Herman

Nancy Rumrill - EPA - Case is handled by EPA (415) 744-2144

COPY #2

CAMBRIA

Need to delineate extent of metal in GW.

Should prefilter water before placing in VOAs.

Check RWQCB's RBSL for Zn loading to GW

After MWs are install, sample for at least 4 qtrs. If case can be closed, must have RMP. If exceed risk to human health in residential scenario, do deed restriction

8/29/01

Eva, please ask Herman to transfer SLIC case official. need dispatch for our oversight. Susan Requested by e-mail 8/31/01

'01 MAR 14 AM 8 30

September 6, 2000

Ms. Sheridan Randolph
Acme Galvanizing
3564 Gresham Court
Pleasanton, California 94588

Re: **Subsurface Investigation Report**
Acme Galvanizing
1655 17th Street
Oakland, California
Cambria Project # 220-1540

Dear Ms. Randolph:

At your request, Cambria Environmental Technology, Inc. (Cambria) has prepared this *Subsurface Investigation Report* for the above-referenced site. The objective of the subsurface investigation was to assess the quality of soil and groundwater beneath the surface cap located at the former galvanizing facility. This investigation was implemented in accordance with the Alameda County Public Works Agency guidelines. The site background, investigation procedures and results, conclusions, and recommendations are presented below.

SITE BACKGROUND

Site Description: The site is a former metals galvanizing facility located at the intersection of 17th Street and Campbell Street in Oakland, California (Figure 1). The site is located in flat topography in an area of primarily industrial use. The San Francisco Bay is located approximately 0.8 miles to the northwest. The Oakland Inner Harbor is located approximately 1.3 miles south of the site.

Site History: The subject site area was residential between 1939 and 1947. In 1959, Acme Galvanizing (Acme) occupied the property and various buildings were constructed. Since that time, metal galvanizing was conducted on site and required the use, storage, and disposal of various hazardous materials. Acme ceased all galvanizing operations in approximately May 2000.

Oakland, CA
Sonoma, CA
Portland, OR
Seattle, WA

Cambria Environmental Technology, Inc.

1144 65th Street
Suite B
Oakland, CA 94608
Tel (510) 420-0700
Fax (510) 420-9170

Phase I Environmental Site Assessment: William Dubovsky Environmental (WDE) of El Dorado, California performed a Phase I Environmental Site Assessment of the subject property in May, 2000. The Phase I report described the site history since 1947 and reported that previous incidents at the site have been documented by the Oakland Fire Department and the Alameda County Environmental Health Services Agency from 1986 to 1999. The Phase I report recommended a Phase II assessment to characterize soil and groundwater at the site.

Site Hydrogeology: The site is at an elevation of approximately 10 ft above mean sea level (msl) and is within the marine province of Bay Area Soils (Bay Muds) and may be overlain by man-made fill in some locations. Site groundwater assumed to flow to the northwest, towards the San Francisco Bay. Groundwater was encountered at approximately 15 ft below ground surface (bgs) during this investigation.

INVESTIGATION PROCEDURES

Well and Boring Location Rationale

To adequately assess the quality of soil and groundwater beneath the subject site, Cambria advanced three soil borings with a hydraulic-push, limited-access, drill rig. Boring locations were limited due to drilling rig accessibility from overhead and permanent onsite structures. Soil and groundwater samples were collected using an Enviro-core sampling system to assure the integrity of the soil and groundwater samples collected. The Enviro-core is a patented dual-tube or "cased" direct-push sampling system that uses a small-diameter drive casing that prevents the borehole from collapsing, and eliminates the potential for cross-contamination.

To define the subsurface conditions down-gradient of the former hot zinc trough and assess the quality of soil and groundwater east of the former pickling tank, Cambria advanced soil boring SB-C (Figure 2). Soil borings SB-A and SB-B were advanced to assess soil and groundwater quality cross-gradient and down-gradient of the former pickling tanks. Soil and groundwater samples were collected from borings SB-A, SB-B, and SB-C. Cambria's standard field procedures for soil borings and monitoring wells are presented as Attachment A.

Field Activities

Drilling Date: August 9, 2000.

Personnel Present: Cambria Geologist John Riggi conducted the field activities under the supervision Robert Clark-Riddell, Professional Engineer.

Permit: Alameda County Public Works Agency permit # W00-473 (Attachment B).

Drilling Company: Precision Sampling Inc., of Richmond, California. (C57# 636-387)

Drilling Method: Hydraulic-push limited access MD sampling rig, with the Enviro-core dual tube sampler.

Number of Borings: Three: SB-A, SB-B, and SB-C (Figure 2).

Boring Depths: All borings were advanced to 16 ft bgs.

Soil Sampling: Soil samples were collected from all borings at depths selected during the investigation based upon field conditions. The samples were logged and classified according to the Unified Soil Classification System (Attachment C).

Grab Groundwater Sampling: Grab groundwater samples were collected from all borings.

Chemical Analyses: McCampbell Analytical, of Pacheco, California analyzed selected samples for cadmium, lead, and zinc, by EPA Method 6010, and pH by EPA Method 150.1, 9040, 9045. (Attachment D).

Boring Backfill: Borings were backfilled with cement grout to 2 ft bgs, overlain by concrete to the ground surface.

Sediment Lithology: The site is covered by an 24-inch surface cap under the former galvanizing operations area. The surface cap consisted of a 6-inch asphalt cover, underlain by 12-inch compacted fill layer, underlain by an additional 6-inch asphalt cover. Soils beneath the surface cap consisted of a sandy clayey silt, underlain by silty sands, clayey sands, and poorly graded fine to medium grained sands. Boring logs are included as Attachment C.

