

**FINAL-FORM RULEMAKING
ENVIRONMENTAL QUALITY BOARD
[25 PA. CODE CH. 250]**

Administration of the Land Recycling Program—Chromium (VI)

The Environmental Quality Board (Board) amends Chapter 250 (relating to administration of Land Recycling Program). This rulemaking is authorized under § 250.11 (relating to periodic review of MSCs), which requires the Department of Environmental Protection (Department) to review new scientific information related to Statewide health standard medium-specific concentrations (MSC) at least 36 months after the effective date of the most recently promulgated MSCs and propose to the Board any changes to the MSCs as necessary. This final-form rulemaking updates the toxicity value for chromium (VI) (Cr(VI)) and results in updates to the Cr(VI) direct contact soil MSCs.

This final-form rulemaking was adopted by the Board at its meeting of **DATE**.

A. Effective Date

This final-form rulemaking will be effective upon publication in the *Pennsylvania Bulletin*.

B. Contact Persons

For further information contact Michael Maddigan, Program Manager, Land Recycling Program, P.O. Box 8471, Rachel Carson State Office Building, Harrisburg, PA 17105-8471, (717) 772-3609, or Lindsay Williamson, Assistant Counsel, Bureau of Regulatory Counsel, P.O. Box 8464, Rachel Carson State Office Building, Harrisburg, PA 17105-8464, (717) 787-7196. Information regarding submitting comments on this proposal appears in Section J of this preamble. Persons with a disability may use the Pennsylvania Hamilton Relay Service by calling (800) 654-5984 (TDD users) or (800) 654-5988 (voice users). This final-form rulemaking is available on the Department's website at <https://www.pa.gov/agencies/dep.html> (select "Public Participation," then "Environmental Quality Board" then navigate to the Board meeting of **DATE**).

C. Statutory Authority

This final-form rulemaking is authorized under sections 104(a) and 303(a) of the Land Recycling and Environmental Remediation Standards Act (Act 2) (35 P.S. §§ 6026.104(a) and 6026.303(a)), and section 1920-A of The Administrative Code of 1929 (71 P.S. § 510-20). Section 104(a) of Act 2 authorizes the Board to adopt Statewide health standards, appropriate mathematically valid statistical tests to define compliance with Act 2 and other regulations that may be needed to implement the provisions of Act 2. Section 303(a) of Act 2 authorizes the Board to promulgate Statewide health standards for regulated substances for each environmental medium and methods used to calculate the standards. Section 1920-A of The Administrative Code of 1929 authorizes the Board to formulate, adopt and promulgate rules and regulations that are necessary for the proper work of the Department.

D. Background and Purpose

The Commonwealth's Land Recycling Program, established by Act 2 (35 P.S. §§ 6026.101—6026.908), encourages the voluntary cleanup and reuse of contaminated commercial and industrial sites. It sets standards that are protective of human health and the environment, and which consider future use. It provides remediators with clear cleanup standards based on risk and provides an end to liability when that cleanup standard is achieved.

Act 2 and Chapter 250 do not create permitting or corrective action obligations; rather, they provide remediators with options to address contamination and any associated liability that arise under other statutes. To take advantage of the liability protection provided in Act 2, a person must remediate their site by selecting and attaining compliance with one or any combination of the following three environmental standards: background standard, Statewide health standard or site-specific standard. Chapter 250 contains tables of numeric values for contaminants in each environmental medium, including soil and groundwater. These numeric values are used by remediators to determine the MSCs at their sites and account for used and unused groundwater, as well as residential and nonresidential exposure factors. If the remediator chooses the Statewide health standard, the remediator must use the applicable MSCs to demonstrate attainment of the standard at the point of compliance.

Section 250.11 requires the Department to review new scientific information that is used to calculate MSCs under the Statewide health standard and propose appropriate changes at least every 36 months following the effective date of the most recently promulgated MSCs. The Board last updated the MSCs on November 20, 2021, at 51 Pa.B. 7173 (November 20, 2021). The most recent rulemaking to update the MSCs is currently in progress: the Board adopted proposed amendments to the MSCs on March 12, 2024, which were published for public comment at 54 Pa.B. 3937 (July 13, 2024). Subsequently, the Department determined that the Cr(VI) toxicity value and the resulting Statewide health standard direct contact soil MSCs for Cr(VI) should be updated based on new information, which is discussed as follows.

