THE Water Research FOUNDATION

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REQUEST FOR PROPOSALS (RFP)

Guidance for Complying with the Lead and Copper Rule Revisions for Water Systems with No- to Low- Prevalence of Lead Service Lines (LSLs) (RFP 5223)

Due Date: Proposals must be received by **3:00 pm Mountain Time on Monday, March 27, 2023**

WRF Project Contact: Dr. Jian Zhang, jzhang@waterrf.org

Project Sponsors
This project is funded by The Water Research Foundation (WRF) as part of WRF's Emerging Opportunities Program.

Project Objectives
- Provide utilities with guidance and/or approaches for complying with lead service line (LSL) inventory requirements in situations where they have few historical LSLs
- Develop method(s) for examining the potential for lead exposure associated with some types of galvanized requiring replacement (GRR) lines.

Budget
Applicants may request up to $100,000 in WRF funds for this project.

Background and Project Rationale
In January 2021, the U.S. Environmental Protection Agency (EPA) published the current Lead and Copper Rule Revisions (LCRR) (U.S. EPA 2022b). In June 2022, the EPA delayed the compliance deadline to October 16, 2024. In August 2022, the EPA released guidance for creating lead service line (LSL) inventories (U.S. EPA 2022c), but many utilities nationwide have questions and concerns about complying with the LCRR by October 2024, as the EPA's approach assumes that LSLs are prevalent but provides little guidance on what level of information is sufficient to demonstrate that a line is not lead or lead-impacted. According to the national survey conducted by Cornwell et al. (2016), LSLs are at a much higher prevalence in some areas, but the majority of the country has a much lower prevalence of LSLs. Therefore, this is a particular challenge for utilities with few or no lead service lines.

The EPA's guidance (U.S. EPA 2022c) on creating LSL inventories suggests that pipe materials can be identified by previous materials evaluation, construction and plumbing codes/records (e.g., permits that show service lines were replaced), water system records, distribution system inspections, information obtained through normal operations, and state-specified information. However, many utilities don't have adequate records, and it is challenging for areas with little historical evidence of LSLs to comply with the current regulations. Bukhari et al. (2020) stated that there is no convenient methodology commercially available to identify buried LSLs directly and that the accuracy of leveraging historical

information with geographic information systems (GIS) work relies on the accuracy of historical records. Research is needed to help areas with few historical LSLs (as is expected to be common in California and other western states) demonstrate sufficient accuracy to satisfy primacy agency requirements.

Another concern amongst utilities is with galvanized service lines that are determined to be "galvanized requiring replacement" (GRR), defined as where a galvanized service line is or was at any time downstream of a lead service line or is currently downstream of a "lead status unknown" service line. Many utilities removed LSLs decades ago. For example, San Francisco removed 7,000+ LSLs in the 1980's. The EPA assumes there is lead from the removed LSL attached to the GRR that may pose health risks if the GRR still exists; however, based on some limited monitoring, it appears that GRRs with upstream LSLs replaced decades ago should no longer contain lead concentrations significant enough to pose health threats. The GRR requirement puts an enormous burden on utilities and may cause unnecessary fear of lead exposure. Research is needed to unequivocally demonstrate that all GRRs (as currently defined) need not be replaced as they may not all pose significant risks of lead exposure. The California Urban Water Agencies (CUWA) has funded a desktop study entitled *Assessing Potential Lead Release from Service Line Materials to Inform LCRR Statewide Implementation* to help California utilities comply with the LSL inventory rule. The 5-month study will be conducted by Brown and Caldwell and will start in January 2023. While this study will analyze existing data on observed lead release from galvanized service lines, it will not include new data collection on water quality or pipe scale. The results of this Brown and Caldwell study may be significant in helping to demonstrate that little possibility of lead exposure exists in galvanized lines currently defined as GRR.

In summary, research is still urgently needed to help utilities address two major challenges: (1) how to develop inventories for utilities with few or no lead service lines and (2) demonstrate that the risk of lead exposure from certain galvanized pipes having upstream LSLs replaced a long time ago or still having lead connectors is non-existent or minimal.

