

Good afternoon,

As promised, please find attached the outlines being provided by Subcommittees 9 and 10. These outlines will be discussed at tomorrow's Working Group meeting.

Thank you to the members of the two Subcommittees for their significant efforts on these two important topics.

Thank you,  
Graham

## Subcommittee 10 – Outline for Working Group Discussion

### I. Introduction

#### A. Introduce our charge: Subcommittee 10 was asked to consider the following questions:

1. Under what conditions could other professionals certify that releases have been remediated, and, if required, investigated? Conditions mentioned in the statute include pollutant type, concentration or volume, and the imminence of harm to public health (Sec. 22a-134tt(c)(5)).
2. What other types of environmental activity could they supervise and what type of activity is currently being supervised by non-LEPs?
3. What education, experience or other qualifications are appropriate to ensure protection of public health and the environment in the specific scenarios contemplated?
4. What mechanism other than a new licensure can be used to demonstrate someone is qualified?
5. What mechanisms could be employed to limit concerns associated with relying on certifications by non-LEP environmental professionals?

#### B. Introduce terminology

##### 1. TEPs

- a. As discussed below, many of the previous subcommittees envision roles for non-LEP professional, but each group used different terminology. To avoid confusion, the term TEP (technical environmental professional) is used throughout this document to refer to an individual, other than an LEP, who would be deemed qualified to address certain types of releases.

##### 2. RSRs

- a. We understand and assume that in connection with the release-based programs the RSRs will be amended to encompass the concepts that the Working Group has suggested so far, or that new remediation regulations will be promulgated using the RSRs as a backbone. For the sake of discussion, we use “RSRs” to mean the RSRs as they may be amended or the new set of regulations that may be promulgated to define cleanup standards and endpoints.

## Subcommittee 10 – Outline for Working Group Discussion

### 3. Certification

- a. We are intentionally avoiding the word “closed/closure” because the present usage is widespread, but confusing/unclear, and we are trying to be more precise.
- b. There was not consensus on whether or not “Verification” is the right word for closure documentation/certification prepared by a non-LEP. Several members have expressed a view that some term other than “Verification” was appropriate to avoid confusion.
- c. For the purpose of this report we use “Certification” to mean a certification by a TEP that compliance with the RSRs has been achieved. We have not discussed to a sufficient extent how that might differ from a Verification.

C. TEPs will handle lower-risk releases that are too complex to be handled by an untrained civilian. We acknowledge there will be more serious releases addressed by LEPs and less serious releases that could be handled by a 17-year-old with a mop.

D. Executive summary of key recommendations

## II. Group membership and procedures

## III. Context

### A. Assumptions

1. We assume that the basic outlines of the release-based program will be consistent with the recommendations of the Working Group and its subcommittees so far.
2. [List specific assumptions as needed]

B. Discussion of TEPs in past subcommittee reports. Note: This discussion uses the terminology used by each individual subcommittee. We are intentionally preserving the use of the original terminology and not collapsing it all down to one “TEP” category because the issue of whether all of these functions should be performed by the same group of people has not yet been decided.

#### 1. Subcommittee 3: Characterization.

- a. Subcommittee 3 contemplated a role for non-LEP environmental professionals in characterizing releases. They recommended training and/or continuing education programs for non-LEPs. This subcommittee also suggested the possibility of a self-certifying statement (with appropriate language to provide some level of

## Subcommittee 10 – Outline for Working Group Discussion

responsibility for false statements) indicating that the TEP signing it had the appropriate qualifications for the activities they performed and/or a registration system that would require documentation of qualifications.

- b. The concept of accountability for non-LEPs was recognized as particularly important: “If non-LEPs were to be authorized to conduct characterization under the Release-Based Cleanup Program, even of small, low-risk releases, a mechanism must be in place to provide assurance to the public and other stakeholders that the individual is qualified to perform the services and that there is accountability for that individual if the services are not performed in a manner that is consistent with prevailing standards and guidelines and regulations.” Subcommittee 3 paper, at 21-22.

