

LANGAN



Technical Excellence Practical Experience Client Responsiveness

PALM ELEMENTARY SCHOOL

Shallow Soil Investigation

Hacienda Heights, California
Langan Project No. 721066701

20 August 2026

Primary Chemicals of Potential Concern (COPCs): Lead and Arsenic

Both are potential combustion by-products from battery recycling and are also present in native California soils.



Potential Pathways To Soil

Combustion Emissions • Vehicle Emissions
Aerial Deposition • Historical Pesticides Application
Historical Construction Materials

Pb LEAD

- Aerially-deposited lead may be associated with battery recycling (or vehicle emissions).
- Lead may be present in shallow soil from historical lead-arsenate pesticide use or lead-based paint.
- Langan samples did not exceed applicable screening levels.

As ARSENIC

- Naturally occurring in native soils.
- May be released by combustion processes.
- Detected in all five Langan samples
- Two samples were marginally above the 12 mg/kg Southern California background level.

REGULATED

Results were evaluated using residential soil screening criteria and arsenic background levels.

Local Exceedances Were Addressed by Soil Removal

Previous investigations identified limited lead and arsenic exceedances in shallow soil.

-  **PREVIOUS INVESTIGATIONS (GSI, Roux)**
Localized lead and arsenic exceedances.
-  **LANGAN ADDITIONAL SAMPLING**
Sampled immediately prior to removal.
-  **SOIL REMOVAL**
Elevated soil excavated and disposed of off Site.

CURRENT SITE STATUS

Soil containing elevated metal concentrations has been selectively excavated and disposed of off Site (or exposure pathways are incomplete).

Exceedances of lead and Arsenic were characterized as local rather than widespread or consistent across the Site.

