Lead Service Line Replacement Plans

Department of Environmental Conservation
Drinking Water & Groundwater Protection Division
Sustainable Infrastructure Section

dec.vermont.gov/water
ANR.SLI@vermont.gov

VERMONT

Overview

- Lead & Copper Rule Revisions (LCRR)
- DEC's Strategies to Assist Water Systems
- Service Line Inventories
- Lead Service Line Replacement Plan
- Submitting to ANR Online
- Questions

VERMONT

Lead & Copper Rule Revisions and Improvements

- 2020: Final notice of LCRR published
- Early 2021: Biden-Harris Administration froze regulations
- December 2021: LCRR released and effective
- 2022: EPA announced future Lead & Copper Rule *Improvements* (LCRI)
  - Unknown timeline for release
  - Unknown changes
  - Inventories and Replacement Plan requirements remain the same

VERMONT

Lead & Copper Rule Revisions

- Service Line Inventory (SLI) and **Lead Service Line Replacement (LSLR) Plans** required by October 16, 2024
- Community Water Systems
  - ~410 systems with 174,140 connections
- NTNC Systems
  - ~250 systems with 1,145 connections

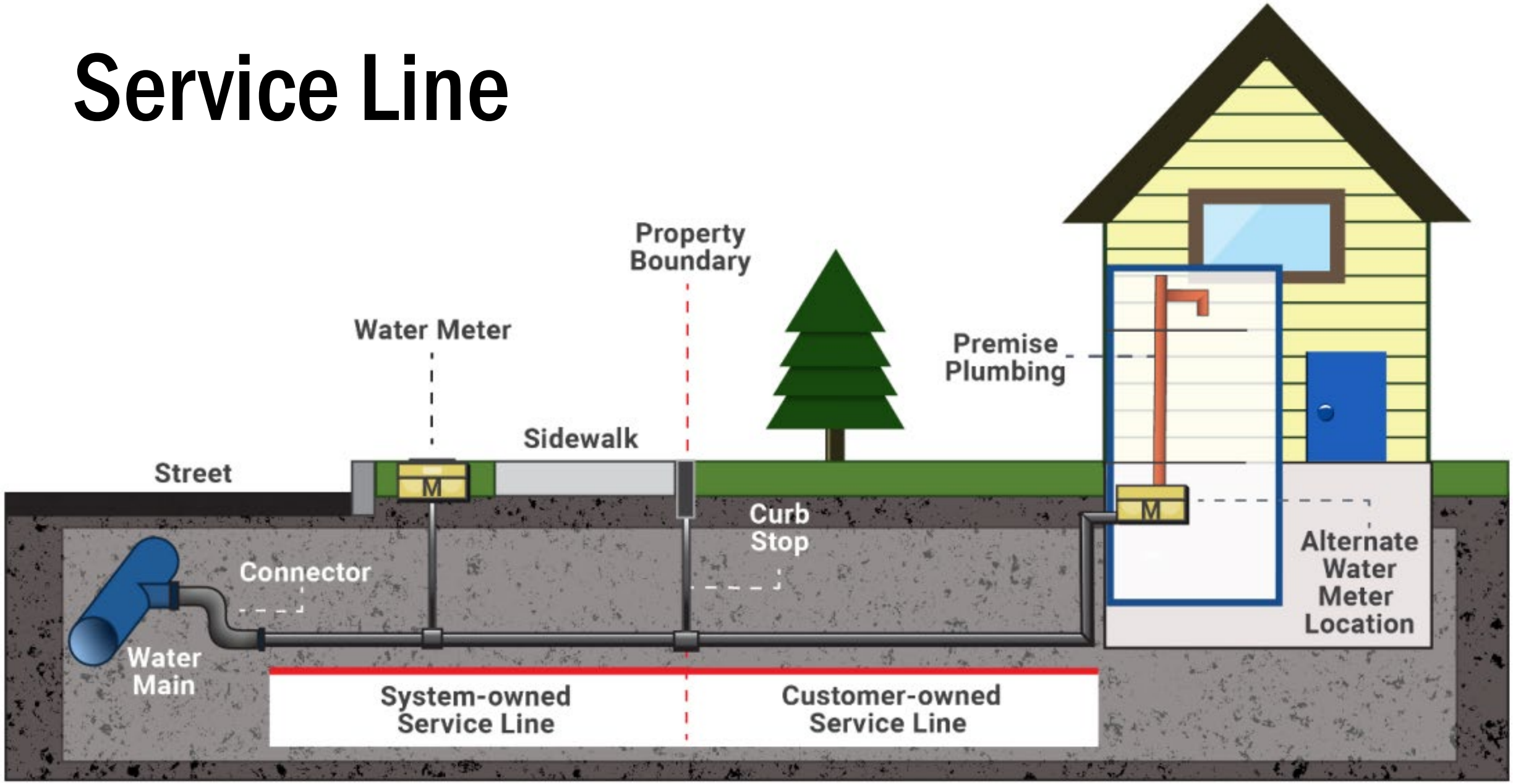
VERMONT

Strategies to Assist Water Systems

- Systems service more than 1,000 people
  - Eligible for forgivable loans up to $100,000
  - Above $100,000: low/zero % interest rate
- Educational, Non-Profit, Gov't NTNCs
  - DEC staff assisting with inventories
- Other NTNC and Community Systems
  - Contract support: funded & managed by DEC
  - Assist operators with inventories

VERMONT

Service Line



Service Line Inventories

Unique Identifier		
E911 Address*	Coordinates	Property SPAN*
Supplying Water Main		
Water Main Material & Size		
System-owned Service Line		
Connector Material*	**Service Line Material*^**, Size, Age	Information Source*
Customer-owned Service Line		
Service Line Material*^, Size, Age	Information Source*	
Building Information		
Staff denied entry?*	Treatment, Interior Plumbing Characteristics	Installation Date

