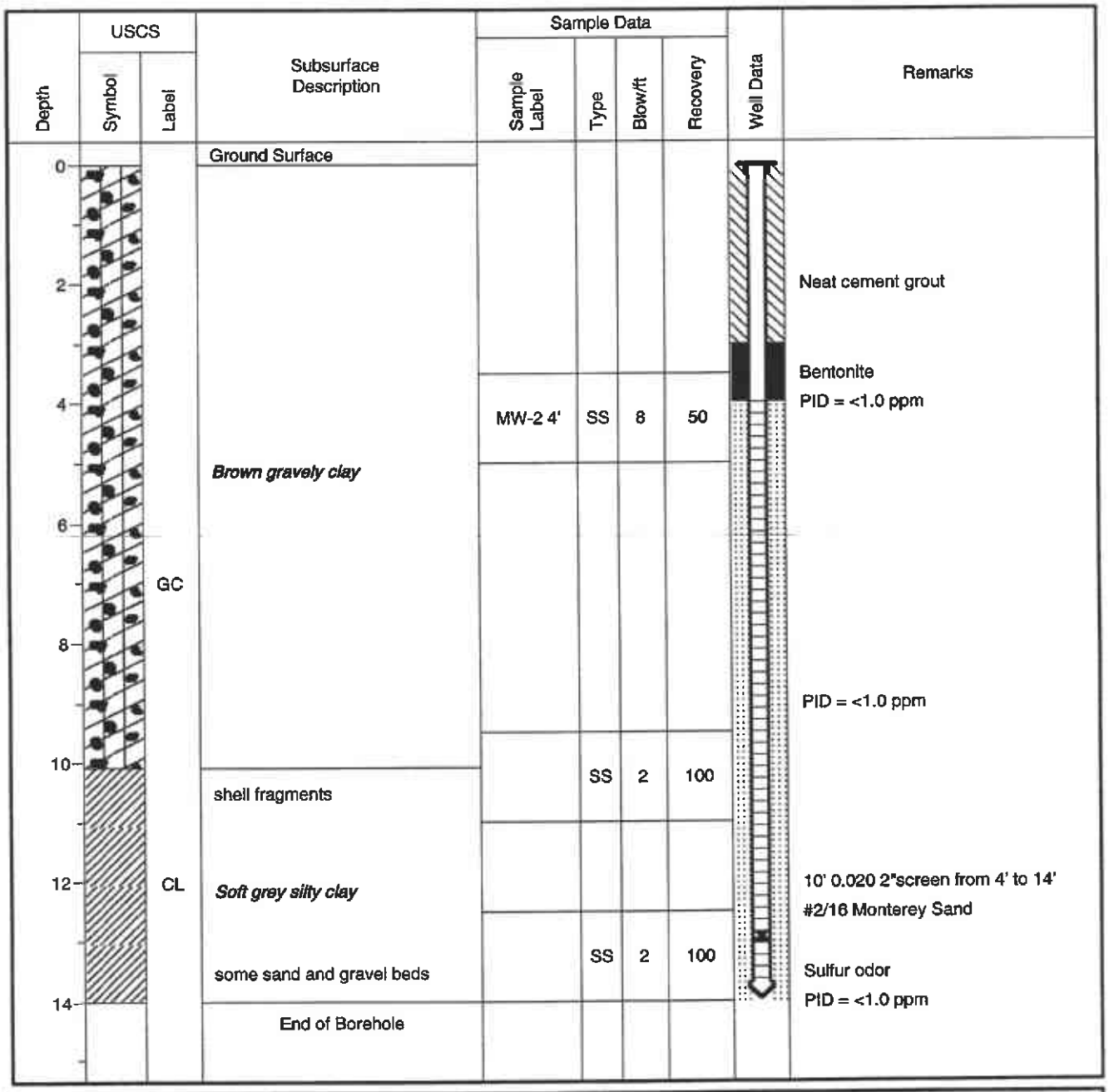
Project Name: Cruise America

Client:

Location:

Sheet: 1 of 1

Log of Borehole: MW-2



Drill Date 9/18/02

Drill Method: HSA

Total Depth: 14

Depth to Water: 13.0

Reviewed by: EW

Logged by: NG

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Lafayette, CA 94549
(925) 283-6000

Project No: 5526

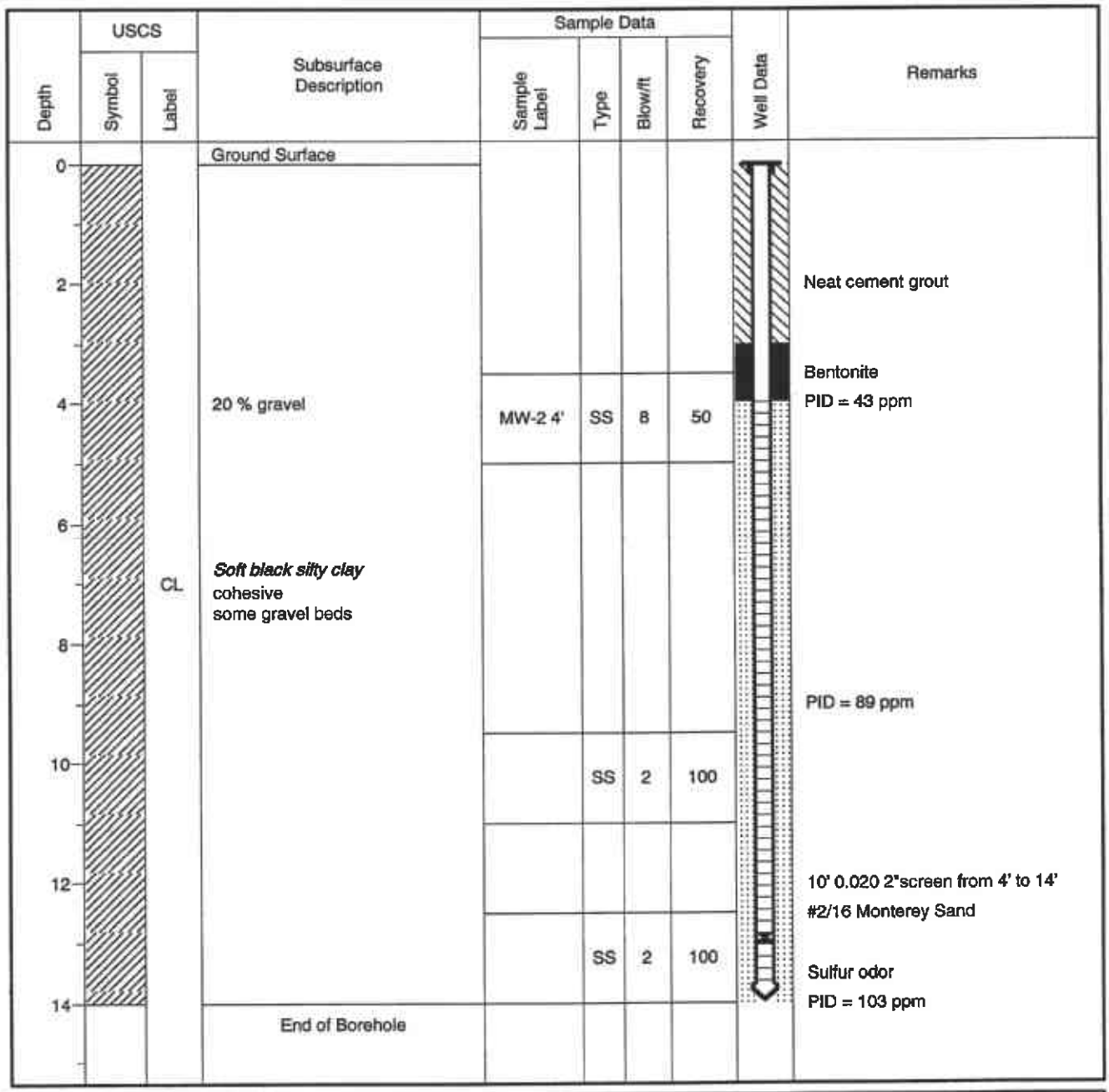
Sheet: 1 of 1

Project Name: Cruise America

Log of Borehole: MW-3

Client:

Location:



