



Comments and Questions on the March 12, 2025, DTSC Third Public Meeting on Soil Smarts

I had planned to make some oral comments at the third Soil Smarts meeting but realized that the restrictive format and 2-minute limit made that impossible.

Firstly, Valerie Hanley did a generally admirable job in single handedly explaining the MLE approach and rebutting some of the crazier public comments.

DTSC should explain to the public that its policy for responding to STREAM communications is ... only provide answers to questions ... do not respond to statements, opinions, positions, suggestions, arguments ... STREAM is not a debating platform. Given those [policies](#), I now understand why DTSC responses to my [SCF000006](#) and [SCF000008](#) were somewhat superficial. This time I will try to ask more questions. Questions are **bolded**.

LUTV Calculation

In previous Soil Smart meetings and the [MLE Tech Memo](#), DTSC has stated that the problems implementing the chemical LUTVs do not exist for radionuclide LUTVs. **Why is that?**

The reason is because DTSC failed to follow the protocol recommended by the EPA for radionuclide LUTVs. For radionuclides with mostly non-detect background results, EPA calculated the LUTVs, using the 2-sigma upper confidence level of the minimum detectable concentrations (MDC) from characterization samples. This ensured that the majority of background results, including non-detects, met the radionuclide LUTVs, as designed, and as would logically be expected. It should be stressed that EPA intentionally used a “boutique” lab with low detection limits for its background study, with the intent to maximize radionuclides with LUTVs based on statistically robust BTVs and minimizing the number of radionuclides with LUTVs based on MDCs.



In contrast, for chemicals with mostly non-detect background results, DTSC calculated the LUTVs, using an unrealistically low method reporting limit (MRL) from background samples. In Valerie's own words, "*MRLs which are likely not routinely achievable.*" This ensured that the many background results, including non-detects, exceeded the chemical LUTVs.

DTSC used the lowest achievable background sample MRL whereas EPA used a 2-sigma UCL upper bound of characterization sample MDCs. **Can DTSC please explain why it chose its protocol, which appears to be designed to fail?**

Hence, 54% of background samples failed the background test and were incorrectly identified as chemically contaminated. The test was not wrong. The calculation of LUTVs was wrong. **Please estimate what percentage of false positives are among the tens of thousands of site characterization samples taken by the RPs?**

See my more detailed discussion on EPA vs. DTSC LUTVs in [SCF000006](#) and [SCF000008](#).

The objective of doing a background study is to establish, either a background distribution for use in non-parametric, hypothesis testing (as in MARSSIM), or an upper statistical parametric limit to which individual site characterization samples can be compared (as in the AOC). DTSC failed to achieve the main data quality objective (DQO) of its own chemical background study.

Why did DTSC not recognize this problem in 2013? Why has DTSC waited 11 years to tell the public of this problem?

I cannot help but think of the analogy with US politics today. If you voted for Trump the first time and again the second time, then you deserve the chaos, confusion and conflict that we are in today. Likewise the organizations that signed the 2010 AOC cleanup-to-background mandate, namely, DTSC, DOE and NASA, deserve the chaos, confusion and conflict that we saw and heard exhibited tonight and for the last 15 years.



Don't forget that it was Rick Brausch, a former DTSC project director, and Dan Hirsch, a partner of DTSC, who authored and are responsible for the AOCs. DOE and NASA upper management in Washington just closed their eyes and signed them. What were they thinking?

Specific Questions

Does DTSC acknowledge that its calculation of chemical LUTVs differs significantly from EPA's calculation of radionuclide LUTVs? Does DTSC agree that is the reason why 54% of DTSC's background samples fail the LUTV test?

The majority of the 1-in-1,000,000 residential screening levels in Tables 2, 3 and 4 of the [MLE Tech Memo](#) exceed the LUTVs, in most cases by many orders of magnitude. **Would DTSC agree that this illustrates the insanity of the 2010 AOC cleanup-to-background mandate?**

The scatter plot of the unidentified chemical shown in the first Soil Smarts meeting was Dichlorophenoxybutyric acid (2,4 DB) with a LUTV of 2.4 ppb, much less than the majority of detect and non-detect sample results. However the residential screening level on Table 3 of the [MLE Tech Memo](#) is 1,900,000 ppb, implying that the LUTV risk is $(2.4/1,900,000) * 0.000001 = 1.3E-12$. **Does DTSC believe that 1-in-trillion is a reasonable gross risk goal for 2,4 DB?**

The hypothetical cancer incidence risk for residential, 100% garden produce consumption from naturally occurring radionuclides in soil is approximately 1% or 1-in-100 using the linear-no-threshold (LNT) theory of radiation risk.

Does DTSC support LNT? If yes, then does DTSC agree with this consequential risk estimate? See page 2 and Figure 1 of [SCF000006](#).

The 2010 AOC mandates a ZERO additional risk from radionuclides and chemicals combined, on top of the baseline 1-in-100 radionuclide risk. The



risk waivers of lines 2, 3 and 4 generously allow a 1-in-1,000,000 net risk limit on top of this baseline 1-in-100 risk. **Does DTSC believe this make sense?**

Several members of the public believed that DTSC is exaggerating the number of false positives in its background sample dataset. However they fail to understand that a lab that reports a non-detect result with a detection limit exceeding a cleanup goal, has not proven that the contaminant concentration is below the cleanup goal, only that the contaminant concentration is below the detection limit. **Does DTSC concur?** Boeing requires that labs achieve radionuclide MDCs below LUTVs for every sample and every analyte.

See pages 2 to 3, Figure 1, and footnote 4 of [SCF000008](#). **Does DTSC agree or disagree with my discussion of the differences between radionuclide MDCs and chemical MRLs and MDLs? Please see the scatter plot of Figure 1 of [SCF000008](#) and explain how the LUTV based on the MRL is so much smaller than the wide spread of detects and non-detects (based on sample MDLs)? Is it possible that the lab grossly exaggerated its “a priori” detection capability (MRL), but the “a posteriori” sample analysis MDLs did not live up to the lab’s promise?**

DTSC justifiably prides itself on protecting human health and the environment. Therefore please answer the following questions with a yes or no ...

- **Does DTSC agree that the usual DTSC and EPA protocols to achieve this mission would be to conduct a risk-based cleanup using conventional EPA RAGS guidance?**
- **Does DTSC agree that risk assessment is used at all other sites managed by EPA in the US and DTSC in California?**
- **Does DTSC believe that a risk-based cleanup for DOE and NASA at SSFL would be fully protective of public health?**



- **Does DTSC believe that cleaning up chemicals to background in DOE and NASA areas is necessary to protect human and ecological health?**
- **Does DTSC believe that the 2010 AOC is necessary to protect human health?**
- **Does DTSC believe that the 2010 AOC is an impediment to completing a fully protective cleanup?**
- **Does DTSC believe that the 2010 AOC has been a major cause of delays in DOE and NASA cleanup progress?**
- **Would DTSC prefer that the 2010 AOC disappear?**
- **Notwithstanding the prior answers, is DTSC still committed to implementing the 2010 AOC?**
- **Why?**