BREAKING NEWS

21:00

Electro Scan Selected for 100-Building Lead Detection SWORDFISH Project at Bard College, New York

Bard


Campus of
Bard College

Notable Bard College Alumni

Chevy Chase, comedian, writer and actor

Lana Wachowski, film and television director, writer and producer

Jonah Hill, actor

Joel and Ethan Coen, filmmakers

Mia Farrow, actress

Steely Dan, rock band

Tom Ford, fashion designer and filmmaker

Adam Yauch, musician

Francis Bean Cobain, visual artist; daughter of Nirvana frontman Kurt Cobain

Peter Sarsgaard, actor

Ronan Farrow, journalist

Nick Zinner, guitarist

Blythe Danner, actress

Christopher Guest, screenwriter

Raphael Bob-Waksberg, writer,

Adam Conover, comedian

Gaby Hoffmann, actress

Gia Coppola, director

Nation-Leading Public Health Legislation Builds On And Surpasses Federal Standards for Lead Pipe Notification

Legislation S.5512/A.6115 Requires Public Water Systems to take Service Line Inventories and Make Information Available to the Public

Governor Kathy Hochul signed legislation S.5112/A.6115, also known as the Lead Pipe Right to Know Act, to protect New Yorkers from the extraordinary public health risk posed by lead pipes. The legislation requires making information easily accessible to the public about the number and location of lead pipes so that state and federal resources can be secured and efficiently targeted to support local efforts to remove all lead pipes impacting New York's drinking water.

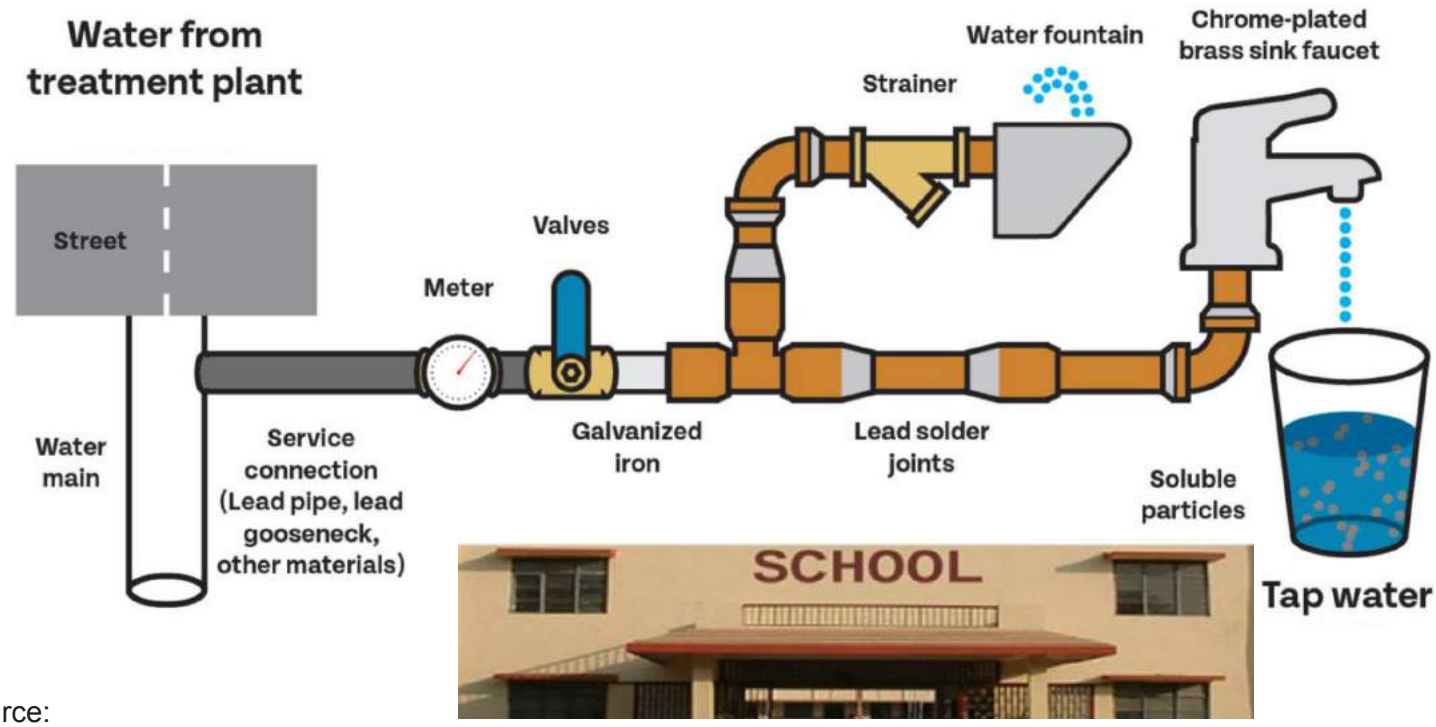
"Lead poisoning poses a clear and present danger to the health and well-being of all New Yorkers," **Governor Hochul said.** "This nation-leading legislation will protect New Yorkers from lead pipes, which are proven to cause extraordinary harm. I am committed to doing everything in my power to protect the health and well-being of New Yorkers.

Legislation S.5112/A.6115 requires water utilities across the state to publicly share how many lead service lines are present in their distribution system and where those lines are located so that individuals and policymakers can understand the full scale and extent of the lead service line issue.

State Senator Gustavo Rivera said, "I am grateful to Governor Kathy Hochul for signing my Lead Pipe Right to Know Act into law, and cementing New York's position as a leader in enacting progressive climate change legislation. This law will take stock of our state's water pipeline infrastructure and ensure access to clean water to New Yorkers across the State. We must combat environmental injustice and with this law, we will keep our communities healthy and safe."

Assemblymember Amy Paulin said, "Lead poisoning is an urgent public health issue, and it disproportionately affects children in low-income and marginalized families. The Lead Pipes Right to Know Act will help make childhood lead exposure a thing of the past. I thank Governor Hochul for taking this step to protect New York's children."

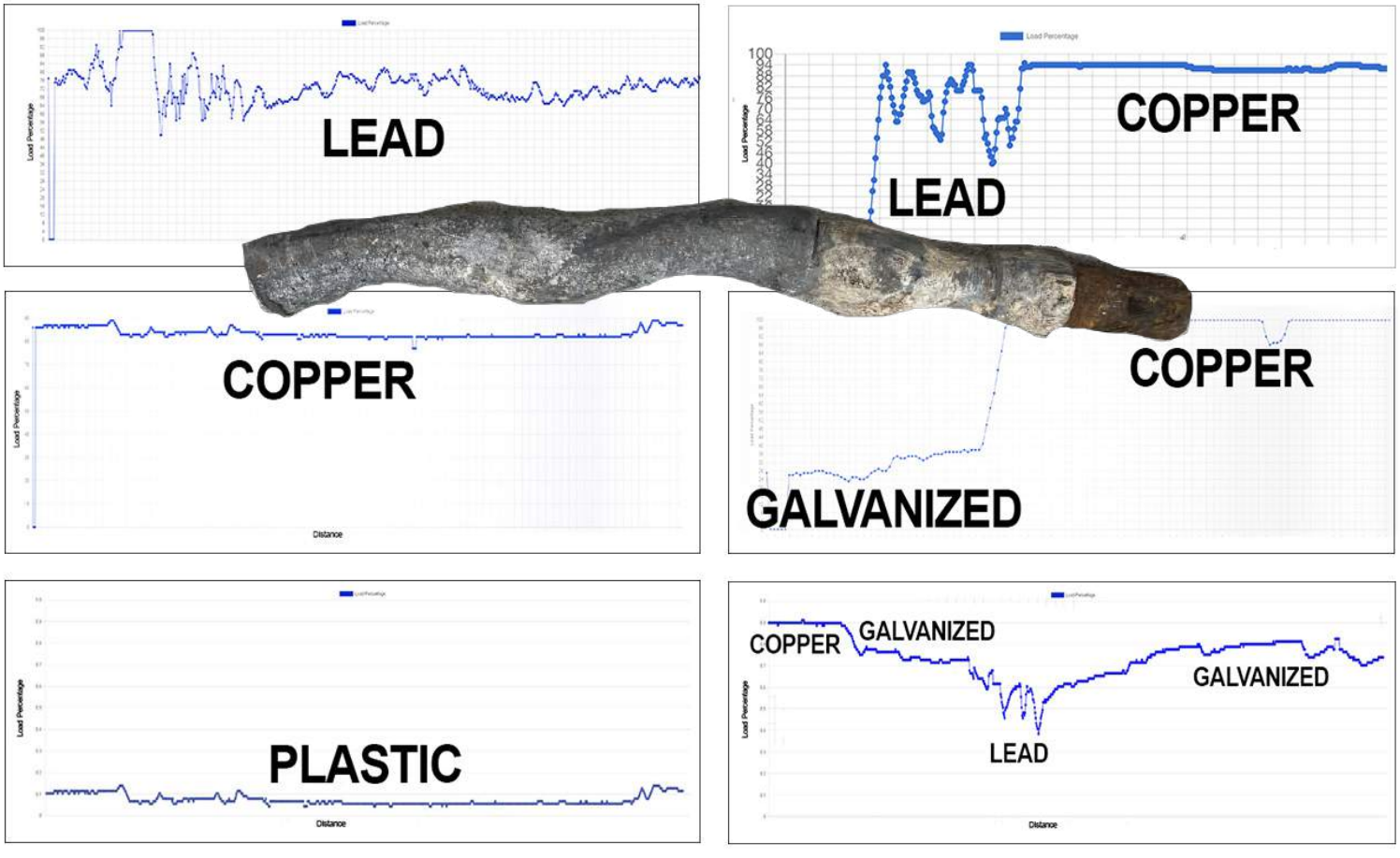
Where Lead May Enter a School Building's Drinking Water?