### 2. Subcommittee 4: Immediate Removal Actions

- a. Subcommittee 4 envisioned a role for Qualified Environmental Professionals, or QEPs (including LEPs, licensed spill contractors, CHMMs, CIHs, Pes and UST operators), to perform IRA activities. Subcommittee 4 suggested that QEPs could be responsible for an “initial evaluation” of the release or potential release to determine whether there had been impacts to soil or groundwater.
- b. Subcommittee 4 acknowledged that some releases, such as those impacting sensitive receptors or impacting (or potentially impacting) groundwater or surface water would need to be handled by an LEP rather than a different type of QEP.

### 3. Subcommittee 5: Tiers

- a. Subcommittee 5 was of mixed opinion as to whether Tier 3 (lower risk) releases require LEP oversight or could be performed by other QEPs. Majority agreed that final closure would require LEP documentation of regulatory compliance.
- b. Subcommittee 5 discussed whether Tier 3 releases in “maintenance mode” (e.g., long term monitoring) could be led by a QEP. The definition of a QEP has not been agreed upon, but might be like the definition of Environmental Professional as defined in 40 CFR § 312.10. They also suggested that QEP can document on-going maintenance and monitoring activities but should not document final closure to remedial standards.

## Subcommittee 10 – Outline for Working Group Discussion

4. Subcommittee 6: Modification of Cleanup Standards for Lower-Risk Releases
  - a. Subcommittee 6 envisioned a role for “trained professionals” to “respond” to certain types of releases, which the group acknowledged may or may not meet the same definition as “properly trained professionals” as defined in the spill regulations.
  - b. Subcommittee 6 stressed that the release-based regulations “need to ensure that closure by non-LEPs creates the same certainty of closure by LEPs” in order for the new program to succeed. Subcommittee 6 paper, at 3.
5. Subcommittee 8: Clean-up Completion Documentation, Verifications, and Audit Frequency and Timeframes
  - a. Subcommittee 8 contemplated a role for non-LEPs to “document closure” of a release and suggested that an online fillable form would make the documentation easier for a responsible party or non-LEP professional to work with.
  - b. Subcommittee 8 created a table setting forth the types of closure documentation appropriate for different types of releases, and suggested that three low-severity categories of releases could be closed by non-LEPs (contemporaneous releases below a reportable quantity, historic releases below reportable concentrations, spills to impervious surfaces).

## IV. Discussion

- A. WHO are TEPS? (DEEP Questions 3 and 4)
  1. New licensure program
    - a. DEEP has been clear that DEEP does not have the capacity for managing a new licensure program.
    - b. There was discussion regarding whether another agency would have that capacity (e.g., Consumer Protection).
  2. Credentials
    - a. Education and years of experience will be relevant, with perhaps a matrix permitting designation as a TEP with more experience and less education, or more education and less experience. Some expressed the view that experience dealing with releases to environmental media was more important than training or credentials.

## Subcommittee 10 – Outline for Working Group Discussion

- b. Options to leverage existing credentials such as UST operators, PEs, ASTM “environmental professionals,” CHMMs, professional geologists, etc.
  - (i) Many of these programs build in educational and/or experience requirements and the general set of education/experience requirements would need to be consistent.
  - (ii) There was discussion, but no consensus, on the role that underlying licensing programs will have to prevent practice outside the professional’s scope. For example, would an electrical engineering PE be qualified to act as a TEP? What if he/she passed the training course discussed below?
  - (iii) There was discussion regarding whether the credential alone would be sufficient to permit sign-off or whether the training course would also be required. A majority of the group took the position that the training program discussed below should be required for everyone, or required for non-LEPs. A minority took the position that the credentials listed above should suffice without the need for additional training.
- 3. Training programs
  - a. Would cover issues like how to properly collect a soil sample, etc. that the underlying credential program listed above would not necessarily have covered.
  - b. A majority of the group felt that the training program would be required for persons Certifying a release, though some felt that the training was only required for non-LEPs, as LEPs would presumably have the necessary training already. A minority took the position that training was not necessary.
- 4. Registration/Certification List
  - a. A majority of the group felt that a list of those who had been trained should be maintained. There was a minority view that training is not required so there is no need for a list of people who had been trained.
- 5. Special Cases: There might be alternate mechanisms for recurrent/common releases of known substances to be handled by specific people familiar with those substances and well-equipped to handle them.

