RESOLUTION NO. R22-83

A RESOLUTION OF THE CITY OF LAUREL CITY COUNCIL AUTHORIZING THE MAYOR TO EXECUTE ALL NECESSARY AGREEMENTS FOR SERVICES PERFORMED BY 120 WATER AUDIT, INC. RELATED TO LEAD SERVICE LINE COMPLIANCE.

WHEREAS, the City of Laurel (hereinafter "the City") has identified the need to define and execute a plan to comply with the revised Lead and Copper Rule;

WHEREAS, 120 Water Audit, Inc. (hereinafter "120 Water") has proposed to define and execute a plan to comply with the revised Lead and Copper Rule, including developing an inventory, categorized by customer address, for the City, with fully-known SL material information, and provide water quality lead and copper sampling services; and

WHEREAS, the parties wish to memorialize their respective rights and obligations, pursuant to the Master Services Agreement by and between 120 Water and the City, as well as other respective agreements related to the performance of the services to be provided by 120 Water.

NOW THEREFORE BE IT RESOLVED, by the City Council of the City of Laurel, Montana:

Section 1: Approval. The Master Services Agreement by and between 120 Water and the City, as well as other respective agreements related to the performance of the services to be provided by 120 Water, copies attached hereto and incorporated herein, are hereby approved.

Section 2: Execution. The Mayor is hereby given authority to execute all necessary agreements for the provision of services by 120 Water, as reflected in the documents attached hereto and incorporated herein.

Introduced at a regular meeting of the City Council on the 27th day of December 2022 by Council Member Sparks.

PASSED and APPROVED by the City Council of the City of Laurel, Montana on the 27th day of December 2022.

APPROVED by the Mayor on the 27th day of December 2022.

CITY OF LAUREL • SEAL • YELLOWSTONE COUNTY, MONTANA

CITY OF LAUREL

Dave Waggoner, Mayor

ATTEST:

Kelly Strecker, Clerk-Treasurer

APPROVED AS TO FORM:

Michele L. Braukmann, Civil City Attorney

120Water

Lead Service Line Inventory Scope Of Work

This Scope of Work is incorporated in the agreement between 120 Water Audit, Inc., and the City of Laurel. Deliverables : The "Works," as defined in the Agreement, comprise the deliverables stated in this SOW for each phase.

Goal: Define and execute a plan to comply with the revised Lead and Copper Rule, including developing an inventory, categorized by customer address, for the City of Laurel with fully known SL material information. Available in 120Water Platform and ArcGIS-compatible format (via 120Water-Esri Connector), and provide water quality lead and copper sampling services.

Inventory Development Methodology:
There are 7 separate phases to developing a full LSLI. They are:

1) Program Start and Customer Alignment
2) Data Investigation and Submission
3) Data Analysis
4) Preliminary Findings and Software Alignment
5) Software Import and Training
6) LSLI Verification Strategy
7) LSLI Verifications

Further information on each of these phases, along with a general timetable to complete, can be found below.

Phase 1: Program Start and Customer Alignment (1-2 weeks) | The purpose of this program stage is for the 120Water and the City of Laurel teams to initiate the lead service line inventory (LSLI) program and align on program expectations

- Customer Kick-Off Meeting: the 120Water team will host an introductory meeting to establish the cross-functional Program Team and confirm roles and responsibilities. The session will also establish the program approach including success metrics and project timelines, and the cadence of program reviews, client updates, and any additional the City of Laurel goals and expectations
- Deliverable(s): Document containing metrics, timelines, and roles and responsibilities.

Phase 2: Data Investigation and Submission (4-6 weeks) | The purpose of this program stage is for the 120Water team to identify, review, document, and collaboratively understand the existing data source(s) and systems.

- Data Investigation Call with 120Water LSLI Lead Program Consultant: The 120Water team will schedule a guided review meeting with the City of Laurel to identify sources of data the 120Water team can use to build out a preliminary lead service line inventory. Common data sources include:
  - GIS records
  - Billing system records
  - Work order system record
  - Paper reports, tap cards, as-builts, etc.

- Recent capital projects

- Data Request: After the Data Investigation Call, the LSLI Lead Program Consultant will submit a formal data request to the City of Laurel. The data request will outline the specific sources of data the 120Water team will need to analyze in order to identify all service locations, identify or rule-out sources of lead, and prioritize and strategize for lead service line inventory and replacement efforts.
- Data Submission: 120Water will review all submitted data sources. Once all data is submitted, the 120Water team will determine the best analysis approach to bring the data together into a single data set that reflects all service line locations and associated attributes.
  - ESRI Partnership Solution: Since the City of Laurel will have the ability to visualize data in ArcGIS Online (AGOL), 120Water will set up the {Customer Name} specific AGOL environment for data submission. 120Water will update the AGOL environment with preliminary inventory findings and continued inventory updates from the 120Water platform, as the City of Laurel progresses through their lead service line inventory program
- Deliverable(s): Data requests, data analysis plan options

Phase 3: Data Analysis (4-8 weeks) | The purpose of this program stage is to combine all submitted data to develop a preliminary, location-based lead service line inventory that includes EPA complaint service line material categorizations for all identified service lines. The aim is to use existing client data to identify locations, and use the data to rule out potential sources of lead.

- Initiate Analysis: The 120Water data analysis team will conduct a thorough review of the submitted data, to ensure all data fields are understood and data integrity is maintained.
- Build Records-Based Inventory: The 120Water data analysis team will clean and combine all appropriate data sources into a single service line inventory dataset. The final dataset in this stage will include service line locations and material type categorizations for each identified service line in the distribution network, as well as all associated location and service line attributes.
- Note: Should the City of Laurel have records of lead service lines within the system, the City of Laurel may then choose to use a data science driven selection approach to identify a statistically-driven selection of locations *(less than 400 service connections)* for physical field verification (not included in scope). 120Water will use the verification results as the basis for lead service line probability predictions. This approach may require additional investment from the City of Laurel chosen (or 120Water Service Partner) field services firm to execute potholing/hydrovacing/home inspections.
- Deliverable(s): Dataset containing the information described above in this phase.

Phase 4: Preliminary Findings and Software Alignment (2-4 weeks) | The purpose of this program stage is to deliver the results of the preliminary inventory, and gather any additional feedback from the client to support inventory development—both in terms of reviewing the inventory itself and ensuring the 120Water platform sets the client up for success in long-term inventory management.

- Preliminary Findings Session: The 120Water team will meet with the City of Laurel to deliver the preliminary inventory findings. The session will cover a discussion of service line locations, material type associations, the number of service lines the 120Water team was able to categorize as non-lead, geographic trends, etc.

- Data Verification: Using the findings the 120Water team will work with the {Customer Name} to determine if additional data is required to inform the inventory.
- Software Alignment: During the session, the 120Water team will propose the methodology for customizing the 120Water platform to meet the City of Laurel needs (e.g., customization data fields, location and service line identifiers, prioritization set-up, etc.).

- Additional Data Incorporation: If the City of Laurel submits additional data to be incorporated into the lead service line inventory, 120Water will process the data and integrate the new information into the preliminary inventory.
- Deliverable(s): Report of preliminary inventory findings, configuration documentation.

Phase 5: Software Import and Training (2-4 weeks) | The purpose of this program stage is to introduce the City of Laurel to their data in the software, and train the City of Laurel team on how best to use the software for continued inventory management.

- Software Configuration: Setup and configure 120Water platform software account and setup user(s) account(s)
- Inventory Software Import: Import the prepared data *(and/or)* use client's existing records into the 120Water software
  - Note: If the City of Laurel does elect to use the Lead Service Line Probability Finder (predictive model), the 120Water data analysis team will run the model to assess service lines that have the highest probability of containing lead. The preliminary inventory will need to contain sufficient data on SL locations in order to run the model. If the preliminary inventory does not contain the necessary data, 120 .
- Software Training: The 120Water team will train the City of Laurel user(s) on the 120Water software platform using the City of Laurel's data. During this session, the 120Water team and the client will discuss current data systems and processes and provide guidance on using 120Water platform for long-term LSL management
- AGOL Training: the 120Water team will also train the City of Laurel users on the use of the City of Laurel specific 120Water-AGOL environment.
- Deliverable (s): Supporting documentation from training sessions

Phase 6: Lead Service Line Inventory Verification Strategy (1-2 Weeks) | The purpose of this program stage is to strategize with the City of Laurel on how best to proceed with verifying the material types of service lines that are categorized as Unknown in the lead service line inventory.

- Establish the Prioritization Team: the 120Water team will meet with the client to determine the key decision-maker who will own the prioritization and scheduling
- Hold Prioritization and Verification Workshop: The 120Water team and the Prioritization Team will work through inventory findings, prioritization metrics, geographic considerations, neighborhood information, and other details to define the method for organizing ongoing inventory efforts. In addition, both teams will discuss and strategize verification methods that are best suited to support inventory efforts. Additional 120Water offerings include:
  - Customer LSLI Postcard or Letter Survey Campaigns
  - Lead Check Swab Kits + Customer LSLI Postcard Survey Campaigns
  - Physical Field Validation Checks
  - Sampling

- Initiate and Continue Inventory Efforts: The City of Laurel will continue leveraging 120Water software to keep the LSLI updated.
- Continuous Inventory Review: Review the LSLI for compliance throughout the inventory process to ensure the lead service line inventory meets state and federal requirements
- Deliverable(s): Validation plan document

Phase 7: Lead Service Line Inventory Verification (varies) | The purpose of this program stage is to execute on the strategies decided upon during the Verification Strategy phase. The City of Laurel team will have the option to use 120Water or 120Water Partner services to execute the chosen Verification Strategies, or perform those methods internally. In either case the 120Water Platform will serve as the database of record for all Service Line material updates, and the Platform will deliver that data back to the City of Laurel's GIS via the 120Water-Esri Connector.

- Deliverable(s): data produced by the platform.

120Water

City of Laurel - MT - LSLI

City of Laurel - MT
PO BOX 10
LAUREL, MT 59044
United States

Matt Wheeler
mwheeler@laurel.mt.gov
406-628-4796

Reference: 20221104-161144287
Quote created: November 4, 2022
Quote expires: January 31, 2023
Quote created by: Joseph Duysen
Regional Account Manager
joseph.duysen@120water.com

Comments from Joseph Duysen

Products & Services

Item Name & Description	Unit Price	Quantity	Term (months)
Pro - Public Water System Annual subscription PWS Pro package to manage programs and data. Unlimited users	$6,670.00 / year	1	12
Professional Services (Assist) Discrete tappable specifics under each scope area (block of 20 hours)	$2,500.00 / year	2	12
Implementation Setup, Configuration and Guided Web Training of the 120 Water Account	$1,500.00	1	12

Item Name & Description	Unit Price	Quantity	Term (months)
4x8 undesigned Postcard printed double sided with postage Postcard sent outside the platform	$1.75	1000	12

Subtotals

Annual subtotal	$9,919.50 after $1,750.50 discount
One-time subtotal	$3,162.50 after $87.50 discount
Total	**$13,082.00**

Purchase terms

Invoice Terms: Net 30
Billing Street Address: PO Box 10
Billing City: Laurel
Billing State: MT
Billing Zip Code: 59044
Billing Country: US
Billing Notes (if applicable):

This Order Form, together with the Master Services Agreement available at https://120water.com/master-services-agreement/ (the "MSA"), shall become a legally binding contract upon the earlier of (a) the date both parties execute the Order Form or (b) the date Customer initially began using the Services. Any capitalized word not otherwise defined in this Order Form shall have the same meaning as set forth in the MSA.

120Water may reject this Order Form if: (1) the signatory below does not have the authority to bind Customer to this Order Form, (2) changes have been made to this Order Form (other than completion of the purchase order information and signature block), or (3) the requested purchase order information or signature is incomplete or does not match our records or the rest of this Order Form. Subscriptions are non-cancelable before their end of the Term.

Signature

Signature

1/10/23

Date

DAVID WAGGONER

Printed name

Countersignature

Countersignature

1/10/23

Date

Kelly Strecker

Printed name

Questions? Contact me

Joseph Duysen
Regional Account Manager
joseph.duysen@120water.com

120Water
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Zionsville, IN 46077
US

120Water™

LEAD AND COPPER RULE REVISIONS CHECKLIST

Your Step By Step Guide to Managing LCRR Readiness and Compliance

LCRR has set a new standard for compliance, and the list of requirements is long. The below checklist outlines what is expected of water systems across the country at a federal level as of October 2022 (this checklist is not inclusive of state-specific regulatory guidelines regarding LCRR). Use this as a tool to assess your system's compliance readiness and track your compliance journey

Service Line Inventory

☐ Gather and Manage Service Line Information

- ☐ Assemble paper records that can inform service line materials (i.e. tap cards, master building plans, capital improvement project plans, etc.)
- ☐ Gather digital records that can inform service line materials (where applicable)
- ☐ Connect with local plumbers, contractors, city managers and others to acquire plumbing records and relevant code information to determine usage of various service line materials
- ☐ Determine if galvanized service lines are or ever were at any time downstream of a lead service line (LSL) or are currently downstream of a lead status unknown service line. If the water system is unable to demonstrate that a galvanized service line was never downstream of an LSL, it must presume there was an upstream LSL
- ☐ Procure a solution that will help you record and organize service line information from print and digital sources into an electronic format to begin building your preliminary inventory. Consider something that is easy to use in the field or the office, can integrate with other electronic platforms your system may use and can potentially enable reporting to your state when the time comes

☐ Build and Verify Your Service Line Inventory

- ☐ Compile applicable records into your chosen electronic solution to build your preliminary inventory, including a locational identifier for each LSL (intersection, landmark, etc.)
- ☐ Connect with representatives in your state to determine acceptable verification methods for identifying unknown service line materials (such as interior inspection, excavation, predictive modeling, etc.) in your state
- ☐ Establish a strategy for identifying the material of unknown service lines on the utility and customer-owned portions of the line using the approved verification methods within your state
- ☐ Partner with professionals in the community (plumbers, realtors, general contractors, etc.) who may have access to customer-side portions of service lines to support verification efforts. Consider resident outreach to assist in verification efforts as well
- ☐ Define and document your internal process for updating the service line inventory annually. The EPA is requiring either an annual or triennial submission of updated inventories (dependent upon your LCR monitoring schedule) until the material of all service lines is accurately identified.

☐ LSL Replacement Plan

- ☐ Document verification strategy for identifying the material of unknown lines
- ☐ Identify priorities within your utility's service area for locating and removing LSL, taking into consideration that pregnant women, children and the elderly are most severely impacted by lead contamination
- ☐ Document strategies for communicating with homeowners about your replacement program
- ☐ Develop a course of action for replacing LSLs, inclusive of both the utility and customer-owned portions of the line. The plan should include an annual replacement percentage in the event of a trigger-level lead exceedance and a strategy for pitcher/filter distribution post-replacement as well as flushing procedures
- ☐ Detail funding opportunities to assist with replacement specific to your state, especially customer-owned sections of the line
- ☐ Develop an internal (documented) process for the following scenarios:
  - ☐ Removal of LSLs, galvanized, lead goosenecks, pigtails or connectors, or lead status unknown lines during planned or unexpected infrastructure work, including necessary filter, flushing and sampling procedures post-replacement (if applicable)
  - ☐ Service disruption to LSLs, galvanized or lead status unknown lines, including internal response and customer communication and instructions
  - ☐ Customer replacement of an LSL, including filter and flushing instructions. LCRR requires utilities to replace their portion of a line within 45 days of customer-driven replacement

☐ Public Transparency and Notification

- ☐ Develop an interactive, digital map of your service line inventory if your water system serves over 50,000. The EPA is requiring that systems serving more than 50,000 people make their inventories accessible online. Although a digital format is not required for smaller utilities, all systems should make their inventories available to the public in some format
- ☐ Establish an annual notification process for customers served by LSLs, galvanized lines, and unknown service lines
- ☐ Send notification to affected customers within 24 hours if the lead action level for the 90th percentile concentration is above 15 ppb
- ☐ Send notification to affected customers within 3 days if their individual residential compliance sample exceeds 15 ppb
- ☐ Send notifications within 30 days of receipt regarding school and childcare sampling results to facilities involved, state agencies and health departments
- ☐ Develop communication plans to inform your customers about your system's inventory and LSL replacement efforts (if replacement is needed)
- ☐ Develop communication plans for schools and daycares in your utility's service area, focusing on those built before 2014. Elementary schools and daycares should be provided with a proposed sampling plan. Secondary schools are not required to be sampled under LCRR, but information on how to request sampling if desired should be provided

Sampling and Treatment

☐ Residential Sampling

- ☐ Prepare for Find and Fix provision requirements, which require utilities to provide follow-up sampling to any home with lead levels above 15 ppb within 30 days, perform a site analysis, recommend remediation methods and add site to regular WQP sampling
- ☐ Update sampling procedures to include 1-liter wide mouth bottles and evaluate adding 5th-liter sampling to your procedural routine
- ☐ Revise tier sampling pools to include all LSLs if applicable. If there are not enough LSLs to fill each pool, move on to galvanized downstream of lead or lead goosenecks, then copper with lead solder

☐ School and Daycare Sampling

- ☐ Create a list of all schools and licensed daycare facilities in your utility's service area
- ☐ Develop a 5-year sampling schedule that includes sampling 20% of elementary schools each year, 20% of childcare facilities each year and secondary schools by request. All elementary schools and daycare facilities should be sampled by the end of the 5-year cycle, and must be sampled again after the 5 years by request
- ☐ Report to your appropriate state agency by July 1 of each year identifying that information regarding the health risks of lead was provided to all schools and childcare facilities, and the sampling and notification requirements were met

