

DTSC FACT SHEET

Department of Toxic Substances Control – Our mission is to protect the people, communities, and environment of California from harmful chemicals by cleaning up contaminated sites, enforcing hazardous waste laws, and compelling the development of safer products.

When the Test is Wrong: False Positives in Background Soils Soil Smarts Fact Sheet #4

Santa Susana Field Laboratory (SSFL) is a 2,850-acre site in Simi Valley where rocket engine testing and nuclear research took place. DTSC is the lead regulatory agency overseeing the cleanup along with multiple state, federal and local government agencies. DTSC certified the final Program Environmental Impact Report (PEIR) for the SSFL in July 2023, progressing sitewide cleanup efforts of SSFL. The SSFL cleanup must follow agreements with the three Responsible Parties, National Aeronautics and Space Administration (NASA), The Boeing Company (Boeing), and the Department of Energy (DOE). Groundwater cleanup for all three Responsible Parties is governed by the 2007 Consent Order. Also, Boeing is subject to a risk-based soil cleanup based on the 2022 Settlement Agreement. DOE and NASA must follow with the 2010 Administrative Orders on Consent (AOCs), the legal agreements which require soil cleanup to local background levels.

This fact sheet explains issues using the not to exceed cleanup approach using the 2013 Look Up Table which misidentifies soils as contaminated when they are not and is part of *Soil Smarts: DTSC’s Interactive Learning Series on the Background Cleanup at SSFL*. This series focuses on the cleanup of chemicals in soil to local background levels at NASA and DOE areas. Background levels refer to concentrations of chemicals found in soil that are not influenced by site releases. In 2012, DTSC completed a Chemical Background Study to evaluate local background levels. To help guide the site cleanup, DTSC developed the chemical look-up table (LUT) using data from the Background Study.

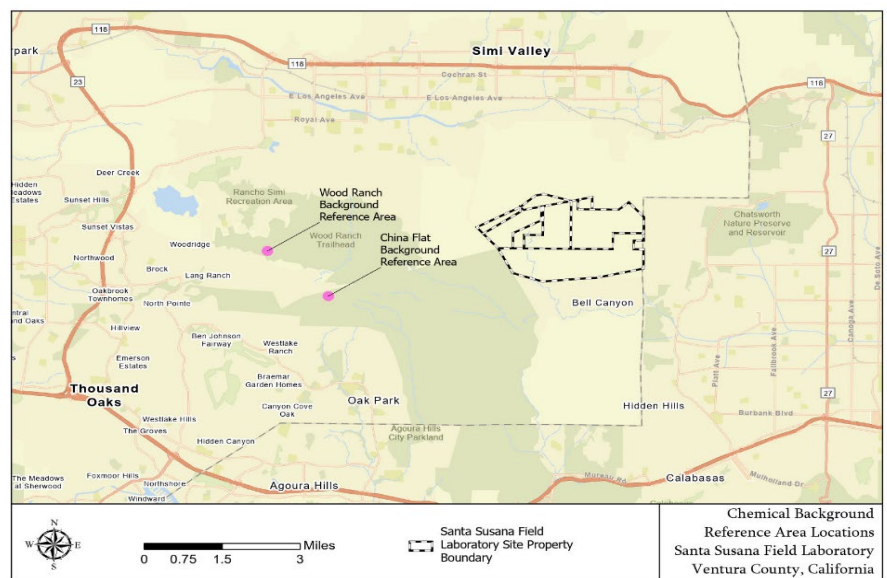


Figure 1: Chemical Background Reference Area Locations

Chemical Soil Local Background Levels

Chemical Background Reference Areas:

DTSC identified the Chemical Background Reference Areas with public involvement (Please see Soil Smarts Fact Sheet and Video #1 for more details). Two locations were chosen as chemical background reference areas: China Flat and Wood Ranch, which are 3-4 miles from the western border of the Site.

Chemical Look-Up Table (LUT):

The 2013 chemical LUT has values for over 130 chemicals. These include the chemicals that were evaluated during DTSC's Chemical Background Study as well as those chemicals commonly identified as contaminants at SSFL. More Information about the LUT can be found in *Soil Smarts Fact Sheet and Video 2*.

Acronyms

AOCs	Administrative Orders on Consent
BTVs	Background threshold values
LUT	Look-Up Table
M-L MRL	Multi-lab minimum method reporting limit
MLE	Multiple lines of evidence
MRL	Minimum method reporting limit
PEIR	Program Environmental Impact Report
RPs	Responsible Parties

False Positive Results in Background Soils:

The use of the 2013 LUT misidentifies soils as contaminated when they are not; this is called a false positive result. When applying the "not to exceed" background approach described in *Soil Smarts Fact Sheet and Video #3, "Digging into Soil Cleanup,"* 54% of the soil samples collected as part of the Background Study fail the comparison to the 2013 provisional LUT values. In other words, even background soils never impacted by SSFL would require excavation and backfill under the proposed approach. This will result in destruction of habitat, species and cultural resources.

Of the 295 background soil samples:

- 137 of the background samples would be identified as consistent with local background and not require cleanup.
- 158 background samples would test above the LUTs, requiring soil excavation even though not impacted by SSFL operations.
 - 95 of the samples had at least one non-detected value, where the detection limit is greater than a LUT value.
 - 63 samples had at least one detection greater than a LUT value. If the not to exceed approach was applied to these samples, it would require removal of clean soil (consistent with local background levels).

The background soil cleanup of radionuclides does not share the issues discussed in this fact sheet and no changes are proposed to that approach.

