

EXECUTIVE SUMMARY

Administration of the Land Recycling Program Vanadium MSC Rule 25 Pa. Code Chapter 250

Purpose of the Final Rulemaking

The Environmental Quality Board (Board) proposes to amend 25 Pa. Code, Chapter 250 under the authority of section 303(a) of the Land Recycling and Environmental Remediation Standards Act (35 P.S. §§ 6026.101—6026.908) (Act 2), which directs the Board to promulgate Statewide health standards for regulated substances for each environmental medium and the methods used to calculate the standards (35 P.S. § 6026.303(a)). These amendments update the Statewide health standard Medium Specific Concentrations (MSCs) for vanadium based on current science.

The Department of Environmental Protection (Department) reviews and updates, if appropriate, the MSC values and the associated toxicological data on a timely basis to ensure that environmental response and remediation actions at contaminated sites are based on current science and current toxicological information. This ensures the protection of public health and the environment from exposure to regulated substances where it has been determined that lower concentrations of a regulated substance are necessary. This also avoids unnecessary expense for remediators when remediating contaminated property for redevelopment where it has been determined that higher concentrations of regulated substances are protective and meet the standards established by the statute.

Summary of the Final Rulemaking

The Department's Land Recycling Program implements standards for the cleanup of soil and groundwater contamination from releases of various toxic and carcinogenic chemicals. This amendment to the Land Recycling Program regulations updates the Statewide health standard MSCs for vanadium by updating the vanadium toxicity value. Through discussions with the Cleanup Standards Scientific Advisory Board (CSSAB) and public comments received for the previous Chapter 250 rulemaking (published in final-form November 20, 2021 at [51 Pa.B. 7173](#)), it was determined that an alternative toxicity value for vanadium is necessary and scientifically appropriate.

The final-form rulemaking provides the following amendments and clarifications:

- Update to the oral reference dose (toxicity value) for vanadium in Table 5B.
- Inclusion of a footnote in Table 5B explaining how the vanadium toxicity value is derived from the vanadium pentoxide value in the United States Environmental Protection Agency's (EPA) Integrated Risk Information System (IRIS).
- Updates to the MSCs for vanadium in Tables 3, 4A, and 4B under the Statewide health standard.

The Department last updated the vanadium toxicity value in 2016 based on EPA's Provisional Peer-Reviewed Toxicity Value database (PPRTV) which is considered a "Tier 2 Source" in §

250.605(a). The PPRTV value for vanadium is based on a United States Geological Survey (USGS) sodium metavanadate study and has generated a residential direct contact value that is near the lower end of the naturally occurring concentration range of vanadium in soil. A cleanup value this low makes it difficult for remediators to determine if vanadium soil concentrations are naturally occurring or are related to a vanadium release at their site. Additionally, EPA has determined that there is a high level of uncertainty associated with the development of this toxicity value. For these reasons, continued use of the PPRTV value is not appropriate.

The alternative to using the PPRTV toxicity value for vanadium is to use EPA's IRIS vanadium pentoxide value and apply a molecular weight conversion. The PPRTV value is based on a USGS sodium metavanadate study and it can only be used as an elemental vanadium value because of the molecular weight conversion done in the USGS study. The IRIS vanadium pentoxide value is also a vanadium compound value that, by using the same molecular weight conversion, can also be used as an elemental vanadium value. The only difference is that the Department has performed the molecular weight conversion for the IRIS vanadium pentoxide value whereas the molecular weight conversion for the PPRTV was performed in the USGS sodium metavanadate study. The IRIS value is preferred over the PPRTV value because it has less uncertainty associated with it and it is a "Tier 1 Source" for toxicity values according to § 250.605(a). EPA has endorsed the use of the IRIS vanadium pentoxide value in conjunction with a molecular weight conversion by using it to develop their vanadium Regional Screening Level. This approach also has the unanimous support of the CSSAB. For these reasons, this final-form rulemaking updates the vanadium toxicity value based on the IRIS value.

Affected Parties

These technical amendments to the Land Recycling regulations will impact owners, operators, and purchasers of properties and facilities who volunteer or are required to perform remediation of contaminated sites. These amendments will result in an increase in vanadium MSC values that remain protective of human health and meet the standards established by Act 2. The changes are not expected to increase compliance costs and may result in the avoidance of unnecessary expenses for remediators when cleaning up properties contaminated with vanadium.

Advisory Committee Consultation

The proposed rule was presented to and reviewed by the CSSAB at its October 4, 2021 meeting. The Department received a letter of support for this rulemaking from the CSSAB on October 12, 2021. There were no changes to the proposed regulation. The final-form rulemaking was presented to the CSSAB on March 15, 2023, and the CSSAB members voted unanimously to support advancing the final-form rulemaking to the Board for adoption.

Public Comments

The Board adopted the proposed rulemaking on May 18, 2022, which was published in the *Pennsylvania Bulletin* on July 30, 2022 at [52 Pa.B. 4235](#), for a 30-day public comment period ending on August 29, 2022. No public meetings or hearings were held. The Board received one public comment asking if the new MSCs would supersede the Department's interim technical

guidance document, titled *Utilizing Published Data in Performing a Background Demonstration and Equivalent Site Evaluation for Naturally Occurring Vanadium* (258-2182-774).

In response, the interim technical guidance document, titled “Utilizing Published Data in Performing a Background Demonstration and Equivalent Site Evaluation for Naturally Occurring Vanadium,” Document No. 258-2182-774, will be rescinded when this final-form rulemaking is published in the *Pennsylvania Bulletin* because it will no longer be necessary. The interim technical guidance document provides procedures for utilizing a published dataset to statistically determine Statewide representative background concentrations as an alternative to collecting background samples representative of the donor site (for a Background Demonstration) and/or the receiving site (for an Equivalent Site Evaluation), as described in Section G of Appendix A of the Department’s *Management of Fill Policy* (258-2182-773). Because the soil MSCs for vanadium in the Chapter 250 regulations will no longer be near the lower end of the range of the naturally occurring levels in Pennsylvania, this technical guidance document is no longer necessary.

Recommendation

The Department recommends adoption of this final-form rulemaking.