Source:
Environment America Research & Policy Center and U.S. PIRG Education Fun, 2023.

ACTUAL v. PREDICTIVE MODELS: FOUND TO HAVE COMPLETELY DIFFERENT ANSWERS

SINGLE PIPE MATERIAL or MULTIPLE PIPE MATERIALS



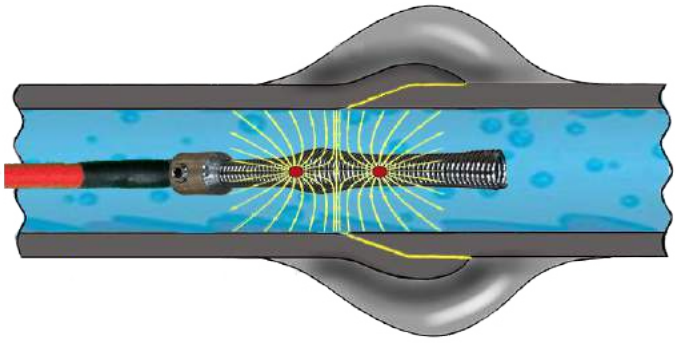
electro scan

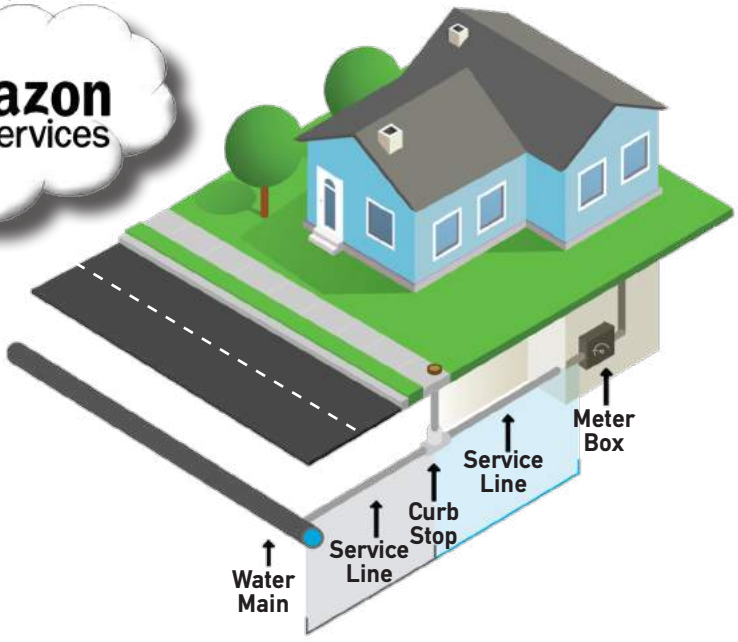
SWORDFISH

Buried Lead Pipe Detection

- **SWORDFISH** is the world's first hand-held buried lead pipe detection tool using an 18V battery with automatic system for cable feed in pipe diamters from ½ to 3 inches (12mm - 76mm)
- **SWORDFISH** is based on Electro Scan's patented machine-intelligent technology, developed in accordance with the American Water Works Association, Manual M77, Water Main Condition Assessment, to measure electric resistance using low-voltage conductivity to locate buried lead pipes.
- **SWORDFISH's** design enables users to grip the device with one hand and have the other hand free to guide the Electro Scan probe and cable in and out of the companion service line pipe insertion device.
- **SWORDFISH's** cable feed system maintains a selected feed speed with its rotating action allowing users to navigate multiple 90° pipe bends.
- **SWORDFISH's** fully enclosed drum eliminates free spinning parts, providing users with more protection to work in and around basement meters, bends and other obstructions.
- **SWORDFISH** readings are captured in real-time with data transmitted and processed in Electro Scan's Critical H_2O cloud application, with results independently verified using a commercially available lead test kit for 100% verification of lead pipe.

amazon web services





Field operation requires full compliance with EPA guidelines for drinking water pipe entry.

1745 Markston Road | Sacramento, California USA 95825 | Tel: +1 916.779.0660 | Email: info@electroscan.com | Web: www.ElectroScan.com

U.S. Patents and Patents Pending: 9143740, 9304055, 9933329, 10451515, 10557772, 10816431

electro scan SWORDFISH

Buried Lead Pipe Detection

KEY FEATURES

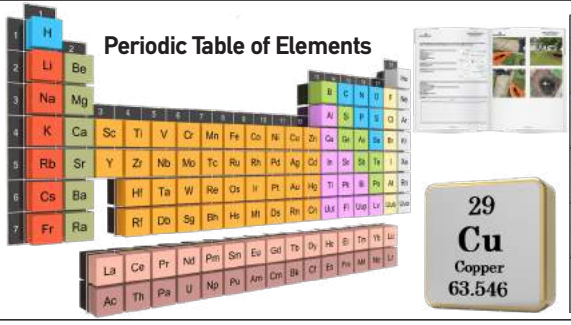
1. Probe entry.
2. Cable feed and retraction.
3. Gripping surface.
4. Light beam.
5. Guard test.
6. Grounding reel and stake.
7. Electro Scan readings.
8. Fully enclosed drum.
9. On-Off switches
10. Rechargeable batteries.

Electro Scan probes confirms lead pipe with an approved independent Lead Test Kits. Testing of probe is required after each survey.

Images shown are representation only. Electro Scan adapted M18 FDCPF8 , Milwaukee Electric Tool Corporation ("Milwaukee Tool").

A Breakthrough in Buried Lead Pipe Detection

Electro Scan's SWORDFISH is a breakthrough in accurately & consistently locating buried lead pipes. Using its patented machine-intelligent low-voltage (i.e. non-acoustic, non-electro magnetic) technology, Electro Scan first discovered its ability to locate lead pipes when it was used to assess Asbestos Cement (AC) pipes; finding lead soldered joints used to seal pipe joints. Aided by the major difference in resistivity of pipe materials, Electro Scan developed SWORDFISH to enter pressurized pipes with ½-inch diameters with multiple 90° bends.



TECHNOLOGIES	Locate Buried Lead Pipes
Acoustic Monitors	NO
Fiber Optics	NO
Acoustic Sensors	NO
CCTV Inspection	NO

EPA Guidelines

Office of Water (4606M)
EPA 816-B-22-001
August 2022

"Electrical Resistance Testing"