Soil Disposal: Soil cuttings generated during drilling were stored on site in sealed and labeled in DOT-approved drums. Clearwater Environmental of Fremont, California will transport the drums to an approved disposal facility.

INVESTIGATION RESULTS

Analytical Data

Metals Distribution in Soil: No cadmium was detected in any soil sample collected. All analyzed soil samples contained lead concentrations ranging from 3.7 mg/kg in soil sample SB-B-9.5 to a maximum concentration of 60 mg/kg in soil sample SB-A-3.5. Zinc concentrations were detected in all analyzed soil samples ranging from 47 mg/kg in soil sample SB-A-47.5 to a maximum concentration of 20,000 mg/kg in soil sample SB-B-6.5. Soil analytical data is found in Table 1.

Metals Distribution in Groundwater: All groundwater samples were filtered in the laboratory prior to analytical analyses. Groundwater samples collected from soil boring SB-A, SB-B, and SB-C contained low cadmium concentrations, and slightly elevated lead concentrations. Groundwater samples SB-B and SB-C contained the maximum cadmium and lead concentrations of 1.2 mg/L and 0.40 mg/L, respectively. Zinc concentrations in groundwater ranged from 450 mg/L in SB-A to a maximum concentration of 5,800 mg/L in SB-B. Groundwater analytical data is summarized in Table 2.

CONCLUSIONS

Cambria offers the following conclusions based on the analytic and field results from this investigation.

General

- The various materials used and by-products produced during the galvanizing process have apparently impacted soil and groundwater beneath the site, mostly with zinc. The detected concentrations in soil and groundwater are likely due to releases that occurred prior to the cap installation or possibly from surface releases that have migrated beneath the surface cap.

- The 18-inch thick asphalt and fixed soil surface cap that is described in the Phase I report is designed to prevents exposure to the elevated levels of zinc in the soil and groundwater beneath the site. The metals do not pose a significant risk to site occupants as long as there is no exposure pathway (such as exposed metal-bearing soil).

- The groundwater in the vicinity of the facility is unlikely to be a drinking water source because of its proximity to the San Francisco Bay.

Soil

- Zinc concentrations in soil exceed the California hazardous waste thresholds of 5,000 mg/kg. The soil is not considered a waste unless it is excavated. If the soil remains under the cap and is never excavated or disposed, hazardous waste regulations would not apply.

- Lead concentrations in soil do not exceed the hazardous waste threshold of 1,000 mg/kg for total lead. In fact, the lead concentrations in soil could be considered background since elevated lead is often detected in Oakland due to naturally-occurring substances.

- U.S. EPA Preliminary Remediation Goals (PRGs) are used in initial determinations about the health risk of hazardous substance concentrations. The PRGs for zinc, lead, and cadmium, listed below, were not exceed in the samples analyzed during this investigation:

	Residential	Industrial
Zinc:	22,000 mg/kg	100,000 mg/kg
Lead:	400 mg/kg	1,000 mg/kg
Cadmium:	37 mg/kg	930 mg/kg

Groundwater

- The lead and cadmium concentrations detected in groundwater exceed the Environmental Protection Agency's (EPA) National Primary Drinking Water Regulated concentration of (lead is 0.015 mg/L and cadmium is 0.005 mg/L). Zinc concentrations exceeded the EPA's National Secondary Drinking Water Regulated concentration of 5 mg/L. Since groundwater beneath the site is most likely not used as a domestic drinking water source, these regulatory thresholds should not apply to the site.

- The maximum depth explored was 16 ft below ground surface (bgs) during this investigation. It is likely that a low permeable soil unit associated with the surrounding bay mud geology could exist beneath the total explored depth . Such a low permeability unit would likely impede or prevent contaminants from migrating downward. Additional assessment would be required to determine the site stratigraphy beneath 16 ft bgs.

RECOMMENDATIONS

Based on our findings and conclusions, Cambria recommends the following:

- Determine if any domestic water wells are located and used near the site even though it is unlikely that groundwater is not used for any beneficial use.

- If the surface cap is to be removed for construction of a new building foundation, we recommend additional assessment to determine the magnitude and extent of soil contamination for estimating the approximate volume of soil that would require disposal at a Class I or Class II facility. Any excavated soil would require disposal as a non-RCRA (California-only) hazardous waste if total zinc concentrations exceed 5,000 mg/kg unless it is disposed outside of California.

- If the cap is to be kept intact, ensure that its integrity is maintained to prevent exposure to metal-bearing soil or prevent downward migration of additional contaminants.

- Officially close the facility under the direction of the City of Oakland Fire Department, the agency responsible for sites that use or store hazardous materials on site.

- The owner of the property must disclose the presence of elevated metals in the soil and groundwater to future potential buyers under the Real Estate Disclosure law.

CAMBRIA

Ms. Sheridan Randolph
September 6, 2000

CLOSING

We appreciate the opportunity to provide environmental consulting services on behalf of Acme Galvanizing. If you have any questions or comments regarding this report, please call Maya Rappaport at (510) 420-3306, or Bob Clark-Riddell at (510) 420-3303.

Sincerely,
Cambria Environmental Technology, Inc.

