REVISED RCRA FACILITY INVESTIGATION WORKPLAN

Perimeter Areas of Quemetco, Inc. Facility
City of Industry, CA

March 16, 2016

WSP | PARSONS BRINCKERHOFF

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Client

Quemetco, Inc. Facility
City of Industry, CA

Dan Helman
dhelman@rsrcorp.com

Consultant

WSP Services, Inc.
2025 Gateway Place, Suite 435
San Jose, CA 95110
Tel: 408-453-6100

Rick Freudenberger
Rick.freudenberger@wspgroup.com

Allen J. Waldman, PG
Allen.waldman@wspgroup.com

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1 Introduction

On behalf of Quemetco, Inc. (Quemetco), WSP Services Inc. (WSP) has prepared this Revised Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Workplan (RFI Workplan) for the perimeter investigation around the Quemetco facility located at 720 South 7th Avenue in City of Industry, California (Site) (Figure 1). This Workplan incorporates comments provided by the Department of Toxic Substances Control (DTSC) in meetings on May 5, 2015, June 24, 2015, November 30, 2015, January 16, 2016, and February 9, 2016 and correspondence dated March 16, 2015 (provided in Appendix A).

As requested by DTSC, this Workplan is intended to satisfy the following objectives:

- Expand the 2013 contamination evaluation to include all of the perimeter areas that Quemetco "stabilized" in the original 2004 Emergency Interim Measure (EIM).
- Preliminarily delineate the lateral extent of airborne and/or surface water-borne deposition/accumulation of site related constituents from Quemetco's smelter emissions that may contain priority metals and other constituents of concern (COCs) identified within this Workplan.

This RFI Workplan focuses on the requests made by DTSC, and incorporates comments provided by DTSC, in the noted meetings and correspondence. The RFI Workplan details and establishes the sampling to be conducted initially within 1/4 mile of the Quemetco facility. Following evaluation of the results from the initial sampling, additional sampling may be necessary up to and beyond, a 1-mile radius of the Quemetco facility. Sampling locations and analysis will be based on data quality objectives (DQOs) developed specifically for these proposed investigations (See Section 2). The DQO process (EPA, 2006) may be implemented as an iterative process. This Workplan describes the approach to sampling with the recognition that initial sampling results will be part of such an iterative process that may determine expanded locations, increased number of samples, and changes in analytical strategy. DTSC and WSP will work closely during field sampling activities to make sampling decisions in a collaborative manner and engage in on-going discussions regarding the various elements of investigation and further requirements that may develop as a result. Section 2 is a detailed discussion of the DQOs that provide the rationale and decision criteria necessary for the sampling strategy to meet the project objectives. It describes the procedures to: (1) evaluate current conditions since, as demonstrated by DTSC in 2012, there was evidence of contamination in those areas stabilized by Quemetco in the original 2004 Emergency Interim Measure (EIM); (2) begin evaluating the lateral off-site extent of airborne deposition/accumulation as demonstrated in the 1991 off-site sampling by DTSC; and (3) determine whether airborne deposition/accumulation has impacted the surface water run-off system.

Section 2 introduces Project Specific Data Quality Objectives. Section 3 indicates the methodology to be used to further evaluate contamination of previously investigated areas, characterization of Quemetco-derived constituents that may be identified during sampling, and background/ambient sampling of areas outside the influence of the Quemetco facility to provide a reference within the urban environment. Section 4 presents the strategy, sampling frequency, sampling areas, and field procedures for determination of the lateral extent of potential airborne or surface water-borne deposition/accumulation to determine potential impacts to public right-of-ways, residential streets, residential yards, commercial/industrial facilities and grounds, along San Jose Creek, Puente Creek, a Los Angeles County Flood Control drainage channel, and levee access roads by Site-derived constituents initially to a radius of 1/4 mile, and, dependent upon results, to a distance of up to a mile or greater from the perimeter of the Quemetco plant.

2 Project-Specific Data Quality Objectives

DQO process consists of seven steps that result in the development of a sampling plan. The output of Step 1 defines the factors that need to be considered in Step 2; the output of Step 2 defines the factors to be considered in Step 3. This process continues through each step and, ultimately, a sampling strategy is formulated in Step 7 based on the outputs from Steps 1 through 6. By establishing the DQOs for this project, the data collection is supported by a technical rationale and will meet the requirements of the project objectives.

The primary objective of the data collection is to evaluate the degree to which lead and other Quemetco COCs have affected the area around the facility at levels that are not acceptable either for a residential setting or for a commercial/industrial setting. Other ancillary objectives are discussed in the following sub-sections.

The DQO process consists of seven steps, namely:

1. State the Problem/s
2. Identify the Decision
3. Identify Inputs to the Decision
4. Develop the Boundaries of the Study
5. Develop a Decision Rule
6. Identify Limits of the Decision error
7. Develop the Sampling Design

The sampling design that is developed in Step 7 is based on qualitative and quantitative requirements established in Steps 1 through 6. While going through the DQO process is often perceived as a time-consuming process, it is hoped that by going through the DQOs before implementing the data collection activities recurring mobilizations due to avoidable data gaps may be reduced.

2.1 DQO Step 1: Statement of the Problems

2.1.1 Problem 1: The extent of lead contamination in surficial and near-surficial soils (0 to 18" below ground surface (bgs)) is unknown.

The lateral and vertical extent of surface and near-surface lead contamination throughout the areas surrounding Quemetco is unknown. Most recent investigations (summarized in Section 2.1.2) describe locations on the immediate periphery of Quemetco. A wider reconnaissance style investigation was done nearly 25 years ago, but it was not comprehensive. Previous samples were only taken at a relatively few surface locations and no real step- out delineation attempted.

2.1.2 Problem 2: The lateral extent of contamination around the immediate perimeter of Quemetco facility is unknown.

In December 1991, DTSC's Southern California Enforcement Branch conducted a study of lead concentrations in soils in the vicinity of the Quemetco plant at distances up to 3,200 feet away in eight compass directions. During this study a total of 42 soil samples were collected; eight of the soil samples were collected east of the Site on the Quemetco property (i.e., samples East-C, East-1 and 2, Southeast-A and B, Southeast-1 and 2) (Figure 2). Lead concentrations in these samples ranged from 98 mg/kg to 10,300 mg/kg (DTSC, 1992). On March 25, 2004, DTSC's Region 3 Permitting Branch collected 10 soil samples around the perimeter of the Quemetco facility, outside the security fence. The samples were collected from: 1) landscaping along 7th Avenue; 2) landscaping along Salt Lake Avenue; 3) the Los Angeles County Flood Control (LACFC) levee access driveway at the northwest corner of the Site and, 4) along the fence-line shared with the Quemetco property (aka former Richardson Battery facility) (Figure 3). Lead concentrations in these samples ranged between 100 milligrams per kilogram (mg/kg) to 5,300 mg/kg. Pursuant to DTSC's letter dated June 28, 2004 (Appendix B), Quemetco performed additional investigative activities (i.e., Narrow Scoped Soil Investigation for Perimeter Soils) and

implemented an emergency interim measures (EIM) that included among several stabilizing actions, paving certain areas with asphalt to limit possible public exposure.

The samples collected around the perimeter of the Site during the Narrow Scoped Soil Investigation for Perimeter Soils are shown in Figure 4. During the investigation, 212 samples were scanned using a handheld X-Ray Fluorescence (XRF) analyzer; confirmation soil samples were also analyzed in the laboratory. XRF readings ranged from below detection limits (approximately 42 mg/kg) to 8,774 mg/kg. (ESC, August 11, 2006).

On July 25, 2012, in order to evaluate the extent of contamination, DTSC's Region 3 Brownfields and Environmental Restoration Program personnel collected samples in eight locations which had been "stabilized" in 2005 adjacent to the Quemetco Site boundary (Figure 3). Lead concentrations in these samples ranged from 138 to 1,450 mg/kg (DTSC, 2013a). Lead concentrations in samples, SS-FCC-1 and SS-S7A-7 were reported at 1,420 mg/kg and 1,270 mg/kg, respectively. On June 12, 2013, Quemetco and WSP performed another EIM to remove some contaminated sediments at location SS-FCC-1 on the LACFC levee access driveway near the northwest corner of the Site. The work was performed in accordance with the EIM Workplan dated April 25, 2013 (WSP 2013a). Confirmation XRF readings indicated lead concentrations remained above the total threshold limit concentration (TTLC) of 1,000 mg/kg in the hardscape after much of the sediment was removed. XRF readings and the confirmation soil sample collected by WSP at location SS S7A-7 did not confirm the elevated lead concentrations that were reported by DTSC. Sample SS-S7A-7 was collected in a tree planter on the west side of. S. 7th Avenue at the corner of Bonelli Street (Figure 3). The highest XRF lead concentration recorded by WSP at this location was 125 mg/kg and the confirmation soil sample result was 16.7 mg/kg lead; all below the TTLC, therefore soil removal was not performed. The EIM report submitted to DTSC on June 26, 2013, included an IM Workplan to further address the elevated lead at location SS-FCC-1 (WSP, 2013b).

2.1.3 Problem 3: Constituents (particularly lead) that may have been dispersed and deposited from Quemetco airborne stack emissions or by other means may be indistinguishable from similar constituents that are commonly found in most urbanized areas.

It is recognized that lead was and continues to be a ubiquitous environmental contaminant, most notably from the burning of leaded gasoline and the use of leaded paint. Although now banned, these two sources alone have resulted in the widespread distribution of lead throughout urbanized regions in the United States. A recent study conducted by the U.S. Geological Survey provides insight into the concentration ranges of lead in soil across the United States (Smith et al., 2013). It is also known that small concentrations of lead occur naturally in soils in Los Angeles County. Under natural conditions, lead may be found in the soil at 5 to 20 mg/kg, cadmium at 0.05 to 0.5 mg/kg, and arsenic at 1 to 5 mg/kg. In highly urbanized areas, lead may be found in the soil at 100 to 200 mg/kg, cadmium at 1 to 5 mg/kg, and arsenic at 10 to 20 mg/kg.

http://celosangeles.ucanr.edu/Environmental_Horticulture/Trace_Elements_and_Urban_Gardens_568/

In a study of soil lead concentrations in the Los Angeles area, Wu and others (2010) found the following total lead concentrations in the upper inch of soil, including notably higher soil lead concentrations near roadways.

Sample Location	Number of Samples	Minimum Concentration (mg/kg)	Maximum Concentration (mg/kg)	Mean Concentration (mg/kg)	Median Concentration (mg/kg)
Arterial (major roadways)	140	9.6	4720	224	89
Freeway	299	8.9	8150	189	94
Grid (primarily residential areas)	111	12.0	644	107	57

Because of the likelihood that lead in the environment may occur from anthropogenic sources other than the Quemetco operations, it is important for Quemetco to characterize their emissions of lead and other contaminants (e.g., CAM 17 metals and aluminum, bismuth, calcium, magnesium, manganese, potassium, tellurium, and tin; and to a limited extent, PAHs and dioxin/furans) in order to determine Quemetco's radius of influence for deposition/accumulation.

Equally important is to determine background/ambient concentrations of lead and other metals in similar settings

near the Site.

2.1.4 Problem 4: The lateral extent of potential combined airborne and surface water-borne deposition/accumulation off-site has not been delineated.

DTSC requested that Quemetco sample storm drain boxes, San Jose Creek, Puente Creek, a Los Angeles County Flood Control drainage channel, and levee access roads near the facility to evaluate deposition/accumulation from off-site surface water-borne site-derived constituents of concern.

2.2 DQO Step 2: Identify the Goals of the Study

The study questions and the alternative actions that address each stated problem are developed in Step 2 of the DQO process.

- Study Question 1: Are there lead concentrations in residential soils between 0 and 18 inches bgs higher than 80 mg/kg via XRF screening, and are there lead concentrations in commercial/industrial areas higher than 320 mg/kg via XRF screening?
    - Alternative Action: In residential areas, soil samples will be collected at depth intervals of 0 to 1 inch, 1 to 3 inches, 3 to 6 inches, 6 to 12 inches, and 12 to 18 inches according to the criteria described in Section 3. For each group of samples with XRF readings for lead between 0 to 80 mg/kg, 10% of these samples will be sent for analysis by a fixed laboratory. Similarly, for each group of samples with XRF readings for lead between 80 to 400 mg/kg, and each group of samples exceeding 400 mg/kg for lead, 10% of these sample groups will be sent for analysis by a fixed laboratory. The percentage of samples sent for fixed lab analysis may be modified based of correlation between XRF and fixed lab data.
    - For commercial/industrial areas, each group of samples with XRF readings for lead between 0 to 80 mg/kg, 10% of these samples will be sent for analysis by a fixed laboratory. Similarly, for each group of samples with XRF readings for lead between 80 to 400 mg/kg, and each group of samples exceeding 400 mg/kg for lead, 10% of these sample groups will be sent for analysis by a fixed laboratory. The percentage of samples sent for fixed lab analysis may be modified based on correlation between XRF and fixed lab data.
    - If analytical data indicate samples from residential properties have lead concentrations exceeding 80 mg/kg via XRF, and/or samples from commercial/industrial areas, streets, sidewalks or public properties have lead concentrations exceeding 320 mg/kg via XRF, a risk evaluation will be conducted to determine if further action is necessary.

- Study Question 2: Do locations sampled and "stabilized" in previous investigations show evidence of contamination/additional contamination? Evidence of contamination would be elevated values of lead above residual concentrations after previous cleanup activities at locations where Emergency Interim Measures (EIMs) were undertaken in the past. [ESC, 2006] Evidence of additional contamination would be lead concentrations higher than previously sampled values for the same location.
    - Alternative Action: All locations that were sampled as part of a previous investigation will be resampled. This includes areas that underwent EIMs in 2012. In consultation with DTSC, hardscape locations may be analyzed at the surface via XRF for embedded lead. Any dust accumulation atop a hardscape and all exposed soil will be analyzed via XRF for lead. Each group of samples with XRF readings for lead between 0 to 80 mg/kg, 10% of these samples will be sent for analysis by a fixed laboratory. Similarly, for each group of samples with XRF readings for lead between 80 to 400 mg/kg, and each group of samples exceeding 400 mg/kg for lead, 10% of these sample groups will be sent for analysis by a fixed laboratory. If samples exceed 320 mg/kg for lead, a risk evaluation will be conducted to determine if further action is required.
- Study Question 3: Do constituents of concern (COCs) from emissions from Quemetco show properties (e.g., microscopic and other physical properties, species makeup and ratios, geochemistry, etc.) that

are different from constituents commonly found in most urbanized areas?

- Alternative Action: The ability to distinguish COCs emitted from Quemetco versus other sources would allow better delineation of Quemetco's deposition/accumulation and its dispersion footprint, and better decision-making regarding any clean-up responsibilities in that dispersion footprint.

- Study Question 4: What is the lateral extent of off-site accumulation due to airborne or surface water-borne deposition/accumulation of COCs?

  - Alternative Action: This investigation involves collecting soil, dust, sediment samples from public right-of-ways, residential streets, residential yards, commercial/industrial facilities and grounds, along San Jose Creek, Puente Creek, a Los Angeles County Flood Control drainage channel, and levee access roads within a ¼-mile radius from the Quemetco plant following the procedures outlined in Section 3. The concentration of lead emanating from the Quemetco Facility will be preliminarily delineated using XRF results for lead and fixed laboratory analysis. If samples exceed 320 mg/kg for lead, a risk evaluation will be conducted to determine if further action is required.

2.3 DQO Step 3: Identify Inputs to the Decision

This step identifies the inputs that should be collected to answer the study questions.

Inputs to Study Question 1:

- Data from XRF and fixed analytical laboratory.
- Sampling locations and depths
- Number of samples
- Action levels

Inputs to Study Question 2:

List of all COCs included in the initial soil sampling and provided by the DTSC in letter dated March 16, 2015:

Chemical[a]	CAS Number	Residential Soil (mg/kg)		Industrial Soil (mg/kg)	
Arsenic	7440-38-2	6.7E-02	DTSC 2015	2.8E-01	DTSC 2015
Antimony	7440-36-0	3.1E+01	USEPA RSL 2015	4.7E+02	USEPA RSL 2015
Cadmium	7440-43-9	5.2E+00	DTSC 2015	7.3E+00	DTSC 2015
Chromium III (soluble salts)	7440-47-3	3.6E+04	DTSC 2015	2.7E+05	DTSC 2015
Chromium VI (hexavalent)	18540-29-9	3.0E-01	USEPA RSL 2015	6.3E+00	USEPA RSL 2015
Lead	7439-92-1	8.0E+01	OEHHA, 2009	3.2E+02	OEHHA, 2009
Copper	7440-50-8	3.1E+03	USEPA RSL 2015	4.7E+04	USEPA RSL 2015
Manganese	7439-96-5	1.8E+03	USEPA RSL 2015	2.6E+04	USEPA RSL 2015
Mercury	7439-97-6	9.4E +00 0.89	USEPA RSL 2015 DTSC 2015	4.0E+01 3.9	USEPA RSL 2015 DTSC 2015
Nickel (Refinery Dust) (soluble salts)	--	8.2E+02 4.9E+02	USEPA RSL 2015 DTSC 2015	1.1E+04 4.3E+03	USEPA RSL 2015 DTSC 2015
Selenium	7782-49-2	3.9E+02	USEPA RSL 2015	5.8E+03	USEPA RSL 2015
Zinc (and Compounds)	7440-66-6	2.3E+04	USEPA RSL 201	3.5E+05	USEPA RSL 2015

Chemical[a]	CAS Number	Residential	Soil (mg/kg)	Industrial	Soil (mg/kg)
Dioxins/Furans (as 2,3,7,8-TCDD)	1746-01-6	4.8E-06	USEPA RSL 2015	2.2E-05	USEPA RSL 2015
Acenapthene [PAH]	83-32-9	3.6E+03	USEPA RSL 2015	4.5E+04	USEPA RSL 2015
Acenaphthylene [PAH]	208-96-8	Same as acenaphthene--	--	--	--
Acetaldehyde	75-07-0	8.2E+01	USEPA RSL 2015	3.4E+02	USEPA RSL 2015
Acrolein	107-01-8	1.46E-01	USEPA RSL 2015	6.0E-01	USEPA RSL 2015
Anthracene [PAH]	120-12-7	1.8E+04	USEPA RSL 2015	2.3E+05	USEPA RSL 2015
Benzene	71-43-2	1.2E+00	USEPA RSL 2015	5.1E+00	USEPA RSL 2015
Benzo(a)anthracene [cPAH]	56-55-3	1.6E-01	USEPA RSL 2015	2.9E+00	USEPA RSL 2015
Benzo(a)pyrene [cPAH]	50-32-8	1.6E-02	USEPA RSL 2015	2.9E-01	USEPA RSL 2015
Benzo(b)fluoranthene [cPAH]	205-99-2	1.6E-01	USEPA RSL 2015	2.9E+00	USEPA RSL 2015
Benzo(ghi)perylene [cPAH]	191-24-2	1800	USEPA RSL 2015	2.3E+04--	USEPA RSL 2015
Benzo(k)fluoranthene [cPAH]	207-08-9	1.6	USEPA RSL 2015	2.9E+01	USEPA RSL 2015
1, 3-Butadiene	106-99-0	5.8E-02	USEPA RSL 2015	2.6E-01	USEPA RSL 2015
Chrysene [cPAH]	218-01-9	1.6E+01	USEPA RSL 2015	2.9E+02	USEPA RSL 2015
Dibenzo(a,h)anthracene [cPAH]	53-70-3	1.6E-02	USEPA RSL 2015	2.9E-01	USEPA RSL 2015
1,4-Dioxane	123-91-1	5.3E+00	USEPA RSL 2015	2.4E+01	USEPA RSL 2015
Fluoranthene [PAH]	206-44-0	2.4E+03	USEPA RSL 2015	2.4E+03	USEPA RSL 2015
Fluorene [PAH]	86-73-7	2.4E+03	USEPA RSL 2015	2.4E+03	USEPA RSL 2015
Formaldehyde	50-00-0	1.2E+04	USEPA RSL 2015	1.6E+05	USEPA RSL 2015
Hydrogen Sulphide	7783-06-4	2.8E+06	USEPA RSL 2015	1.2E+07	USEPA RSL 2015
Indeno(1,2,3-cd)pyrene [cPAH]	193-39-5	1.6E-01	USEPA RSL 2015	2.9E+00	USEPA RSL 2015
Naphthalene [cPAH]	91-20-3	3.8E+00	USEPA RSL 2015	1.7E+01	USEPA RSL 2015
Phenanthrene [PAH]	85-01-8	1.8E+04	USEPA RSL 2015	2.3E+05	USEPA RSL 2015
Propylene	115-07-1	2.2E+03	USEPA RSL 2015	9.3E+03	USEPA RSL 2015
Pyrene [PAH]	129-00-0	1.8E+03	USEPA RSL 2015	2.3E+04	USEPA RSL 2015

Notes:
-- = Not available
mg/kg = milligram per kilogram
DTSC = Department of Toxic Substances Control
PAH = Polycyclic Aromatic Hydrocarbons
cPAH = carcinogenic PAH
RSL = Regional Screening Level
TCDD = Tetrachlorodibenzodioxin
USEPA = United States Environmental Protection Agency

a. The PAH chemicals listed were based on USEPA Method 8310.
Sources: Department of Toxic Substances Control (DTSC). 2015. Human Health Risk Assessment (HHRA) HERO HHRA Note Number 3, Issue: DTSC- modified Screening Levels. October 2015.
United States Environmental Protection Agency (USEPA). 2015. Regional Screening Levels (RSLs) Summary Table. June 2015. Available at http://www.epa.gov/region9/superfund/prg/index.html.

- Analyses for CAM 17 metals as well as aluminum, bismuth, calcium, magnesium, manganese, potassium, tellurium, and tin, with EPA methods 6010/7000, 6020.
- Volatile organic compounds (VOCs) within the COC list above are not included for any further analysis since the work plan is directed toward determining potential airborne or surface water-borne deposition/accumulation.
- When resampling past locations WSP will attempt to replicate original locations.
- U.S. EPA's "Methodology for XRF Performance Characteristic Sheets (1997)" and U.S. EPA Method 6200.

DTSC-recommended screening levels for residential or industrial/commercial use, as specified in DTSC's Human and Ecological Risk Division's (HERD" Human Health Risk Assessment (HHRA) Note Number 3 (January 2016). As required by DTSC, the CHHSLs for lead of 80 mg/kg may be used for residential properties. For commercial areas, streets, sidewalks, and public properties, the CHHSL for industrial/commercial use of 320 mg/kg lead may be used, as detailed in HHRA Note 3 (October, 2015). Other COCs that may be analyzed by XRF include arsenic and antimony. Arsenic has a DTSC-recommended soil screening level of 0.067 mg/kg for residential areas and 0.28 mg/kg for commercial/industrial areas. There is no DTSC-recommended screening level for antimony, thus, the EPA Regional Screening Levels (RSLs) (November 2015) for antimony of 31 mg/kg for residential areas and 470 mg/kg for commercial/industrial areas should be applied.

Inputs to Study Question 3:

- Technical memorandum describing a scope of work (SOW) for characterizing Quemetco-derived lead.
- XRF readings and fixed analytical laboratory results of new samples that may be collected in the locations discussed in Study Question 2.
- A statistically representative number of soil, dust and sediment samples collected from the within the public rights-of-way, residential lots and commercial/industrial properties and the immediate perimeter of the Quemetco facility.
- Soil samples will be analyzed by XRF and in the fixed analytical laboratory for the following twenty metals and metalloids: aluminum (Al), antimony (Sb), arsenic (As), barium (Ba), bismuth (Bi), cadmium (Cd), calcium (Ca) , chromium(Cr), cobalt (Co), copper (Cu), iron (Fe),lead (Pb), magnesium (Mg), manganese (Mn), mercury (Hg), nickel (Ni), potassium (K), silver (Ag), selenium (Se), tellurium (Te), tin (Sn), and zinc (Zn).
- Analyses of some or all of the above twenty metals by Inductively Coupled Plasma - Optical Emission Spectrometer (ICP-OES).
- SOW may include speciation of lead in representative samples and relationship to species common to batteries, leaded gasoline, and leaded paint.
- SOW may include use of optical microscopy and SEM-EDS and/or other similar tools to study to inspect, identify, and measure micromorphology of individual particles and microscopic metallurgical structures-
- SOW may include scatter plots of metal concentrations versus distance and direction from the facility and spatial patterns of metal concentrations and ratios, e.g. iso-concentration maps. SOW to include evaluation of correlation between antimony, arsenic, and lead concentrations.
- SOW may include determination: (a) if ratios of the specific metals and metalloids to lead concentration were typical of values reported in the literature for soils impacted by secondary lead smelters, (b) how the ratios vary with direction and distance from the facility, and (c) whether other source(s) may be affecting the relative concentrations of measured lead and the other metals and metalloids.

Inputs to Study Question 4:

- Investigation data from the perimeter of the Quemetco facility will be collected, as necessary, to determine the extent of contamination from the facility
- XRF readings of soil matrix, dust, sediment, hardscape and samples.
- Collection of soil matrix, dust, sediment samples for fixed laboratory analysis. In consultation with DTSC, the

number of samples may be adjusted based of analytical results.

- Documentation in notes and photographs of presence of non-aerial deposition sources such as stains, debris, old incinerator/ burn pits, peeling paint near sampling locations.
- For initial sampling within ¼ mile radius of the Quemetco plant, including areas within the plant and adjacent to the Quemetco property, non-residential public rights-of-way and San Jose Creek, Puente Creek, and the levee roads, approximately 5% of the samples will be analyzed in a fixed laboratory for 8310 PAHs, 8290 dioxins/furans, and analysis for hexavalent chromium (see above COC list). An ongoing review of this laboratory data in consultation with DTSC will determine the necessity for further sampling and analysis of these specific COCs in other sampling areas.
- Every 100 feet along the bottoms of San Jose Creek and Puente Creek and along the levee roads on both sides of the creeks, sediment or dust samples on the bottom of the creeks as encountered initially within a ¼ mile radius of the plant. In consultation with DTSC, the number of samples may be adjusted based upon analytical results.
- Data from sediment samples in storm water catch basins within 1/4 mile radius from Quemetco.

2.4 DQO Step 4: Define Study Boundaries

Data will be collected as follows:

- Samples collected as dust, sediment, soil samples along public and residential right-of-ways, San Jose Creek, Puente Creek, the levee roads along both creeks, and industrial locations may be limited to surficial samples (0-1 inch). Soil samples collected from residential areas may be limited to a depth of 18 inches bgs.

Lateral Boundaries

- Between the facility perimeter and initially within ¼ mile radius and potentially up to approximately one mile away and beyond, as necessary
- To the extent possibly, at original locations sampled by DTSC in 1991, 2004, and 2012.
- Within residential lots initially within ¼ mile radius and potentially up to approximately one mile away and beyond, as necessary
- Soil, sediment and dust on hardscape (i.e., sidewalks and road pavement) approximately every 100 feet along major non- residential thoroughfares and non-residential streets and approximately every 50 feet along residential streets initially within ¼ mile radius and potentially up to approximately one mile away and beyond, as necessary. Within public planters and residential lot parking strips, as well as sediment/dust samples, along the non-residential thoroughfares initially within ¼ mile radius, and potentially up to approximately one mile away and beyond, as necessary. Within soil planters along the residential streets initially within ¼ mile radius and potentially up to approximately one mile away and beyond, as necessary.
- Within catch basins initially within ¼ mile radius and potentially up to approximately one mile away and beyond, as necessary.
- Within commercial/industrial properties initially within ¼ mile radius and potentially up to approximately one mile away and beyond, as necessary at downspout discharge points, rooftops, facility grounds (hardscape), and landscaped areas.

Temporal Boundaries

XRF sampling may be preferentially conducted during the dry season, however, sampling may proceed in any interval between rainstorms.

- XRF sampling will not take place within five days after a significant rain event (a significant rain event is defined as ½" of rain during a 24 hour period) or within three days of any rain event.
- XRF sampling during the rainy season or under wet conditions may present confounding factors to the

results and potentially underestimate the concentrations of constituents in soil. If soil appears wet during sample collection, then only physical soil samples may be collected and all samples may be sent to a fixed laboratory for analysis. XRF may not be used if soil appears wet unless soil samples are thoroughly dried in field ovens or equivalent.

2.5 DQO Step 5: Develop the Analytic Approach

This step establishes the measurement parameters that will support the decision rules.

- Decision Rule 1: The XRF data will be adjusted based on the acceptable correlation between the fixed lab data and the XRF data.
- Decision Rule 2: A risk evaluation will be performed to determine if further action is warranted if the lead concentrations in residential samples exceed 80 mg/kg or commercial/industrial samples exceed 320 mg/kg.
- Decision Rule 3: A risk evaluation will be performed to determine if further action is warranted if lead concentrations at resampled locations within the plant and the adjacent Quemetco property exceed 320 mg/kg.
- Decision Rule 4: If XRF analysis of hardscape (asphalt or concrete) indicates embedded lead concentrations in excess of 80 mg/kg or 320 mg/kg at residential and commercial properties, respectively, further risk evaluation will be conducted.

2.6 DQO Step 6: Specify Performance or Acceptance Criteria

This step indicates the level of uncertainty or error in the data that is considered acceptable in making decisions. When the decision for further action or no action is based on the highest detected concentrations, the level of uncertainty is high because of the degree of conservatism in applying the highest concentrations.

The results from the implementation of this work plan will be used to support the evaluation of human health risks.

2.7 DQO Step 7: Develop a Sampling Design

The sampling strategy for this step may be addressed in Sections 3 and 4 in order to collect data identified in Steps 2 through 6 so that the stated problems in Step 1 can be addressed. There may be variances to the sampling based on what is observed in the field. All decisions regarding sampling will be mutually agreed upon between DTSC and WSP.

3 Evaluate Potential Contamination of Previously Investigated Areas and Characterization of Quemetco-Derived Constituents

3.1 Evaluate Potential Contamination of Previously Investigated Areas

New samples will, to the extent possible, be collected at approximately the same locations where sampling occurred in the past. The proposed sampling includes: 1) seven locations on the Quemetco property (aka former Richardson Battery Facility) where DTSC collected samples in December 1991, 2) ten perimeter locations sampled by DTSC in 2004, which led to the implementation of the Narrow Scoped Soil Investigation for Perimeter Soils and subsequent Interim Measures carried out by Quemetco in 2004/2005, 3) several locations along the northern property boundary on the San Jose Creek levee that were sampled during the Narrow Scoped Soil Investigation conducted in 2005, and 4) eight locations sampled by DTSC on July 25, 2012, which led Quemetco to prepare and implement the EIM Workplan dated April 25, 2013.

Soil or sediment samples will be collected as encountered and for each group of samples with XRF readings for lead between 0 to 80 mg/kg, 10% of these samples will be sent for analysis by a fixed laboratory. Similarly, for each group of samples with XRF readings for lead between 80 to 400 mg/kg, and each group of samples exceeding 400 mg/kg for lead, 10% of each of these two sample groups will be sent for analysis by a fixed laboratory. CAM 17 metals as well as aluminum, bismuth, calcium, magnesium, manganese, potassium, potassium, tellurium, and tin will be analyzed with EPA methods 6010/7000 and 6020. Approximately 5% of the samples collected in the areas within and surrounding the facility will be analyzed in a fixed laboratory for 8310 PAHs, 8290 dioxins/furans, and analysis for hexavalent chromium. An ongoing review of this laboratory data in consultation with DTSC will determine the necessity for further sampling and analysis of these COCs in other sample areas. Sample locations are generally spelled out in this Workplan, but specific collection points may be adjusted and augmented as determined to be appropriate in the field at the time of sampling with DTSC concurrence. When resampling past locations, WSP will attempt to replicate original locations. Each new sample location will be recorded using a GPS device. A map depicting all sample locations and surrounding areas will be provided with the final report. XRF, sediment, and soil matrix sample collection methodologies and implementation will be documented.

3.2 Characterization of Quemetco-Derived Constituents

A Technical Memorandum is currently in preparation by Quemetco and will be an addendum to this Work Plan when approved by DTSC.

3.3 Background/Ambient Sampling

A specific work plan for the collection of background/ambient samples outside of potential influence of the Quemetco facility is currently in preparation and will be an addendum to this Work Plan when approved by DTSC.

3.4 Human Health Screening Evaluation

A Technical Memorandum will be prepared by Quemetco that will provide the details of a Human Health Screening Evaluation for use in evaluating all applicable data collected in the implementation of this Work Plan. This Technical Memorandum will be an addendum to this Work Plan when approved by DTSC.

4 Determination of the Lateral Extent of Potential Airborne or Surface Water-Borne Deposition/Accumulation Offsite

The objective of this portion of the RFI off-site investigation is designed to preliminarily delineate the extent of off-site soil, dust and sediments that may contain deposits or accumulations of airborne or surface water-borne Quemetco COCs exceeding their respective CHHSLs/soil screening levels or sediment screening levels. The COC of major importance to the investigation is lead, which has a screening level of 80 mg/kg for residential areas and 320 mg/kg for commercial/industrial areas. The investigation will be conducted initially within ¼ mile radius and potentially up to approximately one mile away and beyond, if necessary, in consultation with DTSC.

4.1 Sampling Areas

Sampling will continue until Quemetco demonstrates to DTSC's satisfaction the extent of contamination has been determined. The sample area will initially be within a ¼ mile radius from the Quemetco plant and will cover the perimeter of the Quemetco plant and the adjacent Quemetco property as well as all the major thoroughfares, San Jose Creek, Puente Creek, a Los Angeles County Flood Control District (LCFCD) drainage ditch, and levee access roads within a 1/4 mile radius of the plant (as described in Section 3.1). It will also cover all residential streets, residential lots, and commercial/industrial buildings located within a radial distance out to 1/4 mile from the Quemetco plant.

The sampling will begin by collecting samples around the immediate site perimeter (just outside the fence line) and on the Quemetco property adjacent to the plant as discussed in Section 2.1.2 and 3.1. Sampling will then be conducted along the major thoroughfares within 1/4 mile (*1,320 feet)* of the Site) of the Site, including South 7th Avenue, Salt Lake Avenue, Clark Avenue and Don Julian Road, as well as Bonelli Street, a small commercial-only street. Sampling will also be performed in San Jose Creek and Puente Creek and along Clark Avenue Drain, a cement-lined Los Angeles County Flood Control District (LCFCD) drainage channel (Figure 5). To access these areas, it will be necessary to acquire encroachment permits from the County of Los Angeles, LCFCD, and the various municipalities.

As sampling occurs in the major thoroughfares, creeks, and levee roads, WSP will attempt to obtain access to residential lots and commercial properties. After this work is completed in the major thoroughfares, an assessment of the data collected will be made before starting the sampling program in the residential streets, residential lots, and commercial property. This assessment will be used to better plan and guide the process for the next groups of sample locations. The next groups of sampling locations will proceed first along the residential streets, then the residential lots, and lastly the commercial/industrial properties. WSP and/or other Quemetco representatives will work jointly with DTSC's Public Participation Program in communicating with the public and will assist in development of a comprehensive public participation plan, including, but not limited to, the development of a community outreach plan aimed at obtaining access agreements from residential and commercial property owners whose property may be subject to the sampling described herein. All sampling locations will be documented in a project dedicated field note book following the procedures outlined in WSP's SOP #1 (Appendix E).

The investigation will consist of XRF readings and collection of soil matrix, dust, and sediment samples for laboratory analysis as described in the following sections. Figure 5 shows the geography within ¼ mile of the Site and the proposed sample locations along the roadways and creeks. The nature of the sampling may require continuing field decisions by DTSC and WSP based on observations, daily DTSC consultation, and XRF field sample results.

4.2 Sampling Strategy and Approach

4.2.1 Non-Residential Public Right-of-Ways

XRF analyses of soil, sediment, or debris along the hardscape (i.e., sidewalks and road pavement) will be performed approximately every 100 feet along major thoroughfares and non-residential streets within a ¼-mile radius of the Quemetco facility following the XRF Standard Operating Procedures (SOP) described in Section 4.4. Soil, sediment, or debris samples will be collected as encountered and for each group of samples with XRF readings between 0 to 80 mg/kg, 10% of the samples will be

sent for analysis by a fixed laboratory. Similarly, for each group of samples with XRF readings between 80 to 400 mg/kg, and each group of samples exceeding 400 mg/kg, 10% of each of these two sample groups will be sent for analysis by a fixed laboratory.

If logistically feasible, sediment samples will be collected from all storm-water catch basins (approximately 25) within a ¼-mile radius of the Quemetco plant and evaluated via XRF, and 10% of such samples (as described above for groups of different concentration levels) will be sent to the fixed analytical laboratory for analysis.

Approximately 5% of the samples will be analyzed in a fixed laboratory for 8310 PAHs, 8290 dioxins/furans, and analysis for hexavalent chromium (see COC list). In the immediate area of the Quemetco facility, a sample from each of the adjacent thoroughfares (the San Jose Creek levee road to the north, S. Seventh Avenue to the west, and Salt Lake Avenue to the south) will be analyzed for PAHs and dioxins/furans. An ongoing review of this laboratory data in consultation with DTSC will determine the necessity for further sampling and analysis of these COCs in other areas to be sampled.

4.2.1.1 Surface Soil, Dust or Debris Sampling Procedures

Samples of materials deposited on hardscape (soil, dust or debris) and other impervious surfaces that may exhibit deposition/accumulation of site-derived COCs may be collected and analyzed at a fixed analytical laboratory. The exact quantity of such samples will be determined in the field. Where sufficient material is present, an approximately one square foot area of surface material or an area sufficient enough to collect enough material for laboratory analysis, shall be outlined using the trowel or dedicated hand held whisk broom and the material within thoroughly mixed together. Care may be taken on rough surfaces so as not to scrape off or damage the underlying material (i.e., concrete, asphalt). The mixed material will be placed into laboratory supplied containers using the dedicated whisk broom and or hand trowel. Gloves shall be changed between sample locations. The sample containers will be labeled and placed into a cooler, with ice, for delivery to the designated analytical laboratory in accordance with WSP's SOP #3 under Chain of Custody (Appendix F). All reusable equipment such as hand trowels and hand augers shall be decontaminated.