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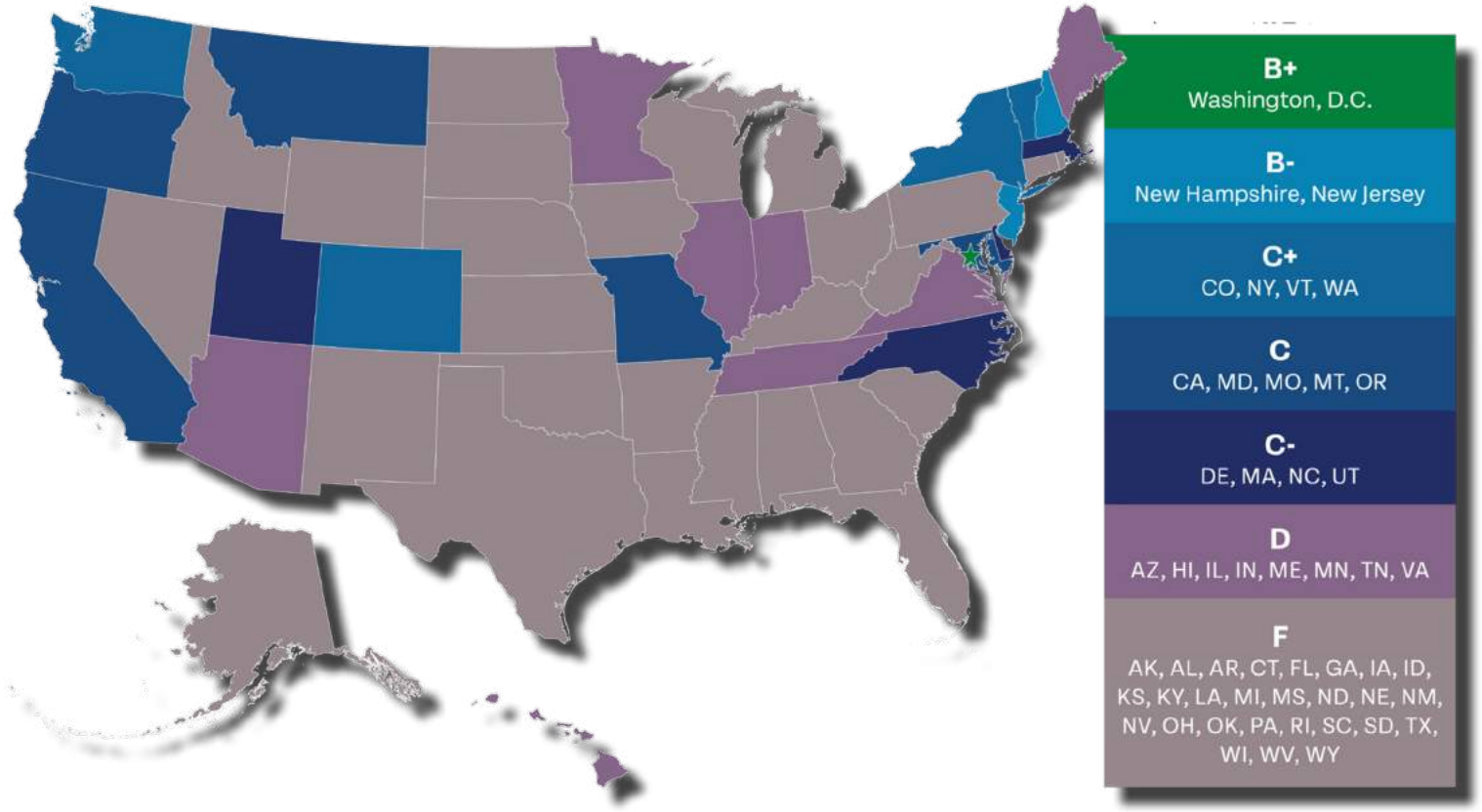
2023 STUDY

Grading the States on Lead in Schools



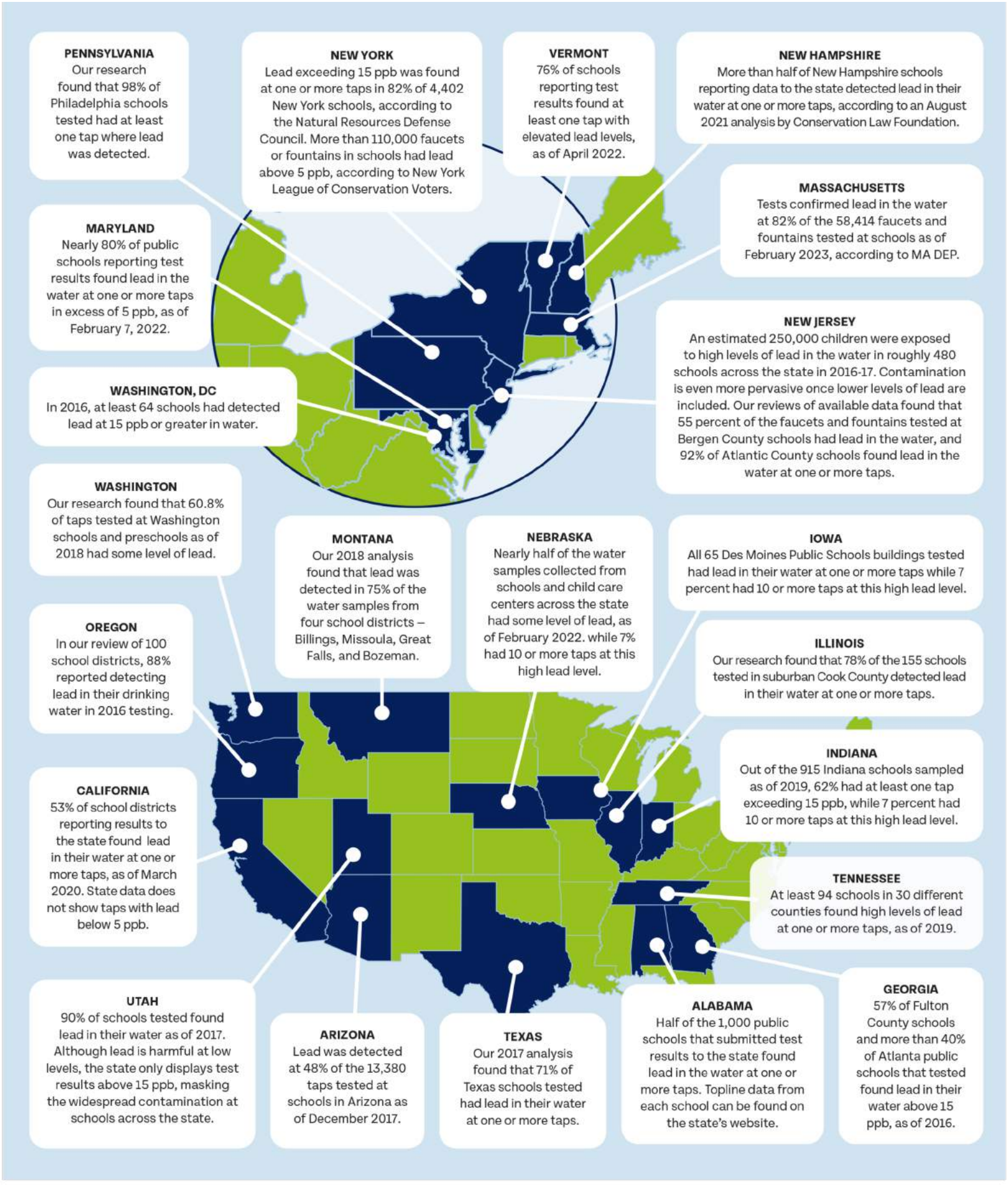
ENVIRONMENT AMERICA
RESEARCH & POLICY CENTER

U.S. PIRG Education Fund

Policy Requirements	Points
Solutions	**Max Points: 90**
Prevention – replace all fountains with lead-filtering water stations; indicator lights; test, maintain, and replace filters	35
Prevention – install filters at all drinking water/cooking taps; indicator lights; test, maintain, and replace filters	25
Prevention – fixtures/plumbing to meet standard (Q<1), esp. at new schools	15
Immediately shut off of taps exceeding lead limit in water	15
Remediation – install/maintain filters, replace fixtures/plumbing w/ Q≤1 parts	15
Remediation – some action required	10
Lead Limit in Water	**Max Points: 35**
1 ppb (or less)	35
5 ppb	15
greater than 5 ppb	5
Testing	**Max Points: 35**
Several samples per tap, and other testing protocols most likely to detect lead	15
Prohibit protocols known to hide lead (i.e., follow EPA 3Ts)	10
Test all drinking water/cooking taps at every school	15
Test at least some taps at every school	5
Tests every year	5
Test every 2-5 years	2
Only test taps once	1
Public Disclosure	**Max Points: 20**
System risks – unfiltered taps, lead-bearing fixtures/plumbing	5
All test results	5
Information posted online	5
Solutions – actions taken	5
Applicability – requirements apply to all schools and child care facilities	**Max Points: 20**
Base Score	**Max Points: 200**
Bonus Points – Full replacement of all LSLs within 10 years	**Max Bonus: 30 points**
Final Score	