Cr(VI) is a form of the metallic element chromium and is generally produced by industrial processes such as electroplating, stainless-steel production, leather tanning, textile manufacturing and wood preservation. Cr(VI) has toxic effects on human health because it acts as both a carcinogen (causes cancer) and a systemic toxicant (non-carcinogen). Additionally, Cr(VI) is a mutagen, which means it harms an organism's cells by permanently changing genetic material, thus causing mutations and potentially increasing the frequency of diseases such as cancer.

The changes to the Cr(VI) MSCs in this final-form rulemaking serve both the public and the regulated community because they provide MSCs based on the most up-to-date health and scientific information for Cr(VI). The Department routinely reviews the MSC values and toxicity values to ensure the MSCs represent the most current and accurate science. During this routine review, the Department identified recently updated science on Cr(VI). On August 1, 2024, the United States Environmental Protection Agency (EPA) established new science in its Integrated Risk Information System (IRIS) regarding the toxicity of Cr(VI) that could be used to update the Cr(VI) soil MSCs. The Department also discovered the mutagenic factors were inadvertently omitted from the calculation of the residential soil direct contact Cr(VI) MSC in the rulemaking finalized in 2021. Recognizing the toxic nature of Cr(VI) and the discovery that a more

protective residential MSC is possible, the Board is proceeding with a stand-alone rulemaking to more responsively update the toxicity values and corresponding MSCs for Cr(VI).

As mentioned previously, the Board is currently in the process of updating the standards for a wide variety of regulated substances in Chapter 250 through a separate, broader rulemaking. However, the changes in this final-form rulemaking for Cr(VI) cannot be added to that broader rulemaking, which has nearly completed the rulemaking process. The public comment period for the rulemaking already in progress ended on September 11, 2024, and entirely new amendments are outside the scope of that rulemaking. The public needs the opportunity to review and provide comment on the new Cr(VI) values and the science they are based on prior to finalization of the changes. Therefore, to ensure the most up-to-date and accurate science is applied to environmental cleanups in this Commonwealth in the most efficient and transparent means possible, the Board is proposing to update the Cr(VI) cleanup standards in Chapter 250 as a stand-alone rulemaking.

The update to the Cr(VI) toxicity value and correction of the omission of the mutagenic factors in the residential direct contact calculation results in a decrease in the residential soil direct contact numeric value and an increase in the nonresidential soil direct contact numeric value. Changes in these values reflect updated information provided in EPA's IRIS related to the toxicity of Cr(VI) and recognize that these updated standards are better representative of Cr(VI)'s health-based contact limits.

This final-form rulemaking will impact any person addressing a release of Cr(VI) at a property, whether voluntarily or by order by the Department. This final-form rulemaking does not add or create new regulatory obligations for any particular category of person. Under section 301(a) of Act 2 (35 P.S. § 6026.301(a)), a remediator has the authority to select a remediation standard of choice. To receive cleanup liability protection, remediators must comply with all the applicable technical and administrative requirements of the selected remediation standard in accordance with section 501(a) of Act 2 (35 P.S. § 6026.501(a)).

As noted previously, this final-form rulemaking will not affect one specific industry or person. This final-form rulemaking will impact the owners and operators of properties throughout this Commonwealth where Cr(VI) has been released. Some of these properties may be owned or operated, or both, by small businesses. Because of the potentially broad reach of this final-form rulemaking, it is not possible to specify the types and numbers of small businesses that could potentially be affected by Cr(VI) contamination. In addition, Act 2 and Chapter 250 are unique from other statutes and regulations because they do not create permitting or corrective action obligations. Making changes to the MSCs in Appendix A of Chapter 250 does not create liability or obligations related to Cr(VI). Instead, a person's liability arises under other statutes. Act 2 and Chapter 250 provide remediators with options to address contamination and any associated liability that arises under the other environmental statutes. In this way, Act 2 and Chapter 250 do not create new obligations that will impact a particular category of person like a new permitting obligation or corrective action regulation would.

The Department consulted with the Cleanup Standards Scientific Advisory Board (CSSAB) during the development of this final-form rulemaking. The CSSAB, which was established by section 105 of Act 2 (35 P.S. § 6026.105), consists of persons representing a cross-section of

experience, including engineering, biology, hydrogeology, statistics, medicine, chemistry, toxicology and other related fields. The purpose of the CSSAB is to assist the Department and the Board in developing Statewide health standards, determining the appropriate statistically and scientifically valid procedures and risk factors to be used, and providing other technical advice as needed to implement Act 2. On October 30, 2024, the Department discussed the draft proposed rule with the CSSAB, which supported moving the draft proposed regulation forward to the Board. The Department discussed comments on the proposed rulemaking and the draft final rule with the CSSAB on October 22, 2025. CSSAB members had no comments or recommendations on the final regulation.