VERMONT

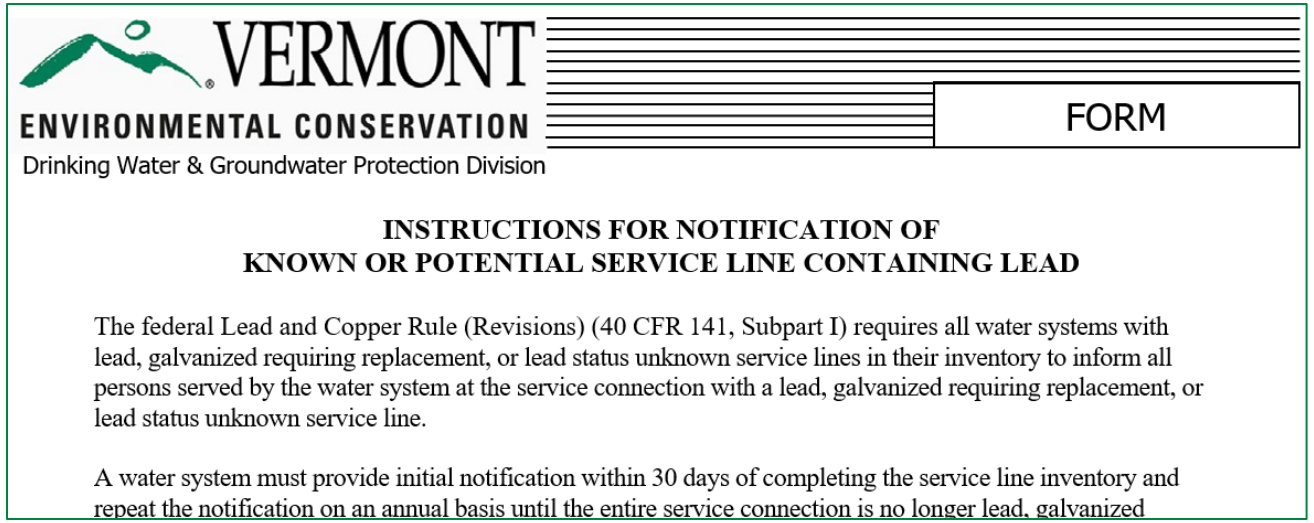
Lead & Copper Rule Revisions

- If a water system determines that a building receives drinking water from:
  - Confirmed lead service line
  - Galvanized requiring replacement service line
  - Lead status unknown service line
- Then, the water system must:
  - Notify affected customers within 30 days and annually
  - Develop Lead Service Line Replacement (LSLR) Plan

VERMONT

Notification to Affected Customers

- 30 days after SLI acceptance by DEC, then annually
- For new customers, at time of service initiation
  - Service Line material composition
  - Health effects of lead
  - Steps to reduce exposure
  - Opportunities for service line
    - Replacement
    - Material verification
- Certification Form to DEC
  - July 1st of next year



VERMONT
ENVIRONMENTAL CONSERVATION
Drinking Water & Groundwater Protection Division

FORM

INSTRUCTIONS FOR NOTIFICATION OF KNOWN OR POTENTIAL SERVICE LINE CONTAINING LEAD

The federal Lead and Copper Rule (Revisions) (40 CFR 141, Subpart I) requires all water systems with lead, galvanized requiring replacement, or lead status unknown service lines in their inventory to inform all persons served by the water system at the service connection with a lead, galvanized requiring replacement, or lead status unknown service line.

A water system must provide initial notification within 30 days of completing the service line inventory and repeat the notification on an annual basis until the entire service connection is no longer lead, galvanized

Lead Service Line Replacement Plans

1. Strategy for identifying lead status unknown lines
2. Procedure for conducting full lead line replacement
3. Strategy for informing customers before LSL replacement
4. LSL replacement goal rate
5. Procedure for customers to flush service lines and premise plumbing of particulate lead
6. LSL prioritization strategy
7. Funding strategy for conducting replacements

VERMONT

1. Strategy for identifying lead status unknown lines

- Water Quality Sampling
- Excavation
- Modeling
- Emerging Method
- Other Method
- Non-applicable

VERMONT

“Unknowns”

- Not in the PWS’s best interest to default to ‘unknown’
  - If the pipe is dug up and not lead, then the replacement doesn’t count towards the minimum replacement goal.
- Do your best to find records or perform a visual observation
- If material type is unknown, then note installation year
  - VT’s enforcement of the lead materials ban effective July 1989
- After SLI → ‘digging’ into the unknowns