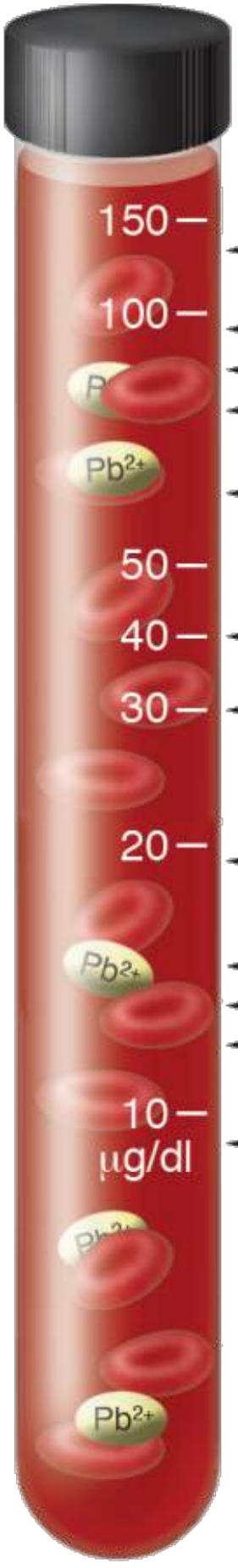
Source
Environment America Research & Policy Center and U.S. PIRG Education Fund , John Rumpler and Matt Casale
February 2023

Available data confirms pervasive water contamination at school



Source
Environment America Research & Policy Center and U.S. PIRG Education Fund , John Rumpler and Matt Casale
February 2023

Levels of Lead in Drinking Water



ENVIRONMENT AMERICA
RESEARCH & POLICY CENTER

U.S. PIRG
Education Fund

- 150 — Death
- 100 — Encephalopathy
- Nephropathy
- Frank anemia
- Colic
- 50
- 40 — Decreased hemoglobin synthesis
- 30 — Increased vitamin D metabolism
  Increased risk of hypertension in adulthood
- 20 — Increased nerve conduction velocity
- Increased level of erythrocyte protoporphyrin
- Decreased vitamin D metabolism
- Decreased calcium homeostasis
- 10 µg/dl — Developmental toxicity
  - Decreased IQ level
  - Decreased hearing
  - Decreased growth
  - Impaired peripheral nerve function
  - Transplacental transfer

134-Page SWORDFISH Training Manual

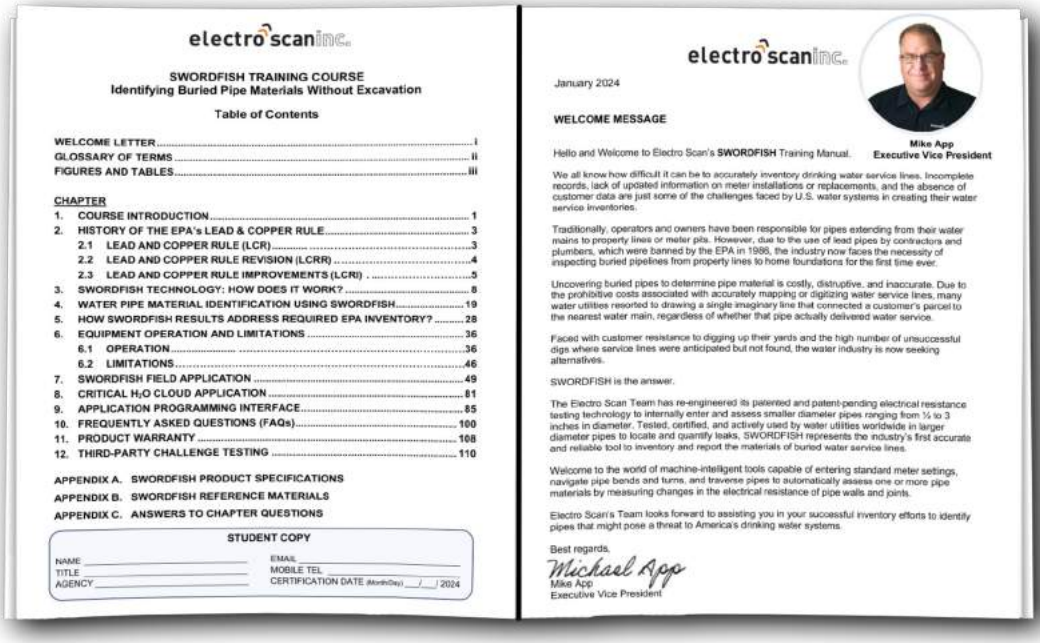
How to Create, Verify and Validate Your Water Service Line Inventory.

Release 1.5

What's Inside?

- Expanded Content
- LCR, LCRR, LCRI
- Example Scans
- Single v. Multiple Pipe Materials.
- New Chapter on API
- New Chapter on FAQs
- Chapter Tests

Learn from Water Industry Insiders How to Report!



electro scan inc.

SWORDFISH TRAINING COURSE
Identifying Buried Pipe Materials Without Excavation

Table of Contents

STUDENT COPY

NAME _____ EMAIL _____
TITLE _____ MOBILE TEL _____
AGENCY _____ CERTIFICATION DATE (Month/Day) ___/___/ 2024

electro scan inc.

January 2024

WELCOME MESSAGE

Mike App
Executive Vice President

Hello and Welcome to Electro Scan's **SWORDFISH** Training Manual.

We all know how difficult it can be to accurately inventory drinking water service lines. Incomplete records, lack of updated information on meter installations or replacements, and the absence of customer data are just some of the challenges faced by U.S. water systems in creating their water service inventories.

Traditionally, operators and owners have been responsible for pipes extending from their water mains to property lines or meter pits. However, due to the use of lead pipes by contractors and plumbers, which were banned by the EPA in 1986, the industry now faces the necessity of inspecting buried pipelines from property lines to home foundations for the first time ever.

Uncovering buried pipes to determine pipe material is costly, disruptive, and inaccurate. Due to the prohibitive costs associated with accurately mapping or digitizing water service lines, many water utilities resorted to drawing a single imaginary line that connected a customer's parcel to the nearest water main, regardless of whether that pipe actually delivered water service.

Faced with customer resistance to digging up their yards and the high number of unsuccessful digs where service lines were anticipated but not found, the water industry is now seeking alternatives.

SWORDFISH is the answer.

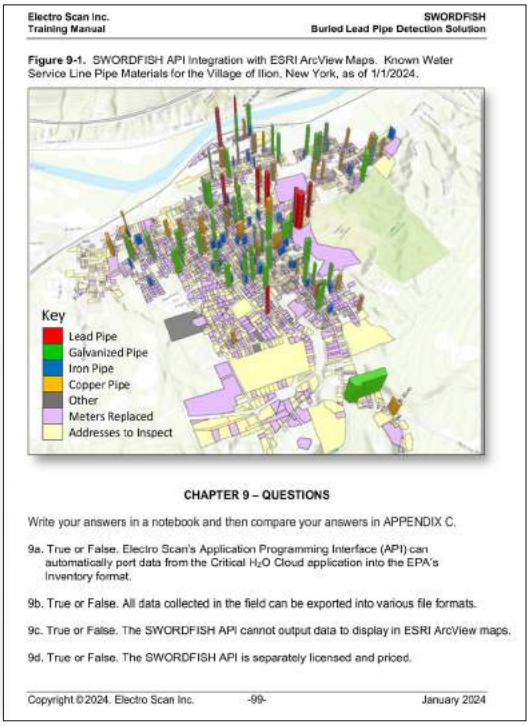
The Electro Scan Team has re-engineered its patented and patent-pending electrical resistance testing technology to internally enter and assess smaller diameter pipes ranging from ¾ to 3 inches in diameter. Tested, certified, and actively used by water utilities worldwide in larger diameter pipes to locate and quantify leaks, SWORDFISH represents the industry's first accurate and reliable tool to inventory and report the materials of buried water service lines.

Welcome to the world of machine-intelligent tools capable of entering standard meter settings, navigate pipe bends and turns, and traverse pipes to automatically assess one or more pipe materials by measuring changes in the electrical resistance of pipe walls and joints.

Electro Scan's Team looks forward to assisting you in your successful inventory efforts to identify pipes that might pose a threat to America's drinking water systems.

Best regards,

Michael App
Mike App
Executive Vice President



Electro Scan Inc. | SWORDFISH
Training Manual | Buried Lead Pipe Detection Solution

Figure 9-1. SWORDFISH API Integration with ESRI ArcView Maps. Known Water Service Line Pipe Materials for the Village of Ilion, New York, as of 1/1/2024.

CHAPTER 9 – QUESTIONS

Write your answers in a notebook and then compare your answers in APPENDIX C.