E. Summary of Final-Form Rulemaking and Changes from Proposed to Final-Form Rulemaking

There were no changes made to the regulation from the proposed rulemaking to this final-form rulemaking. The following is a summary of this final-form rulemaking.

Appendix A, Tables 4A and 5B

The amendments to the “Medium-Specific Concentrations” tables update the residential and nonresidential soil direct contact (Table 4A) Cr(VI) numeric values. The updated numeric values in Table 4A also correct the calculation error in the previous rulemaking as well as use the updated toxicological information for Cr(VI) identified in the EPA’s IRIS database.

Because Cr(VI) is both a carcinogen and a systemic (noncarcinogenic) toxicant, and exposure can be by means of inhalation or oral exposure (ingestion), there are four individual values calculated in the process of determining the residential direct contact numeric value. These values are the carcinogenic inhalation value, noncarcinogenic inhalation value, carcinogenic ingestion value and the noncarcinogenic ingestion value. These four individual values are compared and the lowest of the four calculated values is included in Table 4A as the direct contact numeric value. The equations used to calculate the values for inhalation and ingestion of Cr(VI) in soils can be found in §§ 250.306 and 250.307 (relating to ingestion numeric values; and inhalation numeric values).

The equation from § 250.306(b)(2) used to calculate the lowest residential soil direct contact numeric value to be included in Table 4A is:

$$MSC = \frac{TR \times AT_c \times 365 \text{ days/year}}{CSF_o \times Abs \times EF \times AIFadj \times CF}$$

Where:

- | | |
|--|--|
| TR = Target risk (1×10^{-5}) | AT _c = Averaging time for carcinogens (70 yr) |
| CSF _o = Oral cancer slope factor (Table 5B) | Abs = absorption (1) |
| EF = Exposure frequency (250 days/yr) | CF = Conversion factor (1×10^{-6} kg/mg) |

The mutagenic term that was missing from the calculation in the previous rulemaking is AIFadj. This is the age-dependent adjustment factor and ingestion factor. This term is calculated using a combination of age-specific exposure factors, including the ingestion rate, body weight and

length of exposure of children at three age ranges. The calculation error has been corrected by recalculating the Cr(VI) soil direct contact numeric values using the full equation provided.

There are also four individual values calculated in the process of determining the nonresidential direct contact numeric value. As with the residential calculations, these values are the carcinogenic inhalation value, noncarcinogenic inhalation value, carcinogenic ingestion value and the noncarcinogenic ingestion value. These four individual values are compared and the lowest of the four calculated values is included in Table 4A as the direct contact numeric value. The equations used to calculate the values for inhalation and ingestion of Cr(VI) in soils can be found in §§ 250.306 and 250.307.

The equation from § 250.306(b)(1) used to calculate the lowest nonresidential soil direct contact numeric value to be included in Table 4A is:

$$MSC = \frac{TR \times AT_c \times 365 \text{ days/year}}{CSF_o \times Abs \times EF \times IF_{adj} \times CF}$$

Where:

TR = Target risk (1×10^{-5})	AT _c = Averaging time for carcinogens (70 yr)
CSF _o = Oral cancer slope factor (Table 5B)	Abs = absorption (1)
EF = Exposure frequency (180 days/yr)	IF _{adj} = Ingestion Factor (15.6 mg-yr/kg-day)
CF = Conversion factor (1×10^{-6} kg/mg)	

The nonresidential equation does not include the mutagenic factor, so the only change to this calculation in this final-form rulemaking is the inclusion of the updated oral cancer slope factor.

The amendments to the Physical and Toxicological Properties for Inorganic Regulated Substances table (Table 5B) update the oral reference dose, oral cancer slope factor, inhalation reference concentration and inhalation unit risk for Cr(VI) by replacing them with the updated values for Cr(VI) identified in the EPA's IRIS database at https://iris.epa.gov/ChemicalLanding/&substance_nmbr=144.

The updated toxicity values from the EPA's IRIS database have been inserted into Table 5B and used in the equations identified in §§ 250.306 and 250.307 to calculate the updated Cr(VI) soil direct contact numeric values that have been amended in Table 4A. These numeric values are used by remediators to establish the soil MSC for use at each site.

F. Summary of Comments and Responses on the Proposed Rulemaking

The Board adopted the proposed rulemaking on April 8, 2025, which was published in the *Pennsylvania Bulletin* at 55 Pa.B. 4346 (June 28, 2025) for a 30-day public comment period that closed on July 28, 2025.

