

# DENVER WATER LEAD REDUCTION PROGRAM

## SEMI-ANNUAL REPORT – 2025

**Version 1.0:** [August 8, 2025](#)

**Presented by:** Denver Water



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## LIST OF ACRONYMS

|                 |  |
|-----------------|--|
| µg/L            | micrograms per liter                                     |
| mg/L            | milligrams per liter                                     |
| ALSLR           | Accelerated Lead Service Line Replacement                |
| CASS            | Coding Accuracy Support System                           |
| CCT             | Corrosion control treatment                              |
| CDPHE           | Colorado Department of Public Health and Environment     |
| COE             | Communications, Outreach and Education                   |
| CPL             | Copper plumbing with lead solder                         |
| EPA             | Environmental Protection Agency                          |
| FFLSLP          | Federally Funded Lead Service Line Program               |
| GRR             | Galvanized requiring replacement                         |
| HE&EJ           | Health equity and environmental justice                  |
| LCR             | Lead and Copper Rule                                     |
| 2019 Variance   | Dec. 16, 2019, Variance Order                            |
| LCRR            | Lead and Copper Rule Revisions                           |
| 2022 Variance   | Nov. 30, 2022, Variance Order                            |
| LIMS            | Laboratory Information Management System                 |
| LRP             | Lead Reduction Program                                   |
| LRPP            | Lead Reduction Program Plan                              |
| LSL             | Lead service line  |
| LSLR            | Lead service line replacement                            |
| NSF             | National Sanitation Foundation                           |
| OCCT            | Optimal corrosion control treatment                      |
| QA/QC           | Quality Assurance / Quality Control                      |
| T&D             | Transmission and Distribution                            |
| WTP             | Water treatment plant                                    |
| 2025 ALSLR Plan | 2025 planned replacements (regardless of funding source) |

## EXECUTIVE SUMMARY

Denver Water is committed to reducing the lead exposure levels to customers from lead service lines (LSLs) and plumbing. In December 2019, Denver Water began the process of implementing the Lead Reduction Program (LRP) in accordance with the Environmental Protection Agency (EPA)'s Dec. 16, 2019, [Variance](#) issued to Denver Water. The Variance approval authorized Denver Water to implement the LRP in lieu of the optimal corrosion control treatment (OCCT) requirements under the Lead and Copper Rule (LCR). In 2022, Denver Water sought a new Variance under the Lead and Copper Rule Revisions (LCRR). Denver Water currently implements the LRP under the updated [Nov. 30, 2022, Variance](#). Additionally, in late 2022, Denver Water received funding for lead service line removal made possible by the Bipartisan Infrastructure Act, which dedicated federal funds specifically for lead service line removal. These funds are being used to increase the total number of lead service lines replaced in 2023, 2024, and 2025. In that time, Denver Water anticipates replacing approximately 6,750 additional lead service lines made possible using the federal funds. From the perspective of the public, everything is under the larger umbrella of the Lead Reduction Program. For the purposes of reporting and meeting Federal funding requirements, the work completed using federal funds is treated separately from the Lead Reduction Program. However, in some sections of the report, references to the *federal plan* may occur regarding investigations, LSL replacements and COE activities. Copies of the reports relating to the use of federal funds for lead service line replacement are available upon request.

The LRP provides a holistic and permanent lead reduction approach that significantly reduces lead exposure to customers and is less harmful to the environment than orthophosphate treatment. The semi-annual report for 2025 presents the performance of the LRP for Jan. 1 through June 30, 2025, as implemented by the [Lead Reduction Program Plan \(LRPP\)](#). The Nov. 30, 2022, Variance went into effect Jan. 1, 2023, and all results presented in this report for Jan. 1 through June 30, 2025, are specific to the Nov. 30, 2022, Variance.

From Jan. 1, 2025, through June 30, 2025, the following have been achieved:

- Results from lead sampling indicate that lead levels have stabilized around 4 µg/L at homes with lead service lines and homes with copper plumbing with lead solder and have decreased lead levels from the continuously maintained elevated pH ( $8.8 \pm 0.3$ ) in the distribution system. The 90th percentile lead levels continued to be measured at less than 5 µg/L in 2025.