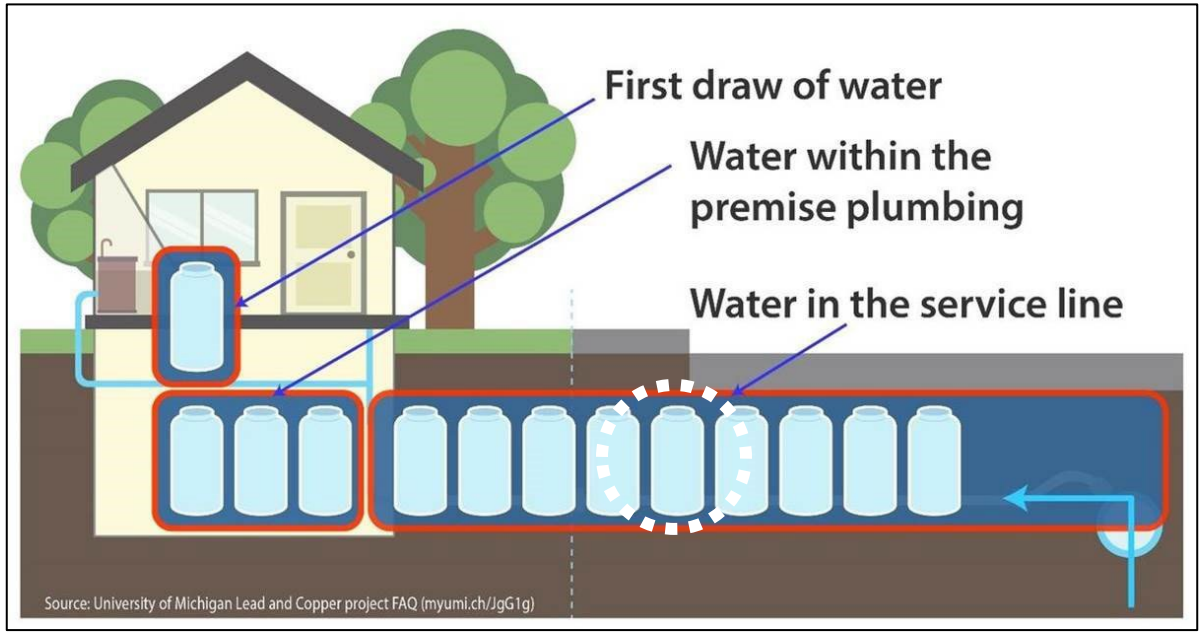
VERMONT

Water Quality Sampling

- Water Quality analysis COULD be used to ID unknown lines
  - System-by-system approach
  - Cannot always confirm non-lead
    - Effective corrosion control may ‘mask’ presence of lead
  - Helpful to ID line that IS lead
- Sampling Techniques
  - Targeted
  - Flushed
  - Sequential

Water Quality Sampling

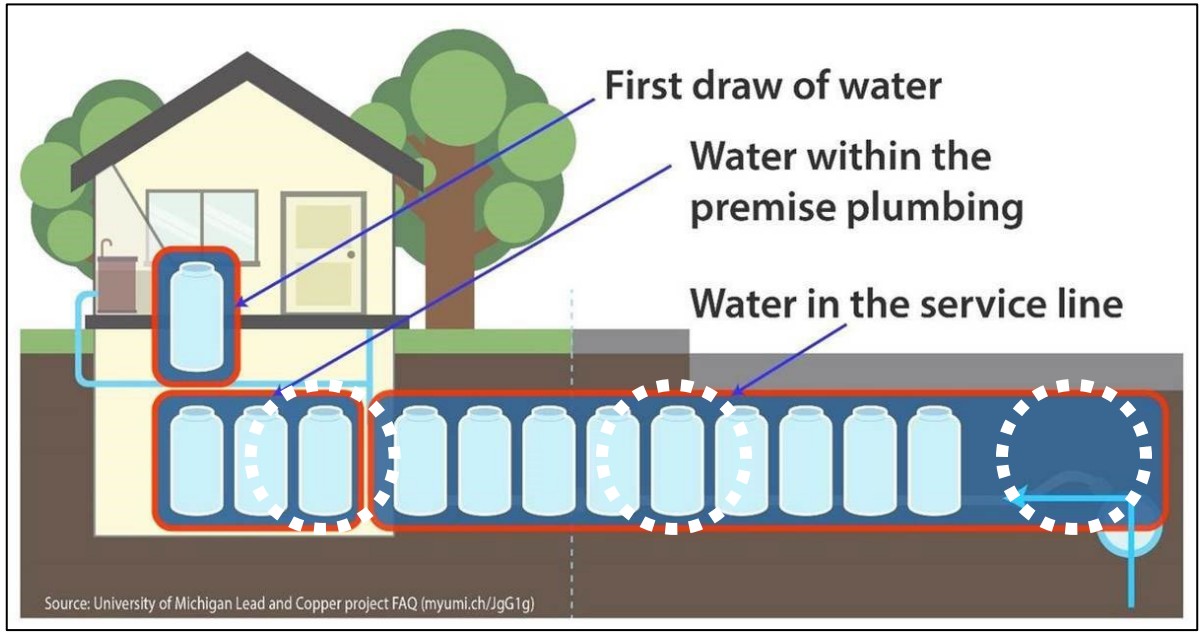
- Targeted Service Line Sampling
  - Calculate premise plumbing volume, flush premise plumbing, then collect and analyze a sample



VERMONT

Water Quality Sampling

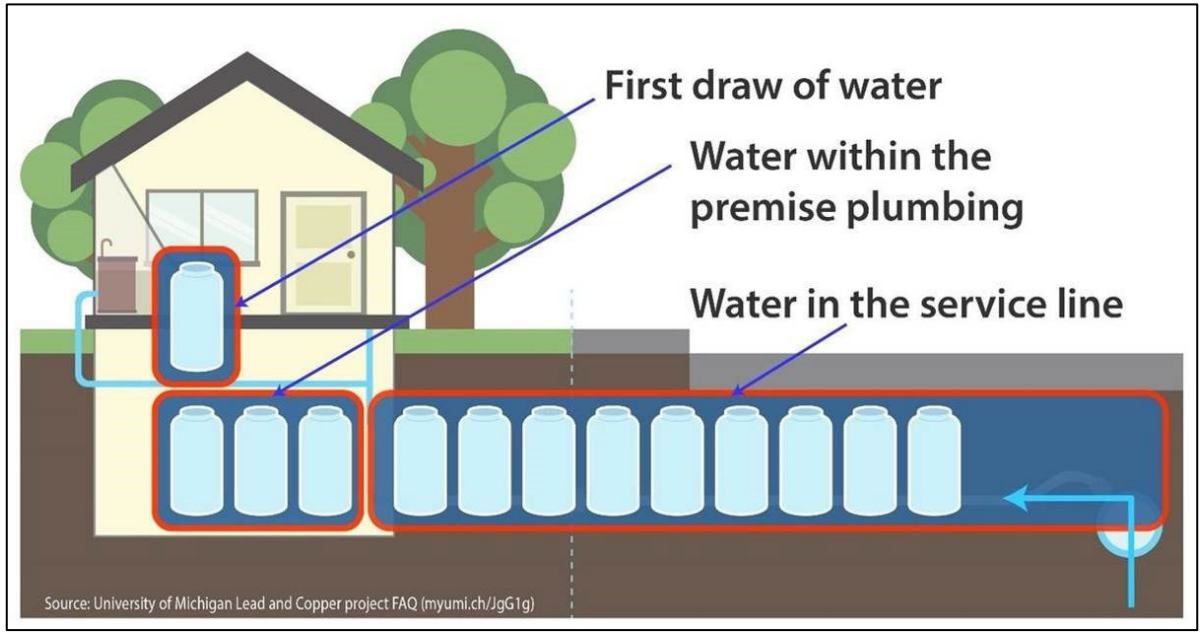
- Flushed Sampling
  - After a set flushing time, collect and analyze a sample
  - Initial screening