During the public comment period, the Board received comments from five individuals. All comments were supportive of the rulemaking and expressed no major concerns. Detailed responses to all public comments are provided in the comment and response document that

accompanies this rulemaking. The Independent Regulatory Review Commission (IRRC) did not comment on the proposed rulemaking.

G. Benefits, Costs and Compliance

Benefits

In enacting Act 2, the General Assembly found and declared among its policy goals that “[p]ublic health and environmental hazards cannot be eliminated without clear, predictable environmental remediation standards and a process for developing those standards,” that “[a]ny remediation standards adopted by this Commonwealth must provide for the protection of public health and the environment,” and that “[c]leanup plans should be based on the actual risk that contamination on the site may pose to public health and the environment, taking into account its current and future use and the degree to which contamination can spread offsite and expose the public or the environment to risk.” See section 102(3) and (6) of Act 2 (35 P.S. § 6026.102(3) and (6)).

To implement these policy goals, the General Assembly authorized the Board and the Department to develop standards and methods to effectuate those goals. See sections 104 and 303 of Act 2. The Department’s regulatory structure, as authorized under Act 2 and as implemented by Chapter 250, provides those important benefits articulated in the General Assembly’s declaration of policy.

The amendments to the MSCs in this final-form rulemaking will serve both the public and the regulated community because they provide MSCs based on the most up-to-date health and scientific information for Cr(VI), which can have a toxic effect on human health. The Board first published Chapter 250 regulations in 1997 at 27 Pa.B. 4181 (August 16, 1997). In section 104(a) of Act 2, the General Assembly recognized that these standards must be updated over time as better science becomes available and as the need for clarification or enhancement of the Land Recycling Program becomes apparent.

Potential contamination of soil and groundwater from accidental spills and unlawful disposal can impact almost any resident of this Commonwealth. Cr(VI) has toxic effects on human health because it acts as both a carcinogen (causes cancer) and a systemic toxicant (non-carcinogen). Additionally, Cr(VI) is a mutagen which means it harms an organism’s cells by permanently changing genetic material, thus causing mutations and potentially increasing the frequency of diseases such as cancer. Therefore, its release not only poses a threat to the environment, but also could affect the health of the public if exposed. Research on Cr(VI) is ongoing and provides the basis for protection of the residents of this Commonwealth through site cleanup requirements.

The update to the Cr(VI) toxicity value and correction of the omission of the mutagenic factors in the residential direct contact calculation results in a decrease in the residential soil direct contact numeric value and an increase in the nonresidential soil direct contact numeric value. Decreasing the values may indicate a more stringent cleanup is required at a site and increasing the values may indicate a less stringent cleanup is required at a site. Changes in these values reflect updated information related to exposure limitations of Cr(VI) and recognize that these updated standards are better representative of Cr(VI)’s exposure threshold.

The benefits of this final-form rulemaking are difficult to quantify because, unlike other statutory or permitting schemes, Act 2 does not prevent contamination but instead provides remediators with a variety of options to address sites that have already been contaminated. In that sense, this final-form rulemaking, consistent with Act 2, benefits the public because it can lead to more efficient and more expedient remediation and reuse of contaminated areas.

Compliance costs

Financially and economically, the Department believes that any potential impact to the regulated community will be insignificant. Under this regulation, the residential direct contact soil MSC value for Cr(VI) has decreased while the nonresidential direct contact soil MSC values have increased. Lowering the values may indicate a more stringent cleanup is required at a site and increasing the values may indicate a less stringent cleanup is required at a site, depending on a variety of factors such as the cleanup standard selected, the extent of the remediation, or if pathway elimination is the selected remedy. The number of completed remediations varies annually. On average, remediators apply the Act 2 remediation standard to just under 300 contaminated properties across this Commonwealth per year. However, the number of Cr(VI) cleanups represent less than 1% of those properties. The Department does not expect that the final-form amendments will impact the number of remediations voluntarily completed or the number that must be completed because of Department enforcement actions.

The final updates to the Cr(VI) soil direct contact MSCs will not affect the cleanup options available to remediators under other cleanup standards. Persons conducting remediation under Act 2 may choose from three different cleanup standards: background, Statewide health or site-specific.

