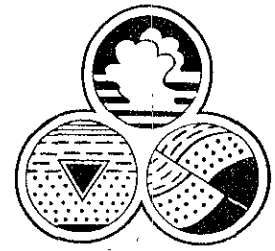


*Advanced*  
**GeoEnvironmental, Inc.**



18 October 2002  
AGE-NC Project No. 99-0556

**Alameda County**  
**OCT 23 2002**  
**Environmental Health**

Ms Eva Chu  
Alameda County Health Care Services  
Environmental Health Services  
Environmental Protection  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502-6577

**Subject:      Monitoring Well Installation and Sampling Report**  
**FORMER CONTINENTAL VOLVO**  
**4030 - 4122 East 14<sup>th</sup> Street,**  
**Oakland, California**


Dear Ms Chu:

At the request of Mr. Achim Ehrhardt of the former Continental Volvo, Inc., *Advanced GeoEnvironmental, Inc.* has prepared this report on the installation and sampling of two ground water monitoring wells at the former Continental Volvo, Inc. at 4030 - 4122 East 14<sup>th</sup> Street, Oakland, California.

If you have any questions or comments, please contact our office at (209) 467-1006.

Sincerely,

*Advanced GeoEnvironmental, Inc.*

  
\_\_\_\_\_  
William Little  
Project Geologist

**Alameda County**  
**OCT 23 2002**  
**Environmental Health**

**Monitoring Well Installation and Sampling Report**  
**Former CONTINENTAL VOLVO**  
**4030 - 4122 East 14<sup>th</sup> Street, Oakland, California**

18 October 2002  
AGE-NC Project No. 99-0556

*PREPARED FOR:*

Mr. Achim Ehrhardt  
CONTINENTAL VOLVO, INC.

*PREPARED BY:*



***Advanced GeoEnvironmental, Inc.***

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**Monitoring Well Installation and Sampling Report**  
**Former CONTINENTAL VOLVO**  
**4030 - 4122 East 14<sup>th</sup> Street, Oakland, California**

18 October 2002  
AGE-NC Project No. 99-0556



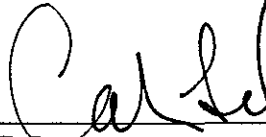
**Advanced GeoEnvironmental, Inc.**  
**837 Shaw Road, Stockton, California**

PREPARED BY:

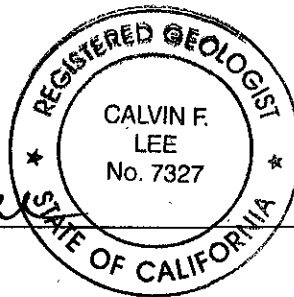


William Little  
Project Geologist

REVIEWED BY:



Calvin F. Lee  
Senior Project Geologist  
California Registered Geologist No. 7327



**FORMER CONTINENTAL VOLVO  
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Appendix C - *Monitoring Well Field Logs*

Appendix D - *Laboratory Report of Soil Samples*

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**Monitoring Well Installation and Sampling Report**  
**FORMER CONTINENTAL VOLVO**  
**4030 - 4122 East 14<sup>th</sup> Street, Oakland, California**

**1.0. INTRODUCTION**

At the request of Mr. Achim Ehrhardt of the former Continental Volvo, Inc., *Advanced GeoEnvironmental, Inc. (AGE)* has prepared this report for 4030 - 4122 East 14<sup>th</sup> Street, Oakland, California.(site). The location of the site is illustrated in Figure 1; the site plan is illustrated in Figure 2.

The purpose of the work was to assess the lateral and vertical extent of petroleum hydrocarbon impacted soil and groundwater at the site. The proposed scope of work as detailed in the AGE-prepared *Subsurface Investigation Work Plan*, dated 05 October 2000, and *Subsurface Investigation Work Plan - Well Location*, dated 27 February 2002, which were approved by the Alameda County Health Care Services Environmental Health Services - Environmental Protection (ACHCS) by letter dated 08 March 2002, included establishment of soil borings, collection and analysis of soil samples, installation of shallow ground water monitoring wells, collection of three ground water samples from the wells and preparation of this report of findings.

This report was prepared in accordance with guidelines issued by the California Regional Water Quality Control Boards (CRWQCB) for subsurface investigations of the former underground storage tank (UST) systems. Site background information is summarized in Appendix A.

**2.0. PROCEDURES**

The field work was performed in accordance with procedures outlined in the *Subsurface Investigation Work Plan* dated 05 October 2000 and *Subsurface Investigation Work Plan - Well Location* dated 27 February 2002; however, based on the concurrence of Ms. Eva Chu of the ACHCS on 04 June 2002, AGE postponed the installation of the southwestern-most proposed monitoring well (MW-2) pending soil and ground water analytical results from the newly-installed monitoring wells MW-1 and MW-3 and two proposed soil borings GB-1 and GB-2 (see Figure 2).

**2.1. DRILLING**

On 04 June 2002, two soil borings were advanced to a depth of 20 feet below surface grade (bsg) utilizing a truck-mounted CME 75-HT drill rig equipped with 8-inch continuous flight hollow-stem augers; the drill rig and two-man crew were supplied by West Haz Mat Drilling of Sacramento, California. Soil boring MW-1 was advanced towards the southwest and down-gradient of the former waste oil UST excavation; boring MW-3 was established near the western corner of the used car lot, down-gradient of the former heating oil UST area. The soil boring locations are shown on Figure 2.

## 2.2. SOIL SAMPLE COLLECTION AND ANALYSIS

Continuously soil samples were collected ahead of the drill bit using a split tube, 3-inch diameter core sampler. Samples were collected with pre-cleaned 2 x 6-inch brass sleeves. All sampling equipment was washed in an Alconox solution and rinsed twice with water prior to each sampling run.

For each sample, both ends of the soil sleeve selected for laboratory analysis were covered with Teflon sheets, capped and sealed with tape. The selected samples were stored in a chilled container and transported under chain-of-custody to McCampbell Analytical, Inc. (MAI), a California Department of Health Services (DHS)-certified analytical laboratory located in Pacheco, California. Selected samples were analyzed for:

- Total petroleum hydrocarbons quantified as gasoline, diesel and motor oil (TPH-g and TPH-d and TPH-mo, respectively) by EPA Method 8015 Modified,
- Benzene, toluene, ethylbenzene and total xylenes (BTEX) and methyl-tert-butyl ether (MTBE) by EPA Method 8020 and
- The oxygenated compounds di-isopropyl ether (DIPE), ethyl tertiary-butyl ether (ETBE), MTBE, tertiary-amyl methyl ether (TAME), tertiary butanol (TBA), methanol, ethanol, ethylene dibromide (EDB) and 1,2-dichloroethane (1,2-DCA) and all volatile organic compounds analyzed within the EPA Method 8260.

The results of the soil sample laboratory analysis are presented in Section 3.2.

## 2.3. SOIL LOGGING

After sample preservation, soil was extruded from the remaining portion of the core barrel and screened utilizing an organic vapor analyzer (OVA) equipped with a photo-ionization detector (PID: Thermo Environmental 580A, 10.0 eV, calibrated to isobutylene). In addition, the soil was described in accordance with the Unified Soil Classification System. Soil boring logs exhibiting soil profiles and PID readings are depicted in Appendix B.

Auger returns were placed in 55-gallon drums and stored on-site pending laboratory analysis and disposal at a licenced facility.

## 2.4. MONITORING WELL INSTALLATION AND DEVELOPMENT

Borings MW-1 and MW-3 were completed as ground water monitoring wells using two 2-inch diameter, schedule 40 PVC casings, with 0.02-inch slotted screen installed from depths of 10 to 20 feet bsg and with blank casing extending to the surface. A filter pack was installed using #3 Lonestar sand from 9 to 20 feet bsg. Bentonite chips were used to make a two-foot transition seal above the sand pack. The remaining annular space was backfilled to within six inches of surface grade with portland cement. A traffic-rated well box (8-inch diameter) was installed over each well in accordance with well regulations. Monitoring well design specifications are depicted in Appendix B.

Following well installation, the wells were developed in order to increase water flow into the well and to minimize the amount of fine-grained sediment drawn into the well during pumping or bailing. Ground water was purged from each monitoring well with a disposable bailer until ground water was visually sediment free. Purged ground water was containerized in properly labeled DOT-approved model 17H 55-gallon drums and was stored on-site.

## 2.5. GROUND WATER MONITORING ACTIVITIES

Ground water monitoring activities were performed on 19 July 2002; ground water monitoring was performed on the newly-installed monitoring wells MW-1 and MW-3 and the existing well (well UST) located in the former waste oil UST location.

### 2.5.1 Well Monitoring and Evacuation

A Solinst water level meter was used to measure the depth to ground water in the three wells relative to the tops of the well casings. After recording water level measurements, disposable plastic bailers were used to purge each well; approximately 5 to 6 gallons of water (a minimum of 3 casing water-volumes per well) were removed. Ground water temperature, pH and conductivity were measured at regular intervals during purging using an Oakton water analyzer. Purged ground water was containerized in properly labeled DOT-approved model 17H 55-gallon drums and was stored on-site. Field sheets and data are included in Appendix C.

### 2.5.2. Collection and Analysis of Ground Water Samples

A ground water sample was collected from each purged well using a new disposable plastic bailer following 80 percent recovery of ground water within the well. Each water sample was transferred into three 40-ml VOA vials containing 0.5 ml 18% hydrochloric acid as a sample preservative and into one 1-liter amber bottle without sample preservative. After collection, the samples were properly labeled, placed in a chilled container and transported under chain-of-custody to MAI. The samples were analyzed for:

- TPH-g and TPH-d in accordance with EPA Method 8015 Modified;
- BTEX and MTBE in accordance with EPA Method 8020; and
- MTBE, DIPE, ETBE, TAME, TBA, EDB, 1,2-DCA and all other volatile organic compounds in accordance with EPA Method 8260 Modified.

The results of the ground water sample laboratory analysis are presented in Section 3.3.

### 3.0. FINDINGS

The stratigraphy, ground water depth and gradient were determined from field data collected on 19 July 2002; the contaminant impact to soil and ground water was quantified by the laboratory analytical data.

#### 3.1. STRATIGRAPHY

Tan and brown, silty clay was encountered in the borings from surface grade to depths of approximately 5 feet bsg. Tan or gray angular, silty gravel, apparently color-dependent on hydrocarbon impact, was encountered at depths of between 8 and 12 feet bsg and at approximately 15 feet bsg. Gray or brown clay was encountered at depths of between 12 and 15 feet bsg and from approximately 16 feet bsg to the total depth of the borings. Soil boring logs are included in Appendix A.

Organic vapor was detected in the soil sample collected at 10 feet bsg in borings MW-1 and MW-3 at a maximum concentration of 890 parts per million (ppm). The PID data is included on the boring logs (Appendix B).

#### 3.2. ANALYTICAL RESULTS OF SOIL SAMPLES

Four soil sample were analyzed from soil boring MW1 and two soil samples were analyzed from boring MW3.