John A. Rigg
Project Geologist

Bob Clark-Riddell, PE
Principal Engineer

Figures:
1 - Vicinity Map
2 - Soil Boring Locations

Tables:
1 - Soil Analytical Data
2 - Groundwater Analytical Data

Attachments:
A- Standard Field Procedures for Soil Borings
B - Permit
C - Soil Boring Logs
D - Laboratory Analytical Report

H:\ACME galvanizing\Phase II Investigation\SSIReport.wpd

H:\ACME\FIGURES\BOR-LOC.DWG

ACME Galvanizing Company

1655 17th Street

Oakland, California

CAMBRIA

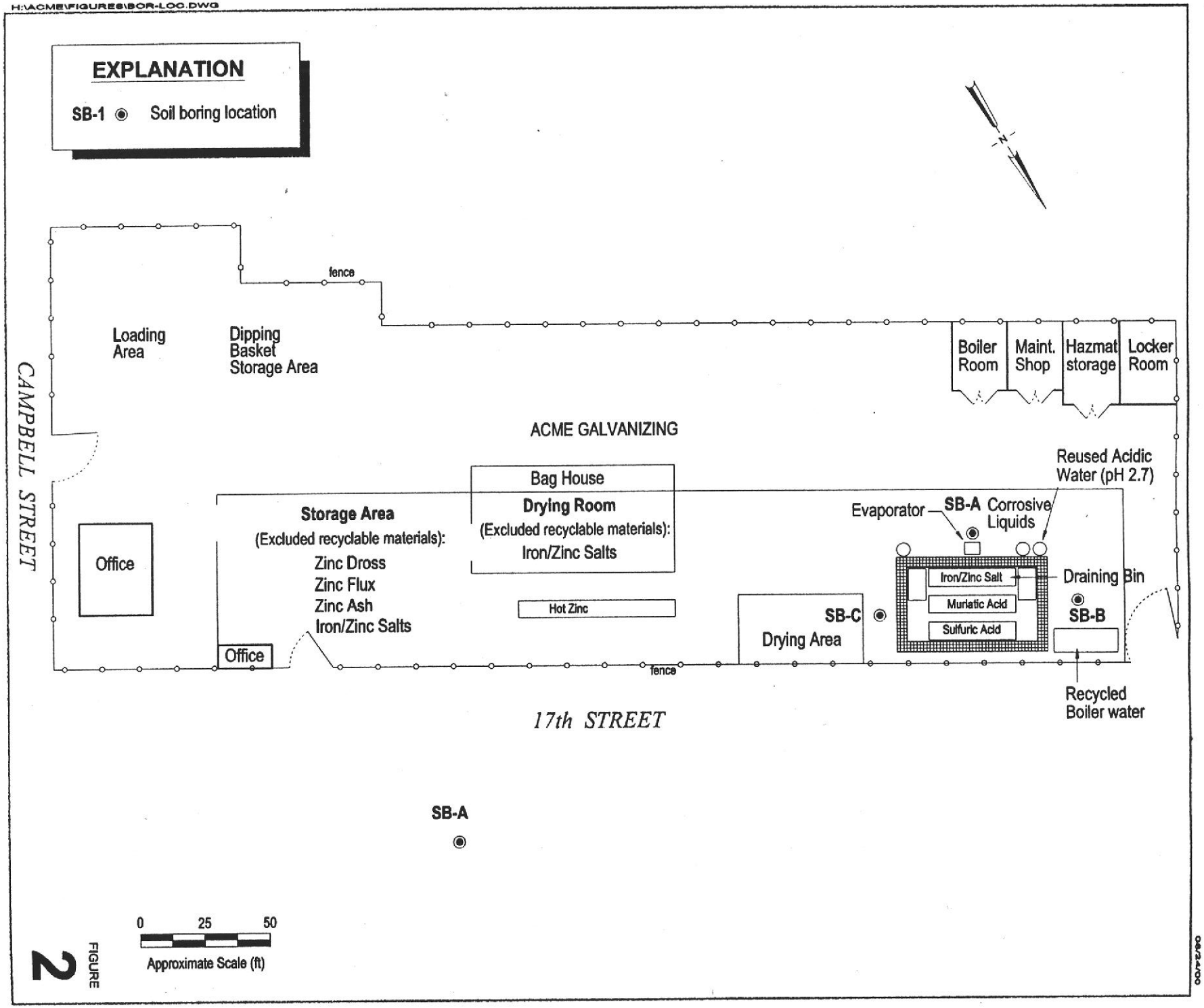

FIGURE 2

Soil Boring Locations

08/24/00

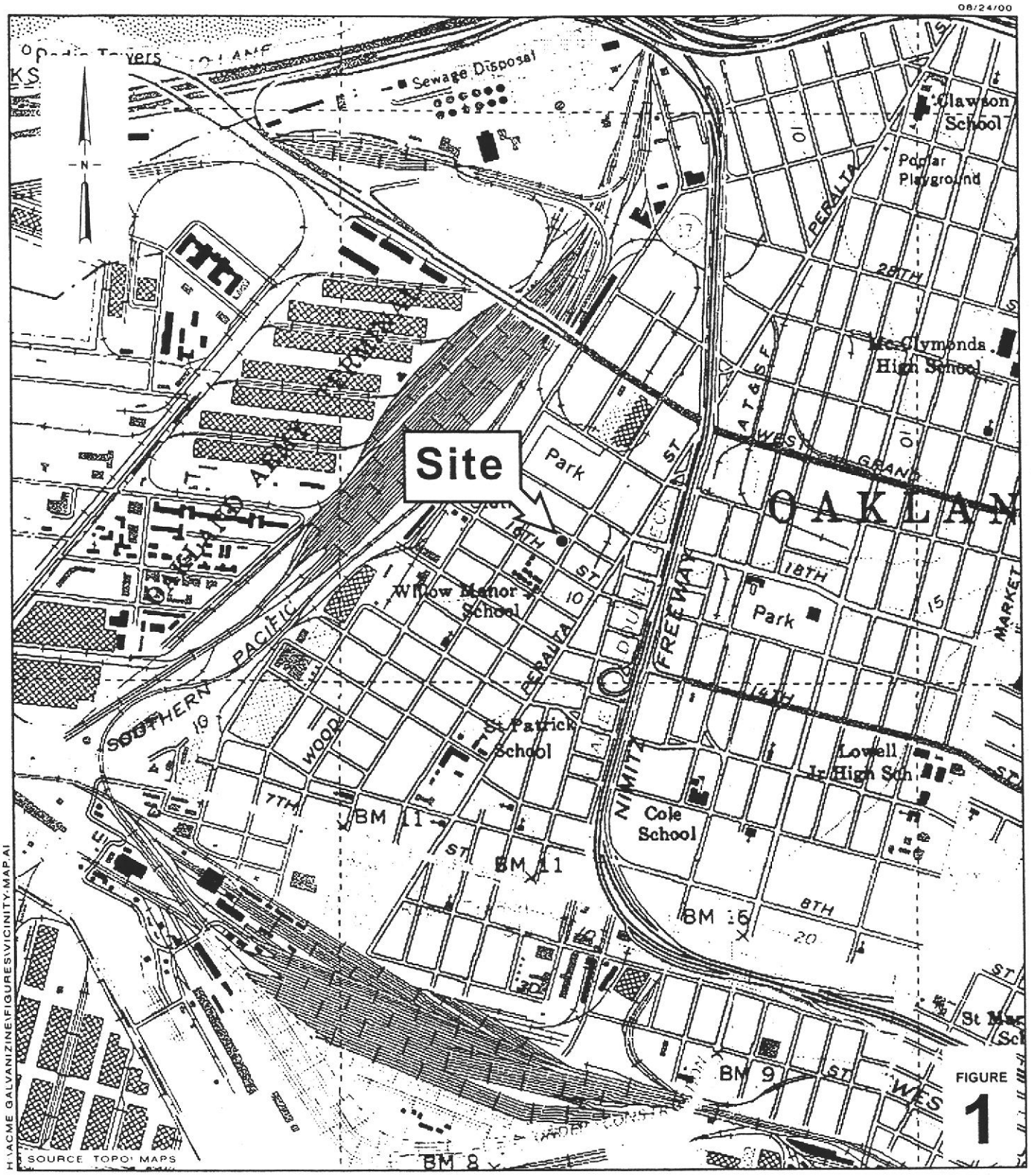

FIGURE 1

0 1/8 1/4 1/2 1

SCALE : 1" = 1/4 MILE

ACME Galvanizing Company

1655 17th Street

Oakland, California

CAMBRIA

Vicinity Map

Attachment A

Standard Field Procedures for Soil Borings

CAMBRIA

STANDARD FIELD PROCEDURES FOR SOIL BORINGS

This document describes Cambria Environmental Technology's standard field methods for drilling and sampling soil borings. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

Objectives

Soil samples are collected to characterize subsurface lithology, assess whether the soils exhibit obvious hydrocarbon or other compound vapor odor or staining, estimate ground water depth and quality and to submit samples for chemical analysis.

Soil Classification/Logging

All soil samples are classified according to the Unified Soil Classification System by a trained geologist or engineer working under the supervision of a California Registered Geologist (RG) or a Certified Engineering Geologist (CEG). The following soil properties are noted for each soil sample:

- Principal and secondary grain size category (i.e. sand, silt, clay or gravel)
- Approximate percentage of each grain size category,
- Color,
- Approximate water or product saturation percentage,
- Observed odor and/or discoloration,
- Other significant observations (i.e. cementation, presence of marker horizons, mineralogy), and
- Estimated permeability.

Soil Boring and Sampling

Soil borings are typically drilled using hollow-stem augers or hydraulic push technologies. At least one and one half ft of the soil column is collected for every five ft of drilled depth. Additional soil samples are collected near the water table and at lithologic changes. Samples are collected using lined split-barrel or equivalent samplers driven into undisturbed sediments beyond the bottom of the borehole. The vertical location of each soil sample is determined by measuring the distance from the middle of the soil sample tube to the end of the drive rod used to advance the split barrel sampler. All sample depths use the ground surface immediately adjacent to the boring as a datum. The horizontal location of each boring is measured in the field from an onsite permanent reference using a measuring wheel or tape measure.