4.2.2 San Jose Creek and Puente Creek

XRF analyses of the soil, sediment, dust, or debris along the hardscape will be performed for lead every 100 feet along the bottoms of San Jose Creek and Puente Creek and every 100 feet along the levee roads on both sides of the creeks with particular regard for accumulations of soil, sediment, or dust within a ¼-mile radius of the Quemetco facility. XRF analyses will be performed following the XRF SOP described in Section 4.4. Ten percent (10%) of such samples (as described above for groups of different concentration levels) will be sent a fixed analytical laboratory for analysis and hardscape samples will not be collected on the creek bottom or sidewalls to avoid damaging the concrete surfaces. Approximately 5% of the samples will be analyzed in a fixed laboratory for 8310 PAHs, 8290 dioxins/furans, and analysis for hexavalent chromium (see COC list). An ongoing review of this laboratory data in consultation with DTSC will determine the necessity for further sampling and analysis of these COCs in other sampling areas.

4.2.2.1 Surface Soil, Dust or Debris Sampling Procedures

Samples of materials deposited on hardscape (soil, dust or debris) and other impervious surfaces that may exhibit deposition/accumulation of site-derived COCs may be collected and analyzed at a fixed analytical laboratory. The exact quantity of such samples will be determined in the field. Where sufficient material is present, an approximately one square foot area of surface material or an area sufficient enough to collect enough material for laboratory analysis, shall be outlined using the trowel or dedicated hand held whisk broom and the material within thoroughly mixed together. Care may be taken on rough surfaces so as not to scrape off or damage the underlying material (i.e., concrete, asphalt). The mixed material will be placed into laboratory supplied containers using the dedicated whisk broom and or hand trowel. Gloves shall be changed between sample locations. The sample containers will be labeled and placed into a cooler, with ice, for delivery to the designated analytical laboratory in accordance with WSP's SOP #3 under Chain of Custody (Appendix F). All reusable equipment such as hand trowels and hand augers shall be decontaminated.

4.2.3 Residential Public Right-of-Ways

XRF analyses of the soil, sediment, dust, or debris along the hardscape will be performed at approximately 50-linear foot intervals along residential streets within a 1/4 mile of the Site. XRF analyses will be performed following the XRF SOP described in Section 4.4. Based on the results from the ¼-mile radius sampling, the spacing of XRF sampling on residential streets beyond ¼ mile, if required, will be determined as described in section 4.3.

4.2.3.1 Surface Soil, Dust or Debris Sampling Procedures

Samples of materials deposited on hardscape (soil, dust or debris) and other impervious surfaces that may exhibit deposition/accumulation of site-derived COCs may be collected and analyzed at a fixed analytical laboratory. The exact quantity of such samples will be determined in the field. Where sufficient material is present, a one-foot square area of surface material or an area sufficient enough to collect enough material for laboratory analysis, shall be outlined using the trowel or dedicated hand held whisk broom and the material within thoroughly mixed together. Care may be taken on rough surfaces so as not to scrape off or damage the underlying material (i.e., concrete, asphalt). The mixed material will be placed into laboratory supplied containers using the dedicated whisk broom and or hand trowel. Gloves shall be changed between sample locations. The sample containers will be labeled and placed into a cooler, with ice, for delivery to the designated analytical laboratory in accordance with WSP's SOP #3 under Chain of Custody (Appendix F). All reusable equipment such as hand trowels and hand augers shall be decontaminated.

XRF sampling sediment/dust samples on the hardscape, soil from any planters, tree "boxes", and public rights-of-way parking strips may be sampled as encountered using the XRF and 10% of such samples (as described above for groups of different concentration levels) will be sent to a fixed analytical laboratory for analysis. Sediment samples will be collected from residential area storm-water catch basins within a ¼-mile radius of Quemetco and evaluated using the XRF analyzer, and 10% of such samples (as described above for groups of different concentration levels) will be sent to a fixed laboratory for analysis.

4.2.4 Residential Properties

Within ¼ mile, there are approximately 300 residential lots. Sampling will be conducted on the residential lots based on access agreements. Access will attempt to be obtained from individual owners of residential lots.

For individual residential lots, the approach will be to use the XRF to screen soils for the metal COCs at up to ten (10) locations, each with five depth intervals (0 to 1 inch, 1 to 3 inches, 3 to 6 inches, 6 to 12 inches, and 12 to 18 inches) for a total of up to 50 samples on each lot. Some samples may be screened or collected from materials deposited on hardscape and other impervious surfaces, such as dust. XRF analyses will be performed following the XRF SOP described in Section 4.4. For each group of samples with XRF readings for lead between 0 to 80 mg/kg, 10% of these samples will be sent for analysis by a fixed laboratory. Similarly, for each group of samples with XRF readings for lead between 80 to 400 mg/kg, and each group of samples exceeding 400 mg/kg, 10% of each of these two sample groups will be sent to a fixed analytical laboratory for analysis.

4.2.4.1 **Residential Soil Sampling Procedures**

XRF screening of soils will follow the procedures outlined in Section 4.4. Each residential lot soil sample will be collected using the following procedures:

- Sample locations will be marked with pin flags and will be as evenly spaced as possible to achieve coverage of the area with preference towards bare soils. If there is a designated play area on the lot, two additional subsamples may be collected from the play area. An additional sample may also be collected from the soil at each downspout and from the drip zone by taking samples from all depth intervals (as described below) along each side of the structure where soil is present.

- Surface samples will be collected from the 0 to 1-inch interval at each location.
- If grass is present at the sample location, the grass and root mat will be cut away carefully, removed and any loose dirt shaken into the jar or plastic bag for the 0 to 1-inch depth interval sample. For archival purposes, selected samples will be placed within jars for storage at the laboratory. The grass will be set aside to be replaced after sampling is complete.
- Deeper samples (1 to 3 inches, 3 to 6 inches, 6 to 12 inches and 12 to 18 inches) may be collected at each location by a hand auger or pneumatically driven acetate liners. The sampler will be carefully extracted from the hole to prevent sample loss. Alternatively, if the soils are too sandy to be retained in the hand auger, it may be used along with a trowel to remove soils from the designated intervals.
- If the hand auger is used without a liner, the soil from each depth interval will be placed into separate sample jars or plastic bags. The trowel may be used as necessary to open the hole sufficiently so that loose soil does not slough into the next depth interval. All reusable equipment such as hand trowels and hand augers shall be decontaminated and gloves shall be changed between sampling intervals.
- Once extracted from the ground, a ruler, or similar measuring device, may be used to confirm that at least 18 inches of sample was retrieved. Any material extending beyond 18 inches, or slough, may be discarded.
- Upon completion of all sampling activities, all sampling-holes will be backfilled with soil cuttings and compacted with a heavy blunt object.
- The sample jars will be labeled as designated in Section 4 and placed into a cooler for delivery to the designated analytical laboratory under Chain of Custody.

If there are visible paint chips from on-site structures, glass particles, or other debris present within the drip line they shall be collected in plastic bags, described accordingly with photographs, and submitted for laboratory analysis. Additionally, sampling locations near potential presence of non-aerial depositional sources such as stains, debris, burn pits, peeling paint should be carefully documented in notes and by photograph.

In general, residential samples may not be collected:

- Within areas that were recently disturbed;
- Within five (5) feet of painted permanent structures, except within a drip-zone or where a downspout is present;
- Within two (2) feet of a public roadway (except for parking strips in front of residential lots);
- Within five (5) feet of potential property-specific contamination sources (e.g. trash burning areas, waste storage areas, etc.); or
- Beneath crushed stone, dirt or gravel driveways or parking areas (considered hardscape).

These field procedures may be modified based on the soil conditions encountered. Such field decisions shall be made in conjunction with DTSC personnel.

4.2.4.2 Residential Surface Sampling Procedures

Samples of materials deposited on hardscape and other impervious surfaces, such as dust, that may exhibit deposition/accumulation of site-derived COCs will be scanned by the XRF and may be collected and analyzed at a fixed analytical laboratory. The exact quantity of such samples will be determined in the field; however, Section 3.1 gives an indication of the sampling domain. Where sufficient material is

present, an approximately one square foot area of surface material shall be outlined using the trowel and the material within thoroughly mixed together. Care will be taken on rough surfaces so as not to scrape off or damage the underlying material (i.e., concrete, asphalt).

4.2.5 Commercial/Industrial Properties

Within ¼-mile radius of the Quemetco facility, there are 27 large commercial/industrial buildings ranging in size from approximately 3,300 square feet to 316,000 square feet.

The surrounding commercial/industrial properties are completely or nearly completely covered by buildings and pavement (impervious area). Pervious areas, those areas not covered by buildings and pavement, are limited to very small landscaping areas (often less than 50 square feet and frequently raised several feet above surrounding roads pavement and sidewalks), a few areas with maintained lawns/grass islands and small to medium landscaped areas, and exposed soil and crushed stone.

The initial criteria for sampling commercial/industrial properties will include up to 20 XRF samples collected within each commercial property, including up to four samples at down spout discharge points, up to eight rooftop samples of soil, sediment, or debris on the roof (to be selected based on slope and visual observations in conjunction with DTSC), up to four of soil, sediment, or debris parking lot samples (along drainage ways), and up to four soil samples from landscaped areas.

Soil, sediment, or dust/material samples will be collected from the down spout discharge points, the rooftop, parking lots/drainage ways, and landscaped areas. For each group of samples with XRF readings for lead between 0 to 80 mg/kg, 10% of these samples will be sent for analysis by a fixed laboratory. Similarly, for each group of samples with XRF readings for lead between 80 to 400 mg/kg, and each group of samples exceeding 400 mg/kg, 10% of these sample groups will be sent for analysis by a fixed laboratory.

Where sufficient material is present, an approximately one square foot area of surface material or an area sufficient enough to collect enough material for XRF and laboratory analysis, . Care will be taken on rough surfaces so as not to scrape off or damage the underlying material (i.e., concrete, asphalt). The mixed material will be placed into laboratory supplied containers using the dedicated whisk broom and or hand trowel. Gloves shall be changed between sample locations. The sample containers will be labeled and placed into a cooler, with ice, for delivery to the designated analytical laboratory in accordance with WSP's SOP #3 under Chain of Custody (Appendix F). All reusable equipment such as hand trowels and hand augers shall be decontaminated.

4.2.6 Storm Drains, Surface Soil and Deposition/Accumulation Sediment Sampling

Storm Drains

Sediment samples will be collected in storm water catch basins within approximately 25 catch basins ¼ mile from the Quemetco facility. Based on a preliminary review, it appears that several catch basins near the facility are located adjacent to the street curbing. Before accessing the storm water catch basins, WSP has contacted the appropriate department(s) at the City of Industry and/or Los Angeles County Department of Public Works to obtain permission to remove catch basin manhole covers. Because of potential confined space issues, sampling personnel will not enter the catch basin to collect samples. Samples will be collected by using a twelve foot long swing sampler or dipper to access the sediment. Since it may be necessary to block traffic lanes as work is performed, traffic control plans may be developed and submitted with an encroachment permit applications.

The swing samplers include a six-foot long fiberglass pole that extends up to 12 feet long. A laboratory or manufacturer's supplied polyethylene bottle will be attached to the swing sampler. The swing sampler's bottle is attached to a polyurethane holder and is held in place with a plastic snapper ring that has an adjustable locking device. A new laboratory or manufacturer's supplied bottle shall be used at each sample location. Note: it may be necessary to modify the sampling equipment somewhat or resort to another method of retrieving the sample if WSP is not capable of scooping up the sample in the bottle.

The man-hole cover may be removed to gain access to the storm drain. The swing sampler with the attached bottle will be lowered into the man hole until the bottle has made sufficient contact with sediment to be collected. As noted, samples will be sent for laboratory analysis based on groupings of XRF

readings for lead and will be analyzed for CAM 17 metals as well as aluminum, bismuth, calcium, magnesium, manganese, potassium, tellurium, and tin**,** with EPA Methods 6010/7000, 6020. For initial sampling of the catch basins in the ¼-mile radius surrounding the Quemetco plant, approximately 5% of the samples will be analyzed in a fixed laboratory for 8310 PAHs, 8290 dioxins/furans, and analysis for hexavalent chromium (see COC list). An ongoing review of this laboratory data in consultation with DTSC will determine the necessity for further sampling and analysis of these COCs in other sampling areas.

A storm drain diagram and map will be prepared and used to guide the order in which storm drains are sampled. The following sampling information will be recorded in a field notebook: sample location; sample GPS coordinates; sample identification numbers; date and time; sample depth; field lead concentration; and description of any visible evidence of contamination (i.e., odor, staining).

4.3 Sampling Strategy Beyond ¼-Mile Radius from the Site

In consultation with the DTSC, sampling beyond a ¼ -mile radius will be based on the results of the sampling within ¼ mile radius of the Quemetco facility and the characterization/identification of potential Quemetco-derived lead found within ¼ mile radius of the Quemetco facility. Quemetco will then implement or modify this workplan in consultation with DTSC, as necessary, to conduct additional sampling in the following areas beyond ¼ mile radius up to one mile and potentially beyond:

- Non-residential and residential public rights-of-way
- Residential properties
- Commercial/industrial properties

4.4 XRF Evaluation Activities

XRF evaluation will be conducted using a handheld XRF analyzer in general accordance with U.S. EPA 6200 XRF SOP (February 2007). WSP's SOP for using the XRF analyzer is included in Appendix D. The instrument and procedures for use of the XRF device has been verified in the EPA Innovative Technology Verification Report: *XRF Technologies for Measuring Trace Elements in Soil and Sediment; Niton Xli 700 Series XRF Analyzer*, dated February 2006.

A modern instrument will be used with a miniaturized X-ray tube as its source rather than a radioactive isotope for X-ray generation for analysis such as, the Olympus Delta Professional Soil Environmental Analyzer, Niton XLt 700 Series Multi-element XRF Spectrum Analyzer, or the Bruker S1 Titan. XRF readings will be taken *in situ* on the following types of surfaces: exposed soil areas and hardscapes (i.e., roadways, sidewalks, parking lots, and roof tops).*Ex situ* samples will be tested by placing material in an unused plastic Ziploc bag to be scanned with the XRF. For archival purposes, selected samples will be placed within jars for storage at the laboratory. Examples of materials to be testing *ex situ* include soil samples for vertical profiling, and dust or sediment collected from hardscape surfaces.

4.4.1 XRF evaluation for *in situ* materials:

XRF evaluation for *in situ* materials will be conducted as follows:

- Clear the sample area of debris, rocks, pebbles, and organic matter.
- The soil surface must be smooth to provide good contact with the soil sampling protection plate of the XRF device. If necessary, the surface may be leveled with a stainless steel spoon (or similar) before testing.
- The surface may be tamped to increase soil density, based on the SW-846 protocol; this process may allow better repeatability and ensure that the sample is representative.
- The XRF does not perform well for soils with moisture content greater than 20%; WSP field representatives will ensure soil is not saturated prior to XRF analysis. If any soil has moisture content greater than 20%, a physical sample may be collected instead and sent to a fixed laboratory for analysis. Where feasible moisture content

will be measured in the field using a hand held soil moisture meter (General DSMM500 or equivalent).

- The field lead evaluation will be performed in accordance with the manufacturer's manual for operation of XRF instrumentation. The XRF device (along with a soil sampling protection plate) will be placed directly on the sampling location for a minimum of 60 nominal seconds (i.e., 60 seconds counted by the XRF device). Based on manufacturer's specifications, this method of analysis detects lead in the upper few millimeters of soil in contact with the soil protection plate.

4.4.2 XRF evaluation for *ex situ* materials

XRF evaluation for *ex situ* materials will be conducted as follows:

- The hand-auger or trowel sample will be placed directly into a new, unused labeled plastic baggie. Unless the plastic baggie containing the sample is sent to the fix lab for confirmation analyses, it will be discarded following its use.
- Soil samples will be prepared by homogenizing within the plastic baggie. Large soil particles will be broken up by hand in order to create a homogenous material suitable for analyzing through the baggie with the XRF.
- Shape the bag of soil to form a continuous uniform layer of at least one centimeter thickness and lay on a firm flat surface (as an alternative some XRF manufactures offer a shielded testing box built specifically for measuring *ex situ* samples).
- Place the testing window of the XRF unit in firm contact with the sample bag and take the reading (hold for 60 seconds, similar to the *in situ* sampling method).

The XRF may be used to test for all CAM 17 metals, in addition to recording the lead concentrations. Summary tables of all of the XRF data collected will be included in the final report.

The XRF correction factors and summary tables of corrected XRF data will be provided in the subsequent Report. This information will be used in conjunction with laboratory results to create profiles.

A Certificate of Registration for the XRF device to be used for the soil sampling will be obtained from the State of California Health and Human Services Agency, Department of Public Health (CDPH), prior to its use in the field. A copy of the Certificate of Registration, all completed registration forms, and CDPH approval letter will be included in the subsequent Report. The CDPH will also be notified of the mobilization/demobilization of the XRF within the appropriate time periods set forth by the CDPH; with copies of all notices to be provided to DTSC before field work begins and included in the final Report.

4.4.3 Field Activities and Data Collection Documentation

<u>Field Documentation</u>

Field personnel will document where, when, how, and from whom any vital project information was obtained in field logbooks. Logbooks will be bound with consecutively numbered pages. Each page will be dated and the time of entry noted in military time. For collection of the XRF data an efficient method for standardizing data format is by using worksheets similar to the one shown in the XRF SOP (Appendix D). At a minimum, the following information will be recorded during the collection of each sample:

- Sampling Area Description (property address if applicable)
- Sample identification number
- GPS location coordinates
- Date and time of sample collection
- Type of sample (i.e., matrix)
- Type of sampling equipment used
- Field observations and details important to analysis or integrity of samples (e.g., weather conditions, soil

moisture, odors, colors, etc.)

- Field XRF reading results for lead, including the range of error (+/-)(results for other metals will be stored in the XRF unit's internal memory to be down loaded regularly)
- Moisture meter reading on soil (if applicable)
- Standard XRF check results
- Identify if a sample was sent to the off-site analytical laboratory for analysis.

4.5 Sample Analyses

All samples will be tested for lead in the field using the XRF analyzer. All confirmation samples sent to the fix laboratory will be analyzed for the CAM 17 (Title 22) metals list.

Soil samples collected during the program will be analyzed by a laboratory that is accredited by the California Environmental Laboratory Accreditation Program (CELAP). The following samples will be collected and analyzed as part of this investigation effort:

- Surficial soil, dust, and sediment samples will be analyzed for CAM 17 metals by EPA method 6010/7000 or EPA 6020.
- Storm drain sediment samples will be analyzed for CAM 17 metals by EPA method 6010/7000 or EPA 6020
- For initial sampling in the ¼ mile radius surrounding the Quemetco plant for the areas within the plant and adjacent Quemetco property, non-residential public rights-of-way and San Jose Creek, Puente Creek, and the levee roads, approximately 5% of the samples will be analyzed in a fixed laboratory for 8310 PAHs, 8290 dioxins/furans, and analysis for hexavalent chromium (see COC list, Section 2.3).

4.5.1 Quality Control Samples

Equipment Blanks

Equipment blanks will be collected on non-dedicated equipment that is used to collect the samples (e.g., hand trowels, brushes, hand auger equipment, vacuum, and shovels). Equipment blanks will be collected after the equipment is cleaned by pouring distilled water over the tools and collecting the water in laboratory provided containers. The equipment blank will only represent the rinsate collected off of one tool. Equipment blanks will be collected once per day and analyzed for metals using EPA Method 6010/7000 or EPA 6020.

Trip Blanks

The use of trip blanks is typically limited to volatile organic compound (VOC) analysis. Because VOC analysis was not proposed for this investigation, trip blanks will not be analyzed for this investigation.

XRF Sampling

For each group of samples with XRF readings for lead between 0 to 80 mg/kg, 10% of these samples will be sent for analysis by a fixed laboratory. Similarly, for each group of samples with XRF readings for lead between 80 to 400 mg/kg, and each group of samples exceeding 400 mg/kg, 10% of each of these two sample groups will be sent for analysis by a fixed laboratory. The XRF data will to be adjusted based on the acceptable correlation between the fixed lab data and the XRF data.

4.5.2 Sample Preservation, Shipping, and Documentation

Soil Sample Containers and Preservatives

Most samples being sent to the lab (i.e., metals confirmation samples) will be in the original plastic baggies that were tested using the XRF. For archival purposes, selected samples will be placed within jars for storage at the laboratory. Other samples, such as those submitted for analyses of PAHs and dioxins/furans, will be preserved in laboratory will provided soil sample containers.

Sample Packaging and Shipment

To identify and manage samples obtained in the field, a sample label will be affixed to each sample container. The sample labels will include at a minimum the following information:

- Sample identification number and sample depth
- Date and time of collection
- Client name

Following collection and labeling, samples will be immediately placed in a sample cooler for temporary storage. The following protocol will be followed for sample packaging:

1. Samples to be shipped will be placed in the cooler and packed with packaging materials to minimize the potential for disturbance and/or breakage of the sample containers.
2. Ice or "Blue Ice" packs will be placed in leak-resistant plastic bags and added to the coolers to chill the samples during transportation to the analytical laboratory.
3. The chain-of-custody form will be placed in a water-resistant plastic bag and taped on the inside of the lid of the cooler.

All samples will be maintained in the custody of the sampling team. The samples will be transported to the analytical laboratory at the end of the sampling day under appropriate chain-of-custody procedures.

Chain-of-Custody Records

Chain-of-custody (COC) records are used to document sample collection and shipment to the laboratory for analysis. All sample shipments will be accompanied by a COC record. The COC record will identify the contents of each shipment and maintain the custodial integrity of the samples. COC will also be kept for XRF samples to be held or archived for future review or analysis.

4.6 Decontamination Procedures

All equipment that comes into contact with potentially contaminated soil will be decontaminated before use in accordance with WSP's SOP #6 (Appendix G). Disposable or dedicated equipment intended for one time use will not be decontaminated, but will be packaged in Quemetco's personal protective equipment (PPE) refuse containers for appropriate disposal. All non-disposable sampling devices will be decontaminated using the following procedures:

- Non-phosphate detergent and tap water wash, using a brush if necessary
- Tap-water rinse

4.7 Investigation Derived Waste Management

In the process of collecting environmental samples during the proposed field sampling program, different types of potentially contaminated investigation-derived wastes (IDW) will be generated. The wastes will be handled as follows:

- Soil will be placed back into their respective sample holes.
- Decontamination fluids will be processed through Quemetco's wastewater treatment plant.
- Used personal protective equipment (PPE) and disposable equipment (used sampling trays) will be placed in Quemetco, Inc.'s PPE refuse containers. Used PPE will be handled as hazardous waste consistent with Quemetco, Inc.'s waste handling practices.
- DTSC IDW guidance will be followed.

4.8 Reporting

Field notes and Daily Field Reports shall be prepared under the direction of licensed professionals—either civil or geotechnical engineer or professional geologist, licensed in the State of California. Moisture conditions must be noted. A summary weekly report will be prepared that includes a schedule of activities anticipated for the

following week. This report will include data sets from the week's activities. The schedule will be updated during the week as activity deviations occur. Interim Monthly Summary Reports will be submitted to present to status of on-going and/or completed activities and activities projected for the next month. It is expected that any problems or deviations from the approved work will be described and available analytical results and sample location maps included. Upon completion of all of the sampling activities, a Final Report detailing the investigation efforts will be prepared and submitted to DTSC. The report will include sample methodology, sample results, laboratory analytical and quality assurance and quality control review, and a map depicting GPS-recorded sample locations.

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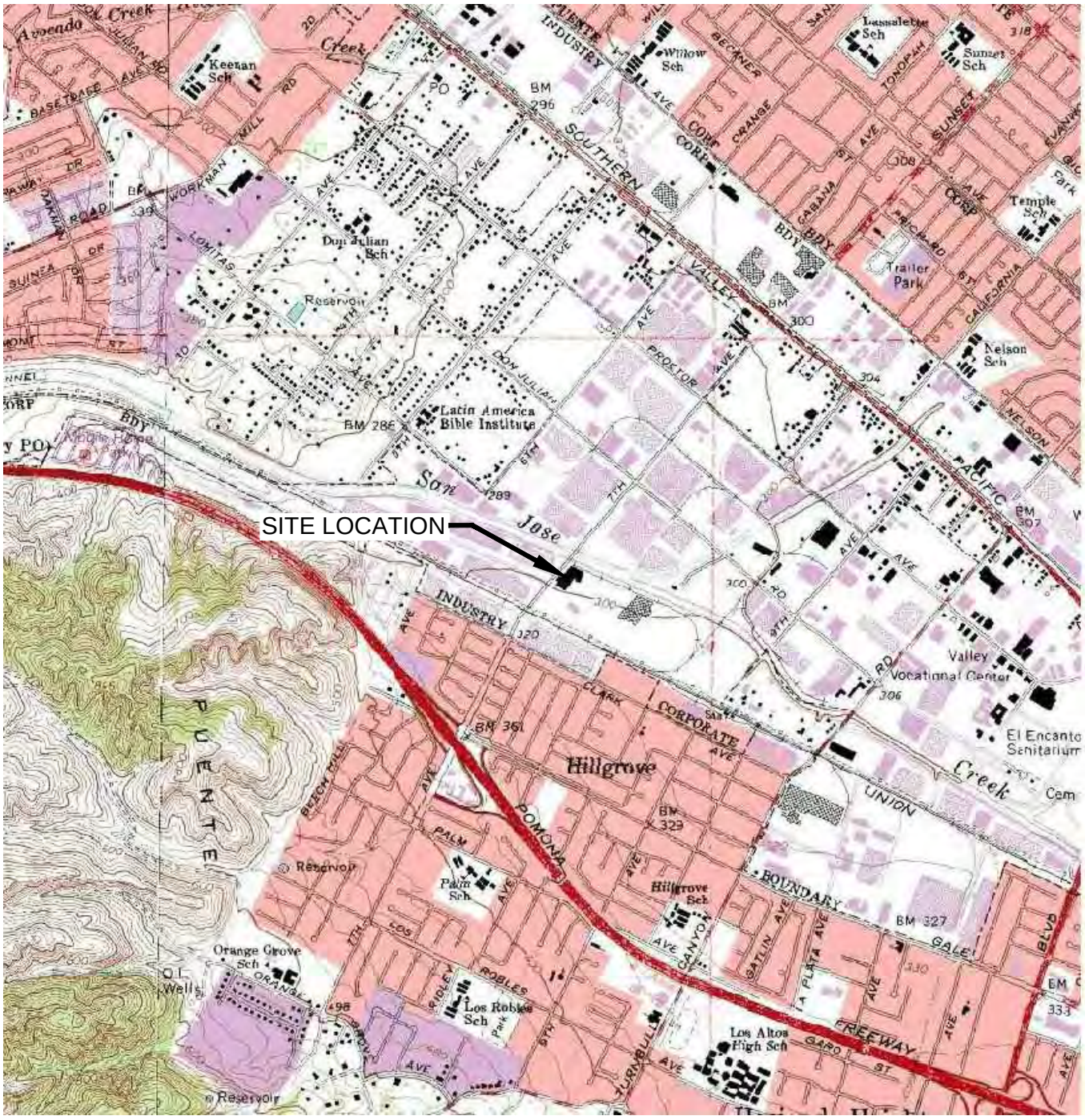
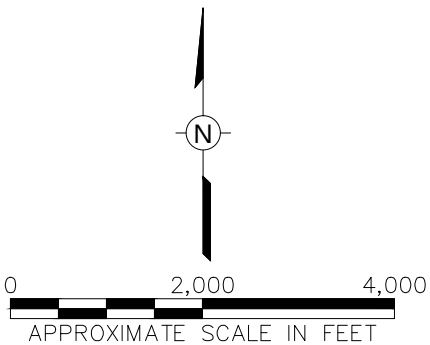
Figures



REFERENCE
7.5 MINUTE SERIES TOPOGRAPHIC QUADRANGLE
BALDWIN PARK, CALIFORNIA
PHOTOREVISED 1966

SOURCE: DTSC, OFF-SITE SAMPLING REPORT IN THE VICINITY OF QUEMETCO, INC., CITY OF INDUSTRY, CA, MARCH 1992

QUADRANGLE LOCATION



WSP | PARSONS BRINCKERHOFF WSP Services, Inc. 2025 Gateway Place, Suite 435 San Jose, California 95110 (408) 453-6100 www.wspgroup.com/usa	Figure 1 SITE LOCATION	QUEMETCO, INC. CITY OF INDUSTRY, CALIFORNIA PREPARED FOR QUEMETCO, INC

A | Drawn By: LS 3/9/2016 | Checked: AWJ 3/9/2016 | Approved: AS 3/9/2016 | DWG Name: 000M8076-060

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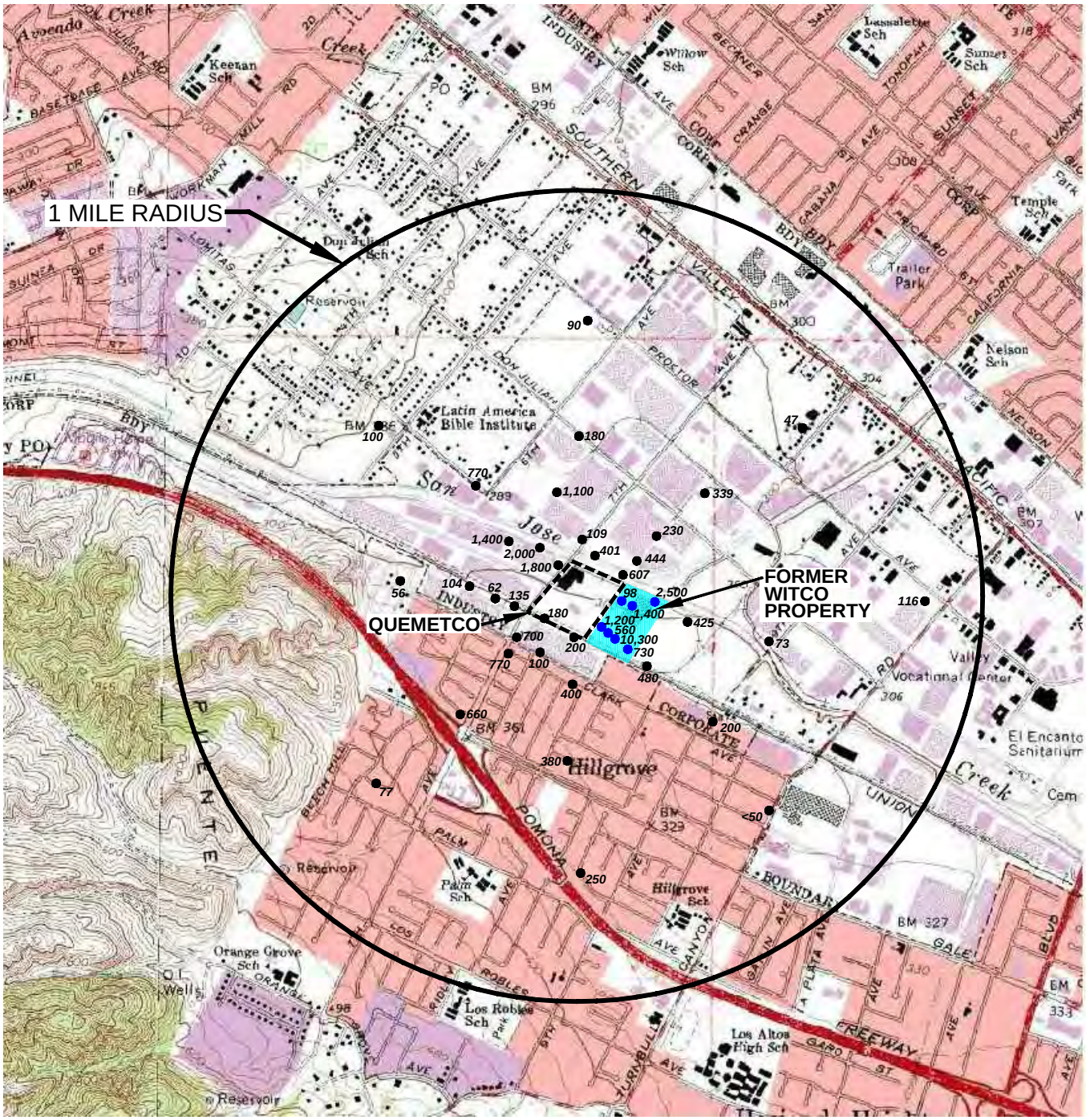


LEGEND

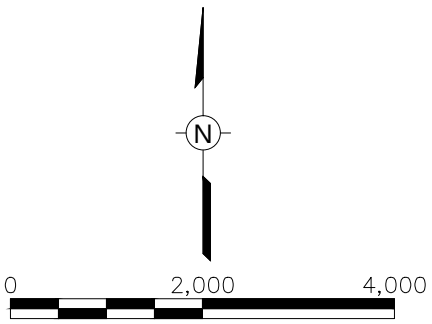
- ● DTSC SOIL SAMPLE LOCATIONS, DECEMBER 1991
- ● SOIL SAMPLE LOCATION TO BE RESAMPLED
- **250** LEAD CONCENTRATION (mg/kg) REPORTED IN DECEMBER 1991

REFERENCE

7.5 MINUTE SERIES TOPOGRAPHIC QUADRANGLE
BALDWIN PARK, CALIFORNIA
PHOTOREVISED 1966

SOURCE: DTSC, OFF-SITE SAMPLING REPORT IN THE VICINITY OF QUEMETCO, INC., CITY OF INDUSTRY, CA, MARCH 1992

QUADRANGLE LOCATION



APPROXIMATE SCALE IN FEET

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WSP Services, Inc.
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San Jose, California 95110
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Figure 2

DTSC DECEMBER 1991
SOIL SAMPLING LOCATION MAP

QUEMETCO, INC.
CITY OF INDUSTRY, CALIFORNIA

PREPARED FOR
QUEMETCO, INC

A | Drawn By: LS 3/9/2016 | Checked: AW 3/9/2016 | Approved: BS 3/9/2016 | DWG Name: 000M8076-055

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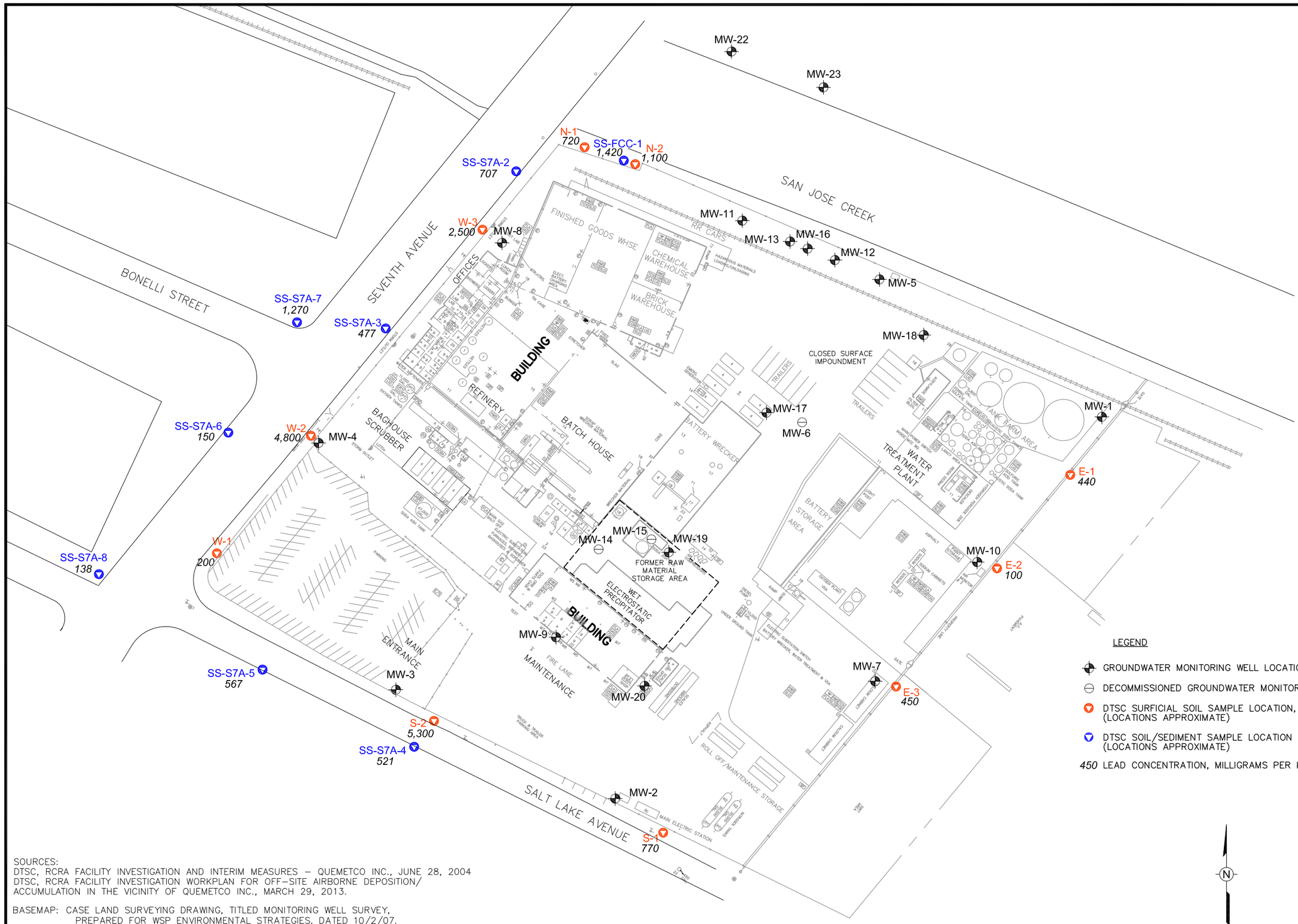

SOURCES:
DTSC, RCRA FACILITY INVESTIGATION AND INTERIM MEASURES – QUEMETCO INC., JUNE 28, 2004
DTSC, RCRA FACILITY INVESTIGATION WORKPLAN FOR OFF-SITE AIRBORNE DEPOSITION/ ACCUMULATION IN THE VICINITY OF QUEMETCO INC., MARCH 29, 2013.

BASEMAP: CASE LAND SURVEYING DRAWING, TITLED MONITORING WELL SURVEY, PREPARED FOR WSP ENVIRONMENTAL STRATEGIES, DATED 10/2/07.

Drawn By:	LS	3/9/2016
Checked:	AW	3/9/2016
Approved:	BS	3/9/2016
DWG Name:	000M8076-053	

QUEMETCO
CITY OF INDUSTRY, CALIFORNIA
PREPARED FOR
QUEMETCO, INC.