**TABLE ES-1. CCT PERFORMANCE BASED ON OVERALL 90<sup>TH</sup> PERCENTILE LEAD CONCENTRATION**

| LCR Six-Month Sampling Period  | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025             |
|--|------|------|------|------|------|------|------------------|
| Spring Overall 90 <sup>th</sup> Percentile Lead Concentration (µg/L) | 10.0 | 6.7  | 4.1  | 3.9  | 3.5  | 4.0  | 3.9 <sup>1</sup> |
| Fall Overall 90 <sup>th</sup> Percentile Lead Concentration (µg/L)   | 11.0 | 4.4  | 4.4  | 3.8  | 3.9  | 3.6  | TBD              |

<sup>1</sup> The 90th percentile Spring 2025 lead concentration has yet to be approved by CDPHE. The value provided in this table is the calculated estimate. The final approved 90<sup>th</sup> percentile for Spring 2025 will be provided in the annual report.

- In the last six months, Denver Water replaced a total of 3,503 LSLs, meeting 78% of the annual replacement goal of 4,477.
- Denver Water completed a total of 4,787 investigations in the first half of 2025, using a combination of methods, such as water quality sampling, potholing, interior inspections, predictive modeling and desktop review. The number of investigations surpasses the annual investigation goal of 2,421 (1.4% of unknown service lines).
- Of the 72 samples collected from filters in the customers’ homes, approximately 88% had non-detect lead concentrations, and 97% of samples collected from filters in the customers’ homes had lead concentrations under 3 µg/L.

The 2025 annual report will present the results of the equivalency model and Variance metrics for the program year 2025. Overall, the performance of the first half of 2025 is on track to meet and/or surpass the performance metrics for the program year.

## PART 1: INTRODUCTION

In 2012, at the end of Denver Water’s annual lead and copper monitoring period, the 90th percentile value for lead levels in tap water was 17 µg/L, exceeding the Lead and Copper Rule (LCR) action level of 15 µg/L.<sup>1</sup> From 2013 through 2017, Denver Water completed several corrosion control studies and adjusted treatment to optimize pH/alkalinity control. Based on these studies, in 2018, the Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Division designated phosphate-based corrosion inhibitor addition (orthophosphate) as the optimal corrosion control treatment (OCCT) and ordered Denver Water to install and operate the designated corrosion control treatment by March 20, 2020. The designation of orthophosphate raised concerns among stakeholders that increased loads of phosphorus from orthophosphate treatment would adversely impact Colorado’s streams and rivers, which were already nutrient stressed, as well as regional wastewater treatment operations and drinking water treatment supplies. Denver Water was also concerned that orthophosphate treatment would not solve the ultimate public health issue of tackling lead at its source through removal of lead service lines (LSLs).

In response, Denver Water developed a proposal to implement the Lead Reduction Program (LRP) as a holistic alternative treatment technique with a permanent solution to addressing lead in drinking water through the removal of all LSLs within 15 years. To request approval, Denver Water developed a Lead Reduction Program Plan (LRPP) that described how Denver Water planned to implement the LRP if it were approved.<sup>2</sup> On Nov. 15, 2019, CDPHE granted Denver Water’s request to modify the OCCT designated for Denver Water in accordance with § 11.26(3)(d)(iii) of the Colorado Primary Drinking Water Regulations, 5 CCR §§ 1002-11, et seq., subject to the Environmental Protection Agency (EPA)’s approval of Denver Water’s variance request. Subsequently, on Dec. 16, 2019, EPA granted the Variance to Denver Water from OCCT pursuant to § 1415(a)(3) of the SDWA, 42 U.S.C. § 300g-4, and 40 C.F.R. § 142.46 for a three-year term beginning Jan. 1, 2020.<sup>3</sup>

In 2022, Denver Water sought a new Variance under the Lead and Copper Rule Revisions (LCRR). On Nov. 30, 2022, EPA issued a new Variance that allows Denver Water to continue to implement the LRPP as an alternative treatment technique for the remaining 12 years of the program through Jan. 1, 2035. Denver Water currently implements the LRPP under the updated Nov. 30, 2022, Variance (2022 Variance).<sup>4</sup> All references to the Variance throughout this report are for the 2022 Variance, which the Denver Water LRP operates under, as of Jan. 1, 2023.