Drill Date 9/18/02

Drill Method: HSA

Total Depth: 14

Depth to Water: 13.05

Reviewed by: EW

Logged by: NG

AEI Consultants
3210 Old Tunnel Road, Suite B
Lafayette, CA 94549
(925) 283-6000

Project No: 5526

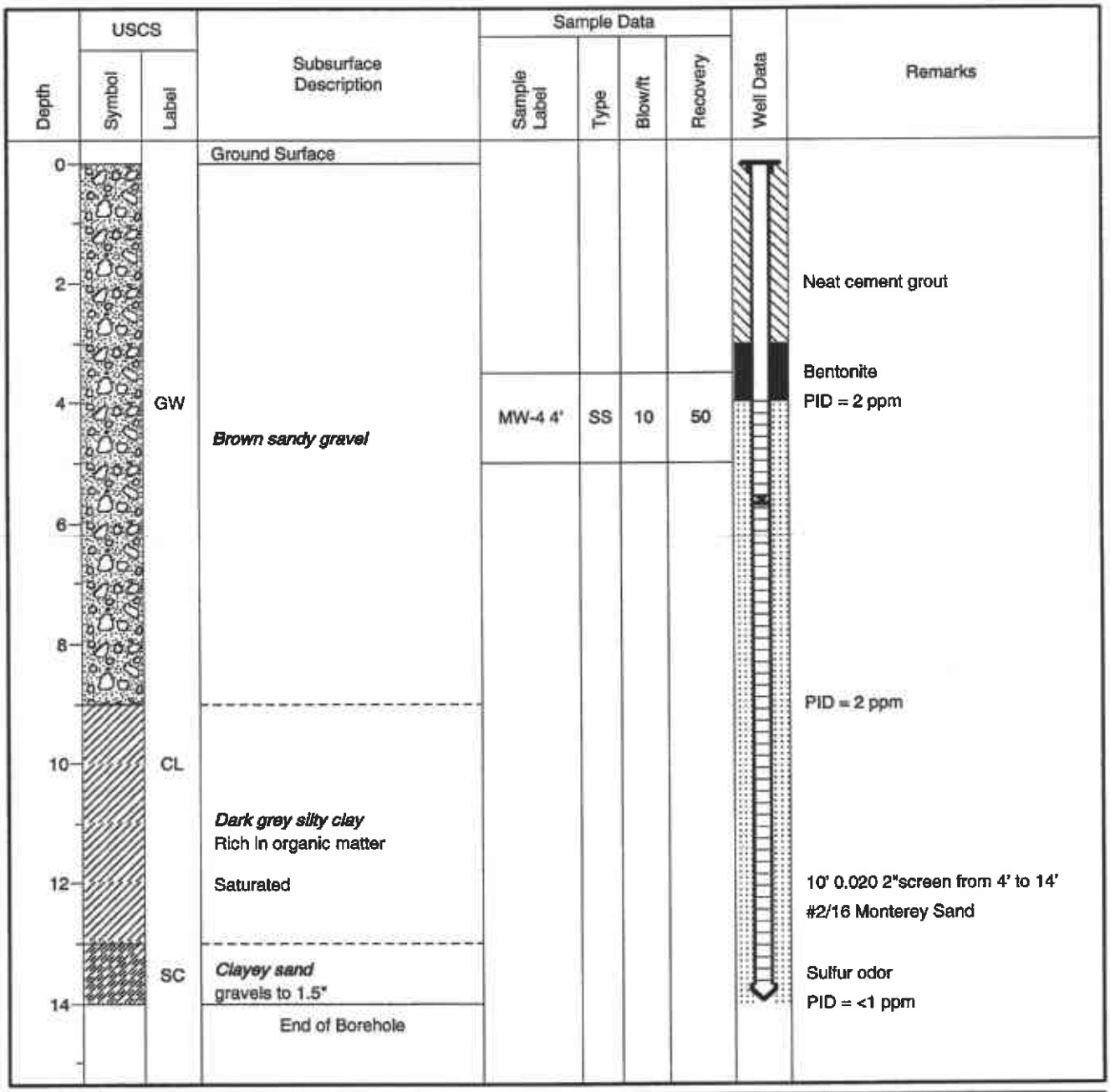
Project Name: Cruise America

Client:

Location:

Sheet: 1 of 1

Log of Borehole: MW-4



Drill Date 9/18/02

Drill Method: HSA

Total Depth: 14

Depth to Water: 5.7

Reviewed by: EW

Logged by: NG

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Lafayette, CA 94549
(925) 283-6000

Project No: 5526

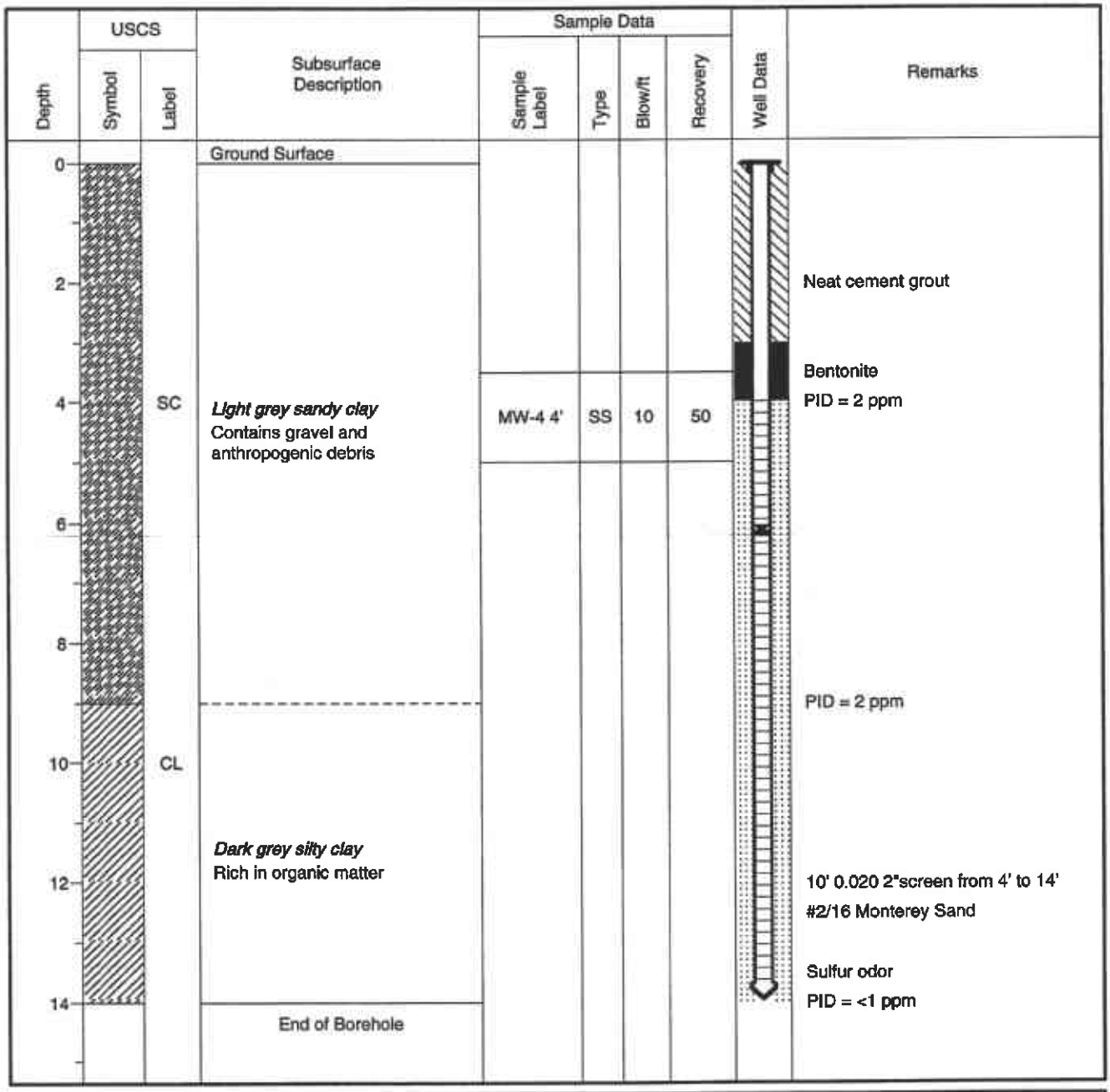
Sheet: 1 of 1

Project Name: Cruise America

Client:

Location:

Log of Borehole: MW-5



Drill Date 9/18/02

Drill Method: HSA

Total Depth: 14

Depth to Water: 6.2

Reviewed by: EW

Logged by: NG

AEI Consultants
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Lafayette, CA 94549
(925) 283-6000

ATTACHMENT C

WELL FIELD SAMPLING FORMS

AEI CONSULTANTS

GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

Monitoring Well Number: MW-1

Project Name:	Cruise America	Date of Sampling:	9/30/2002
Job Number:	5526	Name of Sampler:	N. Garfield
Project Address:	796 66th Avenue, Oakland		

MONITORING WELL DATA

Well Casing Diameter (2"/4"/6")	4		
Wellhead Condition	OK		
Elevation of Top of Casing (feet above msl)	10.88		
Depth of Well	14.00		
Depth to Water (from top of casing)	5.41		
Water Elevation (feet above msl)	5.47		
Well Volumes Purged	3		
Gallons Purged: formula valid only for casing sizes of 2" (.16 gal/ft), 4" (.65 gal/ft), and 6" (1.44 gal/ft)	**16.8**		
Actual Volume Purged (gallons)	16.5		
Appearance of Purge Water	clear		
Free Product Present?	No	Thickness (ft):	-

GROUNDWATER SAMPLES

Number of Samples/Container Size: 3 40mL VOA

Time	Vol Removed (gal)	Temperature (deg C)	pH	Conductivity (µS/cm)	DO (mg/L)	ORP (meV)	Comments
15:23:46	2	-17.8	6.92	3955.2	2055	-10	
15:25:06	5	-17.8	6.92	3737.54	1013	-26	
15:26:26	7	-17.8	6.92	3661.97	196	-53	
15:27:46	10	-17.8	6.9	3691.34	183	-65	
15:29:06	13	-17.8	6.89	3690.32	177	-72	
15:30:26	16.5	-17.8	6.88	3680.29	173	-77	

COMMENTS (i.e., sample odor, well recharge time & percent, etc.)

AEI CONSULTANTS

GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

Monitoring Well Number: MW-2

Project Name:	Cruise America	Date of Sampling:	9/30/2002
Job Number:	5526	Name of Sampler:	N. Garfield
Project Address:	796 66th Avenue, Oakland		

MONITORING WELL DATA

Well Casing Diameter (2"/4"/6")	2		
Wellhead Condition	OK		
Elevation of Top of Casing (feet above msl)	10.77		
Depth of Well	14.00		
Depth to Water (from top of casing)	8.00		
Water Elevation (feet above msl)	2.77		
Well Volumes Purged	3		
Gallons Purged: formula valid only for casing sizes of 2" (.16 gal/ft), 4" (.65 gal/ft), and 6" (1.44 gal/ft)	**2.9**		
Actual Volume Purged (gallons)	3.0		
Appearance of Purge Water	clear		
Free Product Present?	No	Thickness (ft):	-

GROUNDWATER SAMPLES

Number of Samples/Container Size: 3 40mL VOA

Time	Vol Removed (gal)	Temperature (deg C)	pH	Conductivity (µS/cm)	DO (mg/L)	ORP (meV)	Comments
14:15:51	0.5	-17.8	6.82	23876.53	2376	-19	
14:16:21	1	-17.8	6.83	23840.53	1897	-3	
14:16:51	1.5	-17.8	6.84	23896.59	1555	2	dry
14:17:21	2	-17.8	6.86	23914.23	1274	6	
14:27:42	2.5	-17.8	7	23723.67	3787	25	dry
14:28:17	3	-17.8	6.94	23812.41	1922	24	

COMMENTS (i.e., sample odor, well recharge time & percent, etc.)

sulfide odor

AEI CONSULTANTS

GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

Monitoring Well Number: MW-3

Project Name:	Cruise America	Date of Sampling:	9/30/2002
Job Number:	5526	Name of Sampler:	N. Garfield
Project Address:	796 66th Avenue, Oakland		

MONITORING WELL DATA

Well Casing Diameter (2"/4"/6")	2		
Wellhead Condition	OK		
Elevation of Top of Casing (feet above msl)	10.20		
Depth of Well	14.00		
Depth to Water (from top of casing)	5.21		
Water Elevation (feet above msl)	4.99		
Well Volumes Purged	3		
Gallons Purged: formula valid only for casing sizes of 2" (.16 gal/ft), 4" (.65 gal/ft), and 6" (1.44 gal/ft)	**4.2**		
Actual Volume Purged (gallons)	4.0		
Appearance of Purge Water	clear		
Free Product Present?	No	Thickness (ft):	-

GROUNDWATER SAMPLES

Number of Samples/Container Size: 3 40mL VOA

Time	Vol Removed (gal)	Temperature (deg C)	pH	Conductivity (µS/cm)	DO (mg/L)	ORP (meV)	Comments
14:39:04	0.5	72.17	6.78	19633.36	5581	-14	
14:39:29	1	72.61	6.64	18000.31	1960	0	
14:39:54	2	73.86	6.6	16986.73	505	12	
14:40:19	2.5	73.4	6.59	17719.27	474	15	
14:40:49	3.5	72.15	6.62	18760.31	632	1	
14:41:19	4	71.65	6.66	19088.98	813	5	dry

COMMENTS (i.e., sample odor, well recharge time & percent, etc.)

sulfide odor

AEI CONSULTANTS
GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

Monitoring Well Number: MW-4

Project Name:	Cruise America	Date of Sampling:	9/30/2002
Job Number:	5526	Name of Sampler:	N. Garfield
Project Address:	796 66th Avenue, Oakland		

MONITORING WELL DATA

Well Casing Diameter (2"/4"/6")	2		
Wellhead Condition	OK		
Elevation of Top of Casing (feet above msl)	11.07		
Depth of Well	14.00		
Depth to Water (from top of casing)	5.50		
Water Elevation (feet above msl)	5.57		
Well Volumes Purged	3		
Gallons Purged: formula valid only for casing sizes of 2" (.16 gal/ft), 4" (.65 gal/ft), and 6" (1.44 gal/ft)	**4.1**		
Actual Volume Purged (gallons)	4.0		
Appearance of Purge Water	black turning clear		
Free Product Present?	No	Thickness (ft):	-

GROUNDWATER SAMPLES

Number of Samples/Container Size: 3 40 mL VOA

Time	Vol Removed (gal)	Temperature (deg C)	pH	Conductivity (µS/cm)	DO (mg/L)	ORP (meV)	Comments
11:55	2	20.6	7.73	1680			
11:56	3	21.6	7.57	1653			
11:57	4	23	7.53	1642			clear @ 3.5

COMMENTS (i.e., sample odor, well recharge time & percent, etc.)

AEI CONSULTANTS

GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

Monitoring Well Number: MW-5

Project Name:	Cruise America	Date of Sampling:	9/30/2002
Job Number:	5526	Name of Sampler:	N. Garfield
Project Address:	796 66th Avenue, Oakland		

MONITORING WELL DATA

Well Casing Diameter (2"/4"/6")	2		
Wellhead Condition	OK		
Elevation of Top of Casing (feet above msl)	11.18		
Depth of Well	14.00		
Depth to Water (from top of casing)	5.62		
Water Elevation (feet above msl)	5.56		
Well Volumes Purged	3		
Gallons Purged: formula valid only for casing sizes of 2" (.16 gal/ft), 4" (.65 gal/ft), and 6" (1.44 gal/ft)	**4.0**		
Actual Volume Purged (gallons)	4.0		
Appearance of Purge Water	black turning clear		
Free Product Present?	No	Thickness (ft):	-

GROUNDWATER SAMPLES

Number of Samples/Container Size: 3 40mL VOA

Time	Vol Removed (gal)	Temperature (deg C)	pH	Conductivity (µS/cm)	DO (mg/L)	ORP (meV)	Comments
12:05	1.5	22.2	7.06	>3999			clear
12:06	3	23.2	7.09	>3999			
12:07	4	24.1	7.04	>3999			

COMMENTS (i.e., sample odor, well recharge time & percent, etc.)

