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PERJURY STATEMENT

Subject: 223 East 4<sup>th</sup> Street, San Leandro, California  
**Site Assessment Work Plan**

I certify, under penalty of law, that I have personally examined and am familiar with the information submitted in this document and all attachments, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.



Ms. Martha Vallejo  
201 East 14<sup>th</sup> Street  
Oakland, California, 94577



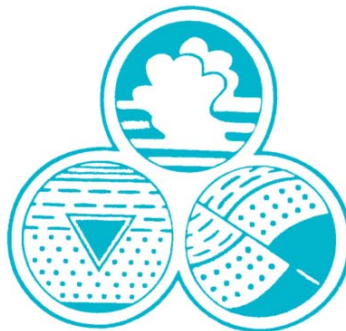
**Site Assessment Work Plan  
SUNSHINE CLEANERS  
233 East 14<sup>th</sup> Street, San Leandro, California**

01 July 2016  
AGE-Project No. 16 - 3802

*PREPARED FOR:*

Mr. Valentin Reynoso

*PREPARED BY:*



***Advanced GeoEnvironmental, Inc.***

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*Environmental • Industrial Hygiene • Geotechnical • Contracting*

*(800) 511-9300*

*www.advgeoenv.com*

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*Environmental • Industrial Hygiene • Geotechnical • Contracting*  
(800) 511-9300  
www.advgeoenv.com


**PREPARED BY:**


  
Daniel J. Villanueva  
Project Geologist

**PROJECT MANAGER:**

  
Robert E. Marty  
President

**REVIEWED BY:**

  
Robert D. Loeffler  
Senior Project Geologist / Vice President  
California Professional Geologist No. 6709



**Site Assessment Work Plan**  
**SUNSHINE CLEANERS**  
223 East 14<sup>th</sup> Street, San Leandro, California

**TABLE OF CONTENTS**

<b><u>SECTION</u></b>	<b><u>PAGE</u></b>
<b>1.0. INTRODUCTION</b> .....	<b>1</b>
<b>2.0. SITE BACKGROUND</b> .....	<b>1</b>
<b>3.0. SCOPE OF WORK</b> .....	<b>1</b>
3.1. PERMITTING AND PRE-FIELD WORK ACTIVITIES .....	2
3.2. SOIL PROBE BORINGS AND SAMPLING .....	2
3.3. LABORATORY ANALYSIS .....	2
3.4. GROUNDWATER MONITORING EVENT .....	2
3.5. REPORT PREPARATION.....	3
<b>4.0. FIELD PROCEDURES</b> .....	<b>3</b>
4.1. SOIL BORING ADVANCEMENT & TEMPORARY WELL INSTALLATIONS .....	3
4.2. SOIL-VAPOR SAMPLING.....	3
4.3. EQUIPMENT DECONTAMINATION .....	4
4.4. BORING ABANDONMENT .....	4
4.5. GROUNDWATER MONITORING EVENT .....	4

**FIGURES**

Figure 1 – *Site Plan*

**TABLES**

Table 1 – *Groundwater Elevations*

Table 2 – *Analytical Results of Groundwater Samples*

Table 3 – *Analytical Results of Soil Samples*

**APPENDICES**

Appendix A – *Monitoring and Sampling Procedures*

**Site Assessment Work Plan**  
**SUNSHINE CLEANERS**  
**223 East 14<sup>th</sup> Street, San Leandro, California**

## **1.0. INTRODUCTION**

*Advanced GeoEnvironmental, Inc. (AGE)* has prepared this *Site Assessment Work Plan* for 223 East 14<sup>th</sup> Street, San Leandro, California (site). The work plan details the advancement of eight (8) soil borings for collection of soil-vapor samples and performance of groundwater monitoring event. Borings are proposed to evaluate soil-vapor impact resulting from unauthorized releases of chlorinated hydrocarbons due to historical dry cleaning operations at the site. Groundwater monitoring is proposed to assess the extent of dissolved chlorinated hydrocarbon and potential impact to the domestic well downgradient of the site.

A detailed map showing the location of the site, proposed boring locations and previously installed wells is presented as Figure 1. Depth to water and analytical data from the most recent groundwater monitoring event is included in Tables 1 and 2. Soil analytical data is summarized in Table 3.