- TPH-g was detected in soil sample MW3-11' at a concentration of 2.6 milligram per kilogram (mg/kg).
- TPH-d and TPH-mo were detected in soil samples MW1-5' and MW3-11'; the maximum concentrations were detected in sample MW3-11' at 120 mg/kg and 26 mg/kg, respectively.
- BTEX, VOC compounds and fuel additives were not detected in the soil samples analyzed.



Laboratory results of soil samples analyzed for petroleum hydrocarbons are summarized in Table 1. The laboratory reports (MAI Laboratory ID 0206101-01 to 07), quality assurance and quality control (QA/QC) reports and chains-of-custody are included in Appendix D.

### 3.3. ANALYTICAL RESULTS OF GROUND WATER SAMPLES

Ground water samples were collected from newly-installed monitoring wells MW-1 and MW-3 and the existing well UST.

- TPH-g and TPH-d were detected in ground water sample UST at concentrations of 52 micrograms per liter ( $\mu\text{g/l}$ ) and 3,100 $\mu\text{g/l}$ , respectively. TPH-g and TPH-d were also detected in sample MW1 at concentrations of 78 $\mu\text{g/l}$  and 200  $\mu\text{g/l}$ , respectively.
- Benzene was detected in the samples collected from wells UST and MW-1 at concentrations of 3.4  $\mu\text{g/l}$  and 5.4  $\mu\text{g/l}$ , respectively.
- 1,2-DCA was detected in the sample from well MW-1 at a concentration of 7.8  $\mu\text{g/l}$ . Cis1,2-dichloroethane and trichloroethane (TCE) were detected in the sample from wells MW-1 and MW-3 at maximum concentrations of 210  $\mu\text{g/l}$  and 13  $\mu\text{g/l}$ , respectively, in the sample from well MW-1.
- Chlorinated benzene compounds were also detected in the water sample collected from well UST at concentrations as high as 2.3  $\mu\text{g/l}$  1,2-dichlorobenzene.
- 2-Butanone was detected in sample MW1 at a concentration of 11  $\mu\text{g/l}$ .

The remaining fuel additives were not detected. Analytical results from ground water samples are summarized in Table 2. The laboratory report (MAI Lab ID Numbers 0207251-01 to 03), QA/QC and chain-of-custody are included in Appendix E.

### 3.4. GROUND WATER DEPTH

Static ground water was encountered at a depth of 10 feet bsg during monitoring well installation on 04 June 2002.

At the time of the 19 July 2002 sampling event, the depth to ground water at the site ranged between 6.62 feet below the monitoring wells casing top at the former waste oil UST area and 8.85 feet below the monitoring wells casing top at well MW-3.

#### 4.0. SUMMARY AND CONCLUSIONS

Based on the data collected from the site, AGE concludes:

- Petroleum hydrocarbon-impacted soil appears to be limited to the former UST areas, to a depth of between 10 and 15 feet bsg. TCE has been detected at a depth of 15 feet bsg in previous soil borings adjacent to, but up-gradient of, former waste oil UST (in the AGE-prepared *Preliminary Subsurface Investigation* report, March 1999).
- The highest concentrations of dissolved petroleum hydrocarbons and solvents were detected within the former waste oil UST area. Since solvents were detected in ground water but not in the soil at the former UST excavation, there is the possibility of an other-than-UST-release origin for the solvents.
- Benzene, TCE and cis-1,2-DCE were detected at levels that exceeds the DHS' maximum contaminant level for these solvents in drinking water.

#### 5.0. RECOMMENDATION

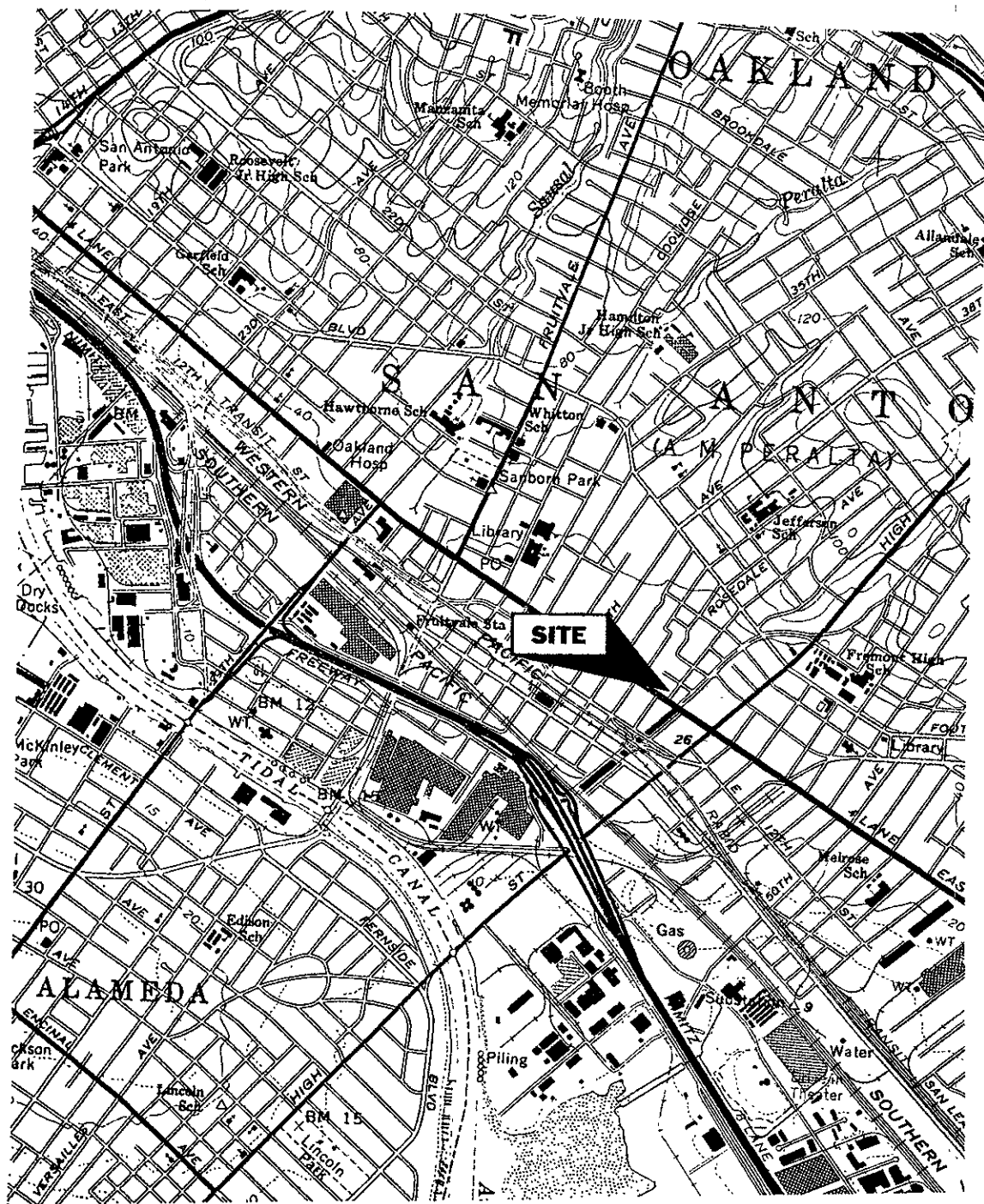
Based on the findings of the environmental activities recounted in this report, AGE recommends initiation of a quarterly ground water monitoring program at the site; the next quarterly monitoring event should be scheduled for October 2002.

On the recommendation of Ms. Eva Chu of the ACHCS, AGE will advance two soil borings (GB-1 and GB-2) in the auto service area, scheduled for the fourth quarter 2002. Installation of monitoring well MW-2, at the southwestern portion of the site, has been postponed pending an evaluation of laboratory analytical results of soil and grab ground water samples from soil borings GB-1 and GB-2 and monitoring-well ground water samples.

#### 6.0. LIMITATIONS

Our professional services were performed using that degree of care and skill ordinarily exercised by environmental consultants practicing in this or similar localities. The findings were based upon analytical results provided by an independent laboratory. Evaluation of the geologic/hydrogeologic conditions at the site for the purpose of this investigation was made from a limited number of available data points (soil and ground water samples) and subsurface conditions may vary away from these data points. No other warranty, expressed or implied, is made as to the professional interpretations, opinions and recommendations contained in this report.

