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**Alameda County
Environmental Health**

November 26, 2007

Mr. Jack Schultz
Pacific Galvanizing
715 46th Avenue
Oakland, California 94601

Subject: Alameda County Environmental Health's Comments on Site Investigation Work Plan, 715 46th Avenue, Oakland, California, SLIC CASE RO00002477

Dear Mr. Schultz:

Pursuant to your request, West Environmental Services & Technology, Inc. (WEST), has prepared the *Revised Site Investigation Work Plan* ("Revised Work Plan") in response to the September 2007 Alameda County Environmental Health (ACEH) comments on the August 2007 *Site Investigation Work Plan* (WEST, 2007). The *Revised Work Plan* was prepared for the Pacific Galvanizing facility located at 715 46th Avenue in Oakland, California ("the Site"). In accordance with the ACEH comments, the *Revised Work Plan* includes the collection of additional soil and groundwater samples and modified text. In addition, WEST's responses are interlineated below with selected excerpts from ACEH's comments.

BACKGROUND

Pacific Galvanizing operates a "hot-dip" galvanizing facility on the northeast corner of Coliseum Way and 46th Avenue in Oakland, California. Facility operations include: receipt and handling of metal products; material preparation; galvanizing; and temporary storage of galvanized metal products for customer pickup. Pacific Galvanizing leases a strip of land along the north side of the facility from Alameda County. The land owned by Alameda County contains a subsurface concrete box culvert for the conveyance of surface water runoff to the Oakland Inner Harbor. The area had previously been an open drainage channel. Subsequent to the construction of the concrete box culvert, the land was paved and made available to lease.

In 1996, soil samples were collected by Earth Technology Corporation from the Alameda County land adjacent to the Site at depths up to 1.2-meters. Laboratory analysis of the soil samples revealed the presence of lead up to 1,900 milligrams per kilogram (mg/kg) and zinc up to 45,000 mg/kg. Subsequently, additional investigations were conducted in 1998 to assess the extent of lead and zinc in soil and groundwater. Thirteen soil samples and one groundwater sample were collected from the Alameda County land in 1998. Laboratory analysis of the soil samples revealed lead up to 5,300 mg/kg and zinc up to 130,000 mg/kg. The groundwater sample contained less than 0.050 milligrams per liter (mg/l) of dissolved lead, and 0.68 mg/l of dissolved zinc.

In March 2000, following their review of the 1998 findings, the Alameda County Health Care Services Agency (ACHCSA, now referred to as the ACEH) requested the installation of a groundwater monitoring well near the storm drain. The monitoring well was installed in March 2000 and following development was sampled in April and June of 2000. The preliminary

results were forwarded to the ACHCSA. In May 2007, the ACEH requested submittal of the report of the monitoring well installation and a work plan that: addresses the potential for metals to be transported offsite by surface water runoff; and presents a scope of work to define the extent of metals in soil and groundwater. In August 2007, the *Site Investigation Work Plan*, which outlined the scope-of-work to conduct investigations to complete the characterization of metals at the Site, was submitted to the ACEH.

In September 2007, the ACEH provided comments on the *Site Investigation Work Plan*. With the goal of expediting the response and review of the *Revised Work Plan*, WEST requested a meeting with ACEH for the week of October 15, 2007 to help clarify issues and aid in refining the proposed scope of the investigation. However, the ACEH did not agree to have a meeting. Therefore, in lieu of the desired clarifications, WEST has endeavored to address the comments and requests presented by the ACEH.

ACEH TECHNICAL COMMENTS

WEST's responses are interlineated below with ACEH's technical comments in italicized text.

1. Lateral and Vertical Extent of Contamination. The lateral and vertical extent of contamination has not been defined. Soil sampling to date has apparently been limited to a depth of 5 feet bgs in the alley. We request that you advance three additional soil borings within the alley to define the vertical extent of contamination; recommended locations are shown on the attached figure entitled, "Recommended Sampling Locations." The borings should be advanced to minimum depths of 10 feet bgs with soil samples collected for lead and zinc analysis at 2-foot intervals.