VERMONT

Water Quality Sampling

- Sequential Sampling
  - Collect and analyze a series of consecutive samples from the interior tap to the service line



VERMONT

Excavation

- PWSs should not be excavating to develop initial inventory
- Possible Next Step in after initial SLI
- **Mechanical** digging/trenching or
  Vacuum hyrdo-vac/potholing

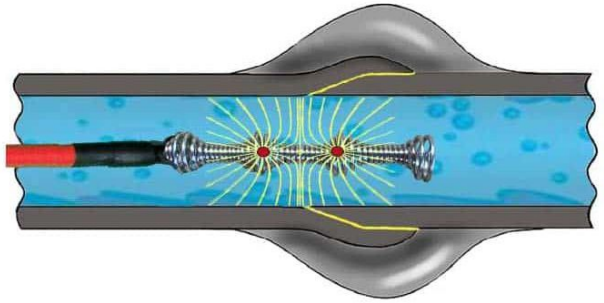
VERMONT

Modeling

- Modeling techniques may only be viable for large systems.
  - Probabilities, machine learning
- Predictive Modeling
  - Analyzes historical data to predict material type of unknown lines
  - “Construction Year” in “City X”
- Geostatistical Modeling
  - Coupled with GIS (geographic information systems) tools
  - Spatially relate data and assess accuracy and precision
  - “Construction Year” in “City X” on “First Street”

VERMONT

Emerging and Other Methods



- Require DEC Review and Approval
- Emerging Methods
  - Acoustic sensing (Mueller/Echologics)
  - Low-voltage conductivity probes (Swordfish/ElectroScan)
- Other Methods
  - Customer Engagement
  - Public Outreach

VERMONT

Non-Applicable

The water system does not have lead status unknown material service lines.

If lead status unknown material service lines are discovered, then the water system revises and resubmits the LSLR Plan.

VERMONT

2. Procedure for conducting full lead line replacement

The procedure included in the Plan will include all aspects of conducting a full lead service line replacement including:

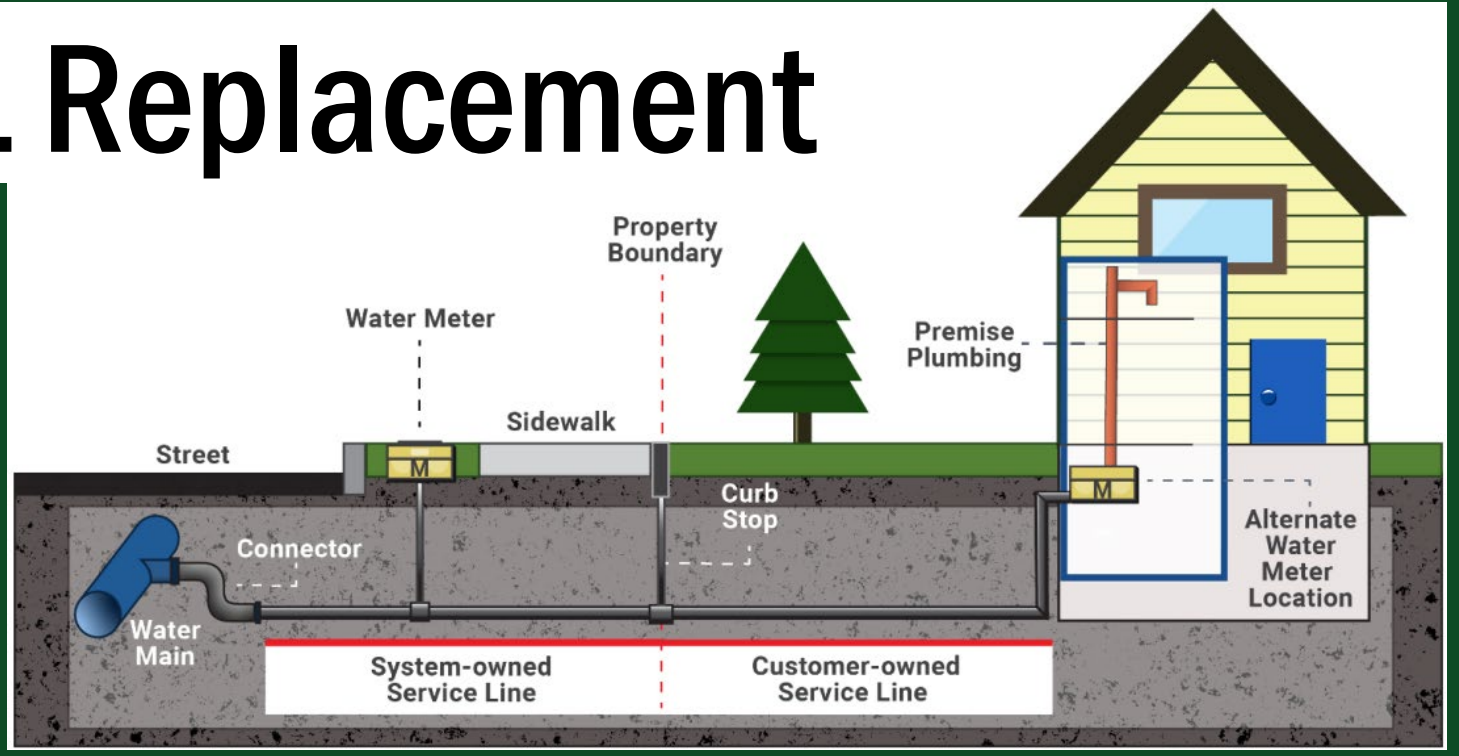
- Determining labor forces
- Acquiring necessary permits
- Acquiring property owner permissions for customer-owned portion of lines
- Updating the water system's service line inventory

Additionally, water systems are strongly encouraged to include a procedure for conducting replacement of lead goosenecks and pigtails.