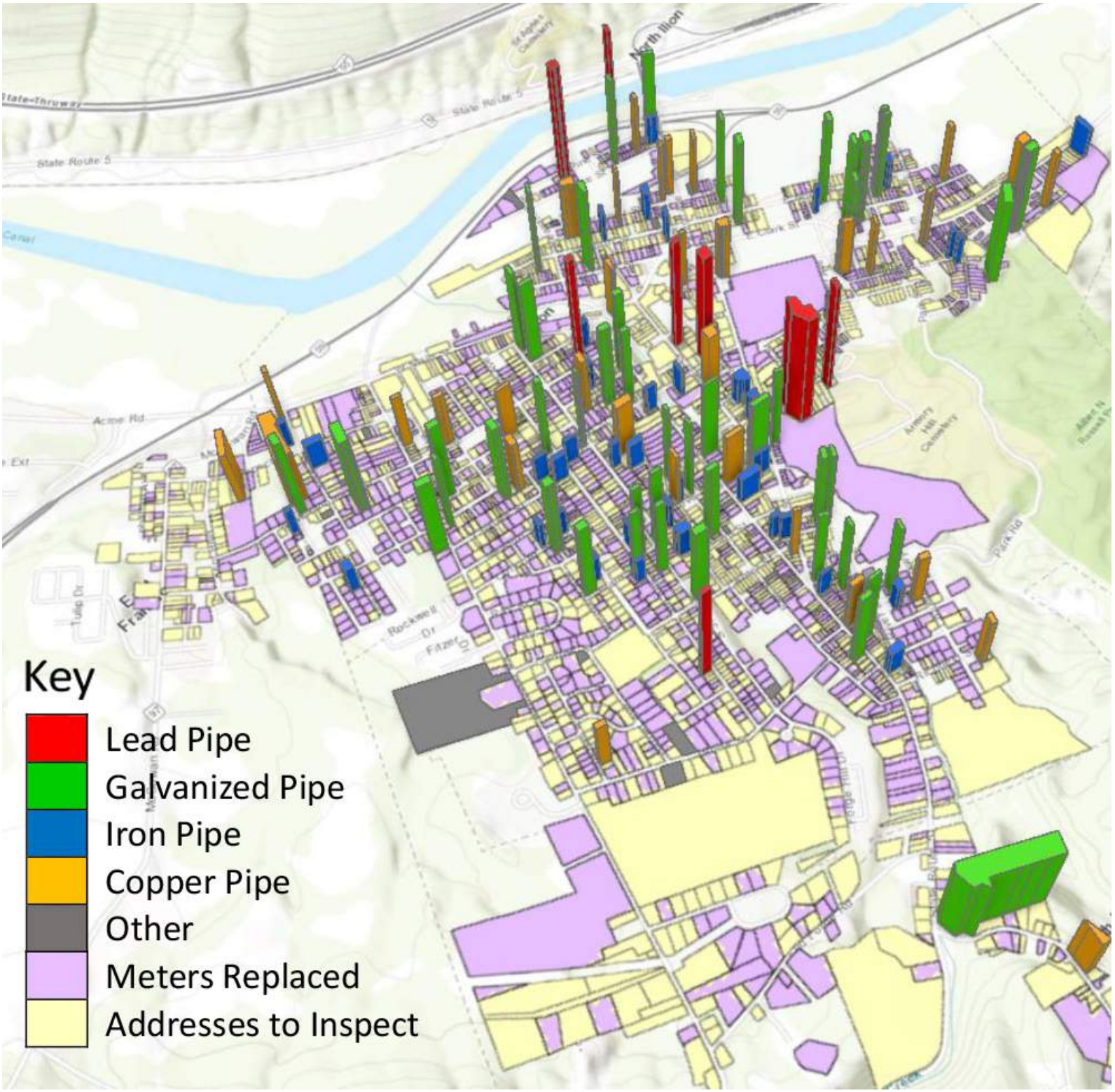
9a. True or False. Electro Scan's Application Programming Interface (API) can automatically port data from the Critical H_2O Cloud application into the EPA's Inventory format.

9b. True or False. All data collected in the field can be exported into various file formats.

9c. True or False. The SWORDFISH API cannot output data to display in ESRI ArcView maps.

9d. True or False. The SWORDFISH API is separately licensed and priced.

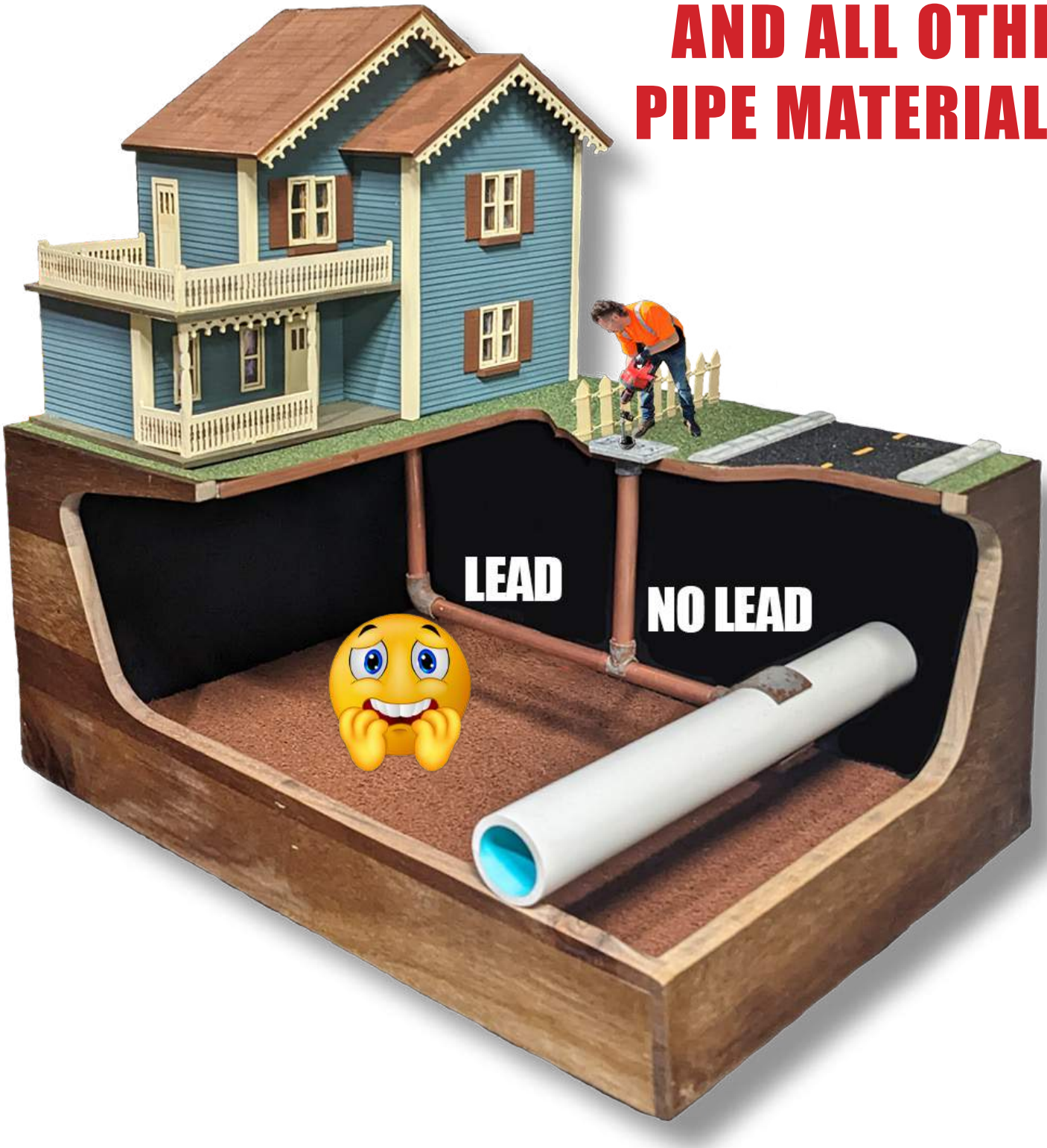
Building Your Water Service Inventory



How are you doing on your Water Service Line inventory?

DESKTOP MODELS DON'T FIND LEAD.
DIGGING DOESN'T TEST ENTIRE PIPE FOR LEAD.