While we concur that the lateral distribution of zinc in groundwater above applicable screening levels has not been delineated, we do not concur that additional soil sampling is needed to "define the vertical extent of contamination." The analysis presented in the *Site Investigation Work Plan*, showed that the extent of lead and zinc in soil above applicable screening criteria has been delineated.

Therefore, it does not appear that the benefit of additional soil sampling bears a reasonable relationship to the cost. However, as you have requested, WEST has included the additional soil sampling directed by the ACEH in the *Revised Work Plan*.

2. Location of Former Stream Channel. Please identify the former location of the stream channel prior to construction of the box culverts west or south of the alley on a figure in the revised Work Plan requested below. Please adjust one or more of the proposed monitoring wells as necessary to assure that one monitoring well is installed within the former channel.

As described in the *Site Investigation Work Plan*, the concrete box culvert follows the alignment of the former creek channel. We have included a copy of historical drawings that depict the alignment of the former stream channel in Appendix D to the *Revised Work Plan*.

3. Additional Monitoring Well. We request that you install one additional monitoring well adjacent to the storm drain at the recommended location shown on the attached figure in order

to assess whether the backfill along the box culverts is a preferential pathway for groundwater contamination and whether elevated concentrations of metals are present. We request that soil samples be collected from the monitoring well boring for lead and zinc analysis.

While we concur that the storm drain alignment provides a preferential pathway, the presence of zinc at 280 mg/l in the sample from monitoring well MW-1 indicates that zinc is traveling with groundwater. Further, the installation of a monitoring well at the location identified by the ACEH is problematic due to both the heavy traffic loads of the solid wheel forklifts, which exceed H2O loadings and the routine storage of materials in this area.

Given the proposed location of groundwater monitoring location W-2, it is unclear that an additional groundwater monitoring point will be necessary at W-3. As groundwater monitoring point W-2 is located approximately 120 feet downgradient of ACEH's proposed location for W-3, it would appear that the proposed groundwater sample locations should provide information regarding the influence of the storm drain culvert on the preferential migration of zinc in groundwater.

Therefore, consistent with State Water Resources Control Board (SWRCB) *Resolution 92-49 Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304*, we propose that the investigations be conducted in a phased manner, i.e., proceed with installation of the proposed groundwater monitoring points W-1 and W-2; and then evaluate the findings and the necessity for additional sample locations. To the extent that ACEH requires the installation of a fourth groundwater monitoring point (W-3), it would be more cost-effective to design such an investigation following the implementation of the recommended work. As identified by the SWRCB, a "phased approach to site investigation should facilitate adequate delineation of the nature and extent of the pollution, and may reduce overall costs and environmental damage."

4. Conceptual Site Model. The Conceptual Site Model indicates that metals contamination to soils in the former creek channel was caused by historic spills and dragout of galvanized material when the former creek channel was exposed. The Work Plan also indicates that the potential for incidental spills has been addressed subsequent to placement of the concrete box culverts and pavement. In the revised Work Plan requested below, please expand the discussion in the conceptual model regarding the history of the galvanizing operations and potential historic spills in relation to the open channel, construction of the box culvert, and paving of the Alley, Black Yard, and Galvanizing Yard. In particular, please discuss whether soils beneath the Black Yard may have been impacted prior to paving of the Black Yard.

As explained in the conceptual site model (CSM) discussion in the *Site Investigation Work Plan*, the former creek channel traversed the area of the Black Yard. Subsequent to the placement of box culvert, the area over the box culvert was paved. However, the Black Yard was paved prior to its expansion over the box culvert. Therefore, it is our understanding that the releases to the soil beneath the Black Yard occurred prior to paving of that portion of the Black Yard where the box culvert is now present.