Research Approach

- Engage lead and copper experts, including researchers, regulators, and utility staff, as appropriate.
- Reevaluate LCRR inventory requirements for service areas with low potential incidence of LSL and suggest alternative ways to comply.
- Determine—absent of physical verification—what combinations of verification methods and level of effort can be approved as sufficient to demonstrate that a line is not lead or lead-impacted. Illustrate this with hypothetical scenarios. As water utilities generally have records on utility side service lines and may already have this inventory in their GIS or computerized maintenance management system (CMMS), the focus should probably be on the customer side because they don't have records on customer side service line.
- Determine—absent of complete historical records—what combinations of proof can be approved as sufficient to demonstrate that a line has never historically been lead. Demonstrating that the utility side service line has never been lead is particularly critical in determining whether a downstream galvanized line on the customer side is defined as GRR. Illustrate this with hypothetical scenarios.
- Investigate the water quality data associated with lines defined as GRR. Obtain and analyze GRR water quality and related sampling data (from existing data and/or field research) when a GRR is replaced, including pipe scale. Analyze and develop procedures that would predict the occurrence of lead and what factors might lead to a GRR not posing a risk for lead release.
- Determine, in a comprehensive and definitive way, whether GRRs in systems with LSLs replaced decade(s) ago pose a real risk of lead exposure for the purpose of potentially changing the requirement that all GRRs must be replaced.

Expected Deliverables
Considering the timing of the inventory compliance, it is recommended that the deliverables be phased. For the earlier phase, deliverables should include the appropriate methodology for utilities to develop inventories with few or no lead given the existing data the utilities have. For the later phase(s), deliverables should include materials for potentially changing the EPA guidance manual already issued or making changes in the rule text for Lead and Copper Rule improvements.

Communication Plan
Please review WRF's *Project Deliverable Guidelines* for information on preparing a communication plan. The guidelines are available at https://www.waterrf.org/project-report-guidelines#project-deliverable-guidelines. Conference presentations, webcasts, peer review publication submissions, and other forms of project information dissemination are typically encouraged.

Project Duration
The anticipated period of performance for this project is 12 months from the contract start date. Substantial materials should be ready to help utilities prepare for the inventory requirement deadline of October 16, 2024.

References and Resources
The following list includes examples of research reports, tools, and other resources that may be helpful to proposers. It is not intended to be comprehensive, nor is it a required list for consideration.

- Bukhari, Z., S. Ge, S. Chiavari, and P. Keenan. 2020. *Lead Service Line Identification Techniques*. Project 4693. Denver, CO: The Water Research Foundation.
- Cornwell DA, Brown RA, Via SH. National survey of lead service line occurrence. *J Am Water Works Ass.* 2016;108(4):E182–E191.
- U.S. EPA. 2022a. Review of the National Primary Drinking Water Regulation: Lead and Copper Rule Revisions (LCRR). https://www.epa.gov/ground-water-and-drinking-water/review-national-primary-drinking-water-regulation-lead-and-copper.
- U.S. EPA. 2022b. Revised Lead and Copper Rule. https://www.epa.gov/ground-water-and-drinking-water/revised-lead-and-copper-rule.
- U.S. EPA. 2022c. *Guidance for Developing and Maintaining a Service Line Inventory*. EPA 816-B-22-001. Office of Water. https://www.epa.gov/system/files/documents/2022-08/Inventory%20Guidance_August%202022_508%20compliant.pdf.

Proposal Evaluation Criteria
The following criteria will be used to evaluate proposals:
- Understanding the Problem and Responsiveness to RFP (maximum 20 points)
- Technical and Scientific Merit (maximum 30 points)
- Qualifications, Capabilities, and Management (maximum 15 points)
- Communication Plan, Deliverables, and Applicability (maximum 20 points)
- Budget and Schedule (maximum 15 points)

Proposal Preparation Instructions
The Emerging Opportunities Program has unique proposal requirements. Please follow the submission instructions below. Proposals not adhering to the restrictions below will not be accepted.

The entire proposal, ***excluding*** the proposal cover worksheet, resumes, budget form, budget narrative, co-funding support form (when applicable), schedule, and references, should **not exceed ten pages in length**. Proposals must include the following components.

