

1996 Connecticut Remediation Standard Regulations

Derivation of Pollutant Mobility Criteria

Contaminants in soil can be transferred to and impact ground water resources. Pollutant mobility criteria were developed to identify contaminant concentrations in soil which would not be expected to unacceptably impact ground water. This was evaluated by considering the potential uses for groundwater as identified in the Connecticut Groundwater Water Quality Standards which were in development concurrent with the RSRs and were subsequently adopted. The Connecticut Water Quality Standards establish designated uses for the Connecticut's groundwater resources. For GA groundwaters, designated uses include, but are not limited to, drinking water resources and baseflow for hydraulically-connected surface water bodies. For GB groundwaters, provision of drinking water is not a designated use but baseflow for hydraulically-connected surface water bodies remains a concern. For both groundwater classifications, the groundwater must support other existing uses and must not pose a threat to public safety or public health. It is assumed that substances in soil may leach from the soil and enter groundwater. The pollutant mobility criteria were designed to establish environmentally protective concentrations of substances in soil that would support the attainment and maintenance of these designated uses for groundwater at remediation sites. The soil PMC was based upon the groundwater protection criteria (GWPC)

Pollutant Mobility Criteria were calculated by multiplying the GWPC by a factor of 20. The factor of 20 was based on the dilution applied in the leaching based analytical methods, (SPLP or TCLP) and a unit conversion factor to adjust from micrograms (units from the GWPC) to milligrams (units from the PMC). For GB PMC, an additional dilution factor of 10 is included in criteria derivation.

For inorganic chemicals, compliance with the Pollutant Mobility Criteria were based directly on the analytical results from leaching based analytical methods (SPLP or TCLP). PMC for inorganic chemicals were based on multiplying the GWPC by a unit conversion factor to adjust from micrograms (units from the GWPC) to milligrams (units from the PMC). For GB PMC, an additional dilution factor of 10 is included in criteria derivation.

Organic Compounds:

$$\text{PMC}_{\text{ga}} \text{ mg/kg} = \text{GWPC} \text{ ug/L} \times \text{CF} \times \text{AAF}$$

$$\text{PMC}_{\text{gb}} \text{ mg/kg} = \text{GWPC} \text{ ug/L} \times \text{CF} \times \text{AAF} \times \text{DF}$$

Inorganic Compounds:

$$\text{PMC}_{\text{ga}} \text{ mg/l} = \text{GWPC} \text{ ug/L} \times \text{CF}$$

$$\text{PMC}_{\text{gb}} \text{ mg/l} = \text{GWPC} \text{ ug/L} \times \text{CF} \times \text{DF}$$

Where:

Variable	Description	Value	Units
AAF	Analytical Adjustment Factors	20	unitless
CF	Conversion Factor	0.001	mg/ug
DF	Dilution Factor	10	unitless
GWPC _{RBG}	Groundwater Protection Criteria – Risk-based	chemical specific	ug/L

Pollutant Mobility Criteria Formulas

GA Areas:

$$\text{Organic Chemicals: } \text{PMC} \text{ (mg/kg)} = \text{GWPC} \times 0.02$$

$$\text{Inorganic Chemicals: } \text{PMC} \text{ (mg/L)} = \text{GWPC} \times 0.001$$

based on results from a leaching test

GB Areas:

$$\text{Organic Chemicals: } \text{PMC} \text{ (mg/kg)} = \text{GWPC} \times 0.2$$

$$\text{Inorganic Chemicals: } \text{PMC} \text{ (mg/L)} = \text{GWPC} \times 0.01$$

based on the results from a leaching test