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<sup>1</sup> Note: There have been no exceedances of the 90th percentile calculation under the LCR since 2012.

<sup>2</sup> See Denver Water’s [lead webpage](#) for more information on how the LRP is currently implemented and the [resource page](#) for all supporting documentation of the LRP.

<sup>3</sup> See Denver Water’s [2019 Variance](#) for more details.

<sup>4</sup> See Denver Water’s [2022 Variance](#) for more details.

In December 2019, Denver Water began the process of implementing the Lead Reduction Program Plan (LRPP) in accordance with EPA's Dec. 16, 2019, Variance (2019 Variance) approval of Denver Water's request for modification of OCCT under the LCR.

Denver Water met or surpassed all performance metrics required as part of the Variance in the first five years of the program:

- Results from LCR compliance sampling indicate that lead levels have stabilized around 4 µg/L.
- Since the implementation of corrosion control treatment (CCT) in March 2020, the 90th percentile lead levels have continuously been measured at less than 5 µg/L.
- By the middle of 2025, over 34,000 LSLs have been replaced.
- As part of the Filter Program, all customers who have an unknown LSL are provided a pitcher filter kit and continue to be supplied with replacement cartridges, per the manufacturer's recommendations.
- Consistently, the filter adoption survey has shown an adoption rate of over 80%.

This semi-annual report was prepared in compliance with paragraph 7.B of the 2022 Variance and commitments made by Denver Water in the 2019 LRPP, as modified. This report addresses the first six months of 2025 for the period of Jan. 1, 2025, through June 30, 2025.

The following plans are referenced throughout this report:

- LRPP (submitted Sept. 16, 2019, and approved Dec. 16, 2019) and its [amendment](#) (submitted July 17, 2023).
- 2025 Accelerated Lead Service Line Replacement (ALSLR) Plan (not a formal submission, identifies all properties planned for replacement in 2025).
- 2025 Communications, Outreach and Education (COE) Plan (submitted Feb. 7, 2025, alongside the 2024 Annual Report).
- Elevated Lead Response Plan (re-submitted July 6, 2021).
- Corrosion Control Treatment (CCT) Implementation Plan (re-submitted June 4, 2020).
- Nitrification Control Plan (re-submitted July 15, 2021).

*B. Reporting and Recordkeeping. All of the requirements of the LCRR other than the definition of OCCT as the term relates to 40 C.F.R. § 141.82(e) remain in effect, including the reporting and recordkeeping requirements. In addition, Denver Water shall record, maintain records of, and report the following information to CDPHE and EPA every six months on February 10 and August 10, except as noted below. Denver Water will provide any of the raw data to CDPHE and EPA, within 30 Days, when requested.*

*Text is taken verbatim from the 2022 Variance, dated Nov. 30, 2022.*

## What to Expect: Reporting on Program Activities

The purpose of the semi-annual and annual reports is to document the implementation of the LRP, describe the actions taken by Denver Water to reduce lead levels and support the subsequent evaluation of the LRP performance.

The performance data included for the different elements of the LRP described in this report vary depending on the launch date of the different program elements (see Table 1). The reporting dates for the different program elements are shown in Table 2. In general, data are detailed for the first six-month period of 2025, with the exception to provide additional information not included in previous reports.