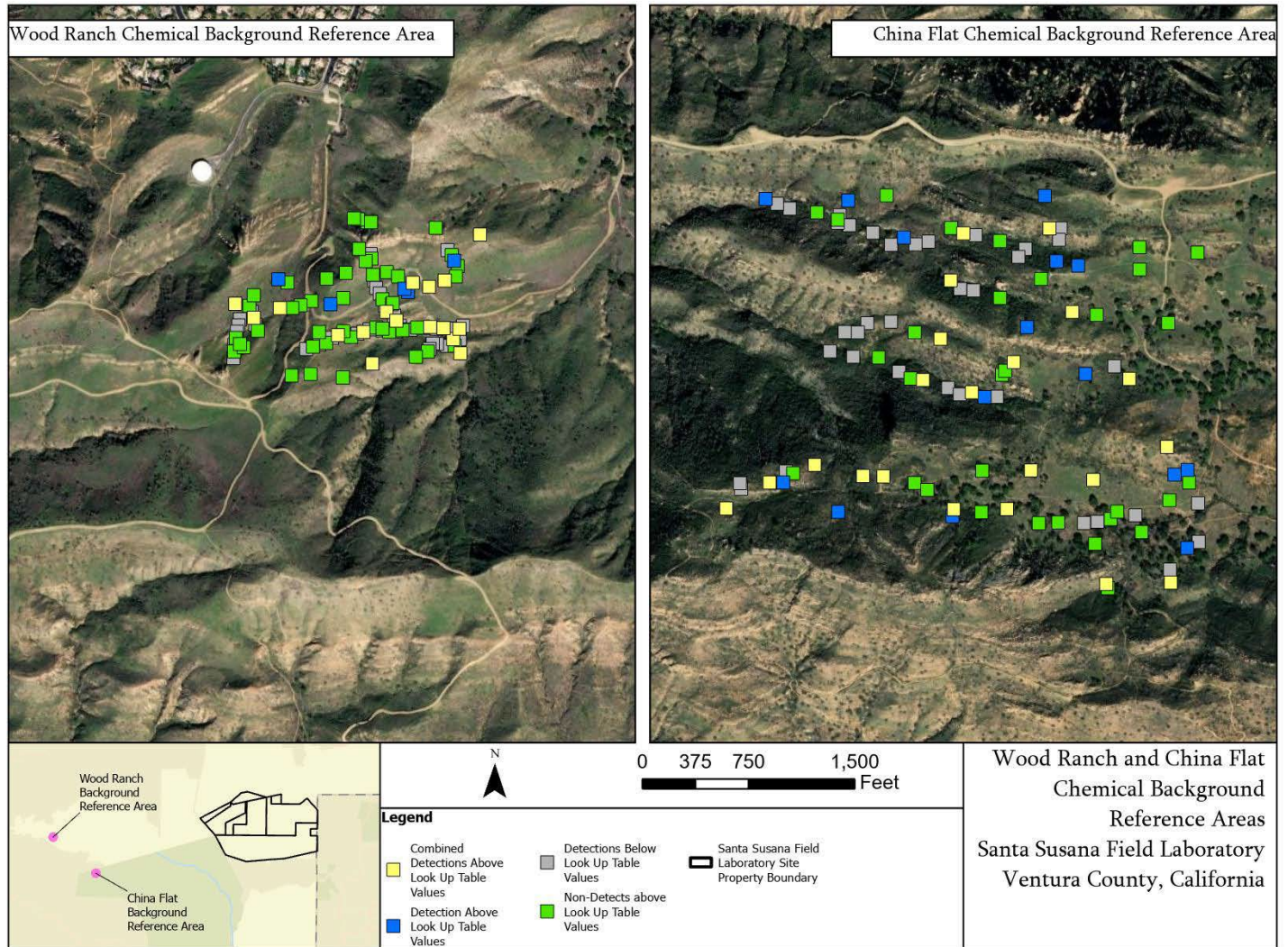


Figure 2: LUT applied to Chemical background reference areas for China Flats (left) and Wood Ranch (right)

The above data show that use of the current chemical LUT using the “not to exceed” approach does not correctly identify the background reference soils as being “consistent with local background.” This means that **the test is wrong** and cannot be used to determine when the soils at SSFL have been cleaned up to local background levels.

In order to accurately identify soils “consistent with local background” DTSC has been evaluating methods to improve the comparison methodology. Updates to the process are needed based on the additional analysis conducted since development of the LUTs.

Next Steps

DTSC is considering using a Multiple Lines of Evidence (MLE) Approach to improve the simple comparison approach described in the “not to exceed” confirmation sampling protocol of the AOCs. The MLE approach is detailed in the *Soil Smarts Fact Sheet and Video #5, Unearthing a Better Approach*.

Figure 3: Background Reference Area Results Compared to Look-Up Table Values

Additional Information

DTSC has prepared a set of educational materials known as *Soil Smarts* that includes video shorts and fact sheets like this one. The companion video for this fact sheet is called *When the Test is Wrong: False Positives in Background Soils*. To access all materials, please visit our *Soil Smarts* webpage:

www.dtsc.ca.gov/santa_susana_field_lab/soilsmartsbackgroundcleanup



Questions or Comments?

Please visit STREAM: SSFL Tool for Response, Engagement, and Answer Management:

<https://stream.ssfl.dtsc.ca.gov/>



Hearing impaired individuals may use the California Relay Service at 711 or 800-735-2929 TTY/VCO/HCO to voice.



Additional information on DTSC sites can be found through our [EnviroStor](#). (rev. 5-2020)