Figure 3

SITE PLAN SHOWING DTSC SURFICIAL SOIL AND SEDIMENT SAMPLE LOCATIONS 2004 AND 2012

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LEGEND

XRF-79 • SAMPLE POINT BELOW 200 ppm LEAD

XRF-80 • SAMPLE POINT ABOVE 200 ppm LEAD

A 0+00 A' CROSS-SECTION LINE WITH STATIONING

SAN JOSE AVENUE

SEVENTH AVENUE

SALT LAKE AVENUE

CREEK

CONC. DWY

RETAINING WALL

AC

DIRT AREA

0 120 240

APPROXIMATE SCALE IN FEET

FIGURE ORIGINALLY FROM NARROW SCOPED SOIL INVESTIGATION REPORT FOR THE PERIMETER SOIL AT QUEMETCO INC. CITY OF INDUSTRY, CA., PREPARED BY ENVIRONMENTAL STRATEGIES CONSULTING LLC, JULY 2005.

NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE DIRECTION OF A PROFESSIONAL. DO NOT ALTER THIS DOCUMENT IN ANY WAY WITHOUT THE WRITTEN CONSENT OF WSP SERVICES, INC.

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK AND WHITE COPIES MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

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DWG Name:	000M8076-054	

QUEMETCO, INC.
CITY OF INDUSTRY, CALIFORNIA

PREPARED FOR
QUEMETCO, INC.

Figure 4

SITE PLAN SHOWING XRF SAMPLING LOCATIONS COLLECTED FOR NARROW SCOPED SOIL INVESTIGATION 2005

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Trailside Dr
Proctor Ave
SAN JOSE CREEK
Bonelli St
RAILROAD TRACKS
Bonelli St.
7th Ave.
1/4 MILE RADIUS
Don Julian Rd.
PUENTE CREEK
QUEMETCO
SITE BOUNDARY
Salt Lake Ave
Salt Lake Ave.
SAN JOSE CREEK
Don Julian Rd
Ameluxen Ave.
Fairbury St.
Novak St.
Clark Ave
Clark Ave.
LINED DRAINAGE DITCH LACFCD
Marwood St
Folkstone Ave
Marwood St.
Ansford St.
S 7th Ave.
Doverfield Av.
Hedgepath Ave.
Finegrove Ave.
Latchford Ave.
Jarrow Ave.
Kinbrae Ave.
Gale Ave.
Hedgepath Ave
Walbrook
Ameluxen Ave
S 7th Ave
Old Canyon Dr
Beech Hill Ave
6th Ave
60
TOTAL RESIDENCES WITHIN 1/4 MILE SAMPLING RANGE = 289 (APPROXIMATELY)

LEGEND

- XRF/SEDIMENT/DUST SAMPLES ALONG MAJOR THROUGHWAYS AND COMMERCIAL STREETS (100 FOOT SPACING)
- XRF/SEDIMENT/DUST SAMPLES ALONG RESIDENTIAL STREET (50 FOOT SPACING)
- XRF/SEDIMENT SAMPLES IN SAN JOSE AND PUENTE CREEKS (100 FOOT SPACING)
- XRF/SEDIMENT SAMPLES ALONG LACFD DRAINAGE DITCH (100 FOOT SPACING)
- XRF/SOIL SAMPLES ALONG LEVEE ROADS OF SAN JOSE AND PUENTE CREEKS (100 FOOT OFFSET SPACING)
- CATCH BASIN
- 10 BUILDING NUMBER

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DWG Name:	000M8076-059	

QUEMETCO, INC.
CITY OF INDUSTRY, CALIFORNIA

PREPARED FOR
QUEMETCO, INC.

Figure 5

PROPOSED SAMPLING LOCATIONS
WITHIN 1/4 MILE OF THE SITE

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San Jose, California 95110
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www.wspgroup.com/usa

Appendix A – DTSC Letter 3-16-15

Department of Toxic Substances Control

Matthew Rodriquez
Secretary for
Environmental Protection

Barbara A. Lee, Director
9211 Oakdale Avenue
Chatsworth, California 91311

Edmund G. Brown Jr.
Governor

March 16, 2015

Certified Mail #7014 0150 0000 5665 5489
Return Receipt Requested

Mr. Gerry Manley
Vice President, EH&S Compliance
RSR Corporation
2777 N. Stemmons, Suite 1800
Dallas, Texas 75207

RCRA FACILITY INVESTIGATION WORKPLAN PERIMETER AREAS OF FACILITY - QUEMETCO INCORPORATED (AKA RSR CORPORATION), LOCATED AT 720 SOUTH 7TH AVENUE, CITY OF INDUSTRY, CA 91749, EPA ID NUMBER CAD 066 233 966

Dear Mr. Manley:

The Department of Toxic Substances Control (DTSC) has evaluated the *"RCRA Facility Investigation Workplan Perimeter Areas of Quemetco, Inc. Facility, City of Industry, CA" (Workplan),* dated July 12, 2013, submitted on your behalf by WSP Services, Inc. (WSP). DTSC had requested the *Workplan* for further investigations to address airborne deposition/accumulation resulting from Quemetco, Inc.'s (Quemetco) emissions around its City of Industry facility. The *Workplan* was required to specifically address: (1) emission deposition run-off accumulation in storm-water boxes (2) emission deposition/accumulation contamination in uninvestigated off-site areas; and (3) emission deposition/accumulation re-contamination in on- and off-site areas previously subject to emergency interim measures in 2004 and 2013.

Although early on DTSC determined that it did not concur with the *Workplan* as proposed by Quemetco, it decided to wait and evaluate Quemetco's proposal further in light of significantly reduced facility emissions over the last few years and the unfolding off-site investigation and cleanup efforts at the Exide Technologies, Inc. (Exide) facility in the City of Vernon. Although DTSC recognizes that Quemetco has operated fewer overall years, with more of those years being under steadily increasing emissions controls, it is very clear that Quemetco operates much closer to residential areas than Exide. The *Workplan* needs to be revised to reflect this proximity. The following represent key elements of the *Workplan* that need to be significantly revised by Quemetco:

- Quemetco must express the overall purposes of the various portions of the *Workplan* more responsively to DTSC's original workplan request: (1) delineation of the extent of off-site soil and deposition/accumulation sediments that may contain priority metals exceeding California Human Health Screening Levels (CHHSLs) for industrial properties is not an acceptable re-statement of DTSC's workplan request. Specifically, Quemetco must address all of its emitted COCs, not simply priority metals; neither can it apply soil screening levels for industrial properties to residences or even public areas; (2) DTSC requested that the *Workplan* expand the 2013 re-contamination evaluation to include **ALL** of the perimeter areas that Quemetco had "stabilized" in the original 2004 Emergency Interim Measure (EIM)----**NOT** to simply resample the two 2012 locations where DTSC had found lead and other COCs and that Quemetco had addressed in its 2013 investigation of lateral extent and cleanup at them.

- Quemetco must develop and apply project-specific Data Quality Objectives (DQOs), per U.S. EPA guidance, as opposed to using the 2010 DQOs cited in the *Workplan*. Those were originally proposed for another purpose at Quemetco (including groundwater and the site interior) and are not particularly relevant to the off-site airborne emission deposition/accumulation issues that are the subject of this *Workplan*. Quemetco may examine the various Exide efforts to assist in development of appropriate DQOs for the work requested.

- Quemetco needs to acknowledge in a revised *Workplan* that more than just deposition/accumulation of lead from its emissions is a concern. **ALL** of the constituents concern (COCs) associated with Facility emissions need to be measured and evaluated with regard to deposition/accumulation. COCs are the waste constituents, reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in the regulated unit. [Title 22, California Code of Regulations, Section 66260.10] DTSC analyzed one of the higher off-site lead-bearing samples at Quemetco in 2012 and found dioxins/furans along with lead.

Quemetco states in its *Workplan* that "Surficial soil samples will be analyzed for CAM 17 metals by EPA method 6010/7000." This is inadequate. Quemetco is permitted by DTSC for various specific RCRA and California-only waste codes---some of these are emitted COCs. Quemetco has performed emissions tests on its operations which were used as the bases for Health Risk Assessments (HRAs) for the South Coast Air Quality Management District (SCAQMD) and for HRA(s) for its RCRA Permit application(s)---these are emitted COCs. Not every sample may need to be analyzed for every COC, however, Quemetco must provide a reasonable strategy to obtain representative results for all its COCs.

- The *Workplan* proposed that "Soil samples will likely be collected within publically accessible areas including, but not limited to, planter boxes, exposed soil areas or where sediment has accumulated/deposited on asphalt or concrete paved

locations." Quemetco needs to broaden the types of sampling targets which could have been or are being impacted by deposition/accumulation and include more than just publically accessible areas. Residential properties must also be included. The revised *Workplan* must contain a strategy for sampling residential properties in the quadrants of its proposed 1320-foot concentric zones. Commercial/industrial properties must also be included. The revised *Workplan* must describe a strategy for sampling those commercial/industrial properties in the quadrants of its proposed 1320-foot concentric zones.

- The *Workplan* proposed that "The offsite investigation will consist of collecting X-Ray Fluorescence (XRF) surficial zone samples, and soil matrix surficial zone samples." The proposed mixture of field X-ray fluorescence (XRF) and surficial soil matrix and sediment sampling represents a generally good overall technique for much of the required investigation. However, there are some additional sampling protocols that need to be included and other details that need to acknowledged in a revised *Workplan*:

  (1) Special adherence needs to be observed to Section 9.7 of the U.S. EPA 6200 XRF SOP (Feb 2007) which requires a minimum of 1 sample to be submitted for confirmatory analysis (5%) for each 20 FPXRF-analyzed samples;

  (2) Similarly, special adherence is necessary to Section 4.7 of the above SOP which states that "If a site is encountered that contains lead at concentrations greater than ten times the concentration of arsenic it is advisable that all critical soil samples be sent off site for confirmatory analysis using other techniques..." **;**

  (3) At a minimum. Representative soil matrix sampling should be performed **ALL** shallow" publically accessible" bare soil observed.

  (4) Surface sampling of hardscapes is necessary for all XRF screening values greater than the residential RSL (Industrial RSL only where appropriate) for the particular analyzed constituent (less an acceptable estimated error).

  (5) Greenscape sampling is necessary. Airborne emissions do deposit and accumulate in lawns, shrubs and other greenscape such as planter boxes.

  (6) At least twenty (20) percent of all the soil matrix samples need to be sieved using a #60 sieve and the fine fraction from these samples analyzed for the organic COCs. The prevailing wind schematics to be included in the revised *Workplan* need to be utilized to assure that

samples are collected in both upwind and downwind locations from the facility in the proposed sectors.

(7) "Micro-layer" soil matrix sampling is necessary to supplement the XRF screening for all publically accessible bare soil areas and on residential and commercial/industrial sites. Note that it is expected that all soil samples will be taken at depths of 0 to 1 inch, 1 to 3 inches and 3 to 6 inches. Where feasible, particularly for the residences, additional soil samples shall be taken at 6 to12 and 12 to18 inches bgs. These may be archived until the shallowest samples are evaluated.

- Quemetco needs to clarify specifics regarding the number of samples that may be necessary overall. The *Workplan* proposed that "The investigation will be performed by collecting XRF and soil samples within four (4) quadrants at radially spaced intervals of approximately 330 feet, 660 feet, 990 feet, and 1,320 feet from the Quemetco plant." This appears give a total of 16 samples (4 radial samples in each of 4 quadrants). Given what DTSC has learned in earlier investigations on the perimeter of Quemetco together with the various off-site investigations at Exide Technologies, Inc. in Vernon, this would be too few samples to address this are of maximum potential impact.

Although exact locations sample(s) shall actually be obtained should be a field decision by the Quemetco consultant in conjunction with the DTSC project manager and/or project geologist, a revised *Workplan* should propose as a point of departure: (1) 100-ft linear spacing along the major arterials and roadways for the dust sampling. (2) 50 ft linear spacing in the residential areas. It is noted that XRF sample spacing in the **2004** perimeter study varied from 10 to 50 feet

- Some necessary sampling and locational details need to be addressed include:

(1) A strategy for determining how many soil samples will be taken at an individual residential property and how to choose locations. It is suggested that XRF screening and surface and soil sampling should be performed (yards, etc.) at a minimum of 80 percent of the residences in the 0 to 330-foot and 330 to 660-foot radial zones, and depending on those results a minimum of 20 percent of the residences in the 660 to 990-foot radial zone. It is suggested that the revised *Workplan* shall address a minimum of 5 point locations per residence.

(2) A strategy for determining how many soil samples will be taken at an individual commercial/industrial property, and how to choose locations. A description of XRF surface and soil sampling is necessary for all of the commercial/industrial sites (roofs, parking lots, landscape) in all radial zones(0 to 1320 feet). There appear to be approximately 12 commercial/industrial buildings within all of the radial zones (0 to 1320). A

revised *Workplan* needs to propose a sampling strategy that includes both sampling by XRF and collection of dust/loose material. The ground-level areas at all downspouts shall also be addressed by XRF and dust/sediment sampling.

(3) A description of XRF and SOP dust and sediment sampling of the San Jose Creek bottom hardscape. A linear spacing of 50-feet is suggested--- commensurate with the previous perimeter studies along the access road above the creek. A proportionate amount of Creek sidewall sampling should also be proposed. It needs to be clear that any observable sediment accumulations should be sampled;

(4) X-Ray Fluorescence (XRF) surface screening of public rights-of-way hardscapes (streets, sidewalks, walkways, street curbs and gutters, etc.), surficial soil (including bare soil as available such as planters, tree boxes, etc) needs to be better explained.

(5) Sampling protocols need to be discussed for greenscapes such as lawns which could trap deposited emitted COCs adjacent to the hardscapes, residential, commercial, and industrial

(6) Sampling protocols for dust and other adhered matter that may have accumulated on the horizontal and vertical hardscape surfaces needs to be considered and discussed;

(7) Sampling of asphalt and concrete where the XRF indicates significant lead or other COC concentrations is present needs to be discussed. The ad hoc cleaning such as was done for several locations in the 2013 EIM, did not seem to fully reduce the XRF values to below an applicable screening level.

- Quemetco needs to re-evaluate its proposed concentrations of relevance for its proposed investigation. Specifically, the commercial industrial (C/I) California Human Health Screening Levels (CHSSLs) proposed are not applicable to public rights-of-way, residential property, or even commercial/industrial properties where the current owners may not consent to use of such levels. Since portions of the area proposed to be investigated are in fact residential or in public rights-of-way, the proposed use of industrial screening levels is unacceptable.

The *Workplan* proposed to use screening levels to determine if observed concentrations of COCs pose a risk to human health or the environment. While the concept is acceptable, Quemetco made comparisons to the Office of Environmental Human Health Assessment's (OEHHA) California Human Health Screening Levels (CHHSLs) through much of the Workplan. DTSC's Human and Ecological Risk Division (HERD) no longer recommends using CHHSLs as screening criteria. This is because CHHSLs are not updated on a regular basis to reflect changes in toxicity criteria. Therefore, HERD

recommends using the EPA Region 9 RSLs or modified RSLs, as specified in the HERD Human Health Risk Assessment (HHRA) Note Number 3. Lead is an exception and DTSC does not use the EPA RSLs, but instead uses 80 mg/kg for residential use and 320 mg/kg for industrial/commercial use, as detailed in HHRA Note 3.

A revised *Workplan* is required that better considers how to achieve appropriate objectives for the required off-site investigation. But before that, DTSC proposes to discuss in detail with Quemetco both general issues outlined above and very specific concerns throughout the *Workplan* that were developed during the extended review. In order to maximize the effectiveness of such a meeting, DTSC requests that Quemetco develop and bring to the meeting some key materials---even if only in draft form:

- Chronologically representative stack emissions tests. Emissions and pollution control equipment and procedures are expected to have changed through time and the sampling needs to represent historical as well as current COCs.

- A complete COC list for Quemetco together with rationale for excluding certain of COCs from the airborne deposition/accumulation investigation analyte list. Attachment A to this letter is a draft of what DTSC considers may be such a target analyte list. Quemetco also needs to include screening levels for the target analytes that represent

- A map showing the surrounding storm water drainage system(s) as best as can be quickly determined. Particularly, the locations of the storm water catch basins within the 1320-foot target radius need to be used in evaluating required sampling.

- An enlarged map of sufficient scale to illustrate specific residential and commercial/industrial locations in those portions of City of Industry and Los Angeles County that lie within proposed target radius of 1320 feet.

- A conceptual proposal for a residential and commercial/industrial owner contact plan. It is suggested that Quemetco evaluate applicable elements of the approaches that have been used at Exide Technologies, Inc.

It is suggested that the meeting be set as soon as possible. Please contact Mr. Jess Villamayor, Project Manager, at (818) 717-6601, sometime in the next fourteen (14) Calendar days in order to set a mutually acceptable date and time.

Sincerely,

Phil Chandler, R. Geophys.
Unit Chief
Brownfields and Environmental Restoration Program - Chatsworth Office

Enclosure

cc: Mr. Richard Freudenberger
WSP Environment & Energy
2025 Gateway Place, Suite 435
San Jose, California 95110

Mr. Edwin Pupka
Senior Enforcement Manager
Office of Engineering and Compliance
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, California 91765-4178

Mr. Jay Chen
Senior Air Quality Engineering Manager
Office of Engineering and Compliance
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, California 91765-4178

Ms. Ruth Williams-Moorehead
Environmental and Emergency Response Program
Department of Toxic Substances Control
9211 Oakdale Avenue
Chatsworth, California 91311

Mr. Farshad Vakili
Office of Permitting
Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, California 95826-3200

cc: Mr. Todd Wallbom, P.G.
Brownfields and Environmental Restoration Program
Chatsworth Geological Services Unit
Department of Toxic Substances Control
9211 Oakdale Avenue
Chatsworth, California 91311

Mr. Jess Villamayor
Brownfields and Environmental Restoration Program
Department of Toxic Substances Control
9211 Oakdale Avenue
Chatsworth, California 91311

Residential and Industrial Soil Screening Values Quemetco

Chemical[a]	CAS Number	Residential Soil (mg/kg)		Industrial Soil (mg/kg)	
Arsenic	7440-38-2	6.2E-02	DTSC 2013	2.5E-01	DTSC 2013
Antimony	7440-36-0	3.1E+01	USEPA RSL 2014	4.1E+02	USEPA RSL 2013
Cadmium	7440-43-9	4.0E+00	DTSC 2013	5.1E+00	DTSC 2013
Chromium III (soluble salts)	7440-47-3	1.2E+05	USEPA RSL 2014	1.5E+06	USEPA RSL 2013
Chromium VI (hexavalent)	18540-29-9	3.0E-01	USEPA RSL 2014	5.6E+00	USEPA RSL 2013
Lead	7439-92-1	8.0E+01	DTSC 2013	3.2E+02	DTSC 2013
Copper	7440-50-8	3.1E+03	USEPA RSL 2014	4.7E+04	USEPA RSL 2014
Manganese	7439-96-5	1.8E+03	USEPA RSL 2014	2.6E+04	USEPA RSL 2014
Mercury	7439-97-6	9.4E +00	USEPA RSL 2014	4.0E+01	USEPA RSL 2014
Nickel (Refinery Dust)	--	8.2E+02	USEPA RSL 2014	1.1E+04	USEPA RSL 2014
Selenium	7782-49-2	3.9E+02	USEPA RSL 2014	5.8E+03	USEPA RSL 2014
Zinc (and Compounds)	7440-66-6	2.3E+04	USEPA RSL 2014	3.5E+05	USEPA RSL 2014
Dioxins/Furans (as 2,3,7,8-TCDD)	1746-01-6	4.9E-06	USEPA RSL 2014	1.8E-05	USEPA RSL 2013
Acenapthene [PAH]	83-32-9	3.5E+03	USEPA RSL 2014	3.3E+04	USEPA RSL 2013
Acenaphthylene [PAH]	208-96-8	--	--	--	--
Acetaldehyde	75-07-0	1.1E+01	USEPA RSL 2014	4.9E+01	USEPA RSL 2014
Acrolein	107-01-8	1.46E-01	USEPA RSL 2014	6.0E-01	USEPA RSL 2014
Anthracene [PAH]	120-12-7	1.7E+04	USEPA RSL 2014	1.7E+05	USEPA RSL 2013
Benzene	71-43-2	1.2E+00	USEPA RSL 2014	5.1E+00	USEPA RSL 2014
Benzo(a)anthracene [PAH]	56-55-3	1.5E-01	USEPA RSL 2014	2.1E+00	USEPA RSL 2013
Benzo(a)pyrene [PAH]	50-32-8	1.5E-02	USEPA RSL 2014	2.1E-01	USEPA RSL 2013
Benzo(b)fluoranthene [PAH]	205-99-2	1.5E-01	USEPA RSL 2014	2.1E+00	USEPA RSL 2013
Benzo(ghi)perylene [PAH]	191-24-2	--	--	--	--
Benzo(k)fluoranthene [PAH]	207-08-9	3.8E-01	DTSC 2013	1.3E+00	DTSC 2013
1, 3-Butadiene	106-99-0	5.8E-02	USEPA RSL 2014	2.6E-01	USEPA RSL 2014
Chrysene [PAH]	218-01-9	3.8E+00	DTSC 2013	1.3E+01	DTSC 2013
Dibenzo(a,h)anthracene [PAH]	53-70-3	1.5E-02	USEPA RSL 2014	2.1E-01	USEPA RSL 2013
1,4-Dioxane	123-91-1	5.3E+00	USEPA RSL 2014	2.3E+01	USEPA RSL 2014
Fluoranthene [PAH]	206-44-0	2.3E+03	USEPA RSL 2014	2.2E+04	USEPA RSL 2013
Fluorene [PAH]	86-73-7	2.3E+03	USEPA RSL 2014	2.2E+04	USEPA RSL 2013
Formaldehyde	50-00-0	1.2E+04	USEPA RSL 2014	1.6E+05	USEPA RSL 2014
Hydrogen Sulphide	7783-06-4	2.8E+06	USEPA RSL 2014	1.2E+07	USEPA RSL 2014
Indeno(1,2,3-cd)pyrene [PAH]	193-39-5	1.5E-01	USEPA RSL 2013	2.1E+00	USEPA RSL 2013
Naphthalene	91-20-3	3.6E+00	USEPA RSL 2013	1.8E+01	USEPA RSL 2013
Phenanthrene [PAH]	85-01-8	--	--	--	--
Propylene	115-07-1	2.3E+03	USEPA RSL 2014	9.3E+03	USEPA RSL 2014
Pyrene [PAH]	129-00-0	1.7E+03	USEPA RSL 2013	1.7E+04	USEPA RSL 2013

Notes:

-- = Not available

mg/kg = milligram per kilogram

DTSC = Department of Toxic Substances Control

PAH = Polycyclic Aromatic Hydrocarbons

RSL = Regional Screening Level

TCDD = Tetrachlorodibenzodioxin

USEPA = United States Environmental Protection Agency

a. The PAH chemicals listed were based on USEPA Method 8310.

Sources:

Department of Toxic Substances Control (DTSC). 2013. Human Health Risk Assessment (HHRA) Note Number 3, Issue: DTSC recommend methodology for use of U.S. EPA Regional Screening Levels (RSLs) in the Human Health Risk Assessment process at hazardous waste sites and permitted facilities. May.

United States Environmental Protection Agency (USEPA). 2013. Regional Screening Levels (RSLs) Summary Table. May.
Available at http://www.epa.gov/region9/superfund/prg/index.html.

Appendix B – DTSC Letter 6-28-04

Department of Toxic Substances Control

Terry Tamminen
Agency Secretary
Cal/EPA

Edwin F. Lowry, Director
1011 North Grandview Avenue
Glendale, California 91201-2205

Arnold Schwarzenegger
Governor

June 28, 2004

Certified Mail

Ms. Therese Ciron
Quemetco Inc.
720 S. 7th Avenue
City of Industry, California 91746

RCRA FACILITY INVESTIGATION AND INTERIM MEASURES - QUEMETCO INC. (AKA RSR CORPORATION), LOCATED AT 720 S. 7TH AVENUE, CITY OF INDUSTRY, CALIFORNIA 91749 ; EPA ID NUMBER CAD 066 233 966

Dear Ms. Ciron

On March 25, 2004, the Department of Toxic Substances Control (DTSC) collected ten (10) soil samples from the perimeter of the Quemetco, Inc. (Quemetco) Facility outside the security fence, where there might be exposure to the general public. The Areas sampled were not under control by the existing fencing and security arrangements. The samples were obtained on a reconnaissance scale from: (1) landscaping along 7th Avenue: (2) landscaping along Salt Lake Avenue;(3) along the Los Angeles County Flood Control (LACFC) access drive fence-line at the northwest corner of the Facility; and , (4) along the fence-line shared with the former Richardson Battery Facility (reportedly owned by RSR, the parent company for Quemetco). [sample location sketch map attached] These samples were obtained in order to evaluate whether or not Quemetco might be able to meet the human health risk Environmental Indicators at this time by having human exposure pathways under control. On May 18, 2004, DTSC received the analytical results from its Hazardous Materials Laboratory (HML). [copy attached] These results indicate some soil concentrations of lead in place outside the Facility fence that exceed the total threshold limit concentration (TTLC) for lead. In one instance by five-fold. Sample S-2 from behind the retaining wall on 7th Avenue had 5000 mg/kg of lead.

Not only is the general public at risk from exposure but so are the landscape and maintenance crews that Quemetco may employ to care for that portion of the Facility outside its security fence.

DTSC is hereby requiring Quemetco to submit a work plan for a narrowly scoped phase of a RCRA Facility Investigation (RFI) within thirty (30) days of this letter for review and approval by DTSC. This RFI phase must determine the nature and extent of soil contamination in the publicly accessible portions of the Facility between the existing security fence and public sidewalks, LACFC access driveway, and the neighboring

former Richardson Battery facility. In addition, sampling must include the area outside of its security fence to the north along the adjoining LACFC access road from the access gateway on the west to the former Richardson Battery boundary on the east. Quemetco must also undertake interim measures to bring public exposure fully under control. Within sixty (60) calendar days of this letter, Quemetco must submit an Interim Measure Work plan to DTSC for review. The IM Work plan may contain elements which are conditional upon the full delineation of the peripheral contamination by the foregoing required narrowly scoped RFI phase. In addition, Quemetco must take emergency measures to limit public exposure along 7th Avenue, Salt Lake Avenue, the neighboring former Richardson Battery Facility, and the LACFC access driveway. This may include temporary fencing, paving, signage, a combination thereof, or other appropriate methods.

If you have any questions, please contact Mr. Jamshid Shahi, at (818) 551-2871.

Sincerely,

Philip B. Chandler, R.Geophys.
Unit Chief
Southern California Permitting and Corrective Action Branch
Hazardous Waste Management Program

Certified Mail
7001 2510 0000 1733 7025
Return Receipt Requested

Attachments

cc: Mr. Steve Armann
U.S. Environmental Protection Agency
RCRA Facility Management Office, SP-4
75 Hawthorne Street
San Francisco, California 94105

M:\DOLLY\QUEMETCO\2QUEISAM.WPD

cc: Ms. Orchid Kwei
Office of Legal Counsel
Department of Toxic Substances Control
1001 I Street, 23th Floor/ P.O. Box 0806,
Sacramento, California 95814-0806

Mr. Guenther Moskat, Chief
Office of Program Audits and Environmental Analysis
Department of Toxic Substances Control
1001 I Street, 22th Floor/P.O. Box 0806,
Sacramento, California 95814-0806

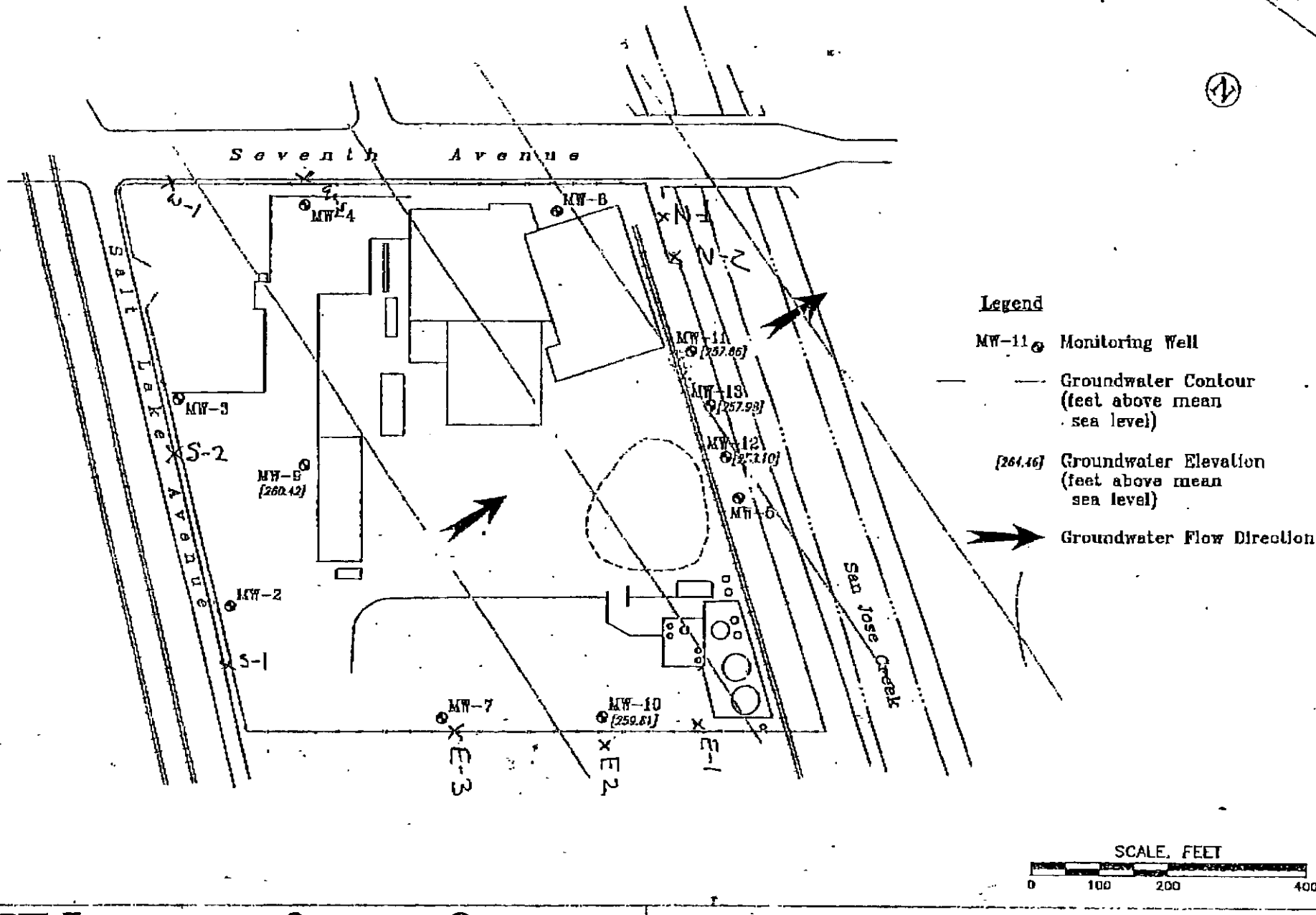
Mr. Michael Choe, P.E.
Permitting and Program Development Branch
Hazardous Waste Management Program
Department of Toxic Substances Control
1001 I Street, 22th Floor/ P.O. Box 0806,
Sacramento, California 95814-0806

Mr. Mukul Agarwal
Statewide Compliance Division
Department of Toxic Substances Control
1011 North Grandview Avenue
Glendale, California 91201

Ms. Ruth Williams-Moorehead
Statewide Compliance Division
Department of Toxic Substances Control
1011 North Grandview Avenue
Glendale, California 91201

Jamshid Shahi
Southern California Permitting and Corrective Action Branch
Hazardous Waste Management Program
Department of Toxic Substances Control
1011 North Grandview Avenue
Glendale, California 91201

cc: Mr. Andres Cano
Geology, Permitting and Corrective Action Branch
Hazardous Waste Management Program
Department of Toxic Substances Control
5796 Corporate Avenue
Cypress, California 90630



ENVIRONMENTAL STRATEGIES CORPORATION
226 Airport Parkway, Suite 630
San Jose, California 95110
(408) 453-6100

Figure 6
Groundwater Elevation Contour Map, November 2, 2000
Quemetco, Inc.
City of Industry, California

Soil Samples Collected By DTSC on March 25, 2004

DTSC results in RED

Sample	Location	Sample Results, in mg/kg (ppm) Lead	Arsenic	Cadmium	Antimony	Mercury	Chromium	Zinc
S-1	South fenceline; approx 100 ft west of SE corner	770 ↑ 630	8	2	12	0.07	19	160
S-2	mid-south fenceline; approx 400 ft east of SW corner	5300 ↓ 7500	42	6.1	140	0.17	32	610
W-1	West fenceline; approx 100 ft north of SW corner	280 ↑ 90	3.9	1.7	2.2	0.16	21	170
W-2	West fenceline; approx 300 ft north of SW corner	14000 ↓ 14000	72	8.4	390	0.2	28	740
W-3	West fenceline; approx 125 ft south of NW corner	2900 ↑ 2100	19	6.5	51	0.22	32	680
N-1	North fenceline; approx 50 ft east of NW corner	720 ↑ 600	10	3.1	15	0.06	27	160
N-2	North fenceline; approx 105 ft east of NW corner	1100 ↑ 620	9.8	4.9	15	0.07	27	210
E-1	East fenceline; approx 200 ft south of NE corner	440 ↓ 520	12	4	12	0.09	34	420
E-2	East fenceline; approx 350 ft south of NE corner	1000 ↓ 460	7.9	3.4	12	0.06	27	380
E-3	East fenceline; approx 550 ft south of NE corner	450 82 ?	5	1.9	1.7	0.07	21	110

Quemetco duplicate samples (above results) analyzed by Weck Laboratories
All samples taken just outside Quemetco fenceline
All samples were analyzed for about elements and also: silver, barium, beryllium, cobalt, copper, molybdenum, nickel, selenium, thallium, and vanadium. For complete sample results contact Neal Lyon, EHS Compliance Mgr.
Quemetco property is a parallelogram, with corners not right angles;
Approximate north, south, east, and west fenceline lengths: 850 feet each.

