

**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)
RENDERING SOIL INACCESSIBLE USING PAVEMENT
RSR Section 22a-133k-1(a)(32)(C)**



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Guidance for RENDERING SOIL INACCESSIBLE USING PAVEMENT

pursuant to Section 22a-133k-1(a)(32)(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 change to the definition of inaccessible soil under the 2013 revisions to the Remediation Standard Regulations (RSRs) Sections 22a-133k-1 through 22a-133k-3 of the Regulations of Connecticut State Agencies.

The definition of "inaccessible soil", section 22a-133k-1(a)(32) of the RSRs, was amended effective June 27, 2013, by adding a new category (C).

II: PROVISIONS FOR RENDERING SOIL INACCESSIBLE USING PAVEMENT

The portion of the RSR definition of "inaccessible soil" that was added in 2013 is set forth below:

"Inaccessible soil" means polluted soil which is: ... (C) polluted fill beneath a bituminous concrete or concrete surface comprised of a minimum of three inches of bituminous concrete or concrete if such fill is (i) polluted in excess of applicable direct exposure criteria only by semi-volatile substances or petroleum hydrocarbons that are normal constituents of bituminous concrete, or (ii) polluted by metals in concentrations not to exceed of two times the applicable direct exposure criteria, or (iii) any combination of the substances and limits identified in clause (i) or (ii) of this subparagraph...

III: GUIDANCE ON CATEGORY (C) OF THE PROVISION FOR RENDERING SOIL INACCESSIBLE USING PAVEMENT

The Department provides explanation and identifies how it will administer this change to the definition of inaccessible soil under the 2013 revisions to 22a-133k-1(a)(32)(C) of the RSRs, as follows:

1. Prior to the 2013 amendment of the 1996 RSRs, polluted fill exceeding direct exposure criteria (DEC) could be deemed "inaccessible soil" if it was more than two feet below concrete/bituminous concrete surface (thus there would be two feet of fill that met applicable DEC under the pavement). However, it is generally understood that the act of paving will likely contaminate the material directly beneath the paved surface. Also, some polluted fill already contains the same or similar pollutants to those that paving itself could generate. This amendment addresses pollutants in fill that mirror pollutants in bituminous pavement (essentially Semi-Volatile Organic Compounds (SVOCs) and Total Petroleum Hydrocarbons (TPH)).

2. Prior to the 2013 amendment, polluted materials kept in place directly beneath pavement were subject to the need for an Engineered Control approval under 22a-133k-2(f)(2) and a subsequent Environmental Land Use Restriction (ELUR) on the land records. The 2013 changes to the definition of Inaccessible Soil now allow materials which meet the conditions provided in the definition to be addressed simply through the filing of an ELUR, and no longer have the Department approval process, the financial assurance, and the reporting requirements associated with an engineered control.
3. For the requirement that the fill be polluted above applicable DEC “only by semi-volatile substances or petroleum hydrocarbons that are normal constituents of bituminous concrete,” the source of the pollution does not need to be from pavement/paving. The relevant requirements are that the contaminants are of the type normally found in pavement and that only DEC and not pollutant mobility criteria (PMC) are exceeded (see Item 9).
4. The pollutants for which this regulatory change most significantly expands possible remedial options are those polynuclear aromatic hydrocarbons with very low (1 to 10 mg/kg) DEC, such as benzo[a]anthracene and benzo[a]pyrene, which may be present in liquid asphalt at levels between 10 and 100 mg/kg.
5. The new category (C) in the definition specifically refers to “polluted fill.” Polluted fill in this context includes the material installed as sub-base for the pavement, or other fill material that may be less than two feet below the pavement, and thus could not previously be considered inaccessible without establishing an Engineered Control. It does not apply to “polluted soil” that is not “polluted fill.” This means that this provision does not apply to polluted native soil.
6. “Petroleum hydrocarbons that are normal constituents of bituminous concrete” would not include hydrocarbons from lighter range petroleum, such as motor fuel or heating oil unless supported by a conceptual site model.
 - Note, however, that these pollutants might separately be exempted from remediation requirements if they are determined to be present as a result of actual site-specific installation or maintenance of pavement, as provided in 22a-133k-2(b)(4), pertaining to incidental sources.
7. The new category (C) in the definition allows “metals in concentrations not to exceed two times the applicable direct exposure criteria.” “Two times” the applicable DEC is determined by comparison of data to the DEC in Appendix A of the RSRs. The use of a 95% upper confidence level of the arithmetic mean calculation (95% UCL) is not acceptable to determine the two times DEC threshold in this definition.
 - However, the 95% UCL may be used for metals where it shows that the release area meets applicable DEC, even though there may be one or more samples above twice the DEC. In such case, the polluted fill would already be compliant with DEC for the metals, thus would not need a remedy for metals.

8. Reminder: The “inaccessible soil” remedy does not provide an exemption from PMC. However, a PMC exception may be applicable in cases such as 22a-133k-2(c)(4)(B), (commonly referred to as the “coal ash exception” which allows for the presence of asphalt fragments), or 22a-133k-2(c)(5) (the exemption for incidental sources).
9. This remedial approach is also applicable in cases where remediation has been completed and has achieved applicable criteria for contaminants other than the SVOCs, petroleum hydrocarbons and metals specified in clause (i) or (ii) of this subparagraph.
10. These amendments are self-implementing, rather than requiring Commissioner’s approval for use. A conceptual site model supported by a site assessment will be expected to be included as part of documentation in a Verification Report or site closure report for the use of these exemptions.

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.