☐ WQP Sampling

- ☐ Sample WQPs at the locations, frequency and parameters required by your state
- ☐ Add new WQP sample sites under Find and Fix where lead exceedances are found

☐ Corrosion Control Treatment (CCT)

- ☐ Establish if you are or are not considered to have CCT under LCRR
- ☐ Review historic water quality and tap sample data as a baseline CCT evaluation method
- ☐ Under the new trigger level of 10ppb, systems currently using CCT will need to re-optimize CCT protocols using a lower threshold
- ☐ Any system with an action level exceedance (15 ppb) will be required to implement CCT

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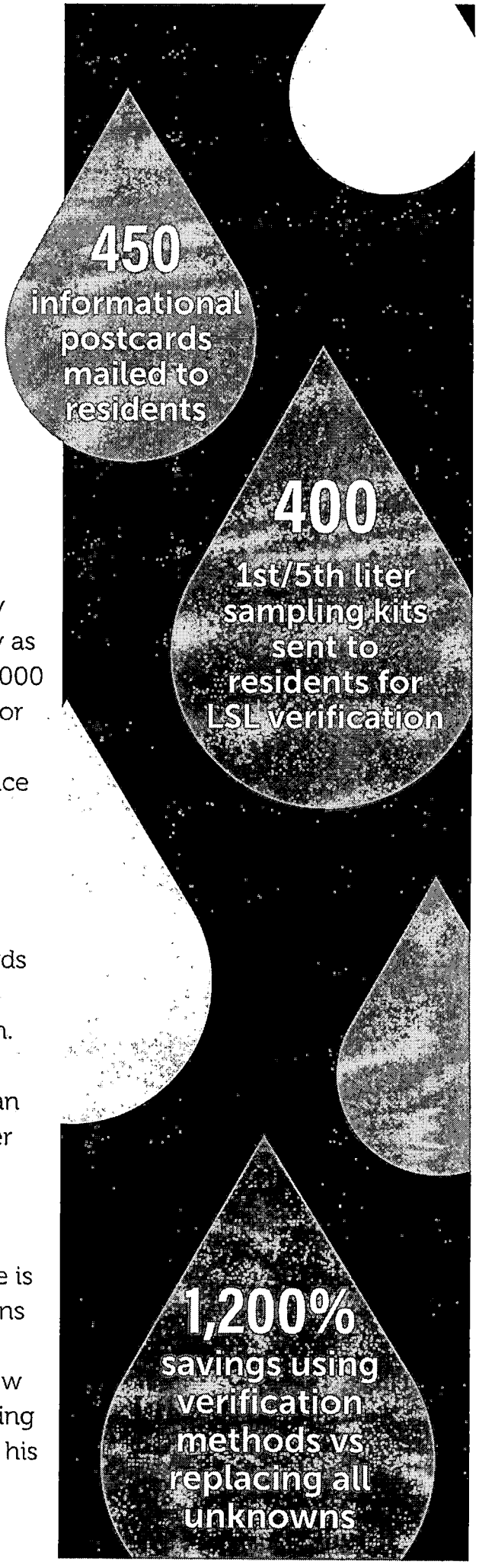
Smyrna, GA Gets Ahead of Lead:

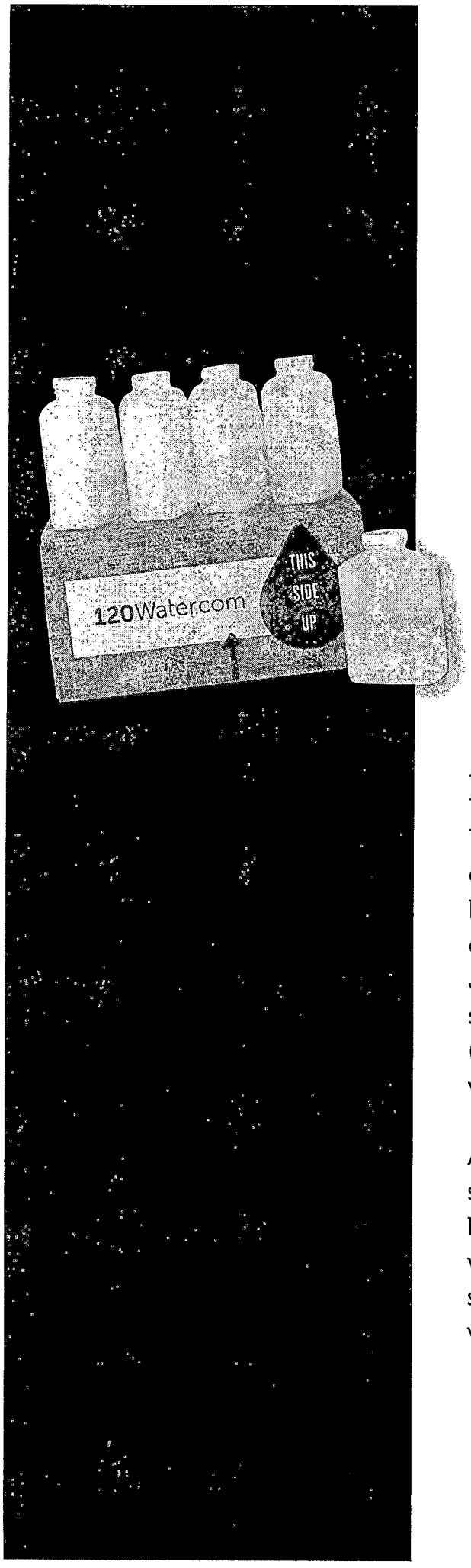
City saves millions of dollars and prioritizes compliance well in advance of federal deadline

After learning about the daunting Lead and Copper Rule Revisions in late 2020, the City of Smyrna, GA, knew they needed to begin mapping out their service line inventory as soon as possible. Serving a population of 55,000 with 16,000 service connections, Bo Jones, the City's Assistant Director of Public Works, did not want to wait for additional state guidance and risk cutting it close to the federal compliance deadline of October 16, 2024.

120Water was contracted to support the City's inventory development efforts, and after an initial records review, which included GIS and billing data and historical tap cards kept in a filing cabinet, the City was left with about 5,000 unknown service lines, or about one-third of their system. Under LCRR, unknown service lines must be classified as lead until the material of the line can be validated using an accepted method. Thus, the City of Smyrna and 120Water began verifying these unknown service lines using water sampling, specifically a 1st/5th-liter draw.

Sequential sampling allows Smyrna to understand if there is a lead line present on the public or private-owned portions of the line, or both, and is a significantly less invasive method compared to potholing or excavation. Jones knew his community would not be agreeable to their lawns being torn up and wanted to ensure he had the community on his side throughout his inventory efforts.





Jones also knew it would be important to notify residents of the sampling initiative before simply sending a testing kit to their doorstep, so the 120Water team worked to develop a postcard that is sent out a few weeks prior to the testing kits making them aware of what is to come.

Building a service line inventory is a journey and 120Water has supported Smyrna by:

- **Sending 450 informational postcards to residents prior to sampling**
- **Mailing 400 5-liter testing kits to homes, along with detailed instructions for taking the sample correctly**
- **Working with schools and licensed daycares in their service area to prepare for future facility sampling requirements**
- **Providing 1,200% savings by verifying service line materials rather than assuming replacement for 5,000 lines**

Another concern Smyrna faced was how to fund their inventory development. Soon after hearing about LCRR, Jones met with the mayor and local council to explain the requirements and the impact on public health, and propose funding opportunities. The city created a CIP line item in the budget specifically for Jones' request. Additionally, Jones applied and secured funds through the American Rescue Plan Act (ARPA), which allocated spending toward improving water quality.

A year and a half into their service line project, Smyrna still has a road ahead of them to complete verification, but employing an experienced partner like 120Water will allow them to exceed compliance expectations, save time and financial resources, and have a fully verified inventory prior to the federal deadline.

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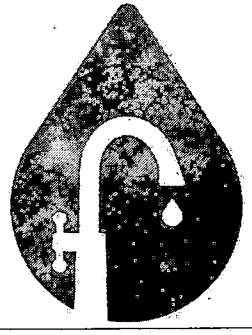

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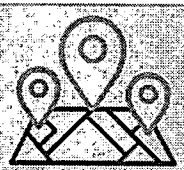
Best Practices for Inventory Development

The Second step of
Lead and Copper Rule Compliance

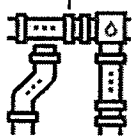
Foundation for achieving LCRR compliance



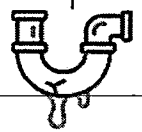
Service Line Inventory
Location-based

School & Childcare
Facility Sampling

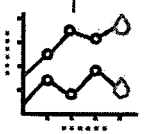
24-Hour Notice
Triggered Communication



Replacement
Sampling & Filters



"Find & Fix" Provision
Retest & Remediate



Action & Trigger Level
15 ppb vs 10 ppb

Key Dates

December 16, 2021
LCRR Effective Date

October 16, 2024
LCRR Compliance Date

Prior to October 16, 2024
EPA Finalizing Lead and Copper Rule Improvements (LCRI)

Get Started

LCRR playbook for distribution systems that likely **have lead**

Develop

1. **Develop Preliminary Inventory**
   a. **Gather, digitize, and clean existing SL data**
   b. **Include inventory of schools & daycares**
2. Create Customer Engagement Strategy
3. *Run Predictive Model*

Verify

4. Verify Preliminary Inventory
   a. Verification planning/prioritization
   b. *Execute private-side* field projects
   c. Execute *public-side* field projects
   d. *Re-run Predictive Model*
   e. Create Replacement Plan
5. Provide Public Transparency Dashboard

Replace, Sample, Report

6. Pitcher/Filter Program
7. Sampling
   a. Replacement monitoring
   b. 1st and 5th Liter Compliance Monitoring
8. Manage Schools & Daycares Sampling
9. Report (as necessary) to Primacy Agency

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Our Approach

Preliminary records-based inventory established

Compliant inventory submitted to EPA by 10/16/2024

CREATE a records-based preliminary service line inventory

- Process steps
  - **Data set(s) collection**
  - **Data cleaning & joining**
  - **Paper-records digitization**
  - **Data analysis**
  - **Review & iterate on inventory**
  - **Finalize Preliminary Inventory**
  - **Upload inventory to software**
- Determine verification approach

VERIFY unknown material type service lines, update & submit

- Verification Methods
  - **Customer surveys**
  - **Site inspections**
  - **Lead check swabs**
  - **Sampling**
  - **Test pitting**
  - **Observations from field work**
- Public communications

CREATE replacement plan and REPLACE lead service lines

- Develop & submit LSLR Plan
- Public communications
- Prioritize locations
- Schedule
- Replacement construction
- Post construction sampling
- Update inventory

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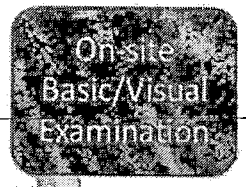
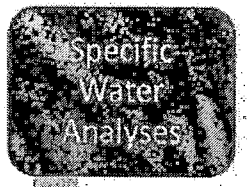
Suggested stepwise SL identification approach

For example:
- Local plumbing code history, e.g. determine when Pb was last used

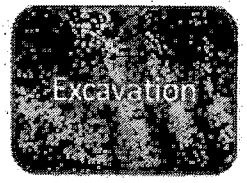
- SL installation/maintenance records
- Plumbing permits
- Property tax records
- Meter installation records



- Resident survey, e.g. photos
- Utility staff, e.g. meter inspection
- Partners, e.g. plumbers and non-water utilities



- Flushed samples
- Targeted service line
- Sequential/profile samples



- Mechanical
- Vacuum-excavation

Note: Adopting the approach in its entirety assumes availability of resources and need

From Hensley, Bosscher, Triantafyllidou , Lytle, 2021, AWWA Water Science "Lead Service Line Identification: A Review of Strategies and Approaches" https://awwa.onlinelibrary.wiley.com/doi/abs/10.1002/aws2.1226

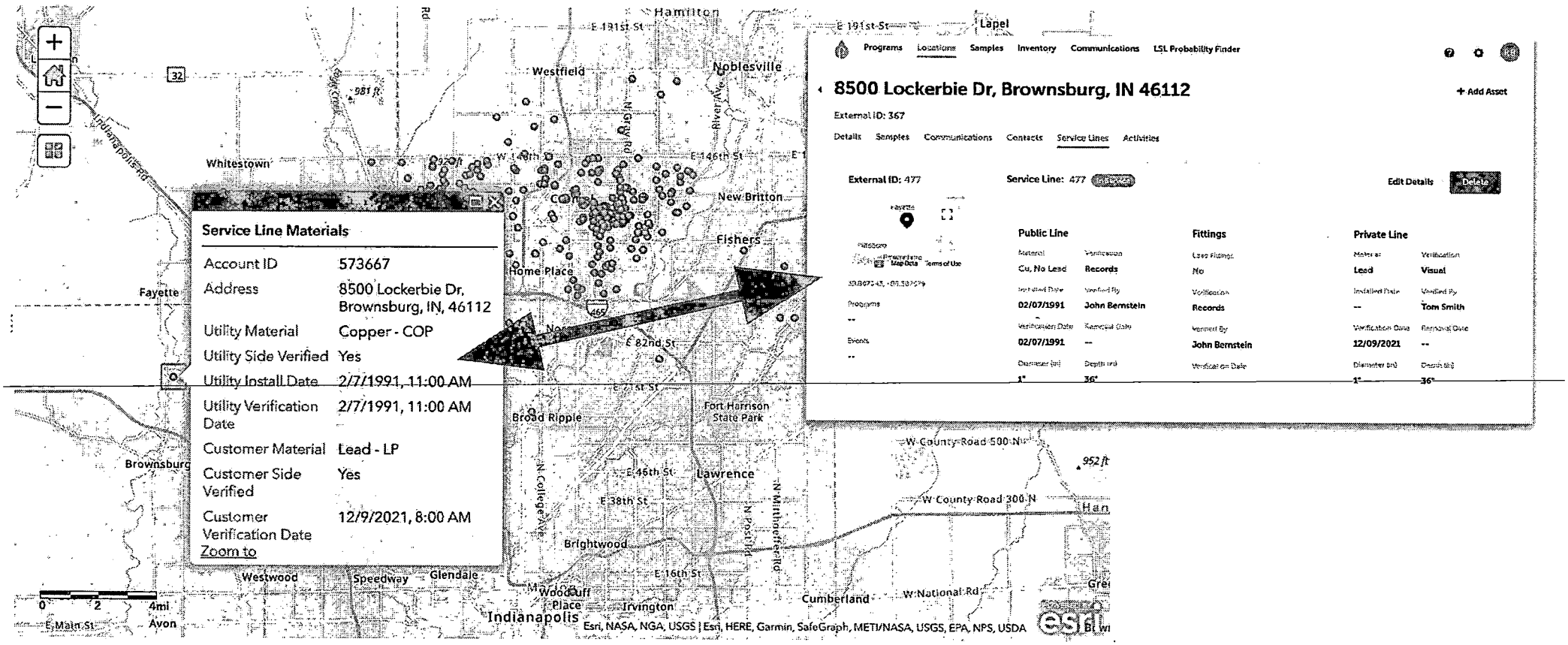
Top Data Sources to Build Your Inventory

- Top Data Sources:
  - GIS, work order + billing systems
  - Contractors
  - Historical Records
  - Tax parcel data
  - Customers
  - Capital improvement projects
  - Other Documentation

- Tips for finding and digitizing these records?
  - Check policy and plumbing codes when LSL restricted relative to federal ban in 1986
  - Examine your existing data
  - Layer in city records (such as tax parcel data) to understand home age and relevant data points
  - Communicate and collaborate with personnel throughout the utility