- **Proposal Cover Worksheet:** The *Proposal Cover Worksheet* is available at https://www.waterrf.org/proposal-guidelines#RPP-proposal-coversheet
- **Background and Statement of Need:** Provide a brief summary of the current state of knowledge for the issue that the proposed research will help address, and the drivers for the proposed research.
- **Objectives:** The proposed research objectives should be clearly identified in one or two sentences.
- **Technical Approach**: Describe how the proposed research will be conducted and the tasks necessary to accomplish the objectives.
- **Benefit to WRF Subscribers:** Identify the practical benefits of the proposed research to water utilities and the water community.
- **Research Team and Other Participants:** Identify the key members of the research team and provide brief statements of their qualifications to conduct the proposed research. Identify any other organizations that have committed to collaborate on the proposed research. Curriculum vitae or resumes for research team members are required.
- **Budget:** A detailed budget is required. The researcher should identify the amount of WRF funds requested and any other cost-share, in-kind, or cash support for the proposed research. Cost-share, in-kind, and cash support is not required for submission, however, is encouraged. The following items will need to be included with the budget. *Instructions for Budget Preparation* are available at https://www.waterrf.org/proposal-guidelines#RPP-instr-budget-prep.
    - Proposal Budget Form: https://www.waterrf.org/proposal-guidelines#RPP-proposal-budget-form
    - Budget Narrative (see instructions for budget preparations)
    - Emerging Opportunities Co-Funding Support Form (when applicable): Each co-funding organization providing cash to the project payable directly to WRF must complete a separate Emerging Opportunities Co-Funding Support Form and include it with the proposal package. The form is available at https://www.waterrf.org/proposal-guidelines#RPP-co-fund-support-form
- **Schedule** - A detailed schedule is required.
- **References** (optional) – detailed citations are not required in the proposal, but may be provided at the discretion of the researcher.

Proposals that include the production of web- or software-based tools, such as websites, Excel spreadsheets, Access databases, etc., must follow the criteria outlined for web tools presented in the Web Tool Criteria and Feasibility Study for The Water Research Foundation Project Deliverables at https://www.waterrf.org/project-report-guidelines#webtool-criteria.

Eligibility to Submit Proposals

Proposals will be accepted from domestic or international entities, including educational institutions, research organizations, governmental agencies, and consultants or other for-profit entities.

WRF's Board of Directors has established a Timeliness Policy that addresses researcher adherence to the project schedule. The policy can be reviewed at https://www.waterrf.org/policies. Researchers who are late on any ongoing WRF-sponsored studies without approved no-cost extensions are not eligible to be

named participants in any proposals. Direct any questions about eligibility to the WRF project contact listed at the top of this RFP.

Period of Performance
It is WRF's policy to negotiate a reasonable schedule for each research project. Once this schedule is established, WRF and its sub-recipients have a contractual obligation to adhere to the agreed-upon schedule. Under WRF's No-Cost Extension Policy, a project schedule cannot be extended more than nine months beyond the original contracted schedule, regardless of the number of extensions granted. The policy can be reviewed at https://www.waterrf.org/policies.

Utility and Organization Participation
WRF encourages participation from water utilities and other organizations in WRF research. Participation can occur in a variety of ways, including direct participation, in-kind contributions, or in-kind services. To facilitate their participation, WRF has provided contact information, on the last page of this RFP, of utilities and other organizations that have indicated an interest in this research. Proposers are responsible for negotiating utility and organization participation in their particular proposals. The listed utilities and organizations are under no obligation to participate, and the proposer is not obligated to include them in their particular proposal.

Application Procedure and Deadline
Proposals are accepted exclusively online in PDF format, and they must be fully submitted before 3:00 pm Mountain Time on Monday, March 27, 2023.

The online proposal system allows submission of your documents until the date and time stated in this RFP. Submit your proposal in 1 PDF file at https://forms.waterrf.org/230185002621845 .

Questions to clarify the intent of this RFP and WRF's administrative, cost, and financial requirements may be addressed to the WRF project contact, Dr. Jian Zhang at (303) 347-6114 or jzhang@waterrf.org. Questions related to proposal submittal through the online system may be addressed to Caroline Bruck at (303) 347-6118 or cbruck@waterrf.org**.**

5223 Utility and Organization Participants

The following utilities have indicated an interest in possible participation in this research. This information is updated within 24 business hours after a utility or an interested organization submits a volunteer form, and this RFP will be re-posted with the new information. **(Depending upon your settings, you may need to click refresh on your browser to load the latest file.)**

N/A