APPENDIX D

LABORATORY ANALYSES WITH CHAIN OF CUSTODY DOCUMENTATION

McCampbell Analytical Inc.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

All Environmental, Inc. 3210 Old Tunnel Rd., Ste. B Lafayette, CA 94549-4157	Client Project ID: #5526; Cruise America	Date Sampled: 09/06/02
		Date Received: 09/06/02
	Client Contact: Nathan Garfield	Date Reported: 09/20/02
	Client P.O.: Nathan Garfield	Date Completed: 09/20/02

September 20, 2002

Dear Nathan:

Enclosed are:

1). the results of **14** analyzed samples from your **#5526; Cruise America project,**

2). a QC report for the above samples

3). a copy of the chain of custody, and

4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits. If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Angela Rydelius, Lab Manager

McCampbell Analytical Inc.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

All Environmental, Inc.	Client Project ID: #5526; Cruise America	Date Sampled: 09/06/02
3210 Old Tunnel Rd., Ste. B		Date Received: 09/06/02
Lafayette, CA 94549-4157	Client Contact: Nathan Garfield	Date Extracted: 09/06/02-09/16/02
	Client P.O.: Nathan Garfield	Date Analyzed: 09/06/02-09/16/02

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE*

Extraction method: SW5030B Analytical methods: SW8021B/8015Cm Work Order: 0209092

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	SB-12	W	ND<1000,j,i	31,000	44	ND<10	ND<10	ND<10	20	102
002A	SB-13	W	13,000,a,i	51,000	300	1700	320	1800	200	99.4
003A	SB-14	W	ND<500,j,i	11,000	ND<5.0	ND<5.0	ND<5.0	ND<5.0	10	111
004A	SB-15	W	300,b,i	730	ND	3.2	0.71	3.5	1	---#
005A	SB-16	W	ND<200,j,h,i	3900	ND<1	2.1	ND<1	2.5	2	---#
006A	SB-17	W	ND<200,j,h,i	5900	ND<1.7	3.8	ND<1.7	4.2	3.3	---#
007A	SB-17-W 47'	W	90,a,i	150	1.7	3.5	1.9	3.5	1	---#
008A	SB-12 5'	S	ND	ND	ND	ND	ND	ND	1	111
010A	SB-13 4'	S	15,000,a	ND<50	21	840	300	1700	1000	---#
012A	SB-14 4'	S	ND	ND	ND	ND	ND	ND	1	103
014A	SB-15 4'	S	ND	ND	ND	ND	ND	ND	1	106
016A	SB-16 4'	S	73,g,m	1.5	ND<0.05	0.18	ND<0.05	ND<0.05	10	100
018A	SB-17 4'	S	1.2,a	2.1	0.0073	0.0070	ND	0.011	1	118
021A	SB-17 39'	S	ND	ND	ND	ND	ND	ND	1	117
Reporting Limit for DF =1; ND means not detected at or above the reporting limit		W	50	5.0	0.5	0.5	0.5	0.5	1	µg/L
		S	1.0	0.05	0.005	0.005	0.005	0.005	1	mg/Kg

*water and vapor samples are reported in ug/L, soil and sludge samples in mg/kg, wipe samples in ug/wipe, and TCLP extracts in ug/L.

cluttered chromatogram; sample peak coelutes with surrogate peak.

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (stoddard solvent); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~2 vol. % sediment; j) reporting limit raised due to high MTBE content; k) TPH pattern that does not appear to be derived from gasoline (aviation gas). m) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCampbell Analytical Inc.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

All Environmental, Inc.	Client Project ID: #5526; Cruise America	Date Sampled: 09/06/02
3210 Old Tunnel Rd., Ste. B		Date Received: 09/06/02
Lafayette, CA 94549-4157	Client Contact: Nathan Garfield	Date Extracted: 09/11/02-09/15/02
	Client P.O.: Nathan Garfield	Date Analyzed: 09/11/02-09/15/02

Methyl tert-Butyl Ether*

Extraction method: SW5030B Analytical methods: SW8260B Work Order: 0209092

Lab ID	Client ID	Matrix	Methyl-t-butyl ether (MTBE)	DF	% SS
001B	SB-12	W	32,000,i	1000	116
002B	SB-13	W	49,000,i	1000	118
003B	SB-14	W	9500,i	250	114
004B	SB-15	W	770,i	100	117
005B	SB-16	W	2700,i,h	100	117
006B	SB-17	W	5500,i,h	330	117
007B	SB-17-W 47'	W	120,i	3.3	116

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	0.5	µg/L
	S	NA	NA

* water and vapor samples and all TCLP & SPLP extracts are reported in ug/L, soil/sludge/solid samples in ug/kg, wipe samples in ug/wipe, product/oil/non-aqueous liquid samples in mg/L.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~2 vol. % sediment; j) sample diluted due to high organic content.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCampbell Analytical Inc.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

All Environmental, Inc.	Client Project ID: #5526; Cruise America	Date Sampled: 09/06/02
3210 Old Tunnel Rd., Ste. B		Date Received: 09/06/02
Lafayette, CA 94549-4157	Client Contact: Nathan Garfield	Date Extracted: 09/06/02
	Client P.O.: Nathan Garfield	Date Analyzed: 09/06/02-09/09/02

Lead by Graphite Furnace Atomic Absorption*

Extraction method: E200.9 Analytical methods: E200.9 Work Order: 0209092

Lab ID	Client ID	Matrix	Extraction	Lead	DF	% SS
0209092-001C	SB-12	W	DISS.	ND	1	N/A
0209092-002C	SB-13	W	DISS.	ND	1	N/A
0209092-003C	SB-14	W	DISS.	ND	1	N/A
0209092-004C	SB-15	W	DISS.	0.039	2	N/A
0209092-005C	SB-16	W	DISS.	ND	1	N/A
0209092-006C	SB-17	W	DISS.	ND	1	N/A
0209092-008A	SB-12 5'	S	TTLC	1200	1	107
0209092-010A	SB-13 4'	S	TTLC	830	1	108
0209092-012A	SB-14 4'	S	TTLC	110	1	105
0209092-014A	SB-15 4'	S	TTLC	5.0	1	104
0209092-016A	SB-16 4'	S	TTLC	20	1	102
0209092-018A	SB-17 4'	S	TTLC	3.2	1	102
0209092-021A	SB-17 39'	S	TTLC	3.3	1	106

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	DISS.	0.005	mg/L
	S	TTLC	3.0	mg/Kg

* water samples are reported in mg/L, soil/sludge/solid/product samples in mg/kg, wipes in ug/wipe and all TCLP / STLC / DISTLC / SPLP extracts in mg/L.

ND means not detected above the reporting limit; N/A means not applicable to this sample or instrument.

Analytical Methods: EPA 6010C/200.7 for all elements except: 200.9 (water- Sb, As, Pb, Se, Tl); 245.1 (Hg); 7010 (sludge/soil/solid/oil/product/wipes - As, Se, Tl); 7471B (Hg).

DISTLC extractions are performed using STLC methodology except that deionized water is substituted for citric acid buffer as the extraction fluid. DISTLC results are not applicable to STLC regulatory limits.

i) liquid sample that contains greater than ~2 vol. % sediment; this sediment is extracted with the liquid, in accordance with EPA methodologies and can significantly effect reported metal concentrations; z) reporting limit raised due to matrix interference.

DHS Certification No. 1644

Edward Hamilton, Lab Director

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All Environmental, Inc.	Client Project ID: #5526; Cruise America	Date Sampled: 09/06/02
3210 Old Tunnel Rd., Ste. B		Date Received: 09/06/02
Lafayette, CA 94549-4157	Client Contact: Nathan Garfield	Date Extracted: 09/16/02-09/18/02
	Client P.O.: Nathan Garfield	Date Analyzed: 09/18/02-09/19/02

Lead by ICP*

Extraction method: CA Title 22 Analytical methods: SW6010C Work Order: 0209092

Lab ID	Client ID	Matrix	Extraction	Lead	DF	% SS
0209092-008A	SB-12 5'	S	STLC	23	1	N/A
0209092-010A	SB-13 4'	S	STLC	7.5	1	N/A
0209092-012A	SB-14 4'	S	STLC	2.7	1	N/A

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	TTLC	NA	mg/L
	S	STLC	0.2	mg/L

* water samples are reported in mg/L, soil/sludge/solid/product samples in mg/kg, wipes in ug/wipe and all TCLP / STLC / DISTLC / SPLP extracts in mg/L.

ND means not detected above the reporting limit; N/A means not applicable to this sample or instrument.