ArcGIS Connector

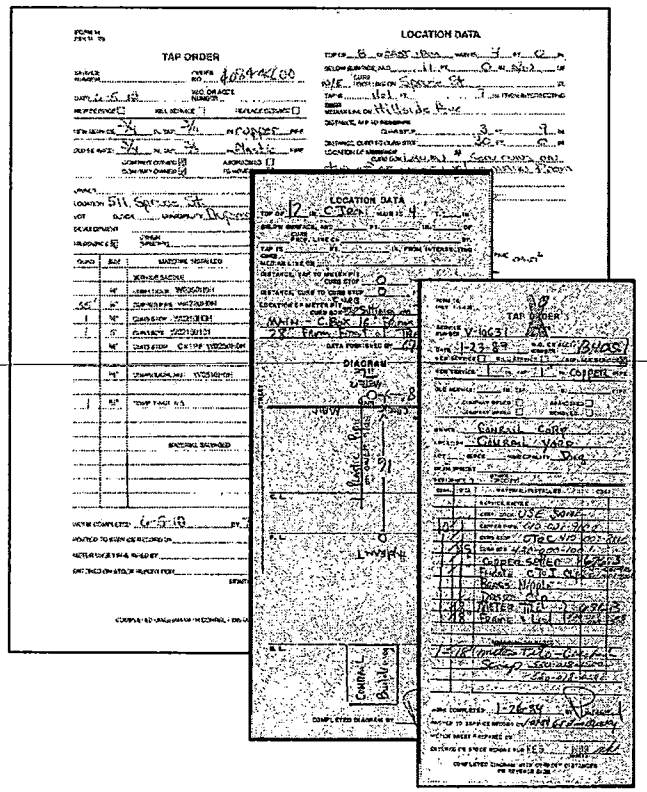
Develop

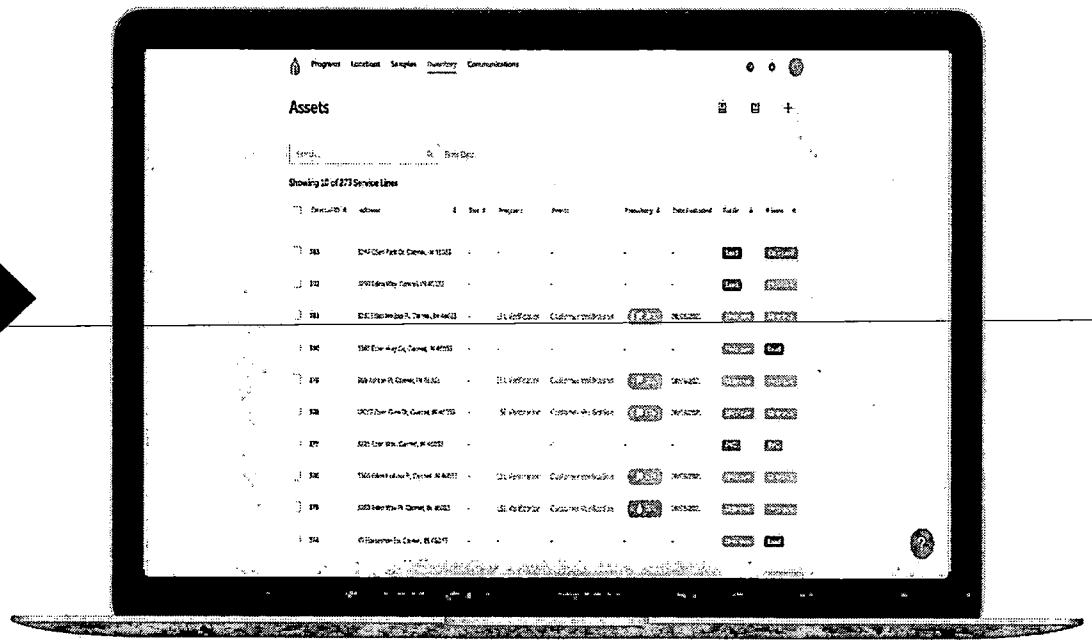


Tap Card Digitization

Develop

Evolve from Paper based records to a fully digital database using AI





Customer Engagement Strategy

Develop

Planned, Proactive, Positive

Automated and triggered communications

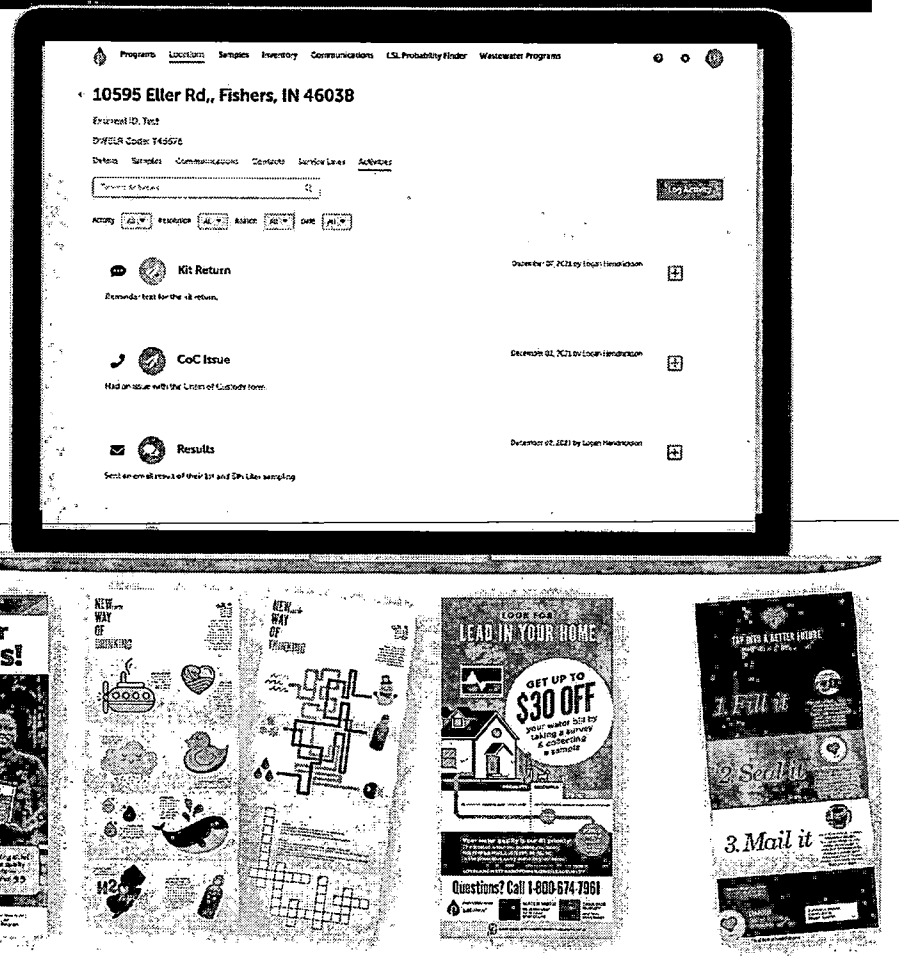
- Automatically generate and send templated notices anytime and anywhere they are needed.
- Engage with one location or the entire distribution system with a few clicks.

End-to-end activity tracking

- See history of all communications and activities with customers by location.

Custom postcards and surveys

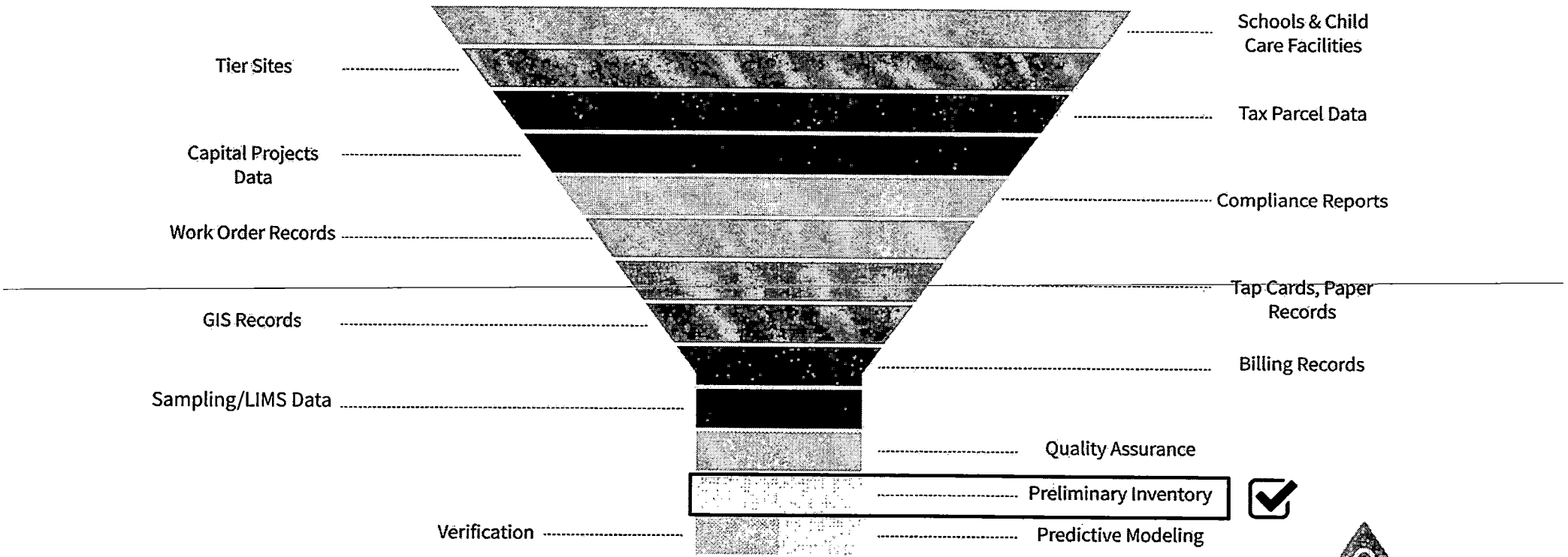
- Provide an engaging and positive brand experience.



Preliminary Inventory Development

Develop

Create your inventory, regardless of starting place



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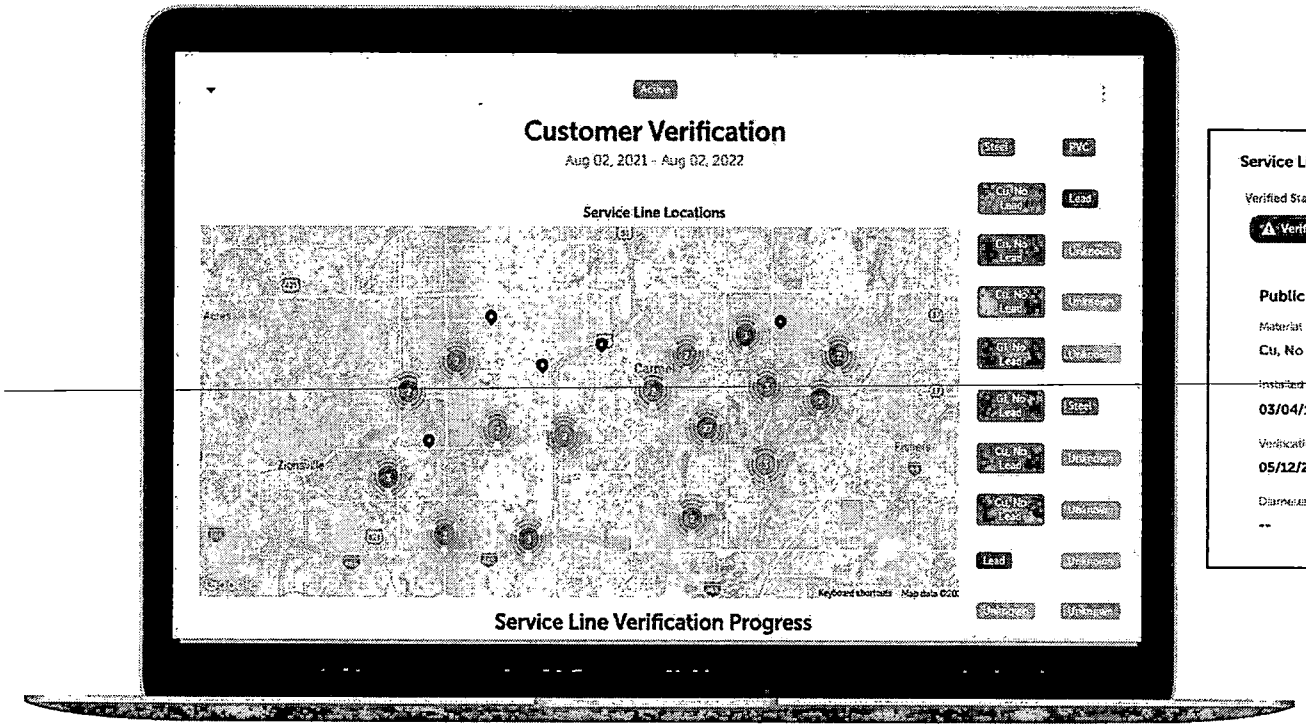
Verification Workflow Management

Verify

Track every step of the verification process



Service Line: In Service

Edit Details | Delete

Verified Status	Verified Date
Verified Lead	07/07/2021

Public Line		Fittings		Private Line	
Material	Verification	Lead Fittings		Material	Verification
Cu, No Lead	Records	Unknown		Lead	Visual - Swab
Installed Date	Verified By	Verification		Installed Date	Verified By
03/04/1993	Roger M.	--		--	Tony R.
Verification Date	Removal Date	Verified By		Verification Date	Removal Date
05/12/2021	--	--		07/07/2021	--
Diameter (in)	Depth (in)	Verification Date		Diameter (in)	Depth (in)
--	--	--		--	--

How do I get started?

LCRR playbook for distribution systems that likely **have lead**

Develop

1. Develop Preliminary Inventory
   a. Gather, digitize, and clean existing SL data
   b. Include inventory of schools & daycares
2. Create Customer Engagement Strategy
3. *Run Predictive Model*

Verify

4. Verify Preliminary Inventory
   a. Verification planning/prioritization
   b. ***Execute private-side* field projects**
   c. **Execute *public-side* field projects**
   d. ***Re-run Predictive Model***
   e. **Create Replacement Plan**
5. Provide Public Transparency Dashboard

Replace, Sample, Report

6. **Pitcher/Filter Program**
7. Sampling
   a. Replacement monitoring
   b. 1st and 5th Liter Compliance Monitoring
8. Manage Schools & Daycares Sampling
9. Report (as necessary) to Primacy Agency

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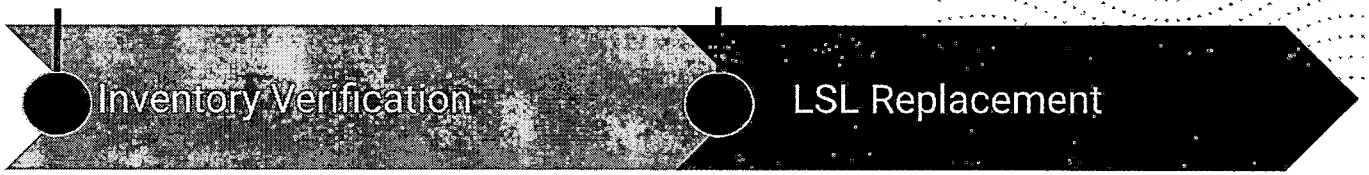
Our Approach

Preliminary records-based inventory established

Compliant inventory submitted to EPA by 10/16/2024



VERIFY unknown material type service lines, update & submit

- Verification Methods
  - Customer surveys
  - Site inspections
  - Lead check swabs
  - Sampling
  - Test pitting
  - Observations from field work
- Public communications

CREATE replacement plan and REPLACE lead service lines

- Develop & submit LSLR Plan
- Public communications
- Prioritize locations
- Schedule
- Replacement construction
- Post construction sampling
- Update inventory

120Water™

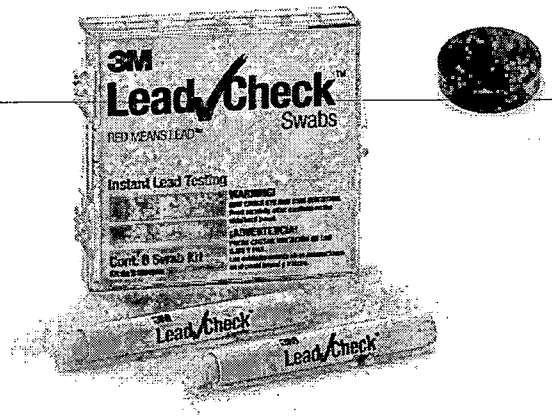
Private-side Verification

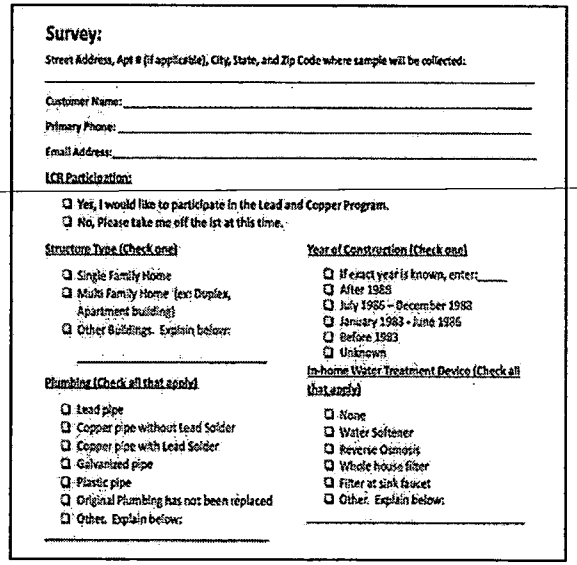
Verify

Verify your *customer owned* inventory efficiently

Lead check swabs | Customer survey postcards

- Easy to use with clear instructions
- Customers digitally submit results in minutes
- Data is automatically imported into the software





Survey:

Street Address, Apt # (if applicable), City, State, and Zip Code where sample will be collected:

_____

Customer Name: _____

Primary Phone: _____

Email Address: _____

LCR Participation:

- ☐ Yes, I would like to participate in the Lead and Copper Program.
- ☐ No, Please take me off the list at this time.

Structure Type (Check one)

- ☐ Single Family Home
- ☐ Multi Family Home (ex: Duplex, Apartment building)
- ☐ Other Buildings. Explain below:

_____

Plumbing (Check all that apply)

- ☐ Lead pipe
- ☐ Copper pipe without Lead Solder
- ☐ Copper pipe with Lead Solder
- ☐ Galvanized pipe
- ☐ Plastic pipe
- ☐ Original Plumbing has not been replaced
- ☐ Other. Explain below:

_____

Year of Construction (Check one)

- ☐ If exact year is known, enter: ____
- ☐ After 1988
- ☐ July 1986 – December 1988
- ☐ January 1983 - June 1986
- ☐ Before 1983
- ☐ Unknown

In-home Water Treatment Device (Check all that apply)

- ☐ None
- ☐ Water Softener
- ☐ Reverse Osmosis
- ☐ Whole house filter
- ☐ Filter at sink faucet
- ☐ Other. Explain below:

_____

Using Lead Check Swabs

Your local water utility is working hard to identify possible lead sources and we need your help!

