

## Memorandum

**To:** Orange County Health Care Agency, Solid Waste  
Local Enforcement Agency (LEA)  
Environmental Health Division  
1241 West Dyer Road, Suite #120  
Santa Ana, CA 92705

**Date:** June 21, 2024

**Attention:** Dan Weerasekera  
Hazardous Materials Specialist III

**Project No.** CLA.000IR23328

**From:** Michael Priestaf, PG (CA 9979)  
Robin Ferber, PG (CA 5756)

**Subject:** **Stockpile F and Stockpile G Sidewall Sampling Methodology  
Addendum #3 to Final Revised Environmental Sampling  
Workplan For Stockpiled Material Testing  
6145 East Santiago Canyon Road  
City of Orange, Orange County, California**

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### Introduction and Background

Per recent discussions with the Orange County Health Care Agency (OCHCA), Solid Waste Local Enforcement Agency (LEA), Leighton and Associates, Inc. (Leighton) proposes a tiered approach to collecting sidewall samples from Stockpiles F and G. The Final Revised Environmental Sampling Workplan for Stockpile Material Testing (Stockpile WP) dated December 27, 2023, and approved by the LEA, requires that a total of 254 samples be collected from Stockpile F and a total of 435 samples be collected from Stockpile G to adequately characterize each stockpile based on their respective estimated volumes. At present, Leighton has collected a total of 250 samples from borings advanced within Stockpile F and a total of 381 samples from borings advanced within Stockpile G.

To fulfill the sampling frequency requirement for each stockpile per the Stockpile WP, Leighton proposes to collect the remaining samples either directly from the stockpile sidewalls using a combination of a long-reach excavator and hand tools or from angled borings advanced from the top of the stockpiles using a sonic drill rig. Leighton proposes to collect four samples from Stockpile F from four sidewall sample locations and to collect the remaining 98 samples from Stockpile G from 21 sidewall locations and 12 angled borings.

## Random Grid-Based Sampling

The proposed sidewall sample and angled boring locations were determined using a random grid-based sampling approach, in general conformance with Chapter Nine of the United States Environmental Protection Agency (USEPA) Hazardous Waste Test Methods / SW-846 guidance<sup>1</sup>, in which a 50-foot square grid was superimposed over the sidewall areas of the stockpile. Each grid cell superimposed over the stockpile sidewall areas was assigned a unique number (e.g., if 30 cells were superimposed over a stockpile's sidewalls, a number between 1 and 30 was assigned to each cell), and a random number generator was used to randomly determine which grid cells would be designated as sampling locations. In instances where the proposed sample location was determined to be inaccessible or unsafe for sampling, the location was either omitted from the initial grid numbering or moved to a nearby accessible location. Based on conversations with the LEA, Leighton assessed that 12 angled borings advanced along the top of Stockpile G would be adequately representative of the stockpiled material with samples collected at approximately 10-foot vertical depth intervals. The locations of Leighton's proposed sidewall samples and angled borings at Stockpile F and G are depicted on Figures 1 and 2, respectively. Borings SPG31, SPG32, and SPG33, which previously were proposed to be located on the southeastern edge of Stockpile G in the Stockpile WP, were converted to angled borings, and then relocated.

## Stockpile Sidewall Sampling Methodology

At each proposed sidewall sample location, the long-reach excavator will be used to advance a small, shallow pothole approximately 2 feet deep into the surface of the sidewall to recover fresh sample material. A pre-cleaned 6-inch stainless-steel tube will then be advanced into the recovered soil either by gloved hand or with a slide hammer sampler to collect the sample. Soil targeted for sampling will be collected from the least disturbed appearing soil in the open bucket. Leighton proposes to use a small excavator bucket (12-inch or comparable) to minimize soil disturbance. A long-reach excavator will be used to maintain a safe distance between sampling personnel and the stockpile sidewall during sampling. If a proposed sidewall sample location is determined in the field to be unsafe for sampling with the excavator bucket, Leighton proposes to relocate the applicable sidewall sample(s) to a location(s) that can be safely sampled.

Following the collection of each sample, the excess recovered soil will be placed back in the pothole, and a labeled stake, flag, and/or survey whisker will be placed in the approximate sample location for subsequent surveying by a California licensed land surveyor. A brush will be used to remove loose soil material from the excavator bucket between each sample location. The excavator bucket will then be inverted to allow loose material to fall onto

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<sup>1</sup> United States Environmental Protection Agency (1986) "Hazardous Waste Test Methods / SW-846." Chapter Nine: Sampling Plan. September.

Visqueen sheeting placed adjacent to the excavator. If material adheres to the interior of the excavator bucket, the bucket interior will be decontaminated with a high-pressure spray of tap water, followed by a rinse with non-phosphate detergent (e.g., Alconox), and a final rinse of distilled water. The decontamination liquids will accumulate into a small portable pool which will be periodically vacuumed into United States Department of Transportation (DOT)-approved 55-gallon drums. The drums will be labeled with an identification number designating the locations sampled and appropriately profiled and disposed after the completion of the sidewall sampling activities.