Analytical Methods: EPA 6010C/200.7 for all elements except: 200.9 (water- Sb, As, Pb, Se, Tl); 245.1 (Hg); 7010 (sludge/soil/solid/oil/product/wipes - As, Se, Tl); 7471B (Hg).

DISTLC extractions are performed using STLC methodology except that deionized water is substituted for citric acid buffer as the extraction fluid. DISTLC results are not applicable to STLC regulatory limits.

i) liquid sample that contains greater than ~2 vol. % sediment; this sediment is extracted with the liquid, in accordance with EPA methodologies and can significantly effect reported metal concentrations; z) reporting limit raised due to matrix interference.

DHS Certification No. 1644

Edward Hamilton, Lab Director

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QC SUMMARY REPORT FOR SW8021B/8015Cm

Matrix: S WorkOrder: 0209092

EPA Method: SW8021B/8015Cm Extraction: SW5030B BatchID: 3838 Spiked Sample ID: 0209067-001A

Compound	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(gas)	ND	0.60	106	118	10.2	109	107	1.40	80	120
MTBE	ND	0.10	94.2	88.3	6.50	95.8	95	0.841	80	120
Benzene	ND	0.10	102	99.5	2.47	95.2	97.8	2.72	80	120
Toluene	ND	0.10	113	113	0.277	92	93.6	1.72	80	120
Ethylbenzene	ND	0.10	110	108	2.00	99.3	100	1.09	80	120
Xylenes	ND	0.30	110	103	6.25	93.3	93.3	0	80	120
%SS:	107	100	111	112	0.796	97.5	100	2.46	80	120

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:

NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.
NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS – MSD) / (MS + MSD) * 2.

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

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QC SUMMARY REPORT FOR SW8021B/8015Cm

Matrix: W WorkOrder: 0209092

EPA Method: SW8021B/8015Cm Extraction: SW5030B BatchID: 3860 Spiked Sample ID: 0209087-006A

Compound	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(gas)	ND	60	102	103	0.991	113	114	0.611	80	120
MTBE	ND	10	86.7	115	28.0	92.4	96	3.87	80	120
Benzene	ND	10	96.1	91.8	4.63	94.8	95.8	1.03	80	120
Toluene	ND	10	103	98.5	4.32	92.6	91.2	1.49	80	120
Ethylbenzene	ND	10	106	102	4.60	97.8	98.9	1.11	80	120
Xylenes	ND	30	110	103	6.25	93.3	93	0.358	80	120
%SS:	99.7	100	101	96.7	4.38	103	99.8	2.73	80	120

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:

NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.
NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS – MSD) / (MS + MSD) * 2.

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

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QC SUMMARY REPORT FOR SW8260B

Matrix: W WorkOrder: 0209092

EPA Method: SW8260B	Extraction: SW5030B		BatchID: 3859			Spiked Sample ID: 0209089-003A				
Compound	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
Methyl-t-butyl ether (MTBE)	ND	10	81.3	85.6	5.15	92.2	89.9	2.56	70	130
%SS1:	97.7	100	93.3	95.1	1.93	116	117	0.925	70	130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:

NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.
NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS – MSD) / (MS + MSD) * 2.

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

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QC SUMMARY REPORT FOR 6010C

Matrix: S WorkOrder: 0209092

EPA Method: 6010C	Extraction: SW3050B			BatchID: 3863			Spiked Sample ID: 0209092-014A			
Compound	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
Lead	N/A	500	N/A	N/A	N/A	107	102	5.18	70	130
%SS:	N/A	100	N/A	N/A	N/A	108	108	0.309	70	130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:

NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

N/A = not enough sample to perform matrix spike, or analyte concentration in sample exceeds spike amount.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS – MSD) / (MS + MSD) * 2.

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

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QC SUMMARY REPORT FOR E200.9

Matrix: W WorkOrder: 0209092

EPA Method: E200.9 Extraction: E200.7/E200.9 BatchID: 3862 Spiked Sample ID: N/A

Compound	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
Lead	N/A	0.010	N/A	N/A	N/A	94.9	115	19.1	70	130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:

NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

N/A = not enough sample to perform matrix spike, or analyte concentration in sample exceeds spike amount.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS – MSD) / (MS + MSD) * 2.

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

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QC SUMMARY REPORT FOR SW6010C

Matrix: S WorkOrder: 0209092

EPA Method: SW6010C	Extraction: CA Title 22			BatchID: 3970		Spiked Sample ID: N/A				
Compound	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
Lead	N/A	10	N/A	N/A	N/A	113	102	10.3	70	130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:

NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

N/A = not enough sample to perform matrix spike, or analyte concentration in sample exceeds spike amount.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS – MSD) / (MS + MSD) * 2.

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

McCampbell Analytical Inc.
110 Second Avenue South, #D7
Pacheco, CA 94553-5560
(925) 798-1620

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0209092

Client:
All Environmental, Inc.
3210 Old Tunnel Rd., Ste. B
Lafayette, CA 94549-4157

TEL: (925) 283-6000
FAX: (925) 283-6121
ProjectNo: #5526; Cruise A
PO: Nathan Garfield

06-Sep-02

Sample ID	ClientSampID	Matrix	Collection Date	Bottle	Requested Tests						
					6010C	E200_9	8021B/8015C	SW8260B			
0209092-001	SB-12	Water	9/6/02			C	A	B			
0209092-002	SB-13	Water	9/6/02			C	A	B			
0209092-003	SB-14	Water	9/6/02			C	A	B			
0209092-004	SB-15	Water	9/6/02			C	A	B			
0209092-005	SB-16	Water	9/6/02			C	A	B			
0209092-006	SB-17	Water	9/6/02			C	A	B			
0209092-007	SB-17-W 47'	Water	9/6/02				A	B			
0209092-008	SB-12 5'	Soil	9/6/02		A		A				
0209092-009	SB-12 7'	Soil	9/6/02		A		A				
0209092-010	SB-13 4'	Soil	9/6/02		A		A				
0209092-011	SB-13 7'	Soil	9/6/02		A		A				
0209092-012	SB-14 4'	Soil	9/6/02		A		A				
0209092-013	SB-14 7	Soil	9/6/02		A		A				
0209092-014	SB-15 4'	Soil	9/6/02		A		A				
0209092-015	SB-15 7'	Soil	9/6/02		A		A				
0209092-016	SB-16 4'	Soil	9/6/02		A		A				

Comments:

	Date/Time		Date/Time
Relinquished by:		**Received by:**	
Relinquished by:		**Received by:**	
Relinquished by:		**Received by:**	

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

McCampbell Analytical Inc.
110 Second Avenue South, #D7
Pacheco, CA 94553-5560
(925) 798-1620

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0209092

Client:
All Environmental, Inc.
3210 Old Tunnel Rd., Ste. B
Lafayette, CA 94549-4157

TEL: (925) 283-6000
FAX: (925) 283-6121
ProjectNo: #5526; Cruise A
PO: Nathan Garfield

06-Sep-02

Sample ID	ClientSampID	Matrix	Collection Date	Bottle	Requested Tests						
					6010C	E200_9	M8021B/8015C	SW8260B			
0209092-017	SB-16 9'	Soil	9/6/02		A		A				
0209092-018	SB-17 4'	Soil	9/6/02		A		A				
0209092-019	SB-17 7'	Soil	9/6/02		A		A				
0209092-020	SB-17 20'	Soil	9/6/02		A		A				
0209092-021	SB-17 39'	Soil	9/6/02		A		A				

Comments:

	Date/Time		Date/Time
Relinquished by:		**Received by:**	
Relinquished by:		**Received by:**	
Relinquished by:		**Received by:**	

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

McCAMPBELL ANALYTICAL INC.