Drilling and sampling equipment is steam-cleaned prior to drilling and between borings to prevent cross-contamination. Sampling equipment is washed between samples with trisodium phosphate or an equivalent EPA-approved detergent.

Sample Storage, Handling and Transport

Sampling tubes chosen for analysis are trimmed of excess soil and capped with Teflon tape and plastic end caps. Soil samples are labeled and stored at or below 4°C on either crushed or dry ice, depending upon local regulations. Samples are transported under chain-of-custody to a State-certified analytic laboratory.

Field Screening

One of the remaining tubes is partially emptied leaving about one-third of the soil in the tube. The tube is capped with plastic end caps and set aside to allow hydrocarbons to volatilize from the soil. After ten to fifteen minutes, a portable photoionization detector (PID) measures volatile hydrocarbon vapor concentrations in the tube headspace, extracting the vapor through a slit in the cap. PID measurements are used along with the field observations, odors, stratigraphy and ground water depth to select soil samples for analysis.

Water Sampling

Water samples, if they are collected from the boring, are either collected using a driven Hydropunch type sampler or are collected from the open borehole using bailers. The ground water samples are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labeled, placed in protective foam sleeves, stored on crushed ice at or below 4°C, and transported under chain-of-custody to the laboratory.

Duplicates and Blanks

Blind duplicate water samples are collected usually collected only for monitoring well sampling programs, at a rate of one blind sample for every 10 wells sampled. Laboratory-supplied trip blanks accompany samples collected for all sampling programs to check for cross-contamination caused by sample handling and transport. These trip blanks are analyzed if the internal laboratory QA/QC blanks contain the suspected field contaminants. An equipment blank may also be analyzed if non-dedicated sampling equipment is used.

Grouting

If the borings are not completed as wells, the borings are filled to the ground surface with cement grout poured or pumped through a tremie pipe.