**TABLE 1. WHAT TO EXPECT IN THIS REPORT**

| Paragraph (and LRP Task)                               | What to Expect in this Annual Report and Status   |
|--|---|
| <b>7.B.i CCT</b>                                       | This section includes a summary of CCT results for the first six months of 2025.  |
| <b>7.B.ii LSL Inventory</b>                            | Denver Water first published the LSL Inventory on its website on March 5, 2020.<br>The map was updated on the Denver Water website on July 2, 2025, using data current up to June 30, 2025.                                 |
| <b>7.B.iii LSL Replacements (aka ALSLR Program)</b>    | This section summarizes the number and type of replacements completed.<br>Denver Water crews have been replacing lead service lines since Jan. 1, 2020. Contractors started lead service line replacement on March 5, 2020. |
| <b>7.B.iv Filters (aka Filter Program)</b>             | This section summarizes filter distribution.<br>Initial filter distribution was completed by Sept. 21, 2020.<br>Replacement filter distribution was initiated on July 1, 2020, and continued through 2025.                  |
| <b>7.B.v Compliance Metrics</b>                        | The Equivalency Model is updated using data collected for the program year. This information will be presented in the 2025 Annual Report.   |
| <b>7.B.vi Communications, Outreach and Education</b>   | This section describes implementation of the 2025 COE Plan, <sup>1</sup> virtual community meetings, engagement with the Stakeholder Advisory Committee, and development of new customer resources and materials.           |
| <b>7.B.vii Health Equity and Environmental Justice</b> | This section summarizes implementation of the 2025 COE Plan including updates on activities to support increased equity, community partnerships and outreach.   |
| <b>Appendices</b>                                      | Appendices include CCT, LSL inventory, water quality results, LSL replacements, customer refusal lists, COE and HE&EJ.  |

<sup>1</sup> See Appendix COE-12 2025 COE Plan in the 2024 Annual Report (submitted Feb. 7, 2025).

**TABLE 2. DATES FOR DATA INCLUDED IN THE SEMI-ANNUAL REPORT FOR 2025**

| Description  | Semi-Annual Report (2025)  |
|--|--|
| <b>LCR 90<sup>th</sup> Percentile Lead Concentration based on Compliance and Customer Requested Samples</b>                          | All LCR compliance samples collected from Jan. 1 to June 30.<br>All customer requested samples reported in LIMS <sup>1</sup> between Jan. 1 and June 30. |
| <b>Elevated Lead Response Reporting</b>  | All results reported in LIMS by June 30 <sup>2</sup> .   |
| <b>Water Quality Sampling from Select Households (1983 to 1987 Homes)</b>  | All results reported in LIMS by June 30.   |
| <b>Inventory – Posting of Map to Denver Water’s Website</b>  | Data through June 30, 2025.<br>Posted July 2, 2025.  |
| <b>Inventory – Update</b>  | Jan. 1 to June 30.   |
| <b>Investigations – Verification Potholing as Part of ALSLR Program</b>  | Jan. 1 to June 30.   |
| <b>Investigations – Investigative Potholing Independent of ALSLR Program</b>   | Jan. 1 to June 30.   |
| <b>Investigations – Water Quality Sampling as part of ALSLR Program (not included in 90<sup>th</sup> Percentile Calculation)</b>     | All results reported in LIMS by June 30.   |
| <b>Investigations – Water Quality Sampling Independent of ALSLR Program (not included in 90<sup>th</sup> Percentile Calculation)</b> | All results reported in LIMS by June 30.   |
| <b>Water Quality Sampling Post-LSL Replacement</b>   | All results reported in LIMS by June 30.   |
| <b>ALSLR Program Replacements</b>  | Jan. 1 to June 30.   |
| <b>ALSLR Program Consent Forms</b>   | Jan. 1 to June 30.   |
| <b>Initial Filter Distribution</b>   | Jan. 1 to June 30.   |
| <b>Replacement Filter Distribution</b>   | Jan. 1 to June 30.   |
| <b>Filter Program Occupancy Changes<sup>3</sup></b>  | Jan. 1 to June 30.   |
| <b>Informal Filter Adoption Survey as Part of ALSLR Program</b>  | Jan. 1 to June 30.   |
| <b>Filter Testing in the Field</b>   | Jan. 1 to June 30.   |
| <b>COE Activities</b>  | Jan. 1 to June 30.   |

<sup>1</sup> LIMS is the Laboratory Information Management System used by Denver Water.