## Subcommittee 10 – Outline for Working Group Discussion

- a. State or municipal technical professional. These people would be designated by the signatory authority to “certify” “certain” releases as “remediated”. These “certain” releases could be defined or listed. We would expect them to include releases associated with typical motor-vehicle accidents and other common releases that fire departments, etc. routinely handle today.
  - b. Facility EHS professionals. A facility EHS manager may be authorized to sign off on spills of a certain type (perhaps as defined in the facility SPCC plan) but not on other types of spills outside the facility’s experience and capacity.
  - c. Utility professionals. Utility crews might be authorized to sign off on transformers but not other types of spills.
- B. WHAT sort of releases will TEPs handle? (DEEP Questions 1 &2)
1. A check list will help guide initial efforts and identify who can sign off (conceptual form to be included with final paper).
  2. No impacts to groundwater: There was consensus that impacts to groundwater would require an LEP rather than TEP.
  3. Impacts to soil: The Limited Removal Action concept from Massachusetts was discussed in detail.
    - a. In Massachusetts, removal of “(a) not more than 100 cubic yards of soil contaminated solely by a release of oil, oil blends containing fuel oil additives registered in accordance with the regulations at 40 CFR 79, or (b) not more than 20 cubic yards of soil contaminated by a release of hazardous material or a mixture of oil or waste oil and hazardous material” may be completed by persons other than LSPs and without supervision or sign-off from an LSP, and without reporting to MADEP.
    - b. The size of the release that is available to be closed out by a TEP has been debated and volumes considered could include 100-350 cy.
  4. Mostly or exclusively contemporaneous releases – the TEP would need to be able to understand nature and extent of release using the ordinary five senses.
    - a. There may be some limited categories of historic releases, e.g. tank pulls, that have specific guidelines, test and sampling criteria, appropriate for TEPs. The group was about evenly divided on whether this concept was worth exploring further.

## Subcommittee 10 – Outline for Working Group Discussion

- b. Subcommittee 8 had suggested that TEPs could be responsible for historic releases that did not reach reportable concentrations.
  5. May be exclusions for spills involving substances that are especially dangerous or migrate especially quickly or for certain types of chemicals/contaminants.
  6. Subcommittee 6 suggested that for certain types of spills (e.g., small and/or relatively more viscous) cleanup could be documented based on a visual review and amount of soil removed without confirmatory sampling. Subcommittee 3 also contemplated the possibility that no sampling be required for that type of release. Subcommittee 10 has not reached consensus on this point.
  7. Some fraction of Certifications prepared by TEPs will have errors. In defining the universe of releases that may be Certified by TEPs, DEEP and the Working Group will need to consider the acceptable level of risk present if a TEP gets it wrong.
    - a. Each individual release may be relatively lower risk, but there will be a lot of them.
  8. There was a proposal for a time, volume and depth matrix that would generate a score to determine whether an LEP is required.
  9. The special cases listed above (municipal/state professionals, facility EHS professionals, utility professionals) would not necessarily be authorized to handle the full universe of spills that would be handled by a TEP, but would handle a more tightly-defined set of releases.
  10. Further discussion is needed regarding the level of investigation a TEP or trained person be required to complete to demonstrate that their involvement was appropriate and that an LEP does not need to be involved.
- C. HOW will the program be implemented to foster environmental protection and market acceptance? (DEEP Question 5)
1. The strength of the training/credentialing program will impact market acceptance.
  2. Need solid documentation easily prepared and easily understood.
    - a. A live web-form that expands as needed would be helpful. There should be opportunities to upload photos, figures, data.
    - b. A conceptual form will be provided with the final paper.