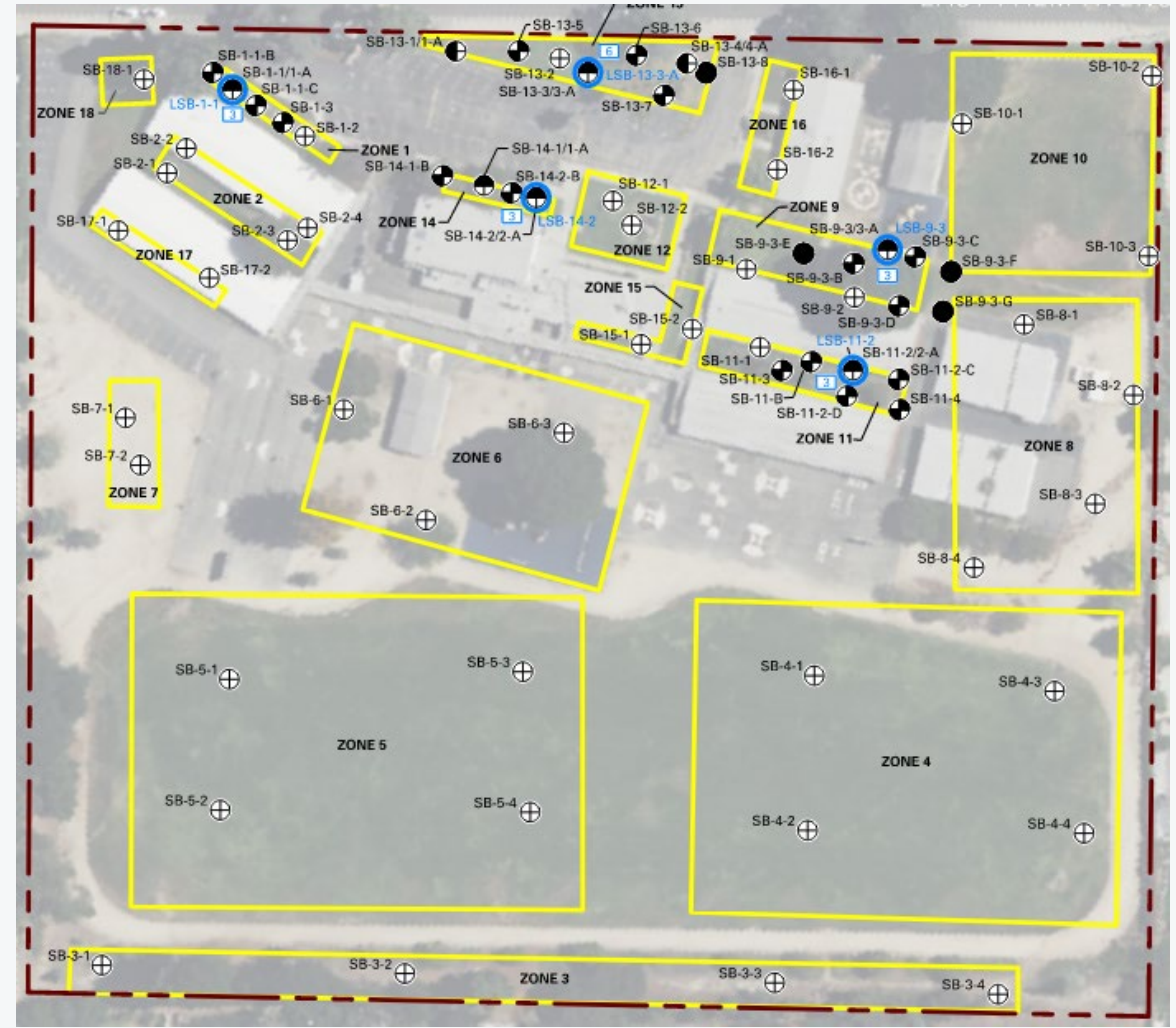


FIGURE 2 — SITE PLAN: SAMPLING ZONES AND LOCATIONS

Why These Chemicals Were Tested – Comparison to Ecobat / Quemetco

The analytical program targeted chemicals historically identified at Ecobat and in the surrounding area.

TESTING RATIONALE

Compare Palm Elementary soil conditions with substances previously evaluated at and around the Ecobat battery-recycling facility.

Metals

CAM 17 metals plus additional metals, including mercury, tellurium, and hexavalent chromium.

PAHs

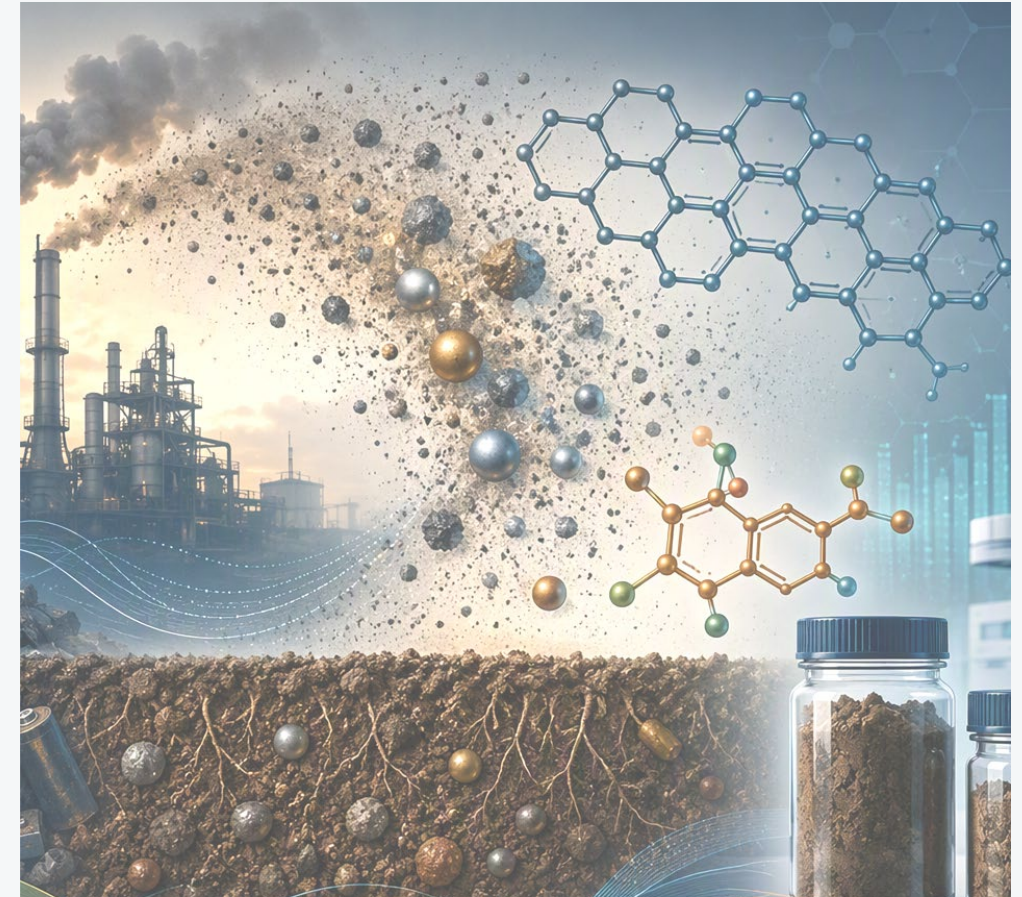
Polycyclic aromatic hydrocarbons were included in the laboratory program.

