

WATER ENVIRONMENT FEDERATION

Title: Wastewater Effects of Removing Lead from Drinking Water Position Statement

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BACKGROUND

Lead is a heavy metal that can have significant health effects even at very low levels. Health professionals agree that there is no level of lead in water that is safe. During the past 30 to 40 years significant efforts have been made to reduce lead in drinking water. As understanding of lead effects increased, public health and regulatory requirements have evolved to include requirements to replace lead pipes and water treatment processes that reduce corrosion of lead pipes and premise plumbing. These changes reduce the introduction of lead into drinking water. A common form of corrosion control in the drinking water treatment process includes the use of phosphate compounds. In the published Lead and Copper Revised Rule by the United States Environmental Protection Agency (U.S. EPA) in 2021, orthophosphate is identified as the primary method of corrosion control. While this is an effective method of corrosion control, it adds additional phosphorus to the resulting wastewater stream.

In most areas, this phosphorus must then be removed by the wastewater utility to meet either narrative or numeric water quality standards. The increased treatment needed by a utility to remove additional phosphorus — either at a drinking water facility that directly discharges reject water or at a water resource recovery facility (WRRF) — results in increased operational and capital costs. Failure to provide removal of the additional phosphorus can result in eutrophication of water bodies that leads to harmful algal blooms and death of aquatic life as well as harm to livestock, wildlife, and human health. The increased phosphorus may also create additional operations and maintenance complications at WRRFs, such as increased struvite precipitation, that also contribute to increased costs.

While lead reduction and corrosion control in drinking water systems are a priority, there remains a disconnect between drinking water and wastewater regulatory requirements. Public health and environmental goals are better balanced when the entire water sector is given the opportunity to develop innovative technologies and management strategies that meet the desired goals while considering affordability for rate payers of both water and wastewater utilities.

ALIGNMENT WITH WEF'S MISSION AND CRITICAL OBJECTIVES

Since 1928, it has been the mission of WEF and its members to protect public health and the environment. This position statement is consistent with our mission and the following critical objectives:

- [3c](#): Educate decision makers and elected officials on the infrastructure funding gap and other water policy issues and engage potential stakeholders.
- [4b](#): Drive innovation and research in the water sector.

POSITION

Phosphate compound treatment is anticipated to be needed until all lead lines and premise plumbing that contain lead have been replaced. WEF supports the following actions to minimize the effects on WRRFs of efforts to reduce corrosion and lead in drinking water systems while protecting human health:

- Consider the impacts, including full life-cycle costs, on drinking water, wastewater, surface water, and ground water systems holistically when evaluating lead abatement options.

- Utilities and regulators should apply flexible, site specific, risk-based, and community engaged processes for the management and reduction of corrosion and lead to determine and implement appropriate solutions.
- In the United States, U.S. EPA Office of Water leadership should work with its relevant offices to develop phosphorus management guidance that addresses both drinking water and wastewater effects.
- Increase research and development of alternative, cost-effective treatment technologies and management strategies for phosphorus removal or recovery at WRRFs.