Waste Handling and Disposal

Soil cuttings from drilling activities are usually stockpiled onsite on top of and covered by plastic sheeting. At least four individual soil samples are collected from the stockpiles for later compositing at the analytic laboratory. The composite sample is analyzed for the same constituents analyzed in the borehole samples. Soil cuttings are transported by licenced waste haulers and disposed in secure, licenced facilities based on the composite analytic results.

Ground water removed during sampling and/or rinsate generated during decontamination procedures are stored onsite in sealed 55 gallon drums. Each drum is labeled with the drum number, date of generation, suspected contents, generator identification and consultant contact. Disposal of the water is based on the analytic results for the well samples. The water is either pumped out using a vacuum truck for transport to a licenced waste treatment/disposal facility or the individual drums are picked up and transported to the waste facility where the drum contents are removed and appropriately disposed.

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD, CA. 94544
PHONE (510) 670-5554 FAX (510) 782-1939

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 1655 11th Street OAKLAND CA

California Coordinates Source ____ ft. Accuracy ± ____ ft.
CCN ____ ft. CCE ____ ft.
APN 7-559-1-2

CLIENT
Name Sheridan Randolph
Address 3564 Gresham Ct Phone
City Moraga CA Zip 94556

APPLICANT
Name CAMBRIA ENVR - JOHN RIGGI Fax 510 420 9170
Address 1144 65th St Phone 510 420 3340
City OAKLAND Zip 94608

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	☐
Cable	☐	Auger	☐
		Other	☒ Direct Push

DRILLER'S LICENSE NO. 636-387
Precision Sampling exp 1-31-02

WELL PROJECTS
Drill Hole Diameter ____ in. Maximum
Casing Diameter ____ in. Depth ____ ft
Surface Seal Depth ____ ft. Number ____

GEOTECHNICAL PROJECTS
Number of Borings 4 Maximum
Hole Diameter 2.25 in. Depth 15 ft

ESTIMATED STARTING DATE 8/3/00
ESTIMATED COMPLETION DATE 8/9/00

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

APPLICANT'S SIGNATURE [signature] DATE 7/31/00

FOR OFFICE USE
PERMIT NUMBER W00-473
WELL NUMBER ____
APN ____

PERMIT CONDITIONS

Circled Permit Requirements Apply

A. GENERAL
1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted work the original Department of Water Resources – 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 by tremie with cement grout or cement grout/sand mix. Upper 2-3 ft replace in kind with compacted cuttings

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

F. WELL DESTRUCTION
See attached.

G. SPECIAL CONDITIONS

APPROVED [signature] DATE 8-2-0

Cambria Environmental Technology, Inc.
1144 - 65th St.
Oakland, CA 94608
Telephone: (510) 420-0700
Fax: (510) 420-9170

BORING/WELL LOG

CLIENT NAME	Sheridan Randolph	**BORING/WELL NAME**	SB-A
JOB/SITE NAME	ACME Galvanizing	**DRILLING STARTED**	09-Aug-00
LOCATION	1165 17 Street, Oakland, California	**DRILLING COMPLETED**	09-Aug-00
PROJECT NUMBER	220-1340	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Precision Sampling	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2.25"	**SCREENED INTERVAL**	NA
LOGGED BY	J. Riggi	**DEPTH TO WATER (First Encountered)**	15.0 ft (09-Aug-00)
REVIEWED BY	R. Clark-Riddell, PE# 49629	**DEPTH TO WATER (Static)**	NA
REMARKS	Located 57' E of bldg W side, 17' N of bldg S side		

Zinc (mg/kg)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
					GW		ASPHALT.	0.5	Concrete
					GW		Silty Sandy GRAVEL: (FILL); brown; dry; 25% silt, 25% sand, 50% fine to coarse gravel; compacted.	1.5	
							ASPHALT.	2.0	
							Sandy GRAVEL; (FILL); brown; dry; 10% silt, 40% sand, 50% gravel; very high estimated permeability.	3.0	
12,000		SB-A-3.5'			ML		Sandy Clayey SILT; (ML); black; damp; 20% clay, 55% silt, 20% sand, 5% gravel; slight plasticity; low estimated permeability.	5.0	
47		SB-A-5.5'		5	SM		Silty SAND with Clay; (SM); black; moist; 15% clay, 35% silt, 50% sand; moderate estimated permeability.	9.0	Portland Type I/II
3,600		SB-A-9.5'		10	SP		SAND; (SP); brown; moist; 10% clay, 10% silt, 80% fine-grained sand; very high estimated permeability.	11.0	
					SC		Clayey SAND; (SC); red brown; moist; 20% clay, 10% silt, 70% fine-grained sand, 5% gravel; moderate estimated permeability; organic materials present in sample.	12.0	
		SB-A- 12'			SP		SAND; (SP); brown to light brown; moist; 10% clay, 10% silt, 80% fine-grained sand; very high estimated permeability. ▽		
		SB-A- 15'		15			@ 14' - brown to gray; wet; 5% clay, 5% silt, 90% fine-grained sand.	16.0	Bottom of Boring @ 16 ft

Grab groundwater samples collected.