Because of the unique characteristics of each water system, DEC does not provide a specific procedure for adoption.

VERMONT

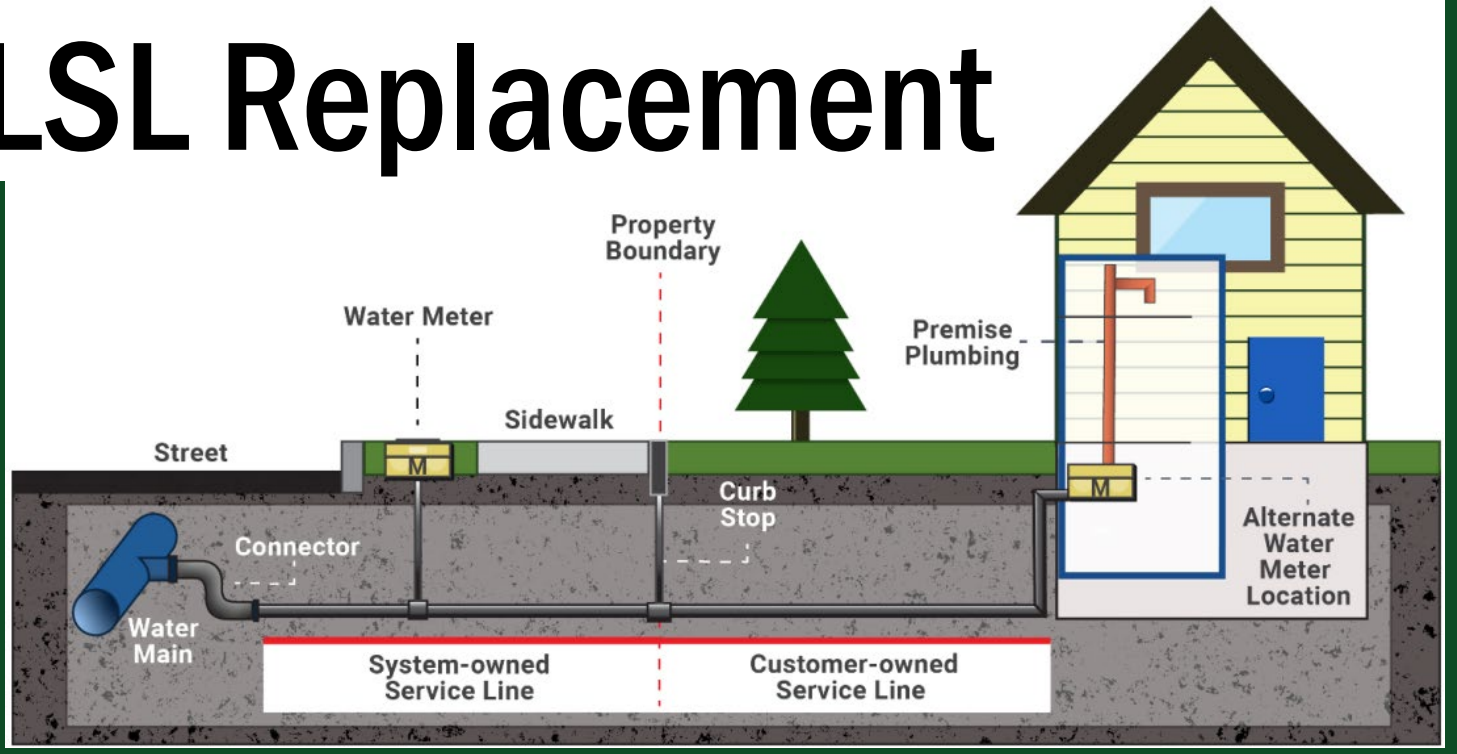
Full LSL Replacement



System-owned Service Line	Customer-owned Service Line
Lead	Lead
Non-Lead	Lead
Lead	Non-Lead
Lead	Galvanized Requiring Replacement
Non-Lead	Galvanized Requiring Replacement

VERMONT

Partial LSL Replacement



System-owned Service Line	Customer-owned Service Line
Lead	Lead or GRR
Lead	Lead or GRR
Lead	Unknown Material
Unknown Material	Galvanized Requiring Replacement

- Replacements disturb scale releasing lead particulates.
- Systems must provide filters for six months for each replacement.
- Federal funding only eligible for full replacements.
- Partial replacements do not count towards replacement goals.

VERMONT

3. Strategy for informing customers before LSL replacement

- Full or partial lead service line replacement
- Flushing procedures
- Pitcher Filter or Point-of-Use Device instructions
  - Filters must be provided by water system for 6 months after replacement project
- Offer follow up tap sample 3-6 months after replacement
- For partial lead service line replacements:
  - Water systems must notify customers **at least 45 days prior** to the replacement of water system's portion of the line.
  - In that notification, water systems must offer to replace [but not pay for] the portion of the line not owned by the water system (customer-owned portion).

VERMONT

3. Strategy for informing customers before LSL replacement

The system will utilize the methods selected for informing customers of a service line replacement:

- In-person / Door-to-door Conversations
- US Mail (letters and/or postcards)
- Door Hangers
- E-mails
- Public Notices: where is it posted?
- Media Outreach
- Social Media Posts
- Other Method approved by Vermont Department of Environmental Conservation

VERMONT

Sample Materials

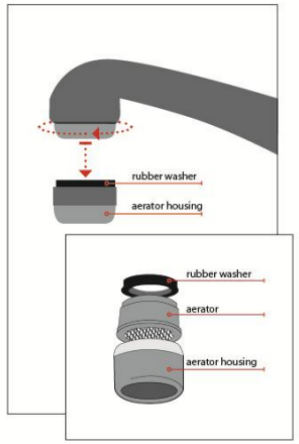
Free Guidance from American Water Works Association (AWWA)
https://www.awwa.org/Portals/0/AWWA/Communications/FINALeadServiceLineCommGuide.pdf

Faucet Aerators (also called screens)[10]

Routinely clean faucet screens. Sediment and metals can collect in the faucet screen located at the tip of your faucets. Replace screens that are in poor condition. New screens are available at local hardware stores.