DEPARTMENT OF TOXIC SUBSTANCE CONTROL
HAZARDOUS MATERIALS LABORATORY - SOUTHERN CALIFORNIA
1449 W. TEMPLE STREET, LOS ANGELES, CA 90026
TELEPHONE (213) 580-5796

CASE NARRATIVE

1. THIS ANALYTICAL REPORT PACKAGE WAS PREPARED FOR SCL SAMPLE(S) AN001169 - AN001178

   SAMPLE AUTHORIZATION NO. : SCT 5349

   SAMPLES INCLUDED IN THIS ANALYTICAL BATCH SCL# AN001169 - AN001178

2. SAMPLES WERE COLLECTED ON 3/26/2004 AT QUEMETCO

3. COLLECTOR'S NAME ON THE SAMPLE ANALYSIS REQUEST FORM IS ANDRES CANO

4. SAMPLES WERE:

   RECEIVED ON 3/26/2004 BY HAZARDOUS MATERIALS LABORATORY-SO. CAL

   DIGESTED ON 4/20/2004 - 4/21/2004 BY EPA METHOD 3050B ACID DIGESTION

   ANALYZED ON 4/23/2004 - 4/29/2004 BY EPA METHOD 6010B ICP - AES

   DATA PACKAGE WAS COMPLETED ON 4/30/2004

5. DURING THE COURSE THESE ANALYSIS, NO PROBLEMS WERE ENCOUNTERED.

6. QC PARAMETERS/INDICATORS WERE WITHIN CONTROL LIMITS.

7. INSTRUMENT INITIAL CALIBRATION & CONTINUING CALIBRATION CRITERIA WERE MET.

8. SAMPLE HOLDING TIME WAS MET.

DEPARTMENT OF TOXIC SUBSTANCE CONTROL
HAZARDOUS MATERIALS LABORATORY - SOUTHERN CALIFORNIA
1449 W. TEMPLE STREET, LOS ANGELES, CA 90026
TELEPHONE (213) 580-5796

INDEX

EPA 6010B FOR SAMPLE (S) AN001169 - AN001178

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4. LABORATORY ANALYTICAL REPORT (S)		5
5. QC REPORT FOR	a. Method Blank b. Calibration Verification Standard c. Laboratory Control Sample d. Sample Duplicate Analysis	6
6. QC REORT FOR Matrix Spike / Matrix Spike Duplicate % Recovery		7

TOTAL PAGES = 7

State of California
California Environmental Protection Agency

Department of Toxic Substances Control
Hazardous Materials Laboratories

HAZARDOUS MATERIALS SAMPLE ANALYSIS REQUEST

1. Authorization Number: S C T 5 3 4 9

HML No. AN01169 To AN01178

2. Page 1 of 2

3. REQUESTOR: Andres Cano (backup: Jamchid Shaw) Phone (714) 484-5421

5. ADDRESS (To Receive Results) 6. FAX (714) 484-5411

5796 Corporate Avenue

Cypress, CA 90630

7. TAT Level: (check one) ☐ *1 ☒ 2 ☐ 3 ☐ 4

*Unit Chief's Signature

8. DATE SAMPLED: 03/26/2004 3/25/04 A.C.

9. Codes (fill in all applicable codes)

a. Office 0 3
b. INDEX
c. PCA
d. MPC
e. SITE
f. County 1 9

10. ACTIVITY: ☐ SCD ☐ SRPD ☐ CIB ☐ SMB ☒ FPB ☐ SPPT Others

11. SAMPLING LOCATION

a. EPA ID No.

b. Site Quemetco

c. Address Seventh Avenue and Salt Lake

Number Street City ZIP

12. SAMPLES:

a. ID	b. Collector's No.	c. HML No.	d. Sample Type	e. Container Type	f. Container Size	g. Field Information
A	S-1	AN01169	pore water	clear glass vial	~~40 ml~~	A.C.
B	S-2	AN01170	soil	glass jar	~~8oz.~~ 16oz.	
C	W-1	AN01171				
D	W-2	AN01172				
E	W-3	AN01173				
F	N-1	AN01174				

13. ANALYSIS REQUESTED: (X desired analysis and enter I.Ds from 12.a.)

INORGANIC ANALYSIS	Sample(s) ID
pH	
Metals Scan (6010)	A,B,C,D,E,F
Metal(s) Specific Pb Cd As	A,B,C,D,E,F
WET	
Cyanides	
(others, write in)	
(others, write in)	

ORGANIC ANALYSIS	Sample(s) ID
CL-Pesticides (8081)	E-A
OP-Pesticides (8141)	
PCBs (8082)	
G R O (8015B)	
D R O / Motor Oil / Both (circle one)	
n-Hexane Extractables (1664)	
Flash Point (1020)	
VOCs including BTEX (8260)	
VOCs - LO Level (5035)	
VOCs - HI Level (5035)	
SVOCs (8270)	
PAHs (8270)	
(others, write in)	

TCLP Analysis ☐ (only if necessary) ☐ (do TCLP regardless)

Metals	
Mercury	
Volatiles	
Semivolatiles	
(others, write in)	

14. ANALYSIS OBJECTIVE: (check a box)

☐ Waste Characterization ☐ Treatment Standards
☐ Drinking H_2O Standards (applies to DW only) ☒ Others (contact Lab supervisors first)

15. DETECTION LIMIT REQUIREMENTS: (specify if known and contact lab) May contain Lead and Cadmium

16. SUPPLEMENTAL REQUESTS

Initials

Date

17. LAB REMARKS:

18. CHAIN OF CUSTODY:

	Signature(s)	Name(s) / Title (s)	Inclusive Dates of Custody
a.		Andres Cano, EG	3 25 2004 to 3 26 2004
b.	Barbara Bush	Barbara Bush / Lab Tech	3 26 04 to
c.			to
d.			to

COC

DTSC 1116H (REV 6/00) Make Photocopies for your File NLY

State of California
California Environmental Protection Agency

Department of Toxic Substances Control
Hazardous Materials Laboratories

4

HAZARDOUS MATERIALS SAMPLE ANALYSIS REQUEST

1. Authorization Number: S C T 5 3 4 9

HML No. AN01169 To AN01178

2. Page 2 of 2

3. REQUESTOR: Andres Cano (backup: Jamshid Sha 4. Phone (714) 484-5421

5. ADDRESS (To Receive Results) 6. FAX (714) 484-5411

5796 Corporate A[illegible]

Cypress, CA 90[illegible]

7. TAT Level: (check one) [ ] 1 [X] 2 [ ] 3 [ ] 4

* Unit Chief's Signature

8. DATE SAMPLED: 03/26/2004 3/25/04 A.C.

9. Codes (fill in all applicable codes)

a. Office	0 3
b. INDEX	
c. PCA	
d. MPC	
e. SITE	
f. County	1 9

10. ACTIVITY: [ ] SCD [ ] SRPD [ ] CIS [ ] SMB [X] FPB [ ] SPPT Others

11. SAMPLING LOCATION

a. EPA ID No.

b. Site Quemetco

c. Address Seventh Avenue and Salt Lake

Number Street City ZIP

12. SAMPLES:

a. ID	b. Collector's No.	c. HML No.	Sample d. Type	Container e. Type	f. Size	g. Field Information
A	N-2	AN01175	~~pore water~~	~~clear glass vial~~	~~40 ml~~	
B	E-1	AN01176	Grab Soil	Jar	16oz	A.C.
C	E-2	AN01177			16oz	
D	E-3	AN01178				
E						
F						

13. ANALYSIS REQUESTED: (X desired analysis and enter I.Ds from 12.a.)

INORGANIC ANALYSIS	Sample(s) ID
pH	
Metals Scan (6010)	A, B, C, D
Metal(s) Specific Pb Cd As	A, B, C, D
WET	
Cyanides	
(others, write in)	
(others, write in)	

ORGANIC ANALYSIS	Sample(s) ID
CL-Pesticides (8081)	
OP-Pesticides (8141)	
PCBs (8082)	
G R O (8015B)	
D R O / Motor Oil / Both (circle one)	
n-Hexane Extractables (1664)	
Flash Point (1020)	
VOCs including BTEX (8260)	
VOCs - LO Level (5035)	
VOCs - HI Level (5035)	
SVOCs (8270)	
PAHs (8270)	
(others, write in)	

TCLP Analysis [ ] (only if necessary) [ ] (do TCLP regardless)

Metals	
Mercury	
Volatiles	
Semivolatiles	
(others, write in)	

14. ANALYSIS OBJECTIVE: (check a box)

[ ] Waste Characterization [ ] Treatment Standards

[ ] Drinking H_2O Standards (applies to DW only) [X] Others (contact Lab supervisor first)

15. DETECTION LIMIT REQUIREMENTS: (specify if known and contact lab) May contain Lead and Cadmium

16. SUPPLEMENTAL REQUESTS

Initials

Date

17. LAB REMARKS:

18. CHAIN OF CUSTODY:

	Signature(s)	Name(s) (Print)	Inclusive Dates of Custody
a.		Andres Cano, EG	3 25 2004 to 3 26 2004
b.	Barbara Bush	Barbara Bush / Lab Tech	3 26 04 to
c.			to
d.			to

COC

DTSC 1116H (REV 6/00) Make Photocopies for your File NLY

DEPARTMENT OF TOXIC SUBSTANCE CONTROL
HAZARDOUS MATERIALS LABORATORY-SOUTHERN CALIFORNIA
1449 W. TEMPLE STREET, LOS ANGELES, CA 90026
TELEPHONE (213) 580-5796 OR (213)250-3045

REQUESTER: ANDRES CANO

SCL NO.: AN001169 - AN001178

SAMPLE LOCATION: QUEMETCO
SEVENTH AVE & SALT LAKE

DATE REPORTED: 4/29/2004

METHOD(S): EPA 3050B ACID DIGESTION
EPA 6010B ICP - AES

METAL SCAN (TTLC) ANALYSIS

	SCL NO.	AN001169	AN001170	AN001171	AN001172	AN001173	AN001174	AN001175	AN001176	AN001177
	COL. NO.	S-1	S-2	W-1	W-2	W-3	N-1	N-2	E-1	E-2
	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
ANALYTE	UNIT Mg/Kg	Mg/Kg	Mg/Kg	Mg/Kg	Mg/Kg	Mg/Kg	Mg/Kg	Mg/Kg	Mg/Kg	Mg/Kg
	TTLC									
Ag - SILVER	500	<50	<50	<50	<50	<50	<50	<50	<50	<50
As - ARSENIC	500	<50	<50	<50	<50	<50	<50	<50	<50	<50
Ba - BARIUM	10,000	100	150	200	200	160	100	110	120	88
Be - BERYLLIUM	75	<5	<5	<5	<5	<5	<5	<5	<5	<5
Cd - CADMIUM	100	<5	<5	<5	<5	<5	<5	<5	<5	<5
Co - COBALT	8,000	<50	<50	<50	<50	<50	<50	<50	<50	<50
Cr - CHROMIUM	2,500	<50	<50	<50	<50	<50	<50	<50	<50	<50
Cu - COPPER	2,500	<50	70	75	110	86	<50	<50	<50	<50
Mo - MOLYBDENUM	3,500	<50	<50	<50	<50	<50	<50	<50	<50	<50
Ni - NICKEL	2,000	<50	<50	<50	<50	<50	<50	<50	<50	<50
Pb - LEAD	1,000	770	5300	200	4800	2500	720	1100	440	100
Sb - ANTIMONY	500	<50	<50	<50	<50	<50	<50	<50	<50	<50
Se - SELENIUM	100	<10	<10	<10	<10	<10	<10	<10	<10	<10
Tl - THALLIUM	700	<50	<50	<50	<50	<50	<50	<50	<50	<50
V - VANADIUM	2,400	60	65	<50	<50	<50	56	60	61	53
Zn - ZINC	5,000	170	490	390	810	600	170	150	360	130
% DRY SAMPLE OF <100 MICRON										

NOTES: < = BELOW DETECTION LIMIT OF METHOD

SAMPLE PREPARATION
PREM S HIRA 4/30/04 DATE

ANALYST:
PREM S HIRA 4/30/04 DATE

SUPERVISOR
RUSS CHIN 4/30/04 DATE

DEPARTMENT OF TOXIC SUBSTANCE CONTROL
HAZARDOUS MATERIALS LABORATORY-SOUTHERN CALIFORNIA
1449 W. TEMPLE STREET, LOS ANGELES, CA 90026
TELEPHONE (213) 580-5796 OR (213)250-3045

6

REQUESTER: ANDRES CANO

SCL NO.: AN001169 - AN001178

SAMPLE LOCATION: QUEMETCO
[illegible]ENTH AVE & SALT LAKE

DATE REPORTED: 4/29/2004

METHOD(S): EPA 3050B ACID DIGESTION
EPA 6010B ICP - AES

METAL SCAN (TTLC) ANALYSIS

	SCL NO.	AN001178								
	COL. NO.	E - 3								
	MATRIX	SOIL								
ANALYTE	UNIT Mg/Kg	Mg/Kg								
	TTLC									
Ag - SILVER	500	<50								
As - ARSENIC	500	<50								
Ba - BARIUM	10,000	120								
Be - BERYLLIUM	75	<5								
Cd - CADMIUM	100	<5								
Co - COBALT	8,000	<50								
Cr - CHROMIUM	2,500	<50								
Cu - COPPER	2,500	<50								
Mo - MOLYBDENUM	3,500	<50								
Ni - NICKEL	2,000	<50								
Pb - LEAD	1,000	450								
Sb - ANTIMONY	500	<50								
Se - SELENIUM	100	<10								
Tl - THALLIUM	700	<50								
V - VANADIUM	2,400	68								
Zn - ZINC	5,000	350								
% DRY SAMPLE OF <100 MICRON										

NOTES: < = BELOW DETECTION LIMIT OF METHOD

SAMPLE PREPARATION
REM S HIRA — 4/30/04
REM S HIRA — DATE

ANALYST:
PREM S HIRA — 4/30/04
PREM S HIRA — DATE

SUPERVISOR
RUSS CHIN — 4/30/04
RUSS CHIN — DATE

QUALITY CONTROL (QC) REPORT
DEPARTMENT OF TOXIC SUBSTANCES CONTROL
HAZARDOUS MATERIALS LABORATORY - SOUTHERN CALIFORNIA
1449 WEST TEMPLE STREET, LOS ANGELES, CA 90026
TELEPHONE (213) 580 - 5796

7

REQUESTER'S NAME: ANDRES CANO
DATE SAMPLE RECEIVED: 03/26/2004

SAMPLING LOCATION: QUEMETCO
SEVENTH AVE & SALT LAKE
DATE SAMPLE PREPARED: 03/26/2004

DATE SAMPLE ANALYZED: 11/06/03 - 12/18/2003

METHOD(S): EPA 3050B ACID DIGESTION
EPA 6010B ICP - AES

QC REPORT FOR METHODS BLANKS, CVS, LCS, AND SAMPLE DUPLICATE

		METHOD BLANK	VERIFICATION STANDARD		LABORATORY CONTROL SAMPLE		SAMPLE DUPLICATE AN001169			
							A			
ANALYTE	UNITS		FOUND	KNOWN	FOUND	CONTROL			RPD	CONTROL
		Mg/L	Mg/L	Mg/L	Mg/Kg	LIMITS	Mg/Kg	Mg/Kg	%	LIMITS
Ag - SILVER		<1	51	50	818	713 - 986	ND	ND	ND	20
As - ARSENIC		<1	51	50	1207	1098 - 1438	ND	ND	ND	20
Ba - BARIUM		<1	51	50	1734	1406 - 2422	105	103	1.9	20
Be - BERYLLIUM		<0.1	10	10	75	59 - 83	ND	ND	ND	20
Cd - CADMIUM		<0.1	10	10	291	281 - 350	ND	ND	ND	20
Co - COBALT		<1	50	50	1220	1196 - 1596	ND	ND	ND	20
Cr - CHROMIUM		<1	50	50	1233	1163 - 1499	ND	ND	ND	20
Cu - COPPER		<1	51	50	1690	1555 - 2106	ND	ND	ND	20
Mo - MOLYBDENUM		<1	50	50	1838	1681 - 2193	ND	ND	ND	20
Ni - NICKEL		<1	50	50	1279	1155 - 1535	ND	ND	ND	20
Pb - LEAD		<1	50	50	926	831 - 1119	773	757	2.1	20
Sb - ANTIMONY		<1	50	50	789	696 - 1095	ND	ND	ND	20
Se - SELENIUM		<0.2	10	10	511	460 - 651	ND	ND	ND	20
Tl - THALLIUM		<1	50	50	585	332 - 624	ND	ND	ND	20
V - VANADIUM		<1	51	50	757	727 - 904	59	61	3.3	20
Zn - ZINC		<1	50	50	1919	1724 - 2141	169	168	0.6	20

NOTES: < = BELOW DETECTION LIMIT OF METHOD ND = NON DETECTED

SAMPLE PREPARATION: ANALYST: SUPERVISOR

PSHira 4/20/04
REM S HIRA DATE

PSHira 4/20/04
PREM S HIRA DATE

4/30/04
RUSS CHIN DATE

QUALITY CONTROL (QC) REPORT
DEPARTMENT OF TOXIC SUBSTANCES CONTROL
HAZARDOUS MATERIALS LABORATORY - SOUTHERN CALIFORNIA
1449 WEST TEMPLE STREET, LOS ANGELES, CA 90026
TELEPHONE (213) 580 - 5796

8

REQUESTER'S NAME: [illegible]RES CANO
DATE SAMPLE RECEIVED: 10/7/2003

SAMPLING LOCATION: QUEMETCO SEVENTH AVE & SALT LAKE
DATE SAMPLE PREPARED: 10/27/03 - 10/28/03

DATE SAMPLE ANALYZED: 11/06/03 - 12/18/2003

METHOD(S): EPA 3050B ACID DIGESTION
EPA 6010B ICP - AES

QC REPORT FOR MATRIX SPIKE(MS)/MATRIX SPIKE DUPLICATE(MSD) PERCENT RECOVERY

MATRIX SPIKE PERFORMED ON : AN001169 TYPE OF MATRIX : SOIL
TYPE OF SPIKE : ME0304JP400/200/100/20

COMPOUND	AMOUNT OF ANALYTE IN SAMPLE	AMOUNT OF ANALYTE ADDED	MATRIX SPIKE		MATRIX SPIKE DUPLICATE		AVE % REC	CONTROL LIMITS FOR % REC	R % D BETWEEN MS/MSD	CONTROL LIMITS FOR RPD
			AMOUNT RECOVERED	%REC	AMOUNT RECOVERED	%REC				
	Mg/Kg	Mg/Kg	Mg/Kg	%	Mg/Kg	%	%	%	%	%
Ag - SILVER	0	500	370	74.0	376	75.2	74.6	70 - 130	1.6	20
As - ARSENIC	0	500	382	76.4	391	78.2	77.3	70 - 130	2.3	20
Ba - BARIUM	104	500	480	75.2	489	77.0	76.1	70 - 130	2.4	20
Be - BERYLLIUM	0	100	78.7	78.7	79.6	79.6	79.2	70 - 130	1.1	20
Cd - CADMIUM	0	100	75.6	75.6	76.8	76.8	76.2	70 - 130	1.6	20
Co - COBALT	0	500	392	78.4	395	79.0	78.7	70 - 130	0.8	20
Cr - CHROMIUM	0	500	395	79	404	81	79.9	70 - 130	2.3	20
Cu - COPPER	0	500	425	85.0	428	86	85	70 - 130	0.7	20
Mo - MOLYBDENUM	0	500	382	76.4	392	78.4	77.4	70 - 130	2.6	20
Ni - NICKEL	0	500	393	78.6	395	79.0	78.8	70 - 130	0.5	20
Pb - LEAD	765	500	1063	59.6	1087	64.4	62.0	70 - 130	7.7	20
Sb - ANTIMONY	0	500	381	76.2	391	78.2	77.2	70 - 130	2.6	20
Se - SELENIUM	0	100	70.9	70.9	71.8	72	71	70 - 130	1.3	20
Tl - THALLIUM	0	500	366	73.2	364	72.8	73.0	70 - 130	0.5	20
V - VANADIUM	60	500	442	76.4	451	78.2	77.3	70 - 130	2.3	20
Zn - ZINC	169	500	528	71.8	538	73.8	73	70 - 130	2.7	20

NOTES: THE LOW SPIKE RECOERIES FOR LEAD MAY HAVE BEEN CAUSED BY THE SAMPLE MATRIX.

AMPLE PREPARATION
REM S HIRA 4/30/04
DATE

ANALYST
PREM S [illegible] 4/30/04
DATE

SUPERVISOR
RUSS CHIN 4/30/04
DATE

Appendix C – DTSC Letter 3-29-13

Department of Toxic Substances Control

Deborah O. Raphael, Director
9211 Oakdale Avenue
Chatsworth, California 91311

Matthew Rodriquez
Secretary for
Environmental Protection

Edmund G. Brown Jr.
Governor

March 29, 2013

Certified Mail # 7009 2820 0002 4303 8457
Return Receipt Requested

Mr. Gerry Manley
Vice President, EH&S Compliance
RSR Corporation
2777 N. Stemmons, Suite 1800
Dallas, Texas 75207

RCRA FACILITY INVESTIGATION WORKPLAN FOR OFF-SITE AIRBORNE DEPOSITION/ACCUMULATION IN THE VICINITY OF QUEMETCO INCORPORATED (AKA RSR CORPORATION), 720 SOUTH 7TH AVENUE, CITY OF INDUSTRY, CA 91746; EPA ID NUMBER CAD 066 233 966

Dear Mr. Manley:

As part of corrective action at the Quemetco Incorporated (Quemetco) facility in the City of Industry, the Department of Toxic Substances Control (DTSC) conducted in July 2012, another limited peripheral sampling program of various surface materials outside of Quemetco facility boundaries. [analytical results attached] The data indicates a need for further surficial investigations by Quemetco.

Similar limited sampling by DTSC in March 2004 led to a requirement for more extensive, narrowly-focused, perimeter sampling by Quemetco [*Narrow Scoped Soil Investigation RCRA Facility Investigation Workplan, Quemetco, Incorporated, City of Industry, California,* dated July 27, 2004] and emergency measures to limit public exposure [workplan submitted on August 19th and approved August 23, 2004].

Lead values from the 2012 DTSC sampling ranged from 138 to 1450 mg/kg. The Total Threshold Limit Concentration (TTLC) for lead is1000 mg/kg and therefore hazardous waste levels of lead are known to have accumulated at two sample locations quite near to Quemetco. The U.S. Environmental Protection Agency (EPA) Region 9 residential soil screening level (RSL) for lead is 400 mg/kg (many of the samples had lead concentrations above the residential soil RSL) and the residential California Human Health Screening Level (CHHSL) for lead is 80 mg/kg. The Region 9 risk-based soil screening level for lead for protection of ground water is 15 mg/kg.

It is suggested that Quemetco meet with DTSC to discuss how it can address the following:

- Perform an emergency interim measure (IM) by determining the lateral extent of hazardous waste levels of lead around those two sample locations outside Quemetco where those levels of accumulation were encountered by the 2012 DTSC sampling and then removing the lead. Submit the IM workplan to DTSC within fourteen (14) days of the date of this letter.

- Evaluate the condition of the plastic fabric "cover" that was emplaced as part of the emergency measures in 2004. Provide a technical report of that evaluation, including recommendations for longer term, more permanent measures, to DTSC within forty-five (45) days of the date of this letter.

- Evaluate whether airborne deposition/accumulation in the 8 years subsequent to 2004 has re-contaminated those areas addressed in the previous emergency IM. This evaluation can be included as a specific element in the workplan being required below.

- Sample storm drain boxes near the facility to evaluate deposition/accumulation from off-site surface water-borne site-derived hazardous waste and hazardous waste constituents. This sampling can be included as a specific element in the workplan being required below.

- Determine of the full lateral extent of airborne and/or surface water-borne deposition/accumulation of site hazardous waste and hazardous waste constituents from Quemetco's smelter emissions. It is suggested that this be done in phased radial step-outs. Applicable RSLs and CHHSLs should be used as guides to the extent of phasing. Submit an RCRA Facility Investigation (RFI) workplan within sixty (60) calendar days to specifically address the foregoing.

Be aware that since lead and other constituents-of-concern have been determined to be present in adjacent off-site areas at levels of concern, that, depending on the extent of such contamination, DTSC may again require Quemetco to prepare additional interim measure workplan(s) in a timely fashion that will address protection of human health and the environment.

Please contact Mr. Jess Villamayor at (818) 717-6601 or myself at (818) 717-6608 to within two (2) weeks of the date of this letter set a meeting at our Chatsworth Office to discuss the scope of this required off-site investigation.

Sincerely,

Philip B. Chandler, R. Geophys.
Unit Chief
Brownfields and Environmental Restoration Program
Department of Toxic Substances Control

Attachments

cc: Mr. Richard Freudenberger
WSP Environment & Energy
2025 Gateway Place, Suite 435
San Jose, California 95110

Mr. Edwin Pupka
Senior Enforcement Manager
Office of Engineering and Compliance
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, California 91765-4178

Mr. Jay Chen
Senior Air Quality Engineering Manager
Office of Engineering and Compliance
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, California 91765-4178

Ms. Ruth Williams-Moorehead
Environmental and Emergency Response Program
Department of Toxic Substances Control
9211 Oakdale Avenue
Chatsworth, California 91311

Mr. Farshad Vakili
Office of Permitting
Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, California 95826-3200

cc: Mr. Todd Wallbom, P.G.
Brownfields and Environmental Restoration Program
Chatsworth Geological Services Unit
Department of Toxic Substances Control
9211 Oakdale Avenue
Chatsworth, California 91311

Mr. Jess Villamayor
Brownfields and Environmental Restoration Program
Department of Toxic Substances Control
9211 Oakdale Avenue
Chatsworth, California 91311

Department of Toxic Substances Control

Deborah O. Raphael, Director
9211 Oakdale Avenue
Chatsworth, California 91311

Matthew Rodriquez
Secretary for
Environmental Protection

Edmund G. Brown Jr.
Governor

MEMORANDUM

TO: Jess Villamayor.
Hazardous Substances Scientist
Brownfields and Environmental Restoration Program

FROM: Todd Wallbom, P.G. _____
Engineering Geologist
Chatsworth Geological Services Unit

CONCUR: Craig Christmann, P.G. _____
Senior Engineering Geologist
Chatsworth Geological Services Unit

DATE: March 29, 2013

SUBJECT: Documentation of Off Site Surficial Sampling Activities adjacent to the Quemetco, Inc. Facility, (AKA RSR Corporation)
Quemetco, Inc. Site
720 S. 7th Avenue
City of Industry, California 91746
[EPA ID Number CAD 066 233 966;
DHS Remedial Action Order Docket NO. HWCA 85/86-005;
DTSC Permit 05-GLN-03]

PCA: 22120 Site Code: 300225 Phase: 48 Log No: 20016662

As requested by Jess Villamayor, GSU staff has prepared a technical memorandum to document sampling activities that were conducted by Department of Toxic Substances Control (DTSC) technical staff. As part of corrective action, surface sampling was performed in publically-accessible areas located just beyond the property boundary of the Quemetco, Inc. Facility (Quemetco), located in the City of Industry, at the property address listed above.

This sampling was performed in response to a request made to Todd Wallbom of the Geological Services Unit (GSU) by the DTSC Brownfields and Environmental Restoration Program (BERP) Project Manager (PM) for Corrective Action (CA) at the Quemetco Facility, Jess Villamayor, and his supervisor, Philip Chandler, CEG, Senior

Engineering Geologist.

Sampling Objectives:

On July 25, 2012, at the direction of Mr. Chandler, Mr. Villamayor and Mr. Wallbom collected 9 off-site surficial samples, composed of eight individual samples and 1 duplicate sample, in off-site areas located adjacent to the Facility. The purpose of this sampling was to get a snap-shot of lead contamination that might have re-accumulated in areas where BERP had previously required emergency interim measures (IM's), and also sample areas that had not been previously subject to the 2004 emergency IM.

Numbering Sample Locations:

The sample locations were identified using the sample location designations as follows:

- 'SS' – for surface sample
- 'S7A' - for samples collected along South 7TH Avenue
- '#' – represents the sample location number for that location

For example, the sample identified as SS-S7A-3 was a surface sample collected along South 7TH Avenue at the third sample location. Two samples, identified using 'SS-SLA', were also collected along Salt Lake Avenue. SS-FCC-1 was a sample collected from the Los Angeles County Flood Control channel access area located adjacent to and north of the Facility. This was the only sample collected from this area.

Sample Methodology:

The surficial samples were collected by Mr. Villamayor and Mr. Wallbom using new, disposable, plastic trowels. Possible locations were provided by Mr. Chandler to the field sampling team prior to field work and final locations were chosen in the field primarily based on their proximity to the Facility, accessibility, and also where surface dust appeared to accumulate the most. Solid samples, composed of mainly dust, or more likely a mixture of soil and dust, were collected on concrete sidewalks, in tree planters, and, in one case, in a low spot on an asphalt surface within the LA County flood control access area where it appeared that sediment had accumulated from surficial run-off. As indicated above, two soil samples were also collected part-way along Salt Lake Avenue or across from the main entry gate to the Facility.

Where possible, a one-foot square area of surface soil/dust was outlined using the trowel and the soil within thoroughly mixed together. Care was taken on rough surfaces not to scrape off or damage the underlying material (i.e., concrete, asphalt). In the case of tree and flower planter beds, care was also taken not to include material deeper than 1 to 2-inches below the surface. A small cone was then built using the mixed material and a sample was collected from the cone using the disposable trowel. The sample was then gently poured into either an eight-ounce or a 16-ounce clear glass jar, filling the jar to the top, and then capped with a screw-down polyethylene lid. The filled jars

were labeled with all pertinent sample information (e.g., sample ID, name of sampler, sample date, analysis, etc.), the labels taped down with clear wrapping tape, placed into a clear plastic baggie, and immediately placed into a sample cooler with ice for shipment to the analytical laboratory. All sampling equipment was disposable so no decontamination was required. The sample coolers with the samples were delivered that day by Mr. Villamayor to DTSC's Environmental Chemistry Laboratory (ECL-LA), located in Los Angeles, California, for shipment to the ECL located in Berkeley, California.

The final sample locations are presented on the attached figure.

Sample Analysis:

All samples were analyzed by ECL-Berkeley for the following analyses:

- CAM-17 metal analysis (EPA Method 6010C)
- Mercury (EPA Method 7471A)
- Soil pH (EPA Method 9045D)
- Percent Dry Solids (ECL 730-S)
- Dioxins/Furans (ECL 880-M: one soil sample only)

Copies of the completed ECL Authorization Request Form (ARF) and Sample Analysis Request (SAR) form are provided as an attachment. One sample duplicate, 'DUP-1', was collected at location SS-S7A-3 and analyzed for metals, % solids, and pH. Except for pH, all holding times were met and all samples were received by the analytical laboratories on ice and in acceptable condition.

Sample Results:

The following metals were detected above their respective laboratory reporting limits (RLs): antimony, barium, chromium (total), copper, lead, mercury, nickel, vanadium, and zinc. Of these, antimony, chromium, lead, mercury, nickel, and zinc are of interest since many of these are hazardous at relatively low concentrations, and are possible contaminants that may occur in air emissions from Quemetco.

Antimony was detected in six out of eight samples with concentrations ranging from 28 mg/kg (SS-S7A-5) up to 65 mg/kg (SS-FCC-1). Chromium was detected in all eight samples with concentrations ranging from 34 mg/kg (SS-S7A-8) up to 79 mg/kg (SS-S7A-2). Lead was detected in all eight samples at concentrations that ranged from 138 mg/kg (SS-S7A-8) up to 1,420 mg/kg (SS-FCC-1). Mercury was detected in all samples with results less than 0.3 mg/kg. Nickel was detected in all eight samples with concentrations ranging from 34 mg/kg (SS-SLA-4) up to 63 mg/kg (SS-S7A-2). Zinc was detected in all eight samples at concentrations that ranged from 415 mg/kg (SS-S7A-7) up to 1,940 mg/kg (SS-S7A-2). The highest lead and antimony results were detected from the same sample (SS-FCC-1).

The lead result for sample SS-FCC-1 were flagged by ECL with a 'M' indicating that they observed low recoveries in the MS and the MSD. Likewise, the zinc result for sample SS-FCC-1 was flagged by ECL with a 'M' indicating that they observed low recoveries in the MSD. Otherwise, the RPD's for both lead and zinc were within criteria indicating possible matrix interference.

The single dioxin/furan sample, collected at location SS-SLA-5, reported a 2,3,7,8-TCDD TEQ value of 97.07 parts per trillion (ppt). Percent solids ranged from 93 percent (SS-S7A-7) to 100 percent (SS-FCC-1). pH values ranged from 6.46 to 8.15 or within the normal distribution for soil. A table summarizing the analytical results is attached.

Discussion and Recommendations for Additional Action:

This study shows that portions of the perimeter outside of Quemetco are contaminated by lead and other heavy metals. Dioxins/furans were also detected in the single sample collected at a concentration that exceeds the 2,3,7,8-TCDD TEQ commercial/industrial (C/I) CHSSL (19 ppt). This suggests that the other samples, had they been analyzed for dioxins, would have produced either comparable or greater results. In addition, lead, in two out of the eight samples, was detected at concentrations that exceed the lead TTLC (1,000 mg/kg). Lead also exceeded the residential CHHSL (80 mg/kg) in all eight samples collected and exceeded the C/I CHHSL (320 mg/kg) in six out of the eight samples collected.

When lead and antimony results were compared (see attached graph: antimony results were multiplied across the scale by a factor of 10 for comparative purposes), the data shows a clear correlation between lead and antimony concentrations. Increasing lead concentrations generally correspond to increasing antimony concentrations. This relationship, along with the elevated dioxin result, strongly suggests that off-site lead contamination is likely due to fugitive dust emissions produced from Quemetco's lead-smelting operations.

Based on these findings, the GSU recommends that Quemetco immediately submit an emergency IM work plan to determine the extent of lead that meets or exceeds the lead TTLC. Characterization of lead greater than or equal to the TTLC should be followed by the timely removal of all off-site lead-contaminated dust and soil that exceeds this level. Afterwards, the Facility should submit a document that presents their proposed data quality objectives (DQO's) for corrective action that specifically addresses characterization and cleanup of contaminated off-site dust, soil, and, potentially, sediment and storm water.

Along with the submission of a document that outlines the DQO's, Quemetco should submit one or more RFI workplan(s) that will specifically address the following items:

(1) evaluate for the possible re-contamination of previously stabilized areas from the Facility's on-going emission and airborne deposition and accumulation of lead over the intervening years since the 2004 IM;

(2) determine the off-site extent of contamination due to deposition and accumulation from the Facility* beyond the previously investigated perimeter;
(3) conduct fingerprinting of lead emitted by the Facility in order to separate it from other lead sources (e.g., using optical and electron microscopy and isotope geochemistry methods);
(4) perform deposition monitoring to determine the rate at which lead accumulates on off-site surfaces;
(5) evaluate impacts to storm water runoff through the collection of storm water samples and sediment in the adjacent public storm water collection system (i.e., drain boxes), and
(6) evaluate residual lead deposition/accumulation in San Jose Creek from surface water run-off and past/present direct airborne deposition.

*GSU recognizes that improvements implemented over the past several years by Quemetco to reduce the amount of metal dust particulate leaving the stacks, and the Facility in general (e.g., Wet Electrostatic Precipitator, Regenerative Thermal Oxidizer, enclosing buildings with negative air pressure etc.), have likely substantially reduced the overall dust loading of off-site areas. However, fugitive dust emissions continue to occur, albeit at reduced rates. Therefore, off-site dust monitoring will still be needed to determine the rate of deposition of dust emitted from the stacks to neighboring areas, and determine the overall impact to the surrounding community.

Once these RFI(s) has been successfully implemented, Quemetco should immediately implement an IM to remediate all off-site areas impacted by their operations.

Note: Items Nos. 1, 4, 5, and 6 may require periodic monitoring which would require that the Facility submit an environmental monitoring plan (EMP) for off-site dust to DSTC. Taken at face value, this would appear to be more related to the permit than to corrective action. In which case, submittal of an EMP may require a permit modification.

Questions regarding this memorandum should be directed to Todd Wallbom at (818) 717-6622.

Attachments:

ARF
SAR
Figure showing final sample locations
Table titled 'Quemetco Offsite Sample Data, July, 2012'
Graph titled 'Quemetco: Off-Site Soil Sample Results, July 25, 2012'

State of California
California Environmental Protection

Department of Toxic Substances Control
Environmental Chemistry Laboratory

SUPPLEMENTAL ☐
(Check if Supplemental Requested)

AUTHORIZATION REQUEST FORM (ARF)

PART A : (By Requestor - PLEASE PRINT)

*Unit chief's signature required: (for Rush or TAT Level = 1)

Turnaround Time (TAT): *Rush ☐ *Level 1 ☑ 2 ☐ 3 ☐

Requestor's Name	Jess Villamayor	Email	jvillama	@dtsc.ca.gov	Phone (818) 717 - 6601
Region	03--Chatsworth	Unit	BERP-Legacy LFs & RCRA Corrective Action		Fax (818) 717-6587
Back-up Requestor	Todd Wallbom				Phone (818) 717-6622
Site Name	Quemetco, Incorporated				AREA CODE

PART B: Analytical Requests (By Requestor) (Lab uses default methods listed below. Please specify all other requests.)

Inorganic Analysis	Number of Samples/Type: Solid	Liquid	Water	Other
% Dry Solids (ECL730-S)				
Acidity (305-1)				
Alkalinity (310-1)				
Anions by IC (9056)				
Chromium VI(Cr^{6+}) by Colorimetric (7196A)				
Chromium VI(Cr^{6+}) in Water by IC (7199)				
Cyanides for Wastes,Leachates (9010B)				
Hardness (130-2)				
Mercury(Hg) in (Semi)Solid Waste (7471A)	10			
Mercury(Hg) in Liquid Waste (7470A)				
Metals Screening by XRF				
Metals Scan (6010B, for As,Ba,Cu,Pb, etc)	10			
Metals Scan (for Drinking water, 6020A)				
OrganoLead in Waste (ECL938-M)				
Particle Size (ECL740-S)				
Perchlorate for Soil,Sludge (ECL955-M)				
Perchlorate for Water (314-0)				
pH (9040B, 9045C)	10			
Total Dissolved Solids (160-1)				
WET(ECL910-S) ☐ Only if necessary ☐ Do it regardless				
(others, type in)				

Organic Analysis		Number of Samples/Type: Solid	Liquid/Water	Other
GRO (Gasoline, 8015B)				
DRO(Diesel) only (ECL816-M)				
Motor Oil only (ECL816-M)				
DRO(Diesel) & Motor Oil (ECL816-M)				
EthyleneGlycol (ECL772-M)				
PBDEs (ECL760-M)				
PCBs (8082)				
Pesticides - Chlorinated (8081A)				
Pesticides - Organophosphate (8141A)				
1,4-Dioxane (ECL830-S)				
GC/MS	Semivolatiles (8270C)			
	Volatiles (8260B)			
HPLC	Carbonyl Compounds (8315A)			
	Explosives (8330)			
	PAHs (8310)			
Dioxins/Furans by HRGC/HRMS (ECL880-M)		3		
Flash Point (1020A)				
n-Hexane Extractables/TPH (1664)				
TXO-Total Halogens in Oil (ECL792-S)				
(others, type in)				
(others, type in)				

TCLP Analysis**					
Metals	☐ Only if necessary ☐ Do it regardless				
Mercury	☐ Only if necessary ☐ Do it regardless				
Volatiles	☐ Only if necessary ☐ Do it regardless				
Semivolatiles	☐ Only if necessary ☐ Do it regardless				
(others, type in)					

Other Analysis				
Fish Bioassay (Title 22)				
Congener PCBs (ECL-CG-PCB)				
Congener PBDEs (ECL-CG-PBDE)				
(others,type in)				
(others, type in)				

Analysis Objective: Site Characterization

Special Instructions or Comments (For Example: Detection Limit, Sample Preparation, Extraction..., etc.):

Please make sure to include antimony and cadmium. Detection limits must be at or below U.S. EPA Industrial RSLs. Place samples on hold for possible Cr6 analysis only if total chrome result meets or exceeds RSL.

Expected Sample Arrival Date: 07/17/12 (mm/dd/yy)

PART C : (By SMO - ECL)

Authorization Number (AN): 12EC0004 BERP

ARF's Revision No. 1 Initials: JV Date: 7/24/12

Lab to Receive Sample(s):

Environmental Chemistry Lab
700 Heinz Ave. Suite 150
Berkeley, CA 94710
Attn: Lloyd Williams (510) 540-2189

ARF's Revision No. ____ Initials: ____ Date: ____

Sample Management Officer (SMO): JV

☐ Check box if cancelled
Initials: ____ Date: ____

Today's Date: 07/16/12 (mm/dd/yy)

Expiration Date: 07/26/12 (mm/dd/yy)

If Sample(s) Directed to Contract Lab, Please Specify:

Reason: ____

ECL Personnel Confirmed: ____

ECL Contract Lab Manager Notification (for Rush or TAT Level =1): ____

Turnaround Time (TAT): * Rush for public health and safety or emergency, *Level 1 = 15 days, 2 = 30 days, 3 = 45 days.
**TCLP : If time permits and sample matrix type is appropriate, lab may analyze or screen the sample(s) first to determine if TCLP is needed.
Reference: ECL User's Manual.

