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Bureau of Environmental Cleanup & Brownfields

Land Recycling Program
Concepts for Potential Regulatory Changes for the Chapter 250 Rulemaking

Cleanup Standards Scientific Advisory Board (CSSAB) Meeting
August 11, 2021

presented by
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DEP

Tom Wolf, Governor

Patrick McDonnell, Secretary

Concepts Overview

Today's Discussion

- Summary and discussion of potential minor changes.
- Discussion of potential substantial changes.
- Other technical issues.
- Next steps in rulemaking process.

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Minor Changes Summary

- Periodic changes to tables based on updated scientific information
  - Medium-specific concentrations (MSCs)
  - Chemical specific physical/toxicological properties

- Minor text clarifications and updates.

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Minor Changes

- § 250.301(b) – Revisit origin of mutagens and current logic. List of mutagens came from EPA but unclear how list should be updated.

- § 250.307(c) – Changes to the soil lead language that were proposed in the last rulemaking but with reference to Version 2.0 of the IEUBK model.

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Minor Changes

- § 250.404(a) – Change “environmental receptors” to “ecological receptors” to avoid confusion about what a receptor is (not environmental media).

- § 250.606(d)(3)(iii) – Propose removing the words “below grade” because it implies that this provision only applies to basements.

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Minor Changes

- Comprehensive review of MSCs including recent toxicity value changes.
- Evaluate MSC for 1,2,3-Trichloropropane
  - Groundwater MSC based on 2006 Lifetime Health Advisory Level (HAL)
  - 2006 HAL removed by EPA prior to issuing 2009 Drinking Water Standards and Health Advisory Tables document
  - Replace with calculated value if appropriate toxicity values are available

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Substantial Changes

Proposed Lead Model Updates

- Update soil lead models
  - Integrated Exposure Uptake Biokinetic (IEUBK) model for residential soil (Version 2, May 2021)
  - Adult Lead Model (ALM) for non-residential soil
- Use models' default input parameters
  - Target Blood Lead Level (TBLL) = 5 µg/dL
  - Probability of Exceeding TBLL = 5%
  - All environmental media inputs

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Substantial Changes

IEUBK Version 2 Changes

- Changes in water consumption rates (some increased, others decreased)
- Default dietary lead intake increased
- Default lead concentration in drinking water decreased from 4 µg/L to 0.9 µg/L

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Substantial Changes

Soil Lead Value Comparison

- Comparison of current soil lead values with proposed values using IEUBK version 1.1 and IEUBK version 2.

Direct contact Soil Lead Numeric Value	Current Value mg/kg	Value Generated by Old Model	Value Generated by New Model
Residential	**500** (UBK)	**153** (IEUBK v1.1)	**200** (IEUBK v2)

UBK: Uptake Biokinetic Model (1990)

Note: ALM did not change so proposed non-residential direct contact is still 1,100 mg/kg.

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Technical Discussion

Soil Lead Averaging

- DEP considering use of average lead concentrations as an additional statistical test option for Statewide health standard attainment demonstration for lead in soil.

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Technical Discussion

Concerns with Averaging

- Averaging described in IEUBK's supporting documentation is for calculating risk or a cleanup goal at specific sites, not for attainment of statewide cleanup standard.
- If IEUBK is designed only for the use of averages, shouldn't that exclude the use of 75%/10X or 95% UCL statistical tests to demonstrate attainment?

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Technical Discussion

Concerns with Averaging

- Averages do not account for high variability in smaller datasets.
- Averages could allow for hot spots of very high lead contamination to remain in soil at some sites.

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Technical Discussion

PAH MSC Calculation Process

- DEP exploring use of Relative Potency Factors (RPFs) in calculating MSCs for carcinogenic PAHs (cPAHs).
- EPA recommends use of RPFs for cPAHs
  - Use with concentrations in environmental media
  - Converts to equivalent conc. of benzo(a)pyrene
  - Assesses cumulative cancer risk from cPAHs

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Technical Discussion

PAH MSC Calculation Process

- EPA uses RPFs as toxicity values in RSL Tables
- Use of RPFs as toxicity values requires summing risks from all cPAHs
- Unclear how this concept could be applied to the calculation of MSCs

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Technical Discussion

PAH MSC Calculation Process

- CSSAB has expressed a concern with the appropriateness of the use of solubility limits in calculating groundwater MSCs for some PAHs.
- DEP needs further guidance about how to address this issue.

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Other Changes

- Remaining concern about the toxicity value used to calculate vanadium soil numeric values.

- DEP will propose appropriate changes as part of this rulemaking.

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Next Steps for Rulemaking

- Continue discussions with CSSAB regarding lead soil averaging, PAH MSC calculations, and other proposed changes.
- Generate draft language and tables for rulemaking annex for discussion at next CSSAB meeting.

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Questions?

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