

Phil Rutherford

Dear Mr. Rutherford,

Thank you for your engagement and interest in the Department of Toxic Substances Control (DTSC) regulatory oversight of the cleanup at the Santa Susana Field Lab (SSFL). Please see responses to your question(s) below.

Question 1: Has DTSC or DOE performed a similar comparison of radionuclide background samples to radionuclide LUTVs?

DTSC Response 1: No, DTSC has not performed a similar comparison of radionuclide background samples to radionuclide LUTVs for the Soil Smarts Workshop series. The Soil Smarts workshop series is focusing on the cleanup of chemical constituents in soil. The technical issues associated with compounded false positive error rate does not apply to the radionuclide LUTVs. This is partially due to the lower number of analytes with radionuclide LUTVs as compared to chemical LUTVs (16 and 130+, respectively).

Question 2: Can DTSC identify the unidentified chemical? Can DTSC provide the calculational steps it performed for the unidentified chemical LUTV?

DTSC Response 2: The chemical shown in the scatter plot in Soil Smarts Videos #2 and #4 and throughout the technical presentation during Soil Smarts Workshop #1 on November 20, 2024, is 2,4-Dichlorophenoxybutyric acid (2,4-DB). The scatter plot is from the [DTSC Chemical Background Study, Appendix G](#), pdf page 954.

The [2013 Chemical Look-Up Table Technical Memorandum](#) details the calculations that were used to develop the LUTV:

“For chemicals analyzed in DTSC's chemical background study, but the background sampling results did not allow for derivation of a background threshold value (e.g. low percentages of detection), DTSC used the respective measurement reporting limit from the background study, adjusted for analytical measurement uncertainty, as the Look-Up Table value. DTSC included the analytical measurement uncertainty adjustment to the background study MRLs, as the background study programmatic needs were unique (e.g., non-routine) and resulted in very low MRLs which are likely not routinely achievable.”

Addressing Uncertainty

When reported laboratory results exceed Look-Up Table values, action is required.

Chemical Look-Up Table values were calculated as follows:

$$\text{Look-Up Table value} = \text{Cleanup Level} + 1.645 * U_M$$

Where:

Cleanup Level = the greater of the BTV or the DTSC background Study method reporting limit

U_M = the analytical measurement uncertainty (See Table 1)* BTV or MRL

1.645 = the normal distribution quantile consistent with 5% Type I decision error (see MARLAP (US EPA 2004) for more information.)

Input Values for 2,4-DB:

MRL: 1.7 ppb ([DTSC Chemical Background Study, Table 4](#))

Analytical measurement uncertainty: 25%.

STREAM Submission Number: SCF000008

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$LUTV = MRL + 1.65 (0.25 \times MRL)$

$LUTV = 1.7 + 1.65 \times (0.25 \times 1.7)$

LUTV= 2.4 ppb

Question 3: DTSC's announcement that >50% of its own background samples are incorrectly identified as "contaminated" also questions the credibility of the tens of thousands of characterization samples that the RPs have taken over the past many years. How many of these samples, that have been identified as contaminated, are in fact false positives?

DTSC Response 3: DTSC has not presented technical concerns in regards to the soil sampling by DTSC in the chemical background study. DTSC does not question the credibility of the characterization samples collected by NASA and DOE. Some of those samples that have been identified as being contaminated, based on detections that exceed LUTVs, likely represent false positives. It is not possible to empirically determine the number of on-site samples that represent false positives.

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