State of California
California Environmental Protection Agency

Department of Toxic Substances Control
Environmental Chemistry Laboratory

ENVIRONMENTAL CHEMISTRY LABORATORY
SAMPLE ANALYSIS REQUEST

1. Authorization Number: 12EC0004BERP

ECL No.: AW00127 To AW00135

2. Page 1 of

3. Requestor: (to Receive Results) a. Name: Jess Villamayor
b. Address: 9211 Oakdale Ave (street number)
Chatsworth, CA 91311 (city, state, zip)
c. Phone: 818-717-6601 (area code first) d. Fax: (area code first)
e. Email: jess.villamayor @dtsc.ca.gov

4. Project Name (if applicable): Exide

5. TAT Level: # 2 JS

6. Sampling Information:
a. Date/Time Sampled: 07/25/12 (mm/dd/yy) AM/PM (#:## AM/PM)
b. Location: EPA ID No. CAD066233966
Site: Quemetco
Address: 720 S. 7th Avenue (street number)
City of Industry, CA 91746 (city, state, zip)
GPS-Lat: GPS-Long:
GPS-Alt: GPS-Depth:

7. Codes (select from drop down list or fill in if applicable)
a. Unit: BERP-Cleanup Program(Chatsworth)
b. INDEX: 5600
c. PCA: 22120
d. MPC: 6
e. SITE: 30D225-48
f. County: 19--Los Angeles

8. Samples:

a. ID	b. Collector's No.	c. ECL No.	d. Matrix	e. Container Size	f. Number of containers	g. Preservative / Field Information
1	SS-FCC-1	AW00127	Soil	8 oz clear glass jar	2	NA
2	SS-S7A-2	AW00128	Soil	8 oz clear glass jar	2	NA
3	SS-S7A-3	AW00129	Soil	8 oz clear glass jar	2	NA
4	SS-SLA-4	AW00130	Soil	8 oz clear glass jar	2	NA
5	SS-S3A-5	AW00131	Soil	8 oz clear glass jar	2	NA
6	SS-S7A-6	AW00132	Soil	16 oz clear glass jar	2	NA
7	SS-S7A-7	AW00133	Soil	16 oz clear glass jar	2	NA
8	SS-S7A-8	AW00134	Soil	16 oz clear glass jar	2	NA
9	DUP-1	AW00135	Soil	8 oz clear glass jar	2	NA

9. Analysis Requested: Enter sample IDs and sample ID ranges separated by commas. For example, 1-3, 5-7, 9

a. Inorganic Analysis	Sample(s) ID	b. Organic Analysis	Sample(s) ID
Metals Scan (ICP-AES, 6010B or 6010C)	1-9	Dioxins/Furans by HRGC/HRMS(ECL880-M)	1-9
Mercury in (Semi)Solid Waste (7471A)	1-9		
pH for Solid (9045C)	1-9		
% Dry Solids (ECL730-S)	1-9		
Other Metals:			
c. TCLP Analysis		d. Other Analysis	
		For other analysis, please type in	

e. Comments for Multiphasic Samples/Analysis Priority: Metals scan top priority. Include antimony and cadmium. Other analyses may follow if there is sufficient vo

10. Analysis Objective: Site Characterization

11. Detection Limit Requirements: (Check ECL User's Manual to assure default DL is sufficient.)
Default DLs for 'low soils' are sufficient, or 1 ppm or less, whichever is lower. Level 2 TAT ok for dioxins

12. Supplemental Requests: Enter sample IDs as described in Item 9

Desired Analysis	Sample(s) ID

Initials
Date

ECL

13. ECL Lab Remarks:

14. Chain of Custody:

	Name	Title	Signature	Inclusive Dates of Custody		
a.	Todd Wallbom	Eng. Geologist		7/25/12	to	7/25/12
b.	Jess Villamayor	Project Manager		7/25/12	to	7/25/12
c.	Barbara Bush	Lab Tech		7/25/12	to	7/26/12
d.	Lloyd Williams	Lab Asst		7/27/12	to	
e.					to	
f.					to	
g.					to	

FIELD

LAB

COC

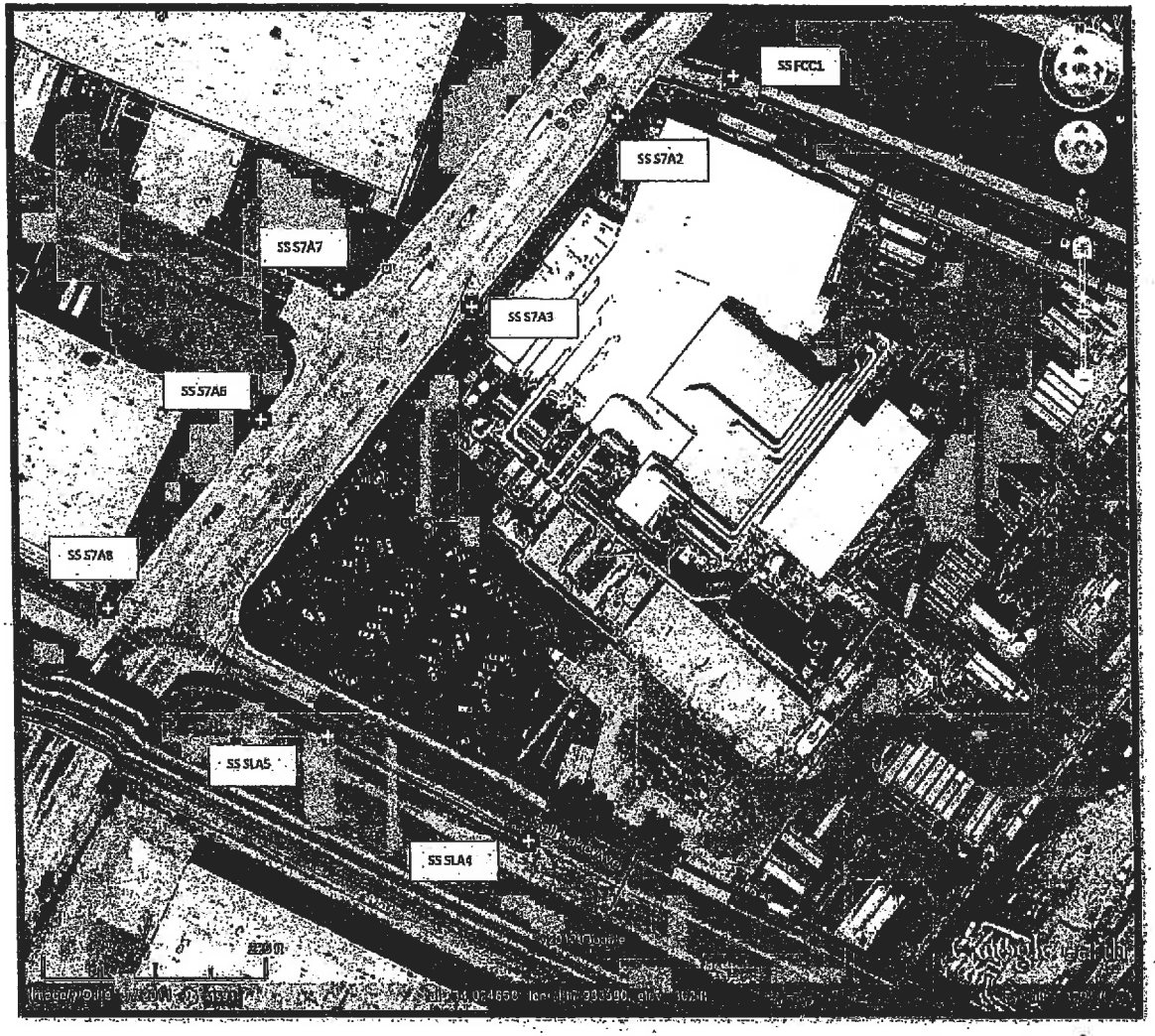


Figure showing DTSC Off-Site Sample Locations
July 25, 2012
Quemetco Fac.
City of Industry

QUEMETCO OFFSITE PRELIMINARY SAMPLE DATA - JULY, 2012

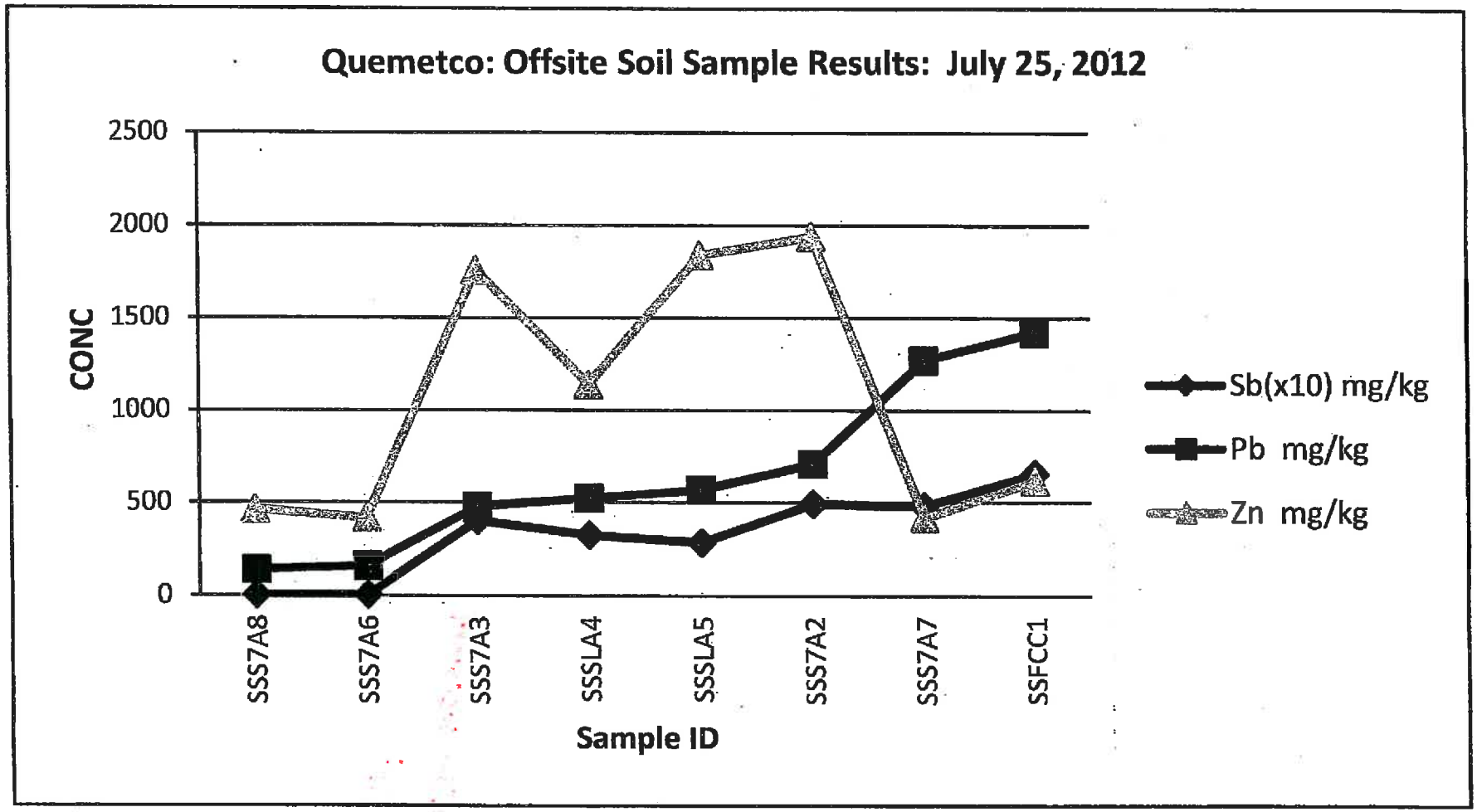
SAMPLE ID		SS-FCC-1			SS-S7A-2			SS-S7A-3			SS-SLA-4			SS-SLA-5			SS-S7A-6			SS-S7A-7			SS-S7A-8			DUP-1			TTLCs	CHHSLs (C/I)
LAB ID		AW00127			AW00128			AW00129			AW00130			AW00131			AW00132			AW00133			AW00135			AW00135				
MATRIX		Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil				
DATE_COLLECTED		7/25/2012			7/25/2012			7/25/2012			7/25/2012			7/25/2012			7/25/2012			7/25/2012			7/25/2012			7/25/2012				
DATE_DIGESTED		7/30/2012			7/30/2012			7/30/2012			7/30/2012			7/30/2012			7/30/2012			7/30/2012			7/30/2012			7/30/2012				
DATE_ANALYZED		8/6/2012			8/6/2012			8/6/2012			8/6/2012			8/6/2012			8/6/2012			8/6/2012			8/6/2012			8/6/2012				
PARAMETER	UNITS	RESULT	Q	RL	RESULT	Q	RL	RESULT	Q	RL	RESULT	Q	RL	RESULT	Q	RL	RESULT	Q	RL	RESULT	Q	RL	RESULT	Q	RL	RESULT	Q	RL		
Inorganics																														
Antimony	mg/kg	65.2		0.1	49.1		0.1	39.9		0.1	32		0.1	28		0.1	ND		0.1	47.8		0.1	ND		0.1	26.6		0.1	500	380
Arsenic	mg/kg	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	500	0.24
Barium	mg/kg	175		0.1	301		0.1	264		0.1	208		0.1	305		0.1	225		0.1	165		0.1	163		0.1	269		0.1	10000	63000
Beryllium	mg/kg	ND		0.02	ND		0.02	ND		0.02	ND		0.02	ND		0.02	ND		0.02	ND		0.02	ND		0.02	ND		0.02	75	1700
Cadmium	mg/kg	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	100	7.5
Chromium	mg/kg	51.3		0.1	79.4		0.1	63.6		0.1	37.8		0.1	46.2		0.1	64.9		0.1	46.6		0.1	34.7		0.1	69.9		0.1	2500	1.00E+05
Cobalt	mg/kg	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	8000	3200
Copper	mg/kg	140		0.1	242		0.1	222		0.1	106		0.1	155		0.1	164		0.1	75.8		0.1	62.5		0.1	207		0.1	2500	38000
Lead	mg/kg	1420	M	0.1	707		0.1	477		0.1	521		0.1	567		0.1	157		0.1	1270		0.1	138		0.1	383		0.1	1000	320
Mercury	mg/kg	0.094		0.02	0.171		0.02	0.188		0.02	0.07		0.02	0.197		0.02	0.102		0.02	0.261		0.02	0.06		0.02	0.09		0.02	20	180
Molybdenum	mg/kg	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	3500	4800
Nickel	mg/kg	56.2		0.1	63		0.1	51.4		0.1	33.9		0.1	41.5		0.1	41.1		0.1	39.3		0.1	29.5		0.1	47.5		0.1	2000	16000
Silver	mg/kg	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	500	4800
Selenium	mg/kg	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	100	4800
Thallium	mg/kg	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	ND		0.1	700	63
Vanadium	mg/kg	38		0.1	38.1		0.1	36		0.1	41.9		0.1	39.8		0.1	36.1		0.1	58.9		0.1	40.9		0.1	32.6		0.1	2400	670
Zinc	mg/kg	618	M	0.1	1940		0.1	1760		0.1	1140		0.1	1840		0.1	1340		0.1	415		0.1	464		0.1	1690		0.1	5000	1.00E+05
Organics (Dioxins/furans)																														
I-TEQ(H)	pg/g	NA			NA			NA			NA			97.06			NA			NA			NA			NA			10000	1.90E+01
Conventionals																														
Solids, Total	%	100		–	99		–	99		–	99		–	96		–	98		–	93		–	97		–	98		–		
pH	–	6.82		–	6.72		–	6.96		–	6.64		–	6.46		–	8.08		–	7.96		–	8.15		–	7.07		–		

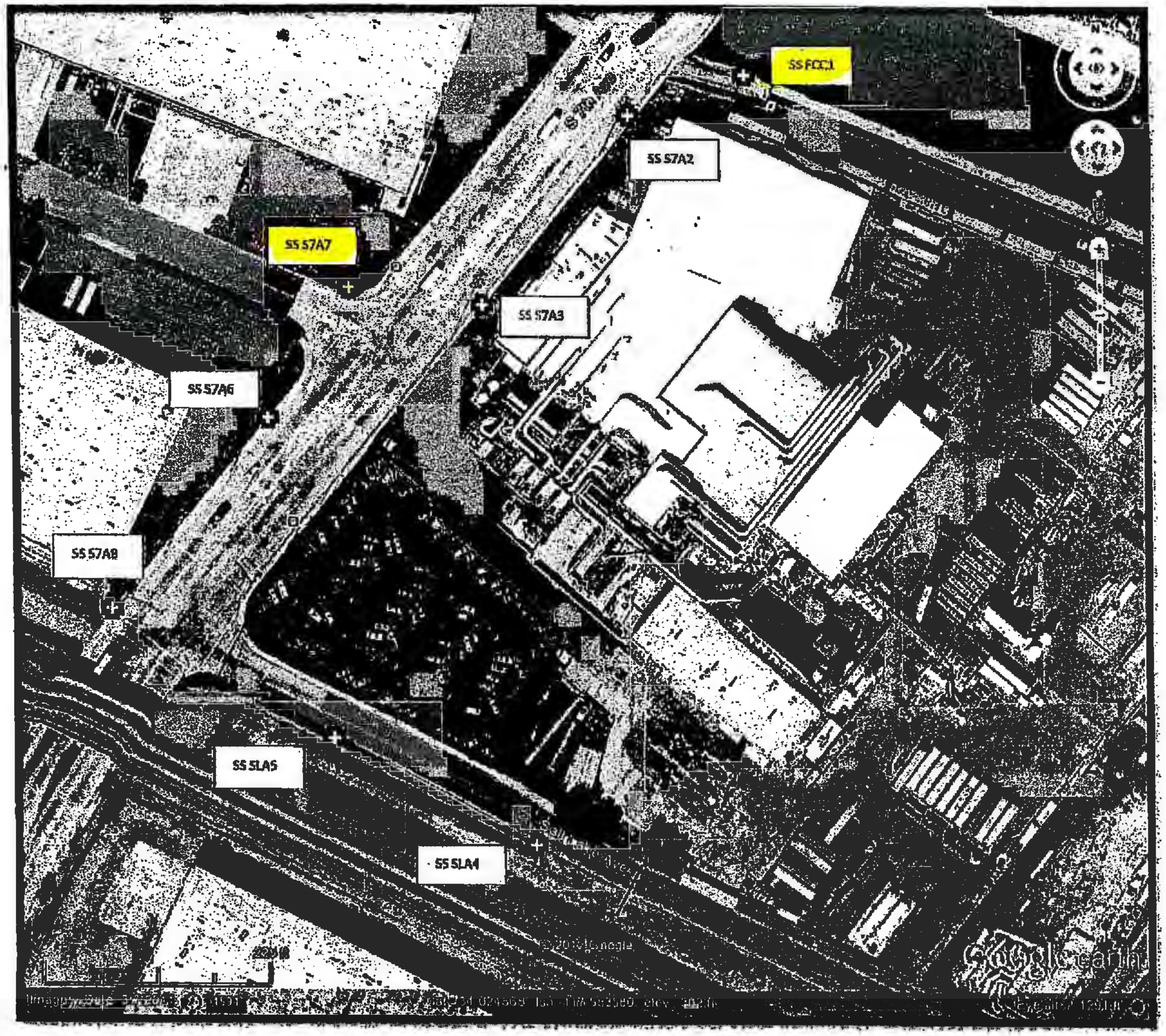
Notes:

#####	Result exceeds TTLC Limit
#####	Result exceeds Commerical/Industrial CHHSL
% Dry Solid:	=(sample dry wt./sample wet wt.) x 100%
DUP-1	Duplicate sample collected from SS-S7A-3
NA	Not Analyzed
ND:	Not Detected
TEQ:	Toxicity Equivalent Quotient or the total toxicity value shown is equivalent to 97.06 pg/g of 2,3,7,8-TCDD
mg/kg	milligrams per kilogram
pg/g	picograms per gram

Qualifiers (Q):

J:	Estimated
B:	Analyte found in method blank
B1:	Analyte found in method blank. Conc. in the sample is greater than 10X the conc. in the MB
M:	MS/MSD% recovery below control limits
M2:	MS/MSD% recovery above control limits
R:	%RPD exceeded control limits
H:	Holding time exceeded


Quemetco: Offsite Soil Sample Results: July 25, 2012
2500
2000
1500
1000
500
0
CONC
SSS7A8
SSS7A6
SSS7A3
SSSLA4
SSSLA5
SSS7A2
SSS7A7
SSFCC1
Sample ID
Sb(x10) mg/kg
Pb mg/kg
Zn mg/kg



SS FCC1
SS 57A2
SS 57A7
SS 57A3
SS 57A6
SS 57A8
SS 5LA5
SS 5LA4

CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL
ENVIRONMENTAL CHEMISTRY LABORATORY
700 HEINZ AVE SUITE 100, BERKELEY, 94710
Tel. 510-540-3003 FAX 510-540-2305

DIOXIN/FURAN REPORT

Sample Nos:	AW00131, AW00829
Collector Nos:	SS-5LA-5, WMS-01
Sample type	soil
Sample Location	Quemetco
Procedure	EPA-1613
Run:	
Instrument	MAT-95
Blank File	mb-082912
GC Parameter File:	1613_60mdb5_03b
MS Parameter File:	1613_ptk_60mdioxin2_a
Autosampler File:	a200s_b_and_a
Comments:	

SAMPLE PREP:	Roshni Sarala	Signature:	Date: 9/8/12
GC/MS ANALYST:	Joginder Dhaliwal	Signature:	Date: 09/07/12
REVIEWING ANALYST:	Reber Brown	Signature:	Date: 09/07/12
SUPERVISOR:	June-Soo Park	Signature:	Date: 9/7/12

CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL
ENVIRONMENTAL CHEMISTRY LABORATORY

Tel. 510-540-3003 Fax# 510-540-2305

DIOXIN/FURAN REPORT

collector's name: Jess Villamayor ECL: AW00131, AW00829
collector's phone: 818.717.6601 Report Date: 9/5/2012
sampling site: Quemetco

FIML-NUMBER :	AW00131											
COLLECTOR'S NUMBER	SS-5LA-5											
MATRIX	Soil											
MOISTURE CONTENT												
FAT %	N/A		N/A		N/A		N/A		N/A		N/A	
UNITS	pg/g (dry wt)		pg/g (dry wt)		pg/g (dry wt)		pg/g (dry wt)		pg/g (dry wt)		pg/g (dry wt)	
2,3,7,8-Cl4DD	0.189	ND										
1,2,3,7,8-Cl5DD	11.1											
1,2,3,4,7,8-Cl6DD	23.9											
1,2,3,6,7,8-Cl6DD	60.9											
1,2,3,7,8,9-Cl6DD	46.1											
1,2,3,4,6,7,8-Cl7DD	1600											
1,2,3,4,6,7,8,9-Cl8DD	15800											
2,3,7,8-Cl4DF	60.5											
1,2,3,7,8-Cl5DF	3.61											
2,3,4,7,8-Cl5DF	47.3											
1,2,3,4,7,8-Cl6DF	27.1	I										
1,2,3,6,7,8-Cl6DF	15.7											
1,2,3,7,8,9-Cl6DF	11.8											
2,3,4,6,7,8-Cl6DF	28.9											
1,2,3,4,6,7,8-Cl7DF	1620	I										
1,2,3,4,7,8,9-Cl7DF	57.6											
1,2,3,4,6,7,8,9-Cl8DF	1910											
PCB-77												
PCB-81												
PCB-126												
PCB-169												
Cl4DD	1.07											
Cl5DD	20.5											
Cl6DD	347											
Cl7DD	2930											
Cl4DF	116											
Cl5DF	230											
Cl6DF	881											
Cl7DF	1151											
13C-2,3,7,8-Cl4DD %REC	75.98											
13C-1,2,3,7,8-Cl5DD %REC	87.93											
13C-1,2,3,4,7,8-Cl6DD %REC	77.49											
13C-1,2,3,6,7,8-Cl6DD %REC	65.23											
13C-1,2,3,4,6,7,8-Cl7DD %REC	71.12											
13C-1,2,3,4,6,7,8,9-Cl8DD %REC	60.09											
13C-2,3,7,8-Cl4DF %REC	68.25											
13C-1,2,3,7,8-Cl5DF %REC	78.31											
13C-2,3,4,7,8-Cl5DF %REC	76.57											
13C-1,2,3,4,7,8-Cl6DF %REC	60.80											
13C-1,2,3,6,7,8-Cl6DF %REC	64.14											
13C-1,2,3,7,8,9-Cl6DF %REC	63.77											
13C-2,3,4,6,7,8-Cl6DF %REC	64.88											
13C-1,2,3,4,6,7,8-Cl7DF %REC	60.41											
13C-1,2,3,4,7,8,9-Cl7DF %REC	70.37											
13C-PCB-77 %REC												
13C-PCB-126 %REC												
13C-PCB-169 %REC												
2,3,7,8-TEQ(H) PCB-TEQ(4 PCBs) - Soil/Ash	97.06		0.00		0.00		0.00		0.00		0.00	

NA=Not determined N/A=Not Applicable ND=Less than MDL D=Less than QL I=Interference B=Upper Limit

PATH

CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL
ENVIRONMENTAL CHEMISTRY LABORATORY

Tel. 510-540-3003 Fax# 510-540-2305

DIOXIN/FURAN REPORT

collector's name: Jess Villamayor QA/QC ECL: AW00131, AW00829
collector's phone: 818.717.6601 Report Date: #####
sampling site: Quemeteo

HML-NUMBER :	Method Blank		AW00829	WMS-01	WMS-01
COLLECTORS NUMBER	mb_082912		WMS-01	Reference Sedime	ference Sediment
MATRIX	solvent		Reference Sediment		
MOISTURE CONTENT					
FAT %			Measured Value	Certified Value	Range
UNITS	pg		pg/g (dry wt)	pg/g (dry wt)	pg/g (dry wt)
2,3,7,8-Cl4DD	0.178	ND	22.12	17.7	12.10 - 23.30
1,2,3,7,8-Cl5DD	0.503	I	11.50	7.96	5.16 - 10.76
1,2,3,4,7,8-Cl6DD	0.255	ND	11.09	8.66	5.96- 11.36
1,2,3,6,7,8-Cl6DD	0.296	ND	19.48	20.8	16.00 - 25.6
1,2,3,7,8,9-Cl6DD	0.282	ND	10.35	17.3	9.30 - 25.3
1,2,3,4,6,7,8-Cl7DD	0.198	ND	353.43	293	230 - 356
1,2,3,4,6,7,8,9-Cl8DD	0.326	I	2187.04	1900	1443 - 2355
2,3,7,8-Cl4DF	0.167	ND	165.62	52.5	36.5 - 68.5
1,2,3,7,8-Cl5DF	0.056	ND	16.15	12.6	7.6 - 17.6
2,3,4,7,8-Cl5DF	0.057	ND	16.56	18.5	12.4 - 24.6
1,2,3,4,7,8-Cl6DF	0.189	ND	75.85	67.3	43.3 - 91.3
1,2,3,6,7,8-Cl6DF	0.316	I	22.57	20.3	11.6 - 29.0
1,2,3,7,8,9-Cl6DF	0.221	ND	13.50	2.68	0 - 6.68
2,3,4,6,7,8-Cl6DF	0.175	ND	15.39	16	8.00 - 24.2
1,2,3,4,6,7,8-Cl7DF	0.084	ND	335.13	299	226 - 372
1,2,3,4,7,8,9-Cl7DF	0.852	I	12.84	15.1	10.5 - 18.7
1,2,3,4,6,7,8,9-Cl8DF	0.76	ND	561.78	509	352 - 666
PCB-77					
PCB-81					
PCB-126					
PCB-169					
Cl4DD	0.00		80.16	60.1	35.1 - 85.1
Cl5DD	0.49		94.34	69.5	46.5 - 92.5
Cl6DD	1.45		296.44	238	152 - 324
Cl7DD	0.00		772.80	608	456 - 760
Cl4DF	0.40		1215.30	374	212 - 336
Cl5DF	0.48		700.51	225	112 - 338
Cl6DF	0.58		1209.24	262	167 - 357
Cl7DF	0.00		885.13	411	311 - 511
13C-2,3,7,8-Cl4DD %REC	73.53		76.15		
13C-1,2,3,7,8-Cl5DD %REC	77.20		72.35		
13C-1,2,3,4,7,8-Cl6DD %REC	73.39		82.74		
13C-1,2,3,6,7,8-Cl6DD %REC	63.50		52.04		
13C-1,2,3,4,6,7,8-Cl7DD %REC	77.10		46.22		
13C-1,2,3,4,6,7,8,9-Cl8DD %REC	69.00		27.67		
13C-2,3,7,8-Cl4DF %REC	63.31		58.29		
13C-1,2,3,7,8-Cl5DF %REC	68.29		65.45		
13C-2,3,4,7,8-Cl5DF %REC	69.64		85.17		
13C-1,2,3,4,7,8-Cl6DF %REC	67.31		51.92		
13C-1,2,3,6,7,8-Cl6DF %REC	72.44		57.25		
13C-1,2,3,7,8,9-Cl6DF %REC	71.49		50.92		
13C-2,3,4,6,7,8-Cl6DF %REC	73.85		54.92		
13C-1,2,3,4,6,7,8-Cl7DF %REC	68.90		38.63		
13C-1,2,3,4,7,8,9-Cl7DF %REC	76.88		43.97		
13C-PCB-77 %REC					
13C-PCB-126 %REC					
13C-PCB-169 %REC					
2,3,7,8-TEQ(H) PCB-TEQ(4 PCBs)	0.729				

NA=Not determined N/A=Not Applicable ND=Less than MDL D=Less than QL I=Interference B=Upper Limit

PATH

CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL
ENVIRONMENTAL CHEMISTRY LABORATORY

Tel. 510-540-3003 Fax# 510-540-2305

DIOXIN/FURAN REPORT

collector's name: Jess Villamayor
collector's phone: 818.717.6601
sampling site: Quemeteo

ECL: AW00131, AW00829

Report Date: 9/5/2012

HML-NUMBER :	AW00131		0		0		0		0		0			
COLLECTOR'S NUMBER	SS-5LA-5		0		0		0		0		0			
MATRIX	Soil		0		0		0		0		0			
MOISTURE CONTENT														
WEIGHT	2.00													
UNITS	Ratio		Ratio		Ratio		Ratio		Ratio		Ratio			
2,3,7,8-Cl4DD	2.12	ND	0		0		0		0		0			
1,2,3,7,8-Cl5DD	44.1		0		0		0.0		0.0		0			
1,2,3,4,7,8-Cl6DD	187		0		0		0.0		0.0		0			
1,2,3,6,7,8-Cl6DD	412		0		0		0		0		0			
1,2,3,7,8,9-Cl6DD	327		0		0		0		0		0			
1,2,3,4,6,7,8-Cl7DD	16198		0		0		0		0		0			
1,2,3,4,6,7,8,9-Cl8DD	96982		0.0		0.0		0		0		0			
2,3,7,8-Cl4DF	726		0		0		0		0		0			
1,2,3,7,8-Cl5DF	130		0		0		0		0		0			
2,3,4,7,8-Cl5DF	1649		0		0		0		0		0			
1,2,3,4,7,8-Cl6DF	286	J	0		0		0		0		0			
1,2,3,6,7,8-Cl6DF	99.4		0		0		0		0		0			
1,2,3,7,8,9-Cl6DF	107		0		0		0		0		0			
2,3,4,6,7,8-Cl6DF	330		0		0		0		0		0			
1,2,3,4,6,7,8-Cl7DF	38802	I	0		0		0		0		0			
1,2,3,4,7,8,9-Cl7DF	135		0		0		0		0		0			
1,2,3,4,6,7,8,9-Cl8DF	5009		0.0		0.0		0		0		0			
PCB-77														
PCB-81														
PCB-126														
PCB-169														
Cl4DD														
Cl5DD														
Cl6DD														
Cl7DD														
Cl4DF														
Cl5DF														
Cl6DF														
Cl7DF														
13C-2,3,7,8-Cl4DD %REC														
13C-1,2,3,7,8-Cl5DD %REC														
13C-1,2,3,4,7,8-Cl6DD %REC														
13C-1,2,3,6,7,8-Cl6DD %REC														
13C-1,2,3,4,6,7,8-Cl7DD %REC														
13C-1,2,3,4,6,7,8,9-Cl8DD %REC														
13C-2,3,7,8-Cl4DF %REC														
13C-1,2,3,7,8-Cl5DF %REC														
13C-2,3,4,7,8-Cl5DF %REC														
13C-1,2,3,4,7,8-Cl6DF %REC														
13C-1,2,3,6,7,8-Cl6DF %REC														
13C-1,2,3,7,8,9-Cl6DF %REC														
13C-2,3,4,6,7,8-Cl6DF %REC														
13C-1,2,3,4,6,7,8-Cl7DF %REC														
13C-1,2,3,4,7,8,9-Cl7DF %REC														
13C-PCB-77 %REC														
13C-PCB-126 %REC														
13C-PCB-169 %REC														
I-TEQ(H) PCB-TEQ(4 PCBs)														

NA=Not determined N/A=Not Applicable ND=Less than MDL D=Less than QL I=Interference B=Upper Limit

PATH

California Environmental Protection Agency
Department of Toxic Substances Control
Environmental Chemistry Laboratory
700 Heinz Avenue, Suite 100, Berkeley, CA 94710
Telephone: (510) 540-3003

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

LABORATORY REPORT -- PERCENT DRY SOLIDS

Authorization No. : 12EC0004
ECL No.: AW00127-AW00135

Requestor's Name: Jess Villamayor
Address: 9211 Oakdale Avenue, Chatsworth, CA 91311

Sampling Location: Quemetco
Address: 720 S. 7th Avenue, City of Industry, CA 91746

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Sample Analysis Request	6
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The results listed within this report pertain only to the samples tested in the laboratory. These results have been reviewed for technical correctness and completeness. This report was reviewed and approved for release.

Report Reviewed by: Carol Wortham
Carol Wortham
Date 8/6/2012

Report Approved by: John Quinn
John Quinn, Ph.D.
Date 8/6/2012

California Environmental Protection Agency
Department of Toxic Substances Control
Environmental Chemistry Laboratory
700 Heinz Avenue, Suite 100, Berkeley, CA 94710
Telephone: (510) 540-3003

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

LABORATORY REPORT
pH ELECTROMETRIC MEASUREMENT

Authorization No. : 12EC0004 **Priority:** 1
ECL No.: AW00127 - AW00135 **Page:** 2 of 12

1. Sampling Location: Quemetco
   720 S. 7th Avenue, City of Industry, CA 91746

2. Requestor' Name: Jess Villamayor
   Address: 9211 Oakdale Avenue, Chatsworth, CA 91311

3. Sample (s) History:
   Date Collected: 7/25/2012
   Date Received: 7/27/2012
   Date Extracted/Digested: 8/3/2012 Method: EPA 9045D
   Date Analyzed: 8/3/2012 Method: EPA 9040C

Date data package was completed: 8/3/2012

Case narrative:

1. Initial calibration and continuing calibration criteria were met? ☑ Yes ☐ No
2. QC parameters were within control limits? ☑ Yes ☐ No
3. Sample holding time was met? ☐ Yes ☑ No

Comments:
If any of the above answers is "NO", please explain in detail.

Samples received out of hold time

Sample Prepared by: Barry H. Nicholson — Barry Nicholson, SC — Date 8/6/2012

Sample Analyzed by: Barry H. Nicholson — Barry Nicholson, SC — Date 8/6/2012

Report Reviewed by: Carol Wortham — Carol Wortham, RSII — Date 8/6/2012

Report Approved by: John Quinn — John Quinn, RSSI — Date 8/6/2012

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

California Environmental Protection Agency
Department of Toxic Substances Control
Environmental Chemistry Laboratory
700 Heinz Avenue, Suite 100, Berkeley, CA 94710
Telephone: (510) 540-3003

LABORATORY REPORT
pH ELECTROMETRIC MEASUREMENT

Authorization No. : 12EC0004 **Priority:** 1
ECL No.: AW00127 - AW00135 **Page:** 3 of 12

Reference Method: EPA 9040C / 9045D

Analytical Procedure: EPA Methods 9040C for aqueous wastes and 9045D for soil and solid waste samples. For aqueous samples, pH is measured on the liquid containing a minimum water content. Soil and solid waste samples are extracted with equal weight of deionized water; the aqueous layer is then decanted. pH is determined using Accumet pH meter AR25 (Fisher Scientific).

ECL NO.	AW00127	AW00128	AW00129	AW00130	AW00131	AW00132
Requestor's No.	SS-FCC-1	SS-S7A-2	SS-S7A-3	SS-SLA-4	SS-SLA-5	SS-S7A-6
Matrix Type	Soil	Soil	Soil	Soil	Soil	Soil
Date of Analysis	8/3/2012	8/3/2012	8/3/2012	8/3/2012	8/3/2012	8/3/2012
pH	6.82	6.72	6.96	6.64	6.46	8.08

ECL NO.	AW00133	AW00134	AW00135			
Requestor's No.	SS-S7A-7	SS-S7A-8	DUP-1			
Matrix Type	Soil	Soil	Soil			
Date of Analysis	8/3/2012	8/3/2012	8/3/2012			
pH	7.96	8.15	7.07			

California Environmental Protection Agency
Department of Toxic Substances Control
Environmental Chemistry Laboratory
700 Heinz Avenue, Suite 100, Berkeley, CA 94710
Telephone: (510) 540-3003

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

LABORATORY QUALITY CONTROL REPORT
pH ELECTROMETRIC MEASUREMENT

Authorization No. : 12EC0004
ECL No.: AW00127 - AW00135
Date: 8/3/2012

Priority: 1

Quality Control Parameter	Calibration Standard File					
Standard ID Vendor/PN	Lot No.	Expiration Date	Buffer Type	Buffer	Reading (pH)	Slope (%)
Thermo PN 910104	OR2	Sep-12	Liquid	4	4.00	98
Thermo PN 910107	OO1	Dec-12	Liquid	7	7.00	
Thermo PN 910110	OR1	Sep-12	Liquid	10	10.00	

Slope limits 92-102

Quality Control Parameter	Laboratory Control Samples				
Analyte pH Buffer	Source	Lot No	Result		Absolute Difference (pH Units)
			Expected	Observed	
pH 7 Buffer (ICV)	Fisher	107445	7.00	7.00	0.00
pH 7 Buffer (CCV)	Fisher	107445	7.00	7.01	0.01

Limit: ± 0.05

Quality Control Parameter	Laboratory Duplicate Sample Results			
ECL No.	Collector's No.	Sample Result	Duplicate Result	Absolute Difference (pH Units)
AW00133	SS-S7A-7	7.96	7.91	0.05

Limit: ± 0.1

pH of DI Water used in dilution (For Solid and Solid Wastes)	5.51

State of California
California Environmental Protection

Department of Toxic Substances Control
Environmental Chemistry Laboratory

SUPPLEMENTAL ☐
(Check if Supplemental Requested)

AUTHORIZATION REQUEST FORM (ARF)

PART A : (By Requestor - PLEASE PRINT)

*Unit chief's signature required: (for Rush or TAT Level = 1)

Turnaround Time (TAT): *Rush ☐ *Level 1 ☒ 2 ☐ 3 ☐

Requestor's Name	Jess Villamayor	Email	jvillama @dtsc.ca.gov	Phone (818) 717 - 6601
Region	03—Chatsworth	Unit	BERP-Legacy LFs & RCRA Corrective Action	Fax (818) 717-6587
Back-up Requestor	Todd Wallbom			Phone (818) 717-6622
Site Name	Quemetco, Incorporated			AREA CODE

PART B: Analytical Requests (By Requestor) (Lab uses default methods listed below. Please specify all other requests.)