## Subcommittee 10 – Outline for Working Group Discussion

3. There needs to be a certification with teeth and/or other accountability and enforcement mechanisms.
  - a. Audits (blind on percentage basis, referrals or both)
    - (i) The group was roughly evenly split on whether there should be audits.
      - (a) There is concern that DEEP may not have the capacity for an audit program.
      - (b) There are some who feel strongly that DEEP has to be involved to give the use of TEPs or other trained persons “market acceptance.”
    - (ii) The group notes that Conn. Gen. Stat. 22a-134tt(g)(a) requires the release-based regulations to “[a]uthorize the commissioner to audit any verification” but that it is not clear whether this would apply only to LEP Verifications or to alternate terminology applicable to non-LEPs.
  - b. Blacklists of bad actors
4. While consensus has not been reached on precise terminology, there is consensus that the final product of the TEP must have the same legal and technical weight as a Verification for the TEP option to have value to market participants. In order to earn market acceptance the final TEP product should be well-documented with specific required sections similar to a verification.

### D. Additional Considerations

1. When the TEP concepts are fleshed out more fully they will need to be integrated into the larger release-based framework in additional ways. For example, will TEPs be subject to direct reporting obligations similar to certain SEH conditions now?
2. It will be impossible for the Certification to fully satisfy all market participants, as risk tolerance varies significantly between various market participants. There will always be some especially risk-averse market participants who will want to do their own sampling rather than rely on Certifications prepared by/on behalf of others.
3. The group discussed that DEEP staff currently triage all spills reported under the 22a-450 spill regulations. They consider all information provided and decide whether to send emergency response staff to the spill incident. A discussion of whether DEEP staff could be the clearing house

## Subcommittee 10 – Outline for Working Group Discussion

for deciding if a release can be self-certified, certified by a TEP, or verified by an LEP was discussed.

4. During due diligence activities multiple releases can be identified at a site. Managing multiple releases with varying tracking numbers, timeframes and requirements could become burdensome for all for larger sites. We recommend that consideration be given for an exemption from reporting for sites placed in a LEP administrated voluntary cleanup program, like we have today, including verification up to a certain date including the date of verification.

# **CUMULATIVE RISK AND RISK-BASED ALTERNATIVE APPROACHES**

**Subcommittee 9**  
**DRAFT OUTLINE**  
**Concept Paper**  
**February 13, 2023**

**Prepared for:**

The Working Group established pursuant to Section 19 of Public Act 20-9 and  
The Connecticut Department of Energy and Environmental Protection  
79 Elm Street Hartford, CT 06106

# Table of Contents

## Subcommittee 9 Concept Paper Cumulative Risk and Risk-Based Alternative Approaches

---

Introduction 1 .....	1
Question 1: What components of a cumulative risk assessment are LEPs qualified to perform under existing Connecticut law? .....	1
Question 2: Are there alternative exposure scenarios that may warrant evaluation and integration into the cleanup standards and what, if any, institutional controls would be necessary to keep these scenarios valid? .....	2
Question 3: Are there certain clean up standard risk adjustments that can be made by LEPs using a process similar to the "short forms" used in the Massachusetts Method 3 Risk Characterization process without the advice of a risk assessor or toxicologist? .....	2
Question 4: Which parameters can be altered and what is a reasonable range of values that can be adjusted within the confines of a short form process? Would any of these parameters require consultation with professions with expertise beyond the expertise required of LEPs? What guidance is needed to support the use of such short forms? .....	3
Question 5: How should fees to support DEEP and DPH review of cumulative risk assessments be structured? .....	4
Question 6: If a short form process is utilized in a release verification, what percentage of those verifications should be audited? What level of documentation is necessary to support those verifications? .....	4
Question 7: Outside of short form process, is there an intermediary process for risk assessments that can be completed more expeditiously by the regulated community than the current process and reviewed by the state agencies? .	5
Question 8: The Massachusetts Method 3 Risk Characterization includes the assessment of risk to the environment. How should ecological risk be considered under a release-based program? .....	6
Other Considerations:.....	6
Conclusions: .....	7

**Appendices**

**End of Report**

Appendix A	Subcommittee 9 Member List
Appendix B	Massachusetts Method 3 Shortform Example
Appendix C	Massachusetts Method 3 Shortform Guidance

## Introduction

This Concept Paper has been prepared by Subcommittee 9 (Cumulative Risk and Risk-Based Alternative Approaches) appointed pursuant to Section 19 of Public Act 20-9. This subcommittee met on a weekly basis starting November 16, 2023 and was formed to assist the Release-Based Working Group to determine which components of cumulative risk assessment can be implemented in Connecticut without increasing human health risk at sites that have been remediated.