110 2nd AVENUE SOUTH, #D7
PACHECO, CA 94553
Telephone: (925) 798-1620 Fax: (925) 798-1622

020409Z

CHAIN OF CUSTODY RECORD

TURN AROUND TIME ☐ RUSH ☐ 24 HOUR ☐ 48 HOUR ☒ 5 DAY

Report To: NATHAN GARFIELD Bill To:
Company: All Environmental
3210 Old Tunnel Road, Suite B
Lafayette, CA 94549-4157
Tele: (925) 283-6000 Fax: (925) 283-6121
Project #: 5526 Project Name: Cruise America
Project Location: 66th Ave Oakland
Sampler Signature:

SAMPLE ID	LOCATION	SAMPLING Date	SAMPLING Time	# Containers	Type Containers	MATRIX: Water	Soil	Air	Sludge	Other	METHOD PRESERVED: Ice	HCl	HNO_3	Other
+20 SB-12		9/6		VOA	4	X								
+10 SB-13														
+5 SB-14														
+2 SB-15														
+30 SB-16														
+14 SB-17														
+40 SB-17-W +47				VOA	4									
SB-18														
13														
14														
15														
16														
17														

Analysis Request

BTEX & TPH as Gas (602/8020 + 8015)/ MTBE	TPH as Diesel (8015)	Total Petroleum Oil & Grease (5520 E&F/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 601 / 8010	BTEX ONLY (EPA 602 / 8020)	EPA 608 / 8080	EPA 608 / 8080 PCB's ONLY	EPA 624 / 8240 (8260) MTBE only	EPA 625 / 8270	PAH's / PNA's by EPA 625 / 8270 / 8310	CAM-17 Metals	LUFT 5 Metals	Lead (7240/7421/239.2/6010) dissolved	RCI	Other	Comments
X								X					X			

Relinquished By:	Date:	Time:	Received By:
	9/6/02	2:20	
Relinquished By:	Date:	Time:	Received By:
Relinquished By:	Date:	Time:	Received By:

Remarks:

ICE/t° ✓
GOOD CONDITION ✓
HEAD SPACE ABSENT ✓
DECHLORINATED IN LAB
PRESERVATION APPROPRIATE ✓
CONTAINERS ✓
PRESERVED IN LAB

VOAS	O&G	METALS	OTHER

1 of 2

Melissa Valles

McCAMPBELL ANALYTICAL INC. 020904 12

110 2nd AVENUE SOUTH, #D7
PACHECO, CA 94553
Telephone: (925) 798-1620 Fax: (925) 798-1622

CHAIN OF CUSTODY RECORD

TURN AROUND TIME ☐ RUSH ☐ 24 HOUR ☐ 48 HOUR ☒ 5 DAY

Report To: NATHAN GARFIELD Bill To:
Company: All Environmental
3210 Old Tunnel Road, Suite B
Lafayette, CA 94549-4157
Tele: (925) 283-6000 Fax: (925) 283-6121
Project #: 5526 Project Name: Cruise America
Project Location: 66th Ave Oakland
Sampler Signature:

SAMPLE ID	LOCATION	SAMPLING Date	SAMPLING Time	# Containers	Type Containers	MATRIX: Water	Soil	Air	Sludge	Other	METHOD PRESERVED: Ice	HCl	HNO_3	Other
SB-12 5'		9/6		1			X				X			
SB-12 7'														
SB-13 4'														
SB-13 7'														
SB-14 4'														
SB-14 7'														
SB-15 4'														
SB-15 7'														
SB-16 4'														
SB-16 9'														
SB-17 4'														
SB-17 7'														
SB-17 20'														
SB-17 39'		↓		↓		↓			↓					

Analysis Request

BTEX & TPH as Gas (602/8020 + 8015)/ MTBE	TPH as Diesel (8015)	Total Petroleum Oil & Grease (5520 E&F/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 601 / 8010	BTEX ONLY (EPA 602 / 8020)	EPA 608 / 8080	EPA 608 / 8080 PCB's ONLY	EPA 624 / 8240 / 8260	EPA 625 / 8270	PAH's / PNA's by EPA 625 / 8270 / 8310	CAM-17 Metals	LUFT 5 Metals	Lead (7240/7421/239.2/6010) TTLC	RCI	Other	Comments
X												X		X		4 STLC Pb Added 9/16/02 per Melissa
												X		X		hold — 2
X												X		X		hold — 4
												X				hold — 6
X												X				hold — 8
												X				hold — 10
X												X				hold — 12
												X				hold — 13

Relinquished By:	Date:	Time:	Received By:
	9/6/02	2:20	
Relinquished By:	Date:	Time:	Received By:
Relinquished By:	Date:	Time:	Received By:

Remarks:

ICE/t°
GOOD CONDITION
HEAD SPACE ABSENT
DECHLORINATED IN LAB
PRESERVATION APPROPRIATE
CONTAINERS
PRESERVED IN LAB

VOAS	O&G	METALS	OTHER

LOG BY MEL

Melissa Valles

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All Environmental, Inc. 3210 Old Tunnel Rd., Ste. B Lafayette, CA 94549-4157	Client Project ID: #5526; Cruise America	Date Sampled: 09/19/02
		Date Received: 09/19/02
	Client Contact: Nathan Garfield	Date Reported: 09/26/02
	Client P.O.: Nathan Garfield	Date Completed: 09/26/02

September 26, 2002

Dear Nathan:

Enclosed are:

1). the results of **5** analyzed samples from your **#5526; Cruise America project,**

2). a QC report for the above samples

3). a copy of the chain of custody, and

4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits. If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Angela Rydelius, Lab Manager

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All Environmental, Inc.	Client Project ID: #5526; Cruise America	Date Sampled: 09/19/02
3210 Old Tunnel Rd., Ste. B		Date Received: 09/19/02
Lafayette, CA 94549-4157	Client Contact: Nathan Garfield	Date Extracted: 09/19/02
	Client P.O.: Nathan Garfield	Date Analyzed: 09/19/02

Lead by ICP*

Extraction method: SW3050B Analytical methods: 6010C Work Order: 0209296

Lab ID	Client ID	Matrix	Extraction	Lead	DF	% SS
0209296-001A	MW-1 4'	S	TTLC	5.9	1	88.1
0209296-002A	MW-2 4'	S	TTLC	25	1	95.8
0209296-003A	MW-3 4'	S	TTLC	25	1	96.4
0209296-004A	MW-4 4'	S	TTLC	160	1	87.4
0209296-005A	MW-5 4'	S	TTLC	190	1	96.4

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	TTLC	NA	mg/L
	S	TTLC	3.0	mg/Kg

* water samples are reported in mg/L, soil/sludge/solid/product samples in mg/kg, wipes in ug/wipe and all TCLP / STLC / DISTLC / SPLP extracts in mg/L.

ND means not detected above the reporting limit; N/A means not applicable to this sample or instrument.

Analytical Methods: EPA 6010C/200.7 for all elements except: 200.9 (water- Sb, As, Pb, Se, Tl); 245.1 (Hg); 7010 (sludge/soil/solid/oil/product/wipes - As, Se, Tl); 7471B (Hg).

DISTLC extractions are performed using STLC methodology except that deionized water is substituted for citric acid buffer as the extraction fluid. DISTLC results are not applicable to STLC regulatory limits.

i) liquid sample that contains greater than ~2 vol. % sediment; this sediment is extracted with the liquid, in accordance with EPA methodologies and can significantly effect reported metal concentrations; z) reporting limit raised due to matrix interference.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCampbell Analytical Inc.
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Telephone : 925-798-1620 Fax : 925-798-1622
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All Environmental, Inc.	Client Project ID: #5526; Cruise America	Date Sampled: 09/19/02
3210 Old Tunnel Rd., Ste. B		Date Received: 09/19/02
Lafayette, CA 94549-4157	Client Contact: Nathan Garfield	Date Extracted: 09/19/02
	Client P.O.: Nathan Garfield	Date Analyzed: 09/20/02-09/24/02

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE*

Extraction method: SW5030B Analytical methods: SW8021B/8015Cm Work Order: 0209296

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	MW-1 4'	S	ND	ND	ND	ND	ND	ND	1	102
002A	MW-2 4'	S	ND	ND	ND	ND	ND	ND	1	101
003A	MW-3 4'	S	ND	ND	ND	ND	ND	ND	1	110
004A	MW-4 4'	S	6.2,m	ND	ND	0.0080	0.0078	0.021	1	90.5
005A	MW-5 4'	S	ND	2.0	0.0053	0.0088	ND	0.010	1	104
Reporting Limit for DF =1; ND means not detected at or above the reporting limit		W	NA	NA	NA	NA	NA	NA	1	ug/L
		S	1.0	0.05	0.005	0.005	0.005	0.005	1	mg/Kg

*water and vapor samples are reported in ug/L, soil and sludge samples in mg/kg, wipe samples in ug/wipe, and TCLP extracts in ug/L.

cluttered chromatogram; sample peak coelutes with surrogate peak.