## **2.0. SITE BACKGROUND**

It is AGE's understanding that subject property housed a dry cleaning operation for approximately 40 years. In 1993, the sewer line leading to the site was found broken and was repaired. Thereafter, in December 1993, a subsurface environmental investigation was performed by ACC Environmental Consultants to determine if dry cleaning operations had impacted the site. During the investigation elevated levels of dry cleaning constituents were detected near the sewer line break. In 1999, Earth Engineers installed a total of four groundwater monitoring wells to evaluate impact to groundwater beneath the site. To date shallow soil-vapor or indoor air impacts have not been evaluated at the subject site.

## **3.0. SCOPE OF WORK**

Based on the location of the former break in the sewer line and historical soil analytical data (Table 3), AGE proposes to advance a total eight (8) borings for installation of temporary soil-vapor sampling points (Figure 1). The proposed scope will include the following tasks:

- Permitting and pre-field work activities;
- Advancement of eight (8) soil borings for collection of soil-vapor samples;
- Performance of a groundwater monitoring event;
- Report preparation.

Each of these tasks is described in greater detail below.

### 3.1. PERMITTING AND PRE-FIELD WORK ACTIVITIES

Applicable site assessment boring permits will be obtained from the Alameda County Public Works Agency - Water Resources Division (ACPWAWRD). An access agreement will be obtained from the off-site property owner(s) to sample the downgradient domestic well and AGE will also coordinate with the consultant and property owner of the German Autocraft site to sample selected wells to evaluate the lateral extent of chlorinated hydrocarbon impact. Additionally, a site-specific Health and Safety Plan will be prepared. Prior to mobilization, each soil probe location will be clearly marked and a utility clearance obtained through Underground Service Alert. The ACPWAWRD will be contacted a minimum of five days prior to conducting investigation activities to arrange for inspection.

### 3.2. SOIL PROBE BORINGS AND SAMPLING

A total of eight (8) soil borings will be advanced onsite for installation and sampling of temporary vapor points. Soil borings will be advanced to a depth of 5 feet bsg using either a hand auger or a direct push drilling rig.

The total boring depths may vary based on site conditions. Soil-vapor sample collection procedures are provided below.

The soil vapor survey will be conducted in accordance with the California – Environmental Protection Agency (CALEPA) protocol as detailed in *Advisory – Active Soil Gas Investigations*, July 2015.

### 3.3. LABORATORY ANALYSIS

Soil-vapor samples will be analyzed by a California Department of Public Health (CDPH)-certified laboratory for full scan volatile organic compounds (VOC's) by EPA method 8260B.

### 3.4. GROUNDWATER MONITORING EVENT

AGE proposes to perform a groundwater monitoring event using the subject site wells and selected wells from the German Autocraft site. The groundwater monitoring event is proposed to evaluate source area concentrations and the lateral extent of shallow zone chlorinated hydrocarbon impact. Additionally, sampling of the downgradient domestic well is proposed to evaluate risk to the well. Detailed field procedures for the proposed groundwater monitoring event are provided below.

### 3.5. REPORT PREPARATION

A combined *Site Assessment and Groundwater Monitoring Report* will be prepared upon completion of the investigation. The report will include field observations, sampling methodology, sample location maps, laboratory reports for soil-vapor sample and groundwater analyses (including testing methods, laboratory quality assurance/quality control (QA/QC) reports, and sample chain-of-custody documentation), conclusions, and applicable recommendations. The report will be in a format acceptable by the local agency and will be reviewed and signed by a California Professional Geologist.

## 4.0 FIELD PROCEDURES

All field procedures will be conducted by an AGE representative working under the supervision of a California Professional Geologist. Procedures for advancing soil probe borings, collection and analysis of soil-vapor samples, groundwater monitoring equipment decontamination and sample handling are presented below.

### 4.1. SOIL BORING ADVANCEMENT & TEMPORARY WELL INSTALLATIONS

Proposed soil borings will be advanced to a total depth of five (5) feet bsg using a van-mounted drilling rig or hand auger. For borings advanced with probing rigs, 1.25-inch probing rods will be used to advance the boring to total depth. The drill rig advances soil probe borings using a hydraulic hammer to drive sampling tools to specified depths.

At each location temporary sampling points will be installed following the advancement of the borings. A seven foot section of Teflon tubing will be attached to a vapor sampling implant. The tubing and implant will be lowered to the base of the boring and then one-foot of #2/12 sand will be poured around the implant to create a filter pack (from 4 to 5 feet bsg). Thereafter, one foot of dry granular bentonite will be poured down the borehole from 3 to 4 feet bsg. The remainder of the borehole will be filled with granular bentonite that will be hydrated until it reaches surface grade. The hydrated bentonite is used to create a seal to prevent ambient air intrusion into the sample.