The Connecticut Department of Energy and Environmental Protection (DEEP) provided questions for the Subcommittee to review in order to develop a Concept Paper on this topic. Our weekly meetings were regularly attended by DEEP and Connecticut Department of Health and Industry (DPH) members, who supported and assisted us in the process of answering and evaluating questions posed by DEEP on this topic.

The subcommittee members included Connecticut Licensed Environmental Professionals (LEPs) and Massachusetts Licensed Site Professionals (LSPs), as well as representatives from DEEP and DPH, all of whom have varying degrees of cumulative risk assessment experience. Subcommittee 9 risk assessment experience ranged from being new to the topic of using the cumulative risk approach to evaluate risk to human health posed by environmental contamination at release sites to professional toxicologists with doctorate degrees.

Subcommittee 9 members and staff members from the DEEP and DPH who provided assistance to the Subcommittee are listed in *Appendix A*.

In addition to the topics listed in the following sections, Mr. Andrew Friedman from the Massachusetts Department of Environmental Protection (MassDEP) participated in a Subcommittee meeting that centered around the development, implementation and use of the Massachusetts Method 3 Short Form calculators.

The focus of the Subcommittee's meetings were eight questions posed by DEEP. These questions, along with the Subcommittee's evaluations, are provided below.

### **Question 1: What components of a cumulative risk assessment are LEPs qualified to perform under existing Connecticut law?**

LEPs may prepare and complete cumulative risk assessments in accordance with their experience and expertise but will likely need to reach out to risk assessment professionals when faced with components of risk assessments outside their experience or expertise. Similar to an LEP's utilization of any specialist for investigation, evaluation, and/or remediation of a release site, it is incumbent upon the LEP to ensure that an individual or individuals utilized for risk assessment activities have the requisite qualifications and competency.

**Question 2: Are there alternative exposure scenarios that may warrant evaluation and integration into the cleanup standards and what, if any, institutional controls would be necessary to keep these scenarios valid?**

Recommended alternative exposure scenarios to be included in a cumulative risk assessment framework for demonstrating compliance at a Site include:

- Residential
- Residential – Passive Use
- Facility/Commercial Worker
- Construction Worker
- Utility Worker
- Park Visitor
- Park Visitor – Passive Use

See “Other Points” for discussion of the recommended types of institutional controls that could be used to enforce the maintenance of the above exposure scenarios, following the use of a risk assessment process to demonstrate compliance at a Site.

**Question 3: Are there certain clean up standard risk adjustments that can be made by LEPs using a process similar to the “short forms” used in the Massachusetts Method 3 Risk Characterization process without the advice of a risk assessor or toxicologist?**

The general consensus of the Subcommittee is that certain types of cumulative risk assessments, such as Short Form calculators, should be able to be used as a self-implementing option under the proposed regulations. The Subcommittee recommends that either:

1. Shortform calculators be developed for use in Connecticut; or
2. The use of the most current version of the Massachusetts Method 3 Shortforms be allowed as a LEP implementing option under the new regulations.
  - o The Subcommittee recognizes that the exposure scenarios evaluated within the Massachusetts Method 3 Shortforms do not encompass all of the exposure scenarios recommended by the Subcommittee (ex. Facility Worker, Utility Worker, Residential – Passive). In these cases, if existing Method 3 Shortforms were used as frameworks they would need to be modified with equations and exposure parameters appropriate to those exposure scenarios.

The consensus of the Subcommittee is that sites where cumulative risk assessment is employed should be subject to the same level of audit as sites where cumulative risk assessment has not been used.