# FIGURES

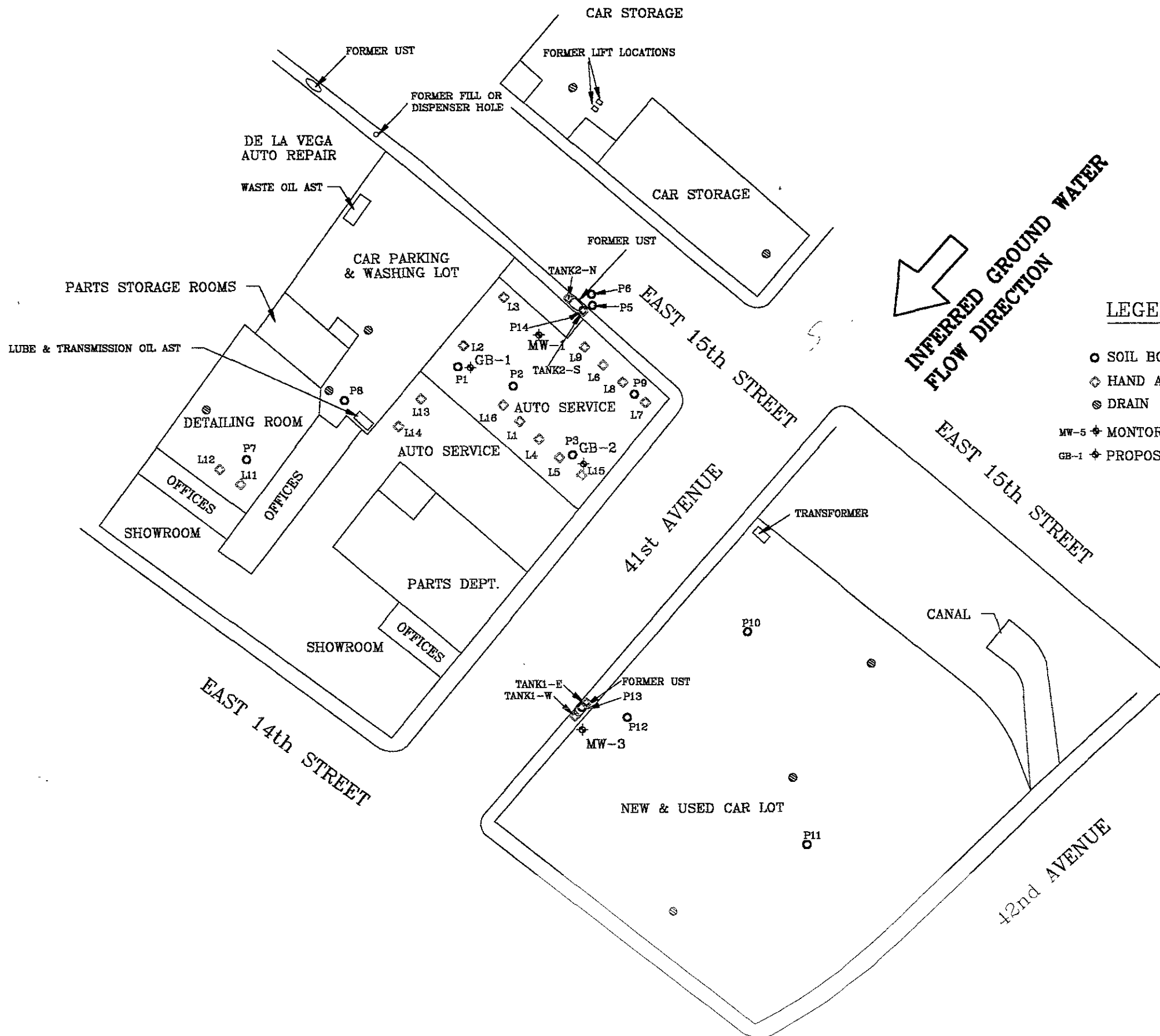


LOCATION MAP  
CONTINENTAL VOLVO  
4030-4122 EAST 14TH STREET  
OAKLAND, CALIFORNIA



*Advanced*  
GeoEnvironmental, Inc.  
of Northern California

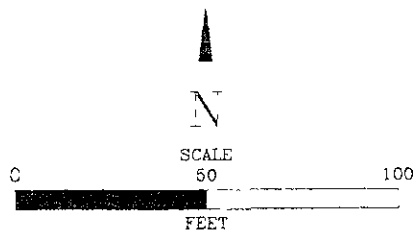
PROJECT NO. ACE-NC-99-0556	FILE: CON1	FIGURE:
DATE: 10 MARCH 1999	DRAWN BY: MAC	1



INFERRED GROUND WATER  
FLOW DIRECTION

LEGEND

- SOIL BORING
- ◇ HAND AUGER/SIDEWALL SAMPLES
- ⊙ DRAIN
- MW-5 ◆ MONITORING WELL LOCATION
- GB-1 ◆ PROPOSED GRAB GROUND WATER SAMPLE BORING LOCATION



SITE PLAN - WELL LOCATIONS  
FORMER CONTINENTAL VOLVO  
4030 EAST 14th STREET  
OAKLAND, CALIFORNIA

# TABLES

**TABLE 1**  
**ANALYTICAL RESULTS OF SOIL SAMPLES - EPA 8015m/8020**  
 Continental Volvo  
 4030 - 4122 East 14<sup>th</sup> Street, Oakland, California  
 mg/kg

Sample I.D. - depth	TPH as gasoline	TPH as diesel	TPH as motor oil	Benzene	Toluene	Ethyl benzene	Xylenes	TCE ( $\mu\text{g}/\text{kg}$ )
MW1-5	<1.0	2.7	19	<0.5	<0.5	<0.5	<0.5	<5.0
MW1-10	<1.0	<1.0	<5.0	<0.5	<0.5	<0.5	<0.5	<5.0
MW1-15	<1.0	<1.0	<5.0	<0.5	<0.5	<0.5	<0.5	<5.0
MW1-20	<1.0	<1.0	<5.0	<0.5	<0.5	<0.5	<0.5	<5.0
MW3-11	2.6	120	26	<0.5	<0.5	<0.5	<0.5	<5.0
MW3-15	<1.0	<1.0	<5.0	<0.5	<0.5	<0.5	<0.5	<5.0

*Notes:*  
 mg/kg: milligrams per kilogram  
 TCE: Trichloroethene

**TABLE 2**  
**ANALYTICAL RESULTS OF GROUND WATER SAMPLES - EPA 8015m/8020/8260**  
 Continental Volvo  
 4030 - 4122 East 14<sup>th</sup> Street, Oakland, California  
 µg/l

Sample Well ID	TPH as gasoline	TPH as diesel	Benzene	Toluene	Ethyl benzene	Xylenes	TCE	Cis 1,2-DCE	1,2-DCA
UST/06-04-02	52	3,100	3.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW1/06-04-02	78	200	5.4	<0.5	<0.5	<0.5	210	110	7.8
MW3/06-04-02	<1.0	<1.0	<0.5	<0.5	<0.5	<0.5	13	0.75	<0.5

Notes

µg/l: micrograms per liter

TCE: Trichloroethene

Cis 1,2-DCE: Cis 1,2-dichloroethene

1,2-DCA: 1,2-dichloroethane



**APPENDIX A**

**Site Background Information**  
**FORMER CONTINENTAL VOLVO**  
**4030 - 4122 East 14<sup>th</sup> Street, Oakland, California**

The site is located in central Oakland in a commercial area (Figure 1) and is east of State Route 880. Two buildings and a vacant lot utilize as a car lot occupy the site as shown in Figure 2. AGE has been informed that the property was operated as a car or truck maintenance shop since the 1950s. The vacant lot was used as a residence prior to being used as a car lot.

#### UNDERGROUND STORAGE TANK REMOVAL

Based on the information currently at AGE's disposal, one underground storage tank (UST) was removed from the site in 1985. A 550-gallon waste oil UST was located in the eastern sidewalk of the site. A new double-walled UST for waste-oil was installed in the same location. On 04 May 2000, the two USTs were removed from site under permit. Tank #1 were utilized for heating oil, while tank #2 was upgraded/permitted and used to store waste oil (Figure 2).

Following removal of the tank, a backhoe was used to collect a soil sample from 2 feet below the ends of the former USTs (Figure 2). A soil sample was collected from the heating oil UST soil stockpile to be analyzed. A grab water sample was collected from the waste oil UST area well.

TPH and BTE&X were present in each two of the samples analyzed in concentrations exceeding the method detection limits. TPH-g was detected in the soil samples has high as 360 milligrams per kilogram (mg/kg), TPH-d 1,100 mg/kg and TPH-mo 2,000 mg/kg. BTE&X compounds were detected as high as 0.7 mg/kg benzene. Total lead and other metal were detected at or above background levels. PCBs were also detected in the waste oil UST sample. TPH and BTEX were not detected in the stockpile soil sample.

The grab water sample was impacted. TPH-g was detected in the soil samples has high as 180 micrograms per liter ( $\mu\text{g/l}$ ), TPH-d 68,000  $\mu\text{g/l}$  and TPH-mo 200,000  $\mu\text{g/l}$ . BTE&X compounds were detected as high as 23  $\mu\text{g/l}$  benzene. LUFT metals were detected in the grab water sample from the waste oil UST area.

Based on these concentrations a site assessment of the release was requested by the City of Oakland. Tasks and procedures for this investigation were completed in accordance with the approved *Subsurface Investigation Work Plan*, dated 05 October 2000 and prepared by AGE.

#### PREVIOUS INVESTIGATIONS

AGE conducted two previous environmental assessments at the site. A brief summary of the findings from the previous investigations is presented below:

On 26 January 1998, a total of twelve soil probe borings (P1 through P12) were advanced at the site, under the supervision of an AGE geologist. Six soil probe borings were advanced in the vicinity of the lifts within the buildings on the site; two soil probe borings were advanced in the vicinity the active UST (also the location of the removed UST 1986), in the City of Oakland right-of-way; three soil probe borings were advanced on the car lot and one soil probe boring was advanced in the vicinity the active ASTs location.

On 08 January 2001, two soil probe borings (P13 and P14) were advanced near the former UST areas, in order to delineate and verify hydrocarbons beneath the USTs. Locations of the soil probe borings are illustrated on Figure 2.

Petroleum hydrocarbon-impacted soil at the site was encountered in the vicinity of the former UST/current UST within East 15<sup>th</sup> Street. The impacted soil was encountered in a somewhat narrow zone from depths of approximately 5 to 10 feet bsg.

Hydrocarbon-impacted soil was encountered east of the UST at a depth of 10 feet bsg. The chlorinated cleaning solvent TCE, commonly use for de-greasing, was detected at low concentrations in soils samples at a depth of 15 feet bsg in the area of the waste oil tank. The vertical or lateral extent of the TCE contamination is not defined.

Diesel fuel or motor oil-impacted ground water on the car lot appears to have originated from a diesel or heating-oil fuel matrix. The laboratory was consulted to decipher the make-up the petroleum-hydrocarbons detected in the water sample. A mix of low concentration diesel and high concentration oil was well pronounced in the laboratory data. This mix of hydrocarbons, with the absence of gasoline and BTEX compounds, suggests a heating oil make-up of a petroleum release, or possibly two releases: one motor oil only and/or diesel fuel only release requiring two sources.

Grab ground water samples was collected from selected probe borings. A grab ground water sample was collected from the sampling well in the former waste oil UST excavation. TPH-g, TPH-d and TPH-mo were detected in one soil sample, P14-10, collected from of the waste oil UST at concentrations of 260 mg/kg (milligrams per kilograms), 1,000 mg/kg and 2,200 mg/kg, respectively. TPH-d and TPH-mo were also detected in soil sample P14-15 at concentrations of 2.7 mg/kg and 8.9 mg/kg, respectively.

BTEX compounds were detected in one soil sample, P14-10 at concentrations of 0.51 mg/kg, 0.23 mg/kg, 0.49 mg/kg and 1.3 mg/kg, respectively.

Trichloroethene (TCE) was detected in two soil samples from boring P14 at 20 feet and 30 feet bsg at concentrations of 7.2 (micrograms per kilograms)  $\mu\text{g}/\text{kg}$  and 17  $\mu\text{g}/\text{kg}$ , respectively. TCE was not detected in soil samples P14-35.

TPH-g, TPH-d and TPH-mo were detected in the grab ground water sample from the waste oil UST excavation (monitoring well) at concentrations of 61  $\mu\text{g}/\text{l}$  (micrograms per liter), 8,700  $\mu\text{g}/\text{l}$  and 54,000  $\mu\text{g}/\text{l}$ , respectively. Benzene was also detected in the same samples at a concentration of 3.0  $\mu\text{g}/\text{l}$ . MTBE was detected in the grab water sample at a concentration of 1.4  $\mu\text{g}/\text{l}$ .

Trichloroethene (TCE) was detected in the grab water sample from probe boring P13, the heating oil UST, at a concentration of 65 µg/l. Cis-1,2-DCA was detected the grab water sample from probe boring P13, the heating oil, at a concentration of 43 µg/l. 1,2-DCA was detected the grab water sample from the waste oil UST sampling well, at a concentration of 2.8 µg/l.

Petroleum hydrocarbon-impacted soil at the site was encountered in the vicinity of the former UST/current UST within East 15<sup>th</sup> Street. The impacted soil was encountered in a somewhat narrow zone from depths of approximately 10 to 15 feet bsg.

The chlorinated cleaning solvent TCE, commonly use for de-greasing, was detected at low concentrations in soils samples at a depth of 30 feet bsg in the area of the waste oil tank. The vertical or lateral extent of the TCE contamination is defined.

Diesel fuel or motor oil-impacted ground water near the heating oil UST appears to have originated from a diesel or heating-oil fuel matrix. The laboratory was consulted to decipher the make-up the petroleum-hydrocarbons detected in the water sample. A mix of low concentration diesel and high concentration oil was well pronounced in the laboratory data. This mix of hydrocarbons, with the absence of gasoline and BTEX compounds, suggests a heating oil make-up of a petroleum release.

