

**STATE OF CONNECTICUT
DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION**

**BUREAU OF WATER PROTECTION AND LAND REUSE
REMEDIATION DIVISION**

GUIDANCE DOCUMENT

**Connecticut Remediation Standard Regulations (RSRs)
POLLUTANT MOBILITY CRITERIA EXCEPTION
FOR GROUNDWATER INFILTRATION
Section 22a-133k-2(c)(4)(C)**



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**Guidance for POLLUTANT MOBILITY CRITERIA
EXCEPTION FOR GROUNDWATER INFILTRATION**
**pursuant to Sections 22a-133k-2(c)(4)(C) of the
Connecticut Remediation Standard Regulations**

I. INTRODUCTION

This document sets forth the Department of Energy and Environmental Protection's (the Department's) guidance on the application of the exception to Pollutant Mobility Criteria (PMC) based on the absence of impacts to groundwater quality under Section 22a-133k-2(c)(4)(C) of the Remediation Standard Regulations (RSRs) (Sections 22a-133k-1 through 22a-133k-3) of the Regulations of Connecticut State Agencies. Section 22a-133k-2(c)(4)(C) of the RSRs was added by the 2013 revisions effective June 27, 2013.

II. PROVISIONS FOR PMC EXCEPTION FOR GROUNDWATER INFILTRATION IN THE RSRS

The RSR provisions for exceptions from Pollutant Mobility Criteria based on a groundwater evaluation under Section 22a-133k-2(c)(4)(C) is set forth below:

(C) The pollutant mobility criteria do not apply to substances, other than volatile substances, in soil at a release area provided:

(i) Such release area

(I) Is located in an area in which at least eighty percent of the release area has been subject to infiltration, and not obstructed by anthropogenic features, for a minimum of five years; or

(II) Has been determined by the Commissioner, in writing, to have been subject to sufficient infiltration of precipitation such that the concentration of the substance and the areal extent of the groundwater plume will not likely increase if any obstruction to infiltration is removed in the future; and

(ii) The analytical results of four consecutive quarterly samples of ground water for such substance:

(I) For a GA area or for an aquifer protection area or other groundwater area used as a source of public drinking water supply located in a GB area are all less than the surface-water protection criterion and the ground-water protection criterion; or

(II) For a GB area, are all less than the surface-water protection criterion; and

(iii) The ground-water sampling locations are representative of the areal extent of the ground-water plume and the areal extent of such ground-water plume which exceeds an applicable remedial criterion is not increasing over time;

(iv) Except for seasonal variations, the concentration of the subject substance is not increasing at any point over time; and

(v) The ground-water samples are collected at locations where ground water is most likely to have been impacted by such substance from the release area.

III. GUIDANCE ON THE PMC EXCEPTION FOR GROUNDWATER INFILTRATION

The Department will administer this exception to PMC under Section 22a-133k-2(c)(4)(C) of the RSRs, as follows:

1. The Department has observed that SPLP analyses at times will over-estimate the actual potential for a pollutant to be mobilized by infiltration of water under conditions encountered in the field. In light of this fact, this provision of the RSRs allows a method for an alternative demonstration that pollutants in soil that are subject to normal and routine precipitation are not being leached at concentrations that will cause the exceedance of groundwater criteria.
2. The Department considers “volatile substances” to mean any substance listed under “Volatile Organic Substances” in Appendix B of the RSRs and additional polluting substances that give off vapors or fumes at the ambient soil temperature (including elemental mercury).
3. Determining whether 80% of the release area has been subject to infiltration is done by fully delineating the release area and then comparing the ratio of the portion of the release area that is open to infiltration to the portion that is covered by anthropogenic features that restrict water infiltration. The critical concept here is that the infiltration through the release area passes through the impacted soil.
4. In this context, the Department considers “anthropogenic features” to mean any man-made structure, or any landscaping feature, that has the potential to restrict the infiltration of water. For this purpose, buildings, paved surfaces and concrete pads are considered to restrict the infiltration of water. Depending on their design, other structures such as brick sidewalks and stone coverings also have the potential to restrict the infiltration of water and should be evaluated accordingly. Even temporary obstructions need to be taken into consideration. For example, it may not be appropriate for an area usually protected from infiltration by stored shipping containers to be considered part of the 80% subject to infiltration.
5. This amendment is a self-implementing exception. In addition, to allow flexibility, a provision is included for Commissioner approval of sufficient infiltration of precipitation where the default conditions for 80% of release area subject to infiltration, and/or minimum of five years of infiltration, are not met.

6. The “minimum of five years” that the release area is subject to infiltration can occur at any point in time, but the groundwater conditions being sampled need to be representative of water that had infiltrated through the release area during the time period of infiltration. For example, if the release area has been covered for ten years (after having been exposed for a minimum of five years), monitoring wells must also be in locations representative of any impacted groundwater that had migrated away from the release area after the period of infiltration. Otherwise, the lack of a plume in the monitoring network could be demonstrating that the release area is environmentally isolated or that impacted groundwater (if any) had migrated beyond the monitoring network since the infiltration.
7. For purposes of applying this exception, the four quarters of groundwater monitoring should not begin before the release area has been subject to unobstructed infiltration for at least a total of five years.
8. Groundwater samples must be collected from four consecutive quarters. The method of determining groundwater compliance allowed under section 3(g)(2)(A)(ii) of the RSRs is for a different purpose than this PMC exception, thus is not applicable here.
9. Please note, this PMC exception does not provide an exemption from compliance with the groundwater provisions of the RSRs. (For example, in GB areas any groundwater plume cannot interfere with any existing use, and in GA areas the groundwater plume must meet groundwater protection criteria.)
10. Also, please note that compliance with surface-water protection criteria should be interpreted to include the requirements of Section 3(b)(2) relating to groundwater discharging to wetlands or small water bodies.
11. Regardless of the reference in Section 2(c)(4)(C)(iii) to a “ground-water plume which exceeds an applicable remedial criterion,” compliance with Section 2(c)(4)(C)(ii) will still be required.
12. This exception is based on the assumption that the current distribution of the contaminants in the release area is not excessively heterogeneous in concentration and constituents. In the rare instance that a release area has a “hot spot” that is not subject to infiltration (i.e., is under a building), representing a significant portion of the mass of the residual contamination, it would not be appropriate to assume that the contaminants in such a hot spot have no potential to leach at levels which would impair groundwater in the event that these soils become subject to infiltration in the future. In some situations, the Commissioner may require further evaluation or remediation of such a hot spot pursuant to Section 22a-133k-2(i) of the RSRs.
13. For the purposes of 2(c)(4)(C)(iv), in the event that “the concentration of the subject substance is” found to be “increasing at any point over time,” sufficient groundwater data must be collected and analyzed to support either that there is no current or future increasing trend or that the increase was the result of seasonal variation.

14. Documentation for the use of this exception should be clear, detailed, and well-supported. Refer to Verification Forms and the Verification Report Guidance Document for further documentation requirements and recommendations.

If you have questions, please contact the Remediation Division of the Bureau of Water Protection and Land Reuse (860) 424-3705. Also, the above-referenced regulations should be consulted for further information.