Lansing Lead Service Line Replacement Program

Scott Hamelink
Director, Water Operations
Lansing Board of Water & Light
Municipally owned utility
  - Governed by a Board of Commissioners who set policy, approve budgets and rates
  - Groundwater supplies two water conditioning plants that use lime-soda softening on water from 124 wells
  - 22 MGD average daily demand providing water to 59,000 retail accounts
Our Lead Service Lines

- Took ownership of all water service lines in 1927
- Stopped installing LSLs in 1956
  - As a result of our ownership we developed a fairly accurate record of service line materials. Our service card files were kept up to date throughout.
  - Inventoried all service line materials in 1980s, identifying as lead, copper, plastic or galvanized steel. Lead and galvanized were labeled “non-standard”.
  - In 2004 we asked customers to self-identify LSLs. Vast majority confirmed our records. Card files were transferred to GIS.
Whereas, the Board of Water & Light is committed to provide safe and sufficient water to its customers and is in full compliance with the Safe Drinking Water Act, and

Whereas, the Board of Water & Light owns water service lines to customers homes and businesses, some of which contain lead components, and

Whereas, the Commissioners have determined that in the best interests of its customers, these lead water service components should be voluntarily replaced in a timely fashion.

Resolved, that lead service line components be replaced with approved service line materials within ten years.

Motion by Commissioner Calkins seconded by Commissioner Duncan, to approve the resolution.

Action: Carried unanimously
All sampling rounds have shown 90\textsuperscript{th} % ile below 15ppb
- BWL conditioned water is high pH (9.4), moderate alkalinity (35) and hardness (98)
- Optimal Corrosion Control installed in 1997
Monitoring reduced to 50 locations every three years
Some sampling rounds higher than others
Began accelerated LSLR, public education in 2004

2014 – 7.8ppb
2017 – 1.1ppb
Inventory showed about 17,000 LSLs as of the early 1990s
- Estimates were based on Customer Information System and GIS project
- Before 2004 lead service lines were replaced as needed.

Developed accelerated LSLR Program, 2004
- Proposed 14 year program, but the Board of Commissioners required that we target 10 years.
- Due to slowdown in combined sewer separation project, the completion date was moved to December of 2016.

170 services with unknown materials. Through a deeper look at old records 50 of the 170 unknown services were deemed non-lead.

120 services with unknown materials were treated as if they were lead services and replaced.
Prioritization of Replacements

- Any lead service that is physically disturbed by such things as dig-ins, excavations, or leak repair.
- Services supplying schools, day care centers, or other identified sensitive populations as defined by the USEPA.
- Services where there are sample results in excess of 15 ppb.
- Services in the work zone of CSO replacement or street restorations.
- Multiple services within a compact area.
- Length of lead pipe present in the service line.
BWL Lead Communications Plan

- Bill stuffers
- Special brochures to schools, day cares, health offices
- Lead information on the BWL web site
- Special meetings and community events
- Neighborhood meetings
- Preparations for customer response FAQs
- Lead Hotline
- Meetings with local media
Meeting with our Customers

The BWL hosted several community open houses at various locations around the city.

8 Stations were manned at each location:

Station 1 – Information about lead service lines
Station 2 – Identifying lead service lines
Station 3 – Sources of lead
Station 4 – What the BWL is doing
Station 5 – How to protect yourself from lead
Station 6 – Where your water comes from

Additionally there were two other stations. One manned by staff from the county health department, and one staffed by the MDEQ.
IMPORTANT INFORMATION FOR YOU FROM THE BOARD OF WATER & LIGHT ABOUT POTENTIAL LEAD HAZARD IN DRINKING WATER.

Dear BWL Customer:

We have determined that sections of the service line that supplies water to your home MAY BE MADE OF LEAD PIPE. This may be the line from the water main in the street to the service box near your house, or it may be the line from the service box to your house. If any such pipe is in your home, it may contain lead and you may need to take steps to reduce the amount of lead in the water that you use.