The lack of detection of MTBE in soil samples and the low presence in the water sample collected from the waste oil site suggests that the release of fuels is relatively old, possibly close to twenty years old.

The detection of TCE and 1,2-DCA and further the diesel/oil detection, from the heating oil UST area, suggests an off-site source of contaminants diesel (possible solvents). However, some heating oil (diesel) appears to have impacted ground water, based on the samples.

**APPENDIX B**



**Advanced  
GeoEnvironmental, Inc.**

837 Shaw Road, Stockton, CA 95215  
(209) 467-1006 FAX: (209) 467-1118

**BORING LOG**

BOREHOLE NO.: **MW-1**

TOTAL DEPTH: **20 FEET**

Project: Continental Volvo  
Site Location: 4030 East 14th Street  
Oakland California  
---  
Project No.: AGE-NC-99-0556

Drilling Co.: West Haz Mat  
Rig/Auger Type: CME75/8 inch hollow stem  
Logged By: W. LITTLE  
Reviewed By: C LEE  
Date(s) Drilled: 04 June 2002

Notes: completed as ground water monitoring well MW-1  
ground water encountered at ten feet bsg

☒ Water level during drilling  
☒ Water level in completed well

Page 1 of 1

Depth	Sample ID	Blows (per 6")	PID (ppm)	Soil Symbol	USCS Class and Soil Description	Well Completion	Well Description
0					CL: CLAY, gray, damp, low toughness, med plasticity, angular gravel, hydrocarbon (HC) odor		Cement grout seal from .5' to 6' bsg.
-5	MW1-5		0		CL: CLAY, gray, damp, low t, med plast, HC odor.		Bentonite seal from 6' to 8' bsg.
-10	MW1-10 MW1-11		890		GP: POORLY GRADED GRAVEL, with 40% fines, gray, dry to damp, angular clasts, HC odor		#2/12 sand from 8' to 20' bsg.
-15	MW1-15		0		CL: CLAY, gray, damp, low toughness, med plasticity, low HC odor.		Screened interval from 10' to 20' bsg.
					SM: SILTY SAND, gray, damp, 30 % fines, 100% fine sand, no HC odor.		
					CL: CLAY, brown, damp, low toughness, med plasticity, no HC odor.		
-20	MW1-20		0			Cap at 20'	
-25							



# Advanced GeoEnvironmental, Inc.

837 Shaw Road, Stockton, CA 95215  
(209) 467-1006 FAX: (209) 467-1118

## BORING LOG

BOREHOLE NO.: **MW-3**

TOTAL DEPTH: **20 FFET**

Project: Continental Volvo  
Site Location: 4030 East 14th Street  
Oakland California  
---  
Project No.: AGE-NC-99-0556

Drilling Co.: West Haz Mat  
Rig/Auger Type: CME75/8 inch hollow stem  
Logged By: W. LITTLE  
Reviewed By: C LEE  
Date(s) Drilled: 04 june 2002

Notes: completed as ground water monitoring well mw-3  
ground water encountered at ten feet bsg

☒ Water level during drilling  
☒ Water level in completed well  
Page 1 of 1

Depth	Sample ID	Blows (per 6")	PID (ppm)	Soil Symbol	USCS Class and Soil Description	Well Completion	Well Description
-------	-----------	----------------	-----------	-------------	---------------------------------	-----------------	------------------

0					CL: CLAY, gray, damp, low toughness, med plasticity, angular gravel, hydrocarbon (HC) odor.		Cement grout seal from .5' to 6' bsg.
-5	MW3-5		0		CL: CLAY, gray, damp, low t, med plast, HC odor.		Bentonite seal from 6' to 8' bsg.
-10	MW3-10		890		GP: POORLY GRADED GRAVEL, with 40% fines, gray, dry to damp, angular clasts, HC odor.		#2/12 sand from 8' to 20' bsg.
-12.5					CL: CLAY, gray, damp, low toughness, med plasticity, low HC odor.		Screened interval from 10' to 20' bsg
-15	MW3-15		0		GP: POORLY GRADED GRAVEL, with 40% fines, gray, dry to damp, angular clasts, HC odor		
-17.5					CL: CLAY, brown, damp, low toughness, med plasticity, no HC odor.		
-20	MW3-20		0			Cap at 20'.	
-25							

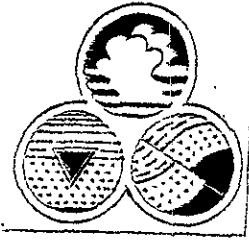
**APPENDIX C**



Advanced

GeoEnvironmental, Inc.

857 Shaw Road, Stockton, CA 95205 • (209) 467-1006 • Fax (209) 467-1118



Monitoring Well Field Log

Well Data

Project Name: <u>Continental Volvo</u>		Project No.: <u>AGE-NC-</u>	Date: <u>7/19/02</u>
Pre-Purge DTW: <u>8.85</u>	Time: <u>8:15</u>	Well ID.: <u>MW 3</u>	
Post-Purge DTW: <u>14.1</u>	Time: <u>8:29</u>	Casing Diameter: 0.5" <u>2"</u> 4" 6"	
Total Depth of Well: <u>20'</u>	Well Volume: <u>1.78</u>	Gal/Ft.: 0.01074 0.16 0.65 1.47	
Sampler(s): <u>RM</u>	Sample Containers: <u>3 VOAS 2 liters</u>		
Sample ID.: <u>MW 3/07-19-02</u>	Analysis: <u>TPH-ALL/BTEX/OPYS</u>		

Stabilization Data

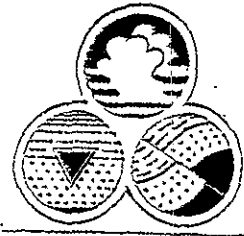
Time	Volume (gallons)	pH	Temp. <u>C</u>	Cond <u>µS/cm</u> <u>x US</u>	Color/ Turbidity	Notes
8:18	0	7.08	19.9	481	clear	Sheen / Faint odor
8:20	1	7.02	20.9	416	"	spotty sheen / faint odor
8:23	3	7.18	20.8	490	"	"
8:27	5.5	7.21	20.7	524	some clear	" "

② Purge Method:	<u>Disp Barber</u>	Well Integrity:	<u>good</u>
Sample Method:	<u>DISPOSABLE BAILER</u>	Dissolved O <sub>2</sub> :	<u>C.</u>
Sample Time:	<u>8:40</u> <u>12:0</u>	ICM:	<u>Hydac</u> <u>Oakton</u>
			% mg/L

Advanced

GeoEnvironmental, Inc.

837 Saw Road, Stockton, CA 95205 • (209) 467-1006 • Fax (209) 467-1118



Monitoring Well Field Log

Well Data

Project Name: <b>Continental Valve</b>		Project No.: <b>AGE-NC</b>	Date: <b>7/19/02</b>
Pre-Purge DTW: <b>6.62</b>	Time: <b>6:34</b>	Well ID: <b>UST</b>	
Post-Purge DTW: <b>6.65</b>	Time: <b>6:51</b>		
Total Depth of Well: <b>9'</b>	Well Volume: <b>1.54</b>	Casing Diameter: 0.5" 2" <b>4"</b> 6"	Gal./Rt.: 0.01074 0.16 0.65 1.47
Sampler(s): <b>R.M.</b>	Sample Containers: <b>3 UOAS 2 liters</b>		
Sample ID.: <b>UST/07-19-02</b>	Analysis: <b>TPH-ALL/BTEX/Oxy's</b>		

Stabilization Data

Time	Volume (gallons)	pH	Temp. C	Cond $\mu$ S/cm X US	Color/Turbidity	Notes
6:38	0	6.85	18.2	515	clear/w/ debris	ODOR/Fuel at Test OILY
	Purged 5 gallons					
6:49	5	6.90	18.4	493	clear/w/ debris	sheen / odor

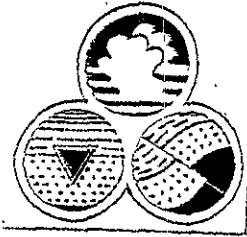
(2)

Purge Method:	<b>Disp. Bailer</b>		
Sample Method:	<b>DISPOSABLE BAILER</b>	Well Integrity:	<b>Good</b>
Sample Time:	<b>6:57</b>	Dissolved O <sub>2</sub> :	<b>C.</b>
ICM:	Hydac <b>Dakton</b>	%	mg/L

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GeoEnvironmental, Inc.

837 Shaw Road, Stockton, CA 95205 • (209) 467-1006 • Fax (209) 467-1218



Monitoring Well Field Log

Well Data

Project Name: <b>Continental Valve</b>		Project No.: <b>AGE-NC-</b>	Date: <b>7/19/02</b>
Pre-Purge DTW: <b>8.29</b>	Time: <b>7:31</b>	Well ID.: <b>MW 1</b>	
Post-Purge DTW: <b>15.4</b>	Time: <b>7:47</b>		
Total Depth of Well: <b>20'</b>	Well Volume: <b>18'</b>	Casing Diameter: 0.5" <input checked="" type="radio"/> 4" <input type="radio"/> 6" <input type="radio"/>	
		Gal/Ft.: 0.01074 0.16 0.65 1.47	
Sampler(s): <b>RM</b>		Sample Containers: <b>3 WAS 2 liters</b>	
Sample ID.: <b>MW1/07-19-02</b>		Analysis: <b>TPH-ALL/BTEX/OXYS</b>	

Stabilization Data

Time	Volume (gallons)	pH	Temp. C	Cond. $\mu$ S/cm x US	Color/Turbidity	Notes
7:36	0	6.89	17.4	693	clear	Faint odor/shaen
7:39	2	7.02	17.6	688	clear	Faint odor
7:42	4	7.10	17.9	691	"	" "
7:46	6	7.11	18.0	694	"	" "

(2)	Purge Method:	<b>Disp Bailer</b>	
	Sample Method:	<b>DISPOSABLE BAILER</b>	Well Integrity: <b>Good</b>
Sample Time:	<b>8:00</b>	<b>9.3</b>	Dissolved O <sub>2</sub> : <b>C.</b>
ICM:	<b>Hydac</b>	<b>Oakton</b>	% mg/L

**APPENDIX D**



McC Campbell Analytical Inc.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560  
Telephone : 925-798-1620 Fax : 925-798-1622  
<http://www.mcccampbell.com> E-mail: [main@mcccampbell.com](mailto:main@mcccampbell.com)

Advanced GeoEnvironmental, Inc 837 Shaw Road Stockton, CA 95215	Client Project ID: Former Continental Volvo-MW's	Date Sampled: 06/04/02
		Date Received: 06/07/02
	Client Contact: Bill Little	Date Reported: 06/14/02
	Client P.O.:	Date Completed: 06/14/02

June 14, 2002

Dear Bill:

Enclosed are:

- 1). the results of 7 samples from your **Former Continental Volvo-MW's 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. McC Campbell 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







McC Campbell Analytical Inc.