<sup>2</sup> For samples collected and reported in LIMS by June 30 and follow-up response by June 30, 2025.

<sup>3</sup> Includes occupancy changes at ALSLR properties.

## Performance Dashboard

Denver Water uses a dashboard to communicate key metrics and share the progress of the LRP with the public. The dashboard was most recently posted on Denver Water’s website on July 2, 2025, in both English and Spanish, and currently shows data through June 30, 2025.<sup>5</sup> The dashboard can be accessed from the Denver Water [website](#).

The dashboard of key metrics was modified to provide a more holistic understanding of the performance of the Lead Reduction Program. Specifically, this dashboard now graphically reports additional metrics that include: the LCR sampling results tracked since the program began, communications and outreach activities and lead service line replacement progress.<sup>6</sup> To integrate this information into the dashboard, the program milestones list was removed to relieve space. The equivalency model result for the most recent annual report is included and will be updated on an annual basis to demonstrate Denver Water’s Lead Reduction Program continues to be at least as efficient as OCCT.

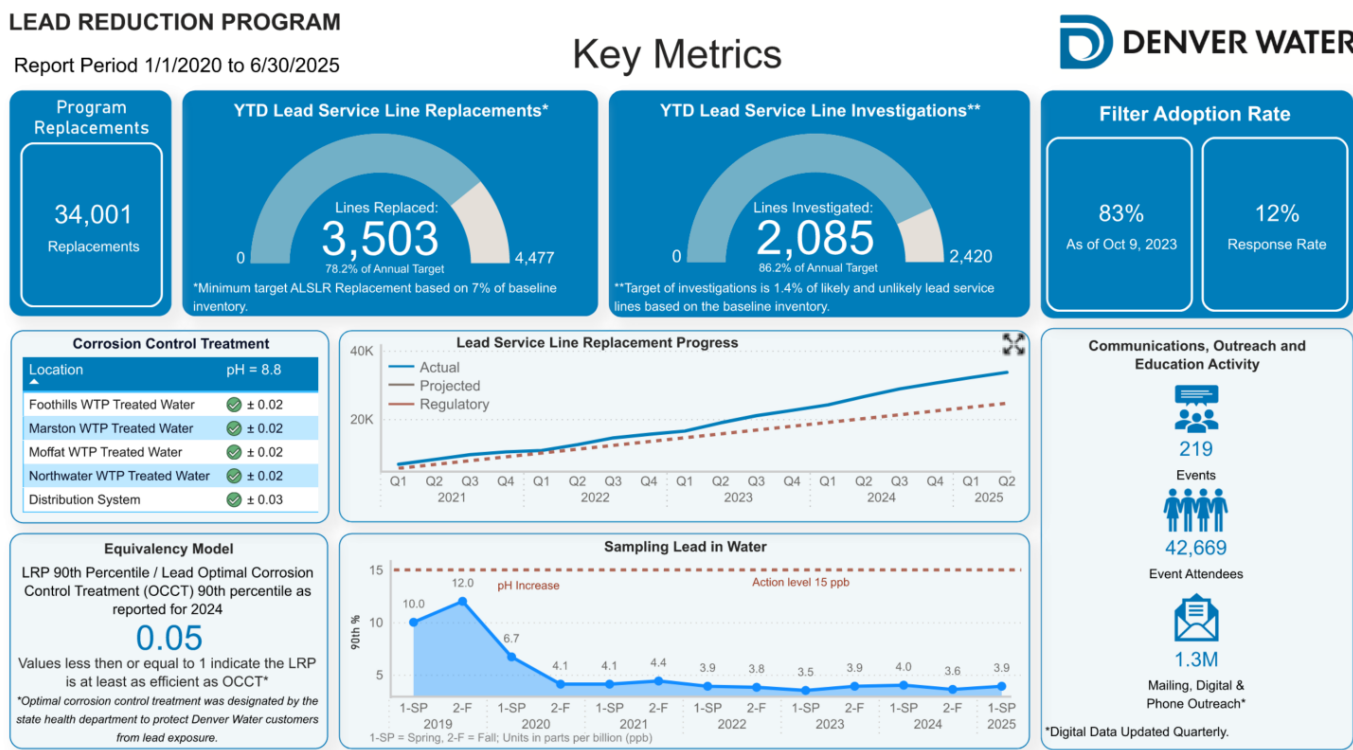


FIGURE 1. DASHBOARD AS POSTED TO THE DENVER WATER WEBSITE (DATA TO JUNE 30, 2025)