Lastly, the Subcommittee recognized that for the implementation of a cumulative risk approach for assessing human health in Connecticut, cumulative risk limits will need to be established for use throughout the State. While the current version of the RSRs includes a Commissioner approved alternative method for compliance with the Direct Exposure Criteria (DEC) that includes an excess lifetime cancer risk limit (ELCR) of  $1 \times 10^{-5}$  (when 10 or more carcinogenic compounds are present at a release site) and  $1 \times 10^{-6}$  (when less than 10 carcinogenic compounds are present) and a non-cancer,

hazard index (HI) of 1.0, the RSRs do not currently include information regarding acceptable ELCR or HI limits under a cumulative risk assessment process.

Accordingly, standards will need to be established for cumulative risk for the summation of risk from all potential exposure pathways.

**Question 4: Which parameters can be altered and what is a reasonable range of values that can be adjusted within the confines of a short form process? Would any of these parameters require consultation with professions with expertise beyond the expertise required of LEPs? What guidance is needed to support the use of such short forms?**

The Massachusetts Method 3 Short Form is a calculator created with set parameters for exposures and toxicity. In Massachusetts a Method 3 that uses only un-modified Short Forms is known as a Short Form Method 3 and is not subject to additional review. If the form is modified, MassDEP will review the modifications at a higher level. The Subcommittee recommends a similar approach should Connecticut adopt cumulative risk via a Shortform calculator.

Site-specific information that should be considered for modification in the Short Form include:

- Exposure scenarios to match site exposures
- Receptors
- Time on-site

Parameters needing consultation beyond LEP include:

- Depends on the qualifications of the LEP – some changes might need to involve a Risk Assessment specialist.
- The LEP should not work outside of their area of experience and expertise.

Guidance needed to standardize approach to use of the Short Forms / Cumulative Risk process includes:

- Instructions/guidance on the specific use of the short form(s)
  - Massachusetts has existing guidance and instructions for using its Shortforms
- General data requirements, pathways and receptors.
- Exposure Point Concentration (EPC) Calculation
  - Maximum Concentration
  - Arithmetic mean
  - 95% UCL
  - ProUCL Output



Other thoughts:

- Under the current RSRs, default, “Method 3 Short Form-style risk characterizations” could only be completed for:

**Residential**

Soil  
Groundwater  
GA  
GB

**Commercial/Industrial**

Soil  
Groundwater  
GA  
GB

- In Massachusetts, the three different soil categories (S-1, S-2, S-3) and three different groundwater categories (GW-1, GW-2, GW-3) in Massachusetts allow “levels” of exposure risk.
- In Connecticut, with all soil between the surface and 15 feet treated equally, there can only be risk characterizations for Residential and Commercial/Industrial. A Deed Restriction (EUR/ELUR) is needed to eliminate Residential as a risk scenario in future use.
  - If there could be variations allowed for specific site conditions (Park Visitor, Trespasser, Construction Work, etc. within the soil exposure scenarios, small sites or sites with a limited suite of COCs could achieve closure/Verification.
- In Connecticut, there is GA and GB groundwater, so there can be risk characterizations for each in Residential and Commercial/Industrial. A Deed Restriction (EUR/ELUR) is needed to eliminate Residential as a risk scenario in future use.

**Question 5: How should fees to support DEEP and DPH review of cumulative risk assessments be structured?**

The fee structure should follow the current outline provided by DEEP for LEP Form filing for the Property Transfer Program. This will allow DEEP to provide funding to audit short form risk-based Method 3 type investigations.

DEEP and DPH will have to determine level of effort on their end for reviewing the cumulative risk assessment and fee structure.

**Question 6: If a short form process is utilized in a release verification, what percentage of those verifications should be audited? What level of documentation is necessary to support those verifications?**

The DEEP currently has an audit program in place for reviewing LEP Verification’s for the Property Transfer Program. This process allows DEEP to quickly identify Site’s that would require additional justification for final Verification. This same process and timeframe in which DEEP is required to audit a Property Transfer Verification can be used to audit a Short Form Release Verification.

With that said, we assume that releases subject to the RCRA regulations would automatically be audited by the DEEP.

Per the level of documentation to support verification, the LEP Release Verification Report and its supporting documents should be sufficient to support the verification with a short form.

