Department of Energy & Environmental Protection
Remediation Division

Wave 2 RSRs & EUR Regulations Q&A

February 4, 2022

Presented below are the Department's responses to submitted Wave 2 RSR and EUR Regulations questions.

RSR Section 1. General Provisions

22a-133k-1(a)(5) – "Background Concentration"

Q: The subject of this phrase of the definition is unclear: …the concentration of a substance detected is "minimally affected by human influences"... Does this mean that the substance detected was caused by human influences or that human influences are not likely to affect the concentrations detected?

A: The phrase "minimally affected by human influences" is meant to allow for non-point source concentrations (such as mercury from Mid-west power plants) to be considered part of the background concentration. This concept was added to the RSRs to better align with the Water Quality Standards (WQS) which defines "natural" as "the biological, chemical and physical conditions and communities that occur within the environment which are unaffected or minimally affected by human influences."

22a-133k-1(b) – Applicability

Q: Is it the Department's position that the RSR apply to all polluted soil or just the specific Statutes cited in this Section and where an LEP would need to Verify?

A: The RSRs serve as the standard expected for any cleanup of a release being performed in Connecticut. For more background and information on this topic, please refer to the Affirmative Responsibility to Clean up Pollution in Connecticut document posted on the DEEP website.

22a-133k-1(i) – Applicability of Remediation to Volatilization Criteria

Q: The numerical criteria in the table 22a-133k-1(i)(1)(B) does not include some of the 2003 new VOC criteria. Does an LEP still need to submit an APS request to the CTDEEP in order to use the new published criteria (specifically for cis-1,2-dichloroethene) or does the provision of 22a-133k-1(i)(2)(C) allow the use of the criteria in Appendix E?

A: The substances in the table for 22a-133k-1(i)(1)(B) are the 30 substances that have had volatilization criteria (VolC) in Appendix E. Appendix E still has the same 30 substances with most of the criteria updated to the 2003 proposed values. There are additional

substances in the 2003 proposal, but those have not been added to the RSRs (the Wave 2 change was just an interim update for existing criteria). For VolC criteria for cis-1,2DCE, a request would need to be submitted for the values for 1,2DCE that are presented in the APS Technical Support Document. Those values apply to the sum of the isomers of 1,2DCE and can be approved on an expedited basis. Please note alternatives to these values can always be requested, but such requests require longer DEEP review and DPH input. APS VolC can be used in conjunction with the transition VolC as long as the site meets the requirements to use the transition VolC.

Q: How will the transition language within the RSRs for the volatilization criteria work? (01/05/22)

A: Specific transition language regarding the use of volatilization criteria can be found at RCSA 22a-133k-1(i) of the RSRs. If a Remedial Action Plan was submitted to the Department prior to February 16, 2021, or an LEP has indicated that no remediation is necessary to achieve compliance with the volatilization criteria, provided a verification is submitted on or before February 16, 2026, or any deadline set forth in Section 22a134a(g)(1)(B) or Section 22a134a(g)(1)(C) of the Connecticut General Statutes (CGS), whichever is sooner, the volatilization criteria set forth in RCSA 22a-133k-1(i) can be used.

If remediation to comply with the volatilization criteria is required within the Remedial Action Plan that was submitted to the Department prior to February 16, 2021, such remediation must be completed on or before February 16, 2023, to support a verification or interim verification, and the verification must be submitted on or before February 16, 2026, or any deadline set forth in Section 22a-134a(g)(1)(B) or Section 22a134a(g)(1)(C) of the CGS, whichever is sooner.

If a vapor mitigation system is used to secure an exemption from the volatilization criteria for a clean-up to be verified after February 16, 2021, an EUR will be required.

The transition language is only for the modified volatilization criteria and the change in the applicability distance to 30 feet below the ground surface.

Q: Does the VolC transition include the soil vapor volatilization criteria (SVVC)? (02/04/22)

A: No, the VolC transition only includes the former 15' VolC applicability depth for all substances and the former groundwater volatilization criteria (GWVC). The SVVC was not included in the transition due to its proximity to potential receptors, which represents an increased risk to human health vs. the GWVC. Also, the GWVC is the actual criteria while the SVVC only represents an optional alternative means of demonstrating compliance where there is a structure over the groundwater plume with volatile organic substances.