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

Advanced GeoEnvironmental, Inc 837 Shaw Road Stockton, CA 95215	Client Project ID: Former Continental Volvo-MW's	Date Sampled: 06/04/02
	Client Contact: Bill Little	Date Received: 06/07/02
	Client P.O.:	Date Extracted: 06/07/02
		Date Analyzed: 06/11/02

**Volatiles Organics by GC/MS (Basic Target List)\***

Extraction Method: SW5030B

Analytical Method: SW8260B

Work Order: 0206101

Lab ID	0206101-001A
Client ID	MW1-5
Matrix	Soil

Compound	Concentration *	DF	Reporting Limit	Compound	Concentration *	DF	Reporting Limit
Acetone	ND	1.0	50	Benzene	ND	1.0	5
Bromobenzene	ND	1.0	5	Bromochloromethane	ND	1.0	5
Bromodichloromethane	ND	1.0	5	Bromoform	ND	1.0	5
Bromomethane	ND	1.0	5	2-Butanone (MEK)	ND	1.0	10
n-Butyl benzene	ND	1.0	5	sec-Butyl benzene	ND	1.0	5
tert-Butyl benzene	ND	1.0	5	Carbon Disulfide	ND	1.0	5
Carbon Tetrachloride	ND	1.0	5	Chlorobenzene	ND	1.0	5
Chloroethane	ND	1.0	5	2-Chloroethyl Vinyl Ether	ND	1.0	10
Chloroform	ND	1.0	5	Chloromethane	ND	1.0	5
2-Chlorotoluene	ND	1.0	5	4-Chlorotoluene	ND	1.0	5
Dibromochloromethane	ND	1.0	5	1,2-Dibromo-3-chloropropane	ND	1.0	5
1,2-Dibromoethane (EDB)	ND	1.0	5	Dibromomethane	ND	1.0	5
1,2-Dichlorobenzene	ND	1.0	5	1,3-Dichlorobenzene	ND	1.0	5
1,4-Dichlorobenzene	ND	1.0	5	Dichlorodifluoromethane	ND	1.0	5
1,1-Dichloroethane	ND	1.0	5	1,2-Dichloroethane (1,2-DCA)	ND	1.0	5
1,1-Dichloroethene	ND	1.0	5	cis-1,2-Dichloroethene	ND	1.0	5
trans-1,2-Dichloroethene	ND	1.0	5	1,2-Dichloropropane	ND	1.0	5
1,3-Dichloropropane	ND	1.0	5	2,2-Dichloropropane	ND	1.0	5
1,1-Dichloropropene	ND	1.0	5	cis-1,3-Dichloropropene	ND	1.0	5
trans-1,3-Dichloropropene	ND	1.0	5	Ethyl benzene	ND	1.0	5
Hexachlorobutadiene	ND	1.0	5	2-Hexanone	ND	1.0	5
Iodomethane (Methyl iodide)	ND	1.0	10	4-Isopropyl toluene	ND	1.0	5
Isopropylbenzene	ND	1.0	5	4-Methyl-2-pentanone (MIBK)	ND	1.0	5
Methylene chloride	ND	1.0	5	Naphthalene	ND	1.0	5
n-Propyl benzene	ND	1.0	5	Styrene	ND	1.0	5
1,1,1,2-Tetrachloroethane	ND	1.0	5	1,1,2,2-Tetrachloroethane	ND	1.0	5
Tetrachloroethene	ND	1.0	5	Toluene	ND	1.0	5
1,2,3-Trichlorobenzene	ND	1.0	5	1,2,4-Trichlorobenzene	ND	1.0	5
1,1,1-Trichloroethane	ND	1.0	5	1,1,2-Trichloroethane	ND	1.0	5
Trichloroethene	ND	1.0	5	Trichlorofluoromethane	ND	1.0	5
1,2,3-Trichloropropane	ND	1.0	5	1,2,4-Trimethylbenzene	ND	1.0	5
1,3,5-Trimethylbenzene	ND	1.0	5	Vinyl Acetate	ND	1.0	50
Vinyl Chloride	ND	1.0	5	Xylenes	ND	1.0	5

**Surrogate Recoveries (%)**

%SS1:	90.4	%SS2:	107
%SS3:	94.5		

**Comments:**

\*water and vapor samples are reported in ug/L, soil and sludge samples in ug/kg, wipes in ug/wipe and all TCLP / SLP extracts in ug/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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 http://www.mcccampbell.com E-mail: main@mcccampbell.com

Advanced GeoEnvironmental, Inc 837 Shaw Road Stockton, CA 95215	Client Project ID: Former Continental Volvo-MW's	Date Sampled: 06/04/02
	Client Contact: Bill Little	Date Received: 06/07/02
	Client P.O.:	Date Extracted: 06/07/02
		Date Analyzed: 06/11/02

**Volatiles Organics by GC/MS (Basic Target List)\***

Extraction Method: SW5030B

Analytical Method: SW8260B

Work Order: 0206101

Lab ID	0206101-002A
Client ID	MW1-10
Matrix	Soil

Compound	Concentration *	DF	Reporting Limit	Compound	Concentration *	DF	Reporting Limit
Acetone	ND	1.0	50	Benzene	ND	1.0	5
Bromobenzene	ND	1.0	5	Bromochloromethane	ND	1.0	5
Bromodichloromethane	ND	1.0	5	Bromoform	ND	1.0	5
Bromomethane	ND	1.0	5	2-Butanone (MEK)	ND	1.0	10
n-Butyl benzene	ND	1.0	5	sec-Butyl benzene	ND	1.0	5
tert-Butyl benzene	ND	1.0	5	Carbon Disulfide	ND	1.0	5
Carbon Tetrachloride	ND	1.0	5	Chlorobenzene	ND	1.0	5
Chlorocyclohexane	ND	1.0	5	2-Chloroethyl Vinyl Ether	ND	1.0	10
Chloroform	ND	1.0	5	Chloromethane	ND	1.0	5
2-Chlorotoluene	ND	1.0	5	4-Chlorotoluene	ND	1.0	5
Dibromochloromethane	ND	1.0	5	1,2-Dibromo-3-chloropropane	ND	1.0	5
1,2-Dibromoethane (EDB)	ND	1.0	5	Dibromomethane	ND	1.0	5
1,2-Dichlorobenzene	ND	1.0	5	1,3-Dichlorobenzene	ND	1.0	5
1,4-Dichlorobenzene	ND	1.0	5	Dichlorodifluoromethane	ND	1.0	5
1,1-Dichloroethane	ND	1.0	5	1,2-Dichloroethane (1,2-DCA)	ND	1.0	5
1,1-Dichloroethene	ND	1.0	5	cis-1,2-Dichloroethene	ND	1.0	5
trans-1,2-Dichloroethene	ND	1.0	5	1,2-Dichloropropane	ND	1.0	5
1,3-Dichloropropane	ND	1.0	5	2,2-Dichloropropane	ND	1.0	5
1,1-Dichloropropene	ND	1.0	5	cis-1,3-Dichloropropene	ND	1.0	5
trans-1,3-Dichloropropene	ND	1.0	5	Ethyl benzene	ND	1.0	5
Hexachlorobutadiene	ND	1.0	5	2-Hexanone	ND	1.0	5
Iodomethane (Methyl iodide)	ND	1.0	10	4-Isopropyl toluene	ND	1.0	5
Isopropylbenzene	ND	1.0	5	4-Methyl-2-pentanone (MIBK)	ND	1.0	5
Methylene chloride	ND	1.0	5	Naphthalene	ND	1.0	5
n-Propyl benzene	ND	1.0	5	Styrene	ND	1.0	5
1,1,1,2-Tetrachloroethane	ND	1.0	5	1,1,2,2-Tetrachloroethane	ND	1.0	5
Tetrachloroethene	ND	1.0	5	Toluene	ND	1.0	5
1,2,3-Trichlorobenzene	ND	1.0	5	1,2,4-Trichlorobenzene	ND	1.0	5
1,1,1-Trichloroethane	ND	1.0	5	1,1,2-Trichloroethane	ND	1.0	5
Trichloroethene	ND	1.0	5	Trichlorofluoromethane	ND	1.0	5
1,2,3-Trichloropropane	ND	1.0	5	1,2,4-Trimethylbenzene	ND	1.0	5
1,3,5-Trimethylbenzene	ND	1.0	5	Vinyl Acetate	ND	1.0	50
Vinyl Chloride	ND	1.0	5	Xylenes	ND	1.0	5

**Surrogate Recoveries (%)**

%SS1:	92.5	%SS2:	106
%SS3:	94.5		

**Comments:**

\*water and vapor samples are reported in ug/L, soil and sludge samples in ug/kg, wipes in ug/wipe and all TCLP / SPLP extracts in ug/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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Advanced GeoEnvironmental, Inc 837 Shaw Road Stockton, CA 95215	Client Project ID: Former Continental Volvo-MW's	Date Sampled: 06/04/02
	Client Contact: Bill Little	Date Received: 06/07/02
	Client P.O.:	Date Extracted: 06/07/02
		Date Analyzed: 06/11/02

**Volatiles Organics by GC/MS (Basic Target List)\***

Extraction Method: SW5030B

Analytical Method: SW8260B

Work Order: 0206101

Lab ID	0206101-006A
Client ID	MW3-11
Matrix	Soil

Compound	Concentration *	DF	Reporting Limit	Compound	Concentration *	DF	Reporting Limit
Acetone	ND	1.0	50	Benzene	ND	1.0	5
Bromobenzene	ND	1.0	5	Bromochloromethane	ND	1.0	5
Bromodichloromethane	ND	1.0	5	Bromoform	ND	1.0	5
Bromomethane	ND	1.0	5	2-Butanone (MEK)	ND	1.0	10
n-Butyl benzene	ND	1.0	5	sec-Butyl benzene	ND	1.0	5
tert-Butyl benzene	ND	1.0	5	Carbon Disulfide	ND	1.0	5
Carbon Tetrachloride	ND	1.0	5	Chlorobenzene	ND	1.0	5
Chloroethane	ND	1.0	5	2-Chloroethyl Vinyl Ether	ND	1.0	10
Chloroform	ND	1.0	5	Chloromethane	ND	1.0	5
2-Chlorotoluene	ND	1.0	5	4-Chlorotoluene	ND	1.0	5
Dibromochloromethane	ND	1.0	5	1,2-Dibromo-3-chloropropane	ND	1.0	5
1,2-Dibromoethane (EDB)	ND	1.0	5	Dibromomethane	ND	1.0	5
1,2-Dichlorobenzene	ND	1.0	5	1,3-Dichlorobenzene	ND	1.0	5
1,4-Dichlorobenzene	ND	1.0	5	Dichlorodifluoromethane	ND	1.0	5
1,1-Dichloroethane	ND	1.0	5	1,2-Dichloroethane (1,2-DCA)	ND	1.0	5
1,1-Dichloroethene	ND	1.0	5	cis-1,2-Dichloroethene	ND	1.0	5
trans-1,2-Dichloroethene	ND	1.0	5	1,2-Dichloropropane	ND	1.0	5
1,3-Dichloropropane	ND	1.0	5	2,2-Dichloropropane	ND	1.0	5
1,1-Dichloropropene	ND	1.0	5	cis-1,3-Dichloropropene	ND	1.0	5
trans-1,3-Dichloropropene	ND	1.0	5	Ethyl benzene	ND	1.0	5
Hexachlorobutadiene	ND	1.0	5	2-Hexanone	ND	1.0	5
Iodomethane (Methyl iodide)	ND	1.0	10	4-Isopropyl toluene	ND	1.0	5
Isopropylbenzene	ND	1.0	5	4-Methyl-2-pentanone (MIBK)	ND	1.0	5
Methylene chloride	ND	1.0	5	Naphthalene	ND	1.0	5
n-Propyl benzene	ND	1.0	5	Styrene	ND	1.0	5
1,1,1,2-Tetrachloroethane	ND	1.0	5	1,1,2,2-Tetrachloroethane	ND	1.0	5
Tetrachloroethene	ND	1.0	5	Toluene	ND	1.0	5
1,2,3-Trichlorobenzene	ND	1.0	5	1,2,4-Trichlorobenzene	ND	1.0	5
1,1,1-Trichloroethane	ND	1.0	5	1,1,2-Trichloroethane	ND	1.0	5
Trichloroethene	ND	1.0	5	Trichlorofluoromethane	ND	1.0	5
1,2,3-Trichloropropane	ND	1.0	5	1,2,4-Trimethylbenzene	ND	1.0	5
1,3,5-Trimethylbenzene	ND	1.0	5	Vinyl Acetate	ND	1.0	50
Vinyl Chloride	ND	1.0	5	Xylenes	ND	1.0	5