To clear the faucet screen of debris:

1. Unscrew the screen.
2. Separate the individual parts.
3. Remove any sediment (mineral or rust build up) on the screen and other parts. If necessary, soak the parts in white vinegar for a few minutes and scrub with a brush.
4. Reassemble the screen parts and re-attach to faucet.



Sample Letter: To Customers Affected by Main Rehabilitation or Replacement

Distribute information about an upcoming project and information about removing lead service lines and reducing lead in drinking water.

{Date}

{Address}

{Appropriate Salutation}

{Utility Name} is preparing to {replace} the water main that serves your home. We expect to begin work in the {xxxx} block of {street} in approximately 45 days. We anticipate that this project will proceed smoothly and will we make every effort to minimize any inconvenience to you during construction.

Our records indicate that the pipe from your home to the water main may be made of lead. Lead service lines can increase your risk of exposure to lead through drinking water and should be replaced if possible.

As part of this water main replacement, our contractor will replace with a {copper} service line the portion of the service line that we own, from the water main to your {water meter}. {Utility Name} strongly encourages you to replace the portion that you own, between {the meter} and your

VERMONT

4. LSL replacement goal rate

The LCRR requires water systems with lead levels of 10 parts per billion (ppb) or higher to replace lead service lines.

Water systems recommend a replacement goal rate in this section of LSLR Plan for DEC review and approval.

<u>For water systems that serve 10,000 or fewer persons</u>, a lead service line replacement goal rate is not required in the LSLR Plan.

VERMONT

5. Procedure for customers to flush service lines and premise plumbing of particulate lead

- Replacement of goosenecks and service lines will likely loosen and release lead particulates into drinking water. It is critical that pipes be flushed after the work is complete.
- DEC has written the procedure for all Vermont water systems.
- When possible, notify customers in advance of service line replacements using delivery strategy in Section 3.
- Water systems may propose a modified procedure for DEC approval.

VERMONT

DEC Approved Procedure

Prior to working on the service line, the water system closes water flow to the building interior at a shut-off valve. Then, complete the service line replacement. After work is finished, open flow to the building and premise plumbing.

- Do not consume tap water, open hot water taps, use icemaker, or use filtered water dispenser until after this flushing procedure is complete.
- Remove faucet aerators, screens, and shower heads from all cold water taps in the building.
- Beginning with the lowest level, fully open the cold water taps throughout the building including showers, baths, and hose bibs.
- After all the faucets are open, let the water run for at least 30 minutes.
- Turn off each tap starting with the taps at the lowest level of the building.
- Clean aerators and screens of solid debris place them back on faucets.

It is recommended that customers repeat this flushing every two weeks for three months. Water quality sampling is recommended within 3-6 months after service line replacement and must be offered by the water system.

VERMONT

6. LSL prioritization strategy

Lead Service Line Replacement prioritization strategy based on factors including but not limited to:

- Targeting of known lead service lines
- Lead service line replacement for disadvantaged customers
- Populations most sensitive to the effects of lead.

DEC provides a prioritization strategy for Vermont water systems to implement.

VERMONT

6. LSL prioritization strategy

Priority Points	Prioritization Factor	LCRR Requirement
10	Known Lead Service Line	Required
10	Populations Most Sensitive to the Effects of Lead • Schools and Day Care Facilities • Homes with children and/or people who are pregnant or may become pregnant	Required
10	Disadvantaged Communities	Required
8	Known GRR Service Line	Required
5	Populations Most Sensitive to the Effects of Lead • Nursing Homes • Medical Facilities	Required
5	Companion Projects (concurrent infrastructure projects)	Not Required
5	Compact Projects (concurrent project in the same area)	Not Required
3	Long Length Lead Pipe Projects	Not Required
2	Other Factors Listed in ANSI/AWWA C810-17 § II.A. • Service lines physically disturbed by digging, excavation, repair, or other activities • Existing partial lead service line replacements • Consideration of presence of lead goosenecks or pigtails	Not Required
1	Other Factors Significant to the Water System	Not Required

7. Funding strategy for conducting replacements

The LSLR Plan must include a funding strategy for **conducting lead service line replacements** which considers **ways to accommodate customers that are unable to pay to replace the portion they own**.

EPA info about federal funding opportunities:
https://www.epa.gov/ground-water-and-drinking-water/funding-lead-service-line-replacement.

Vermont DEC Water Investment Division's webpage about Drinking Water State Revolving Fund:
https://dec.vermont.gov/water-investment/water-financing/dwsrf

AWWA Strategies to Obtain Customer Acceptance of Complete Lead Service Line Replacement:
https://www.awwa.org/Portals/0/AWWA/Government/StrategiesforLSLs.pdf?ver=2013-03-29-132027-193

Because of the unique characteristics of each water system, DEC does not provide a specific strategy for adoption.