Recent reports indicate that lead is a potential health hazard. The degree of hazard depends on the amount of lead in your water, which is measured in parts per billion (ppb). If your water contains more than 15 ppb of lead, you may need to take steps to reduce the amount of lead in your water.

Important steps you can take to reduce lead in your water:
- Boil your water for at least one minute before drinking or using it for cooking.
- Use carbon filters or other treatment systems that are certified to reduce lead in your water.
- Make sure your plumbing fixtures are lead-free.
- Test your water for lead using a certified lab.

If you are concerned about lead in your water, contact your local public health department for guidance on reducing lead in your water.

What the BWL is doing:

The Board of Water & Light (BWL) is doing the following:
- Inspecting service lines for lead pipes.
- Testing service lines for lead.
- Providing information on reducing lead in water.

If you have any questions about lead in your water, please contact us at 1-800-827-3777.

Sincerely,

[Signature]

Manager, Water Treatment

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## Frequently Asked Questions About Lead
### For Customer Service Representatives

<table>
<thead>
<tr>
<th>Q: Why is lead a problem?</th>
<th>A: Lead is known to be harmful to human health if inhaled or ingested. The degree of harm depends upon the level of exposure from all sources.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q: Where does lead come from?</td>
<td>Important sources of lead exposure include ambient air, soil and dust (both inside and outside the home), food (which can be contaminated by lead in the air or in food containers), and water (from the corrosion of plumbing). On average, it is estimated that lead in drinking water contributes between 10 and 20 percent of total lead exposure in young children. Infants who consume mostly mixed formula can receive 40 to 60 percent of their exposure to lead from drinking water. Federal controls on lead in gasoline have significantly reduced people's exposure to lead.</td>
</tr>
<tr>
<td>Q: How can lead get into my drinking water?</td>
<td>A: Lead gets into your water after the water enters your water service lines or plumbing in your home. The source of lead in your home’s water can be the service pipe, which can be made of lead, or solder or fixtures in your home’s own plumbing. While UTILITY water is non-corrosive, some lead can be dissolved into your water if it is left stagnant in the pipes for more than six hours.</td>
</tr>
<tr>
<td>Q: Does my service line contain lead?</td>
<td>A: We have fairly complete records. Approximately NUMBER service lines have at least one lead component, our records show. There are some unknown lines that we will assume are lead until we can establish this with certainty.</td>
</tr>
<tr>
<td>Q: Does my home's age make a difference?</td>
<td>A: Yes. Up until the early 1930s, lead pipes were sometimes used for interior plumbing. Until the early 1950s, the UTILITY often used lead piping to connect water mains to residences. Solder used to join copper plumbing before 1988 may contain lead. New brass faucets and fittings may contain up to 8% lead, and can also leach lead even though they are technically considered “lead-free.”</td>
</tr>
<tr>
<td>We can tell you if the service connector used in your home or area is made of lead. Call us at (AREA) PHONE #.</td>
<td></td>
</tr>
<tr>
<td>Lead levels decrease as a building ages. This is because as time passes, mineral deposits form a coating on the inside of the pipes. This coating insulates the water from the solder.</td>
<td></td>
</tr>
<tr>
<td>Q: How can I have my water tested for lead?</td>
<td>A: Testing can be arranged through your local health department and costs around $30. Contact names and numbers are listed at the bottom of this document. Should you decide to utilize an independent laboratory not listed here, please be certain that the laboratory is certified by the Michigan Department of Environmental Quality (MDEQ) to test for lead in drinking water.</td>
</tr>
<tr>
<td>Q: What are the testing procedures?</td>
<td>A: Contact your local health department. In most cases, the department will provide sample containers along with instructions as to how you should draw your tap-water samples. If you collect the samples yourself, make sure you follow the health department’s instructions exactly. Otherwise, the results might not be reliable. Make sure that the laboratory is following water sampling and analysis procedures certified by MDEQ. Be certain to take a “first draw” sample.</td>
</tr>
</tbody>
</table>
Lead Service Advisory Information

In December 2016, the BWL replaced its last active lead service line, joining Madison, Wisconsin as the only two water utilities in the nation that have removed all lead service lines. The project began in 2004 and removed 12,150 active lead service lines at a cost of $44.5 million.