<sup>5</sup> See the 2020 Second Quarterly Report for an explanation of the metrics used in the dashboard.

<sup>6</sup> See Section 7.B.vii.c for details on how the HE&EJ metric is calculated.

## PART 2: REQUIRED REPORTING

### 7.B.i CCT

Section 7.B.i of the 2022 Variance addresses Denver Water's Corrosion Control Treatment (CCT) recordkeeping and reporting requirements for 2025 for the following parameters:

*i. CCT*

- a. notification to CDPHE and EPA of elevated lead levels and the actions that Denver Water is taking to reduce drinking water exposure to lead at those locations;*
- b. all lead and copper compliance tap sampling results, as required in Subpart I of 40 C.F.R. Part 141 and Section 11.26 of 5 CCR 1002-11, as well as the results of any customer requested samples;*
- c. 90<sup>th</sup> percentile lead levels overall, for LSLs, and for copper with lead solder sites;*
- d. CCT water quality parameters for pH and alkalinity; and*
- e. all lead and water quality results collected as part of Denver Water's investigation of LSLs and post LSL replacement and service line material of those sites.*

*Text is taken verbatim from the 2022 Variance, dated Nov. 30, 2022.*

Denver Water uses a combination of water quality parameters and lead sampling results to report the performance of CCT. Additional data can be provided upon request.

CCT with pH adjustment is used to manage lead release from lead service lines, as well as homes with copper plumbing with lead solder. All homes are provided with some protection through pH adjustment. Denver Water's LRP webpage has a page dedicated to pH adjustment. The page describes the reasoning of the pH adjustment and how it benefits customers with an LSL or lead in their premise plumbing, answers FAQs and describes any downstream effects. Water treatment to adjust pH above 8.5 (required by the Dec. 16, 2019, Variance) was initiated at the Marston and Foothills Treatment Plants on March 3, 2020; treatment was initiated at the Moffat Treatment Plant when it returned to service on May 1, 2020. The cumulative 90th percentile lead level in the system before the pH change on March 3, 2020, was approximately 13 micrograms per liter ( $\mu\text{g/L}$ ). After the pH stabilized at 8.8, lead levels started to decline, eventually stabilizing by August of that same year to a 90th percentile lead concentration below 5  $\mu\text{g/L}$ . The 90th percentile lead levels represent a greater than 60% decrease in lead levels due to CCT implementation.

During this reporting period, Denver Water continued to operate at or near a pH of 8.8 at all three plants, with the addition of Denver Water's newest Northwater treatment plant. An overview of the CCT requirements per the 2022 Variance and LRPP is described in Table 3.