**Surrogate Recoveries (%)**

%SS1:	91.0	%SS2:	107
%SS3:	90.4		

**Comments:**

\*water and vapor samples are reported in ug/L, soil and sludge samples in ug/kg, wipes in ug/wipe and all TCLP / SPLP extracts in ug/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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Advanced GeoEnvironmental, Inc 837 Shaw Road Stockton, CA 95215	Client Project ID: Former Continental Volvo-MW's	Date Sampled: 06/04/02
	Client Contact: Bill Little	Date Received: 06/07/02
	Client P.O.:	Date Extracted: 06/07/02
		Date Analyzed: 06/11/02

**Volatiles Organics by GC/MS (Basic Target List)\***

Extraction Method: SW5030B

Analytical Method: SW8260B

Work Order: 0206101

Lab ID	0206101-007A
Client ID	MW3-15
Matrix	Soil

Compound	Concentration *	DF	Reporting Limit	Compound	Concentration *	DF	Reporting Limit
Acetone	ND	1.0	50	Benzene	ND	1.0	5
Bromobenzene	ND	1.0	5	Bromochloromethane	ND	1.0	5
Bromodichloromethane	ND	1.0	5	Bromoform	ND	1.0	5
Bromomethane	ND	1.0	5	2-Butanone (MEK)	ND	1.0	10
n-Butyl benzene	ND	1.0	5	sec-Butyl benzene	ND	1.0	5
tert-Butyl benzene	ND	1.0	5	Carbon Disulfide	ND	1.0	5
Carbon Tetrachloride	ND	1.0	5	Chlorobenzene	ND	1.0	5
Chloroethane	ND	1.0	5	2-Chloroethyl Vinyl Ether	ND	1.0	10
Chloroform	ND	1.0	5	Chloromethane	ND	1.0	5
2-Chlorotoluene	ND	1.0	5	4-Chlorotoluene	ND	1.0	5
Dibromochloromethane	ND	1.0	5	1,2-Dibromo-3-chloropropane	ND	1.0	5
1,2-Dibromoethane (EDB)	ND	1.0	5	Dibromomethane	ND	1.0	5
1,2-Dichlorobenzene	ND	1.0	5	1,3-Dichlorobenzene	ND	1.0	5
1,4-Dichlorobenzene	ND	1.0	5	Dichlorodifluoromethane	ND	1.0	5
1,1-Dichloroethane	ND	1.0	5	1,2-Dichloroethane (1,2-DCA)	ND	1.0	5
1,1-Dichloroethene	ND	1.0	5	cis-1,2-Dichloroethene	ND	1.0	5
trans-1,2-Dichloroethene	ND	1.0	5	1,2-Dichloropropane	ND	1.0	5
1,3-Dichloropropane	ND	1.0	5	2,2-Dichloropropane	ND	1.0	5
1,1-Dichloropropene	ND	1.0	5	cis-1,3-Dichloropropene	ND	1.0	5
trans-1,3-Dichloropropene	ND	1.0	5	Ethyl benzene	ND	1.0	5
Hexachlorobutadiene	ND	1.0	5	2-Hexanone	ND	1.0	5
Iodomethane (Methyl iodide)	ND	1.0	10	4-Isopropyl toluene	ND	1.0	5
Isopropylbenzene	ND	1.0	5	4-Methyl-2-pentanone (MIBK)	ND	1.0	5
Methylene chloride	ND	1.0	5	Naphthalene	ND	1.0	5
n-Propyl benzene	ND	1.0	5	Styrene	ND	1.0	5
1,1,1,2-Tetrachloroethane	ND	1.0	5	1,1,2,2-Tetrachloroethane	ND	1.0	5
Tetrachloroethene	ND	1.0	5	Toluene	ND	1.0	5
1,2,3-Trichlorobenzene	ND	1.0	5	1,2,4-Trichlorobenzene	ND	1.0	5
1,1,1-Trichloroethane	ND	1.0	5	1,1,2-Trichloroethane	ND	1.0	5
Trichloroethene	ND	1.0	5	Trichlorofluoromethane	ND	1.0	5
1,2,3-Trichloropropane	ND	1.0	5	1,2,4-Trimethylbenzene	ND	1.0	5
1,3,5-Trimethylbenzene	ND	1.0	5	Vinyl Acetate	ND	1.0	50
Vinyl Chloride	ND	1.0	5	Xylenes	ND	1.0	5

**Surrogate Recoveries (%)**

%SS1:	93.9	%SS2:	108
%SS3:	99.8		

**Comments:**

\*water and vapor samples are reported in ug/L, soil and sludge samples in ug/kg, wipes in ug/wipe and all TCLP / SPLP extracts in ug/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.



McC Campbell Analytical Inc.

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

Advanced GeoEnvironmental, Inc 837 Shaw Road Stockton, CA 95215	Client Project ID: Former Continental Volvo-MW's	Date Sampled: 06/04/02
	Client Contact: Bill Little	Date Received: 06/07/02
	Client P.O.:	Date Extracted: 06/07/02
		Date Analyzed: 06/11/02

**Seven Oxygenated Volatile Organics by GC/MS\***

Extraction Method: SW5030B

Analytical Method: SW8260B

Work Order: 0206101

Lab ID	0206101-001A	0206101-002A	0206101-006A	0206101-007A	Reporting Limit for DF =1	
Client ID	MW1-5	MW1-10	MW3-11	MW3-15		
Matrix	S	S	S	S		
DF	1	1	1	1		

Compound	Concentration				µg/Kg	ug/L
	Diisopropyl ether (DIPE)	ND	ND	ND	ND	5
Ethyl tert-butyl ether (ETBE)	ND	ND	ND	ND	5	NA
Methyl-t-butyl ether (MTBE)	ND	ND	ND	ND	5	NA
tert-Amyl methyl ether (TAME)	ND	ND	ND	ND	5	NA
t-Butyl alcohol (TBA)	ND	ND	ND	ND	50	NA
Methanol	ND	ND	ND	ND	2500	NA
Ethanol	ND	ND	ND	ND	250	NA

**Surrogate Recoveries (%)**

%SS	96.8	98.4	88.9	98.2	
Comments					

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

ND means not detected above the reporting limit; N/A means surrogate 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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Advanced GeoEnvironmental, Inc 837 Shaw Road Stockton, CA 95215	Client Project ID: Former Continental Volvo-MW's	Date Sampled: 06/04/02
	Client Contact: Bill Little	Date Received: 06/07/02
	Client P.O.:	Date Extracted: 06/07/02
		Date Analyzed: 06/11/02

**Oxygenated Volatile Organics by GC/MS\***

Extraction Method: SW5030B

Analytical Method: SW8260B

Work Order: 0206101

Lab ID	0206101-003A	0206101-004A			Reporting Limit for DF =1
Client ID	MW1-15	MW1-20			
Matrix	S	S			
DF	1	1			

Compound	Concentration				µg/Kg	ug/L
	Diisopropyl ether (DIPE)	ND	ND			5
Ethyl tert-butyl ether (ETBE)	ND	ND			5	NA
Methyl-t-butyl ether (MTBE)	ND	ND			5	NA
tert-Amyl methyl ether (TAME)	ND	ND			5	NA
t-Butyl alcohol (TBA)	ND	ND			25	NA
Methanol	ND	ND			2500	NA
Ethanol	ND	ND			250	NA
1,2-Dibromoethane (EDB)	ND	ND			5	NA
1,2-Dichloroethane (1,2-DCA)	ND	ND			5	NA

**Surrogate Recoveries (%)**

%SS	96.8	89.4		
Comments				

\* water samples are reported in ug/L, soil and sludge samples in ug/kg, wipes in ug/wipe and all TCLP / STLC / SPLP extracts in ug/L

ND means not detected above the reporting limit; N/A means surrogate 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



**QC SUMMARY REPORT FOR SW8021B/8015Cm**

BatchID: 2331

Matrix: S

WorkOrder: 0206101

EPA Method: SW8021B/8015Cm		Extraction: SW5030B		Ext. Date: 6/07/02		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	105	5.2	80	120
MTBE	N/A	0.10	N/A	N/A	N/A	94.6	116	20	80	120
Benzene	N/A	0.10	N/A	N/A	N/A	111	116	4.8	80	120
Toluene	N/A	0.10	N/A	N/A	N/A	112	114	1.7	80	120
Ethylbenzene	N/A	0.10	N/A	N/A	N/A	115	114	0.66	80	120
Xylenes	N/A	0.30	N/A	N/A	N/A	113	113	0	80	120
%SS	N/A	0.10	N/A	N/A	N/A	103	112	8.4	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, 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 their RPDs near 0% if. a) the sample is inhomogeneous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

**QC SUMMARY REPORT FOR SW8015C**

BatchID: 2356

Matrix: S

WorkOrder: 0206101

EPA Method: SW8015C		Extraction: SW3550C			Ext. Date: 6/07/02		Spiked Sample ID: 0206139-001A			
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(d)	1.062	150	114	114	0.178	96.9	99.8	3.0	70	130
%SS:	116	50	116	116	0.239	96.4	98.9	2.6	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.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.