Things you should know about lead in drinking water

- Important Information about lead
- Lead in drinking water
- How lead enters our water
- Reducing water's corrosiveness
- Things you can do to reduce lead in your drinking water
- EPA's lead regulation
- Our commitment to our customers
Factors that affect the cost of LSLR

Coordination with street projects
- More difficult and expensive without City Combined Sewer Overflow (CSO) Separation Project or road resurfacing
- Cost per service goes from $3,500 when coordinating with CSO to $6,500 without CSO.
- Current removal method further reduces costs.

Material Costs
- Copper price fluctuations and the Lead Free Act have some impact but are small relative to street cut impact
More Factors

Meter location and ownership
- House on slab, service line under house, porch, or driveway
- Meter pit conundrum, re: ownership

Crew Mobilization
- No partial LSL replacement mandates same-day completion, leaving us the choice of idle crew or overtime
- Working in the same or adjacent blocks reduces mobilization costs
Five Largest Hurdles

Access
- Normally just coordination but ultimately comes down to a condition of service

Easements
- We have not sought easements and therefore must count on good customer interaction and follow-through

Through Wall Bore
- Potential liability. Occasional disputes can be expensive
Yard Restoration, non-standard installations
- Trees, shrubs, plantings, crawl spaces, slab foundations, porches, driveways, sheds, drywall interiors, meter access require decisions case-by-case

**Budget!**
- $44.5 million was spent since 2004 to complete project.
- LSLs were replaced as a capital project (an investment into infrastructure)
- Rate payers share in the cost and the community has been generally supportive
- Average spending of $3.7 million per year on LSLR.
Beginning the LSLR Process

Communicating With The Customer to Schedule a LSLR

October 6, 2014

No Response to First Letter: Phone Call

Site Visit

Second Letter Sent

10 Days after Water Service is Turned Off

Dear [CUST_FIRST_NAME] [CUST_LAST_NAME],

In July 2004, the Board of Water & Light commissioners made a commitment to customers to replace all lead services in its water distribution system. Our records indicate that your address has a lead water service, which will be replaced at no cost to you. Lead service replacements are scheduled to take place in your area soon. Please contact the Water and Steam Distribution Department Office at (517) 702-6490 to schedule the replacement of your water service.

The work will require shutting off your water service for several hours and allowing a worker access to your home to complete the replacement during that time. In the interest of time, crew efficiency and safety, please be sure that on the day of your replacement the area around the meter is free of obstacles— including cabinets, drywall and stored items. If you plan to have someone on site to allow admittance to our crew, we do ask that the person be at least 18 years of age.

On your scheduled replacement date the existing lead service line, water meter and mounting bracket will be removed. The BWL will install in its place, a new copper water service line and water meter. The installation of an additional meter for irrigation is available at a reduced cost when requested prior to the lead replacement. Please contact Utility Services at (517) 702-6700 for more details.

Lawn restoration should be completed with 2-3 weeks of the lead replacement. However, if a sidewalk paint was removed, the lawn restoration will be done at the time of the sidewalk repairs and could take a little longer than the specified 2-3 weeks. During the winter months, lawn and sidewalk restoration work is delayed until the weather is conducive to appropriately completing such tasks.

We know this is an inconvenience, and we apologize, but we are sure you understand the importance of our commitment to replacing the lead service lines within our service area. Your cooperation during this time will allow us to complete lead service replacement work in your area as efficiently as possible, and for that we thank you.

Please feel free to direct any questions to the Water and Steam Distribution Dept. at (517) 702-6490, Monday through Friday, 7:00 a.m. – 3:30 p.m.