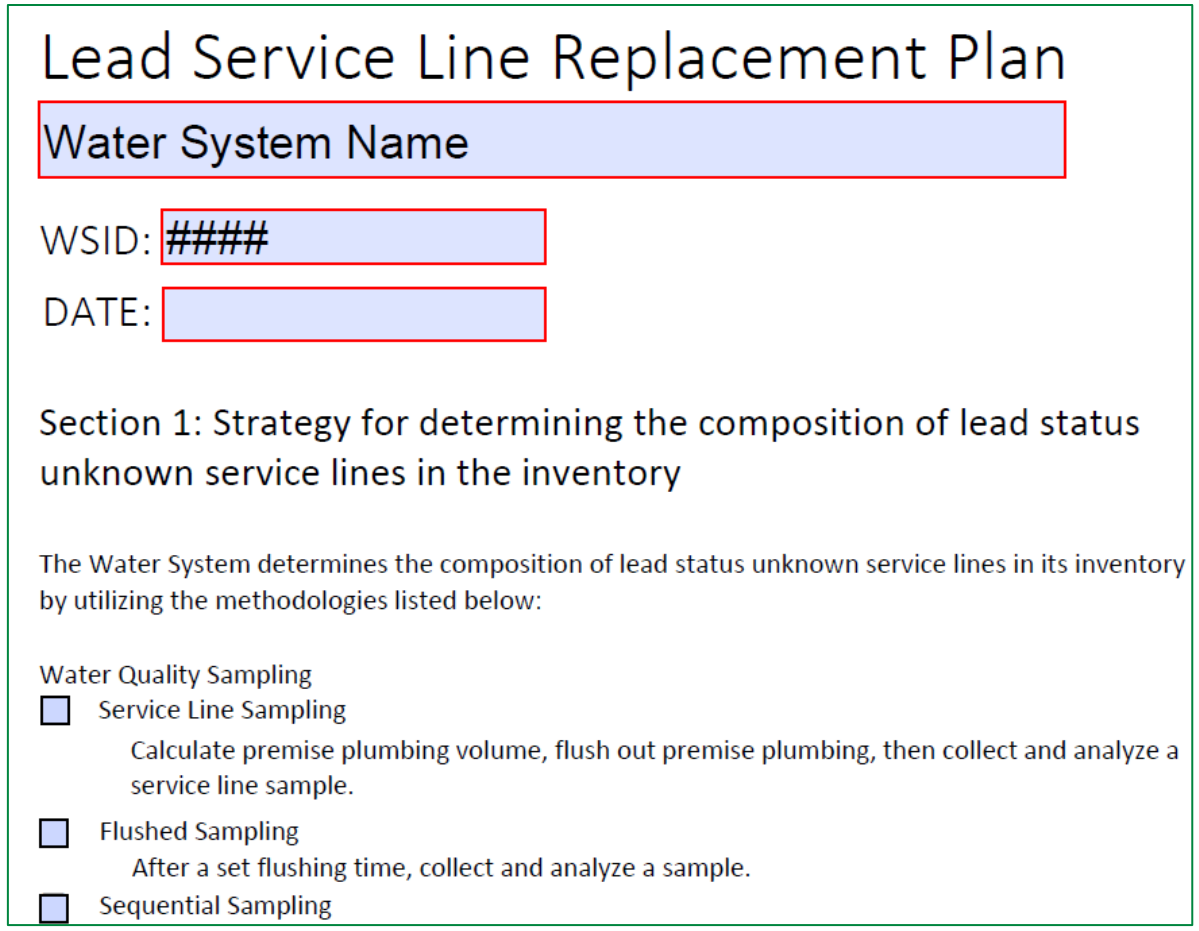
VERMONT

Lead Service Line Replacement Plans

1. Strategy for identifying lead status unknown lines
2. Procedure for conducting full lead line replacement
3. Strategy for informing customers before LSL replacement
4. LSL replacement goal rate
5. Procedure for customers to flush service lines and premise plumbing of particulate lead
6. LSL prioritization strategy
7. Funding strategy for conducting replacements

VERMONT

LSLR Plan Template & Guidance



Lead Service Line Replacement Plan

Water System Name

WSID: ####

DATE:

Section 1: Strategy for determining the composition of lead status unknown service lines in the inventory

The Water System determines the composition of lead status unknown service lines in its inventory by utilizing the methodologies listed below:

Water Quality Sampling

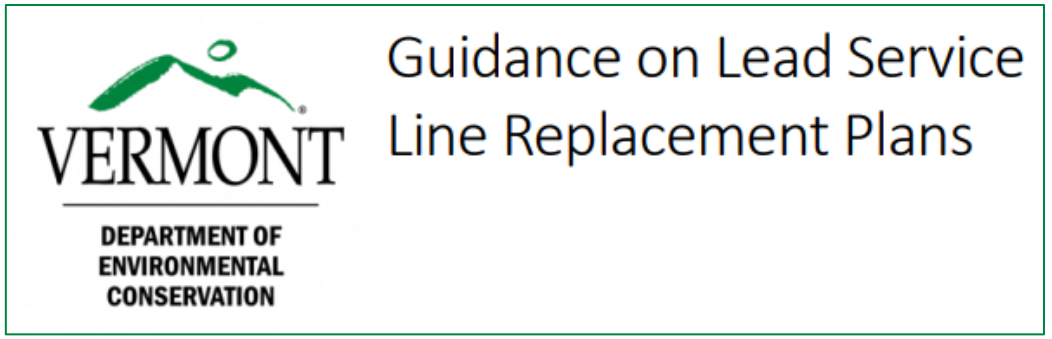
☐ Service Line Sampling

Calculate premise plumbing volume, flush out premise plumbing, then collect and analyze a service line sample.

☐ Flushed Sampling

After a set flushing time, collect and analyze a sample.