**QC SUMMARY REPORT FOR SW8260B**

BatchID: 2297

Matrix: S

WorkOrder: 0206101

EPA Method: SW8260B		Extraction: SW5030B		Ext. Date: 6/05/02		Spiked Sample ID: 0206059-018A				
Compound	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/Kg	µg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
Benzene	ND	50	102	99.7	2.71	97	97.2	0.25	70	130
Chlorobenzene	ND	50	100	98.2	1.90	100	97.9	2.2	70	130
1,1-Dichloroethene	ND	50	93	90	3.28	97.9	98.4	0.53	70	130
Methyl-t-butyl ether (MTBE)	ND	50	92.9	87.7	5.71	91.9	94.2	2.5	70	130
Toluene	ND	50	100	98.2	1.88	101	99.4	1.8	70	130
Trichloroethene	ND	50	72.7	70.5	3.11	73.6	74.1	0.70	70	130
%SS2	102	50	102	101	0.536	104	103	0.70	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

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.





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### QC SUMMARY REPORT FOR SW8260B

BatchID: 2341

Matrix: S

WorkOrder: 0206101

EPA Method: SW8260B		Extraction: SW5030B		Ext. Date: 6/07/02		Spiked Sample ID: N/A				
Compound	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/Kg	µg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
Diisopropyl ether (DIPE)	N/A	50	N/A	N/A	N/A	113	116	3.4	70	130
Ethyl tert-butyl ether (ETBE)	N/A	50	N/A	N/A	N/A	104	109	4.5	70	130
Methyl-t-butyl ether (MTBE)	N/A	50	N/A	N/A	N/A	98	102	3.7	70	130
tert-Amyl methyl ether (TAME)	N/A	50	N/A	N/A	N/A	96.7	101	4.5	70	130
%SS	N/A	50	N/A	N/A	N/A	103	104	1.2	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.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.



Advanced  
GeoEnvironmental, Inc.

837 Shaw Road - Stockton, California - 95215 - (209) 467-1006 - Fax (209) 467-1113

CHAIN OF CUSTODY RECORD

Date 6-6-02 Page 1 of 1

0206101

Client Achiel Ehrhardt

Former Continental W/O

Project Manager  
Bill Little

Tests Required

Phone Number  
ABOVE

Samplers: (Signature)  
William Little

Project Name Former Continental W/O - MW3

William Little

Invoice:  
AGE   
Client

Sample Number	Location Description	Date	Time	Sample Type			Solid	No. of Conts.	TPH-g	TPH-l	BTEX	MWB	MWB Fuel Additive	EPA 8260	Notes
				Water		Air									
				Comp.	Grab.										
MW1-5		6-4-2	1220				✓	1	X	X	X	X			
MW1-10			1240						X	X	X	X			
MW1-15			1250						X	X	X				
MW1-20			110						X	X	X				
MW3-10			1013												
MW3-11			955						X	X	X	X			
MW3-15			1013						X	X	X	X			

Relinquished by: (Signature)

Received by: (Signature)

Normal TAT

Date/Time

Relinquished by: (Signature)

Received by: (Signature)

6-6-02  
Date/Time

Relinquished by: (Signature)

Received by Mobile Laboratory for field analysis: (Signature)

Date/Time

Relinquished by: (Signature)

Received by: (Signature)

Date/Time

Relinquished by: (Signature)

Received by: (Signature)

Date/Time

Relinquished by: (Signature)

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Received by: (Signature)

Date/Time

Relinquished by: (Signature)

Received by: (Signature)

Date/Time

Method of Shipment: OVERNIGHT ✓  
 Special Instructions: NO SPACE ASENT ✓  
 PRESERVATION APPROPRIATE CONTAINERS ✓

Laboratory Name: Mc Campbell  
 I hereby authorize the performance of the above indicated work.  
William Little

06/07/02  
Date/Time

**McC Campbell Analytical Inc.**

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

**CHAIN-OF-CUSTODY RECORD**

WorkOrder: 0206101

**Client:**

Advanced GeoEnvironmental, Inc.  
 837 Shaw Road  
 Stockton, CA 95215

TEL: (209) 467-1006  
 FAX: (209) 467-1118  
 ProjectNo: Former Continent  
 PO:

07-Jun-02

ample ID	ClientSamplID	Matrix	Collection Date	Bottle	Requested Tests					
					SW8015C	8021B/8015	SW8260B			
0206101-001	MW1-5	Soil	6/4/02		A	A	A			
0206101-002	MW1-10	Soil	6/4/02 12:40:00 PM		A	A	A			
0206101-003	MW1-15	Soil	6/4/02 12:50:00 PM		A	A	A			
0206101-004	MW1-20	Soil	6/4/02 1:10:00 AM		A	A	A			
0206101-005	MW3-20	Soil	6/4/02 10:13:00 AM		A	A	A			
0206101-006	MW3-11	Soil	6/4/02 9:55:00 AM		A	A	A			
0206101-007	MW3-15	Soil	6/4/02 10:13:00 AM		A	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

**APPENDIX E**



McC Campbell Analytical Inc.

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Advanced GeoEnvironmental, Inc 837 Shaw Road Stockton, CA 95215	Client Project ID: Continent Volvo	Date Sampled: 07/19/02
		Date Received: 07/19/02
	Client Contact: Bill Little	Date Reported: 07/26/02
	Client P.O.:	Date Completed: 07/26/02

July 26, 2002

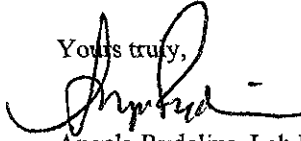
Dear Bill:

Enclosed are:

- 1). the results of 3 samples from your **Continent Volvo** 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. McC Campbell 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







McC Campbell Analytical Inc.

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 Telephone : 925-798-1620 Fax : 925-798-1622  
 http://www.mcccampbell.com E-mail: mam@mcccampbell.com

Advanced GeoEnvironmental, Inc 837 Shaw Road Stockton, CA 95215	Client Project ID: Continent Volvo	Date Sampled: 07/19/02
		Date Received: 07/19/02
	Client Contact: Bill Little	Date Extracted: 07/21/02-07/24/02
	Client P.O.:	Date Analyzed: 07/21/02-07/24/02

**Volatiles Organics + Oxygenates by P&T and GC/MS (Basic Target List)\***

Extraction Method: SW5030B

Analytical Method: SW8260B

Work Order: 0207251

Lab ID	0207251-001C
Client ID	UST/07-19-02
Matrix	Water

Compound	Concentration *	DF	Reporting Limit	Compound	Concentration *	DF	Reporting Limit
Acetone	ND<77	1.0	5.0	tert-Amyl methyl ether (TAME)	ND	1.0	0.5
Benzene	3.9	1.0	0.5	Bromobenzene	ND	1.0	0.5
Bromochloromethane	ND	1.0	0.5	Bromodichloromethane	ND	1.0	0.5
Bromoform	ND	1.0	0.5	Bromomethane	ND	1.0	0.5
2-Butanone (MEK)	ND	1.0	1.0	t-Butyl alcohol (TBA)	ND	1.0	5.0
n-Butyl benzene	ND	1.0	0.5	sec-Butyl benzene	ND	1.0	0.5
tert-Butyl benzene	ND	1.0	0.5	Carbon Disulfide	ND	1.0	0.5
Carbon Tetrachloride	ND	1.0	0.5	Chlorobenzene	1.0	1.0	0.5
Chloroethane	ND	1.0	0.5	2-Chloroethyl Vinyl Ether	ND	1.0	1.0
Chloroform	ND	1.0	0.5	Chloromethane	ND	1.0	0.5
2-Chlorotoluene	ND	1.0	0.5	4-Chlorotoluene	ND	1.0	0.5
Dibromochloromethane	ND	1.0	0.5	1,2-Dibromo-3-chloropropane	ND	1.0	1.0
1,2-Dibromoethane (EDB)	ND	1.0	0.5	Dibromomethane	ND	1.0	0.5
1,2-Dichlorobenzene	2.3	1.0	0.5	1,3-Dichlorobenzene	ND	1.0	0.5
1,4-Dichlorobenzene	0.54	1.0	0.5	Dichlorodifluoromethane	ND	1.0	0.5
1,1-Dichloroethane	ND	1.0	0.5	1,2-Dichloroethane (1,2-DCA)	ND	1.0	0.5
1,1-Dichloroethene	ND	1.0	0.5	cis-1,2-Dichloroethene	ND	1.0	0.5
trans-1,2-Dichloroethene	ND	1.0	0.5	1,2-Dichloropropane	ND	1.0	0.5
1,3-Dichloropropane	ND	1.0	0.5	2,2-Dichloropropane	ND	1.0	0.5
1,1-Dichloropropene	ND	1.0	0.5	cis-1,3-Dichloropropene	ND	1.0	0.5
trans-1,3-Dichloropropene	ND	1.0	0.5	Diisopropyl ether (DIPE)	ND	1.0	0.5
Ethylbenzene	ND	1.0	0.5	Ethyl tert-butyl ether (ETBE)	ND	1.0	0.5
Hexachlorobutadiene	ND	1.0	5.0	2-Hexanone	ND	1.0	0.5
Iodomethane (Methyl iodide)	0.56	1.0	0.5	Isopropylbenzene	ND	1.0	0.5
4-Isopropyl toluene	ND	1.0	0.5	Methyl-t-butyl ether (MTBE)	ND	1.0	0.5
Methylene chloride	ND	1.0	0.5	4-Methyl-2-pentanone (MIBK)	ND	1.0	0.5
Naphthalene	ND	1.0	5.0	n-Propyl benzene	ND	1.0	0.5
Styrene	ND	1.0	0.5	1,1,1,2-Tetrachloroethane	ND	1.0	0.5
1,1,2,2-Tetrachloroethane	ND	1.0	0.5	Tetrachloroethene	ND	1.0	0.5
Toluene	ND	1.0	0.5	1,2,3-Trichlorobenzene	ND	1.0	0.5
1,2,4-Trichlorobenzene	ND	1.0	0.5	1,1,1-Trichloroethane	ND	1.0	0.5
1,1,2-Trichloroethane	ND	1.0	0.5	Trichloroethene	ND	1.0	0.5
Trichlorofluoromethane	ND	1.0	0.5	1,2,3-Trichloropropane	ND	1.0	0.5
1,2,4-Trimethylbenzene	ND	1.0	0.5	1,3,5-Trimethylbenzene	ND	1.0	0.5
Vinyl Acetate	ND	1.0	5.0	Vinyl Chloride	ND	1.0	0.5
Xylenes	ND	1.0	0.5				

**Surrogate Recoveries (%)**

%SS1:	93.2	%SS2:	101
%SS3:	106		

**Comments:**

\* water and vapor samples and all TCLP & SPL 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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Advanced GeoEnvironmental, Inc 837 Shaw Road Stockton, CA 95215	Client Project ID: Continent Volvo	Date Sampled: 07/19/02
		Date Received: 07/19/02
	Client Contact: Bill Little	Date Extracted: 07/21/02-07/24/02
	Client P.O.:	Date Analyzed: 07/21/02-07/24/02