RSR Section 2. Remediation Standards for Soil

Section 22a-133k-2(c) – Pollutant Mobility Criteria

Q: Section 22a-133k-2(c)(6)(C) states that unless prohibited in writing by the Commissioner an APS criteria may also be subject to a "request for alternative criteria under subsection (d)(3)(A)"; wouldn't (d)(3)(B) and (d)(3)(C) also be applicable?

A: The purpose of 22a-133k-2(c)(6)(C) is to reconcile that a request for APS criteria may incorporate components of a request for alternative criteria. In those scenarios, the approval of the APS would include a prohibition from then using that APS criteria as the basis of an alternative criteria because the alternative was built into the APS request. Because of this intent, the restriction was limited to only (d)(3)(A) because that subsection involves the request and approval of an alternative PMC. Subsection d(3)(B) is for the request and approval of an alternative dilution or dilution attenuation factor that then can be used in some of the PMC LEP-implemented options. Subsection d(3)(C) is just a requirement that both an alternative PMC option and an alternative groundwater protection criteria (GWPC) can not be used for the same release, so they were not included in 22a-133k-2(c)(6)(C).

22a-133k-2(f)(2) – Engineered Controls

Q: If an engineered control is proposed to cap VOC soils that exceed PMC, how much effort is needed to reduce the concentrations in the soil. Formerly, remediation to the maximum extent prudent was required. However, this section only requires that measures be implemented to protect structures from vapor intrusion if an EC is being proposed. This seems inconsistent with the requirement for environmentally isolated soil in 2(c)(5)(A)(ii) on page 29 which requires VOCs be reduce to the MEP.

A: The difference in the requirements is that environmentally isolated soil is a PMC exemption that is available when the soil is under a building or other permanent structure and includes the requirement to remediate VOCs to the maximum extent prudent to protect the occupants of the building or other permanent structure from vapor intrusion (so "maximum extent prudent" should be demonstrated by the soil no longer giving off vapors at a concentration that is above the Soil Vapor VolC). For engineered controls, the concern that is being address is that vapors may migrate if not controlled (such as into any nearby structures), so the metric that will be applied in this scenario is controlling the vapors to ensure that there is no potential risk from migration to any nearby receptors.

22a-133k-2(g) – Non-aqueous Phase Liquid

Q: Section of 22a-133k-2(g) of the RSRs now requires that the Commissioner approve a variance if NAPL has not been removed to the maximum extent practicable. Formerly, "any other non-aqueous phase liquid shall be contained or removed from soil and ground water to the maximum extent prudent". I have a Site where remediation is complete and DEEP previously issued a letter of concurrence that DNAPL had been "contained or removed from soil and ground water to the maximum extend prudent". Does this letter

constituent Commissioner approval? The Site has also met its RCRA Corrective Action Construction Complete milestone.

A: A previous approval that NAPL has been removed to the maximum extent prudent should suffice for the requirements of the new variance from remediating to the maximum extent practicable as long as all of the requirements of the section have been met (such as meeting the groundwater criteria and potentially mitigating any structure that may be above the NAPL being left in place). Please note that the new language for leaving NAPL in place by remediating to the maximum extent prudent requires that an ELUR be recorded to ensure that the NAPL not be disturbed and that no new structures will be built over the NAPL (existing structures would need to be mitigated or vapors below the structure would need to meet the Soil Vapor VolC). This ELUR also serves as notice that there is NAPL still present on the parcel.

Q: The RSRs require "Compliance with applicable groundwater criteria for groundwater impacted by such NAPL has been achieved." Where is the point of compliance? For oil terminals adjacent to coastal waterways, would the point of compliance be at the point of discharge to the tidal waters?