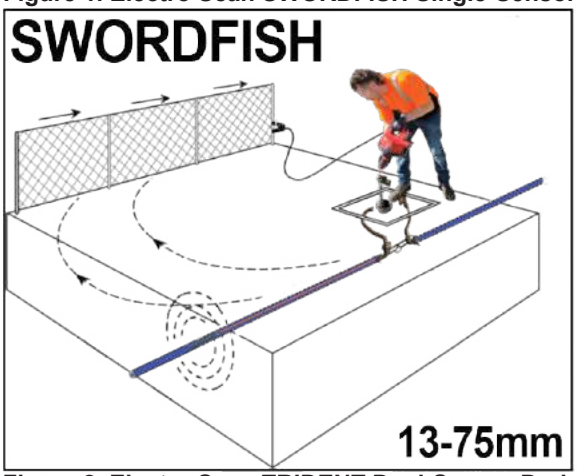
ONLY SWORDFISH ACCURATELY LOCATES LEAD AND ALL OTHER PIPE MATERIALS.



FEATURED IN AWWA M77

SWORDFISH Uses The Same Patented Technology That Finds Leaks Missed by Acoustic Sensors & CCTV

Figure 1. Electro Scan SWORDFISH Single-Sensor Probe



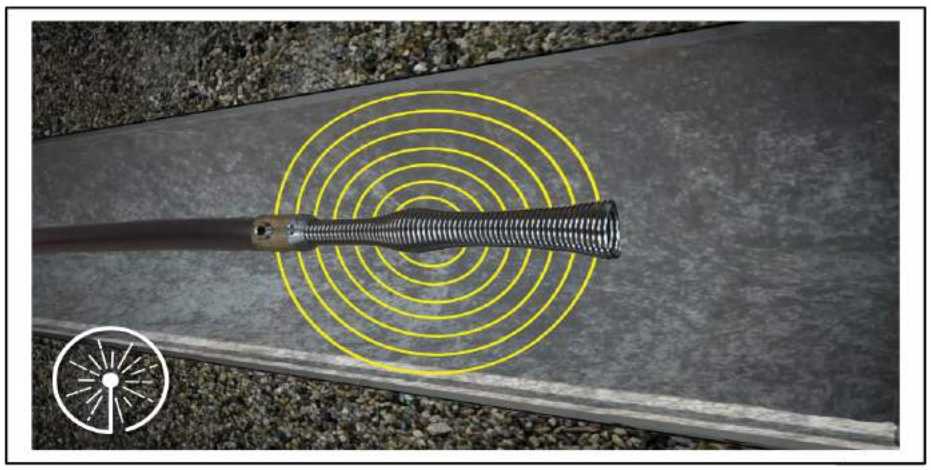
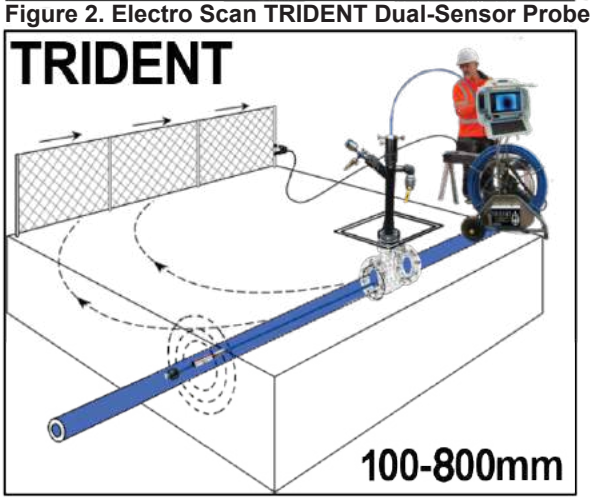


Figure 2. Electro Scan TRIDENT Dual-Sensor Probe



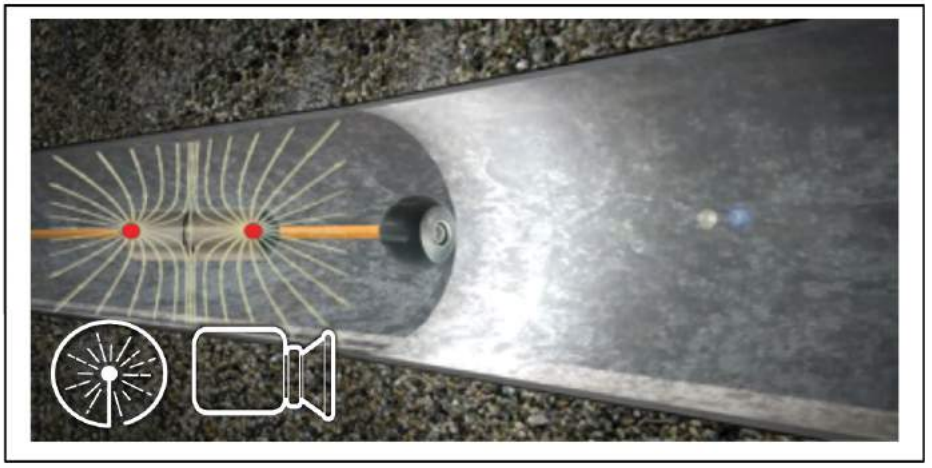
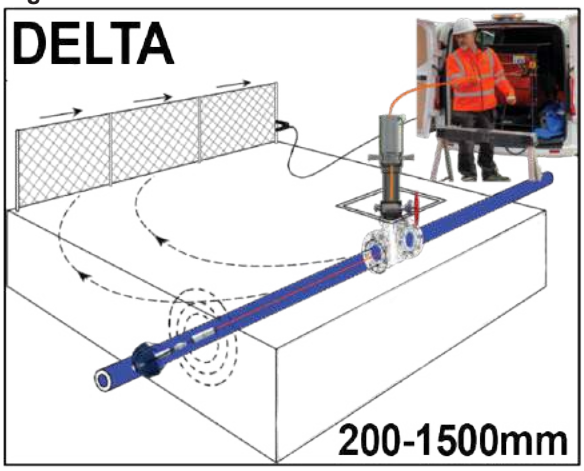
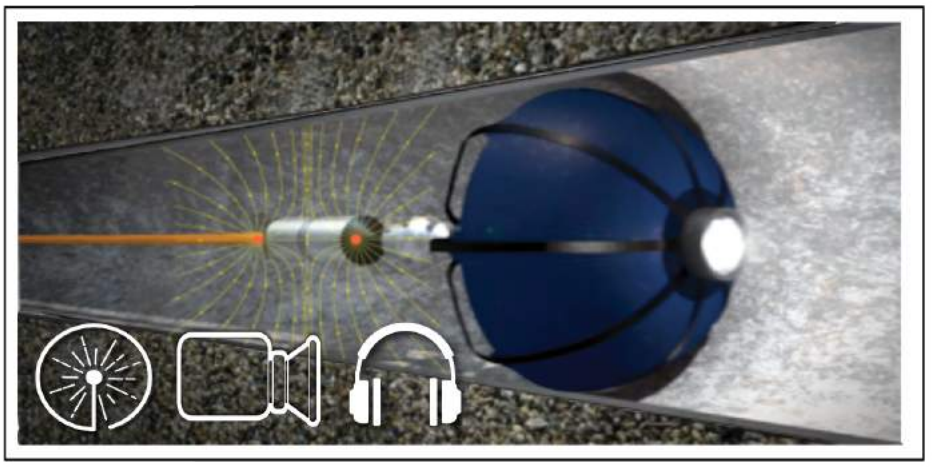