These swabs are a quick and easy way to identify lead in your home's plumbing. As a participant in this assessment you were provided 2 swabs to apply to two locations in your home:

1. The Service Line
2. Interior plumbing with solder

REMEMBER: 1 Swab per location – DO NOT rub on more than one (1) location

Watch our video to learn how to find these! Visit 120water.com/lead-check or scan the QR code.

FOLLOW THESE THREE SIMPLE STEPS TO LOOK FOR LEAD IN YOUR HOME

STEP 1: If available, use sandpaper to scrub the metal surface you want to test. Wipe the surface clean.

STEP 2: Crush the swab on the A and B marks *(See Figure 1)*. Turn the swab tip-side-down and shake it several times *(See Figure 2)*. Then gently squeeze until a yellow liquid comes to the surface.

STEP 3: Gently squeeze the tube while lightly rubbing the surface you are testing *(See Figure 3)*. Rub for 30 seconds. Swabs must be used within two minutes.

No Lead: If the tip remains YELLOW, verify your negative results by squeezing a drop of reagent onto the test confirmation card. *(See Picture 1)*

Lead Pipe: The tip will turn PINK or RED if lead is present. *(See Picture 2)*

Lead Solder: If you are testing leaded solder, the tip may turn PINK or RED first, and then may turn **PURPLE**. This is caused by the presence of tin.

EXAMPLES: *Image 1* depicts a lead-free certified bronze elbow. *Image 2* depicts a lead service line. Lead check swabs confirmed expected results for both plumbing components.

PLEASE KEEP IN MIND:

- Swabs cannot be used to test water but you can use them on toys or ceramics if you do not have solder to test.
- Use one swab per surface and do not rub an individual swab on more than one metal

The letter contained in this kit will provide you with instructions and a link to report your findings.

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120water.com

Verify

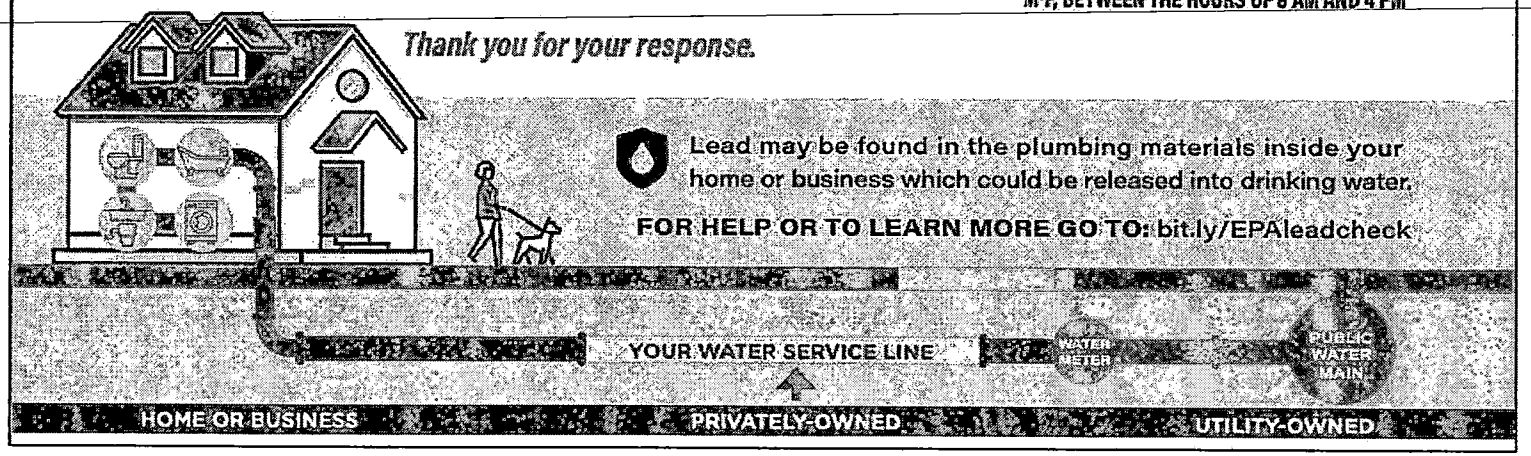
TAKE THIS SHORT SURVEY
TO HELP US PROTECT YOUR DRINKING WATER

<<<INSERT CLIENT NAME>>> requests your help in completing this important survey to document the material of your water service line from the water meter to just outside of your house or business. The results may help to improve the quality of water that you rely on every day. Submitting will not obligate you to replace your water service line, but it may allow CLIENT to obtain grant funding to replace your water service line at **NO COST TO YOU** (if you permit this work to take place on your property).

This survey may be completed through one of the following methods:

- **MAIL:** Back of this postcard
- **PHONE:** (800) 674-7961
- **EMAIL:** support@120water.com
- **ONLINE:** 120Water.formstack.com/forms/client
- **IN-PERSON:** INSERT CLIENT Business Office
  M-F, BETWEEN THE HOURS OF 8 AM AND 4 PM

Thank you for your response.



NAME_____

ADDRESS_____

_____

PHONE_____

EMAIL_____

The type of my water service line from the water meter to just outside of my house or business is best described as the following:

- ☐ Lead
- ☐ Galvanized steel
- ☐ Copper
- ☐ Plastic
- ☐ Other:_____
- ☐ Unknown
- ☐ I am unsure and would like someone from INSERT CLINET NAME to assist me in identifying the material.

I have determined the type of my water service line as follows:

- ☐ I have observed the material and know what it is.
- ☐ I have been provided some form of documentation of the water service line material.
- ☐ It is my best guess.
- ☐ Other _____

My house or business was built in one of the following time periods:

- ☐ Prior to 1960
- ☐ 1960 to 1988
- ☐ After 1988
- ☐ I am unsure

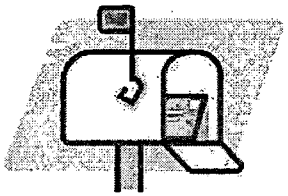
Are there children under the age of 6 and/or pregnant women who live in your home or regularly visit your home?

☐ Yes ☐ No

Are you willing to participate in the Lead and Copper Program?

☐ Yes ☐ No

Verify



The INSERT CLIENT NAME requests your assistance in completing this survey. At your convenience, please answer all questions and detach the survey along the perforated edge. Once completed, simply place the detached survey in your mailbox or drop it off in your nearest postal drop box.

Submit your survey by

FRIDAY, OCTOBER 14TH, 2022

for a chance to win

SIX MONTHS OF WATER FOR FREE.

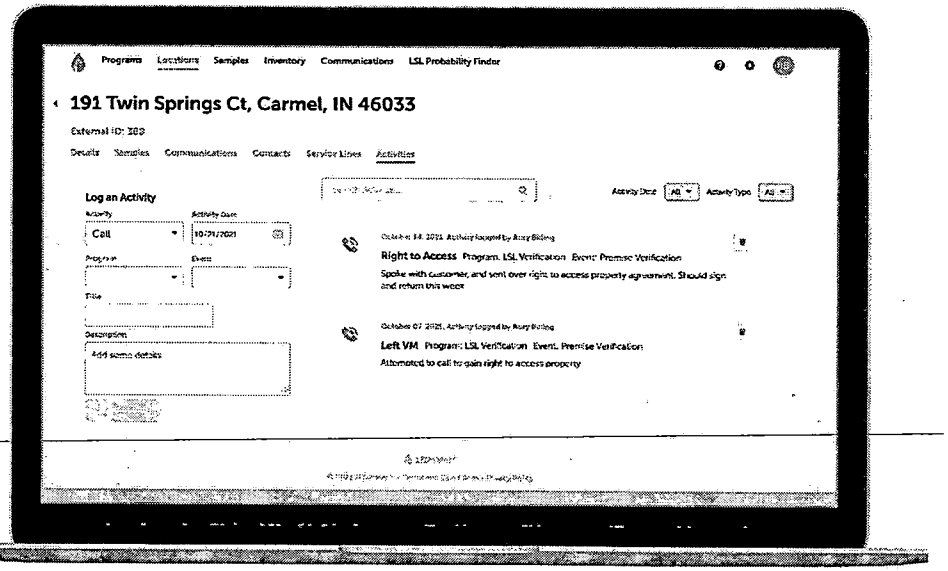
(restrictions may apply)

Public-side Verification

Verify

Verify your *utility owned* inventory efficiently

- Simple software to use in the field
- Upload photos and notes
- Maintain real-time records and monitor activities for every location

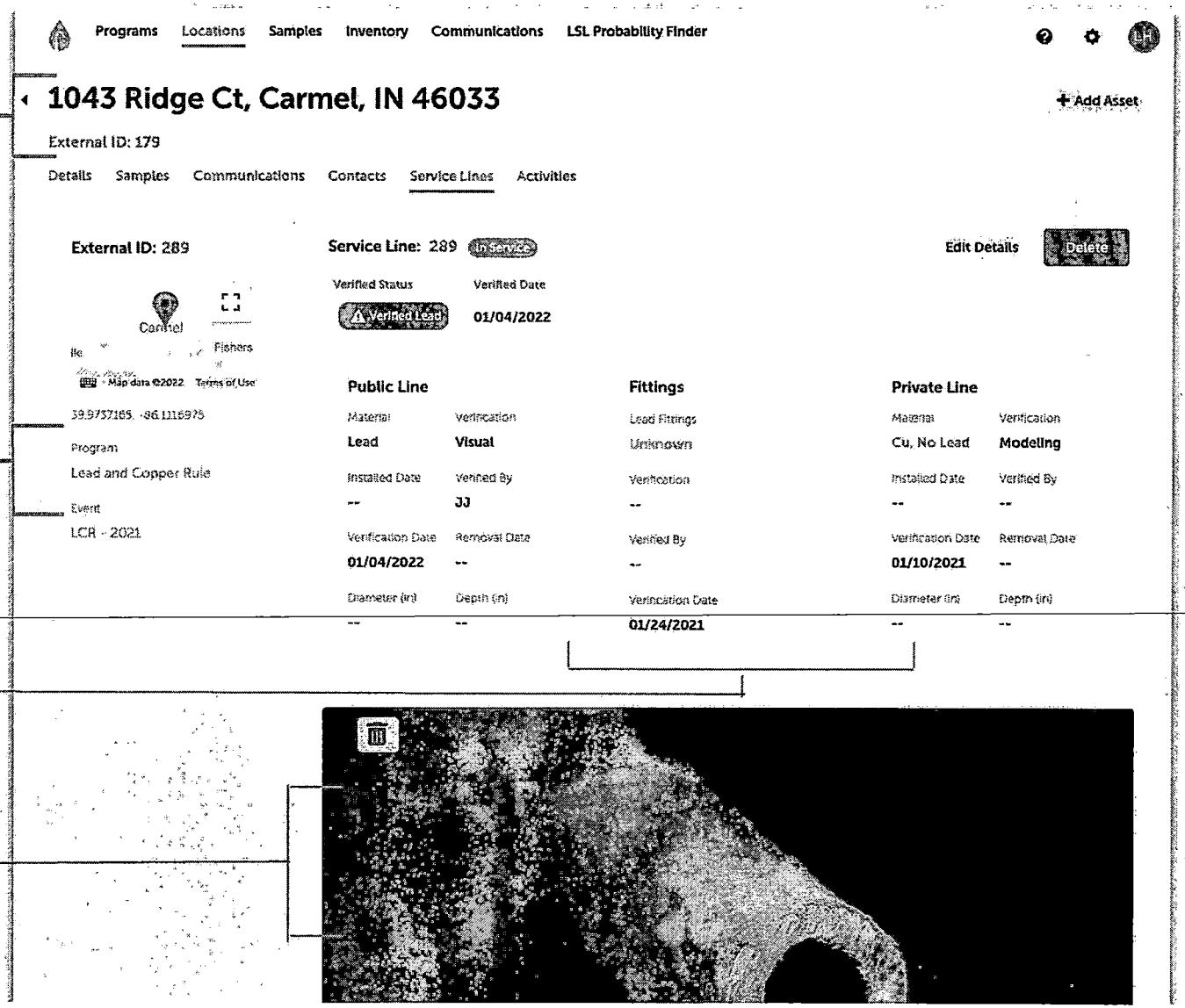


Public Line

Material	Verification
Cu, No Lead	**Visual - Excavation**
Installed Date	Verified By
06/23/1988	**Paul B.**
Verification Date	Removal Date
--	--
Diameter (in)	Depth (in)
--	--

Location Record
Service Line Details

- Wholistic location-based view
- Track to relevant programs and events
- Add material and asset-specific details
- Add photos

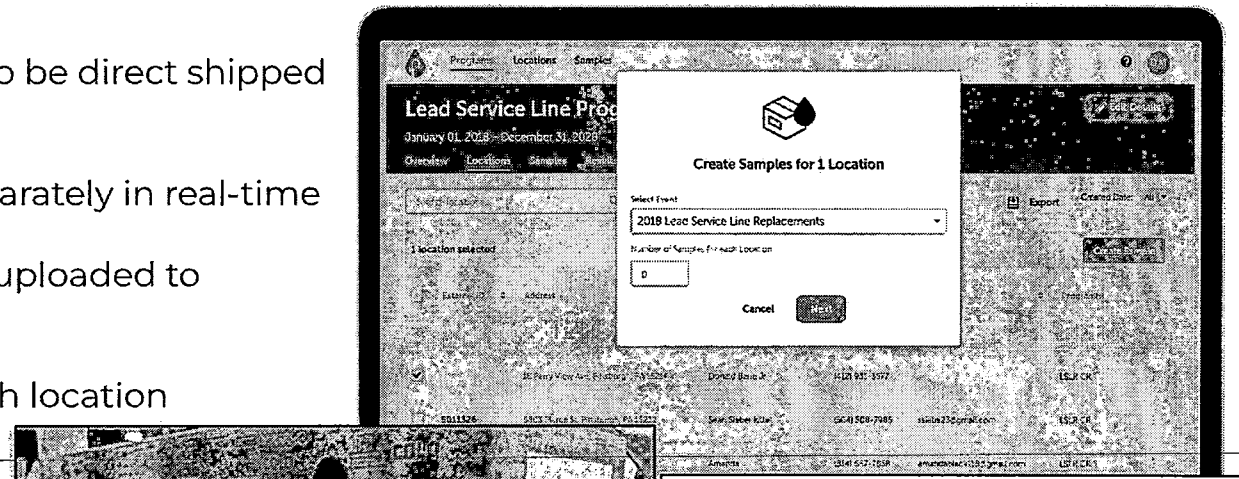


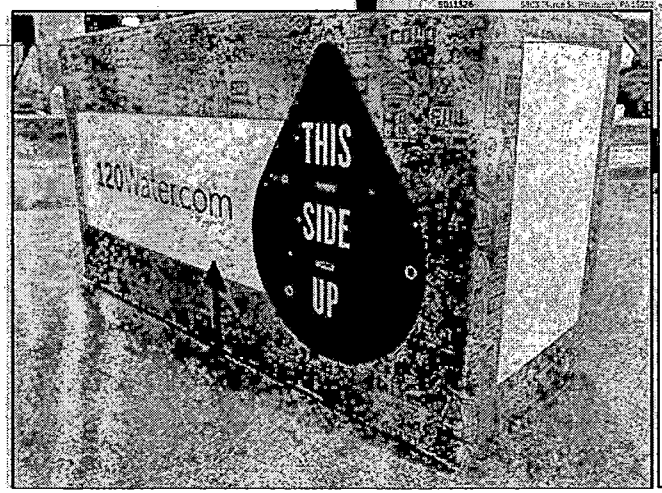
Sampling

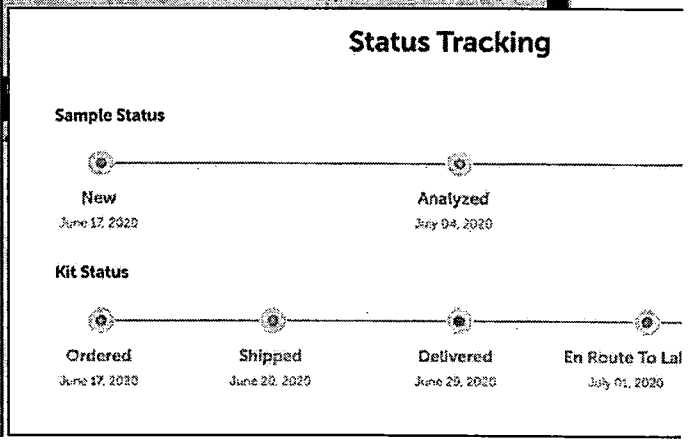
Replace, Sample, Report

1st and 5th Liter kits

- Create samples and order kits to be direct shipped with a few clicks
- Track sample and kit status separately in real-time
- View lab results (automatically uploaded to 120Water platform)
- Access sampling history for each location



