EXECUTIVE SUMMARY

Administration of the Land Recycling Program
25 Pa. Code, Chapter 250

The Department of Environmental Protection (DEP) recommends to the Environmental Quality Board (EQB) final-form amendments to its regulations for the administration of the land recycling program.

Purpose of the Final Rulemaking

DEP is required to review and update the Statewide health standard medium-specific concentrations (MSCs) values and the associated toxicological data every 3 years to ensure that environmental response actions at contaminated sites are remediated based on current U.S. Environmental Protection Agency (EPA) guidance and up-to-date toxicological information. This ensures the protection of public health and the environment from exposures to regulated substances where it has been determined that lower concentrations of a regulated substance are necessary. By regularly updating the MSC values, property owners may avoid unnecessary expenses when remediating contaminated property for redevelopment where scientific research has determined that higher concentrations of regulated substances are protective and meet the standards established by the statute.

Summary of the Final Rulemaking

The Land Recycling and Environmental Remediation Standards Act (Act 2) directs the EQB to set and update Statewide health standards for regulated substances for soil and/or groundwater, as well as the methods used to calculate the standards.

This final rulemaking adds seven compounds from the Per- and Polyfluoroalkyl substances (PFAS) family of compounds for which new toxicity data has been published. These include Gen-X (Hexafluoropropylene Oxide (HFPO) Dimer Acid) and its ammonium salt, perfluorononanoic acid (PFNA), Perfluorobutanoic acid (PFBA), perfluorohexane sulfonate (PFHxS), Perfluorohexanoic acid (PFHxA), and the potassium salt of Perfluorobutane sulfonate.

Additionally, this rulemaking introduces updated models used to calculate the soil direct contact numeric values for lead, reduces the target blood lead value for lead, and adds an additional statistical method for attaining the Statewide health standard for lead in soil. The rulemaking adds averaging of attainment sample data as a statistical test to demonstrate attainment of the lead direct contact values in soil under the Statewide health standard. The use of averages conforms to the methods utilized by both the Integrated Exposure Uptake Biokinetic (IEUBK) model and the Adult Lead Model (ALM).

The final rulemaking updates the methods for determining toxicity values for carcinogenic polycyclic aromatic hydrocarbon (PAH) compounds using relative potency factors established by the EPA; makes changes to the use of toxicity values from the Health Effects Assessment Summary Tables (HEAST) database; and uses guidance from the EPA to adopt certain toxicity values that are based on subchronic exposure instead of chronic exposure.

Affected Parties

These amendments to the Land Recycling Program regulations will affect owners, operators, and purchasers of properties and facilities who volunteer or are required to perform remediation of contaminated sites. These amendments are not expected to add any significant overall costs to the cleanup of contaminated sites. The net cost difference should be negligible as some of the cleanup standard concentration values will be lower, and some will be higher.

The amendments to the Statewide health MSCs reflect the latest toxicological data on human health effects that can occur when humans are exposed to hazardous and toxic chemicals. Updating the MSCs based on the latest toxicological data helps to assure potentially affected residents of this Commonwealth and persons, including businesses, small businesses and other organizations, interested in buying and redeveloping contaminated sites, that the MSCs are protective of human health.

Outreach (Advisory Committee/Stakeholder Consultation)

The EQB received many comments on the lead standards during the public comment period on the previous proposed Chapter 250 rulemaking, finalized in November 2021. The comments were concerned with the proposed increase in the non-residential direct contact numeric value for lead and proposed use of 10 micrograms per deciliter (µg/dL) as the target blood lead level. As a result, DEP published an Advance Notice of Proposed Rulemaking to solicit information to evaluate the proposed updates to the lead models used to calculate the soil lead MSCs, potential changes to model input parameters, and potential changes to the statistical tests used to demonstrate attainment of the Statewide health standard for lead in soil at Act 2 remediation sites. DEP received comments from three individual commentators, which were considered during the development of this final rulemaking.

