

## **DEEP Proposal for Risk Based Cleanup Standard Calculators**

DEEP is proposing to develop a Cumulative Risk Calculator in response to requests from various stakeholders. We are also proposing to develop three additional calculators that will provide a fast-track approval approach for additional polluting substance criteria and alternative criteria. All these optional calculators are supplemental to and do not supplant the current review and approval process available under the cleanup standards.

### Cumulative Risk Calculator

**Purpose:** To provide a spreadsheet-based tool for the purpose of calculating cumulative, site-wide risk in support of alternative DEC calculations to implement LEP calculated, risk-based alternative direct exposure criteria pursuant to section 22a-134tt-9(d)(5).

**Approach:**

- A spreadsheet-based tool will be developed to calculate cumulative site cancer and non-cancer risks. The cumulative risk calculator must consider all releases at a parcel, all chemicals present in the environment (whether or not they are from the release), and all potential current and future exposure pathways associated with the parcel.
- Although this calculator will output alternative DEC within the context of cumulative site risks, it will require an evaluation of all potential exposure pathways in generating that output. The calculator will permit use of criteria for Additional Polluting Substances (APS) and permit consideration of site-specific risk scenarios.
- Risks will be calculated for each chemical present in the environment at the site with chemical exposures representing either site conditions (for parameters present at concentrations less than cleanup criteria) or at approved remediation criteria concentrations.
- Total cancer risk and non-cancer hazards for each target organ will be calculated.
- Remediation to the default criteria in the cleanup standards is acceptable, regardless of the output of a cumulative risk evaluation using this calculator.
- This calculator will not be intended to be used for other alternative criteria or APS criteria generation.

### Additional Polluting Substances Calculator

**Purpose:** To provide a spreadsheet-based tool for the purpose of calculating criteria for substances for which criteria are not included in the cleanup standards or the Additional Polluting Substances (APS) fast-track approval form.

**Approach:**

- Chemical-specific inputs will be provided through a data entry worksheet.
- The tool will calculate values for all criteria types included within the cleanup standards using the default equations and exposure assumptions and the chemical-specific user inputs.

- Output from this calculator would provide supporting documentation for any requests for APS criteria to be submitted to DEEP for review and approval.

#### Alternate Criteria Calculator: Additional Exposure Scenarios

**Purpose:** To provide a spreadsheet-based tool for the purpose of calculating criteria for exposure scenarios not included within the cleanup standards (e.g., trespasser, construction worker), for either substances included in the cleanup standards or for substances that would require an APS criteria.

#### **Approach:**

- Exposure-specific inputs (e.g., exposure duration, exposure frequency, ingestion rates, etc.) will be provided through a data entry worksheet. Additional chemical-specific inputs will be provided for APS substances.
- Adjustments to exposure inputs for defined criteria types within the cleanup standards are not allowed. This calculator is for novel, site-specific exposure scenarios. This recommendation will allow for site-specific flexibility for certain site-specific exposure scenarios acceptable to the Connecticut Department of Public Health (DPH) and DEEP.
- If appropriate, defined ranges for values that can be customized will be provided within the tool. Some level justification will be required for the selected value.
- This spreadsheet will be populated with updated toxicity values recommended by DPH, updated analytical levels, and general risk estimation formulas acceptable to DPH and DEEP.
- Chemical- and exposure-specific inputs will be used to calculate criteria for exposure scenarios not included within the cleanup standards.
- Output from this calculator would provide supporting documentation for any requests for alternative criteria submitted to DEEP for review and approval.
- Alternative exposure scenarios may require an environmental use restriction.

#### Alternate Criteria Calculator: Site-specific fate and transport conditions

**Purpose:** To provide a spreadsheet-based tool for the purpose of calculating volatilization criteria using site-specific fate and transport considerations, for either substances included in the cleanup standards or for substances that would require an APS criteria.

#### **Approach:**

- This calculator is expected only to address site-specific adjustments for Volatilization Criteria.
- Site-specific inputs will be provided through a data entry worksheet.
- Defined ranges for values that can be customized will be provided within the tool. Some level justification will be required for the selected value.
- This spreadsheet will be populated with Target Indoor Air Concentrations associated with cleanup standard criteria and associated physical constants for each chemical.
- Provision can be made for inclusion of APS chemicals, if appropriate.
- Output from this calculator would provide supporting documentation for any requests for Alternative Criteria submitted to DEEP for review and approval.