### 4.2. SOIL-VAPOR SAMPLING

Soil vapor samples will be collected and analyzed using an onsite mobile lab a minimum of 48 hours after installation to allow for equilibrium. Per the Advisory – Active Soil Gas Investigations, three purge volumes will be removed prior to sampling. A tracer gas of either IPA or 1,1-difluoroethane (1,1-DFE) will be used during field sampling activities to determine if ambient air intrusion is occurring through the sample point surface seal. All samples will be run onsite following sample collection, using EPA Method 8260B.

Following sample collection the total VOC concentration in the sample probes will be measured using a hand-held photo-ionization detector (PID; Mini-Rae).

#### 4.3. EQUIPMENT DECONTAMINATION

Prior to use, all sampling tools used for sample collection will be thoroughly rinsed with clean water after being washed with a solution of Alconox. All probe tooling and rods will be cleaned prior to advancement at each probe boring location.

#### 4.4. BORING ABANDONMENT

All soil vapor borings will be permanently sealed to prevent vertical migration of potential contaminants. Soil borings shall be abandoned by backfilling with cement grout from the total depth to surface grade. The top three to six inches of the boring abandonments will be completed flush to surface grade with native soils or concrete. The ACPWAWRD will be notified for grout inspection at least five days prior to conducting grouting procedures.

#### 4.5. GROUNDWATER MONITORING EVENT

AGE proposes to sample all site wells (MW-1 through MW-4) to evaluate the core area of the chlorinated hydrocarbon plume. Additionally, German Autocraft wells MW-1A, MW-9 and MW-11A are proposed for sampling to evaluate the lateral extent of the plume. In addition to groundwater monitoring, AGE will attempt to gain access to the domestic well located at 141 Farrelly Drive. The well is proposed for sampling to evaluate risk to the well as a result of the unauthorized release. All monitoring will be performed by an AGE representative and in accordance with AGE's standard monitoring and sampling procedures, which have been included in Appendix A.








**FIGURE**



SITE PLAN  
SUNSHINE CLEANERS  
223 EAST 14TH STREET  
SAN LEANDRO, CALIFORNIA



LEGEND

- MW-11  SUNSHINE CLEANERS GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION (approximated)
- MW-1  GERMAN AUTOCRAFT GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION (approximated)
-  DOMESTIC WELL LOCATION (approximated)
- B1  SOIL BORING LOCATIONS AND DESIGNATIONS (approximated)
-  PROPOSED SOIL-VAPOR SAMPLING LOCATION



# **TABLES**

**TABLE 1**  
**GROUNDWATER ELEVATIONS**  
 Sunshine Cleaners  
 223 East 14th Street, San Leandro, California  
 (feet)

Well Designation	Date	Depth to Groundwater (btoc)	Groundwater Elevation (NAVD88)	Groundwater Flow and Gradient	
				Quarter/Year	Direction and Gradient (ft/ft)
Shallow Screened Wells MWF-2 through MWF-4 and MWF-7 through MWF-11					
MW-1	02-01-2016	23.85	-	1ST/2016	-
MW-2	02-16-2016	23.22	-		
MW-3	02-01-2016	23.15	-		
MW-4	02-01-2016	23.30	-		

Notes:

bsg: below surface grade

btoc: below top of casing

**TABLE 2**  
**ANALYTICAL RESULTS OF GROUNDWATER SAMPLES**  
**Sunshine Cleaners**  
**223 East 14th Street, San Leandro, California**  
**(ug/l)**

Sample ID (screened interval ft bsg)	Date	Depth to Groundwater (btoc)	EPA SW 846/8260B						
			Tetrachloroethene (PCE)	Trichloroethene (TCE)	1,1- Dichloroethene (1,1-DCE)	Trans 1,2- Dichloroethene (Trans 1,2-DCE)	Cis 1,2- Dichloroethene (Cis 1,2-DCE)	Vinyl Chloride (VC)	Acetone
MW-1	02-01-2016	23.85	<b>54</b>	<1.2	<1.2	<1.2	<1.2	<1.2	<25
MW-2	02-01-2016	23.22	<b>0.62</b>	<0.5	<0.5	<0.5	<0.5	<0.5	<10
MW-3	02-01-2016	23.15	<b>0.69</b>	<0.5	<0.5	<0.5	<0.5	<0.5	<10
MW-4	02-01-2016	23.30	<b>1.0</b>	<0.5	<0.5	<0.5	<0.5	<0.5	<10
SFBRWCB ESL			5	5	6	10	6	0.5	1,500