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (stoddard solvent); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~2 vol. % sediment; j) reporting limit raised due to high MTBE content; k) TPH pattern that does not appear to be derived from gasoline (aviation gas). m) no recognizable pattern.

DHS Certification No. 1644

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QC SUMMARY REPORT FOR SW8021B/8015Cm

Matrix: S WorkOrder: 0209296

EPA Method: SW8021B/8015Cm Extraction: SW5030B BatchID: 4053 Spiked Sample ID: N/A

Compound	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(gas)	N/A	0.60	N/A	N/A	N/A	110	110	0.0617	80	120
MTBE	N/A	0.10	N/A	N/A	N/A	93.5	93.9	0.485	80	120
Benzene	N/A	0.10	N/A	N/A	N/A	98.3	98.4	0.0554	80	120
Toluene	N/A	0.10	N/A	N/A	N/A	102	103	0.684	80	120
Ethylbenzene	N/A	0.10	N/A	N/A	N/A	103	102	1.02	80	120
Xylenes	N/A	0.30	N/A	N/A	N/A	103	103	0	80	120
%SS:	N/A	100	N/A	N/A	N/A	93.3	95.4	2.30	80	120

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:

NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.
NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS – MSD) / (MS + MSD) * 2.

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

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QC SUMMARY REPORT FOR 6010C

Matrix: S WorkOrder: 0209296

EPA Method: 6010C	Extraction: SW3050B			BatchID: 4054		Spiked Sample ID: 0209296-002A				
Compound	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
Lead	ND	500	85.8	88.2	2.83	83.9	89.8	6.84	70	130
%SS:	95.8	100	98.3	100	1.68	103	101	1.98	70	130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:

NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

N/A = not enough sample to perform matrix spike, or analyte concentration in sample exceeds spike amount.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS – MSD) / (MS + MSD) * 2.

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

AEI CONSULTANTS
ENVIRONMENTAL ENGINEERING

AEI Consultants / All Environmental, Inc.
3210 Old Tunnel Road, Suite B
Lafayette, CA 94549
(925) 283-6000 Fax: (925) 283-6121

0209296

CHAIN OF CUSTODY

PAGE 1 OF

TAT: RUSH / 24 hr / 48 hr / 5 day / other

AEI PROJECT MANAGER Nathan Garfield
PROJECT NAME Covix America
PROJECT NUMBER 5526
TOTAL # OF CONTAINERS 5
RCVD. GOOD CONDITION/COLD ☐ Y ☐ N

SAMPLE ID	DATE	TIME	MATRIX	TPH(g), BTEX, MTBE SOIL: EPA 5030/8015M, 8020 WATER: EPA 5030/8015m, 602	TPH(d) SOIL: EPA 5030/8015M WATER: EPA 5030/8015M	BTEX, MTBE SOIL: EPA 8020 WATER: EPA 602	TOTAL OIL & GREASE SOIL: EPA 413.1 or STD. 5520 D/F&B WATER: STD. 5520 B&F	VOLATILE HALOCARBONS SOIL: EPA 8010 WATER: EPA 601	VOC's SOIL: EPA 8260 WATER: EPA 624	SEMI-VOLATILE ORGANICS SOIL: EPA 8270/3550 WATER: EPA 625/3510	TOTAL LEAD (TTLC) SOIL: 6010 (ICP) WATER: DISSOLVED 239.2 (AA)	LUFT 5 METALS SOIL: EPA 7130, 7190, 7420, 7520, 7950 WATER:				HOLD	# OF CONTAINERS
MW-1 4'	9/19/2002		SO	X							X						1
MW-2 4'	9/19/02																1
MW-3 4'	9/19/02																1
MW-4 4'	9/19/02																1
MW-5 4'	9/19/02		↓	↓							↓						1

ICE/T ✓
GOOD CONDITION ✓
HEAD SPACE ABSENT
DECHLORINATED IN LAB
APPROPRIATE CONTAINERS ✓
PRESERVED IN LAB

COMMENTS / INSTRUCTIONS

ANALYTICAL LABORATORY McCampbell Analytical, Inc.
ADDRESS 110 2nd Avenue S, #D7
Pacheco, CA 94553
PHONE 925/798.1620 FAX 925/798.1622

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
SIGNATURE Nathan Garfield	SIGNATURE Sonia Valles	SIGNATURE	SIGNATURE
PRINTED NAME AEI	PRINTED NAME MAI	PRINTED NAME	PRINTED NAME
COMPANY	COMPANY	COMPANY	COMPANY
DATE 9/19 TIME 9:55	DATE 9/19 TIME 8:48	DATE TIME	DATE TIME

McCampbell Analytical Inc.
110 Second Avenue South, #D7
Pacheco, CA 94553-5560
(925) 798-1620

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0209296

Client:
All Environmental, Inc.
3210 Old Tunnel Rd., Ste. B
Lafayette, CA 94549-4157

TEL: (925) 283-6000
FAX: (925) 283-6121
ProjectNo: #5526; Cruise A
PO:

19-Sep-02

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests						
					6010C	8021B/8015					
0209296-001	MW-1 4'	Soil	9/19/02	☐	A	A					
0209296-002	MW-2 4'	Soil	9/19/02	☐	A	A					
0209296-003	MW-3 4'	Soil	9/19/02	☐	A	A					
0209296-004	MW-4 4'	Soil	9/19/02	☐	A	A					
0209296-005	MW-5 4'	Soil	9/19/02	☐	A	A					

Comments:

	Date/Time		Date/Time
Relinquished by:		**Received by:**	
Relinquished by:		**Received by:**	
Relinquished by:		**Received by:**	

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

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All Environmental, Inc. 3210 Old Tunnel Rd., Ste. B Lafayette, CA 94549-4157	Client Project ID: #5526; Cruise America	Date Sampled: 09/30/02
		Date Received: 09/30/02
	Client Contact: Nathan Garfield	Date Reported: 10/07/02
	Client P.O.: Nathan Garfield	Date Completed: 10/07/02

October 07, 2002

Dear Nathan:

Enclosed are:

1). the results of 5 analyzed samples from your **#5526; Cruise America project,**

2). a QC report for the above samples

3). a copy of the chain of custody, and

4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits. If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Angela Rydelius, Lab Manager

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All Environmental, Inc.	Client Project ID: #5526; Cruise America	Date Sampled: 09/30/02
3210 Old Tunnel Rd., Ste. B		Date Received: 09/30/02
Lafayette, CA 94549-4157	Client Contact: Nathan Garfield	Date Extracted: 10/02/02-10/05/02
	Client P.O.: Nathan Garfield	Date Analyzed: 10/02/02-10/05/02

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE*

Extraction method: SW5030B Analytical methods: SW8021B/8015Cm Work Order: 0209495

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	MW-1	W	1800,a	19,000	50	15	16	18	10	106
002A	MW-2	W	ND	ND	ND	ND	ND	ND	1	106
003A	MW-3	W	ND	ND	ND	ND	ND	ND	1	111
004A	MW-4	W	ND<100,j	790	ND	ND	ND	ND	1	110
005A	MW-5	W	ND<2000,j	19,000	ND<5.0	ND<5.0	ND<5.0	ND<5.0	10	101
Reporting Limit for DF =1; ND means not detected at or above the reporting limit		W	50	5.0	0.5	0.5	0.5	0.5	1	µg/L
		S	NA	NA	NA	NA	NA	NA	1	mg/Kg

*water and vapor samples are reported in ug/L, soil and sludge samples in mg/kg, wipe samples in ug/wipe, product/oil/non-aqueous liquid samples in mg/L, and TCLP extracts in ug/L.

cluttered chromatogram; sample peak coelutes with surrogate peak.