☐ Sequential Sampling

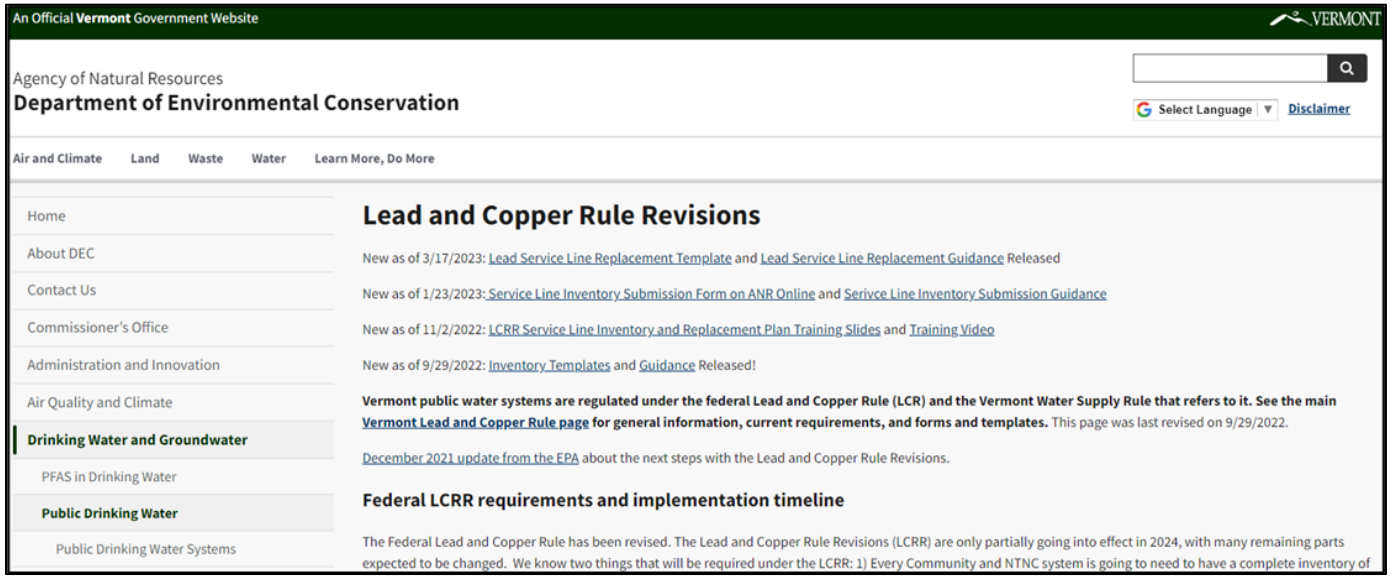


https://dec.Vermont.gov/water

VERMONT

DWGPD LCRR Webpage

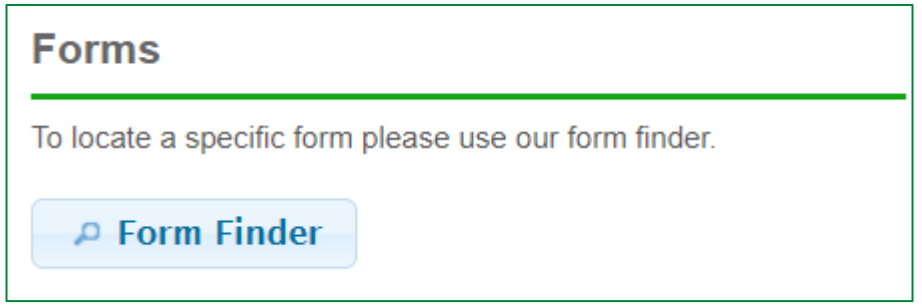
- https://dec.vermont.gov/water/drinking-water/water-quality-monitoring/lead-copper-rule-revision
- SLI Templates
- LSLR Plan Template
- Guidance
- How-to Instructions

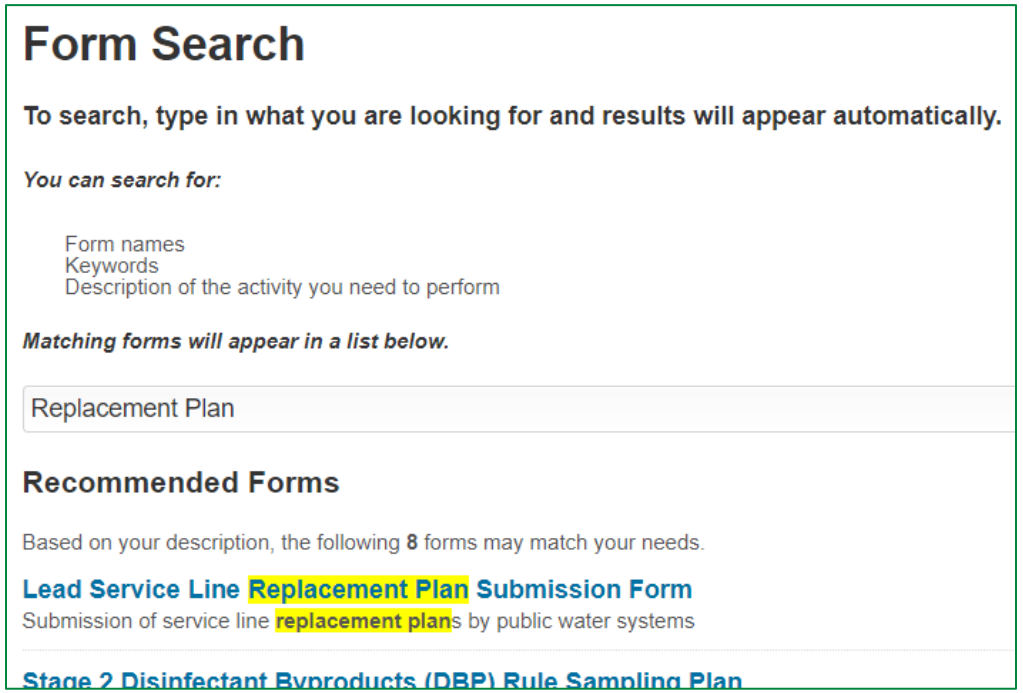


VERMONT

Submitting to ANR Online

- https://ANROnline.vermont.gov/
- Form Finder





- Completed LSLR Plan
- Cover Letter signed by water system representative
- PDFs

VERMONT

Summary

- Lead & Copper Rule Revisions (LCRR)
- DEC's Strategies to Assist Water Systems
- Service Line Inventories
- Lead Service Line Replacement Plan
- Submitting to ANR Online
- Questions

Bruce King | Bruce.King@Vermont.gov
Sustainable Infrastructure Section Supervisor
802-622-4840

VERMONT