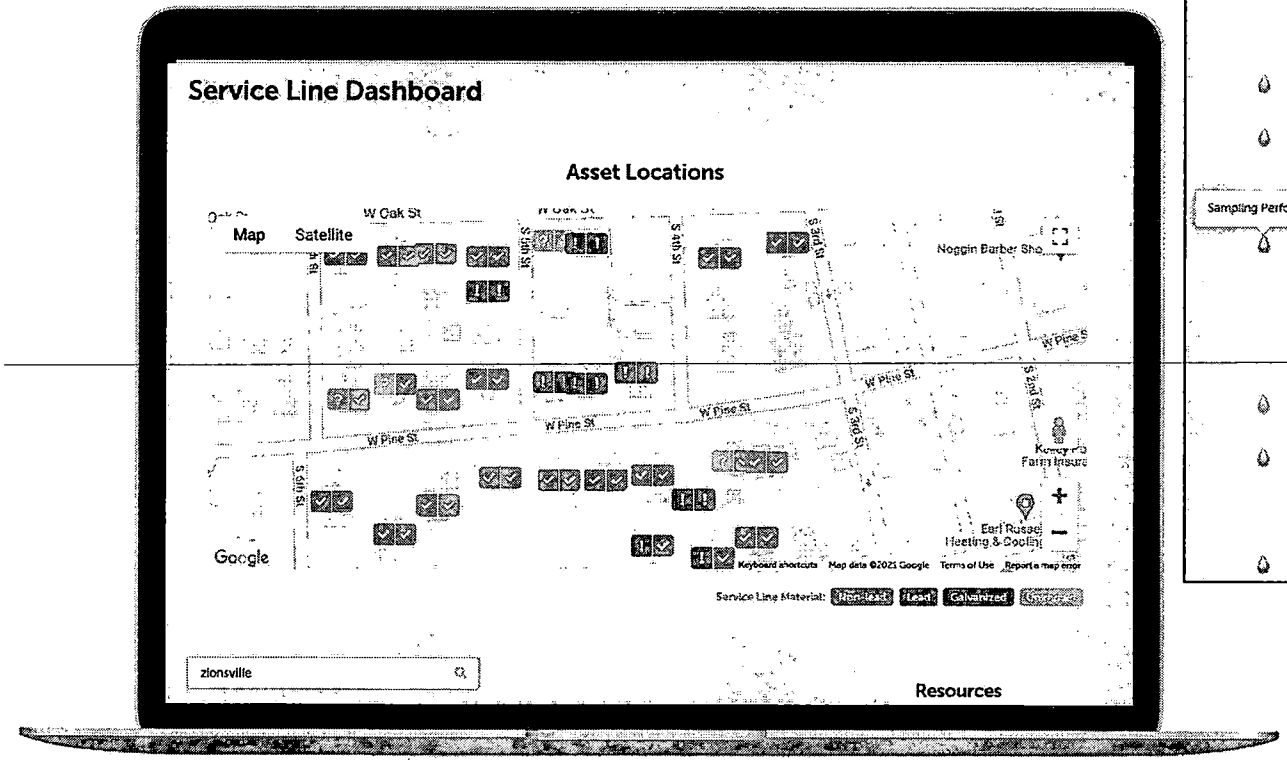


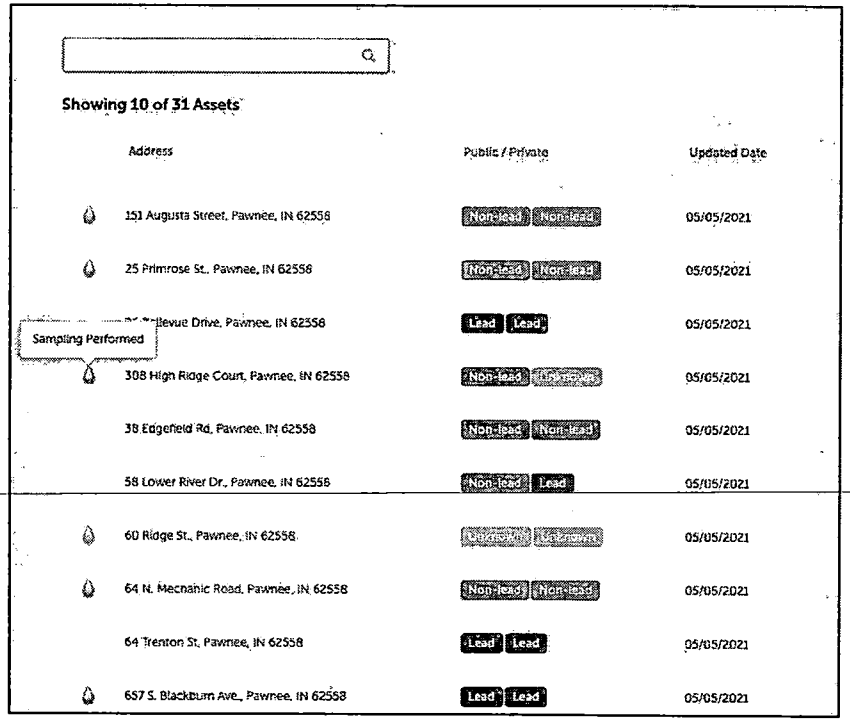


Public Transparency Dashboard

Verify

Build trust and stay compliant with ease





Public Transparency Dashboard

Verify

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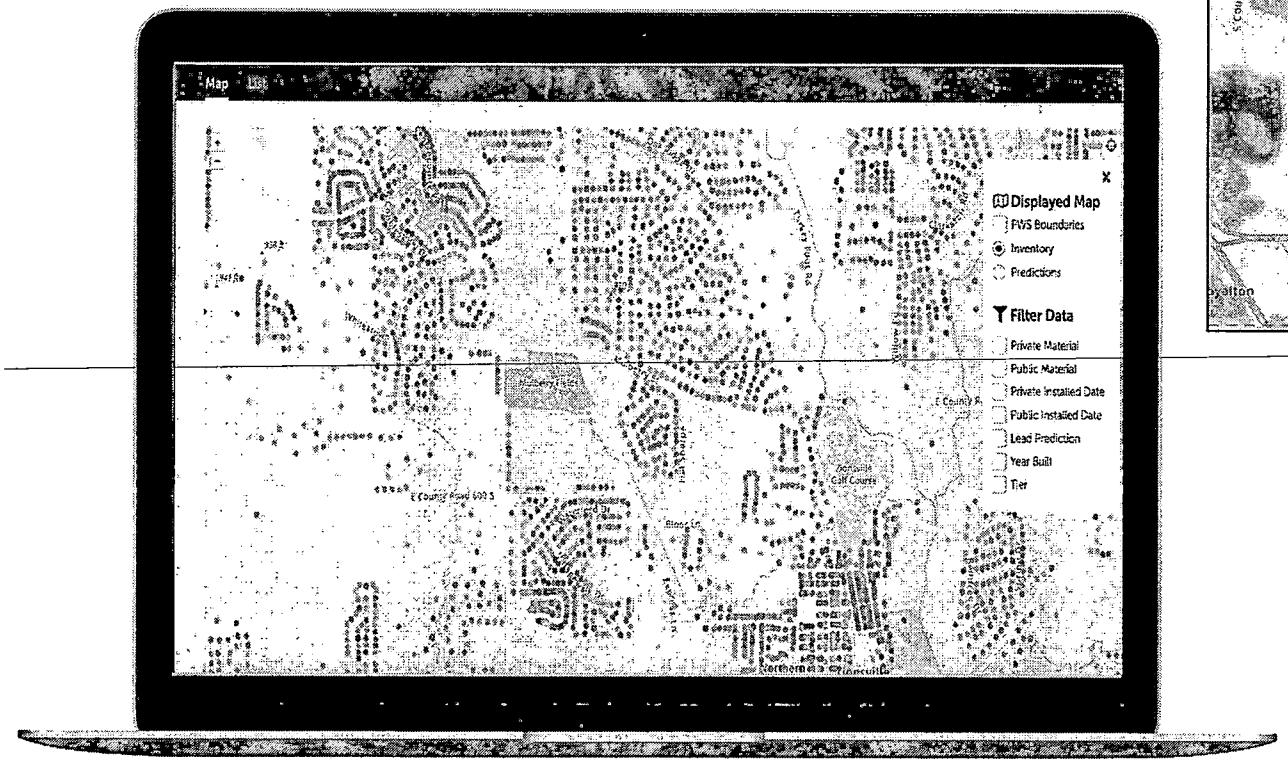
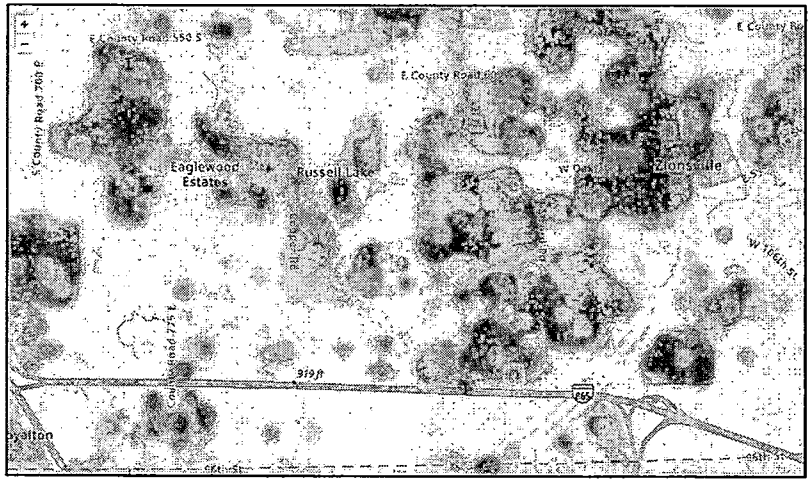
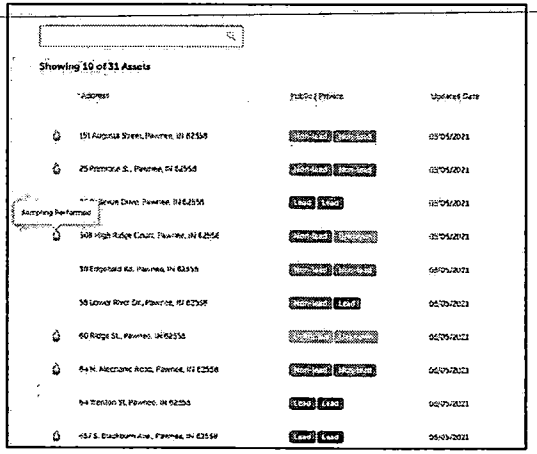


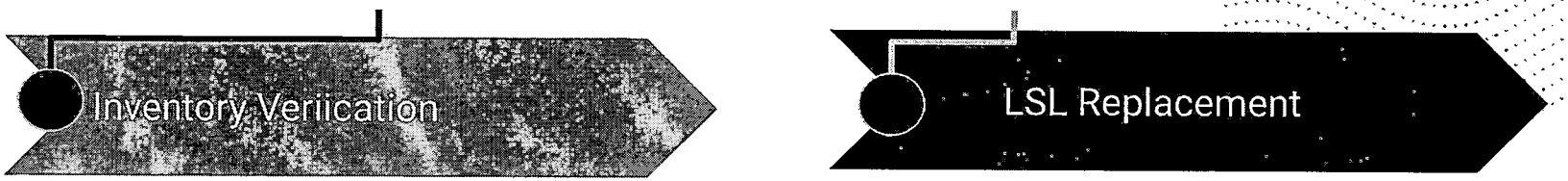




Our Approach

Preliminary records-based inventory established

Compliant inventory submitted to EPA by 10/16/2024



VERIFY unknown material type service lines, update & submit

- Verification Methods
  - Customer surveys
  - Site inspections
  - Lead check swabs
  - Sampling
  - Test pitting
  - Observations from field work
- Public communications

CREATE replacement plan and REPLACE lead service lines

- Develop & submit LSLR Plan
- Public communications
- Prioritize locations
- Schedule
- Replacement construction
- Post construction sampling
- Update inventory

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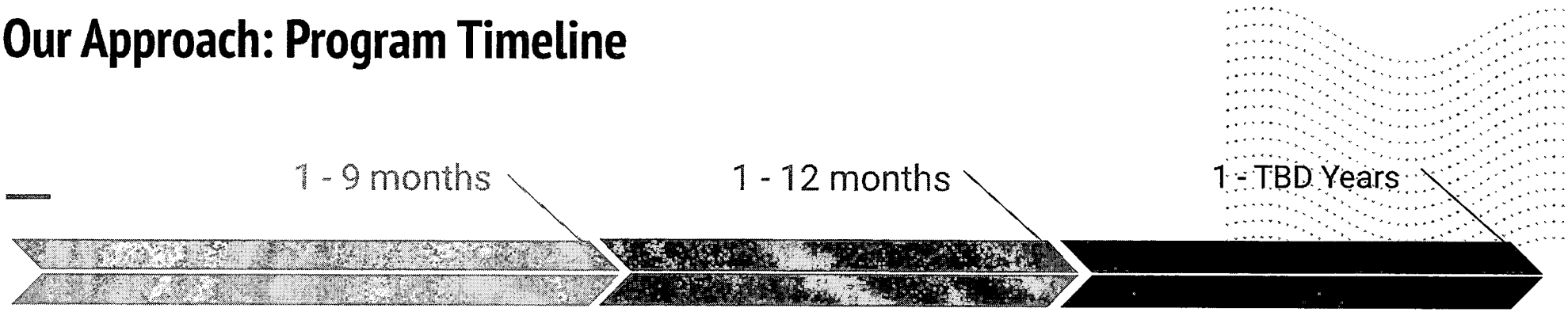
Our Approach: Program Timeline



Preliminary Inventory Development

In this phase we're **creating a records-based preliminary inventory** that will determine the volume and location of service lines with unknown material types in the distribution system.

The timespan of this phase is influenced by the size of the client, the volume of data set(s) available/provided, the speed at which the client can provide the data set(s), and if paper-based records such as Tap Cards and as-builts are being digitized & transcribed..

Verification

In this phase we're **providing guidance on recommended methods** and prioritization locations for verification as well as the **software and verification method tools needed** to execute the verification effort.

The timespan of this phase is influenced by the volume of service lines with unknown material types and the verification method(s) used.

Replacement

In this phase we're creating **(or supporting the client in creating) their LSL Replacement Plan** as well as providing the **software, program support and pre/post construction water testing kits needed** to execute the replacement effort.

The timespan of this phase is influenced by the volume of LSLs needing to be replaced and the pace of replacement determined by the client relative to their capital plans.

120Water™

Expand Your Preliminary Inventory

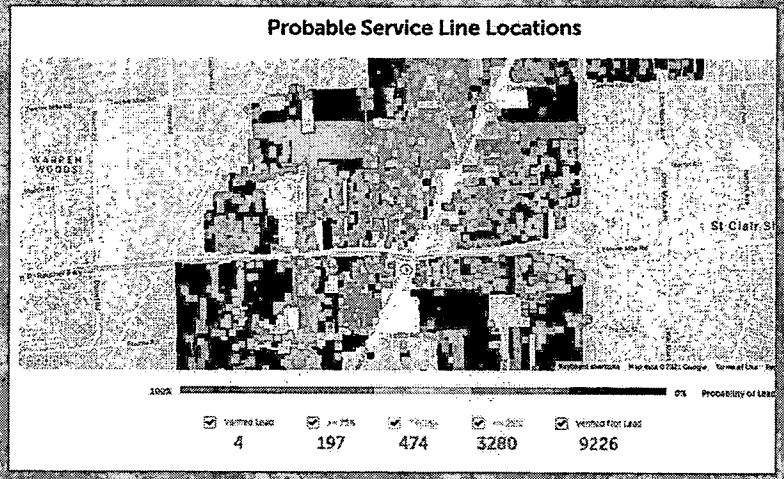
01 Preliminary Inventory in 120Water
Confirmed LSLs and Non-LSLs

02 Add Tax Parcel Data
Publicly-sourced + 120Water Owned

03 Run Predictive Model
Decision Trees

04 Create Verification List
For all locations

05 Verify
Update Inventory



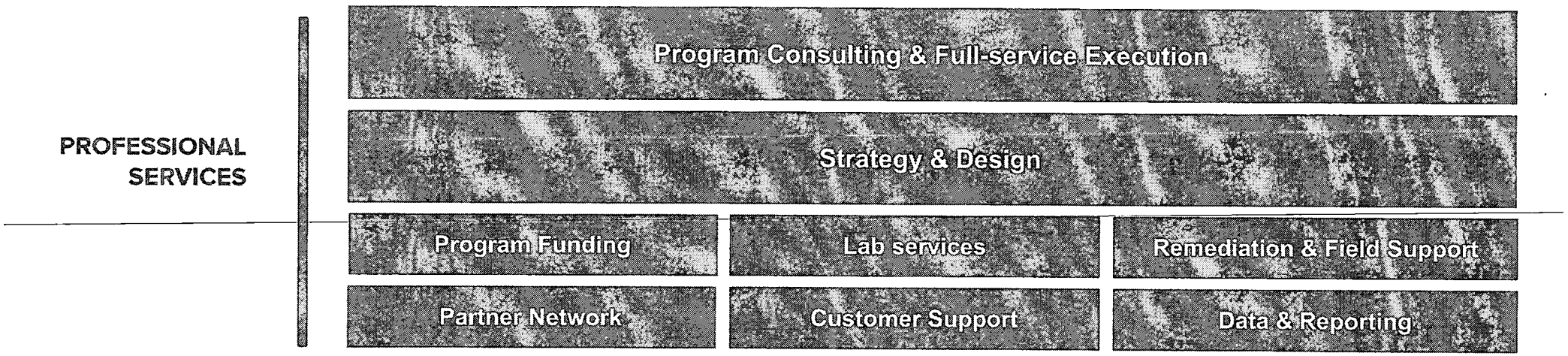
Generate Your LSL Inventory

The LSL Probability Finder allows utilities to complete a system-wide inventory with some known LSLs and to manage that inventory across the organization over many years.

Verification

Verify

Our Professional Services team will help ensure that no detail is overlooked



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How we help you save

Comply

Comply with regulations requiring lead service line inventories.

Prioritize

Prioritize and manage lead service line replacement work.

Cut Costs

Reduce cost and eliminate unnecessary digs.