A: The point of compliance will be based on the applicable criteria. Background/GWPC and VolC compliance would need the be demonstrated everywhere, while SWPC compliance can be done at the downgradient edge of the plume (which could be the point of discharge into a surface water body). This will make leaving NAPL in place easier in GB areas since GWPC would not apply unless there is an existing use of the groundwater for drinking or other purposes and there are VolC exemptions that can be used for mitigation and "no build" areas.

RSR Section 3. Remediation Standards for Groundwater

22a-133k-3(b) – Surface Water Protection Criteria

Q: In the table associated with the calculation of the Dilution Factor for a coastal surface water course the units for K (Hydraulic Conductivity) is given as ft/day, however, the units for Q_{plume} is indicated as being in ft^3/sec (and not ft/day, which would be required if K is in ft/day). Because the factor "T" (daily discharge duration) uses a unit measure of "day", it would suggest that K should also use units based on ft/day. Therefore, it appears that for this equation Q_{plume} should be indicated as being in units of ft/day. This would then lead to DF being unitless, as required (otherwise if K is in ft^3/sec, the resultant units for DF would not be unitless).

A: The "units" for Q_{plume} in that table should be listed as "ft^3/day". A note has been added in the RSRs with Indents.

Q: For the Alternative SWPC calculated in accordance with 22a-133k-3(b)(1)(A), how is the Q99 calculated? (02/04/22)

A: Use the following steps to calculate the Q99:

- Go to https://streamstats.usgs.gov/ss/ and search "Connecticut"
- Select the appropriate state or regional study area (likely "Connecticut")
- Zoom in to plume discharge location, select "Delineate", and choose the discharge location
- Wait for delineation of basin and then select "Continue"
- Select "Flow-Duration Statistics" as the "Scenario" and then select "Continue"
- Under "Build a Report", select "Continue" and the reports will be generated. The "99 Percent Duration" at the bottom of the report will be the Q99.

Please be advised that the units will be in ft^3/s which might need to be converted to ft^3/day.

22a-133k-3(d) – Groundwater Protection Criteria

Q: How is the target indoor air concentration (TAC) value required for LEP calculation of alternative groundwater protection criteria to be determined? Appendix G does not contain a TAC calculation for use with the alternative groundwater protection criteria calculation.

A: It is the Department's intention to provide a list of TACs that can be requested for Fast Track Approval (either on the existing form or on a stand-alone one), but those are currently being reviewed internally and at the Department of Public Health (DPH). Until that list is promulgated, reach out to DEEP since we may have a value for the substance that has already been vetted and can be approved. Site-specific TACs can be calculated using the formula in Appendix G(5), but request to use those will need to go through the whole approval process, including consultation with DPH.

22a-133k-3(h) – Applying the Groundwater Criteria

Q: When is groundwater compliance monitoring now required? (02/04/22)

A: Groundwater compliance monitoring is now triggered by the presence of a groundwater plume from an on-site release. If there is any soil remediation performed for compliance with the PMC, the groundwater compliance monitoring due to the presence of a groundwater plume needs to occur after that PMC soil remediation due to concerns about the activity involved with the PMC soil remediation potentially affecting the concentrations in the groundwater plume. However, just performing PMC remediation no longer triggers groundwater compliance monitoring.

22a-133k-3(h)(4) – Upgradient Groundwater Plume

Q: What kind of groundwater monitoring is required for a groundwater plume from an upgradient source? (02/04/22)

A: It is expected that a groundwater plume from an upgradient source will be characterized as part of the developing the conceptual site model (CSM). When there is a groundwater plume from an upgradient source, there is still an obligation to protect any on-site receptors through drinking water and volatilization into overlying structures.

- If the groundwater plume from an upgradient source does not have the potential to impact on-site receptors, then characterization of the groundwater plume is needed to demonstrate that the concentration in the groundwater is solely from an upgradient source.

- If the groundwater plume from the upgradient source has the potential to impact on-site receptors, then groundwater compliance monitoring will be required to demonstrate that the potential exposure pathways to the receptors don't need to be eliminated or mitigated to the extent necessary to protect human health. If such exposure pathways are eliminated or mitigated, then groundwater compliance monitoring would not be required.