Dioxins/Furans

Dioxins and furans were analyzed for comparison with historical investigations.

Lead was the primary Ecobat COPC

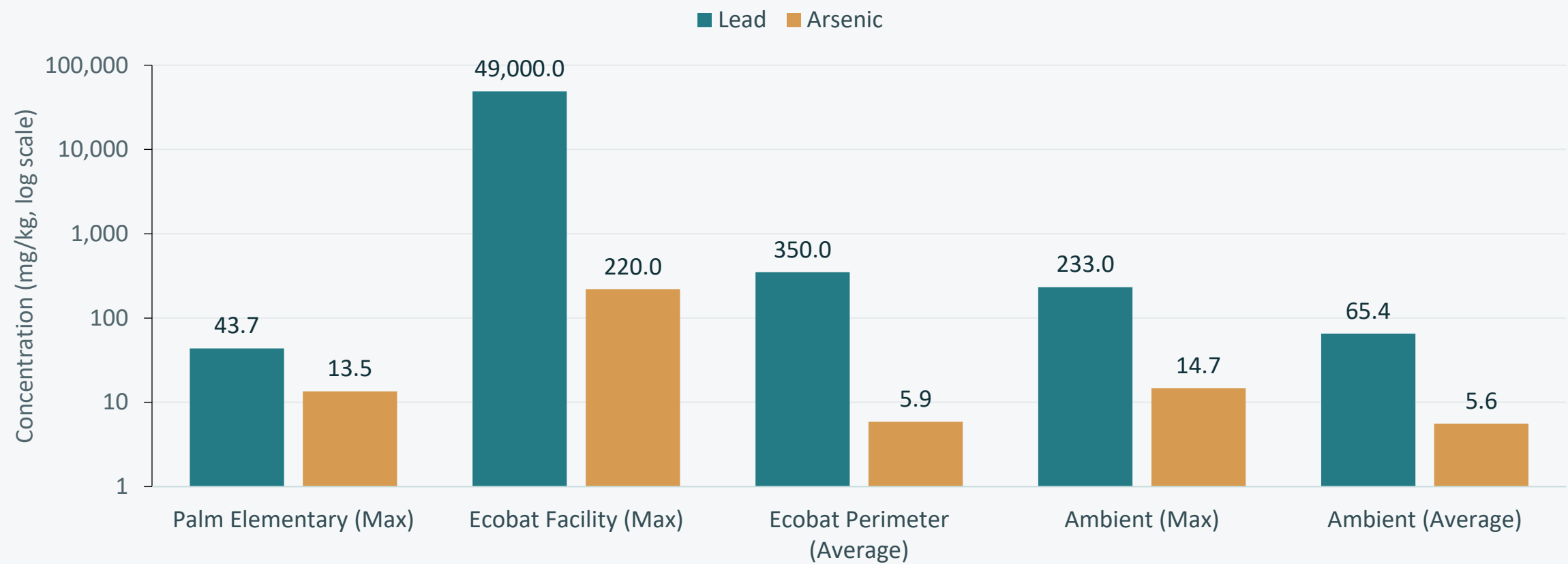
Elevated arsenic, antimony, and lead have been identified in Ecobat soil investigations.



Conceptual illustration, not a photograph of Ecobat or Palm Elementary

Lead and Arsenic Concentrations: Available Comparisons

Reported soil concentrations (mg/kg), log scale.



