

# **DRAFT** Screening Level Human Health and Ecological Risk Assessment

**June 8, 2023**

## **Spent Catalyst Release from Martinez Refining Company**

**Prepared For:**

Contra Costa Health Department - *Hazardous Materials  
Program (CCHMP)*

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## Executive Summary

This Screening Level Human Health and Ecological Screening Risk Assessment (SLHHERA) Report provides the background and results of an investigation conducted in May-June 2023 in response to a release of spent catalyst from the Martinez Refining Company (MRC) which occurred in November 2022. The investigation was commissioned by the Contra Costa County Health Department Hazardous Materials Program (County) to determine the nature and extent of the November 2022 release, and to conduct a screening level assessment of health and ecological risk potentially posed to the affected community. This report summarizes the investigation and the findings of the SLHHERA.

The November 24-25, 2022 release of spent catalyst dust into the surrounding community from a Fluid Catalytic Cracker Unit at the MRC facility located at 3485 Pacheco Boulevard in Martinez, California resulted in community observations of metallic dust on surfaces throughout the affected community. Physical evidence of the release was observed and reported by community members as a white powder covering surfaces. This evidence included actual dust particulates observed on vehicles, trash cans, and residential garden areas within the community.

The following objectives of the SLHHERA were identified by the County as an important step in determining the nature and extent of impacts; as part of this determination, an assessment of potential risks and potential need for additional investigation/soil sampling, as applicable, to mitigate any identified risks was initiated:

- Determination of the nature and extent of the release
- Determination of the chemical composition of the dust
- Determination of the extent of dust in soils within the release area
- Determination of potential risks to human and ecological receptors posed by exposure to the dust in a residential setting (e.g., in affected soils)
  - Human health risks were conservatively evaluated for a residential setting
  - Exposure pathways incorporated in the SLHHERA included:
    - Incidental ingestion of soil
    - Dermal contact with soil
    - Inhalation of soil particulates
    - Ingestion of fruits & vegetables affected by constituents in soil (e.g., via root uptake)

The spatial extent of the release area was determined by field surveys of affected areas reported by community members and dispersion modeling conducted by the Bay Area Air Quality Management District (BAAQMD). Following review of the BAAQMD modeling assumptions and the results provided by BAAQMD and with community input, fourteen (14) locations proposed for collection of soil samples were identified (**Figure 1**). The plan for collection of soil samples included an analytical program for Eurofins Calscience Environmental Laboratory, a California-certified analytical laboratory (Eurofins) to test the soil samples for the (15) constituents identified in catalyst dust.

The results of the sampling and laboratory analyses were compared to soil health standards to identify potential human and ecological risks to the community. These sampling results were

also compared to regional background levels for the naturally-occurring metals comprising the catalyst dust.

The findings of the investigation found no increased risk to public health resulting from the November 2022 catalyst dust release in Martinez:

- The most common metal in the catalyst dust is aluminum silicate (analyzed as aluminum); other metals expected in the dust are vanadium, nickel, barium and zinc. Arsenic and lead are not expected to be present in significant quantities in the catalyst dust.
- No evidence of catalyst dust in collected soil samples was noted (i.e., soil samples did not appear to have typical make-up of spent catalyst dust).
- Metals detected in the soil samples were within expected background ranges for California and Bay Area soils.
- Several soil samples contained levels of metals, (e.g., arsenic and lead) above published health-based screening levels. As stated above, these levels were within expected background ranges for California and Bay Area soils and are not likely to be associated with catalyst dust.

Based on these findings, additional sampling and evaluation is not required.

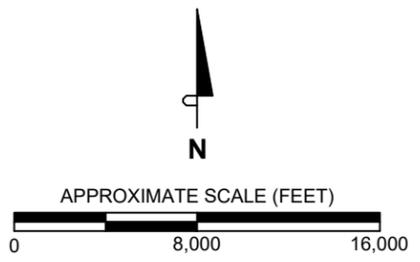
FILE NAME: C:\Users\kquinnell\OneDrive - TRC\Documents\TRC\Contra Costa Hazmat\_Martinez Refinery\Fig1\_Soil Sampling Locations.dwg | Layout Tab: 11x17



SOURCE AERIAL PHOTO: Google Earth, June 2022.

**LEGEND**

● Approximate soil sample location, May 2023



<b>SOIL SAMPLING LOCATIONS</b>		
Contra Costa County Hazardous Materials Program		
	537895	<b>FIGURE 2</b>