Inorganic Analysis	Number of Samples/Type: Solid	Liquid	Water	Other
% Dry Solids (ECL730-S)				
Acidity (305-1)				
Alkalinity (310-1)				
Anions by IC (9056)				
Chromium VI(Cr^{6+}) by Colorimetric (7196A)				
Chromium VI(Cr^{6+}) in Water by IC (7199)				
Cyanides for Wastes, Leachates. (9010B)				
Hardness (130-2)				
Mercury(Hg) in (Semi)Solid Waste (7471A)	10			
Mercury(Hg) in Liquid Waste (7470A)				
Metals Screening by XRF				
Metals Scan (6010B, for As,Ba,Cu,Pb, etc)	10			
Metals Scan (for Drinking water, 6020A)				
OrganoLead in Waste (ECL938-M)				
Particle Size (ECL740-S)				
Perchlorate for Soil,Sludge (ECL955-M)				
Perchlorate for Water (314-0)				
pH (9040B, 9045C)	10			
Total Dissolved Solids (160-1)				
WET(ECL910-S) ☐ Only if necessary ☐ Do it regardless				
(others, type in)				

Organic Analysis		Number of Samples/Type: Solid	Liquid	Water	Other
GRO (Gasoline, 8015B)					
DRO(Diesel) only (ECL816-M)					
Motor Oil only (ECL816-M)					
DRO(Diesel) & Motor Oil (ECL816-M)					
EthyleneGlycol (ECL772-M)					
PBDEs (ECL750-M)					
PCBs (8082)					
Pesticides - Chlorinated (8081A)					
Pesticides - Organophosphate (8141A)					
1,4-Dioxane (ECL830-S)					
GC/MS	Semivolatiles (8270C)				
	Volatiles (8260B)				
HPLC	Carbonyl Compounds (8315A)				
	Explosives (8330)				
	PAHs (8310)				
Dioxins/Furans by HRGC/HRMS (ECL880-M)		3			
Flash Point (1020A)					
n-Hexane Extractables/TPH (1664)					
TXO-Total Halogens in Oil (ECL792-S)					
(others, type in)					
(others, type in)					

TCLP Analysis**					
Metals ☐ Only if necessary ☐ Do it regardless					
Mercury ☐ Only if necessary ☐ Do it regardless					
Volatiles ☐ Only if necessary ☐ Do it regardless					
Semivolatiles ☐ Only if necessary ☐ Do it regardless					
(others, type in)					

Other Analysis					
Fish Bioassay (Title 22)					
Congener PCBs (ECL-CG-PCB)					
Congener PBDEs (ECL-CG-PBDE)					
(others,type in)					
(others, type in)					

Analysis Objective: Site Characterization

Special Instructions or Comments (For Example: Detection Limit, Sample Preparation, Extraction..., etc.):

Please make sure to include antimony and cadmium. Detection limits must be at or below U.S. EPA Industrial RSLs. Place samples on hold for possible Cr6 analysis only if total chrome result meets or exceeds RSL.

Expected Sample Arrival Date: 07/17/12 (mm/dd/yy)

PART C : (By SMO - ECL)

Authorization Number (AN): 12EC0004 BERP

ARF's Revision No. 1 Initials: MA Date: 7/12/12

Lab to Receive Sample(s):

Environmental Chemistry Lab
700 Heinz Ave. Suite 150
Berkeley, CA 94710
Attn: Lloyd Williams (510) 540-2189

ARF's Revision No. ____ Initials: ____ Date: ____

Sample Management Officer (SMO): MA

☐ Check box if cancelled Initials: ____ Date: ____

Today's Date: 07/16/12 (mm/dd/yy)

Expiration Date: 07/26/12 (mm/dd/yy)

If Sample(s) Directed to Contract Lab, Please Specify:

Reason: ____

ECL Personnel Confirmed: ____

ECL Contract Lab Manager Notification (for Rush or TAT Level =1): ____

Turnaround Time (TAT): * Rush for public health and safety or emergency, *Level 1 = 15 days, 2 = 30 days, 3 = 45 days.

State of California
California Environmental Protection Agency

Department of Toxic Substances Control
Environmental Chemistry Laboratory

ENVIRONMENTAL CHEMISTRY LABORATORY
SAMPLE ANALYSIS REQUEST

1. Authorization Number: 12EC0004BERP

ECL No.: AW00127 To AW00135

2. Page 1 of

3. Requestor: (to Receive Results) a. Name: Jess Villamayor
b. Address: 9211 Oakdale Ave (street number)
Chatsworth, CA 91311 (city, state, zip)
c. Phone: 818-717-8601 (area code first) d. Fax: (area code first)
e. Email: jess.villamayor @dtsc.ca.gov

4. Project Name (if applicable): Exide

5. TAT Level: x2 JV

6. Sampling Information:
a. Date/Time Sampled: 07/25/12 (mm/dd/yy) AM/PM (#:## AM/PM)
b. Location: EPA ID No. CAD066233966
Site: Quemetco
Address: 720 S. 7th Avenue (street number)
City of Industry, CA 91746 (city, state, zip)
GPS-Lat: GPS-Long:
GPS-Alt: GPS-Depth:

7. Codes (select from drop down list or fill in if applicable)
a. Unit: BERP-Cleanup Program(Chatsworth)
b. INDEX: 5600
c. PCA: 22120
d. MPC: 6
e. SITE: 300225-48
f. County: 19--Los Angeles

8. Samples:

a.ID	b. Collector's No.	c. ECL No.	d. Matrix	e. Container Size	f. Number of containers	g. Preservative / Field Information
1	SS-FCC-1	AW00127	Soil	8 oz clear glass jar	2	NA
2	SS-57A-2	AW00128	Soil	8 oz clear glass jar	2	NA
3	SS-57A-3	AW00129	Soil	8 oz clear glass jar	2	NA
4	SS-5LA-4	AW00130	Soil	8 oz clear glass jar	2	NA
5	SS-5LA-5	AW00131	Soil	16 oz clear glass jar	2 JV	NA
6	SS-57A-6	AW00132	Soil JV	16 oz clear glass jar	2 JV	NA
7	SS-57A-7	AW00133	Soil	16 oz clear glass jar	2 JV	NA
8	SC-57A-8	AW00134	Soil JV	16 oz clear glass jar	2 JV	NA
9	DUP-1	AW00135	Soil	8 oz clear glass jar	2	NA

9. Analysis Requested: Enter sample IDs and sample ID ranges separated by commas. For example, 1-3, 5-7, 9

a. Inorganic Analysis	Sample(s) ID	b. Organic Analysis	Sample(s) ID
Metals Scan (ICP-AES, 6010B or 6010C)	1-9	Dioxins/Furans by HRGC/HRMS(ECL880-M)	1-9
Mercury in (Semi)Solid Waste (7471A)	1-9		
pH for Solid (9045C)	1-9		
% Dry Solids (ECL730-S)	1-9		
Other Metals:		d. Other Analysis	
c. TCLP Analysis		For other analysis, please type in	

FIELD

e. Comments for Multiphasic Samples/Analysis Priority: Metals scan top priority. Include antimony and cadmium. Other analyses may follow if there is sufficient vo

10. Analysis Objective: Site Characterization

11. Detection Limit Requirements: (Check ECL User's Manual to assure default DL is sufficient.)
Default DLs for 'low soils' are sufficient, or 1 ppm or less, whichever is lower. Level 2 TAT ok for dioxins

12. Supplemental Requests: Enter sample IDs as described in Item 9

Desired Analysis	Sample(s) ID

Initials
Date

ECL

13. ECL Lab Remarks:

LAB

14. Chain of Custody:

	Name	Title	Signature	Inclusive Dates of Custody		
a.	Todd Wallbom	Eng. Geologist		7/25/12	to	7/25/12
b.	Jess Villamayor	Project Manager		7/25/12	to	7/25/12
c.	Barbara Bud	Lab Tech		7/25/12	to	7/26/12
d.	Lloyd Williams	Lab Asst		7/27/12	to	
e.					to	

COC

Department of Toxic Substances Control
Environmental Chemistry Laboratory
700 Heinz Avenue, Suite 150, Berkeley, CA 94710
Phone: (510) 540-3610 Fax: (510) 540-3615

ECL SAMPLE RECEIPT

Printed on: 7/27/2012

Authorization No: 12EC0004_BERP
Collector: Jess Villamayor
Date Collected: 7/26/2012
Date Lab Received: 7/27/2012

Sampling Site: QUEMETCO
720 S. 7th Avenue
City of Industry, CA 91746

ECL No.	Collector's No.	Sample Matrix	Container Type	Container Size	Approximate Amount Rec'd	Custody Seals	Seal Location	Sample Condition	Action Taken
AW00127	SS-FCC-1	Soil	Glass	2(8 oz clear glass jar)	363.0;382.2g	None		Acceptable	
AW00128	SS-S7A-2	Soil	Glass	2(8 oz clear glass jar)	150.1;147.2g	None		Acceptable	
AW00129	SS-S7A-3	Soil	Glass	2(8 oz clear glass jar)	167.7;156.5g	None		Acceptable	
AW00130	SS-SLA-4	Soil	Glass	2(8 oz clear glass jar)	252.9;257.2g	None		Acceptable	
AW00131	SS-SLA-5	Soil	Glass	2(8 oz clear glass jar)	170.2;140.0g	None		Acceptable	
AW00132	SS-S7A-6	Soil	Glass	1(16 oz clear glass jar)	369.7g	None		Acceptable	
AW00133	SS-S7A-7	Soil	Glass	1(16 oz clear glass jar)	394.6g	None		Acceptable	
AW00134	SS-S7A-8	Soil	Glass	1(16 oz clear glass jar)	459.5g	None		Acceptable	
AW00135	DUP-1	Soil	Glass	2(8 oz plastic jar)	157.0;179.1g	None		Acceptable	

Comments:

Sample(s) processed by: Lloyd Williams Signature: [signature] Date: 7/27/12

Supervisor's approval (if any action taken): Signature: _____ Date: _____

From: (818) 717-6500
Jess Villamajor
DTSC Office 32030882 8
9211 Oakdale Avenue

Chatsworth, CA 91311

Origin ID: HAFA

FedEx Express

J1220120716035

Ship Date: 24JUL12
ActWgt: 15.0 LB
CAD: 8704619/INET3300

Delivery Address Bar Code

Ref # Jess Villamajor
Invoice #
PO #
Dept #

SHIP TO: (510) 540-3322 BILL SENDER
F. Reberr Brown Ph.D.

700 HEINZ AVE Ste 150

BERKELEY, CA 94710

FedEx
TRK# 0201 7938 2667 4040

FRI - 27 JUL A1
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515G1/E052/AA44

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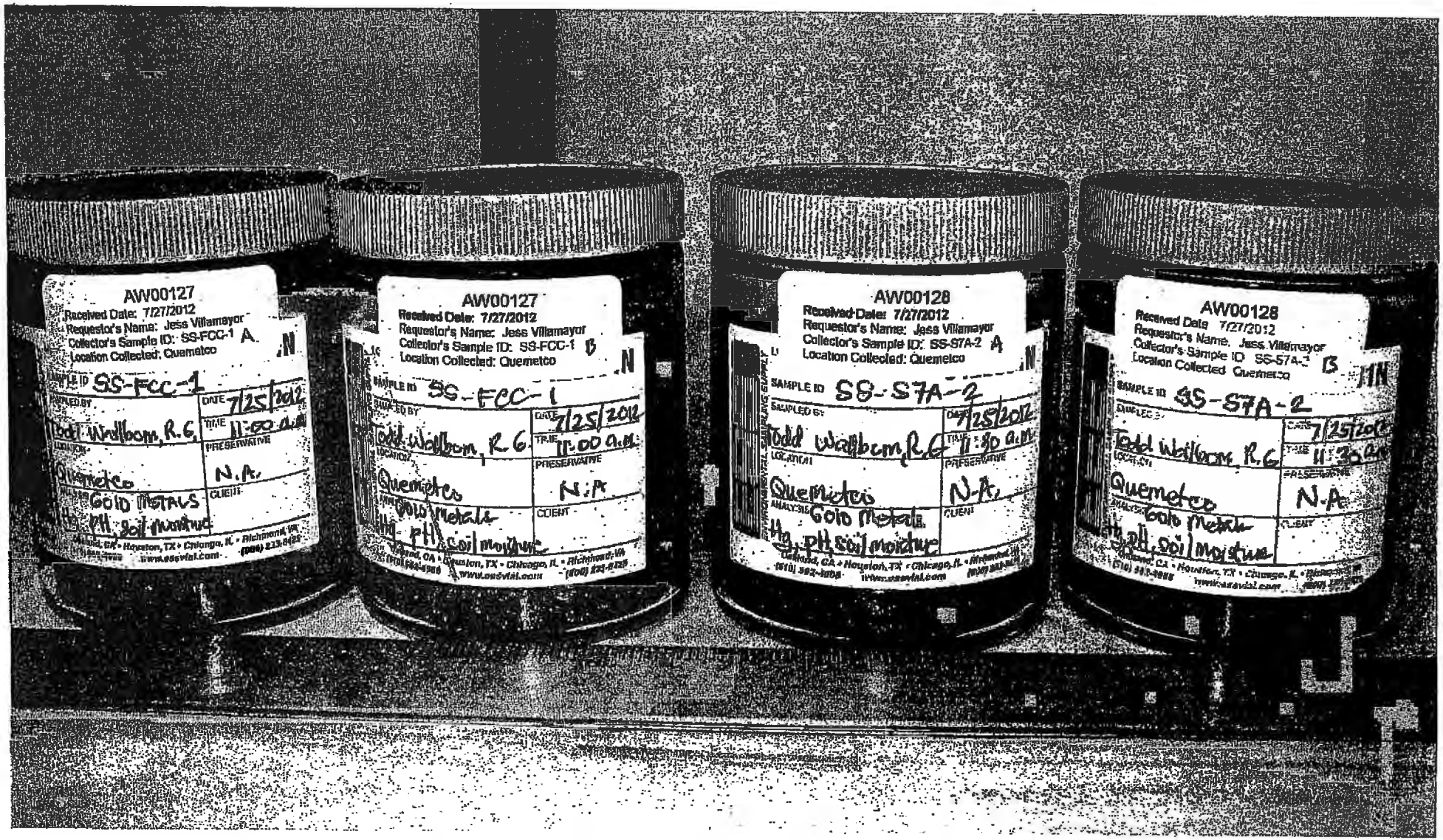
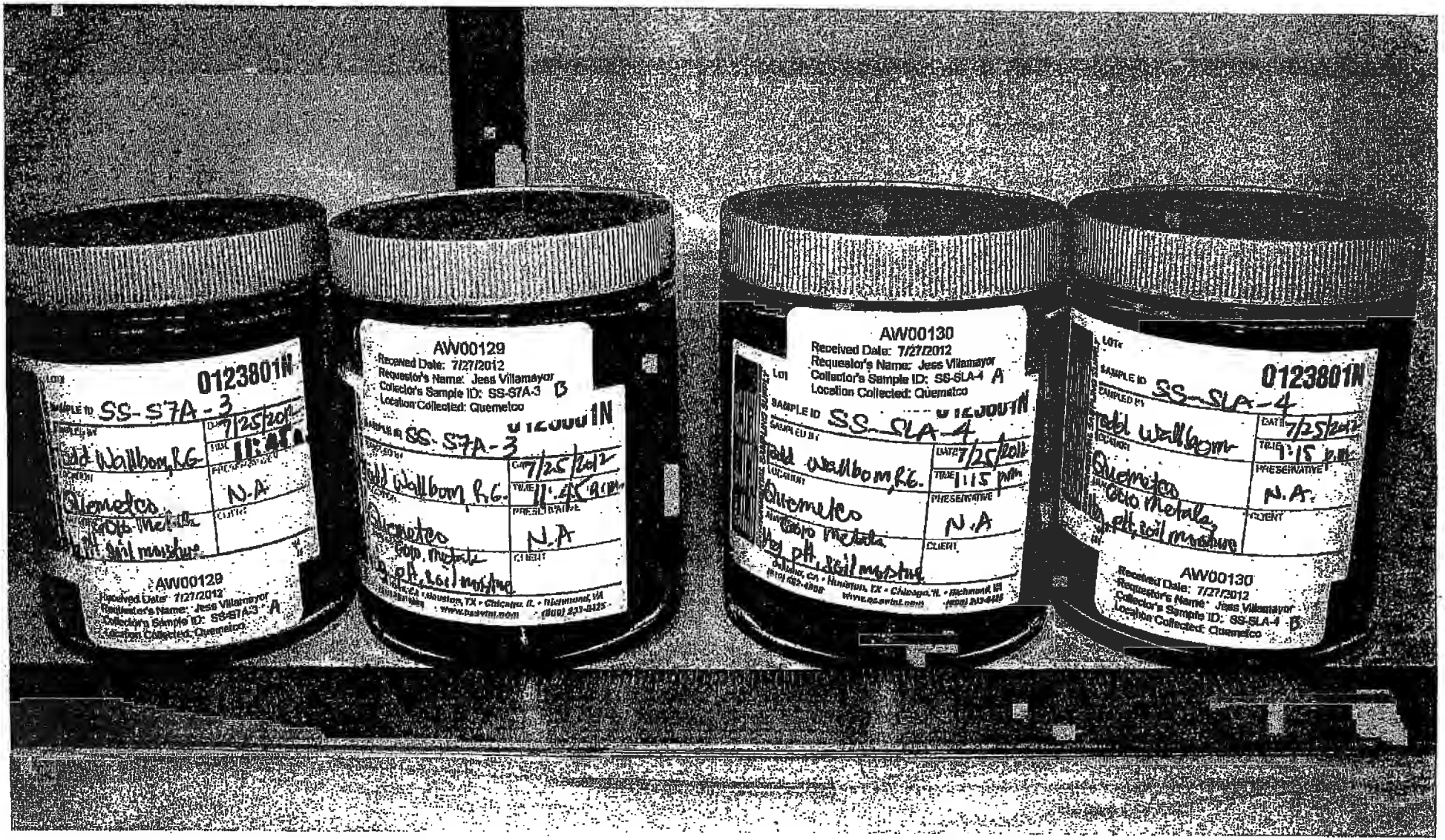

AW00127
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-FCC-1 A
Location Collected: Quemetco
SAMPLE ID SS-FCC-1
SAMPLED BY Todd Wallbom, R.G.
DATE 7/25/2012
TIME 11:00 a.m.
LOCATION Quemetco
PRESERVATIVE N.A.
ANALYSIS Gold Metals Hg, pH, soil moisture
CLIENT
AW00127
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-FCC-1 B
Location Collected: Quemetco
SAMPLE ID SS-FCC-1
SAMPLED BY Todd Wallbom, R.G.
DATE 7/25/2012
TIME 11:00 a.m.
LOCATION Quemetco
PRESERVATIVE N.A.
ANALYSIS Gold Metals Hg, pH, soil moisture
CLIENT
AW00128
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-S7A-2 A
Location Collected: Quemetco
SAMPLE ID SS-S7A-2
SAMPLED BY Todd Wallbom, R.G.
DATE 7/25/2012
TIME 11:30 a.m.
LOCATION Quemetco
PRESERVATIVE N.A.
ANALYSIS Gold Metals Hg, pH, soil moisture
CLIENT
AW00128
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-S7A-2 B
Location Collected: Quemetco
SAMPLE ID SS-S7A-2
SAMPLED BY Todd Wallbom, R.G.
DATE 7/25/2012
TIME 11:30 a.m.
LOCATION Quemetco
PRESERVATIVE N.A.
ANALYSIS Gold Metals Hg, pH, soil moisture
CLIENT


0123801N
SS-S7A-3
7/25/2012
Gd Wallbom, P.G.
Quemetco
N.A
AW00129
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-S7A-3 B
Location Collected: Quemetco
0123801N
SS-S7A-3
7/25/2012
Gd Wallbom, P.G.
Quemetco
N.A
AW00130
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-SLA-4 A
Location Collected: Quemetco
0123801N
SS-SLA-4
7/25/2012
Gd Wallbom P.G.
1:15 PM
Quemetco
N.A
AW00130
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-SLA-4 B
Location Collected: Quemetco
0123801N
SS-SLA-4
7/25/2012
Gd Wallbom
1:15 p.m.
Quemetco
N.A.


AW00131
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-SLA-5 A
Location Collected: Quemetco
SS-SLA-5
Field Weilborn
Quemetco
Gold metals
Hg, pH, soil moisture
AW00131
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-SLA-5 B
Location Collected: Quemetco
SS-SLA-5
Field Weilborn
Quemetco
Gold metals
Hg, pH, soil moisture
AW00132
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-57A-6
Location Collected: Quemetco
SS-57A-6
Field Weilborn
Quemetco
Gold metals
Hg, pH, soil moisture
N.A
AW00133
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-57A-7
Location Collected: Quemetco
SS-57A-7
Field Weilborn, R.C.
Quemetco
Gold Metals
Hg, pH, soil moisture
N.A


AW00134
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-S7A-B
Location Collected: Quemetco
SAMPLE ID SS-S7A-B
SAMPLED BY Todd Wallbom
DATE 7/25/2012
TIME 2:20 p.m.
LOCATION Quemetco
PRESERVATIVE N.A
CLIENT
AW00135
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: DUP-1 A
Location Collected: Quemetco
SAMPLE ID DUP-1
SAMPLED BY Todd Wallbom
DATE 7/25/2012
TIME
LOCATION Quemetco
PRESERVATIVE N.A.
CLIENT
AW00135
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: DUP-1 B
Location Collected: Quemetco
SAMPLE ID DUP-1
SAMPLED BY Todd Wallbom, EG
DATE 7/25/2012
TIME
LOCATION Quemetco
PRESERVATIVE NA
CLIENT

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

California Environmental Protection Agency
Department of Toxic Substances Control
Environmental Chemistry Laboratory
700 Heinz Avenue, Suite 100, Berkeley, CA 94710
Telephone: (510) 540-3003

LABORATORY REPORT -- TOTAL METALS

Authorization No. : 12EC0004BERP
ECL No.: AW00127 - AW00135

Sampling Location: QUEMETCO
Address: 720 S. 7TH AVENUE, CITY OF INDUSTRY, CA 91746

Requestor's Name: JESS VILLAMAYOR
Address: 9211 OAKDALE AVE, CHATSWORTH, CA 91311

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The results listed within this report pertain only to the samples tested in the laboratory. These results have been reviewed for technical correctness and completeness. This report was reviewed and approved for release.

Report Reviewed by: Carol Wortham
Carol Wortham
Date 8/9/2012

Report Approved by: John Quinn
John Quinn, Ph.D.
Date 8/9/2012

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LABORATORY REPORT -- TOTAL METALS

Authorization No. : 12EC0004BERP
ECL No.: AW00127 - AW00135

Priority: 1

1. Sampling Location: QUEMETCO
   Address: 720 S. 7TH AVENUE, CITY OF INDUSTRY, CA 91746

2. Requestor' Name: JESS VILLAMAYOR
   Address: 9211 OAKDALE AVE, CHATSWORTH, CA 91311

3. Sample (s) History:
   Date Collected: 7/25/2012
   Date Received: 7/27/2012
   Date Extracted/Digested: 7/30/2012 Method: EPA 3050 B
   Date Analyzed: 8/6/2012 Method: EPA 6010 C

Date data package was completed: 8/7/2012

Case narrative:

1. Initial calibration and continuing calibration criteria were met? ☑ Yes ☐ No
2. Initial and Continuing Calibration blank criteria were met? ☑ Yes ☐ No
3. QC parameters were within control limits? ☐ Yes ☑ No
4. Sample holding time was met? ☑ Yes ☐ No

Comments:

If any of the above answer is "NO" please explain in details.

Low recoveries were observed for lead in the MS and MSD of AW00127 and for zinc in the MSD of AW00127. The RPDs were within criteria indicating possible matrix interference.

Sample Prepared by: Dinesh Chand
Dinesh Chand
Date 8/9/12

Sample Analyzed by:
Kenneth Neely
Date 8/9/2012

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LABORATORY REPORT -- TOTAL METALS

Authorization No. : 12EC0004BERP
ECL No.: AW00127 - AW00135

Priority: 1
Page: 3 of 15

Reference Method: EPA SW-846; EPA 6010 C
Analytical Procedure: Samples are digested with concentrated HNO3 and HCl,using the optional digest method in a hot block. Digests are cooled and made to final volume with deionized water. Metals analysis of the digests is by ICP/AES.

ECL NO.	AW00127	AW00128	AW00129	AW00130	AW00131	Method Blank	Reporting Limit (not corrected for dilution)	TTLC Limit
Requestor's No	SS-FCC-1	SS-S7A-2	SS-S7A-3	SS-SLA-4	SS-SLA-5	7/30/2012		
Digestion Date	7/30/2012	7/30/2012	7/30/2012	7/30/2012	7/30/2012	8/6/2012		
Analysis Date	8/6/2012	8/6/2012	8/6/2012	8/6/2012	8/6/2012	250		
Dilution Factor	245	249	245	242	246	Aqueous		
Matrix Type	Soil	Soil	Soil	Soil	Soil	mg/kg		mg/kg
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg			
Antimony-Sb	65.2	49.1	39.9	32.0	28.0	ND	0.10	500
Arsenic-As	ND	ND	ND	ND	ND	ND	0.10	500
Barium-Ba	175	301	264	208	305	ND	0.10	10000
Beryllium-Be	ND	ND	ND	ND	ND	ND	0.020	75
Cadmium-Cd	ND	ND	ND	ND	ND	ND	0.10	100
Chromium-Cr	51.3	79.4	63.6	37.8	46.2	ND	0.10	2500
Cobalt-Co	ND	ND	ND	ND	ND	ND	0.10	8000
Copper-Cu	140	242	222	106	155	ND	0.10	2500
Lead-Pb	1420 M	707 M	477 M	521 M	567 M	ND	0.10	1000
Molybdenum-Mo	ND	ND	ND	ND	ND	ND	0.10	3500
Nickel-Ni	56.2	63.0	51.4	33.9	41.5	ND	0.10	2000
Silver-Ag	ND	ND	ND	ND	ND	ND	0.10	500
Selenium-Se	ND	ND	ND	ND	ND	ND	0.10	100
Thallium-Tl	ND	ND	ND	ND	ND	ND	0.10	700
Vanadium-V	38.0	38.1	36.0	41.9	39.8	ND	0.10	2400
Zinc-Zn	618	1940	1760	1140	1840	ND	0.10	5000

Quantitation Limit = Reporting Limit * Dilution Factor

Qualifiers:

ND	**Not detected < Quantitation Limit**
J	Estimated value
B	Analyte found in method blank (MB)
B1	Analyte found in MB. Analyte conc. in the sample is greater than 10X the conc. found in MB
M	MS/MSD % Recovery below control limits
M2	MS/MSD % Recovery above control Limits
R	% RPD exceeded Control Limits
H	Holding Time exceeded

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DEPARTMENT OF TOXIC SUBSTANCES CONTROL

LABORATORY REPORT -- TOTAL METALS

Authorization No. : 12EC0004BERP
ECL No.: AW00127 - AW00135

Priority: 1

Reference Method: EPA SW-846; EPA 6010 C
Analytical Procedure: Samples are digested with concentrated HNO3 and HCl,using the optional digest method in a hot block. Digests are cooled and made to final volume with deionized water. Metals analysis of the digests is by ICP/AES.

ECL NO.	AW00132	AW00133	AW00134	AW00135	Method Blank	Reporting Limit (not corrected for dilution)	TTLC Limit
Requestor's No	SS-S7A-6	SS-S7A-7	SS-S7A-8	DUP-1	7/30/2012		
Digestion Date	7/30/2012	7/30/2012	7/30/2012	7/30/2012	8/6/2012		
Analysis Date	8/6/2012	8/6/2012	8/6/2012	8/6/2012	250		
Dilution Factor	240	245	248	249	Aqueous		
Matrix Type	Soil	Soil	Soil	Soil	mg/kg		mg/kg
Units	mg/kg	mg/kg	mg/kg	mg/kg			
Antimony-Sb	ND	47.8	ND	26.6	ND	0.10	500
Arsenic-As	ND	ND	ND	ND	ND	0.10	500
Barium-Ba	225	165	163	269	ND	0.10	10000
Beryllium-Be	ND	ND	ND	ND	ND	0.020	75
Cadmium-Cd	ND	ND	ND	ND	ND	0.10	100
Chromium-Cr	64.9	46.6	34.7	69.9	ND	0.10	2500
Cobalt-Co	ND	ND	ND	ND	ND	0.10	8000
Copper-Cu	164	75.8	62.5	207	ND	0.10	2500
Lead-Pb	157 M	1270 M	138 M	383 M	ND	0.10	1000
Molybdenum-Mo	ND	ND	ND	ND	ND	0.10	3500
Nickel-Ni	41.1	39.3	29.5	47.5	ND	0.10	2000
Silver-Ag	ND	ND	ND	ND	ND	0.10	500
Selenium-Se	ND	ND	ND	ND	ND	0.10	100
Thallium-Tl	ND	ND	ND	ND	ND	0.10	700
Vanadium-V	36.1	58.9	40.9	32.6	ND	0.10	2400
Zinc-Zn	1340	415	464	1690	ND	0.10	5000

Quantitation Limit = Reporting Limit * Dilution Factor

Qualifiers:

ND	Not detected < Quantitation Limit
J	Estimated value
B	Analyte found in method blank (MB)
B1	Analyte found in MB. Analyte conc. in the sample is greater than 10X the conc. found in MB
M	MS/MSD % Recovery below control limits
M2	MS/MSD % Recovery above control Limits
R	% RPD exceeded Control Limits
H	Holding Time exceeded

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DEPARTMENT OF TOXIC SUBSTANCES CONTROL

LABORATORY QUALITY CONTROL REPORT -- TOTAL METALS

Authorization No. : 12EC0004BERP
ECL No.: AW00127 - AW00135

Priority: 1

Quality Control Parameter	LABORATORY CONTROL SAMPLE							
Digestion Date	7/30/2012							
Analysis Date	8/6/2012							
Matrix Type	Aqueous							
	LCS			LCSD		RPD	Control Limits	
	Spike Added	Amount Recovered	Recovery	Amount Recovered	Recovery		Recovery	RPD
Units	mg/L	mg/L	%	mg/L	%	%	%	%
Antimony-Sb	1	1.10	110%	1.12	112%	1.8%	80-120	0-20
Arsenic-As	1	1.08	108%	1.11	111%	2.7%	80-120	0-20
Barium-Ba	1	1.03	103%	1.05	105%	1.9%	80-120	0-20
Beryllium-Be	0.2	0.204	102%	0.208	104%	1.9%	80-120	0-20
Cadmium-Cd	1	1.05	105%	1.07	107%	1.9%	80-120	0-20
Chromium-Cr	1	1.03	103%	1.05	105%	1.9%	80-120	0-20
Cobalt-Co	1	1.10	110%	1.12	112%	1.8%	80-120	0-20
Copper-Cu	1	1.00	100%	1.02	102%	2.0%	80-120	0-20
Lead-Pb	1	1.07	107%	1.10	110%	2.8%	80-120	0-20
Molybdenum-Mo	1	1.00	100%	1.03	103%	3.0%	80-120	0-20
Nickel-Ni	1	1.06	106%	1.08	108%	1.9%	80-120	0-20
Silver-Ag	1	0.957	96%	0.975	98%	1.9%	80-120	0-20
Selenium-Se	1	0.962	96%	0.990	99%	2.9%	80-120	0-20
Thallium-Tl	1	0.980	98%	1.00	100%	2.0%	80-120	0-20
Vanadium-V	1	1.00	100%	1.02	102%	2.0%	80-120	0-20
Zinc-Zn	1	1.04	104%	1.06	106%	1.9%	80-120	0-20

Quality Control Parameter	SAMPLE REPLICATE ANALYSIS			
Digestion Date	7/30/2012			
Analysis Date	8/6/2012			
Matrix Type	Soil			
	ECL No.:	AW00129 10x		Control Limits
	R1	R2	RPD or RSD	
Units	mg/kg	mg/kg	%	%
Antimony-Sb	39.9	38.6	3.2%	0-20
Arsenic-As	ND	ND		0-20
Barium-Ba	264	280	5.8%	0-20
Beryllium-Be	ND	ND		0-20
Cadmium-Cd	ND	ND		0-20
Chromium-Cr	63.6	66.9	5.0%	0-20
Cobalt-Co	ND	ND		0-20
Copper-Cu	222	229	2.9%	0-20
Lead-Pb	477	468	1.9%	0-20
Molybdenum-Mo	ND	ND		0-20
Nickel-Ni	51.4	48.8	5.2%	0-20
Silver-Ag	ND	ND		0-20
Selenium-Se	ND	ND		0-20
Thallium-Tl	ND	ND		0-20
Vanadium-V	36.0	35.7	0.7%	0-20
Zinc-Zn	1760	1730	1.7%	0-20

Note:
ND = Not Detected < Quantitation Limit
Quantitation Limit =
Lowest Calibration Standard x Dilution Factor

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LABORATORY QUALITY CONTROL REPORT -- TOTAL METALS

Authorization No.: 12EC0004BERP
ECL No.: AW00127 - AW00135

Priority: 1

Quality Control Parameter	Matrix Spike/Matrix Spike Duplicate									
Digestion Date	7/30/2012									
Analysis Date	8/6/2012									
Matrix Type										
	ECL No.	AW00127 10x	Matrix Spike		Matrix Spike Duplicate			MS/MSD RPD	Control Limits	
	Sample Unspiked	Spike Added	Amount Recovered	Recovery	Spike Added	Amount Recovered	Recovery		Recovery	RPD
Units	mg/L	mg/L	mg/L	%	mg/L	mg/L	%	%	%	%
Antimony-Sb	0.266	1	1.27	100%	1	1.29	102%	1.6%	75-125	0-20
Arsenic-As	ND	1	1.13	113%	1	1.15	115%	1.8%	75-125	0-20
Barium-Ba	0.714	1	1.71	100%	1	1.70	99%	0.6%	75-125	0-20
Beryllium-Be	ND	0.2	0.204	102%	0.2	0.208	104%	1.9%	75-125	0-20
Cadmium-Cd	ND	1	1.01	101%	1	1.03	103%	2.0%	75-125	0-20
Chromium-Cr	0.209	1	1.22	101%	1	1.21	100%	0.8%	75-125	0-20
Cobalt-Co	ND	1	1.13	113%	1	1.14	114%	0.9%	75-125	0-20
Copper-Cu	0.569	1	1.47	90%	1	1.47	90%	0.0%	75-125	0-20
Lead-Pb	5.79	1	6.17	38%	1	5.85	6%	5.3%	75-125	0-20
Molybdenum-Mo	ND	1	1.02	102%	1	1.05	105%	2.9%	75-125	0-20
Nickel-Ni	0.229	1	1.25	102%	1	1.24	101%	0.8%	75-125	0-20
Silver-Ag	ND	1	0.944	94%	1	0.976	98%	3.3%	75-125	0-20
Selenium-Se	ND	1	0.969	97%	1	0.991	99%	2.2%	75-125	0-20
Thallium-Tl	ND	1	1.03	103%	1	1.02	102%	1.0%	75-125	0-20
Vanadium-V	0.155	1	1.16	101%	1	1.18	103%	1.7%	75-125	0-20
Zinc-Zn	2.52	1	3.27	75%	1	3.25	73%	0.6%	75-125	0-20

Notes:
ND = Not Detected<Quantitation Limit
Quantitation Limit = Lowest Calibration Standard x dilution factor
R = % RPD exceeded control limits

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LABORATORY QUALITY CONTROL REPORT -- TOTAL METALS

Authorization No. : 12EC0004BERP
ECL No.: AW00127 - AW00135

Priority: 1
Page: 7 of 15

Quality Control Parameter	Post Digestion Spike				Control Limits	Serial Dilution @ 5x			Control Limits
Digestion Date	7/30/2012					7/30/2012			
Analysis Date	8/6/2012					8/6/2012			
Matrix Type	Soil					Soil			
	ECL No.	AW00127 10x				ECL No.	AW00127 10x		
	Sample Unspiked	Spike Added	Amount Recovered	Recovery	Recovery	Sample	Dilution	RPD	RPD
Units	mg/L	mg/L	mg/L	%	%	mg/Kg	mg/Kg	%	%
Antimony-Sb	0.266	5	5.22	99%	80-120	65.2	ND		0-10
Arsenic-As	ND	5	5.57	111%	80-120	ND	ND		0-10
Barium-Ba	0.714	5	5.84	103%	80-120	175	184	5.0%	0-10
Beryllium-Be	ND	1	1.05	105%	80-120	ND	ND		0-10
Cadmium-Cd	ND	5	5.10	102%	80-120	ND	ND		0-10
Chromium-Cr	0.209	5	5.36	103%	80-120	51.3	ND		0-10
Cobalt-Co	ND	5	5.36	107%	80-120	ND	ND		0-10
Copper-Cu	0.569	5	5.88	106%	80-120	140	135	3.6%	0-10
Lead-Pb	5.79	5	11.1	106%	80-120	1420	1530	7.5%	0-10
Molybdenum-Mo	ND	5	5.17	103%	80-120	ND	ND		0-10
Nickel-Ni	0.229	5	5.52	106%	80-120	56.2	ND		0-10
Silver-Ag	ND	5	4.74	95%	80-120	ND	ND		0-10
Selenium-Se	ND	5	5.11	102%	80-120	ND	ND		0-10
Thallium-Tl	ND	5	5.07	101%	80-120	ND	ND		0-10
Vanadium-V	0.155	5	5.25	102%	80-120	38.0	ND		0-10
Zinc-Zn	2.52	5	7.65	103%	80-120	618	625	1.1%	0-10

Notes:
J = Estimated value (below reporting limit)
ND = Not Detected<Quantitation Limit
R = % RPD exceeded control limits

Quantitation Limit = Lowest Calibration Standard x dilution factor

State of California
California Environmental Protection

Department of Toxic Substances Control
Environmental Chemistry Laboratory

SUPPLEMENTAL ☐
(Check if Supplemental Requested)

AUTHORIZATION REQUEST FORM (ARF)

PART A : (By Requestor - PLEASE PRINT)

*Unit chief's signature required: (for Rush or TAT Level = 1)

Turnaround Time (TAT): *Rush ☐ *Level 1 ☒ 2 ☒ 3 ☐

Requestor's Name	Jess Villamayor	Email	jvillama	@dtsc.ca.gov	Phone (818) 717 - 6601
Region	03--Chatsworth	Unit	BERP-Legacy LFs & RCRA Corrective Action		Fax (818) 717-6587
Back-up Requestor	Todd Wallbom				Phone (818) 717-6622
Site Name	Quemetco, Incorporated				AREA CODE

PART B: Analytical Requests (By Requestor) (Lab uses default methods listed below. Please specify all other requests.)