The Department does not expect that this final-form rulemaking will create any additional costs. Act 2 does not create liability for or the obligation to address contamination for these and other chemicals. Instead, that obligation comes from other environmental statutes, including The Clean Streams Law (35 P.S. §§ 691.1—691.1001) and the Solid Waste Management Act (35 P.S. §§ 6018.101—6018.1003). Act 2 provides remediators with options to remediate contamination. This will benefit the public by lessening public exposure to these contaminants.

Compliance assistance plan

The Land Recycling Program will disseminate information concerning these updates using the Department website and emails to environmental consultants and other stakeholders involved in the program.

Paperwork requirements

This final-form rulemaking will not result in any additional forms or reports, beyond those that are already required by Act 2 and Chapter 250.

H. *Pollution Prevention*

The Pollution Prevention Act of 1990, 42 U.S.C. §§ 13101—13109, established a National policy that promotes pollution prevention as the preferred means for achieving State

environmental protection goals. The Department encourages pollution prevention, which is the reduction or elimination of pollution at its source, through the substitution of environmentally friendly materials, more efficient use of raw materials, and the incorporation of energy efficiency strategies. Pollution prevention practices can provide greater environmental protection with greater efficiency because they can result in significant cost savings to facilities that permanently achieve or move beyond compliance.

Act 2 encourages cleanup plans with remedy goals which treat, destroy or remove regulated substances whenever technically and economically feasible. This final-form rulemaking will provide the necessary Statewide health standard MSCs for remediators to remove contamination or eliminate exposure, where appropriate. This final-form rulemaking reflects the most up-to-date science, especially as it relates to the characterization and removal of contamination that exceeds Act 2 MSCs. During the remediation of a contaminated site, potential sources of pollution are often removed to attain the Act 2 standards, thus eliminating or minimizing the potential for continued migration of the sources of pollution to other areas.

I. Sunset Review

The Board is not establishing a sunset date for these final-form regulations since they are needed for the Department to carry out its statutory authority. The Department will continue to closely monitor these regulations for their effectiveness and will recommend updates to the Board as necessary.

J. Regulatory Review

Under section 5(a) of the Regulatory Review Act (71 P.S. § 745.5(a)), on May 22, 2025, the Department submitted a copy of the proposed rulemaking published at 55 Pa.B. 4346 and a copy of a Regulatory Analysis Form to IRRC and to the chairpersons of the Senate Environmental Resources and Energy Committee and the House Environmental and Natural Resource Protection Committee (Senate and House Committees) for review and comment.

Under section 5(c) of the Regulatory Review Act, IRRC and the Senate and House Committees were provided with copies of the comments received during the public comment period, as well as other documents when requested. In preparing this final-form rulemaking, the Department has considered all comments from the public. IRRC did not submit comments on this final-form rulemaking. In addition, the Department received no comments from the Senate or House committees.

Under section 5.1(j.2) of the Regulatory Review Act (71 P.S. § 745.5a(j.2)), on (DATE) , this final-form rulemaking was deemed approved by the Senate and House Committees. Under section 5.1(e) of the Regulatory Review Act, IRRC met on (DATE) and approved this final-form rulemaking.

K. Findings of the Board

The Board finds that:

(1) Public notice of proposed rulemaking was given under sections 201 and 202 of the act of July 31, 1968 (P.L. 769, No. 240) (45 P.S. §§ 1201 and 1202), referred to as the Commonwealth Documents Law, and regulations promulgated thereunder at 1 Pa. Code §§ 7.1 and 7.2 (relating to notice of proposed rulemaking required; and adoption of regulations).

(2) A public comment period was provided as required by law, and all comments were considered.

(3) This final-form rulemaking does not enlarge the purpose of the proposed rulemaking published at 55 Pa.B. 4346.

(4) These regulations are necessary and appropriate for administration and enforcement of the authorizing acts identified in section C of this order.

L. Order of the Board

The Board, acting under the authorizing statutes, orders that:

(a) The regulations of the Department, 25 Pa. Code Chapter 250, are amended by amending Appendix A, Tables 4A and 5B, as set forth in Annex A.

(b) The Chairperson of the Board shall submit this final-form rulemaking to the Office of General Counsel and the Office of Attorney General for review and approval as to legality and form, as required by law.

(c) The Chairperson of the Board shall submit this final-form rulemaking to IRRC and the Senate and House Committees as required by the Regulatory Review Act (71 P.S. §§ 745.1—745.14).

(d) The Chairperson of the Board shall certify this final-form rulemaking and deposit it with the Legislative Reference Bureau, as required by law.

(e) This final-form rulemaking shall take effect immediately upon publication in the *Pennsylvania Bulletin*.

JESSICA SHIRLEY,
Chairperson