The above answer is specific to a groundwater plume that is solely from an upgradient source. If the groundwater plume from an upgradient source is co-mingled with a plume from an on-site source, then the on-site plume will trigger the need for groundwater compliance monitoring, as well as potentially some requirements for elimination or mitigation of potential exposure pathways on downgradient parcels.

RSR Appendices. Criteria and Equations

Appendix E and F – Volatilization Criteria

Q: Are the groundwater and soil volatilization criteria for 111-TCA listed in Appendix E and Appendix F correct?

A: One of the criteria for 111-TCA is incorrect in the Wave 2 RSRs. The residential groundwater VolC should be 6,500 µg/L as reflected by a note in the RSRs with Indents. The correct value of 6,500 µg/L will be approved as an alternative criteria the value in the RSRs can be corrected.

Appendix G - Equations, Terms, and Values for Calculating Release-Specific Criteria

Q: The "value" for WQC in the table indicates "substance-specific," is this correct?

A: The "value" for WQC in that table should be listed as "calculated" as it is in other tables for the term that is being calculated. A note has been added in the RSRs with Indents.

Q: Does the Department expect to utilize the TACs presented in the 2003 Proposed Volatilization Criteria Revisions? Are they expected to be presented in a revised Fast Track APS Approval form?

A: It is the Department's intention to provide a list of TACs that can be requested for Fast Track Approval (either on the existing form or on a stand-alone one), but those are currently being reviewed internally and at the Department of Public Health (DPH). The values that are currently being considered are from documents that are available on the DEEP Website: 2003 Proposed Revisions to the RSRs, APS Technical Support Document, and EPH/VPH/APH Technical Support Document.

Q: Please confirm units in the Appendix G (5)(C)(v) table, in particular the diffusion parameters.

A: The units for the effective diffusions (D_{eff}) in that table should be "m^2/d" and the units for fraction of enclosed space area open for vapor intrusion (η) should be "m^2/m^2". Notes about this has been added in the RSRs with Indents.

Appendix H - Equations, Terms, and Values for Calculating Release-Specific Alternative Pollutant Mobility Criteria

Q: For the table in Appendix H(2), is the citation included in the "value" for DF correct?

A: In that table, the reference in the value for DF should be to "22a-133k-2(c)(3)(B)(iv)". A note about this has been added in the RSRs with Indents.

EUR Regulations

22a-133q-9 – Miscellaneous Requirements

Q: Do we have to use the Department's factsheet form or can we use our own as long as it has the required information?

A: The factsheet is on a form "prescribed by the Commissioner" and is therefore required. It is currently posted on the EUR section of the DEEP website.

Miscellaneous

Verifications

Q: If remediation and post-remediation compliance ground water monitoring were completed a few months prior to the effective date of the Wave 2 RSRs, and were done in accordance with a RAP approved by DEEP prior to the effective date, would verification need to be done per the Wave 2 RSRs or per the approved RAP?

A: Any verification submitted after the effective date of the Wave 2 RSRs (February 16, 2021) will need to comply with the requirements in the Wave 2 RSRs, including groundwater compliance monitoring.

Q: For a verification after February 16, 2021, with which regulations must compliance be verified? (01/05/22)

A: A verification attests to compliance with the regulations that were in effect on the day it was submitted. As such, all verifications submitted after February 16, 2021, must verify compliance with the newly adopted amendments to the RSRs and the EUR Regulations. There is, however, an exception to this general rule when the verification relies on a request, or variance, previously approved by the Commissioner under the prior regulations, or when a complete application for an ELUR was submitted prior to February 16, 2021.

A verification submitted after February 16, 2021, may rely upon requests or variances approved by the Commissioner before that date. For example, if a verification is submitted after February 16, 2021, and relies on an alternative demonstration of compliance for Direct Exposure Criteria that was approved by the Commissioner prior to February 16, 2021, that approval under the prior regulations can be used to support a verification, even if that verification is submitted on or after February 16, 2021, and even if the requirements regarding an alternative demonstration of compliance changed after February 16, 2021.