Inorganic Analysis	Number of Samples/Type: Solid	Liquid	Water	Other
% Dry Solids (ECL730-S)				
Acidity (305-1)				
Alkalinity (310-1)				
Anions by IC (9056)				
Chromium VI(Cr^{6+}) by Colorimetric (7196A)				
Chromium VI(Cr^{6+}) in Water by IC (7199)				
Cyanides for Wastes,Leachates (9010B)				
Hardness (130-2)				
Mercury(Hg) in (Semi)Solid Waste (7471A)	10			
Mercury(Hg) in Liquid Waste (7470A)				
Metals Screening by XRF				
Metals Scan (6010B, for As,Ba,Cu,Pb, etc)	10			
Metals Scan (for Drinking water, 6020A)				
OrganoLead in Waste (ECL938-M)				
Particle Size (ECL740-S)				
Perchlorate for Soil,Sludge (ECL955-M)				
Perchlorate for Water (314-0)				
pH (9040B, 9045C)	10			
Total Dissolved Solids (160-1)				
WET(ECL910-S) ☐ Only if necessary ☐ Do it regardless				
(others, type in)				

Organic Analysis		Number of Samples/Type: Solid	Liquid	Water	Other
GRO (Gasoline, 8015B)					
DRO(Diesel) only (ECL816-M)					
Motor Oil only (ECL816-M)					
DRO(Diesel) & Motor Oil (ECL816-M)					
EthyleneGlycol (ECL772-M)					
PBDEs (ECL750-M)					
PCBs (8082)					
Pesticides - Chlorinated (8081A)					
Pesticides - Organophosphate (8141A)					
1,4-Dioxane (ECL830-S)					
GC/MS	Semivolatiles (8270C)				
	Volatiles (8260B)				
HPLC	Carbonyl Compounds (8315A)				
	Explosives (8330)				
	PAHs (8310)				
Dioxins/Furans by HRGC/HRMS (ECL880-M)		3			
Flash Point (1020A)					
n-Hexane Extractables/TPH (1664)					
TXO-Total Halogens in Oil (ECL792-S)					
(others, type in)					
(others, type in)					

TCLP Analysis**					
Metals	☐ Only if necessary ☐ Do it regardless				
Mercury	☐ Only if necessary ☐ Do it regardless				
Volatiles	☐ Only if necessary ☐ Do it regardless				
Semivolatiles	☐ Only if necessary ☐ Do it regardless				
(others, type in)					

Other Analysis				
Fish Bioassay (Title 22)				
Congener PCBs (ECL-CG-PCB)				
Congener PBDEs (ECL-CG-PBDE)				
(others,type in)				
(others, type in)				

Analysis Objective: Site Characterization

Special Instructions or Comments (For Example: Detection Limit, Sample Preparation, Extraction..., etc.):

Please make sure to include antimony and cadmium. Detection limits must be at or below U.S. EPA Industrial RSLs. Place samples on hold for possible Cr6 analysis only if total chrome result meets or exceeds RSL.

Expected Sample Arrival Date: 07/17/12 (mm/dd/yy)

PART C : (By SMO - ECL)

Authorization Number (AN): 12EC0004 BERP

ARF's Revision No. 1 Initials: [illegible] Date: 7/12/12

Lab to Receive Sample(s):

Environmental Chemistry Lab
700 Heinz Ave. Suite 150
Berkeley, CA 94710
Attn: Lloyd Williams (510) 540-2189

ARF's Revision No. ____ Initials: ____ Date: ____

Sample Management Officer (SMO): [illegible]

☐ Check box if cancelled
Initials: ____ Date: ____

Today's Date: 07/16/12 (mm/dd/yy) Expiration Date: 07/26/12 (mm/dd/yy)

If Sample(s) Directed to Contract Lab, Please Specify:

Reason: ____ ECL Personnel Confirmed: ____

ECL Contract Lab Manager Notification (for Rush or TAT Level =1): ____

Turnaround Time (TAT): * Rush for public health and safety or emergency, *Level 1 = 15 days, 2 = 30 days, 3 = 45 days.
**TCLP : If time permits and sample matrix type is appropriate, lab may analyze or screen the sample(s) first to determine if TCLP is needed.

State of California
California Environmental Protection Agency

Department of Toxic Substances Control
Environmental Chemistry Laboratory

ENVIRONMENTAL CHEMISTRY LABORATORY
SAMPLE ANALYSIS REQUEST

1. Authorization Number: 12EC0004BERP

ECL No.: AW00127 To AW00135

2. Page 1 of

3. Requestor: (to Receive Results) a. Name: Jess Villamayor
b. Address: 9211 Oakdale Ave (street number)
Chatsworth, CA 91311 (city, state, zip)
c. Phone: 818-717-6601 (area code first) d. Fax: (area code first)
e. Email: jess.villamayor @dtsc.ca.gov

4. Project Name (if applicable): Exide

5. TAT Level: 12 JV

6. Sampling Information: a. Date/Time Sampled: 07/25/12 (mm/dd/yy) AM/PM (#:## AM/PM)
b. Location: EPA ID No. CAD066233966
Site: Quemetco
Address: 720 S. 7th Avenue (street number)
City of Industry, CA 91746 (city, state, zip)
GPS-Lat: GPS-Long:
GPS-Alt: GPS-Depth:

7. Codes (select from drop down list or fill in if applicable)
a. Unit: BERP-Cleanup Program(Chatsworth)
b. INDEX: 5600
c. PCA: 22120
d. MPC: 6
e. SITE: 300225-48
f. County: 19--Los Angeles

8. Samples:

	a. ID b. Collector's No.	c. ECL No.	d. Matrix	e. Container Size	f. Number of containers	g. Preservative / Field Information
1	SS-FCC-1	AW00127	Soil	8 oz clear glass jar	2	NA
2	SS-S7A-2	AW00128	Soil	8 oz clear glass jar	2	NA
3	SS-S7A-3	AW00129	Soil	8 oz clear glass jar	2	NA
4	SS-SLA-4	AW00130	Soil	8 oz clear glass jar	2	NA
5	SS-SLA-5	AW00131	Soil	8 oz clear glass jar	2	NA
6	SS-S7A-6	AW00132	Soil	8 oz clear glass jar	2	NA
7	SS-S7A-7	AW00133	Soil	8 oz clear glass jar	2	NA
8	SS-S7A-8	AW00134	Soil	8 oz clear glass jar	2	NA
9	DUP-1	AW00135	Soil	8 oz clear glass jar	2	NA

9. Analysis Requested: Enter sample IDs and sample ID ranges separated by commas. For example, 1-3, 5-7, 9

a. Inorganic Analysis	Sample(s) ID	b. Organic Analysis	Sample(s) ID
Metals Scan (ICP-AES, 6010B or 6010C)	1-9	Dioxins/Furans by HRGC/HRMS(ECL880-M)	1-9
Mercury in (Semi)Solid Waste (7471A)	1-9		
pH for Solid (9045C)	1-9		
% Dry Solids (ECL730-S)	1-9		
Other Metals:			
c. TCLP Analysis		d. Other Analysis	
		For other analysis, please type in	

e. Comments for Multiphasic Samples/Analysis Priority: Metals scan top priority. Include antimony and cadmium. Other analyses may follow if there is sufficient vo.

10. Analysis Objective: Site Characterization

11. Detection Limit Requirements: (Check ECL User's Manual to assure default DL is sufficient.)
Default DLs for 'low soils' are sufficient, or 1 ppm or less, whichever is lower. Level 2 TAT ok for dioxins

12. Supplemental Requests: Enter sample IDs as described in Item 9

Desired Analysis	Sample(s) ID

Initials
Date

ECL

13. ECL Lab Remarks:

14. Chain of Custody:

	Name	Title	Signature	Inclusive Dates of Custody
a.	Todd Wallbom	Eng. Geologist		7/25/12 to 7/25/12
b.	Jess Villamayor	Project Manager		7/25/12 to 7/25/12
c.	Barbara Bush	Lab Tech	Barbara Bush	7/25/12 to 7/26/12
d.	Lloyd Williams	Lab Asst		7/27/12 to
e.				to
f.				to
g.				to

FIELD

LAB

COC

Department of Toxic Substances Control
Environmental Chemistry Laboratory
700 Heinz Avenue, Suite 150, Berkeley, CA 94710
Phone: (510) 540-3610 Fax: (510) 540-3615

ECL SAMPLE RECEIPT

Printed on: 7/27/2012

Authorization No: 12EC0004_BERP

Collector: Jess Villamayor

Date Collected: 7/25/2012

Date Lab Received: 7/27/2012

Sampling Site: QUEMETCO
720 S. 7th Avenue
City of Industry, CA 91746

ECL No.	Collector's No.	Sample Matrix	Container		Approximate Amount Rec'D	Custody Seals	Seal Location	Sample Condition	Action Taken
			Type	Size					
AW00127	SS-FCC-1	Soil	Glass	2(8 oz clear glass jar)	363.0;382.2g	None		Acceptable	
AW00128	SS-S7A-2	Soil	Glass	2(8 oz clear glass jar)	160.1;147.2g	None		Acceptable	
AW00129	SS-S7A-3	Soil	Glass	2(8 oz clear glass jar)	167.7;156.5g	None		Acceptable	
AW00130	SS-SLA-4	Soil	Glass	2(8 oz clear glass jar)	252.9;257.2g	None		Acceptable	
AW00131	SS-SLA-5	Soil	Glass	2(8 oz clear glass jar)	170.2;140.0g	None		Acceptable	
AW00132	SS-S7A-6	Soil	Glass	1(16 oz clear glass jar)	369.7g	None		Acceptable	
AW00133	SS-S7A-7	Soil	Glass	1(16 oz clear glass jar)	394.6g	None		Acceptable	
AW00134	SS-S7A-8	Soil	Glass	1(16 oz clear glass jar)	459.5g	None		Acceptable	
AW00135	DUP-1	Soil	Glass	2(8 oz plastic jar)	157.0;179.1g	None		Acceptable	

Comments:

Sample(s) processed by: Lloyd Williams Signature: [signature] Date: 7/27/12

Supervisor's approval (if any action taken): Signature: _____ Date: _____

From: (818) 717-6500
Jess Villamajor
DTSC Office 32030882 8
9211 Oakdale Avenue

Chatsworth, CA 91311

Origin ID: HAFA

FedEx Express

J1220 1207160325

Ship Date: 24JUL12
ActWgt: 15.0 LB
CAD: 8704519/INET3300

Delivery Address Bar Code

Ref# Jess Villamajor
Invoice #
PO #
Dept #

SHIP TO: (510) 540-3322 BILL SENDER

F. Reberr Brown Ph.D.

700 HEINZ AVE Ste 150

BERKELEY, CA 94710

FedEx
TRK# 0201 7938 2667 4040

FRI - 27 JUL A1
PRIORITY OVERNIGHT

94710
CA-US
OAK

81 JEMA

Emp# 488149 26JUL12 JGXA 515G1/E052/AA44

515G1/E052/AA44

182

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
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3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

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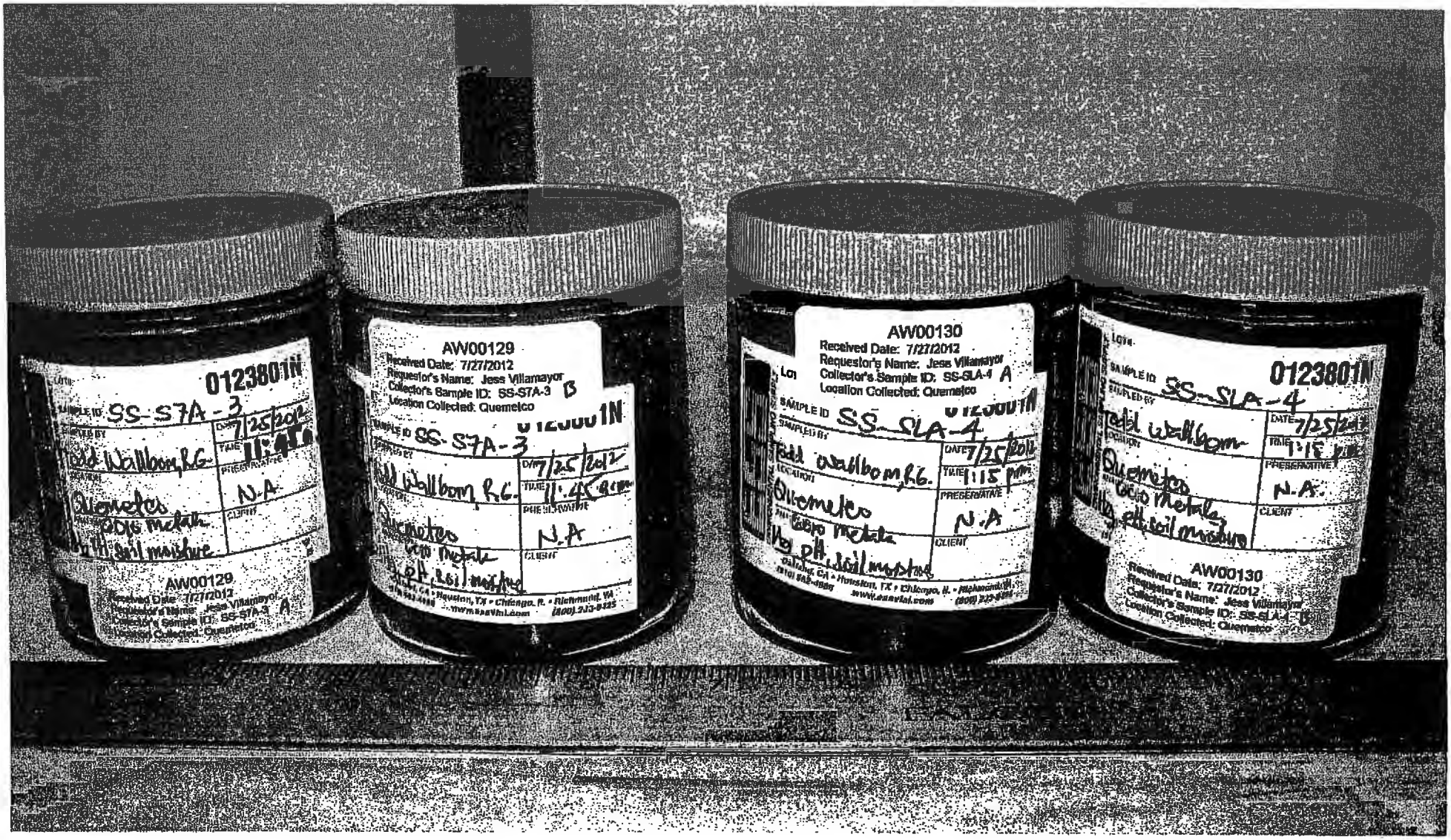
AW00127
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-FCC-1 A
Location Collected: Quemetco
SAMPLE ID SS-FCC-1
Todd Wallbom, R.G.
7/25/2012
11:00 a.m.
N.A.
Quemetco
Gold, Metals
Hg, pH, soil moisture
AW00127
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-FCC-1 B
Location Collected: Quemetco
SAMPLE ID SS-FCC-1
Todd Wallbom, R.G.
7/25/2012
11:00 a.m.
N.A.
Quemetco
Gold, Metals
Hg, pH, soil moisture
AW00128
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-S7A-2 A
Location Collected: Quemetco
SAMPLE ID SS-S7A-2
Todd Wallbom, R.G.
7/25/2012
11:30 a.m.
N.A.
Quemetco
Gold, Metals
Hg, pH, soil moisture
AW00128
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-S7A-2 B
Location Collected: Quemetco
SAMPLE ID SS-S7A-2
Todd Wallbom, R.G.
7/25/2012
11:30 a.m.
N.A.
Quemetco
Gold, Metals
Hg, pH, soil moisture


0123801N
SS-S7A-3
Todd Wallbom, R.G.
Quemetco
CAM 17 Metals
pH, soil moisture
N.A
AW00129
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-S7A-3 A
Location Collected: Quemetco
AW00129
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-S7A-3 B
Location Collected: Quemetco
SS-S7A-3
Todd Wallbom, R.G.
7/25/2012
11:45 am
N.A
AW00130
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-SLA-4 A
Location Collected: Quemetco
SS-SLA-4
Todd Wallbom, R.G.
7/25/2012
1:15 pm
Quemetco
CAM 17 Metals
pH, soil moisture
N.A
AW00130
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-SLA-4 B
Location Collected: Quemetco
0123801N
SS-SLA-4
Todd Wallbom
7/25/2012
1:15 pm
Quemetco
CAM 17 Metals
pH, soil moisture
N.A.


AW00131
AW00131
AW00132
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-S7A-6
Location Collected: Cuemetco
SAMPLE ID SS-S7A-6
Todd Wellborn
Cuemetco
N.A
AW00133
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-S7A-7
Location Collected: Cuemetco
SAMPLE ID SS-S7A-7
Todd Wellborn, P.E.
Cuemetco
N.A


AW00134
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-S7A-B
Location Collected: Quemetco
SAMPLE ID SS-S7A-B
SAMPLED BY Gold Wallbom
LOCATION Quemetco
ANALYSIS Cold metals, pH, soil moisture
DATE 7/25/2012
TIME 2:20 PM
PRESERVATIVE N.A
CLIENT
AW00135
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: DUP-1 A
Location Collected: Quemetco
SAMPLE ID DUP-1
SAMPLED BY Gold Wallbom
LOCATION Quemetco
ANALYSIS Cold metals, pH, soil moisture
DATE 7/25/2012
TIME
PRESERVATIVE NA
CLIENT
AW00135
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: DUP-1 B
Location Collected: Quemetco
SAMPLE ID DUP-1
SAMPLED BY Gold Wallbom, EG
LOCATION Quemetco
ANALYSIS Cold metals, pH, soil moisture
DATE 7/25/2012
TIME
PRESERVATIVE NA
CLIENT

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

California Environmental Protection Agency
Department of Toxic Substances Control
Environmental Chemistry Laboratory
700 Heinz Avenue, Suite 100, Berkeley, CA 94710
Telephone: (510) 540-3003

LABORATORY REPORT --- MERCURY --- SOIL

Authorization No. : 12EC0004
ECL No.: AW00127-AW00135

Requestor's Name: Jess Villamayor
Address: 9211 Oakdale Ave, Chatsworth, CA 91311

Sampling Location: Quemetco
720 S. 7th Avenue, City of Industry, CA 91746

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Sample Receipt and Photos	10-15

The results listed within this report pertain only to the samples tested in the laboratory. These results have been reviewed for technical correctness and completeness. This report was reviewed and approved for release.

Report Reviewed by: Carol Wortham
Carol Wortham, RS II
Date 8/12/2012

Report Approved by: John Quinn
John Quinn, RSSI
Date 8/20/2012

California Environmental Protection Agency
Department of Toxic Substances Control
Environmental Chemistry Laboratory
700 Heinz Avenue, Suite 100, Berkeley, CA 94710
Telephone: (510) 540-3003

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

LABORATORY REPORT--- MERCURY --- SOIL

Authorization No. : 12EC0004 **Priority:** 1
ECL No.: AW00127-AW00135 **Page:** 2 of 15

1. Sampling Location: Quemetco
   720 S. 7th Avenue, City of industry, CA 91746

2. Requestor' Name: Jess Villamayor
   Address: 9211 Oakdale Ave, Chatsworth, CA 91311

3. Sample (s) Information:
   Date Collected: 7/25/2012
   Date Received: 7/27/2012
   Date Extracted/Digested: 8/8/2012 Method: EPA 7473
   Date Analyzed: 8/8/2012 Method: EPA 7473

Date data package was completed: 8/9/2012

Case narrative:

1. Initial calibration and continuing calibration criteria were met? ☑ Yes ☐ No
2. Calibration blank and continuing calibration blanks criteria were met? ☑ Yes ☐ No
3. QC parameters were within control limits? ☑ Yes ☐ No
4. Sample holding time was met? ☑ Yes ☐ No

Comments:
If any of the above answers is "NO", please explain below in detail.

Sample Prepared by: Caiyun Xu Date 8/14/2012
Caiyun Xu

Sample Analyzed by: Caiyun Xu Date 8/14/2012
Caiyun Xu

California Environmental Protection Agency
Department of Toxic Substances Control
Environmental Chemistry Laboratory
700 Heinz Avenue, Suite 100, Berkeley, CA
94710

LABORATORY REPORT--- MERCURY --- SOIL

Authorization No. : 12EC0004 **Priority:** 1
ECL No.: AW00127-AW00135 **Page:** 3 of 15

Reference Method: EPA 7473 (Solid)

Analytical Procedure: Solid samples are dried and then thermally decomposed within the decomposition furnace. A stream of oxygen gas carries the decomposition products to the catalytic section of the furnace first, where potential interferents such as halogens and gaseous oxides are trapped. The remaining decomposition products are then carried to the amalgamator which selectively traps mercury. After the system is flushed with oxygen to remove any remaining gases or other decomposition products, the amalgamator is then rapidly heated to release the Hg as a vapor which is then carried to two AA spectrometer cells in tandem. The absorbance of mercury at 253.7 nm is measured, and the amount of mercury in the sample determined from appropriate calibration standards.

Date of Analysis	August 8, 2012						
ECL NO.	AW00127	AW00128	AW00129	AW00130	Method Blank	Reporting Limit (not corrected for dilution factor	TTLC Limit
Requestor's Sample No.	SS-FCC-1	SS-S7A-2	SS-S7A-3	SS-SLA-4			
Matrix Type	Soil	Soil	Soil	Soil	Liquid		
Dilution Factor	1	1	1	1	1		
Units	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Mercury.- Hg	0.094	0.171	0.188	0.070	ND	0.02	20

Quantitation Limit = Reporting Limit (X) Dilution Factor

Qualifiers:

ND	Not detected.< Quantitation Limit
J	Estimated value
B	Analyte found in method blank (MB)
B1	Analyte found in MB. Analyte conc. in the sample is greater than 10X the conc. found in MB
M	MS/MSD % Recovery below control limits
M2	MS/MSD % Recovery above control Limits
R	% RPD exceeded Control Limits
H	Holding Time exceeded

California Environmental Protection Agency
Department of Toxic Substances Control
Environmental Chemistry Laboratory
700 Heinz Avenue, Suite 100, Berkeley, CA
94710

LABORATORY REPORT--- MERCURY --- SOIL

Authorization No. : 12EC0004 **Priority:** 1
ECL No.: AW00127-AW00135 **Page:** 4 of 15

Reference Method: EPA 7473 (Solid)

Analytical Procedure: Solid samples are dried and then thermally decomposed within the decomposition furnace. A stream of oxygen gas carries the decomposition products to the catalytic section of the furnace first, where potential interferents such as halogens and gaseous oxides are trapped. The remaining decomposition products are then carried to the amalgamator which selectively traps mercury. After the system is flushed with oxygen to remove any remaining gases or other decomposition products, the amalgamator is then rapidly heated to release the Hg as a vapor which is then carried to two AA spectrometer cells in tandem. The absorbance of mercury at 253.7 nm is measured, and the amount of mercury in the sample determined from appropriate calibration standards.

Date of Analysis	August 8, 2012						
ECL NO.	AW00131	AW00132	AW00133	AW00134	Method Blank	Reporting Limit (not corrected for dilution factor)	TTLC Limit
Requestor's Sample No.	SS-S1A-5	SS-S7A-6	SS-S7A-7	SS-S7A-8			
Matrix Type	Soil	Soil	Soil	Soil	Liquid		
Dilution Factor	1	1	1	1	1		
Units	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Mercury - Hg	0.197	0.102	0.261	0.060	ND	0.02	20

Quantitation Limit = Reporting Limit (X) Dilution Factor

Qualifiers:

ND	Not detected < Quantitation Limit
J	Estimated value
B	Analyte found in method blank (MB)
B1	Analyte found in MB. Analyte conc. in the sample is greater than 10X the conc. found in MB
M	MS/MSD % Recovery below control limits
M2	MS/MSD % Recovery above control Limits
R	% RPD exceeded Control Limits
H	Holding Time exceeded

California Environmental Protection Agency
Department of Toxic Substances Control
Environmental Chemistry Laboratory
700 Heinz Avenue, Suite 100, Berkeley, CA
94710

LABORATORY REPORT--- MERCURY --- SOIL

Authorization No. : 12EC0004 **Priority:** 1
ECL No.: AW00127-AW00135 **Page:** 5 of 15

Reference Method: EPA 7473 (Solid)

Analytical Procedure: Solid samples are dried and then thermally decomposed within the decomposition furnace. A stream of oxygen gas carries the decomposition products to the catalytic section of the furnace first, where potential interferents such as halogens and gaseous oxides are trapped. The remaining decomposition products are then carried to the amalgamator which selectively traps mercury. After the system is flushed with oxygen to remove any remaining gases or other decomposition products, the amalgamator is then rapidly heated to release the Hg as a vapor which is then carried to two AA spectrometer cells in tandem. The absorbance of mercury at 253.7 nm is measured, and the amount of mercury in the sample determined from appropriate calibration standards.

Date of Analysis	August 8, 2012						
ECL NO.	AW00135				Method Blank	Reporting Limit (not corrected for dilution factor	TTLC Limit
Requestor's Sample No.	DUP-1						
Matrix Type	Soil				Liquid		
Dilution Factor	1				1		
Units	mg/Kg				mg/Kg	mg/Kg	mg/Kg
Mercury - Hg	0.090				ND	0.02	20

Quantitation Limit = Reporting Limit (X) Dilution Factor

Qualifiers:

ND	Not detected < Quantitation Limit
J	Estimated value
B	Analyte found in method blank (MB)
B1	Analyte found in MB. Analyte conc. in the sample is greater than 10X the conc. found in MB
M	MS/MSD % Recovery below control limits
M2	MS/MSD % Recovery above control Limits
R	% RPD exceeded Control Limits
H	Holding Time exceeded

California Environmental Protection Agency
Department of Toxic Substances Control
Environmental Chemistry Laboratory
700 Heinz Avenue, Suite 100, Berkeley, CA 94710
Telephone: (510) 540-3003

LABORATORY QUALITY CONTROL REPORT --- MERCURY --- SOIL

Authorization No. : 12EC0004 **Priority:** 1
ECL No.: AW00127-AW00135 **Page:** 6 of 15

Quality Control Parameter		LABORATORY CONTROL SAMPLES						
Date of Analysis		August 8, 2012						
Matrix Type		Liquid						
	Spike Added	LCS Value	Recovery	LCSD Value	Recovery	RPD	Recovery	RPD
Units	mg/L	mg/L	%	mg/L	%	%	%	%
Mercury -Hg	0.200	0.212	106%	0.211	106%	0.5%	80-120	20

Quality Control	SAMPLE REPLICATE ANALYSIS				
Date of Analysis	August 8, 2012				
Matrix Type	Soil				
Dilution Factor	1				
ECL #		AW00133			Control Limits
				RPD or RSD	
Units	mg/Kg	mg/Kg		%	%
Mercury -Hg	0.261	0.292		7.8%	0-20

Qualifiers:

R **% RPD exceeded Control Limits**

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Department of Toxic Substances Control
Environmental Chemistry Laboratory
700 Heinz Avenue, Suite 100, Berkeley, CA 94710
Telephone: (510) 540-3003

LABORATORY QUALITY CONTROL REPORT --- MERCURY --- SOIL

Authorization No. : 12EC0004 **Priority:** 1
ECL No.: AW00127-AW00135 **Page:** 7 of 15

Quality Control Parameter	MATRIX SPIKE/MATRIX SPIKE DUPLICATE									
Date of Analysis	August 8, 2012									
Matrix Type	Soil									
	ECL No.: AW00134		Matrix Spike		Matrix Spike Duplicate			MS/MSD RPD	Control Limits	
	Sample Unspiked	Spike Added to MS	Amount Recovered	Recovery	Spike Added to MSD	Amount Recovered	Recovery		Recovery	RPD
Units	mg/Kg	mg/Kg	mg/Kg	%	mg/Kg	mg/Kg	%	%	%	%
Mercury - Hg	0.060	0.200	0.277	108%	0.200	0.284	112%	2.8%	80-120	0-20

Qualifiers:

R	**% RPD exceeded Control Limits**
ND	Not Detected, < Quantitation Limit

Comments:

tate of California
:alifornia Environmental Protection

Department of Toxic Substances Control
Environmental Chemistry Laboratory

SUPPLEMENTAL ☐ (Check if Supplemental Requested)

AUTHORIZATION REQUEST FORM (ARF)

PART A : (By Requestor - PLEASE PRINT)

*Unit chief's signature required: (for Rush or TAT Level = 1)

Turnaround Time (TAT): *Rush ☐ *Level 1 ☒ 2 ☒ 3 ☐

Requestor's Name: Jess Villamayor — Email: jvillama @dtsc.ca.gov — Phone (818) 717 - 6601

Region: 03--Chatsworth — Unit: BERP-Legacy LFs & RCRA Corrective Action — Fax (818) 717-6587

Back-up Requestor: Todd Wallbom — Phone (818) 717-6622 (AREA CODE)

Site Name: Quemetco, Incorporated

PART B: Analytical Requests (By Requestor) (Lab uses default methods listed below. Please specify all other requests.)

Inorganic Analysis	Number of Samples/Type: Solid	Liquid	Water	Other
% Dry Solids (ECL730-S)				
Acidity (305-1)				
Alkalinity (310-1)				
Anions by IC (9056)				
Chromium VI(Cr^{6+}) by Colorimetric (7196A)				
Chromium VI(Cr^{6+}) in Water by IC (7199)				
Cyanides for Wastes,Leachates (9010B)				
Hardness (130-2)				
Mercury(Hg) in (Semi)Solid Waste (7471A)	10			
Mercury(Hg) in Liquid Waste (7470A)				
Metals Screening by XRF				
Metals Scan (6010B, for As,Ba,Cu,Pb, etc)	10			
Metals Scan (for Drinking water, 6020A)				
OrganoLead in Waste (ECL938-M)				
Particle Size (ECL740-S)				
Perchlorate for Soil,Sludge (ECL955-M)				
Perchlorate for Water (314-0)				
pH (9040B, 9045C)	10			
Total Dissolved Solids (160-1)				
WET(ECL910-S) ☐ Only if necessary ☐ Do it regardless				
(others, type in)				

TCLP Analysis**		
Metals	☐ Only if necessary	☐ Do it regardless
Mercury	☐ Only if necessary	☐ Do it regardless
Volatiles	☐ Only if necessary	☐ Do it regardless
Semivolatiles	☐ Only if necessary	☐ Do it regardless
(others, type in)		

Organic Analysis		Number of Samples/Type: Solid	Liquid	Water	Other
GRO (Gasoline, 8015B)					
DRO(Diesel) only (ECL816-M)					
Motor Oil only (ECL816-M)					
DRO(Diesel) & Motor Oil (ECL816-M)					
EthyleneGlycol (ECL772-M)					
PBDEs (ECL750-M)					
PCBs (8082)					
Pesticides - Chlorinated (8081A)					
Pesticides - Organophosphate (8141A)					
1,4-Dioxane (ECL830-S)					
GC/MS	Semivolatiles (8270C)				
	Volatiles (8260B)				
HPLC	Carbonyl Compounds (8315A)				
	Explosives (8330)				
	PAHs (8310)				
Dioxins/Furans by HRGC/HRMS (ECL880-M)		3			
Flash Point (1020A)					
n-Hexane Extractables/TPH (1664)					
TXO-Total Halogens in Oil (ECL792-S)					
(others, type in)					
(others, type in)					

Other Analysis
Fish Bioassay (Title 22)
Congener PCBs (ECL-CG-PCB)
Congener PBDEs (ECL-CG-PBDE)
(others,type in)
(others, type in)

Analysis Objective: Site Characterization

Special Instructions or Comments (For Example: Detection Limit, Sample Preparation, Extraction..., etc.):
Please make sure to include antimony and cadmium. Detection limits must be at or below U.S. EPA Industrial RSLs. Place samples on hold for possible Cr6 analysis only if total chrome result meets or exceeds RSL.

Expected Sample Arrival Date: 07/17/12 (mm/dd/yy)

ARF's Revision No. 1 Initials: [illegible] Date: 7/04/12

PART C : (By SMO - ECL)

Authorization Number (AN): 12EC0004 BERP

Lab to Receive Sample(s): Environmental Chemistry Lab, 700 Heinz Ave. Suite 150, Berkeley, CA 94710, Attn: Lloyd Williams (510) 540-2189

ARF's Revision No. ____ Initials: ____ Date: ____

Sample Management Officer (SMO): [signature]

☐ Check box if cancelled Initials: ____ Date: ____

Today's Date: 07/16/12 (mm/dd/yy)

Expiration Date: 07/26/12 (mm/dd/yy)

If Sample(s) Directed to Contract Lab, Please Specify:

Reason: ECL Contract Lab Manager Notification (for Rush or TAT Level =1):

ECL Personnel Confirmed: ____

*Level 1 = 15 days, 2 = 30 days, 3 = 45 days.