### **Angled Boring Sampling Methodology**

At each proposed angled boring location, a sonic drill rig will be used to advance a boring at an angle between 40 and 45 degrees relative to vertical (i.e., vertical is 0 degrees). This represents the shallowest angle at which the sonic drill rig can advance a boring. The direction of each boring will be based on the principal slope direction of the nearest sidewall.

The rod, core barrel, and casing will be vibrated at sonic frequencies to advance each boring to each target sample depth. Samples will be collected at approximately 10-foot vertical intervals (approximately every 13 to 14 feet along the length of each boring). A split spoon sampler fitted with pre-cleaned 6-inch stainless-steel tube will be inserted into the sonic casing and used to collect samples from the desired depths. The ends of each tube will be covered with Teflon sheeting and plastic endcaps, placed in a sealed Ziploc bag, and stored in an ice-chilled cooler. After completion, each boring will be backfilled with hydrated bentonite, the remaining soil cuttings will be placed either in a plastic bag or on plastic sheeting and staged next to the boring, and a labeled stake, flag, and/or survey whisker will be placed in the top of the bentonite column for subsequent surveying by a California licensed land surveyor.

The split spoon sampler will be decontaminated before and after each sample is collected using a three-stage wash of phosphate-free detergent and water, a rinse with potable water, and a final rinse with distilled water.

The sample IDs will be determined based on the stockpile of origin, a unique numeric sidewall location or boring ID, and the depth at which the sample was collected e.g., “SPG-SW-05-1.5.” (for sidewall samples) or “SPG-32-10.0” (for angled boring samples). The samples will be delivered under standard chain-of-custody protocols to the analytical laboratory. Each soil sample will be analyzed within the appropriate holding times by the following analytical methods:

- Total Petroleum Hydrocarbons (TPH) as Diesel (TPH-D) and Motor Oil (TPH-MO) by United States Environmental Protection Agency (USEPA) Method 8015,
- Polycyclic Aromatic Hydrocarbons (PAHs) by USEPA Method 8270C SIM,

- Volatile Organic Compounds (VOCs) and TPH as Gasoline (TPH-G) by USEPA Method 8260 full scan analysis,
- Semi-Volatile Organic Compounds (SVOCs) by USEPA Method 8270 full scan analysis,
- Title 22 Metals by USEPA Methods 6010B/7471A,
- Organochlorine Pesticides (OCPs) by USEPA Method 8081,
- Organophosphorus Pesticides (OPPs) by USEPA Method 8141,
- Chlorinated Herbicides by USEPA Method 8151A,
- Polychlorinated Biphenyls (PCBs) by USEPA Method 8082,
- Asbestos by USEPA Method 600/R93-116, and
- pH by USEPA Method 9045.

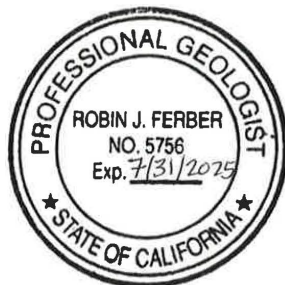
Should you have any questions, please do not hesitate to contact the undersigned.

Sincerely,

LEIGHTON AND ASSOCIATES, INC.



Michael J. Priestaf, MS, PG (CA 9779)  
Project Geologist



Robin Ferber, PG (CA 5756)  
Senior Principal Geologist

Attachments: Figure 1 – Stockpile F Sample Location Map  
Figure 2 – Stockpile G Sample Location Map

Copies: Chris Nichelson (Milan)  
Bret Bernard (Milan)  
Diane Scioli (Milan)  
Pete Duchesneau, Esq., (Manatt)  
David McGrath, Esq. (Manatt)

## FIGURES

Legend

SPF-SW-04

Proposed Sidewall Sample Location

SPF30

Stockpile E and F Boring Locations

Areas E and F - Areas identified by Ginter (March 10, 2022)

Site boundary

References:Ginter & Associates, Inc. Summary and Compilation of All Geotechnical Reports, Analyses and Data for the Rio Santiago Development Site, March 10, 2022

Figure provided by Fuscoe Engineering entitled "Combined Topo Exhibit", Orange, California, dated June 2, 2022, Modified by Leighton

Project: 23328

Eng/Geol: RF/MJP

Scale: 1" = 120'

Date: March 2024

Author: (mmurphy)

# STOCKPILE E AND F BORING AND SIDEWALL LOCATION MAP

6145 East Santiago Canyon Road  
City of Orange, Orange County, California

FIGURE 1

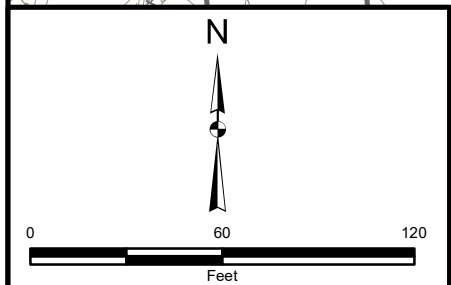
Map Saved as J:\Drafting\13620\005\Maps\23328\_F03\_SPEF\_2024-03-04.mxd on 3/4/2024 8:54:14 AM

## SPG40

### Stockpile G Boring Location



Figure provided by Fuscoe Engineering entitled "Combined Topo Exhibit", Orange, California, dated June 2, 2022, Modified by Leighton



Eng/Geol: RF/MJP

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**FIGURE 2**