Figure 3. Electro Scan DELTA Multi-Sensor Probe



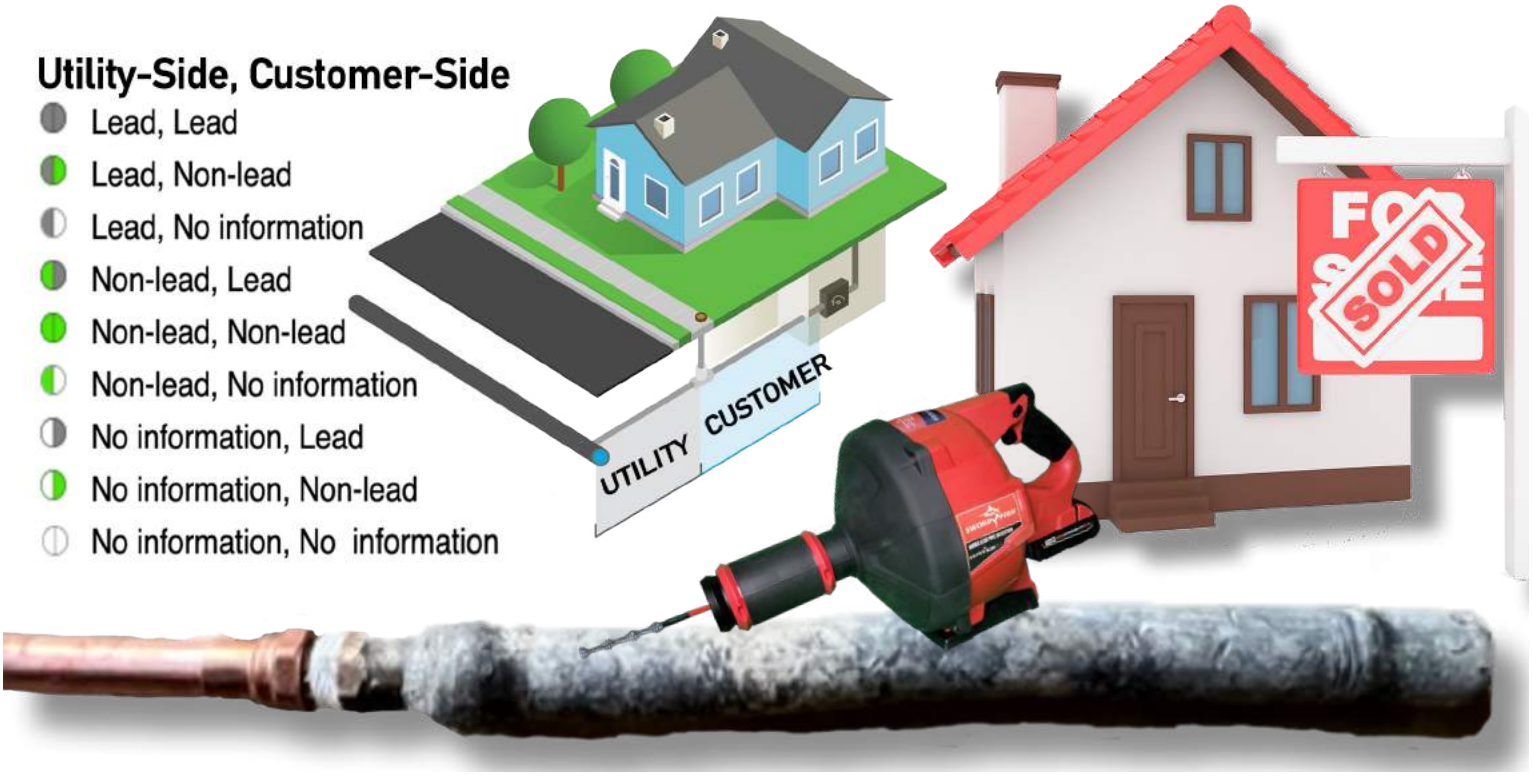


LEGEND

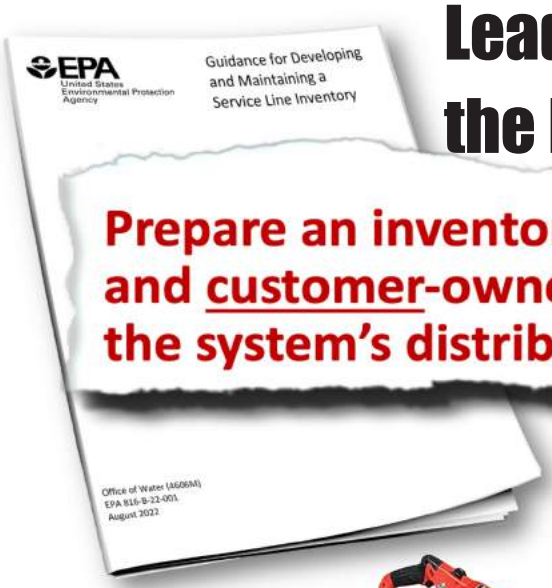
- Electro Scan
- CCTV
- Acoustic

Utility-Side, Customer-Side

- Lead, Lead
- Lead, Non-lead
- Lead, No information
- Non-lead, Lead
- Non-lead, Non-lead
- Non-lead, No information
- No information, Lead
- No information, Non-lead
- No information, No information



Lead Inventory Requires Two Sides of the Meter. Not Utility-Owned Only.


EPA United States Environmental Protection Agency

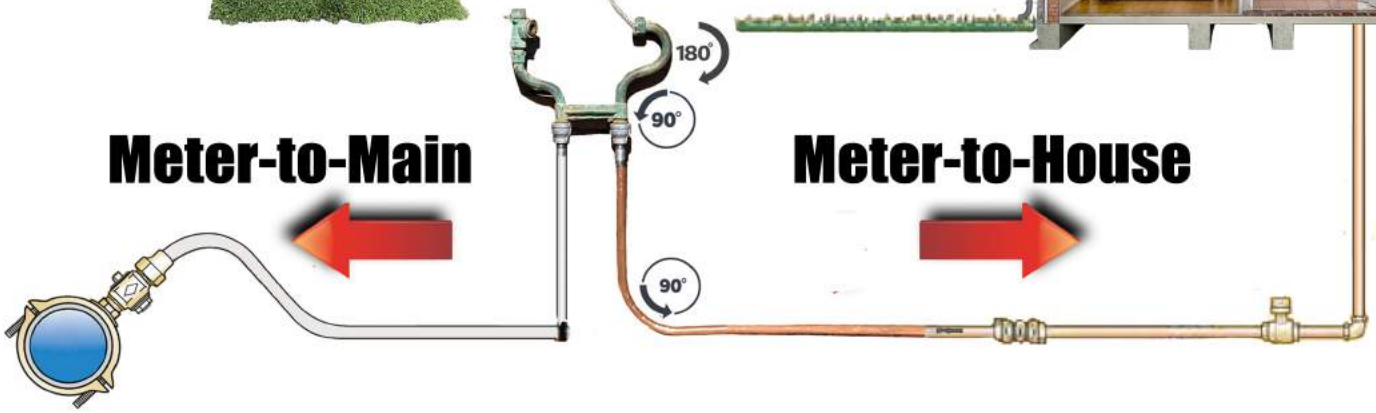
Guidance for Developing and Maintaining a Service Line Inventory

Office of Water (4606M)
EPA 816-B-22-001
August 2022

Prepare an inventory that includes the system- and customer-owned portions of all service lines in the system's distribution system.

CALIFORNIA

Only Has to Inventory Meter Setting to House.



Meter-to-Main

Meter-to-House

OLD WAY

Aboveground Lead Test: Exposed Pipe

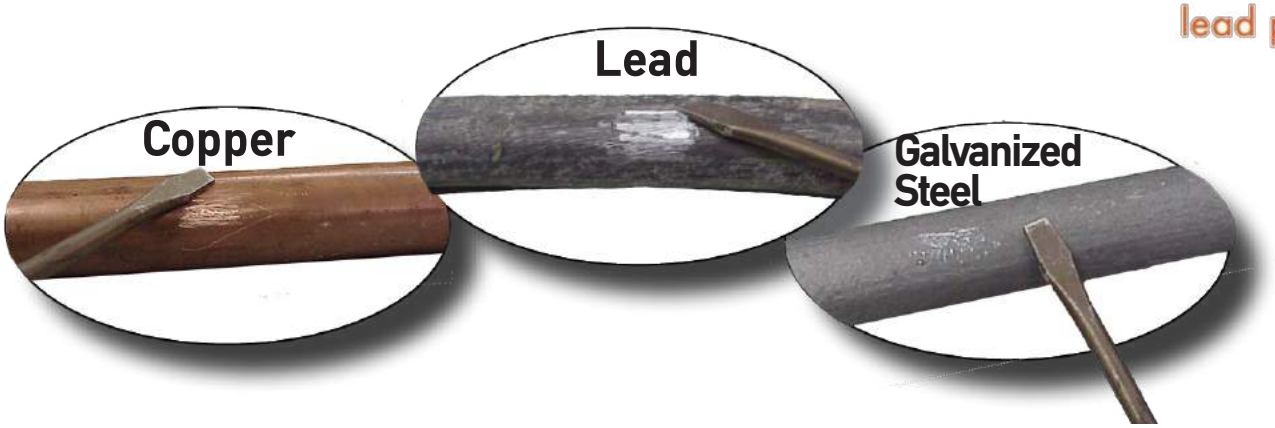
Disruptive. Expensive. Inaccurate. Messy.