In house comparison

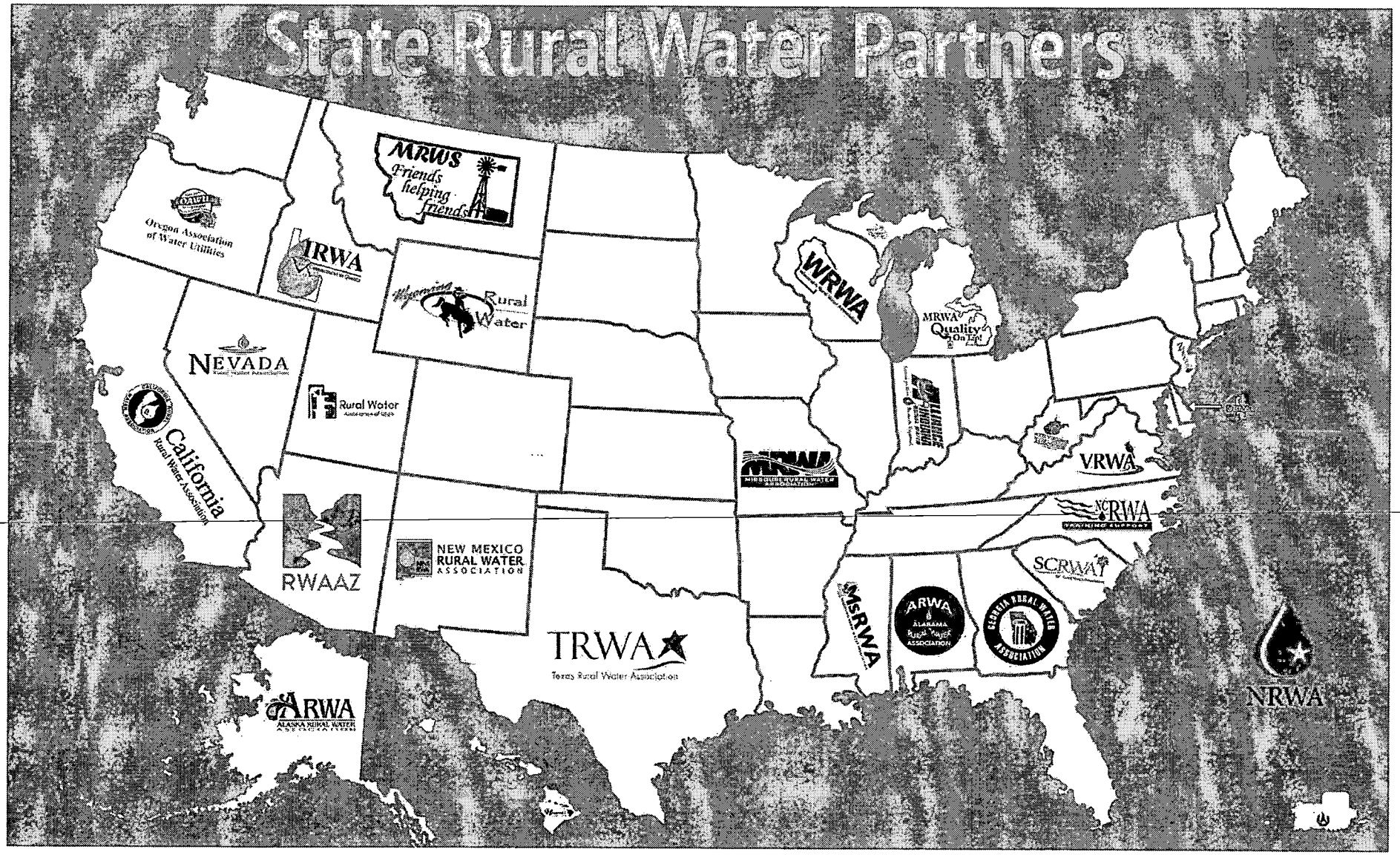
JUST FOR SENDING SURVEYS:

- 5 hrs to design
- 8 hours to process addresses
- 8 hours to stuff & prep to send
- 3-7 full days (8 hours each) of manual data entry for 1,100 surveys

WITH 120Water

- Quick design/ KO meeting > 1 hr

120Water™


State Rural Water Partners
MRWS
Friends helping friends
Oregon Association of Water Utilities
IRWA
Wyoming Rural Water
NEVADA
Rural Water
California Rural Water Association
RWAAZ
NEW MEXICO RURAL WATER ASSOCIATION
TRWA
Texas Rural Water Association
ARWA
ALASKA RURAL WATER ASSOCIATION
WRWA
MRWA Quality On Tap
MRWA
MISSOURI RURAL WATER ASSOCIATION
VRWA
NCRWA
SCRWA
MsRWA
ARWA
ALABAMA Rural Water ASSOCIATION
GEORGIA RURAL WATER ASSOCIATION
NRWA

Trusted Lead Program Experts

Associations

NRWA

MRWA Quality On Tap!

Georgia Rural Water Association

VRWA

SCRWA SC Rural Water Association

DRWA

Water Environment Association of Texas

Agencies

DEPARTMENT OF HEALTH

Kansas Department of Health and Environment

New Jersey Department of Environmental Protection

NHDES

West Virginia Department of Health & Human Resources

IFA Indiana Finance Authority

Partners

esri

ARCADIS

NJBSOFT

HACH

CLOROX

GREELEY AND HANSEN

Hazen

MOTT MACDONALD

Water Systems

SUEZ

PGH2O Pittsburgh Water & Sewer Authority

citizens energy group

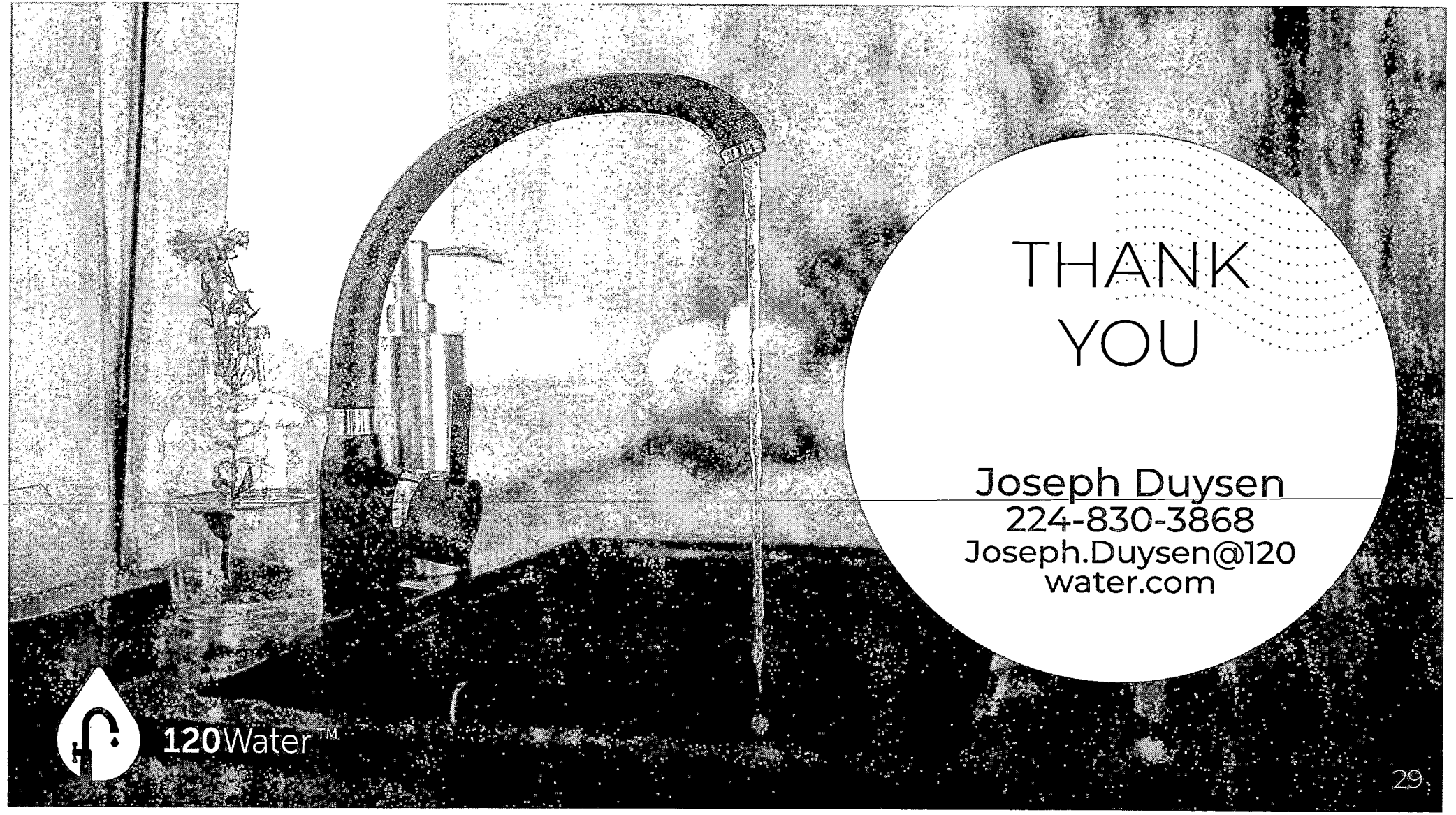
Providence Water

BUFFALO WATER managed by VEOLIA

THE CITY OF ASHEVILLE

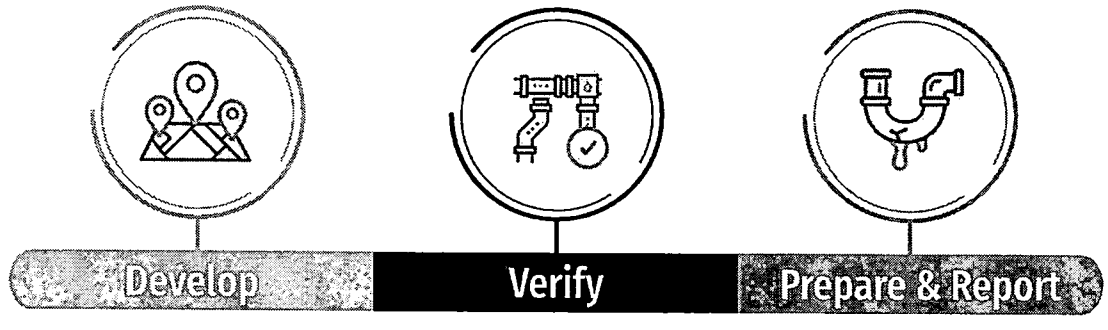
DENVER WATER

Louisville Water


THANK
YOU
Joseph Duysen
224-830-3868
Joseph.Duysen@120
water.com
120Water™

Service Line Inventory

"Public Water Systems must develop a preliminary inventory of both **public and private** side service lines within 3 years of final rule publication."



Communicate

EPA is requiring water systems to **identify** and **make public** the locations of lead service lines

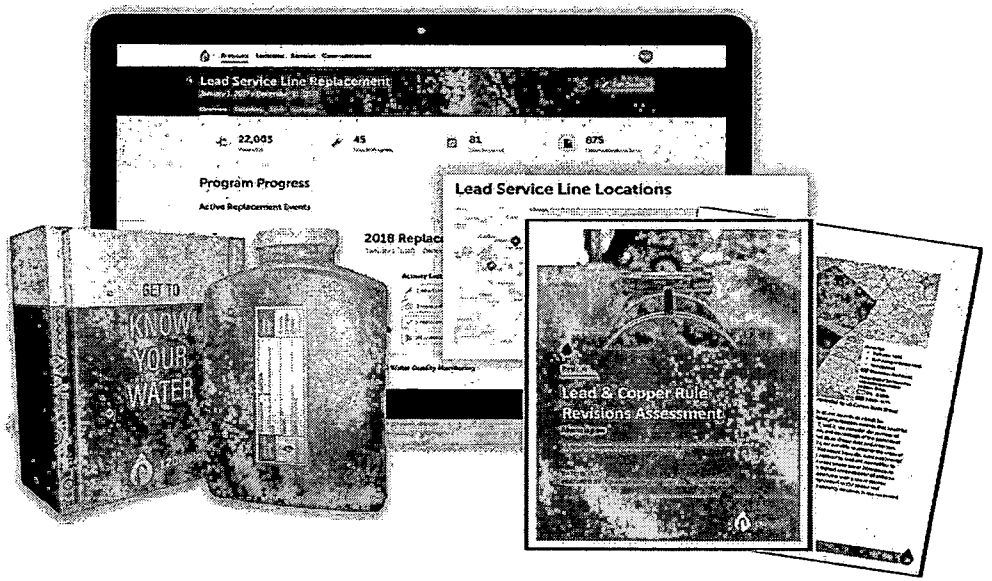
120Water™

120Water Suite

Easy to use **Software**

Full-service logistics for **Kits**

Expert guidance & **Services**



250+ PWS in 30 States

12+ State agency school/daycare sampling programs

Replace, Sample, Report

Verify

Develop

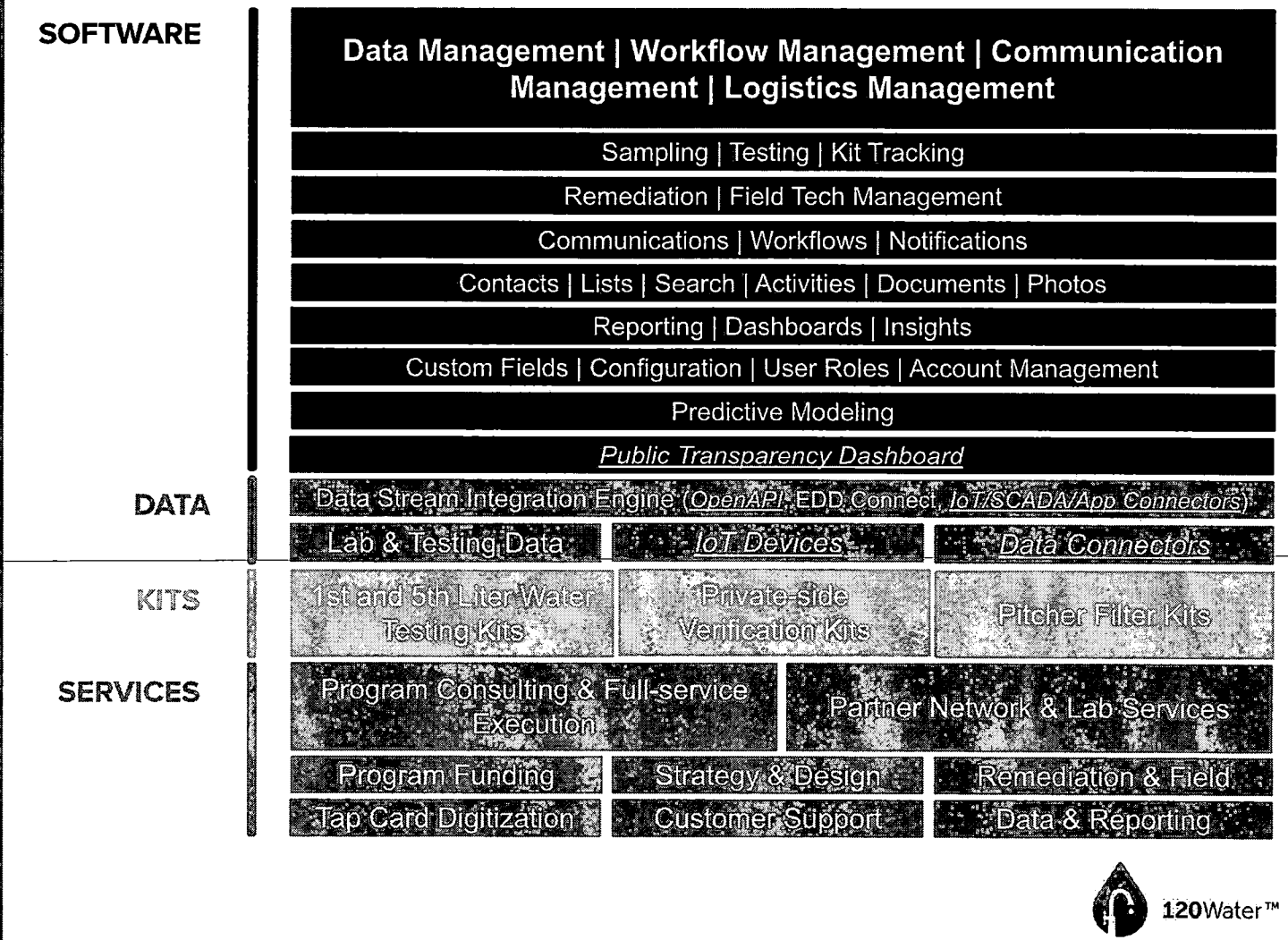
Communication, Workflow, Data mgmt

120Water Platform

120Water™

The 120Water Platform

An integrated solution that helps you navigate every step of the Lead and Copper Rule, adding ease and efficiency to your programs and allowing you to confidently achieve compliance.