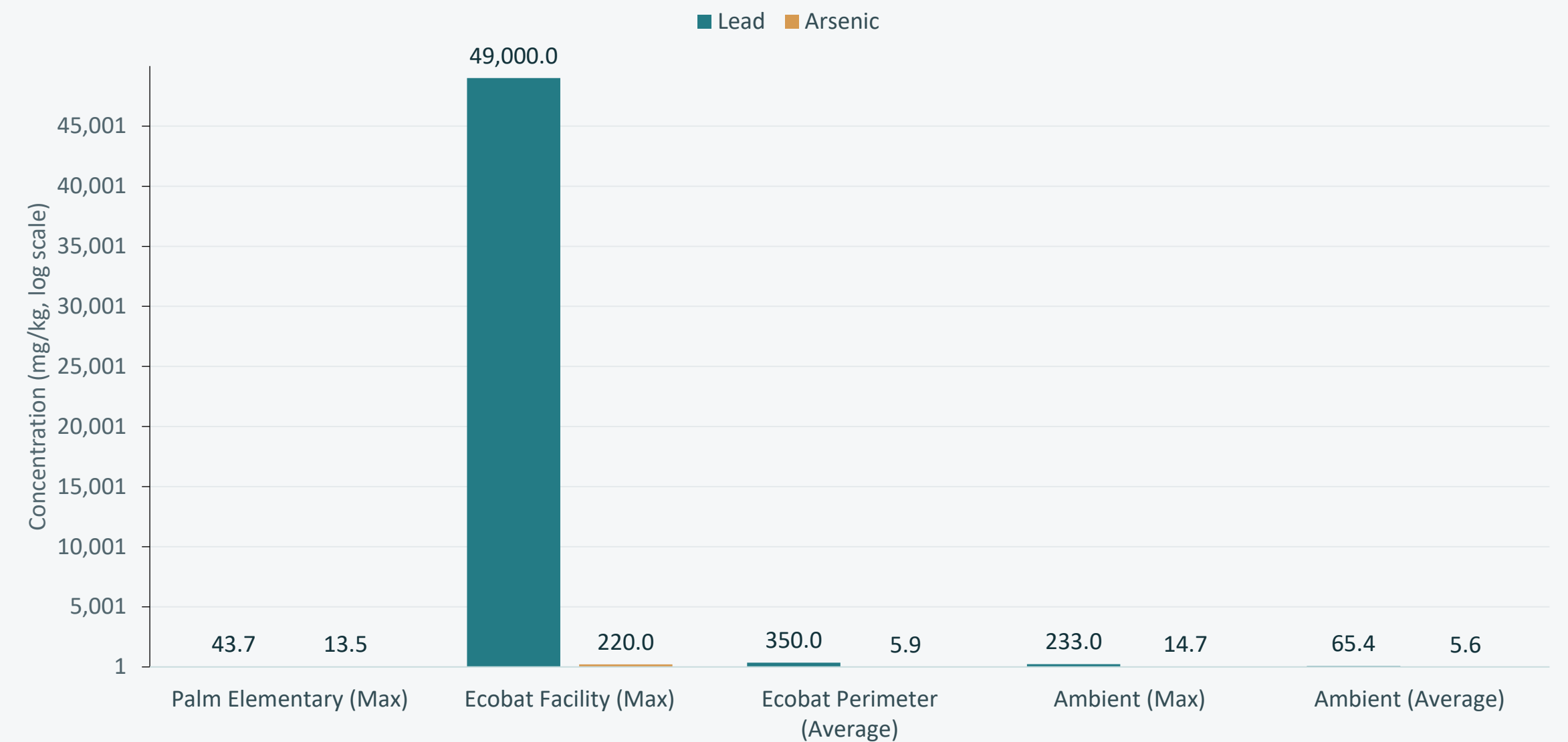
DATA SOURCE BY VALUE Palm Elementary lead 43.7 mg/kg: 2026 Langan Sampling • Ecobat facility lead 49,000 mg/kg and arsenic 220 mg/kg: 2020 Current Conditions Report
• Ecobat perimeter and ambient data: 2018 RCRA Facility Investigation • So. Cal. background arsenic 12 mg/kg: DTSC-recognized regional value

KEY MESSAGE

Palm Elementary lead maximum (43.7 mg/kg) is more than 1,000 times lower than the on-site facility maximum (49,000 mg/kg) and roughly 10 times lower than the perimeter average (350 mg/kg), while Palm arsenic (13.5 mg/kg) sits near the Southern California background level of 12 mg/kg.