WELL LOG (TPH-D) H:\ACMEGA-1\GINT\220-1340.GPJ DEFAULT.GDT 9/1/00

Cambria Environmental Technology, Inc.
1144 - 65th St.
Oakland, CA 94608
Telephone: (510) 420-0700
Fax: (510) 420-9170

BORING/WELL LOG

CLIENT NAME	Sheridan Randolph	**BORING/WELL NAME**	SB-B
JOB/SITE NAME	ACME Galvanizing	**DRILLING STARTED**	09-Aug-00
LOCATION	1165 17 Street, Oakland, California	**DRILLING COMPLETED**	09-Aug-00
PROJECT NUMBER	220-1340	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Precision Sampling	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2.25"	**SCREENED INTERVAL**	NA
LOGGED BY	J. Riggi	**DEPTH TO WATER (First Encountered)**	15.0 ft (09-Aug-00) ▽
REVIEWED BY	R. Clark-Riddell, PE# 49629	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Located 18' E of bldg W side, 41' N of bldg S side		

Zinc (mg/kg)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
					GW		**ASPHALT.**	0.5	Concrete
					GW		**Silty Sandy GRAVEL**; (FILL); brown; dry; 25% silt, 25% sand, 50% fine to coarse gravel; compacted.	1.5	
							ASPHALT.	2.0	
14,000		SB-B- 3'		5	ML		**Sandy GRAVEL**; (FILL); brown; dry; 10% sand, 40% sand, 50% fine to coarse gravel; very high estimated permeability.	3.0	
					SP		**Sandy Clayey SILT**; (ML); brown; damp; 20% clay, 55% silt, 20% sand, 5% gravel; slight plasticity; low estimated permeability.	5.0	
20,000		SB-B- 6.5'			ML		**SAND**; (SP); brown; wet; 5% clay, 10% silt, 85% fine-grained sand; very high estimated permeability.	6.5	
					SM		**Sandy Clayey SILT**; (ML); brown; wet; 20% clay, 60% silt, 20% sand; low estimated permeability.	7.5	Portland Type I/II
					SP		**Sandy SILT**; (SM); black; moist; 5% clay, 50% silt, 45% fine-grained sand; high estimated permeability.	9.0	
9,700		SB-B- 9.5'		10	SC		**SAND**; (SP); brown; moist; 10% clay, 5% silt, 80% fine-grained sand, 5% fine gravel; very high estimated permeability.	10.0	
		SB-B- 12.5'			SP		**Clayey SAND**; (SC); red brown to black; moist; 20% clay, 5% silt, 75% fine-grained sand; slight plasticity; moderate estimated permeability; organic materials present in sample.	11.0	
				15	SC		**SAND**; (SP); yellow; moist; 5% clay, 5% silt, 90% medium-grained sand; very high estimated permeability. ▽	14.0	
		SB-B- 15.5					**Clayey SAND**; (SC); yellowish brown; moist to wet; 20% clay, 10% silt, 70% fine-grained sand; slight plasticity; moderate estimated permeability; organic materials present in sample.	16.0	Bottom of Boring @ 16 ft

Grab groundwater samples collected.

WELL LOG (TPH-D) H:\ACMEGA~1\GINT\220-1340.GPJ DEFAULT.GDT 9/1/00

Cambria Environmental Technology, Inc.
1144 - 65th St.
Oakland, CA 94608
Telephone: (510) 420-0700
Fax: (510) 420-9170

BORING/WELL LOG

CLIENT NAME	Sheridan Randolph	**BORING/WELL NAME**	SB-C
JOB/SITE NAME	ACME Galvanizing	**DRILLING STARTED**	09-Aug-00
LOCATION	1165 17 Street, Oakland, California	**DRILLING COMPLETED**	09-Aug-00
PROJECT NUMBER	220-1340	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Precision Sampling	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2.25"	**SCREENED INTERVAL**	NA
LOGGED BY	J. Riggi	**DEPTH TO WATER (First Encountered)**	15.0 ft (09-Aug-00) ▽
REVIEWED BY	R. Clark-Riddell, PE# 49629	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Located 89' E of bldg W side, 48' N of bldg S side		

Zinc (mg/kg)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
					GW		**ASPHALT.**	0.5	Concrete
							Silty Sandy GRAVEL; (FILL); brown; dry; 25% silt, 25% sand, 50% fine to coarse gravel; compacted.	1.5	
							ASPHALT.	2.0	
					GW		**Sandy GRAVEL**; (FILL); brown; dry; 15% silt, 35% sand, 50% gravel; very high estimated permeability.	5.0	
7,400		SB-C-5.5'		5	ML		**Clayey SILT**; (ML); brown; damp; 25% clay, 65% silt, 10% sand; slight plasticity; low estimated permeability.	7.0	
12,000		SB-C-6.5'			SM		**Silty SAND**; (SM); black; wet; 5% clay, 40% silt, 55% fine-grained sand; very high estimated permeability.	8.0	Portland Type I/II
1,800		SB-C-9.5'		10	SP		**SAND**; (SP); yellow to green; damp; 5% clay, 10% silt, 85% medium-grained sand; very high estimated permeability.	13.0	
		SB-C-12.5'		15	SC		**Clayey SAND**; (SC); green; moist to wet; 20% clay, 10% silt, 70% fine-grained sand; slight plasticity; low estimated permeability; organic materials present in sample. ▽	16.0	Bottom of Boring @ 16 ft
		SB-C-15.5'					Grab groundwater samples collected.		

WELL LOG (TPH-D) H:\ACMEGA~1\GINT\220-1340.GPJ DEFAULT.GDT 9/1/00

Attachment D

Laboratory Analytical Report

CAMBRIA

Table 1. Soil Analytical Data - Acme Galvinizing, 1665 17th Street, Oakland, California

Sample ID	Date Sampled	Cadmium	Lead	Zinc	pH@°C
		◄		mg/kg	►
SB-A-3.5	08/09/00	<0.5	60	12,000	5.57@26°C
SB-A-5.5	08/09/00	<0.5	8.9	47	6.50@26.7°C
SB-A-9.5	08/09/00	<0.5	3.9	2,600	3.80@27.0°C
SB-B-3	08/09/00	<0.5	5.7	14,000	3.66@26.7°C
SB-B-6.5	08/09/00	<0.5	5.1	20,000	4.08@26.7°C
SB-B-9.5	08/09/00	<0.5	3.7	9,700	5.24@26.6°C
SB-C-5.5	08/09/00	<0.5	6.5	7,400	4.63@26.8°C
SB-C-6.5	08/09/00	<0.5	6.9	12,000	4.11@26.7°C
SB-C-9.5	08/09/00	<0.5	4.3	1,800	4.57@26.9°C

Abbreviations and Methods:

Cadmium, lead, and zinc by EPA Method 6010.

pH by EPA Method 150.1, 9040, 9045.

mg/kg = milligrams per kilogram, equivalent to parts per million.