ECL 04 (REV 04/09)

State of California
California Environmental Protection Agency

Department of Toxic Substances Control
Environmental Chemistry Laboratory

ENVIRONMENTAL CHEMISTRY LABORATORY
SAMPLE ANALYSIS REQUEST

1. Authorization Number: 12EC0004BERP

ECL No.: AW00127 **To** AW00135

2. Page 1 of

3. Requestor: (to Receive Results)
a. Name: Jess Villamayor
b. Address: 9211 Oakdale Ave (street number)
Chatsworth, CA 91311 (city, state, zip)
c. Phone: 818-717-6601 (area code first) d. Fax: (area code first)
e. Email: jess.villamayor @dtsc.ca.gov

4. Project Name (if applicable):
Exide

5. TAT Level: # 2 JV

6. Sampling Information:
a. Date/Time Sampled: 07/25/12 (mm/dd/yy)
b. Location: EPA ID No. CAD066233966 AM/PM. (#:## AM/PM)
Site: Quemetco
Address: 720 S. 7th Avenue (street number)
City of Industry, CA 91746 (city, state, zip)
GPS-Lat: GPS-Long:
GPS-Alt: GPS-Depth:

7. Codes (select from drop down list or fill in if applicable)
a. Unit: BERP-Cleanup Program(Chatsworth)
b. INDEX: 5600
c. PCA: 22120
d. MPC: 6
e. SITE: 300225-48
f. County: 19--Los Angeles

8. Samples:

a.ID	b. Collector's No.	c. ECL No.	d. Matrix	e. Container Size	f. Number of containers	g. Preservative / Field Information
1	SS-FCC-1	AW00127	Soil	8 oz clear glass jar	2	NA
2	SS-S7A-2	AW00128	Soil	8 oz clear glass jar	2	NA
3	SS-S7A-3	AW00129	Soil	8 oz clear glass jar	2	NA
4	SS-SLA-4	AW00130	Soil	8 oz clear glass jar	2	NA
5	SS-SLA-5	AW00131	Soil	8 oz clear glass jar	2	NA
6	SS-S7A-6	AW00132	Soil	16 8 oz clear glass jar	2 1	NA
7	SS-S7A-7	AW00133	Soil	16 8 oz clear glass jar	2 1	NA
8	SS-S7A-8	AW00134	Soil	16 8 oz clear glass jar	2 1	NA
9	DUP-1	AW00135	Soil	8 oz clear glass jar	2	NA

9. Analysis Requested: Enter sample IDs and sample ID ranges separated by commas. For example, 1-3, 5-7, 9

FIELD

a. Inorganic Analysis	Sample(s) ID	b. Organic Analysis	Sample(s) ID
Metals Scan (ICP-AES, 6010B or 6010C)	1-9	Dioxins/Furans by HRGC/HRMS(ECL860-M)	1-9
Mercury in (Semi)Solid Waste (7471A)	1-9		
pH for Solid (9045C)	1-9		
% Dry Solids (ECL730-S)	1-9		
Other Metals:			
c. TCLP Analysis		d. Other Analysis	
		For other analysis, please type in	

e. Comments for Multiphasic Samples/Analysis Priority: Metals scan top priority. Include antimony and cadmium. Other analyses may follow if there is sufficient vo

10. Analysis Objective: Site Characterization

11. Detection Limit Requirements: (Check ECL User's Manual to assure default DL is sufficient.)
Default DLs for 'low soils' are sufficient, or 1 ppm or less, whichever is lower. Level 2 TAT ok for dioxins

12. Supplemental Requests: Enter sample IDs as described in Item 9

Desired Analysis	Sample(s) ID

Initials
Date

ECL

13. ECL Lab Remarks:

LAB

14. Chain of Custody:

	Name	Title	Signature	Inclusive Dates of Custody		
a.	Todd Wallbom	Eng. Geologist		7/25/12	to	7/25/12
b.	Jess Villamayor	Project Manager		7/25/12	to	7/25/12
c.	Barbara Bush	Lab Tech		7/25/12	to	7/26/12
d.	Lloyd Williams	Lab Asst		7/27/12	to	
e.					to	
f.					to	

COC

Department of Toxic Substances Control
Environmental Chemistry Laboratory
700 Heinz Avenue, Suite 150, Berkeley, CA 94710
Phone: (510) 540-3610 Fax: (510) 540-3615

ECL SAMPLE RECEIPT

Printed on: 7/27/2012

Authorization No: 12EC0004_BERP
Collector: Jess Villamayor
Date Collected: 7/25/2012
Date Lab Received: 7/27/2012

Sampling Site: QUEMETCO
720 S. 7th Avenue
City of Industry, CA 91746

ECL No.	Collector's No.	Sample Matrix	Container		Approximate Amount Rec'd	Custody Seals	Seal Location	Sample Condition	Action Taken
			Type	Size					
AW00127	SS-FCC-1	Soil	Glass	2(8 oz clear glass jar)	363.0;382.2g	None		Acceptable	
AW00128	SS-S7A-2	Soil	Glass	2(8 oz clear glass jar)	160.1;147.2g	None		Acceptable	
AW00129	SS-S7A-3	Soil	Glass	2(8 oz clear glass jar)	167.7;156.5g	None		Acceptable	
AW00130	SS-SLA-4	Soil	Glass	2(8 oz clear glass jar)	252.9;257.2g	None		Acceptable	
AW00131	SS-SLA-5	Soil	Glass	2(8 oz clear glass jar)	170.2;140.0g	None		Acceptable	
AW00132	SS-S7A-6	Soil	Glass	1(16 oz clear glass jar)	369.7g	None		Acceptable	
AW00133	SS-S7A-7	Soil	Glass	1(16 oz clear glass jar)	394.6g	None		Acceptable	
AW00134	SS-S7A-8	Soil	Glass	1(16 oz clear glass jar)	459.5g	None		Acceptable	
AW00135	DUP-1	Soil	Glass	2(8 oz plastic jar)	157.0;179.1g	None		Acceptable	

Comments:

Sample(s) processed by: Lloyd Williams Signature: Lloyd Williams Date: 7/27/12

Supervisor's approval (if any action taken): Signature: _____ Date: _____

From: (818) 717-6500
Jess Villamajor
DTSC Office 32030882 8
9211 Oakdale Avenue

Chatsworth, CA 91311

Origin ID: HAFA

FedEx Express

J1220120716032S

Ship Date: 24JUL12
ActWgt: 15.0 LB
CAD: 8704619/INET3300

Delivery Address Bar Code

Ref # Jess Villamajor
Invoice #
PO #
Dept #

SHIP TO: (510) 540-3322 BILL SENDER

F. Reberr Brown Ph.D.

700 HEINZ AVE Ste 150

BERKELEY, CA 94710

FedEx
TRK# 0201 7938 2667 4040

FRI - 27 JUL A1
PRIORITY OVERNIGHT

94710
CA-US
OAK

(81 JEMA

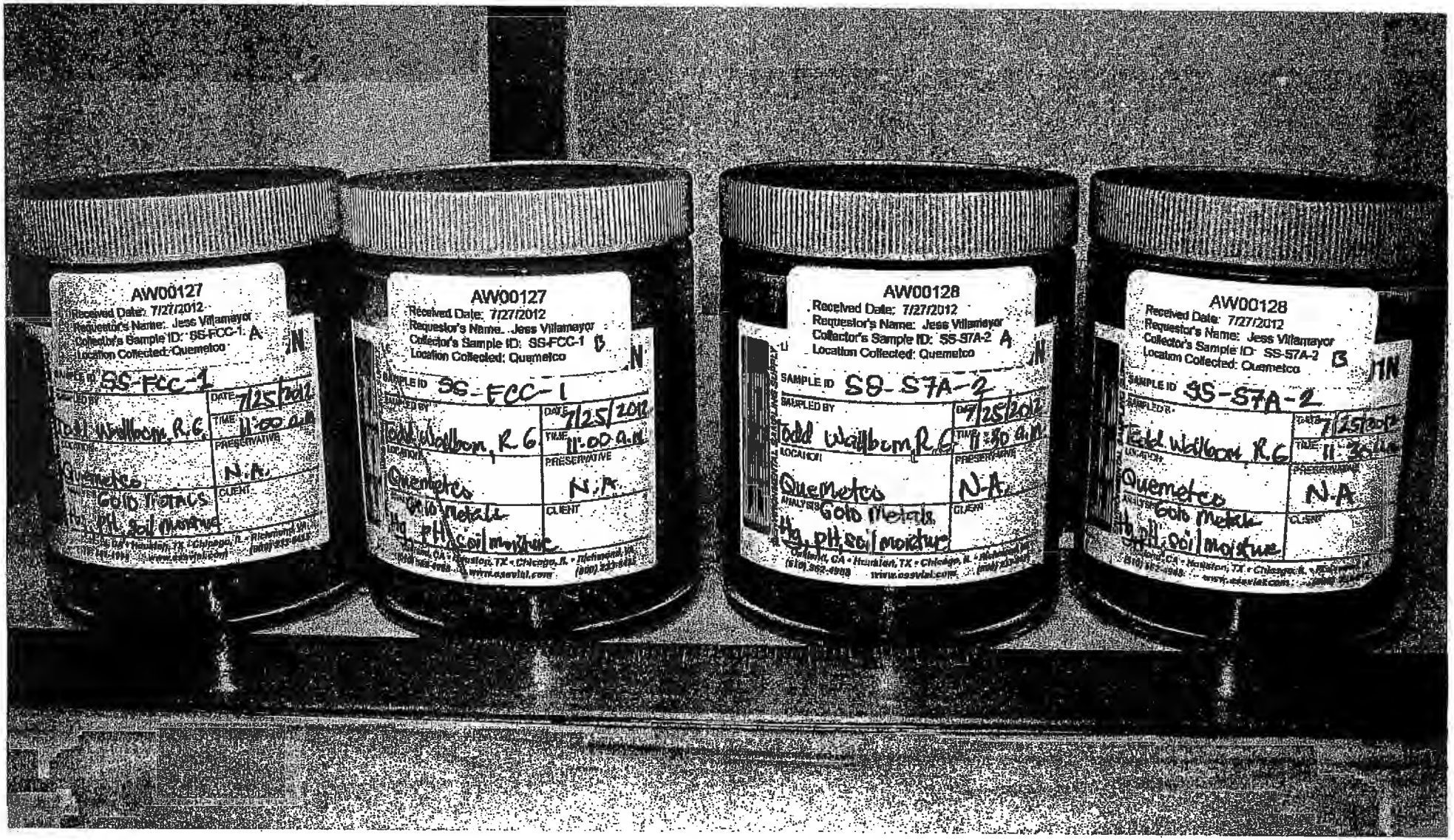
Emp# 486149 26JUL12 JGXA 515G1/E052/AA44

515G1/E052/AA44

182

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $500, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.


AW00127
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-FCC-1 A
Location Collected: Quemetco
SAMPLE ID SS-FCC-1
SAMPLED BY Todd Wallbom, R.G.
DATE 7/25/2012
TIME 11:00 a.m.
LOCATION Quemetco
PRESERVATIVE N.A.
ANALYSIS Gold Totals, pH, Soil moisture
CLIENT
AW00127
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-FCC-1 B
Location Collected: Quemetco
SAMPLE ID SS-FCC-1
SAMPLED BY Todd Wallbom, R.G.
DATE 7/25/2012
TIME 11:00 a.m.
LOCATION Quemetco
PRESERVATIVE N.A.
ANALYSIS Gold Metals, Hg, pH, Soil moisture
CLIENT
AW00128
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-S7A-2 A
Location Collected: Quemetco
SAMPLE ID SS-S7A-2
SAMPLED BY Todd Wallbom, R.G.
DATE 7/25/2012
TIME 11:30 a.m.
LOCATION Quemetco
PRESERVATIVE N.A.
ANALYSIS Gold Metals, Hg, pH, Soil moisture
CLIENT
AW00128
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-S7A-2 B
Location Collected: Quemetco
SAMPLE ID SS-S7A-2
SAMPLED BY Todd Wallbom, R.G.
DATE 7/25/2012
TIME 11:30 a.m.
LOCATION Quemetco
PRESERVATIVE N.A.
ANALYSIS Gold Metals, Hg, pH, Soil moisture
CLIENT


0123801N
SS-S7A-3
Todd Wallbom, R.G.
Quemetco
Geo metals
N.A.
AW00129
AW00129
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-S7A-3 B
Location Collected: Quemetco
SS-S7A-3
N.A
AW00130
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-SLA-4 A
Location Collected: Quemetco
SS-SLA-4
Todd Wallbom, R.G.
Quemetco
N.A
0123801N
SS-SLA-4
Todd Wallbom
Quemetco
Geo Metals
N.A.
AW00130


AW00131
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-SLA-5
Location Collected: Quemetco
SS-SLA-5
Todd Wallbom
Quemetco
N.A
AW00131
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-SLA-5
Location Collected: Quemetco
SS-SLA-5
Todd Wallbom
Quemetco
N.A
AW00132
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-S7A-6
Location Collected: Quemetco
SAMPLE ID SS-S7A-6
Todd Wallbom
Quemetco
N.A
AW00133
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-S7A-7
Location Collected: Quemetco
SS-S7A-7
Todd Wallbom R.C.
Quemetco
N.A


AW00134
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: SS-S7A-B
Location Collected: Quemetco
SAMPLE ID SS-S7A-B
SAMPLED BY Ted Wallbom
DATE 7/25/2012
TIME 2:10 PM
LOCATION Quemetco
PRESERVATIVE N.A
ANALYSES Cold metals - Hg, pH, soil moisture
CLIENT
AW00135
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: DUP-1 A
Location Collected: Quemetco
SAMPLE ID DUP-1
SAMPLED BY Ted Wallbom
DATE 7/25/12
TIME
LOCATION Quemetco
PRESERVATIVE NA
ANALYSES Cold metals - Hg, pH, soil moisture
CLIENT
AW00135
Received Date: 7/27/2012
Requestor's Name: Jess Villamayor
Collector's Sample ID: DUP-1 B
Location Collected: Quemetco
SAMPLE ID DUP-1
SAMPLED BY Ted Wallbom, EG
DATE 7/25/2012
TIME
LOCATION Quemetco
PRESERVATIVE NA
ANALYSES Cold metals - Hg, pH, soil moisture
CLIENT

Appendix D – WSP SOP for Screening Soil Using XRF

WSP Standard Operating Procedure

Screening of Soils for Metals using a Niton X-Ray Fluorescence Instrument

Materials:

Niton or equivalent hand held XRF analyzer
Personal protective equipment (PPE)
Sample containers
Sample labels and indelible marker
Stainless steel trowels or spoons
Field log book
Battery pack and charger
Shielded case
Calibration standards
Test platform
Ziploc bags
Test guard
Baby wipes
Sample tray

Note: Prior to obtaining a rental XRF unit, determine the requirements for radioactive material licensing and training from the State's Radiological Materials Department.

Calibration:

1. Every time the XRF is turned on or reset, the instrument performs a self calibration. In addition, several known standards are provided to check the calibration of the instrument. Calibrate the XRF at least daily, preferably each morning prior to conducting soil screenings, in the middle of the day, and at the end of day following soil screenings. Calibrate the XRF in accordance with the manufacturer's specifications using the low, medium, and high calibration standards.

2. Allow the instrument 15 minutes to warm up prior to field use.

In-situ Field Screening:

1. Select a measurement site. Always use the appropriate personal protective equipment based on the site conditions.

2. Clear any surface debris or vegetation from the measurement location, and ensure a flat surface to the soil. If necessary level and compact the surface with a stainless-steel trowel or spoon.

3. Place the test guard on the ground.

4. Hold the Niton in one hand, and push the safety slide (that locks the shutter release) out from under the shutter release.

5. Place the Niton on the test guard so that the rectangular opening on the test guard is under the window of the Niton. Squeeze the shutter release and firmly press the instrument flat against the surface of the test guard (if you don't squeeze the shutter release, the plunger will not depress and the shutter will not fully open causing an inaccurate measurement). **Do not put your hand on**

the end plate of the unit while measuring. Never point the unit at yourself or anyone else when the shutter is open.

6. Watch for indications to decide when the test has reached the desired level of accuracy. A typical screening will last 30-60 seconds.

7. The instrument will provide a reading in ppm plus a measurement precision (+/-). Add the precision to the reading of concern to determine the metal concentration at that location.

8. Clean the bottom (soil contact side) of the Niton Test Guard with a baby wipe prior to the next screening location.

Ex-situ Field Screening:

1. Place the blade tip of trowel into the soil and push firmly to desired sampling depth.

2. Lift a portion of the soil out with the blade and place 50-100 grams of soil in a new plastic bag and close securely.

3. Label each bag with the sample location/ID.

4. Homogenize the sample in a plastic bag.

5. Shape the bag of soil to form a continuous uniform layer of at least one centimeter thickness and analyze the sample using the *in-situ* screening procedure (steps 3-8).

Note: Test results will tend to be 10-15% lower than results obtained using the *in situ* screening procedure.

Example XRF Field Worksheet
Quemetco Inc. City of Industry, CA

Date:_____

Field Personnel:_____

Field Location:_____

XRF Accuracy Check Date/Time:_____

Time (24hr)	Sample ID	XRF Lead Result (ppm)	Soil Moisture (Description)	Sent to Lab (√)	Location Coordinates

Appendix E – WSP SOP for Field Note Taking and Field Book Entries Procedure

FIELD STANDARD OPERATING PROCEDURE #1

NOTE TAKING AND FIELD BOOK ENTRIES PROCEDURE

The field book is a record of the day's activities that serves as a reference for future reporting and analyses. The field book is also a legal record for projects and may be included during litigation proceedings. It is of the utmost importance that all notes are complete and comprehensive. The user is advised to read the entire standard operating procedure (SOP) and review the site health and safety plan (HASP) before beginning any onsite activities.

1.1 ACRONYMS AND ABBREVIATIONS

HASP	health and safety plan
IDW	investigation-derived waste
SOP	standard operating procedure

1.2 MATERIALS

- Permanently-bound waterproof field book (e.g., Rite-in-the-Rain® #550, or equivalent)
- Black or blue ballpoint pen (waterproof ink recommended; do not use felt-tip pens)

1.3 PRECONDITIONS AND BACKGROUND

This SOP has been prepared as part of the company's Environmental Quality Management Plan and is designed to provide detailed procedures for common field practices. Compliance with the methods presented in this document is mandatory for all field personnel and will ensure that the tasks are performed in a safe and consistent manner, are in accordance with federal and state guidance, and are technically defensible.

This SOP is written for the sole use of company employees and will be revised periodically to reflect updates to company policies, work practices, and the applicable state and/or federal guidance. Employees must verify that this document is the most recent version of the company SOPs. Employees are also strongly advised to review relevant state and/or federal guidance, which may stipulate program-specific procedures, in advance of task implementation.

The purpose of the field book is to provide a written log of all of field events and conditions. The notes must include sufficient detail (i.e., who, what, when, where, why, and how) to enable others to reconstruct the day's activities for analysis, reporting, or litigation. It is important to be objective, factual, and thorough. Language must be free of personal comments or terminology that might prove inappropriate. Additional data logs or worksheets, such as low flow groundwater sampling sheets, may be used as a supplement; however, under no circumstances should the data sheets be used as a substitute for the daily record of events to be recorded in the field book.

The field book forms the foundation upon which most of the project work (reports, subsequent work plans, etc.) is based. It is critical that the field book's chain of custody be maintained at all times.

1.4 SET-UP PROCEDURES

The first step in setting up a new field book is to add the information necessary for you to identify the field book in the future and for others to return the book to the project manager, should it be lost. On the first page of the field book (or, for some field books, the inside cover), place a "Return for Reward" notice. Include the following information:

- An "If Found – Return for Reward" notice in bold letters
- Our company name

- Our company address (usually the office where the project is being managed)
- Our company phone number

Reserve the second page of the field book for project-specific information, such as:

- The project name and number
- The project manager's name
- The site telephone number, address, and onsite contact (if appropriate)
- The names and telephone numbers for all key (onsite) personnel
- The emergency telephone numbers including the police, fire, and ambulance (found in the HASP)

Business cards from individuals who visit the site, (including the person in charge of the field book) can be affixed to the inside back cover.

1.5 FIELD BOOK ENTRIES

Start each day on a new page. Include the following information in the header of the first page (and all subsequent pages):

- The date
- The project name
- The page number (often pre-printed in Rite-in-the-Rain® style field books)

Precede field book entries by the time entered along the left margin of the page using a 24-hour or military clock (e.g., 1330 for 1:30 PM). The first entry of the day must include your and your subcontractor's arrival time at the site, a description of the planned activities, key onsite personnel (including subcontractors), and the weather forecast. The first entry must also detail the tailgate review of the site-specific HASP with the onsite personnel. Be sure that field book entries are LEGIBLE and contain factual, accurate, and inclusive documentation of project field activities. Do not leave blank lines between field book entries. If a mistake is made in an entry, cross out the mistake with a single line and place your initials at the end of the line. Any acronyms written in the field book (including your initials) must be spelled out prior to the first use. If the field book is not pre-numbered, record your initials, date, and page number at the bottom of each page.

Subsequent log entries must document the day's activities in sequence and must be completed throughout the day as events occur (i.e., do not wait until the end of the work day to complete the notes); should notes need to be entered out of sequence, please identify using a footnote or by clearly indicating "Late Entry." Notes must be descriptive and provide location information or diagrams (if appropriate) of the work area or sample locations. Note any changes in the weather and document all deviations from the work plan. Arrival and departure times of all personnel, and operational periods of standby, decontamination, and specific activities must be recorded.

Include the following information in entries describing field activities:

- The equipment, materials and methods used by subcontractors, if appropriate (e.g., drill rig type, boring diameters, well casing materials, etc.)
- The equipment, materials and methods used to obtain samples (e.g., split-spoon sampler, polyethylene bailer, pump types, geochemical, water or air monitoring equipment, low-flow purging procedures, etc.)
- The sample identification, which should include the location and depth, as appropriate
- The sample location, including a description of the approximate location as measured from a known point (e.g., 50 feet north of the building entrance; for points not yet surveyed)

- Any air or water monitoring equipment used, associated calibration activities, and measurements
- The sample collection time
- The sample identification of associated quality assurance/quality control samples (e.g., blind duplicate)
- The sample media and analyses to be performed; sizes, numbers, and types of containers; preservation (if any), and any resulting reactions (e.g., effervescence)
- If supplemental data recording logs (digital or hard copy) are used, such as groundwater sampling logs, chains-of-custody, and shipping records, the above information must be entered in the field book and the supplemental records cross-referenced
- The decontamination and disposal procedures for all equipment, samples, and personal protective equipment
- An inventory of the investigation-derived waste (IDW) materials generated during the site activities
- A description of the IDW labeling procedures and the onsite staging information; other sampling-specific information to be included in the IDW log is provided in SOP 5

Maintain a sequential log if the sample locations and areas of interest are photographed (strongly recommended). The photographic log must include:

- The date and time of the photograph
- The sequential number of the photograph (e.g., photograph-1, photograph-2, etc.)
- The general direction faced when the photograph was made
- A description of the subject in the image

1.6 CLOSING NOTES

The last entry of the day must include a brief wrap up of the work accomplished, a description of how the site is being secured, and a description of any near hits, accidents, and incidents that occurred during the day's work. Draw a line through the remainder of the page from the row of text diagonally through any blank lines and initial at the end of the diagonal line.

Appendix F – WSP SOP for Sample Packaging and Shipping Procedure

FIELD STANDARD OPERATING PROCEDURE #3

SAMPLE PACKAGING AND SHIPMENT PROCEDURE

Shipping samples is a basic but important component of field work. Nearly all of the field activities include the collection of environmental samples. Proper packing and preservation of those samples is critical to ensuring the integrity of the company's work product. The user is advised to read the entire standard operating procedure (SOP) and review the site health and safety plan (HASP) before beginning any onsite activities. In accordance with the HASP, proper personal protective equipment (PPE) must be selected and used appropriately.

3.1 ACRONYMS AND ABBREVIATIONS

CFR	Code of Federal Regulations
DOT	U.S. Department of Transportation
IATA	International Air Transport Association
HASP	health and safety plan
PPE	personal protective equipment
SOP	standard operating procedure

3.2 MATERIALS

- Suitable shipping container (e.g., plastic cooler or lab-supplied styrofoam-insulated cooler)
- Chain-of-custody forms
- Custody seals
- Mailing labels
- Tape (strapping, clear packing, or duct tape)
- Heavy-duty zipper-style plastic bags
- Knife or scissors
- Permanent marker
- PPE
- Large plastic garbage bag
- Wet ice (as necessary)
- Bubble wrap or other packing material
- Universal sorbent materials
- Sample container custody seals (if required)
- Shipping form (with account number)

3.3 PRECONDITIONS AND BACKGROUND

This SOP has been prepared as part of the company's Environmental Quality Management Plan and is designed to provide detailed procedures for common field practices. Compliance with the methods presented in this document is mandatory for all field personnel and will ensure that the tasks are performed in a safe and consistent manner, are in accordance with federal and state guidance, and are technically defensible.

This SOP is written for the sole use of company employees and will be revised periodically to reflect updates to company policies, work practices, and the applicable state and/or federal guidance. Employees must verify that this document is the most recent version of the company SOPs. Employees are also strongly advised to review

relevant state and/or federal guidance, which may stipulate program-specific procedures, in advance of task implementation.

This SOP is designed to provide the user with a general outline for shipping samples and assumes the user is familiar with basic field procedures, such as recording field notes (SOP 1), sample collection and quality assurance procedures (SOP 4), and investigation derived waste management procedures (SOP 5), and has a current certificate for U.S. Department of Transportation (DOT) Hazardous Materials training.

> **NOTE: Employees shipping samples regulated as hazardous materials or exempt hazardous materials by air must have International Air Transport Association (IATA) training. IATA training is a separate training required in addition to DOT hazardous materials training for such shipments. Most employees do not have IATA training and therefore, anyone who needs to ship by air MUST consult with a company IATA-trained compliance professional. The remainder of Section 3.3 covers shipments regulated by DOT only.**

Environmental samples can meet the definition of DOT hazardous materials when shipped by air, ground, or rail from a project site to the laboratory. As such, field staff must work with their assigned company compliance professional to determine whether the sample shipment is subject to any specific requirements (e.g., packaging, marking, labeling, and documentation) under the DOT hazardous materials regulations.

Title 49 Code of Federal Regulations (CFR) Section 171.8 defines a "hazardous material" as a substance which has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and which has been so designated. DOT hazardous materials are listed in the hazardous materials table at 49 CFR 172.101.

In most cases, the company is collecting environmental samples in order to determine whether any hazardous chemicals are present in the sampled media. Therefore, we would not have the appropriate information to make a hazardous materials classification for the samples prior to shipment. 49 CFR 172.101(c)(11) allows the use of a tentative classification where the shipper is uncertain of the material's hazard class. When the physical characteristics of the samples are unknown, a non-hazardous material classification may be made. Non-hazardous materials are not subject to the DOT hazardous materials regulations.

There are certain cases where the characteristics and hazard class of the samples are known (e.g., samples of free product, samples preserved with a hazardous material [TerraCore® samplers]). Contact your assigned company compliance professional or an internal DOT contact for guidance on shipment of these materials.

3.4 SAMPLE SHIPMENT PROCEDURES

The two major concerns in shipping samples are incidental breakage during shipment and complying with applicable DOT and courier requirements for hazardous materials shipments.

> **NOTE: Many couriers, including Federal Express and UPS, have requirements that the company register with them before shipping hazard materials. In most cases, it is the sampling location, not the company office address, which needs to be registered. Therefore, each project will likely have unique requirements. Please contact your assigned company compliance professional to determine whether or not you will be required to register for your shipment.**

Protecting the samples from incidental breakage can be achieved using "common sense." Pack all samples in a manner that will prevent them from moving freely about in the cooler or shipping container. Do not allow glass surfaces to contact each other. When possible, repack the sample containers in the same materials that they were originally received in from the laboratory. Cushion each sample container with plastic bubble wrap, styrofoam, or other nonreactive cushioning material. A more detailed procedure for packing environmental samples is presented below.

3.4.1 NON-HAZARDOUS MATERIAL ENVIRONMENTAL SAMPLES

The first step in preparing your samples for shipment is securing an appropriate shipping container. In most cases, the analytical laboratory will supply the appropriate container for bottle shipment, which can be used to return samples once they have been collected. Be sure that the container is large enough to contain the samples plus a sufficient amount of packing materials, and if applicable, enough wet ice to maintain the samples at the preservation temperature (usually 4° Celsius). Use additional shipping containers as needed so that sample containers are protected from breakage due to overcrowding. Do not use lunch-box sized coolers or soft-sided coolers, which do not offer sufficient insulation or protection from damage.

3.4.1.1 TEMPERATURE-PRESERVED SAMPLES CONTAINER PREPARATION

Temperature-preserved samples should be shipped to the laboratory in an insulated container (e.g., cooler). If using a plastic cooler with a drain, securely tape the inside of the drain plug with duct tape or other material to ensure that no water leaks from the cooler during shipment. Place universal sorbent materials (e.g., sorbent pads, Pig-brand absorbent blankets) in the bottom of the shipping container. The amount of sorbent material must be sufficient to absorb any condensation from the wet ice and a reasonable volume of water from melted wet ice (if a bag were to rupture) or a damaged (aqueous) sample container.

The next step is to line the shipping container with a large, heavy-duty plastic garbage bag. Place 2 to 4 inches of bubble wrap or other appropriate packing material inside the heavy-duty plastic bag in the bottom of the shipping container to form a cushion for the sample containers. Place the samples on the packing materials with sufficient space to allow for the addition of more bubble wrap or other packing material between the sample containers. Place large or heavy sample containers on the bottom of the cooler with lighter samples placed on top to minimize the potential for breakage. Place all sample containers in the shipping container right-side up. Do not overfill the cooler with samples; leave sufficient room for the wet ice if the samples are to be preserved during transit. Place wet ice to be used for sample preservation inside two sealed heavy-duty zipper-style plastic bags (1 gallon-sized, or less). Place the bags of ice on top of or between the samples. Place as much ice as possible into the cooler to ensure the samples arrive at the lab at the required preservation temperature, even if the shipment is delayed. Fill any remaining space in the container with bubble wrap or other packing material to limit the airspace and minimize the in-transit melting of ice. Securely close the top of the heavy-duty plastic bag and seal with tape.

3.4.1.2 NON-TEMPERATURE-PRESERVED SAMPLES CONTAINER PREPARATION

Non-temperature-preserved samples should be shipped to the laboratory in a durable package (e.g., hard plastic container or cardboard box). If shipping breakable sample containers (e.g., glass), place bubble wrap or other packing materials on the bottom of the container. Place the samples on the packing materials with sufficient space to allow for the addition of more bubble wrap or other packing material between and on top of the sample containers. Place large or heavy sample containers on the bottom of the container with lighter samples placed on top to minimize the potential for breakage. Place all sample containers within the shipping container right-side up.

3.4.1.3 CONTAINER SHIPMENT

Place the original, white top copy chain-of-custody form into a heavy-duty zipper-style plastic bag, affix the bag to the shipping container's inside lid, and then close the shipping container. Only one chain-of-custody form is required to accompany one of the shipping containers per sample shipment; the other coolers in the shipment do not need to include chain-of-custody forms. At this point, sample shipment preparations are complete if using a laboratory courier.

If sending the sample shipment through a commercial shipping vendor, place two signed and dated chain-of-custody seals on alternate sides of the shipping container lid so that it cannot be opened without breaking the seals. Securely fasten the top of the shipping container shut with clear packing tape; carefully tape over the custody seals to prevent damage during shipping. Once the shipping container is sealed, shake test the shipping

container to make sure that there are no loose sample containers. If loose sample containers are detected, open the shipping container, repack the sample containers, and reseal the shipping container.

Using clear tape, affix a mailing label with the company's return address to the top of the shipping container. Be sure to ship environmental samples to the contracted analytical laboratory using an appropriate delivery schedule. If applicable, check the appropriate box on the shipping airbill for Saturday delivery (you need to verify with the laboratory that someone will be at the lab on a Saturday to receive the sample shipment). Declare the value of samples on the shipping form for insurance purposes, if applicable, and be sure to include the project billable number on the shipping form's internal billing reference section. When shipping samples to a lab, identify a declared value equal to the carrier's default value ($100); additional fees will be charged based on a higher value declared. Our preferred carrier, FedEx, will only reimburse for the actual value of the cooler and its contents if a sample shipment is lost; they will not reimburse for the cost of having to re-collect the samples. [Please note: if you are shipping something other than samples, such as field equipment, declare the replacement value of the contents.]

Record the tracking numbers from the shipping company forms (i.e., the shipping airbill number) in the field book and on the chain-of-custody form and retain a copy of the shipping airbill. On the expected delivery date, confirm sample receipt by contacting the laboratory or tracking the package using the tracking number; provide this confirmation information to the project manager.

> **NOTE: Most shipping carriers adhere to transit schedules with final pickup times each day; these schedules are subject to change and vary by service location. If shipping containers are dropped off at a service location after the final pickup time, transit to the laboratory will not be initiated until the following day, and samples may not be properly preserved. Therefore, confirm transit schedules in advance of each sampling event, and ensure samples are dropped off before the final pickup time of the day.**

3.4.2 HAZARDOUS MATERIALS SAMPLES

Employees rarely ship hazardous materials due to DOT shipping requirements. If you find that your samples could be considered a DOT hazardous material, first coordinate with the assigned company compliance professional and project manager to make a hazardous material classification and, if necessary, establish the necessary protocols and to receive the appropriate training/certification. **Do not ship hazardous materials samples without first consulting a company compliance professional.**

Appendix G – WSP SOP for Decontamination

FIELD STANDARD OPERATING PROCEDURE #6

DECONTAMINATION

The decontamination procedures outlined in this standard operating procedure (SOP) are designed to ensure that all sampling equipment is free from the analytes that could potentially interfere with the sample results. The user is advised to read the entire SOP and review the site health and safety plan (HASP) before beginning any onsite activities. In accordance with the HASP, proper personal protective equipment (PPE) must be selected and used appropriately.

6.1 ACRONYMS AND ABBREVIATIONS

DI	deionized water
DOT	U.S. Department of Transportation
EPA	U.S. Environmental Protection Agency
HASP	health and safety plan
PPE	personal protective equipment
QAPP	quality assurance project plan
SOP	standard operating procedure

6.2 MATERIALS

- Field book
- PPE
- Polyethylene sheeting and/or garbage bags
- Laboratory-grade non-phosphate detergent[1] (e.g., Luminox® or Liquinox®)
- Cleaning reagents, as needed (e.g., isopropyl alcohol, methanol, hexane, etc.)
- Potable water
- Deionized (DI) water
- Containers (e.g., plastic buckets)
- Nylon brushes
- Aluminum foil
- Spray bottles
- Paper towels
- Pressurized steam cleaner (e.g., steam jenny), as needed
- Decontamination pad, as needed

6.3 PRECONDITIONS AND BACKGROUND

This SOP has been prepared as part of the WSP USA Corp. Environmental Quality Management Plan and is designed to provide detailed procedures for common field practices. Compliance with the methods presented in this document is mandatory for all field personnel and will ensure that the tasks are performed in a safe and consistent manner, are in accordance with federal and state guidance, and are technically defensible.

[1] Not all laboratory-grade detergents are phosphate free. Be sure to verify the detergent's phosphate content before use.

This SOP is written for the sole use of WSP employees and will be revised periodically to reflect updates to WSP policies, work practices, and the applicable state and/or federal guidance. WSP employees must verify that this document is the most recent version of the WSP SOPs. WSP employees are also strongly advised to review relevant state and/or federal guidance, which may stipulate program-specific procedures, in advance of task implementation.

This SOP is designed to provide the user with a general outline for decontamination and assumes the user is familiar with basic field procedures, such as recording field notes (SOP 1), sample shipment procedures (SOP 3), sample collection and quality assurance procedures (SOP 4), and investigation-derived waste management procedures (SOP 5). All decontamination references must be available for consultation in the field, including:

- WSP's SOPs
- Applicable state and federal guidelines or procedures
- Manufacturer's manuals
- Project-specific work plan and HASP
- QAPP

6.4 GENERAL PROCEDURES

The cleaning and decontamination procedures described below are designed to ensure that the equipment used for sample collection is free of analytes that could potentially alter the analytical results. These procedures are primarily targeted at reducing the incidence of cross-contamination (i.e., compounds of interest being transferred on the sampling equipment from one sample location or depth to another) and, when properly implemented, provide a methodology for obtaining high quality, representative results. As with all analytical sampling, the effectiveness of the cleaning procedures must be demonstrated with the collection of equipment blanks. The sampling procedures and equipment blank collection frequency are discussed in SOP 4.

6.4.1 EQUIPMENT AND REAGENT SELECTION

It is important for WSP personnel to evaluate the expected types of contamination before mobilization to a site. State programs (or the U.S. Environmental Protection Agency [EPA], depending on the site) may require more stringent decontamination procedures than those listed in this SOP, specify the types and grades of various cleaning detergents and reagents (e.g., acids and solvents), or allow the use of phosphate-containing detergents, such as Alconox®. Many of these reagents, such as nitric acid or pesticide-grade hexane, are U.S. Department of Transportation (DOT) hazardous materials and must be shipped using a ground delivery service. These compounds may also require specialized PPE (e.g., eye protection for concentrated acids) or have other special handling or disposal procedures that must be considered before arriving onsite. Decontamination equipment (e.g., spray bottles, brushes, etc.) should be constructed of non-reactive, non leachable materials (e.g., metal, glass, Teflon®-coated, polyethylene, etc.) which are compatible with the reagents and solvents being used for decontamination.

In specific cases, it may be necessary to steam clean the field equipment before proceeding with the decontamination steps presented in Section 6.5 (e.g., hollow stem augers). Generally, WSP's subcontractors are responsible for bringing or building a decontamination pad, if necessary, to contain the spray from a steam jenny. Decontamination pads should be constructed on a level, paved surface (if possible) in an area known or believed to be free of surface contamination, and should be of sufficient size to contain the decontamination water. Equipment that is steam cleaned should be placed on racks or saw horses and not on the floor of the decontamination pad. Decontamination water should be removed from the decontamination pad frequently to minimize the potential for leaks or overflow.

Consult and involve WSP's compliance professionals for storage procedures and disposal requirements of solvent rinsate, detergent wastes, and other decontamination materials.

6.4.2 OTHER CONSIDERATIONS

In preparing for decontamination, you should perform the following activities (with all observations and measurements noted in the field book):

- Perform a quick reconnaissance of the site to identify a decontamination (pad) area and evaluate the accessibility to and safety of the location.
- Record a description of the decontamination (pad) area.

Survey the breathing zone around the decontamination area with the appropriate air quality meter(s), as necessary (see HASP), to ensure that the level of PPE is appropriate. When decontaminating equipment, it is important to find a suitable location away from any sources of cross-contamination that could compromise the integrity of the decontamination. As possible, position the decontamination area away from fuel-powered equipment, such as drill rigs or excavators, and upwind of other site activities (e.g., purging, sampling).

6.5 DECONTAMINATION PROCEDURES

The decontamination procedures are based on a nine-step process, which is tailored in the field depending on the samples to be collected. Decontaminate all non-dedicated equipment that contacts the sample directly, including spoons, trowels, pumps, etc., before and between each sample location and sampling interval. Record decontamination procedures in the field book. Disposable, single use items, such as bailers or tubing, do not require decontamination.

The decontamination process includes the following four basic steps:

1. Physical removal of debris
2. Wash with non-phosphate detergent, such as Liquinox®, and nylon brush
3. Potable water rinse
4. Deionized (DI) water rinse (distilled water can be used as a substitute)

The first step is to remove as much soil or other debris from the sampling device as possible near the sampling area to limit the spread of potentially-contaminated materials into clean areas of the site.

Cleaning and decontamination should occur at a designated area(s) (decontamination pad) on the site. If gross contamination or an oily film or residue is observed on the equipment, use steam jenny or wash by hand using a brush to remove the particulate matter or surface film. Heavy oils or grease may be removed with paper towels soaked with isopropyl alcohol.

The physical removal is followed by a hand wash using non-phosphate detergent (mixed to the appropriate dilution in potable water) followed by a potable water rinse. If not using a decontamination pad, the most common set-up uses 5-gallon plastic buckets for washing and rinsing, although plastic garbage pails or plastic tubs can also be used. Place containers on polyethylene sheeting to limit spillage of the decontamination fluids.

Be sure to scrub the equipment thoroughly with a nylon bristle brush (or similar) and allow enough submersion time for the non-phosphate detergent to effectively clean the surfaces (a simple dunk of the equipment in the detergent solution is insufficient). If decontaminating submersible pumps, flush both the non-phosphate detergent wash fluid and the potable water rinse through the pump body itself (usually done in separate buckets) to ensure that the internal components are thoroughly cleaned. The internal decontamination of motorized pumps can be accomplished by pumping the non phosphate detergent wash fluid and the potable water rinse through the pump. Replace the detergent solution and rinse water when it becomes oily or silty.

Place the DI water for the rinse in a small spray bottle or pour over the equipment after the potable water rinse. **Typically, this level of decontamination (i.e., steps 1 through 4) is sufficient**.

Following Steps 1 through 4, additional decontamination (steps 5 through 9) may be required by the applicable federal or state guidelines, the project-specific work plan or the QAPP. Typically, these decontamination steps are performed when sampling for inorganics using non-motorized equipment. These steps include:

5. 10% nitric acid rinse
6. DI water rinse
7. Pesticide-grade solvent rinse (e.g., hexane or isopropyl alcohol)
8. Air dry (solvent must evaporate)
9. DI water rinse

Isopropyl alcohol is the recommended solvent for organic contaminants because it is readily available (at most drug and department stores) and is not a DOT hazardous material. However, other solvents (e.g., hexane and methanol) may be more effective in removing certain contaminants, such as oils or polychlorinated biphenyls, but any waste generated using these solvents must be managed accordingly.

Handle the solvents and acid with care and store unused chemicals in their original, labeled, protective containers when not in use. It is a good idea to transfer small quantities of each solution into labeled, laboratory-grade spray bottles, which offer a convenient and controllable way to rinse the equipment. The equipment can then be rinsed over a 5-gallon plastic bucket or other suitable container placed on plastic sheeting as with the first part of the cleaning process. Nitric acid rinses must be used only on non-carbon steel sampling devices. Do not spray acid into pumps.

6.6 HANDLING DECONTAMINATED EQUIPMENT

Handle any decontaminated equipment using clean gloves to prevent re-contamination. Place the equipment away (preferably upwind) from the decontamination area once the process has been completed on clean plastic sheeting to allow it to air-dry. Once the equipment is dry, protect it from re-contamination by securely wrapping and sealing with aluminum foil (shiny side out) or clean, disposable plastic bags. Plastic bags may be wrapped directly around wet or dry equipment except when the expected contaminants include volatile and extractable organics; under those circumstances, allow the equipment to completely dry or wrap it in aluminum foil.

All sampling equipment must be decontaminated at the end of the investigation (i.e., prior to departure from the site). Label each piece of equipment with the date of decontamination, the initials of personnel performing the decontamination, and the type of decontamination solution(s) used. Containerize all solvent rinsate, detergent wastes, and other disposable decontamination materials in DOT-compliant containers in accordance with SOP 5 or the project-specific work plan. Dispose of all wastes in conformance with the project-specific work plan and applicable regulations.