Thoughts on cumulative risk assessment audit and approval:

- Creation of an approval form for cumulative risk assessment and timeframe of approval.
- Consider a Pre Audit - Additional layers of approvals by DPH and DEEP
- Need for review of cumulative risk assessment prior to final submittal.
- Is the current pre-approval system risk assessment working?
- Create guidance for the preparation of Cumulative Risk Reporting and the review process

**Question 7: Outside of short form process, is there an intermediary process for risk assessments that can be completed more expeditiously by the regulated community than the current process and reviewed by the state agencies?**

The subcommittee discussed existing intermediary frameworks in other states such as Massachusetts and Rhode Island considered existing resources within the RSRs as well.

Several suggestions came from this discussion:

- Shortform Modifications:
  - Use of preapproved equations and guidance to modify the Shortforms outside of the default exposure parameters on the short form – DEEP and DPH to provide equations and guidance.
  - Add in additional exposure scenarios to base shortform set (ex. Facility Worker, Recreation-Passive, etc.)
  - Ability/flexibility to use exposure parameters, equations, and toxicity values from other states.
  - Discuss how to maintain consistent toxicity values among sites, tying exposure parameters/frequency to enforcement of existing conditions (see #7 of outline), defense of site-specific exposure parameters (ie dermal absorption).
- Derivation of Risk Based Criteria: Ability to derive criteria based on site specific information, again using pre-approved equations and guidance to modify default exposure parameters – DEEP and DPH to provide equations and guidance. Note: this would be similar to the MassDEP Method 2 process, as well as the CT RSR alternative soil DEC process.
- Scoping-level Risk Assessment;
  - Options for assessing preliminary data from a site outside of 95% UCL datasets. May not meet all criteria for datasets needed for Verification purposes but could be beneficial in release-based program.

### **Question 8: The Massachusetts Method 3 Risk Characterization includes the assessment of risk to the environment. How should ecological risk be considered under a release-based program?**

The subcommittee considered existing frameworks within Massachusetts, Connecticut, and the USEPA when developing the following recommendations.

Several suggestions came from this discussion:

- Ecological risk must be considered a component of any risk assessment. It may be beneficial to have several “stages” of ecological risk assessment as part of each site investigation, with the first step being a scoping level/stage 1 screening.
  - Example: Performance of Scoping Level / Stage 1 Risk Screening for each site that would answer defined questions:
    - Screening habitat, receptors, pathways, potential for impacts, etc.
    - Are ecological receptors present at the release area or site?
    - Does a complete exposure pathway exist between the release area and the ecological receptor
    - Evaluation of impact caused by completed pathways
- Benefits would include reducing need to evaluate ecological risk further in developed areas/areas with small releases.
- If there are complete exposure pathways, ecological risk would proceed to Stage 2, involving more comprehensive screening evaluations.

### **Other Considerations:**

Provided below are notes on next steps to tie in Verification with EURs, Financial Assurance, etc.

EURs – slow up closure and there are many obligations. Here are ideas to speed things up.

- Waive subordination requirements from utilities.
- Waive subordination requirements from additional easements.
- Maybe just current owner consent.
- Annual inspections / reporting. (Maybe every five years).
- EUR Factsheet – simple already (no changes?)
- Eliminate LEP Reporting every five years.
- Simplify Application process – metes and bounds of every subject area cumbersome. Maybe just Metes and Bounds of entire property.
- No “no-dig” requirement if soils above 15 fbg and other conditions met – 4 feet under grass, 2 feet under asphalt, etc.
- NAUL a good step in right direction. Maybe develop NAUL light?
- Tie in fees with EUR, Expedited Closure (same time frame). Waive EUR fees if EUR within one year of release discovery and remediation.
- Make financial assurance guidance more prescriptive – excel spreadsheet examples.

- How to handle this in a release-based framework (ie if public ROW utilities are not in release area, is subordination needed?) Should not be.
- How to handle other exposure scenarios (ie parks, rec areas).
- How to handle schools, hospitals.
- If State park – exempt from Financial Assurance, still need EUR, inspections.
- Ex. If there is another mechanism on the land records such as a land trust or use of the area as a park that equals maintenance of the exposure scenario.
- Need to develop additional standard EUR types to match the exposure scenarios evaluated within the Shortforms (ie beyond residential restriction).
- Option to post financial assurance to maintain exposure scenario / restriction without requiring an EUR?
- Short Form EUR?