CAMBRIA

Table 2. Groundwater Analytical Data - Acme Galvinizing, 1665 17th Street, Oakland, California

Sample ID	Date Sampled	Cadmium	Lead	Zinc	pH@°C
		◄	mg/L	►	
SB-A	08/09/00	0.057	0.38	450	7.03@26.9°C
SB-B	08/09/00	1.2	0.12	5,800	4.02@26.6°C
SB-C	08/09/00	0.070	0.40	3,000	4.72@26.9°C

Abbreviations and Methods:

Cadmium, lead, and zinc by EPA Method 6010.

pH by EPA Method 150.1, 9040, 9045.

mg/kg = milligrams per kilogram, equivalent to parts per million.

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

Cambria Environmental Technology	Client Project ID: #220-1540; ACME	Date Sampled: 08/09/00
1144 65th Street, Suite C		Date Received: 08/09/00
Oakland, CA 94608	Client Contact: John Riggi	Date Extracted: 08/09/00
	Client P.O:	Date Analyzed: 08/09-08/11/00

Metals*

EPA analytical methods 6010/200.7, 239.2#

Lab ID	Client ID	Matrix	Extraction°	Cadmium	Lead	Zinc	% Recovery Surrogate
44736	SB-A-3.5	S	TTLC	ND	60	12,000	101
44737	SB-A-5.5	S	TTLC	ND	8.9	47	108
44738	SB-A-9.5	S	TTLC	ND	3.9	2600	110
44741	SB-B-3	S	TTLC	ND	5.7	14,000	105
44742	SB-B-6.5	S	TTLC	ND	5.1	20,000	107
44743	SB-B-9.5	S	TTLC	ND	3.7	9700	108
44746	SB-C-5.5	S	TTLC	ND	6.5	7400	102
44747	SB-C-6.5	S	TTLC	ND	6.9	12,000	102
44748	SB-C-9.5	S	TTLC	ND	4.3	1800	103
44751	SB-A	W	Dissolved	0.057	0.38	450	95
44752	SB-B	W	Dissolved	1.2	0.12	5800	88
44753	SB-C	W	Dissolved	0.070	0.40	3000	86
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		S	TTLC	0.5 mg/kg	3.0 mg/kg	1.0 mg/kg	
		W	Dissolved	0.005 mg/L	0.005 mg/L	0.05 mg/L	
		---	STLC, TCLP	0.01 mg/L	0.2 mg/L	0.05 mg/L	

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

Lead is analysed using EPA method 6010 (ICP)for soils, STLC & TCLP extracts and method 239.2 (AA Furnace) for water samples

° EPA extraction methods 1311(TCLP), 3010/3020(water,TTLC), 3040(organic matrices,TTLC), 3050(solids,TTLC); STLC - CA Title 22

@ 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.

^ surrogate diluted out of range; N/A means surrogate not applicable to this analysis

& reporting limit raised due to matrix interference

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.

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

Cambria Environmental Technology 1144 65th Street, Suite C Oakland, CA 94608	Client Project ID: #220-1540; ACME	Date Sampled: 08/09/00
		Date Received: 08/09/00
	Client Contact: John Riggi	Date Extracted: 08/09/00
	Client P.O:	Date Analyzed: 08/09/00

Analytical methods			pH
			EPA 150.1, 9040, 9045
Lab ID	Client ID	Matrix	pH @ _°C
44736	SB-A-3.5	S	5.57 @ 26.°C
44737	SB-A-5.5	S	6.50 @ 26.7°C
44738	SB-A-9.5	S	3.80 @ 27.0°C
44741	SB-B-3	S	3.66 @ 26.7°C
44742	SB-B-6.5	S	4.08 @ 26.7°C
44743	SB-B-9.5	S	5.24 @ 26.6°C
44746	SB-C-5.5	S	4.63 @ 26.8°C
44747	SB-C-6.5	S	4.11 @ 26.7°C
44748	SB-C-9.5	S	4.57 @ 26.9°C
44751	SB-A	W	7.03 @ 26.9°C
44752	SB-B	W	4.02 @ 26.6°C
44753	SB-C	W	4.72 @ 26.9°C
Reporting Limit or Method Accuracy unless otherwise stated; ND means not detected above the reporting limit; N/A means not applicable		W	± 0.05
		S	± 0.1
Reporting Units		—	- log(a_H^+) @ _ °C