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (stoddard solvent); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~2 vol. % sediment; j) reporting limit raised due to high MTBE content; k) TPH pattern that does not appear to be derived from gasoline (aviation gas). m) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

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All Environmental, Inc.	Client Project ID: #5526; Cruise America	Date Sampled: 09/30/02
3210 Old Tunnel Rd., Ste. B		Date Received: 09/30/02
Lafayette, CA 94549-4157	Client Contact: Nathan Garfield	Date Extracted: 10/02/02-10/03/02
	Client P.O.: Nathan Garfield	Date Analyzed: 10/02/02-10/03/02

Oxygenated Volatile Organics + EDB and 1,2-DCA by P&T and GC/MS*

Extraction Method: SW5030B Analytical Method: SW8260B Work Order: 0209495

Lab ID	0209495-001B	0209495-002B	0209495-003B	0209495-004B	Reporting Limit for DF =1	
Client ID	MW-1	MW-2	MW-3	MW-4		
Matrix	W	W	W	W		
DF	1000	1	1	20	S	W
Compound	**Concentration**				ug/kg	µg/L
Diisopropyl ether (DIPE)	ND<500	ND	ND	ND<10	NA	0.5
Ethyl tert-butyl ether (ETBE)	ND<500	ND	ND	ND<10	NA	0.5
Methyl-t-butyl ether (MTBE)	13,000	0.84	ND	750	NA	0.5
tert-Amyl methyl ether (TAME)	ND<500	ND	ND	ND<10	NA	0.5
t-Butyl alcohol (TBA)	ND<5000	ND	ND	ND<100	NA	5.0
1,2-Dibromoethane (EDB)	ND<500	ND	ND	ND<10	NA	0.5
1,2-Dichloroethane (1,2-DCA)	ND<500	ND	ND	ND<10	NA	0.5
Surrogate Recoveries (%)						
%SS:	92.4	98.4	99.4	95.6		
Comments						

* water and vapor samples and all TCLP & SPLP extracts are reported in ug/L, soil/sludge/solid samples in ug/kg, wipe samples in ug/wipe, product/oil/non-aqueous liquid samples in mg/L.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~2 vol. % sediment; j) sample diluted due to high organic content.

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All Environmental, Inc. 3210 Old Tunnel Rd., Ste. B Lafayette, CA 94549-4157	Client Project ID: #5526; Cruise America	Date Sampled: 09/30/02
		Date Received: 09/30/02
	Client Contact: Nathan Garfield	Date Extracted: 10/02/02-10/03/02
	Client P.O.: Nathan Garfield	Date Analyzed: 10/02/02-10/03/02

Oxygenated Volatile Organics + EDB and 1,2-DCA by P&T and GC/MS*

Extraction Method: SW5030B | Analytical Method: SW8260B | Work Order: 0209495

Lab ID	0209495-005B				Reporting Limit for DF =1	
Client ID	MW-5					
Matrix	W					
DF	500				S	W
Compound	**Concentration**				ug/kg	µg/L
Diisopropyl ether (DIPE)	ND<250				NA	0.5
Ethyl tert-butyl ether (ETBE)	ND<250				NA	0.5
Methyl-t-butyl ether (MTBE)	18,000				NA	0.5
tert-Amyl methyl ether (TAME)	ND<250				NA	0.5
t-Butyl alcohol (TBA)	ND<2500				NA	5.0
1,2-Dibromoethane (EDB)	ND<250				NA	0.5
1,2-Dichloroethane (1,2-DCA)	ND<250				NA	0.5
Surrogate Recoveries (%)						
%SS:	97.8					
Comments						

* water and vapor samples and all TCLP & SPLP extracts are reported in ug/L, soil/sludge/solid samples in ug/kg, wipe samples in ug/wipe, product/oil/non-aqueous liquid samples in mg/L.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~2 vol. % sediment; j) sample diluted due to high organic content.

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QC SUMMARY REPORT FOR SW8021B/8015Cm

Matrix: W WorkOrder: 0209495

EPA Method: SW8021B/8015Cm Extraction: SW5030B BatchID: 4207 Spiked Sample ID: 0209495-002A

Compound	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(gas)	ND	60	120	116	3.33	99.9	101	0.829	80	120
MTBE	ND	10	107	119	10.3	103	93.3	10.1	80	120
Benzene	ND	10	101	105	3.90	106	98.2	7.84	80	120
Toluene	ND	10	96.8	102	4.79	109	101	7.59	80	120
Ethylbenzene	ND	10	97.9	103	4.79	114	101	12.5	80	120
Xylenes	ND	30	96.7	103	6.67	110	103	6.25	80	120
%SS:	106	100	98	103	5.23	98.4	91.4	7.37	80	120

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:

NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.
NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS – MSD) / (MS + MSD) * 2.

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

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QC SUMMARY REPORT FOR SW8260B

Matrix: W WorkOrder: 0209495

EPA Method: SW8260B	Extraction: SW5030B		BatchID: 4199			Spiked Sample ID: 0209480-010A				
Compound	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
tert-Amyl methyl ether (TAME)	ND	10	100	99.1	1.08	96.7	94.1	2.78	70	130
Methyl-t-butyl ether (MTBE)	ND	10	98.1	98	0.0877	95.8	93.1	2.88	70	130
Diisopropyl ether (DIPE)	ND	10	107	105	1.07	99.2	95.3	4.00	70	130
Ethyl tert-butyl ether (ETBE)	ND	10	103	103	0.0428	96.9	93.3	3.79	70	130
%SS1:	103	100	92.9	93.3	0.463	99.6	99.4	0.175	70	130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:

NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.
NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS – MSD) / (MS + MSD) * 2.

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

McCampbell Analytical Inc.
110 Second Avenue South, #D7
Pacheco, CA 94553-5560
(925) 798-1620

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0209495

Client:
All Environmental, Inc.
3210 Old Tunnel Rd., Ste. B
Lafayette, CA 94549-4157

TEL: (925) 283-6000
FAX: (925) 283-6121
ProjectNo: #5526; Cruise A
PO: Nathan Garfield

30-Sep-02

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests						
					8021B/8015	SW8260B					
0209495-001	MW-1	Water	9/30/02	☐	A	B					
0209495-002	MW-2	Water	9/30/02	☐	A	B					
0209495-003	MW-3	Water	9/30/02	☐	A	B					
0209495-004	MW-4	Water	9/30/02	☐	A	B					
0209495-005	MW-5	Water	9/30/02	☐	A	B					

Comments:

	Date/Time		Date/Time
Relinquished by:		**Received by:**	
Relinquished by:		**Received by:**	
Relinquished by:		**Received by:**	

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

McCAMPBELL ANALYTICAL INC.

110 2nd AVENUE SOUTH, #D7
PACHECO, CA 94553
Telephone: (925) 798-1620 Fax: (925) 798-1622

CHAIN OF CUSTODY RECORD

TURN AROUND TIME ☐ RUSH ☐ 24 HOUR ☐ 48 HOUR · 5 DA

Report To: NATHAN GARFIELD Bill To:
Company: All Environmental
3210 Old Tunnel Road, Suite B
Lafayette, CA 94549-4157
Tele: (925) 283-6000 Fax: (925) 283-6121
Project #: 5526 Project Name: Cruise America
Project Location: 796 66th Ave Oakland
Sampler Signature:

SAMPLE ID	LOCATION	SAMPLING Date	SAMPLING Time	# Containers	Type Containers	MATRIX: Water	Soil	Air	Sludge	Other	METHOD PRESERVED: Ice	HCl	HNO_3	Other
★ MW-1		9/30				X					X	X		
★ MW-2		↓				↓					↓	↓		
★ MW-3														
★ MW-4														
★ MW-5														

Analysis Request

BTEX & TPH as Gas (602/8020 + 8015) / MTBE	TPH as Diesel (8015)	Total Petroleum Oil & Grease (5520 E&F/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 601 / 8010	BTEX ONLY (EPA 602 / 8020)	EPA 608 / 8080	EPA 608 / 8080 PCB's ONLY	EPA 624 / 8240 / 8260 Fuel Oxygenates only	EPA 625 / 8270	PAH's / PNA's by EPA 625 / 8270 / 8310	CAM-17 Metals	LUFT 5 Metals	Lead (7240/7421/239.2/6010)	RCI	Other	Comments
X								X								
↓								↓								

ICE/t°
GOOD CONDITION ✓
HEAD SPACE ABSENT
DECHLORINATED IN LAB

PRESERVATION APPROPRIATE ✓
CONTAINERS
PRESERVED IN LAB

VOAS	O&G	METALS	OTHER
✓			

Relinquished By:	Date:	Time:	Received By:
[signature]	9/30	2:34	[signature]
Relinquished By:	Date:	Time:	Received By:
Relinquished By:	Date:	Time:	Received By:

Remarks:
EFF to ngarfield@aeiconsultants.com