Notes:

<: Indicates constituents were not detected at a concentration greater than the reporting limit shown

µg/l: micrograms per liter

SFBRWCB ESL: San Francisco Bay Area Regional Water Quality Control Board Environmental Screening Levels

**TABLE 3**  
**ANALYTICAL RESULTS OF SOIL SAMPLES**  
**Sunshine Cleaners**  
**223 East 14th Street, San Leandro, California**  
**(mg/kg)**

Sample ID	Depth (feet bsg)	Date	EPA SW 846/8260B					
			Tetrachloroethene (PCE)	Trichloroethene (TCE)	1,1-Dichloroethene (1,1-DCE)	Trans 1,2-Dichloroethene (Trans 1,2-DCE)	Cis 1,2-Dichloroethene (Cis 1,2-DCE)	Vinyl Chloride (VC)
B1-5	5	12-03-1993	<b>0.23</b>	<0.005	<0.005	<0.005	<0.005	<0.005
B1-10	10	12-03-1993	<b>3.6</b>	<0.005	<0.005	<0.005	<0.005	<0.005
B2-5	5	12-03-1993	<b>0.14</b>	<0.005	<0.005	<0.005	<0.005	<0.005
B2-10	10	12-03-1993	<b>4.2</b>	<0.005	<0.005	<0.005	<0.005	<0.005
B3-5	5	12-03-1993	<b>0.088</b>	<0.005	<0.005	<0.005	<0.005	<0.005
B3-10	10	12-03-1993	<b>0.71</b>	<b>0.37</b>	<0.005	<b>0.016</b>	<0.005	<0.005
B4-5	5	12-03-1993	<b>0.43</b>	<0.005	<0.005	<0.005	<0.005	<0.005
B4-10	10	12-03-1993	<b>0.71</b>	<b>0.013</b>	<0.005	<0.005	<0.005	<0.005

Notes:

mg/kg: milligrams per kilogram

bsg: below surface grade

<: Indicates constituents were not detected at a concentration greater than the reporting limit shown.

# **APPENDIX A**

**APPENDIX A**  
**Monitoring and Sampling Procedures**  
**SUNSHINE CLEANERS**  
**233 East 14<sup>th</sup> Street, San Leandro, California**

#### STATIC WATER LEVEL MEASUREMENTS

Before sampling and during groundwater monitoring, static water levels are measured using an electric water level indicator. Water level data is recorded to the nearest 0.01-foot from a reference point marked on the top of the PVC well casing.

#### WELL PURGING

Subsequent to measurement of depth to water and prior to sampling, each well is purged to ensure samples are representative of the formation, rather than standing water in the well casing. Wells are purged using a Waterra inertial pump and dedicated 5/8-inch plastic tubing or disposable plastic bailer.

Wells are purged until a minimum of three casing-water volumes are removed from the well and/or the field-measured ground water parameters (pH, temperature, and conductivity) are stabilized. However, if a well is purged dry prior to evacuating three casing volumes, a sample is collected following 80 percent recovery of ground water within the well, or after a minimum of one hour, but within eight hours, of purging activities.

#### SAMPLE WITHDRAWAL

Water samples are collected from each monitoring well using either an inertia pump with dedicated plastic/Teflon tubing or a disposable polyethylene bailer. Bailers are disposed of after a single use (sample) and require no decontaminating; plastic tubing used with the inertia pump is either dedicated to each well point or changed at each sampling event, thereby minimizing cross contamination due to sampling devices. Samples are drawn and collected in such a manner that agitation and exposure of the ground water to the atmosphere is minimal.

#### SAMPLE HANDLING

Ground water samples are collected into laboratory-supplied 40-ml volatile organic analysis (VOA) vials with preservative; samples are collected with no visible air bubbles present in the vials after filling and capping. Following collection, samples are appropriately labeled, placed on ice, and kept in a cooler until delivered to Alpha Scientific Corporation (Alpha) of Cerritos, California, a State of California Department of Public Health-certified analytical laboratory for analysis. Samples are analyzed for volatile organic compounds by EPA method 8260B.



## EQUIPMENT DECONTAMINATION AND WASTE MANAGEMENT

Any non-disposable equipment used for sample collection is thoroughly rinsed with clean water after being washed with a solution of Alconox. Purge water generated during sampling activities was contained on-site in an appropriately labeled 55-gallon drum.