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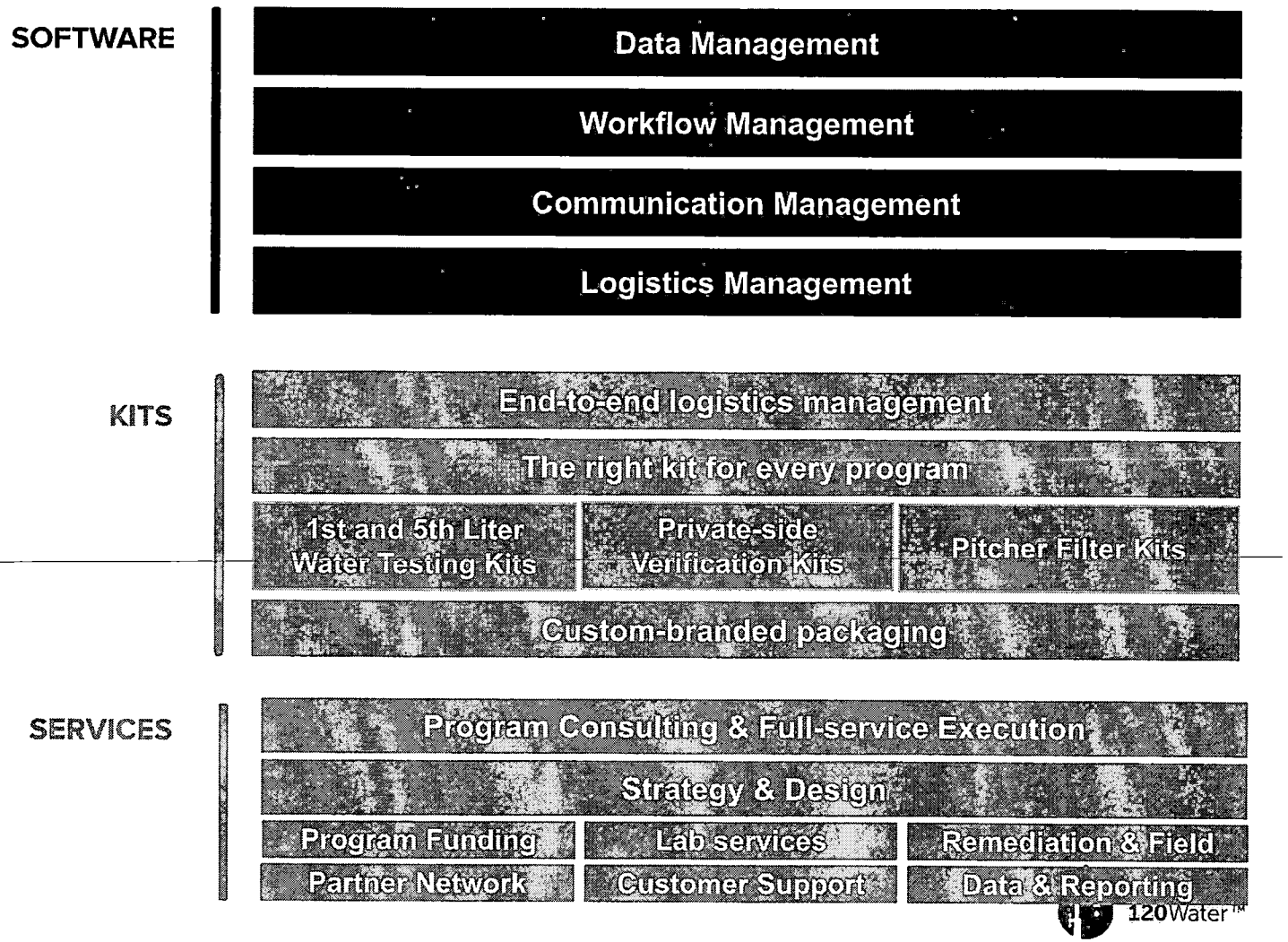

120Water™

Matt Wheeler

From: Joseph Duysen <joseph.duysen@120water.com>
Sent: Friday, October 21, 2022 11:54 AM
To: Matt Wheeler
Subject: Thank you for your time! Meeting recap - 120Water

11:30 AM Phone WDW 4

120 Water

Hi Matt,

Thank you for taking the time to meet me yesterday.

I appreciate your expertise on the city of Laurel and hope you got your questions answered today. 120Water's an integrated solution that helps you navigate every step of the Lead and Copper Rule, adding ease and efficiency to your programs and allowing you to confidently achieve compliance.

*Key Takeaways from our meeting: * (Let me know if I'm missing anything)*

- Developing a preliminary inventory with data you already have
- Evaluating appropriate verification approaches to further inventory development
- How to communicate program importance to other departments
- Tips for developing an effective comms strategy
- How a Comms campaign can be useful to validate your inventory
- Explore the impact surveys can have on real-time customer side validation

The 120Water platform + services helps our clients develop a preliminary inventory, chart a path for accurate long-term data, deliver a compliant LSLI by 2024, and plan for replacement programs.

We will work to help to develop a Preliminary Inventory/ identify unknowns composed of justifications for those material types, as well as supplemental data to help whittle down the unknowns on the customer-owned side.

I'll also include below our website for you to feel free to jump on and take a look. Looking forward to diving deeper in the next couple of weeks! When do you have reviewed the information, send times and dates over and we can schedule the solution call.

- check out this Webinar: Getting the Lead Out. Guidance for Developing LSL Inventories & Funding Information on BIL (EPA)

- Private Lead Service Line Replacement/Internal Revenue Code: U.S. Senate Legislation Introduced to Allow Issuance of Tax-Exempt Bonds for Removal/Replacement

- Bipartisan Infrastructure Law Resources for Drinking Water

Best,

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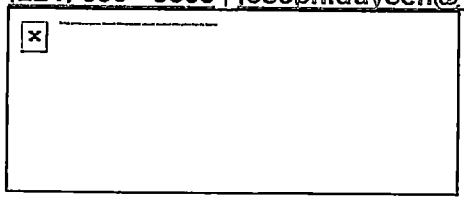


DEQ Montana Department of Environmental Quality

October 2022

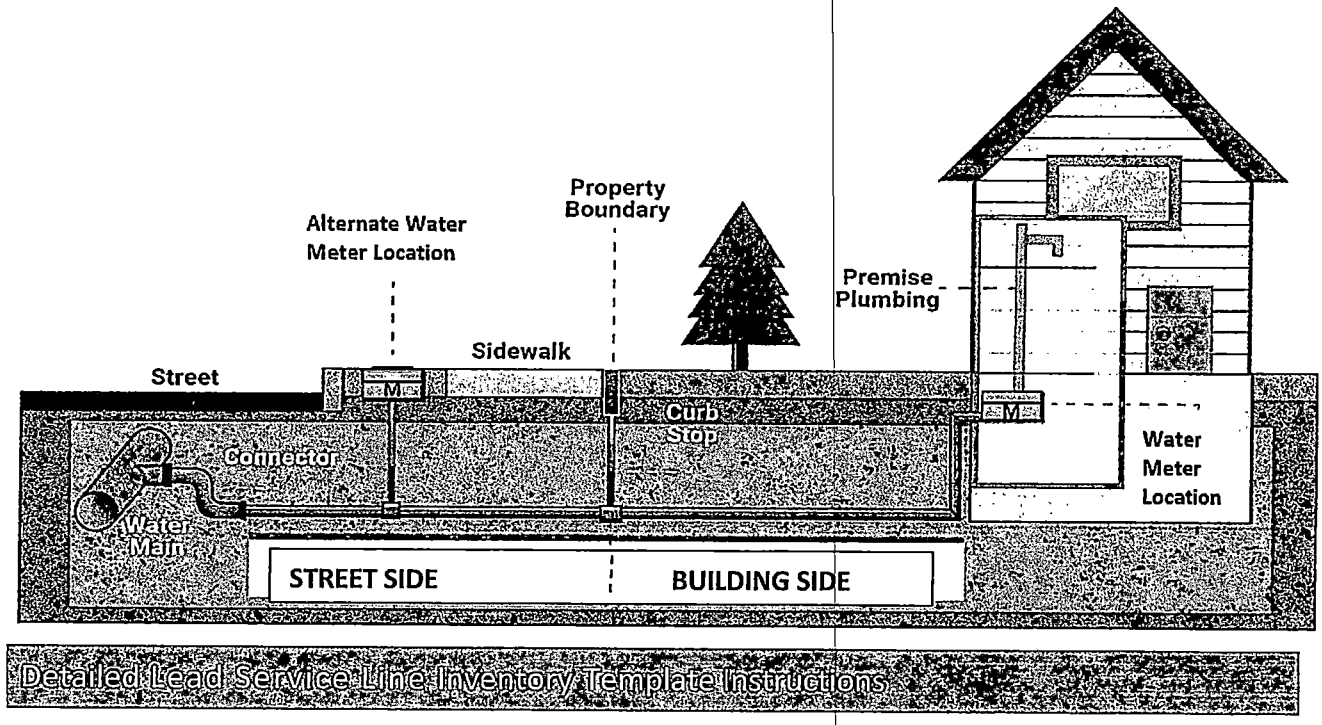
Lead Service Line Inventory Template Instructions

The Lead & Copper Rule Revisions published on December 16, 2021, includes the requirement for Community Water Systems and Non-Community Non-Transient Water Systems to prepare lead service line (LSL) inventories by October 16, 2024. LSL inventories provide critical information on the locations of potentially high drinking water lead exposure. All service lines connected to the public water distribution system require inventory regardless of ownership status and includes consecutive connections, water haulers or water bottlers.

The following requirements are directly tied to the service line inventories:

- New site sampling plans
- Compliance Sampling methods
- LSL replacement plans
- LSL replacements

See helpful illustration below showing Water Main, Main-Curbstop, Curbstop-Building and Building which are all service lines that are included in the inventory.



Purpose: *Water systems will use this template to record materials for each service line in their distribution system and report inventory to MTDEQ.*

General Instructions:

- Select the appropriate inventory worksheet for your water system
  - *MTDEQ Template for Community Water Systems*
  - *MTDEQ Template for Non-Community Non-Transient Water Systems*
- Save a copy of this inventory to your hard drive or network drive using your system PWSID to the filename (*e.g.*, Date Service Line Inventory_MT000XXXX).
- **Each row in this worksheet represents one service line** connecting the Water Main to the customer's Building plumbing (cistern, water haul truck, bottler). List every service line.

- **Column P – Who Owns the Service Line?:** Use the dropdown menu to select who owns the service line (system owned, customer owned, or combination)
- **Column Q – Indicate Service Line Diameter:** Use the dropdown menu to select the service line diameter.
- **Column R – General Comments:** Use this field to add any comments or additional information. There is a 2,000-character limit on this field.
- **Column S – What Type of Building?:** Use the dropdown menu to indicate if the building type connected to the service line is single family, multiple family residence, Building or other. Use "Non-piped" if your system is a water hauler. This information is used to determine the tiering classification for the new site monitoring plans.
- **Column T – Is there Water Treatment in the Building?:** Use the dropdown menu to indicate if the home or Building connected to the service line has a point-of-entry or point-of-use device. These devices may include water softeners, reverse osmosis, or filters. This information is used to determine the tiering classification for the new site monitoring plans.
- **Column U – What is the Building Plumbing Material?:** Use the dropdown menu to select what the premise plumbing within the house or Building consists of. This information is used to determine the tiering classification for the new site monitoring plans.
- **Column V – What was the Building Plumbing Installation date?:** Use the dropdown menu to select the appropriate date range when the premise plumbing was installed. Typically, will be the same date as the house or Building construction unless a renovation was completed. This information is used to determine the tiering classification for the new site monitoring plans.
- **Column W – Site Sampling Plan Tiering Classification:** One of the new requirements of the Lead and Copper Rule Revisions is to prepare a new site monitoring plan. The SMP will be based on the lead service line inventory and will have 5 tiers. This field will be automatically completed for the system. The new SMP will not go into effect until after October 16, 2024.

- **Column P – General Comments:** Use this field to add any comments or additional information. There is a 2,000-character limit on this field.
- **Column Q – What Type of Building?:** Use the dropdown menu to indicate if the building type connected to the service line is school, hospital, childcare, Building or other. Use "Non-piped" if your system is a water hauler. This information is used to determine the tiering classification for the new site monitoring plans.
- **Column R – Is there Water Treatment in the Building?:** Use the dropdown menu to indicate if the building connected to the service line has a point-of-entry or point-of-use device. These devices may include water softeners, reverse osmosis, or filters. This information is used to determine the tiering classification for the new site monitoring plans.
- **Column S – What is the Building Plumbing Material?:** Use the dropdown menu to select what the premise plumbing within the building consists of. This information is used to determine the tiering classification for the new site monitoring plans.
- **Column T – What was the Building Plumbing Installation date?: Use** the dropdown menu to select the appropriate date range when the premise plumbing was installed. Typically, will be the same date as the building construction unless a renovation was completed. This information is used to determine the tiering classification for the new site monitoring plans.
- **Column U – Site Sampling Plan Tiering Classification:** One of the new requirements of the Lead and Copper Rule Revisions is to prepare a new site monitoring plan. The SMP will be based on the lead service line inventory and will have 3 tiers. This field will be automatically completed and reported on the inventory template for the system. The new SMP will not go into effect until after October 16, 2024.

Special instructions for:

Consecutive Connections – Consecutive connection systems are required to complete and submit a lead service line inventory. Refer to **Column C – Apartment/Unit Number;** where applicable, enter the unit, apartment, or Building number in this field. Complete remaining inventory and submit.
Systems with 210 Exclusions - Are required to complete and submit a lead service line inventory for service lines within their system.
Water Haulers – Answer **Column S – What Type of Building?;** as "Non-piped". For Community systems answer **Column U – What is the Building Plumbing Material?;** as to the relevant material of the tank and connection line. Complete remaining inventory and submit.
Water Bottlers/Water Fill Stations – Answer (Community) **Column S – What is the Building Plumbing Material?: or** (NTNC) **Column Q – What Type of Building** as "Non-piped".
Complete remaining inventory and submit.

Submittal Instructions

1. When you have completed the worksheet save a copy of this inventory to your hard drive or network drive using your system PWSID as the filename (*e.g.*, Date Service Line Inventory_MT000XXXX).
2. Submit the file electronically to MTDEQ at LeadandCopper@mt.gov .

For further guidance please refer to Lead & Copper Rule | Montana DEQ (mt.gov)

DEQ Montana Department of Environmental Quality	Lead	Galvanized Iron	Copper	Brass
Outer Appearance	Dull gray, bendable; Often curves between wall/floor and valve	Dark gray or black; Straight rigid pipe	Brown; Can have green corrosion spots	Brown; Can have green corrosion spots
Threads at connections	None	Yes	None	Yes
Scratch Test (coin or key)	Shiny Silver	Hard to scratch, remains gray	Copper, like a penny	Gold color
Magnet Test	Does not Stick	Magnet WILL stick	Does not Stick	Does not Stick

For more information: Lead & Copper Rule | Montana DEQ (mt.gov)

Email inventories to: leadandcopper@mt.gov

120Water

LEAD AND COPPER RULE REVISIONS CHECKLIST

Your Step By Step Guide to Managing LCRR Readiness and Compliance

LCRR has set a new standard for compliance, and the list of requirements is long. The below checklist outlines what is expected of water systems across the country at a federal level as of October 2022 (this checklist is not inclusive of state-specific regulatory guidelines regarding LCRR). Use this as a tool to assess your system's compliance readiness and track your compliance journey

Service Line Inventory

- ☐ Gather and Manage Service Line Information
  - ☐ Assemble paper records that can inform service line materials (i.e. tap cards, master building plans, capital improvement project plans, etc.)
  - ☐ Gather digital records that can inform service line materials (where applicable)
  - ☐ Connect with local plumbers, contractors, city managers and others to acquire plumbing records and relevant code information to determine usage of various service line materials
  - ☐ Determine if galvanized service lines are or ever were at any time downstream of a lead service line (LSL) or are currently downstream of a lead status unknown service line. If the water system is unable to demonstrate that a galvanized service line was never downstream of an LSL, it must presume there was an upstream LSL
  - ☐ Procure a solution that will help you record and organize service line information from print and digital sources into an electronic format to begin building your preliminary inventory. Consider something that is easy to use in the field or the office, can integrate with other electronic platforms your system may use and can potentially enable reporting to your state when the time comes
- ☐ Build and Verify Your Service Line Inventory
  - ☐ Compile applicable records into your chosen electronic solution to build your preliminary inventory, including a locational identifier for each LSL (intersection, landmark, etc.)
  - ☐ Connect with representatives in your state to determine acceptable verification methods for identifying unknown service line materials (such as interior inspection, excavation, predictive modeling, etc.) in your state
  - ☐ Establish a strategy for identifying the material of unknown service lines on the utility and customer-owned portions of the line using the approved verification methods within your state
  - ☐ Partner with professionals in the community (plumbers, realtors, general contractors, etc.) who may have access to customer-side portions of service lines to support verification efforts. Consider resident outreach to assist in verification efforts as well
  - ☐ Define and document your internal process for updating the service line inventory annually. The EPA is requiring either an annual or triennial submission of updated inventories (dependent upon your LCR monitoring schedule) until the material of all service lines is accurately identified.