Magnetic Test —Sticks→ steel pipe

Doesn't Stick ↓

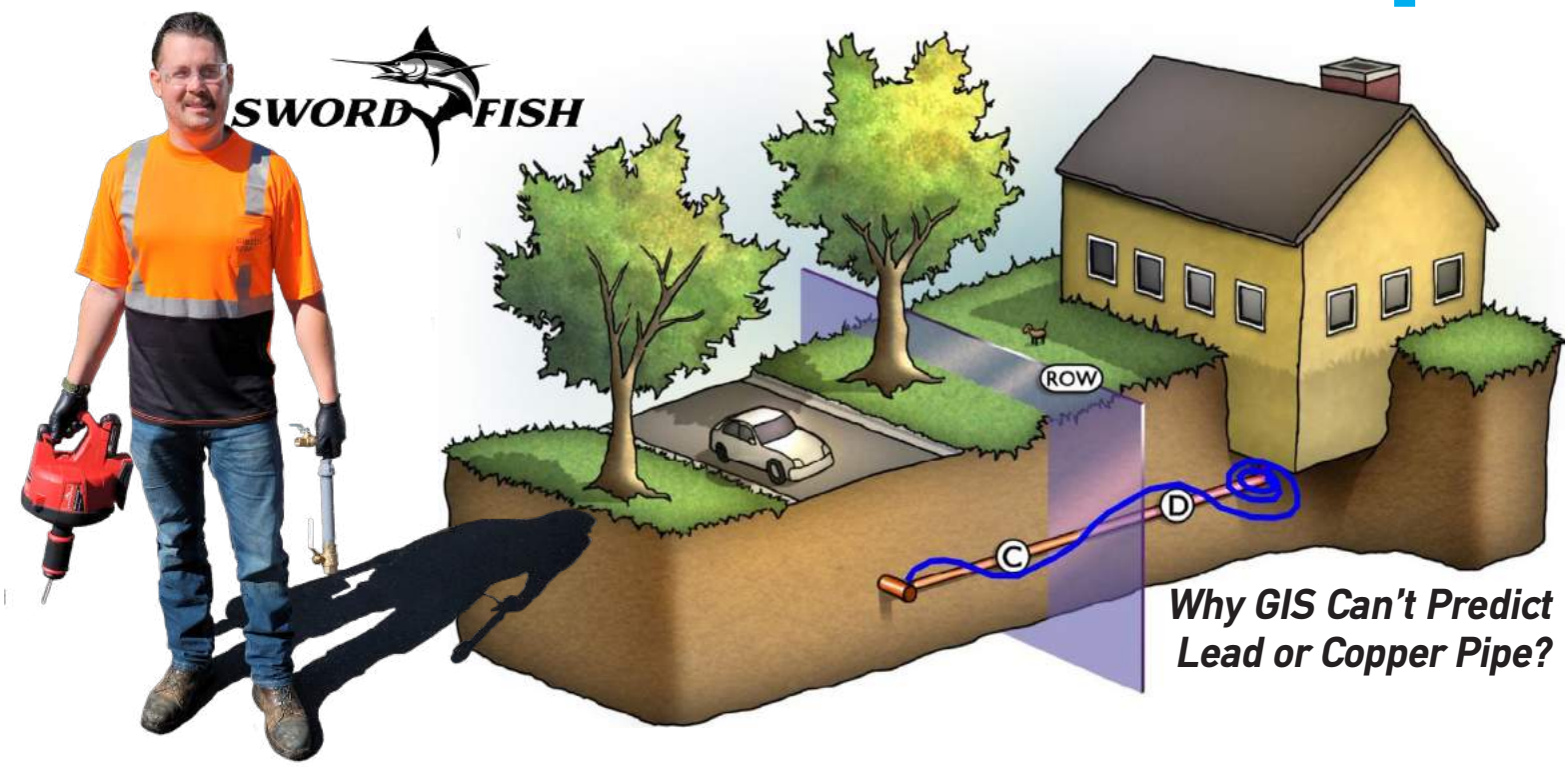
Scratch Test

- Color of a Penny → copper pipe
- No Shine → plastic pipe
- Silver Streaks → lead pipe

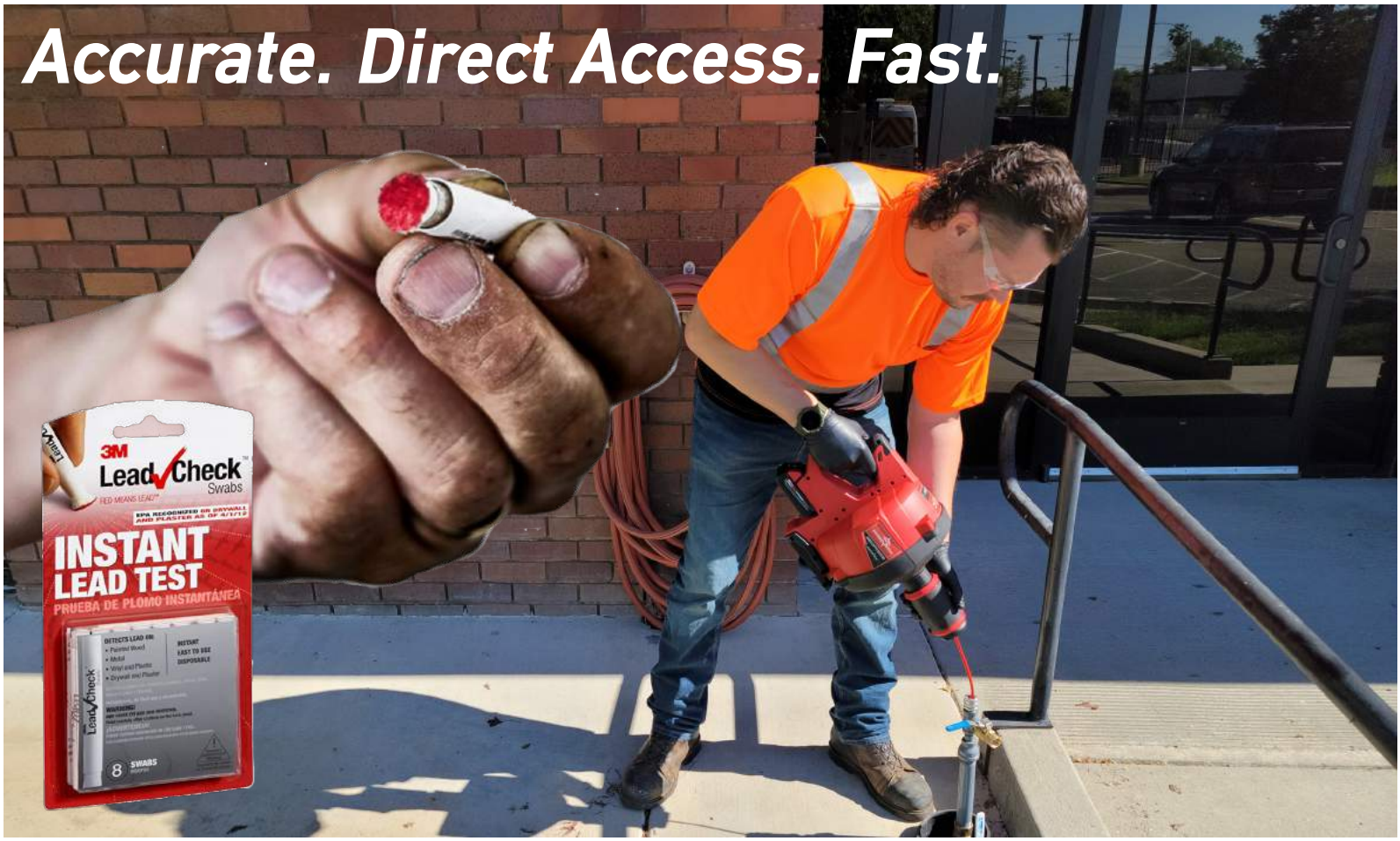


NEW WAY

Below Ground Lead Test: Buried Pipe



Why GIS Can't Predict Lead or Copper Pipe?



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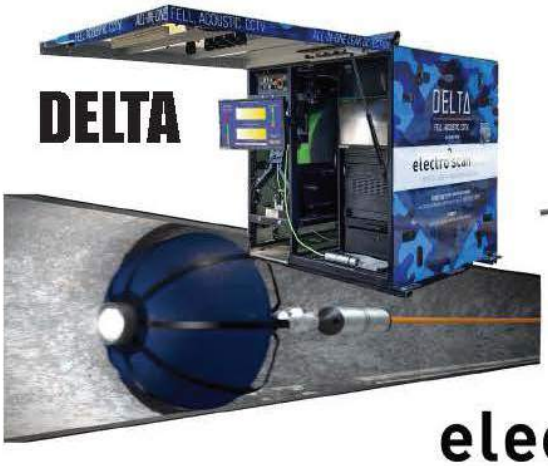
Since	September 2011

Are you Still Using CCTV Cameras to Find Infiltration? No Wonder You Still Have SSOs.

DELTA



SWORDFISH

TRIDENT

electroscaninc.

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