## Conclusions:

1. Subcommittee 9 was formed to determine which components of cumulative risk assessment can be implemented in Connecticut without increasing human health risk.
  - a. The initial charge was limited the evaluation to “sites that have been remediated”. The consensus of the Subcommittee is that cumulative risk assessment should also be available for use prior to remediation to determine sources of risk at a release and therefore drive future remediation.
2. The consensus of the Subcommittee is that cumulative risk assessment is an important tool for evaluating potential risk to human health from environmental contamination and should be available to the regulated community and LEPs for use in Connecticut.
  - a. The consensus of the Subcommittee is that the current LEP regulations are sufficient.
    - i. LEPs may prepare and complete cumulative risk assessments in accordance with their experience and expertise but may need to reach out to other professionals when outside their experience or expertise.
3. The general consensus of the Subcommittee is that certain types of cumulative risk assessments, such as Short Form calculators, should be able to be used as a self-implementing option.
  - a. The Subcommittee recommends that either:
    - i. Shortform calculators be developed for use in Connecticut; or
    - ii. The use of the most current version of the Massachusetts Method 3 Shortforms be allowed as a LEP implementing option under the new regulations.
      1. If existing Method 3 Shortforms were used as frameworks they would need to be modified with equations and exposure parameters appropriate to those exposure scenarios.
  - b. The use of either CT specific or Massachusetts Short Form Risk calculators would require the promulgation of cumulative risk limits in Connecticut.
4. The consensus of the Subcommittee is that sites where cumulative risk assessment is employed should be subject to the same level of audit as sites where cumulative risk assessment has not been used.

5. The Subcommittee also recognized that more complex cumulative risk assessments or risk scenarios for with short forms do not exist will require more guidance for implementation.
  - a. Types of guidance may include:
    - i. Exposure assumptions for scenarios that don't have short forms
      1. Facility worker
      2. Park Visitor
    - ii. Risk data resources for compounds not included in the Short Forms
      1. CT values
      2. EPA values
    - iii. Comprehensive guidance for preparing non-short form human health risk assessments for contaminated sites in Connecticut.
6. The focus of the Subcommittee was the use of cumulative risk assessments to determine human health risk. The Subcommittee recognizes that human health risk is not the only component of risk evaluations in Connecticut. Incorporation of the other components is necessary for a complete evaluation of risk posed by contamination at a release. The other items that should be incorporated include
  - a. Ecological risk considerations; and
  - b. Maximum allowable contaminant levels (see charge for Subcommittee 7).

## **Appendix A**

---

### Subcommittee 9 Member List

Name	Company	Representing
Eric Boswell	Avangrid	Any other interested member of the public
George Gurney	Weston Solutions	Licensed Environmental Professionals
Marilee Gonzalez	Fuss & O'Neill, Inc	Licensed Environmental Professionals
W. Scott Burrus	Sovereign Consulting Inc.	Licensed Environmental Professionals
Philip Warner	Verdantas	Licensed Environmental Professionals
Gary Iadarola	Eversource Energy	Licensed Environmental Professionals
Malcolm Beeler	Weston & Sampson	Licensed Environmental Professionals
Kevin King	SLR Consulting	Licensed Environmental Professionals
Kate Engler*, PhD, LEP, DABT	Loureiro Engineering Associates, Inc.	Licensed Environmental Professionals
David Melycher*	EKI Environment & Water, Inc.	Licensed Environmental Professionals
Nelson Walter*	WSP	Licensed Environmental Professionals
Amber Trahan	DEEP	Agency Resource
Alessandra Alling	DEEP	Agency Resource
Peter Zaidel	DEEP	Agency Resource
Carl Gruszczak	DEEP	Agency Resource
Meg Harvey	DPH	Agency Resource
* = Subcommittee Co-Chair		

## **Appendix B**

---

### Mass Method 3 Example Shortform



## **Appendix C**

---

### Mass Method 3 Shortform Guidance