☐ LSL Replacement Plan

- ☐ Document verification strategy for identifying the material of unknown lines
- ☐ Identify priorities within your utility's service area for locating and removing LSL, taking into consideration that pregnant women, children and the elderly are most severely impacted by lead contamination
- ☐ Document strategies for communicating with homeowners about your replacement program
- ☐ Develop a course of action for replacing LSLs, inclusive of both the utility and customer-owned portions of the line. The plan should include an annual replacement percentage in the event of a trigger-level lead exceedance and a strategy for pitcher/filter distribution post-replacement as well as flushing procedures
- ☐ Detail funding opportunities to assist with replacement specific to your state, especially customer-owned sections of the line
- ☐ Develop an internal (documented) process for the following scenarios:
  - ☐ Removal of LSLs, galvanized, lead goosenecks, pigtails or connectors, or lead status unknown lines during planned or unexpected infrastructure work, including necessary filter, flushing and sampling procedures post-replacement (if applicable)
  - ☐ Service disruption to LSLs, galvanized or lead status unknown lines, including internal response and customer communication and instructions
  - ☐ Customer replacement of an LSL, including filter and flushing instructions. LCRR requires utilities to replace their portion of a line within 45 days of customer-driven replacement

☐ **Public Transparency and Notification**

- ☐ Develop an interactive, digital map of your service line inventory if your water system serves over 50,000. The EPA is requiring that systems serving more than 50,000 people make their inventories accessible online. Although a digital format is not required for smaller utilities, all systems should make their inventories available to the public in some format
- ☐ Establish an annual notification process for customers served by LSLs, galvanized lines, and unknown service lines
- ☐ Send notification to affected customers within 24 hours if the lead action level for the 90th percentile concentration is above 15 ppb
- ☐ Send notification to affected customers within 3 days if their individual residential compliance sample exceeds 15 ppb
- ☐ Send notifications within 30 days of receipt regarding school and childcare sampling results to facilities involved, state agencies and health departments
- ☐ Develop communication plans to inform your customers about your system's inventory and LSL replacement efforts (if replacement is needed)
- ☐ Develop communication plans for schools and daycares in your utility's service area, focusing on those built before 2014. Elementary schools and daycares should be provided with a proposed sampling plan. Secondary schools are not required to be sampled under LCRR, but information on how to request sampling if desired should be provided

Sampling and Treatment

☐ Residential Sampling

- ☐ Prepare for Find and Fix provision requirements, which require utilities to provide follow-up sampling to any home with lead levels above 15 ppb within 30 days, perform a site analysis, recommend remediation methods and add site to regular WQP sampling
- ☐ Update sampling procedures to include 1-liter wide mouth bottles and evaluate adding 5th-liter sampling to your procedural routine
- ☐ Revise tier sampling pools to include all LSLs if applicable. If there are not enough LSLs to fill each pool, move on to galvanized downstream of lead or lead goosenecks, then copper with lead solder

☐ School and Daycare Sampling

- ☐ Create a list of all schools and licensed daycare facilities in your utility's service area
- ☐ Develop a 5-year sampling schedule that includes sampling 20% of elementary schools each year, 20% of childcare facilities each year and secondary schools by request. All elementary schools and daycare facilities should be sampled by the end of the 5-year cycle, and must be sampled again after the 5 years by request
- ☐ Report to your appropriate state agency by July 1 of each year identifying that information regarding the health risks of lead was provided to all schools and childcare facilities, and the sampling and notification requirements were met

☐ WQP Sampling

- ☐ Sample WQPs at the locations, frequency and parameters required by your state
- ☐ Add new WQP sample sites under Find and Fix where lead exceedances are found

☐ Corrosion Control Treatment (CCT)

- ☐ Establish if you are or are not considered to have CCT under LCRR
- ☐ Review historic water quality and tap sample data as a baseline CCT evaluation method
- ☐ Under the new trigger level of 10ppb, systems currently using CCT will need to re-optimize CCT protocols using a lower threshold
- ☐ Any system with an action level exceedance (15 ppb) will be required to implement CCT

120Water

Lead Service Line Inventory Scope Of Work

This Scope of Work is incorporated in the agreement between 120 Water Audit, Inc., and the City of Laurel. Deliverables : The "Works," as defined in the Agreement, comprise the deliverables stated in this SOW for each phase.

Goal: Define and execute a plan to comply with the revised Lead and Copper Rule, including developing an inventory, categorized by customer address, for the City of Laurel with fully known SL material information. Available in 120Water Platform and ArcGIS-compatible format (via 120Water-Esri Connector), and provide water quality lead and copper sampling services.

Inventory Development Methodology:
There are 7 separate phases to developing a full LSLI. They are:

1) Program Start and Customer Alignment
2) Data Investigation and Submission
3) Data Analysis
4) Preliminary Findings and Software Alignment
5) Software Import and Training
6) LSLI Verification Strategy
7) LSLI Verifications

Further information on each of these phases, along with a general timetable to complete, can be found below.

Phase 1: Program Start and Customer Alignment (1-2 weeks) | The purpose of this program stage is for the 120Water and the City of Laurel teams to initiate the lead service line inventory (LSLI) program and align on program expectations

- Customer Kick-Off Meeting: the 120Water team will host an introductory meeting to establish the cross-functional Program Team and confirm roles and responsibilities. The session will also establish the program approach including success metrics and project timelines, and the cadence of program reviews, client updates, and any additional the City of Laurel goals and expectations
- Deliverable(s): Document containing metrics, timelines, and roles and responsibilities.

Phase 2: Data Investigation and Submission (4-6 weeks) | The purpose of this program stage is for the 120Water team to identify, review, document, and collaboratively understand the existing data source(s) and systems.

- Data Investigation Call with 120Water LSLI Lead Program Consultant: The 120Water team will schedule a guided review meeting with the City of Laurel to identify sources of data the 120Water team can use to build out a preliminary lead service line inventory. Common data sources include:
  - GIS records
  - Billing system records
  - Work order system record
  - Paper reports, tap cards, as-builts, etc.

- Recent capital projects

- Data Request: After the Data Investigation Call, the LSLI Lead Program Consultant will submit a formal data request to the City of Laurel. The data request will outline the specific sources of data the 120Water team will need to analyze in order to identify all service locations, identify or rule-out sources of lead, and prioritize and strategize for lead service line inventory and replacement efforts.
- Data Submission: 120Water will review all submitted data sources. Once all data is submitted, the 120Water team will determine the best analysis approach to bring the data together into a single data set that reflects all service line locations and associated attributes.
- ESRI Partnership Solution: Since the City of Laurel will have the ability to visualize data in ArcGIS Online (AGOL), 120Water will set up the {Customer Name} specific AGOL environment for data submission. 120Water will update the AGOL environment with preliminary inventory findings and continued inventory updates from the 120Water platform, as the City of Laurel progresses through their lead service line inventory program
- Deliverable(s): Data requests, data analysis plan options

Phase 3: Data Analysis (4-8 weeks) | The purpose of this program stage is to combine all submitted data to develop a preliminary, location-based lead service line inventory that includes EPA complaint service line material categorizations for all identified service lines. The aim is to use existing client data to identify locations, and use the data to rule out potential sources of lead.

- Initiate Analysis: The 120Water data analysis team will conduct a thorough review of the submitted data, to ensure all data fields are understood and data integrity is maintained.
- Build Records-Based Inventory: The 120Water data analysis team will clean and combine all appropriate data sources into a single service line inventory dataset. The final dataset in this stage will include service line locations and material type categorizations for each identified service line in the distribution network, as well as all associated location and service line attributes.
- Note: Should the City of Laurel have records of lead service lines within the system, the City of Laurel may then choose to use a data science driven selection approach to identify a statistically-driven selection of locations *(less than 400 service connections)* for physical field verification (not included in scope). 120Water will use the verification results as the basis for lead service line probability predictions. This approach may require additional investment from the City of Laurel chosen (or 120Water Service Partner) field services firm to execute potholing/hydrovacing/home inspections.
- Deliverable(s): Dataset containing the information described above in this phase.

Phase 4: Preliminary Findings and Software Alignment (2-4 weeks) | The purpose of this program stage is to deliver the results of the preliminary inventory, and gather any additional feedback from the client to support inventory development—both in terms of reviewing the inventory itself and ensuring the 120Water platform sets the client up for success in long-term inventory management.

- Preliminary Findings Session: The 120Water team will meet with the City of Laurel to deliver the preliminary inventory findings. The session will cover a discussion of service line locations, material type associations, the number of service lines the 120Water team was able to categorize as non-lead, geographic trends, etc.

- Data Verification: Using the findings the 120Water team will work with the {Customer Name} to determine if additional data is required to inform the inventory.
- Software Alignment: During the session, the 120Water team will propose the methodology for customizing the 120Water platform to meet the City of Laurel needs (e.g., customization data fields, location and service line identifiers, prioritization set-up, etc.).

- Additional Data Incorporation: If the City of Laurel submits additional data to be incorporated into the lead service line inventory, 120Water will process the data and integrate the new information into the preliminary inventory.
- Deliverable(s): Report of preliminary inventory findings, configuration documentation.

Phase 5: Software Import and Training (2-4 weeks) | The purpose of this program stage is to introduce the City of Laurel to their data in the software, and train the City of Laurel team on how best to use the software for continued inventory management.

- Software Configuration: Setup and configure 120Water platform software account and setup user(s) account(s)
- Inventory Software Import: Import the prepared data *(and/or)* use client's existing records into the 120Water software
  - Note: If the City of Laurel does elect to use the Lead Service Line Probability Finder (predictive model), the 120Water data analysis team will run the model to assess service lines that have the highest probability of containing lead. The preliminary inventory will need to contain sufficient data on SL locations in order to run the model. If the preliminary inventory does not contain the necessary data, 120 .
- Software Training: The 120Water team will train the City of Laurel user(s) on the 120Water software platform using the City of Laurel's data. During this session, the 120Water team and the client will discuss current data systems and processes and provide guidance on using 120Water platform for long-term LSL management
- AGOL Training: the 120Water team will also train the City of Laurel users on the use of the City of Laurel specific 120Water-AGOL environment.
- Deliverable (s): Supporting documentation from training sessions

Phase 6: Lead Service Line Inventory Verification Strategy (1-2 Weeks) | The purpose of this program stage is to strategize with the City of Laurel on how best to proceed with verifying the material types of service lines that are categorized as Unknown in the lead service line inventory.

- Establish the Prioritization Team: the 120Water team will meet with the client to determine the key decision-maker who will own the prioritization and scheduling
- Hold Prioritization and Verification Workshop: The 120Water team and the Prioritization Team will work through inventory findings, prioritization metrics, geographic considerations, neighborhood information, and other details to define the method for organizing ongoing inventory efforts. In addition, both teams will discuss and strategize verification methods that are best suited to support inventory efforts. Additional 120Water offerings include:
  - Customer LSLI Postcard or Letter Survey Campaigns
  - Lead Check Swab Kits + Customer LSLI Postcard Survey Campaigns
  - Physical Field Validation Checks
  - Sampling

- Initiate and Continue Inventory Efforts: The City of Laurel will continue leveraging 120Water software to keep the LSLI updated.
- Continuous Inventory Review: Review the LSLI for compliance throughout the inventory process to ensure the lead service line inventory meets state and federal requirements
- Deliverable(s): Validation plan document

Phase 7: Lead Service Line Inventory Verification (varies) | The purpose of this program stage is to execute on the strategies decided upon during the Verification Strategy phase. The City of Laurel team will have the option to use 120Water or 120Water Partner services to execute the chosen Verification Strategies, or perform those methods internally. In either case the 120Water Platform will serve as the database of record for all Service Line material updates, and the Platform will deliver that data back to the City of Laurel's GIS via the 120Water-Esri Connector.

- Deliverable(s): data produced by the platform.

120Water™

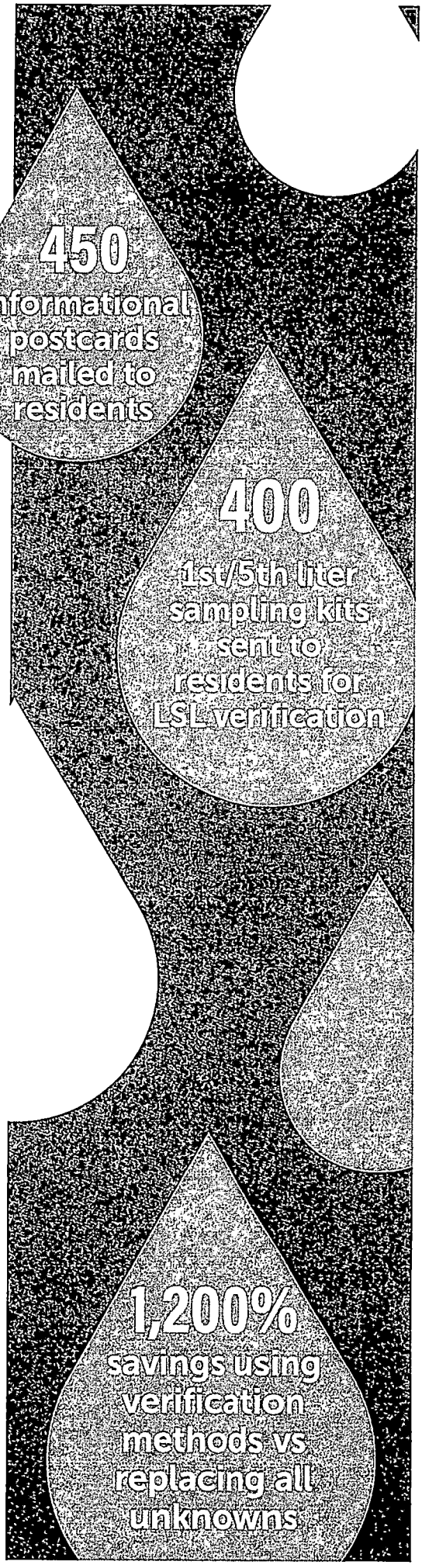
Smyrna, GA Gets Ahead of Lead:

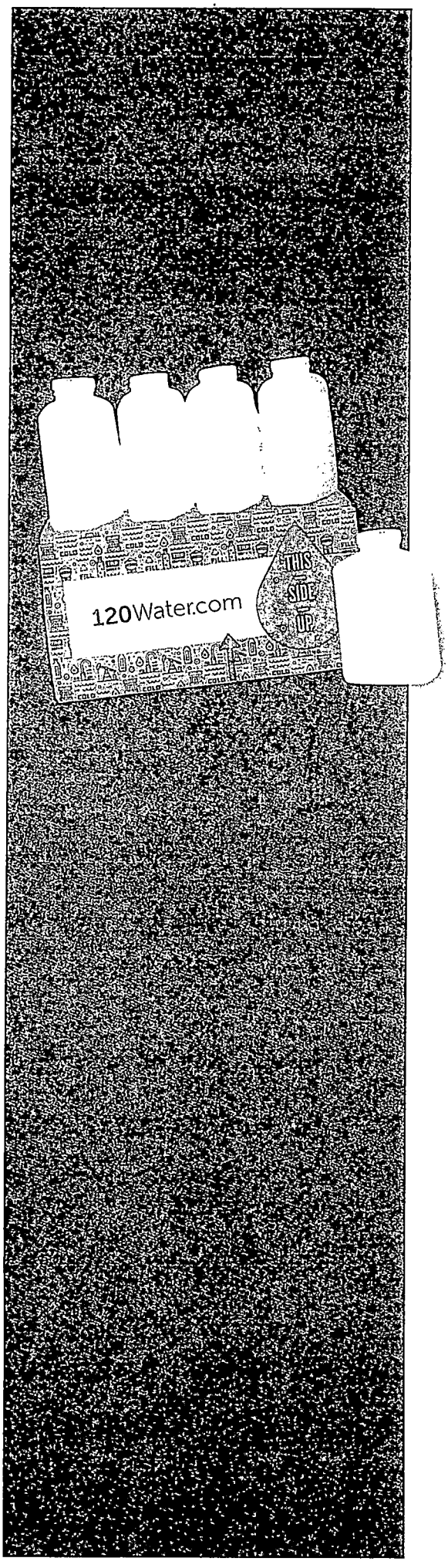
City saves millions of dollars and prioritizes compliance well in advance of federal deadline

After learning about the daunting Lead and Copper Rule Revisions in late 2020, the City of Smyrna, GA, knew they needed to begin mapping out their service line inventory as soon as possible. Serving a population of 55,000 with 16,000 service connections, Bo Jones, the City's Assistant Director of Public Works, did not want to wait for additional state guidance and risk cutting it close to the federal compliance deadline of October 16, 2024.

120Water was contracted to support the City's inventory development efforts, and after an initial records review, which included GIS and billing data and historical tap cards kept in a filing cabinet, the City was left with about 5,000 unknown service lines, or about one-third of their system. Under LCRR, unknown service lines must be classified as lead until the material of the line can be validated using an accepted method. Thus, the City of Smyrna and 120Water began verifying these unknown service lines using water sampling, specifically a 1st/5th-liter draw.

Sequential sampling allows Smyrna to understand if there is a lead line present on the public or private-owned portions of the line, or both, and is a significantly less invasive method compared to potholing or excavation. Jones knew his community would not be agreeable to their lawns being torn up and wanted to ensure he had the community on his side throughout his inventory efforts.





Jones also knew it would be important to notify residents of the sampling initiative before simply sending a testing kit to their doorstep, so the 120Water team worked to develop a postcard that is sent out a few weeks prior to the testing kits making them aware of what is to come.

Building a service line inventory is a journey and 120Water has supported Smyrna by:

- **Sending 450 informational postcards to residents prior to sampling**
- **Mailing 400 5-liter testing kits to homes, along with detailed instructions for taking the sample correctly**
- **Working with schools and licensed daycares in their service area to prepare for future facility sampling requirements**
- **Providing 1,200% savings by verifying service line materials rather than assuming replacement for 5,000 lines**

Another concern Smyrna faced was how to fund their inventory development. Soon after hearing about LCRR, Jones met with the mayor and local council to explain the requirements and the impact on public health, and propose funding opportunities. The city created a CIP line item in the budget specifically for Jones' request. Additionally, Jones applied and secured funds through the American Rescue Plan Act (ARPA), which allocated spending toward improving water quality.

A year and a half into their service line project, Smyrna still has a road ahead of them to complete verification, but employing an experienced partner like 120Water will allow them to exceed compliance expectations, save time and financial resources, and have a fully verified inventory prior to the federal deadline.

120Water™