SHARON GRANGER
516 CAREY ST
LANSING, MI 48915-1906

RE: 516 CAREY ST

Dear BWL Customer:

Our records show that the LBWL service line that supplies water to your home is made of lead. Although not required by EPA regulations, the LBWL has made a commitment to its customers to replace all lead pipe services in its water system, and has made replacement of water services a priority.

We notified you recently that your lead water service will need to be replaced with copper. Prior to the service being replaced, you may see a LBWL representative, stopping by to review the property. In preparation for the service replacement, you may also notice flags or paint marks placed on your property to stake out the location of other underground utilities (gas, electric, phone, etc.).

We are requesting that you call the Water & Steam Distribution Department as soon as possible to schedule a date for water service replacement at (517) 702-6490. Access is necessary to complete the job of attaching the new service to the meter inside your home. The replacement of your water service line should take 2-3 hours to complete, during which time the water will be turned off. We will need access to your home and the area surrounding the water meter in your basement. Please check in advance to be sure the area is free of objects or obstructions.

Please remember that timely access to your residence is essential to completion of the work. If we are unable to make arrangements to access your home within the next 10 days, your water service will be disconnected until such arrangements can be made.

To schedule your water service replacement, or if you have questions, please feel free to call the Water & Steam Distribution Department at (517) 702-6490. Our office hours are Monday – Friday from 7:00 AM to 3:30 PM.

Working Hard to Serve You,
Board of Water & Light
Water & Steam Resource Center
(517) 702-6490
We then provide a set of flushing instructions to the property owner for continued flushing of the premise plumbing, with each tap flushed for 5 minutes before moving to the next tap downstream from the meter. If the customer requests it a filter will be provided to them for use for the next 3 months as an added precaution.

After LSL Has Been Replaced

**Important Notice**

The portion of your water service line that was made of lead has been replaced with copper.

Lead Service Line Replaced: ________________ (Date)

Precautions were taken to prevent any lead from being released into your water supply when your new copper service line was installed. However, please take the following steps to flush any lead that could possibly be present in your home plumbing after the replacement.

Flushig Instructions

1. Remove faucet aerators from all cold water taps in the home.
2. Beginning at the faucet nearest to the meter, fully open the cold water tap, flush for 5 minutes, and shut off before moving to the next faucet.
3. Repeat this procedure at the remaining faucets throughout the home from the lowest level to the last faucet on the top floor. Be sure to run water in bathtubs and showers as well as faucets.
4. Until after the flushing is complete, do not consume tap water, open hot water faucets, or use icemaker or filtered water dispenser.
5. Clean the inside of your aerators before reinstalling on the faucet.

These flushing instructions are an additional method to ensure that any lead is removed from your home’s water supply. As a final precaution you may also wish to use a home filter (NSF/ANSI 53) for the next 3 months at faucets used for drinking and cooking, particularly if you are pregnant or have children under age six. The BWL will be glad to provide a filter free of charge. You may wish to contact a licensed plumber if you need help following these instructions or installing a water filter.

If you have any questions, please contact the BWL’s Water Quality Administrator, Angie Goodman at 517-702-7059.
Lead service line replacement progress

Series 2

Year | Value
--- | ---
2004 | 642
2005 | 1418
2006 | 1409
2007 | 1532
2008 | 1831
2009 | 1914
2010 | 847
2011 | 581
2012 | 379
2013 | 333
2014 | 347
2015 | 190
2016 | 686
Lessons Learned

- Be able to answer the question...” Is my drinking water safe?”
- Need ongoing, proactive communication on the science of safe drinking water. Not just during LSLR’s.
- Transparency! Transparency! Transparency!
- Communicate! Communicate! With Customers
- Collaborate with Department of Environmental Quality with the LSLR process.
More Lessons Learned

- Collaborate with Local Health Department with the LSLR process.
- Be considerate to customer concerns.
- Prioritize LSLR’s for sensitive population first.
- Work with Cities/ Road Commissions to minimize cost of replacements.
- Make sure staff are answering LSL questions consistently.
2004 - 2016
12,150 Lead Service Lines Replaced
$44.5 Million
QUESTIONS??