DHS Certification No. 1644

Edward Hamilton, Lab Director

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

QC REPORT

LUFT

Date: 08/09/00 Matrix: Water

Extraction: Dissolved

Compound	Concentration: mg/L				%Recovery		RPD
	Sample	MS	MSD	Amount Spiked	MS	MSD	
SampleID: 73100				Instrument: ICP-1			
Copper	0.000	4.7	5.0	5.00	93	100	6.4
Zinc	0.000	4.9	4.3	5.00	97	86	12.2
Lead	0.000	5.1	4.3	5.00	101	85	17.4
Nickel	0.000	4.4	4.3	5.00	87	85	2.3
Chromium	0.000	4.8	4.3	5.00	95	86	9.9
Cadmium	0.000	5.8	4.9	5.00	117	98	17.8

$$\%\ \text{Recovery} = \frac{(MS - Sample)}{AmountSpiked} \cdot 100$$

$$\text{RPD} = \frac{(MS - MSD)}{(MS + MSD)} \cdot 2 \cdot 100$$

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

QC REPORT

CAM 17

Date: 08/09/00-08/10/00 Matrix: Soil/Solid/Sludge

Extraction: TTLC

SampleID: 8900 Instrument: ICP-1

Compound	Concentration: mg/kg				%Recovery		RPD
	Sample	MS	MSD	Amount Spiked	MS	MSD	
Beryllium	0.000	4.5	4.4	5.00	91	89	2.4
Selenium	0.000	11.0	10.0	10.00	110	100	9.5
Molybdenum	0.000	4.2	4.9	5.00	84	99	15.9
Silver	0.000	0.5	0.5	0.50	96	96	0.6
Thallium	0.000	9.4	9.8	10.00	94	98	4.2
Barium	0.000	4.9	4.7	5.00	98	93	5.0
Nickel	0.000	4.1	4.9	5.00	82	97	16.7
Arsenic	0.000	12.0	9.9	10.00	120	99	19.2
Vanadium	0.000	4.1	4.1	5.00	82	81	0.2
Surrogate1	0.000	84.4	88.1	100.00	84	88	4.4
Zinc	0.000	4.9	4.8	5.00	98	97	0.9
Copper	0.000	4.9	4.9	5.00	99	98	0.4
Antimony	0.000	12.0	12.0	10.00	120	120	0.0
Lead	0.000	9.6	9.6	10.00	96	96	0.0
Cadmium	0.000	4.9	4.8	5.00	98	96	2.3
Cobalt	0.000	4.4	4.3	5.00	87	87	0.9
Mercury	0.000	1.0	1.0	1.00	100	98	1.6
Chromium	0.000	4.0	4.9	5.00	80	99	20.4

$$\%\ \text{Recovery} = \frac{(MS - Sample)}{AmountSpiked} \cdot 100$$

$$RPD = \frac{(MS - MSD)}{(MS + MSD)} \cdot 2 \cdot 100$$

RPD means Relative Percent Deviation

ZC189.doc

21441 pg 1 of 2

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 DAY

Report To: John Riggi Bill To: CAMBRIA
Company: Cambria Environmental Technology
1144 65th Street, Suite C
Oakland, CA 94608
Tele: (510) 420-0700 Fax: (510) 420-9170
Project #: 220 1540 Project Name: ACME
Project Location: OAKLAND
Sampler Signature:

SAMPLE ID	LOCATION	SAMPLING Date	SAMPLING Time	# Containers	Type Containers	MATRIX Water	MATRIX Soil	MATRIX Air	MATRIX Sludge	MATRIX Other	METHOD PRESERVED Ice	METHOD PRESERVED HCl	METHOD PRESERVED HNO_3	METHOD PRESERVED Other	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)	RCI	Other: EPA Method 7000 Zinc	Lead	Chromium	pH	Comments
SB-A-3.5		8/9/00	755	1	✱		X				X																			X	X	X	X	44736
SB-A-5.5			759				X				X																			X	X	X	X	44737
SB-A-9.5			804				X				X																			X		X	X	44738
SB-A-12			806				X				X																							HOLD
SB-A-15			808				X				X																							HOLD
SB-B-3			855				X				X																			X	X	X	X	44745
SB-B-6.5			859				X				X																			X	X	X	X	
SB-B-9.5			903				X				X																			X		X	X	HOLD
SB-B-12.5			909				X				X																							HOLD
SB-B-15.5			914				X				X																							
SB-C-5.5			1002				X				X																			X	X	X	X	44746
SB-C-6.5			1005				X				X																			X	X	X	X	
SB-C-9.5			1009				X				X																			X	X	X	X	
SB-C 12.5			1014				X				X																							HOLD
SB-C-15.5		↓	1018	↓	↓		X				X																							HOLD

Relinquished By:	Date:	Time:	Received By:
	8/9/00	1600	8/9/00 3:30
Relinquished By:	Date:	Time:	Received By:
	8/9/00	17:15	
Relinquished By:	Date:	Time:	Received By:

Remarks: ✱ sleeve
Filter all groundwater samples

44747
44748
44749
44750

TB.MV

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 DAY

Report To: John Riggi Bill To: CAMBRIA
Company: Cambria Environmental Technology
1144 65th Street, Suite C
Oakland, CA 94608
Tele: (510) 420-0700 Fax: (510) 420-9170
Project #: 220-1540 Project Name: ACME
Project Location: OAKLAND
Sampler Signature:

	SAMPLE ID	LOCATION	SAMPLING Date	SAMPLING Time	# Containers	Type Containers	MATRIX Water	MATRIX Soil	MATRIX Air	MATRIX Sludge	MATRIX Other	METHOD PRESERVED Ice	METHOD PRESERVED HCl	METHOD PRESERVED HNO_3	METHOD PRESERVED Other
1	SB-A		8/9/00	820	3	*	X					X			
2	SB-B			1030	3		X					X			
3	SB-C			1100	3		X					X			

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)	RCI

Other

ZINC EPA METHOD ZHO	LEAD	CADMIUM	PH
X	X	X	X
X	X	X	X
X	X	X	X

Comments

44451
44452
44453

Relinquished By:	Date:	Time:	Received By:
	8/9/00	1:00	8/9/00 3:30
Relinquished By:	Date:	Time:	Received By:
	8/9/00	4:15	
Relinquished By:	Date:	Time:	Received By:

Remarks: * 1 Amber Unpreserved 2 voa's unpreserved
Filter All 3 Samples