DEP gave an initial presentation of the concepts for this rulemaking to the Cleanup Standards Scientific Advisory Board (CSSAB), where the CSSAB and DEP agreed that the CSSAB should form two workgroups. The CSSAB Lead Workgroup reviewed the target blood lead level, the various inputs to be used in the new models, and the use of averaging for attainment of the direct contact values. The CSSAB PAH toxicity workgroup addressed questions on the relative potency factors in comparison to the various other toxicity value sources. Both workgroups developed whitepapers that are included with this rulemaking.

DEP's Land Recycling Program consulted the CSSAB during development of both the proposed and final rulemakings. CSSAB members reviewed and provided feedback on the draft proposed regulation during public meetings on October 10, 2022, January 23 and May 31, 2023. DEP worked with the CSSAB to resolve their concerns. Following these discussions, the CSSAB voted to concur with DEP's recommendation to move the proposed regulation forward to the Board for consideration. Land Recycling Program staff presented the comments and responses on the proposed rulemaking and the draft final regulation during CSSAB meetings on April 23, 2025, July 16, 2025, and March 31, 2026. CSSAB members reviewed and provided feedback on the edits between proposed and final as well as responses to the comments on Chapter 250 and expressed no opposition to this final rulemaking.

Public Comments

The EQB adopted the proposed regulation on March 12, 2024, and the proposed rulemaking was published in the *Pennsylvania Bulletin* for public comment on July 13, 2024. The EQB held three public hearings: two on August 19 and 27, 2024, at the Southwest and Southeast Regional Offices, and a virtual hearing on September 4, 2024. The 60-day public comment period closed on September 11, 2024.

The Board received comments from 18 individuals and organizations, as well as the Independent Regulatory Review Commission (IRRC). The comments included issues such as how the Department is implementing the EPA's new drinking water rule for PFAS, the interaction between Chapter 250 and the Management of Fill Policy in relation to PFAS, the new values for lead, and the updated soil direct contact values for carcinogenic PAHs.

The comments are summarized below and addressed in detail in the comment and response document that accompanies this final-form rulemaking.

Federal PFAS MCLs

IRRC and commentators noted that the EPA published a National primary drinking water regulation establishing maximum contaminant levels (MCLs) and health-based maximum contaminant level goals for six PFAS in drinking water. The Federal PFAS MCL standards, which went into effect on June 25, 2024, differed from the proposed standards adopted by the Board at its March 12, 2024, meeting. All parties suggested that the Federal standards should be added to the final regulation.

In response to comments received on the proposed rulemaking, the EQB added the Federal PFAS MCLs to the final regulation. DEP's regulations already incorporate the Federal MCLs as groundwater MSCs by reference. Therefore, the Federal PFAS MCLs were adopted by DEP on the effective date of June 25, 2024, and are now the groundwater MSCs. In the interim, DEP has posted the new values on the Statewide Health Standards webpage and notified subscribers to the Land Recycling Program's "Pennsylvania Brownfields Mailing List" that the Federal PFAS MCLs are now effective for groundwater.

Additionally, DEP is currently working with the CSSAB PFAS workgroup to develop soil-to-groundwater generic values for PFAS in soil.

Management of Fill Policy and PFAS

Commentators noted that the "Management of Fill Policy" relies upon the Land Recycling Program's MSCs and were concerned that the incorporation by reference of the Federal PFAS MCL hazard index (HI) approach for a combination of PFAS would be confusing. IRRC also noted two commentators' concern that DEP has not established generic soil-to-groundwater MSCs for PFAS, which are used by the "Management of Fill Policy" (Fill Policy).

The Fill Policy provides procedures for determining whether fill is "clean fill," as defined in the municipal and residual waste regulations or "regulated fill" as defined in the Fill Policy. Fill may qualify for use as clean fill by determining that it has not been subject to contamination. The Fill

Policy is used for clean fill determinations on fill that is known or suspected to be contaminated. If PFAS are not known or suspected to have been part of a release of contaminants at the site, then PFAS do not need to be evaluated as part of the clean fill demonstration under the Fill Policy. The change in the number and concentration of PFAS standards is not anticipated to impact the process or the ability to attain the clean fill concentration limits or regulated fill concentration limits.