**Volatiles Organics + Oxygenates by P&T and GC/MS (Basic Target List)\***

Extraction Method: SW5030B

Analytical Method: SW8260B

Work Order: 0207251

Lab ID	0207251-002C
Client ID	MW1/07-19-02
Matrix	Water

Compound	Concentration *	DF	Reporting Limit	Compound	Concentration *	DF	Reporting Limit
Acetone	ND<77	10	5.0	tert-Amyl methyl ether (TAME)	ND<5.0	10	0.5
Benzene	5.4	10	0.5	Bromobenzene	ND<5.0	10	0.5
Bromochloromethane	ND<5.0	10	0.5	Bromodichloromethane	ND<5.0	10	0.5
Bromoform	ND<5.0	10	0.5	Bromomethane	ND<5.0	10	0.5
2-Butanone (MEK)	11	10	1.0	t-Butyl alcohol (TBA)	ND<50	10	5.0
n-Butyl benzene	ND<5.0	10	0.5	sec-Butyl benzene	ND<5.0	10	0.5
tert-Butyl benzene	ND<5.0	10	0.5	Carbon Disulfide	ND<5.0	10	0.5
Carbon Tetrachloride	ND<5.0	10	0.5	Chlorobenzene	ND<5.0	10	0.5
Chloroethane	ND<5.0	10	0.5	2-Chloroethyl Vinyl Ether	ND<10	10	1.0
Chloroform	ND<5.0	10	0.5	Chloromethane	ND<5.0	10	0.5
2-Chlorotoluene	ND<5.0	10	0.5	4-Chlorotoluene	ND<5.0	10	0.5
Dibromochloromethane	ND<5.0	10	0.5	1,2-Dibromo-3-chloropropane	ND<10	10	1.0
1,2-Dibromoethane (EDB)	ND<5.0	10	0.5	Dibromomethane	ND<5.0	10	0.5
1,2-Dichlorobenzene	ND<5.0	10	0.5	1,3-Dichlorobenzene	ND<5.0	10	0.5
1,4-Dichlorobenzene	ND<5.0	10	0.5	Dichlorodifluoromethane	ND<5.0	10	0.5
1,1-Dichloroethane	ND<5.0	10	0.5	1,2-Dichloroethane (1,2-DCA)	7.8	10	0.5
1,1-Dichloroethene	ND<5.0	10	0.5	cis-1,2-Dichloroethene	110	10	0.5
trans-1,2-Dichloroethene	ND<5.0	10	0.5	1,2-Dichloropropane	ND<5.0	10	0.5
1,3-Dichloropropane	ND<5.0	10	0.5	2,2-Dichloropropane	ND<5.0	10	0.5
1,1-Dichloropropene	ND<5.0	10	0.5	cis-1,3-Dichloropropene	ND<5.0	10	0.5
trans-1,3-Dichloropropene	ND<5.0	10	0.5	Diisopropyl ether (DIPE)	ND<5.0	10	0.5
Ethylbenzene	ND<5.0	10	0.5	Ethyl tert-butyl ether (ETBE)	ND<5.0	10	0.5
Hexachlorobutadiene	ND<50	10	5.0	2-Hexanone	ND<5.0	10	0.5
Iodomethane (Methyl iodide)	ND<5.0	10	0.5	Isopropylbenzene	ND<5.0	10	0.5
4-Isopropyl toluene	ND<5.0	10	0.5	Methyl-t-butyl ether (MTBE)	ND<5.0	10	0.5
Methylene chloride	ND<5.0	10	0.5	4-Methyl-2-pentanone (MIBK)	ND<5.0	10	0.5
Naphthalene	ND<50	10	5.0	n-Propyl benzene	ND<5.0	10	0.5
Styrene	ND<5.0	10	0.5	1,1,1,2-Tetrachloroethane	ND<5.0	10	0.5
1,1,1,2,2-Tetrachloroethane	ND<5.0	10	0.5	Tetrachloroethene	ND<5.0	10	0.5
Toluene	ND<5.0	10	0.5	1,2,3-Trichlorobenzene	ND<5.0	10	0.5
1,2,4-Trichlorobenzene	ND<5.0	10	0.5	1,1,1-Trichloroethane	ND<5.0	10	0.5
1,1,2-Trichloroethane	ND<5.0	10	0.5	Trichloroethene	210	10	0.5
Trichlorofluoromethane	ND<5.0	10	0.5	1,2,3-Trichloropropane	ND<5.0	10	0.5
1,2,4-Trimethylbenzene	ND<5.0	10	0.5	1,3,5-Trimethylbenzene	ND<5.0	10	0.5
Vinyl Acetate	ND<50	10	5.0	Vinyl Chloride	ND<5.0	10	0.5
Xylenes	ND<5.0	10	0.5				

**Surrogate Recoveries (%)**

%SS1:	103	%SS2:	103
%SS3:	110		

**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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Advanced GeoEnvironmental, Inc 837 Shaw Road Stockton, CA 95215	Client Project ID: Continent Volvo	Date Sampled: 07/19/02
		Date Received: 07/19/02
	Client Contact: Bill Little	Date Extracted: 07/21/02-07/24/02
	Client P.O.:	Date Analyzed: 07/21/02-07/24/02

**Volatiles Organics + Oxygenates by P&T and GC/MS (Basic Target List)\***

Extraction Method: SW5030B

Analytical Method: SW8260B

Work Order: 0207251

Lab ID	0207251-003C
Client ID	MW3/07-19-02
Matrix	Water

Compound	Concentration *	DF	Reporting Limit	Compound	Concentration *	DF	Reporting Limit
Acetone	ND<77	1.0	5.0	tert-Amyl methyl ether (TAME)	ND	1.0	0.5
Benzene	ND	1.0	0.5	Bromobenzene	ND	1.0	0.5
Bromochloromethane	ND	1.0	0.5	Bromodichloromethane	ND	1.0	0.5
Bromoform	ND	1.0	0.5	Bromomethane	ND	1.0	0.5
2-Butanone (MEK)	ND	1.0	1.0	t-Butyl alcohol (TBA)	ND	1.0	5.0
n-Butyl benzene	ND	1.0	0.5	sec-Butyl benzene	ND	1.0	0.5
tert-Butyl benzene	ND	1.0	0.5	Carbon Disulfide	ND	1.0	0.5
Carbon Tetrachloride	ND	1.0	0.5	Chlorobenzene	ND	1.0	0.5
Chloroethane	ND	1.0	0.5	2-Chloroethyl Vinyl Ether	ND	1.0	1.0
Chloroform	0.54	1.0	0.5	Chloromethane	ND	1.0	0.5
2-Chlorotoluene	ND	1.0	0.5	4-Chlorotoluene	ND	1.0	0.5
Dibromochloromethane	ND	1.0	0.5	1,2-Dibromo-3-chloropropane	ND	1.0	1.0
1,2-Dibromoethane (EDB)	ND	1.0	0.5	Dibromomethane	ND	1.0	0.5
1,2-Dichlorobenzene	ND	1.0	0.5	1,3-Dichlorobenzene	ND	1.0	0.5
1,4-Dichlorobenzene	ND	1.0	0.5	Dichlorodifluoromethane	ND	1.0	0.5
1,1-Dichloroethane	ND	1.0	0.5	1,2-Dichloroethane (1,2-DCA)	ND	1.0	0.5
1,1-Dichloroethene	ND	1.0	0.5	cis-1,2-Dichloroethene	0.75	1.0	0.5
trans-1,2-Dichloroethene	ND	1.0	0.5	1,2-Dichloropropane	ND	1.0	0.5
1,3-Dichloropropane	ND	1.0	0.5	2,2-Dichloropropane	ND	1.0	0.5
1,1-Dichloropropene	ND	1.0	0.5	cis-1,3-Dichloropropene	ND	1.0	0.5
trans-1,3-Dichloropropene	ND	1.0	0.5	Diisopropyl ether (DIPE)	ND	1.0	0.5
Ethylbenzene	ND	1.0	0.5	Ethyl tert-butyl ether (ETBE)	ND	1.0	0.5
Hexachlorobutadiene	ND	1.0	5.0	2-Hexanone	ND	1.0	0.5
Iodomethane (Methyl iodide)	ND	1.0	0.5	Isopropylbenzene	ND	1.0	0.5
4-Isopropyl toluene	ND	1.0	0.5	Methyl-t-butyl ether (MTBE)	ND	1.0	0.5
Methylene chloride	ND	1.0	0.5	4-Methyl-2-pentanone (MIBK)	ND	1.0	0.5
Naphthalene	ND	1.0	5.0	n-Propyl benzene	ND	1.0	0.5
Styrene	ND	1.0	0.5	1,1,1,2-Tetrachloroethane	ND	1.0	0.5
1,1,2,2-Tetrachloroethane	ND	1.0	0.5	Tetrachloroethene	ND	1.0	0.5
Toluene	ND	1.0	0.5	1,2,3-Trichlorobenzene	ND	1.0	0.5
1,2,4-Trichlorobenzene	ND	1.0	0.5	1,1,1-Trichloroethane	ND	1.0	0.5
1,1,2-Trichloroethane	ND	1.0	0.5	Trichloroethene	13	1.0	0.5
Trichlorofluoromethane	ND	1.0	0.5	1,2,3-Trichloropropane	ND	1.0	0.5
1,2,4-Trimethylbenzene	ND	1.0	0.5	1,3,5-Trimethylbenzene	ND	1.0	0.5
Vinyl Acetate	ND	1.0	5.0	Vinyl Chloride	ND	1.0	0.5
Xylenes	ND	1.0	0.5				

**Surrogate Recoveries (%)**

%SS1:	97.7	%SS2:	99.6
%SS3:	98.4		

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: 0207251

EPA Method: SW8021B/8015Cm		Extraction: SW5030B		BatchID: 3028			Spiked Sample ID: 0207250-001A			
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	94	95.4	1.45	106	106	0.339	80	120
MTBE	ND	10	103	113	9.03	97.7	94.3	3.56	80	120
Benzene	ND	10	105	102	2.47	114	106	7.04	80	120
Toluene	ND	10	110	107	2.40	113	109	3.91	80	120
Ethylbenzene	ND	10	107	103	3.52	118	111	6.18	80	120
Xylenes	ND	30	103	103	0	113	113	0	80	120
%SS:	104	100	107	105	1.08	103	101	1.59	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 SW8015C

Matrix: W

WorkOrder: 0207251

EPA Method: SW8015C		Extraction: SW3510C		BatchID: 3032		Spiked Sample ID: N/A				
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(d)	N/A	7500	N/A	N/A	N/A	104	100	3.29	70	130
%SS:	N/A	100	N/A	N/A	N/A	107	104	2.84	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.

**McC Campbell Analytical Inc.**

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**CHAIN-OF-CUSTODY RECORD**

WorkOrder: 0207251

Client:

Advanced GeoEnvironmental, Inc.  
837 Shaw Road  
Stockton, CA 95215

TEL: (209) 467-1006  
FAX: (209) 467-1118  
ProjectNo: Continent Volvo  
PO:

19-Jul-02

Sample ID	ClientSampID	Matrix	Collection Date	Bottle	Requested Tests					
					SW8015C	8021B/8015	SW8260B			
0207251-001	UST/07-19-02	Water	7/19/02 6:57:00 AM		B	A	C			
0207251-002	MW1/07-19-02	Water	7/19/02 8:10:00 AM		B	A	C			
0207251-003	MW3/07-19-02	Water	7/19/02 8:40:00 AM		B	A	C			

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