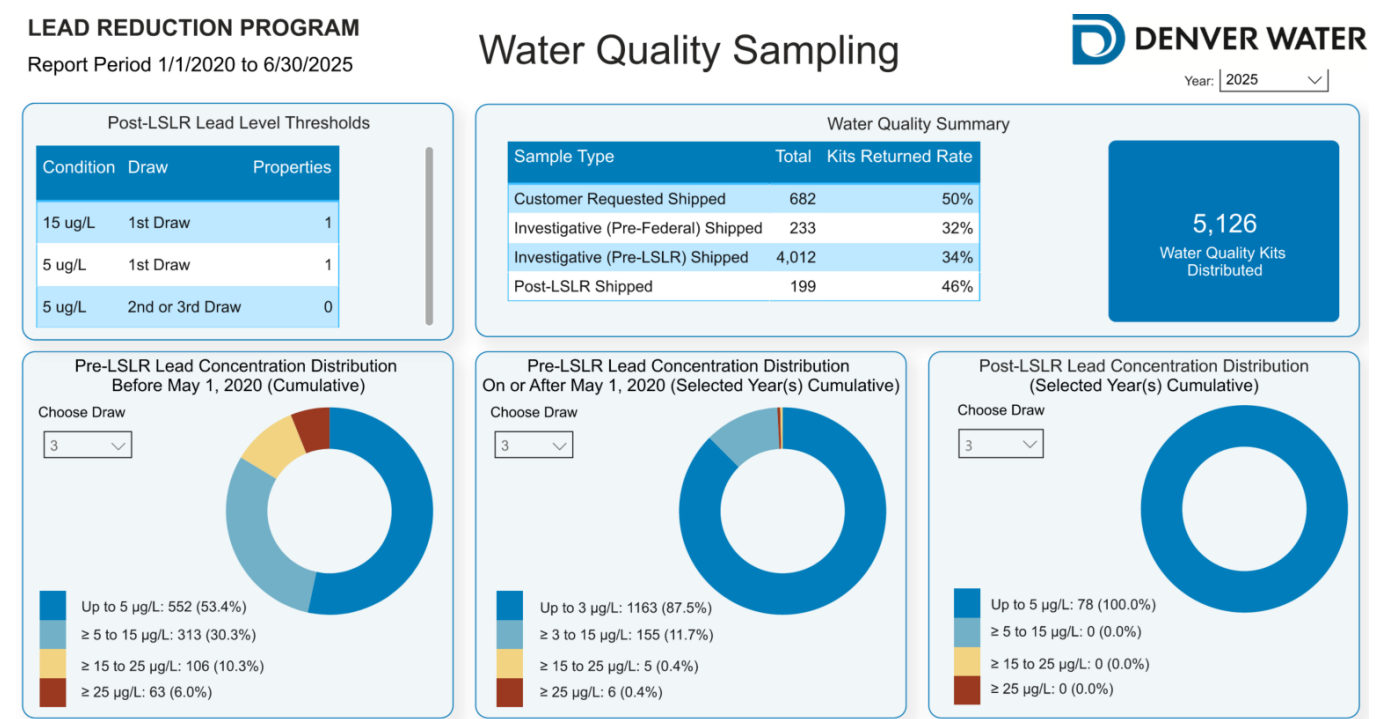
**TABLE 3. OVERVIEW OF 7.B.I REQUIREMENTS**

| <b>Paragraph Reference</b>                      | <b>Description</b>  | <b>Refer to</b>   |
|---|---|---|
| <b>7.B.i.a</b>                                  | Notify CDPHE of elevated lead levels and actions taken by Denver Water to reduce lead exposure.   | See Table 4 and Appendix. <sup>1</sup>  |
| <b>7.B.i.b</b>                                  | Lead sampling results per the Lead and Copper Rule and from customer requested sampling.  | See Table 6 (90 <sup>th</sup> percentile to date).  |
| <b>LRPP III.E (p 70)</b>                        | Monthly trending of LCR compliance samples and customer requested samples.  | See Table 4.  |
| <b>7.B.i.c</b>                                  | 90 <sup>th</sup> percentile lead levels for LSLs and for copper with lead solder sites.   | See Table 5.  |
| <b>7.B.i.d</b>                                  | CCT parameters for pH and alkalinity, reported monthly.   | See Table 7.  |
| <b>LRPP III.E (p 70)</b>                        | Install automated pH control loops at all three treatment plants by March 2020.   | All three plants, along with Denver Water’s new Northwater treatment plant, have feedback loops in place and are functioning. |
| <b>7.B.i.e</b>                                  | All lead and water quality sampling results from investigations for LSLs.<br>All lead and water quality sampling results from post-LSL replacement sampling.<br>Note that lead results from investigations and post-LSL replacement sampling are not included in the calculation of the 90 <sup>th</sup> percentile lead concentration. | See Table 9 and Table 10.   |
| <b>LRPP Executive Summary LRPP III.E (p 65)</b> | Targeted communications for select households built between 1983 to 1987 that self-identify as expecting or existing families with formula-fed infants and children up to 2 years of age.<br>Offer water quality sampling; provide filter if lead measured > 3 µg/L (as described in paragraph 5.D).                                    | Described with section 7.B.vi.<br>Outreach materials launched Aug. 21, 2020.<br>See Section 5.D.                              |
| <b>LRPP III.E (p 71)</b>                        | Complete distribution system modeling, evaluating pH, disinfection by-products and water age by Jan. 31, 2020.<br>Submit nitrification control plan by June 30, 2020, to address sampling, monitoring, and flushing.  | Submitted July 6, 2020.<br><br>Re-submitted July 15, 2021.  |
| <b>Voluntary</b>                                | Results from continued operation of the pipe racks.   | Submitted Feb. 16, 2022.  |