5. *Groundwater Sampling. We concur with the proposed low flow sampling methods and proposed analytical methods. We also note that previous groundwater samples were filtered in the laboratory. We request that the groundwater samples not be filtered in the field or laboratory prior to analyses.*

We do not concur that the samples should be analyzed for total rather than dissolved metals. The California Environmental Protection Agency states that “[f]iltered samples for dissolved metals analysis should be used whenever ground-water samples are collected to determine if water quality has been affected by a hazardous substance release that includes metals as a constituent of concern.”¹ Further, the California Toxics Rule (CTR) identified “that the use of dissolved metal to set and measure compliance with aquatic life water quality standards is the recommended approach.”² However, if ACEH has additional criteria that should be considered, we can revisit the groundwater sampling and analytical procedures.

6. *Groundwater Protection Levels. The soil screening level for groundwater protection (310,000 mg/kg) that is derived for zinc using the designated level methodology does not appear to be applicable to the site. The maximum concentration of zinc detected in soil (130,000 mg/kg) is less than the soil screening level for groundwater protection but zinc has been detected in groundwater at concentrations ranging from 210 to 280 mg/L, which exceeds the water quality goal of 5 mg/L.*

We do not concur with ACEH’s characterization regarding the applicability of the designated level methodology (DLM) to the partitioning of zinc to groundwater at the Site. As explained in the *Site Investigation Work Plan*, the occurrence of zinc in groundwater is attributable to releases to the stream channel prior to backfilling and paving. There are no indications of releases to groundwater since the installation of the box culvert.

As identified in the California Code of Regulations, a “designated” material is a material “which consists of or contains pollutants which, under ambient environmental conditions...could be released at concentrations in excess of applicable water quality objectives, or could cause degradation of waters of the state.”³

The DLM “is adapted from a procedure used by DHS to calculate ‘hazardous’ STLCs and TTLCs from drinking water standards.”⁴ The DLM is based on the Freundlich

¹ California Environmental Protection Agency, Representative Sampling of Ground Water for Hazardous Substances: Guidance Manual for Ground Water Investigations. July 1995. p. 26.

² United States Environmental Protection Agency, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California; Rule. May 2000. p. 31690.

³ California Code of Regulations, Title 27, Division 2, Subdivision 1, Chapter 3, Subchapter 2, Section 2522.

⁴ California Regional Water Quality Control Board, *The Designated Level Methodology for Waste Classification and Cleanup Level Determination*, June 1989. p.19.

equation applied to the soil/water system and follows the same methodology used in development of Soil Screening Levels by the United States Environmental Protection Agency (USEPA).⁵ Similarly, the DLM follows the same technical procedures and calculation methodology used in the development of the California Regional Water Quality Control Board – San Francisco Bay Region’s Environmental Screening Levels (ESLs) for protection of groundwater.⁶ Therefore, we believe that use of the DLM is a sound technical approach consistent with regulatory guidance and is applicable to Site conditions.

These reports are being requested pursuant to California Health and Safety Code Section 25296.10.

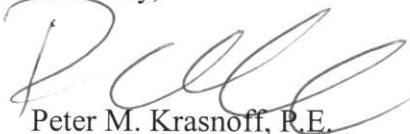
It is unclear how California Health and Safety Code Section 25296.10 is applicable to the conditions at the Site. We had hoped to obtain clarification from the ACEH regarding the applicability of the cited section of the California Health and Safety Code.

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: “I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge.” This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

It is unclear whether the above-cited requirement is applicable to the Site. We had hoped to obtain clarification from the ACEH regarding the applicability of the above requirements, as the subject work is not related to a “fuel leak case.”

We appreciate the opportunity to be of service to you on this project. Please contact us if you have any questions or wish to discuss our responses.

Sincerely,



Peter M. Krasnoff, P.E.
Principal Engineer



Encl.

cc: Jerry Wickham, P.G., ACEH

⁵ United States Environmental Protection Agency, *Soil Screening Guidance: User's Guide*, July 1996. Part 2.

⁶ California Regional Water Quality Control Board – San Francisco Bay Region, *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater*, Interim Final, July 2003. Appendix 1. p.3-6.