The calculation of generic soil-to-groundwater values for PFAS has been proven to be scientifically insupportable at this time. The generic value calculations rely on the ability to accurately predict how a compound will behave in the subsurface. Because PFAS compounds have novel characteristics, it is currently unknown if those generic assumptions apply. Studies of PFAS subsurface behavior are underway by other organizations and will be discussed with the CSSAB PFAS workgroup and considered during the development of future rulemakings.

The Fill Policy provides guidance on using the EPA's SW-846 Method 1312: Synthetic Precipitation Leaching Procedure, to establish an alternative soil-to-groundwater value. The EPA's procedure is designed to determine the mobility of both organic and inorganic substances present in soils and waste. This information is included in Appendix A, Section F of the Fill Policy, as well as described in the "Land Recycling Program Technical Guidance Manual".

The Federal PFAS MCL rule applies to drinking water and is adopted as the groundwater MSC. DEP has determined that because the rule applies to drinking water, the HI calculation only applies to groundwater MSCs and does not impact the soil MSCs. This includes both the direct contact and soil-to-groundwater MSCs. DEP posted a technical notice to the Land Recycling Program's "Statewide Health Standards" webpage on January 12, 2026, explaining the rationale behind the determination that the HI rule does not apply to soil MSCs or fill determinations under the Fill Policy.

Lead Direct Contact Soil Value

Some comments suggested that the proposed target blood lead level (TBLL) of 5 micrograms per deciliter (µg/dL) was too high and the EQB should adopt the Centers for Disease Control and Prevention's (CDC) blood lead reference value of 3.5 µg/dL. Commentators also opposed the proposal to allow averaging of attainment soil sample results for lead out of concern that additional samples could be taken to skew the average to achieve attainment.

The TBLL of 5 µg/dL and use of averaged attainment soil sample results are appropriate and protective of public health, safety, and welfare for several reasons. DEP follows the EPA's Superfund Program closely and relies on its technical guidance when setting remediation standards for the Land Recycling Program. The EQB is adopting EPA's two models for lead (IEUBK and ALM), which use a default TBLL of 5 µg/dL. The CDC's blood lead reference value is used as a screening value for policy implementation purposes and is not intended to be used as a health-based protection standard. The CDC uses the blood lead reference value to identify children in the higher range of the population's blood lead distribution for targeted prevention efforts. Therefore, the EPA Superfund Program's TBLL of 5 µg/dL is the appropriate value to use in calculating the lead direct contact soil numeric value, not the CDC's blood lead reference value of 3.5 µg/dL.

EPA's lead exposure models use averages in their methodology and their user guides state that average soil concentrations are the most appropriate data to use in the models. The use of averaging as an attainment test is limited to attaining the Statewide health standard for lead using the direct contact soil numeric value. The averaging test has the same limitations as the other statistical methods. DEP's regulations already restrict the use of averaging to a statistically sufficient number of systematic random samples, collected during one sampling event, only from the area of remediation or the area of contamination, while not using samples from other areas of the site. Also, if hot spots greater than ten times the standard are detected during the attainment sampling, then the characterization, remediation and attainment process would begin again. The existing regulatory provisions together with the statistical averaging test ensure that public health, safety, and welfare are protected.

Carcinogenic Polycyclic Aromatic Hydrocarbons (PAHs)

Some comments asserted that the proposed standards for six carcinogenic PAHs create a cumulative cancer risk that is greater than the maximum cancer risk allowable for Statewide health standards and the proposed direct contact soil MSCs for these PAHs are too high and should be as low as the EPA's regional screening level values.

In response, Act 2's list of requirements for setting Statewide health standards to implement the Land Recycling Program does not include consideration of cumulative risk. However, the MSCs for the six carcinogenic PAHs have been calculated to protect public health, safety, and welfare. Because there is no way to accurately predict the combination of contaminants on a specific site, in 1997 the EQB set the target risk threshold ten times lower than the maximum acceptable risk level to account for the probability of having more than one carcinogenic compound at a site and possible cumulative risk. Additionally, the MSCs for the six carcinogenic PAHs are not comparable to the EPA's regional screening level values because EPA's values are not cleanup standards and should not be used as cleanup levels. The MSCs were calculated in accordance with Act 2 and DEP's regulations to ensure they are protective and follow Pennsylvania law.

Recommendation

DEP recommends the EQB adopt this final regulation.