Lead and Arsenic Concentrations: Available Comparisons

Reported soil concentrations (mg/kg), linear scale.



“Fingerprinting” with Antimony as an Alloy Marker

Antimony can help evaluate whether lead in soil is associated with battery-recycling operations.



ASSOCIATED WITH LEAD

Antimony is a known byproduct of battery-recycling smelting and may be found alongside aerially-deposited lead.

HOW THE ALLOY MARKER WORKS

At the Ecobat perimeter, elevated lead concentrations generally corresponded with elevated antimony concentrations. This relationship can indicate a common facility-related source.

ND

PALM ELEMENTARY RESULT

Antimony was not detected above laboratory reporting limits in any of the samples collected by Langan.

Antimony could not be used to fingerprint lead impacts to Ecobat operations.



PAHs and Dioxins/Furans Did Not Correspond with Conditions Surrounding Ecobat

Trace detections at Palm Elementary were below screening levels and were not consistent with Ecobat results.



POLYCYCLIC AROMATIC HYDROCARBONS

6 PAHs detected

PALM ELEMENTARY

Trace concentrations above reporting limits; none exceeded applicable health screening levels.

ECOBAT COMPARISON

The same PAHs were generally not detected at the Ecobat facility.

CONCLUSION

Site PAHs are not likely to have originated from Ecobat.



DIOXINS AND FURANS

Only 4 Discrete Congeners Detected

PALM ELEMENTARY

Detected at very low concentrations; none exceeded applicable health screening levels.

ECOBAT COMPARISON

Ecobat facility samples had no dioxins as TCDD above detection limits; one perimeter sample had 16 discrete congeners.

CONCLUSION

The concentration and congener pattern was not consistent with Ecobat.

Overall: PAHs and dioxins/furans detected at Palm Elementary were at very low levels and are not likely to have originated from Ecobat.

Potential Sources of Elevated Lead and Arsenic

Lead and Arsenic impacts to shallow soil may reflect multiple historical and ambient sources.

1

Historical Pesticide Use

LEAD + ARSENIC

The Site and surrounding area were historically used as citrus orchards.

Lead arsenate was used as a pesticide during the period the orchards were operated.

Lead arsenate is a known source of lead and arsenic impacts to shallow soil.

2

Lead-Based Paint

LEAD

Original school buildings were constructed between 1954 and 1964.

Historical building materials may have included lead-based paints or coatings.

Potential for paints or coatings to flake off into shallow soil.

3

Vehicle Emissions

LEAD

Vehicle exhaust from leaded gasoline (generally prior to the 1990s).

Aerially-deposited lead is known to impact shallow soils along older roadways and highways.

SITE INTERPRETATION

Lead and arsenic impacts to shallow soil are consistent with ambient background conditions and may also reflect historical agriculture use and residual lead-based paint from older construction materials.

DTSC Oversight and Next Steps

Additional investigation will expand the regional soil data set around Ecobat.

REGULATORY OVERSIGHT

The California Department of Toxic Substances Control oversees Ecobat through hazardous-waste permitting and environmental investigation requirements.



Data Gaps Identified

DTSC identified remaining data gaps after earlier investigations around the facility.



14 Off-Site Areas

DTSC requested systematic shallow-soil sampling across 14 identified areas surrounding Ecobat, including Palm Elementary.



Implementation

Project information indicates the supplemental work plan was approved in July 2026, allowing the next phase of testing to proceed.

INVESTIGATION SCOPE

Ecobat facility oversight + broader off-site soil investigation + Additional Sampling at Palm Elementary requested



[No Title]

Ecobat Recommended Areas	DTSC Department of Toxic Substances Control Drawn by: BB 02-05-2024 Revised by: JD 04-25-2024	Ecobat (former Quemetco) Facility Fourteen Recommended Sampling Areas
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QUESTIONS ?

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