<sup>1</sup> See Appendix CCT-1 Summary of Response to Elevated Lead Levels (First Six-Month Period of 2025).

Water quality testing is a simple and effective method for Denver Water and its customers to identify potential risks of lead exposure. Denver Water manages lead and water quality samples via its Laboratory Information Management System (LIMS), with analysis performed by either the Denver Water Quality Lab or a contract lab. The sub-category (pre-LSLR, post-LSLR, customer requested) under which the sample was collected is reported in LIMS, including LCR compliance samples, customer requested samples, customer requested samples from select households built between 1983 to 1987 (self-identifying as a home with a formula-fed infant), pre-LSL replacement investigative water quality samples and post-LSL replacement water quality samples. Denver Water uses a three-bottle test for customer-requested and investigative water quality sampling under the 2022 Variance for consistency with past practices, as the three-bottle technique is a very effective sampling method for helping to determine service line material.

Figure 2 features the water quality sampling dashboard that captures day-to-day tracking of water quality information. Specifically, this dashboard displays the number of properties that exceed post-LSLR lead level thresholds, a summary of water quality sample return rates, and lead concentration results per draw for both pre- and post-replacement, focusing on the third draw sample bottle as an indicator of a lead service line. The specific dashboard below captures the information from Jan. 1 through June 30, 2025 (top half of the dashboard), as well as program to-date (bottom half of the dashboard). The pie charts show the drastic decrease in lead concentrations from before pH adjustment (pre-May 1, 2020), to after pH adjustment (post-May 1, 2020) and post-LSL replacement. Additional details regarding the numbers presented in the dashboard are discussed in Section 7.B.i and 7.B.ii of this report.



**FIGURE 2. WATER QUALITY SAMPLING DASHBOARD**

## Summary of Actions Taken to Reduce Drinking Water Exposure to Lead at Locations with Elevated Lead Levels [7.B.i.a]

Per Section 7.B.i.a of the 2022 Variance, Denver Water must provide “notification to CDPHE and EPA of elevated lead levels and the actions that Denver Water is taking to reduce drinking water exposure to lead at those locations.” In 2020, Denver Water set the elevated lead investigative response level at or above 15 µg/L in LCR compliance and customer requested samples, respectively, under its Elevated Lead Response Plan approved by CDPHE and EPA. Denver Water continues to sample the first liter under the LCR and will transition to reporting fifth-liter sampling in 2027 to meet the requirements of the LCRI.<sup>7</sup>

All customer-requested samples with first-draw concentrations above 15 µg/L analyzed by month during the first half of 2025 are listed in Table 4.<sup>8</sup> A lead result over 15 µg/L in the first sample bottle for a customer’s home will trigger follow up and investigative sampling, as outlined in the Corrosion Control Treatment Implementation Plan.<sup>9</sup> Lead was measured above 15 µg/L in two samples during the reporting period for the first six months of 2025, both were investigated with a conclusion that lead was elevated due to customer sampling errors.

**TABLE 4. COUNT OF PROPERTIES WITH ELEVATED LEAD CONCENTRATIONS IN LCR AND CUSTOMER REQUESTED SAMPLES<sup>1</sup>**

| Description<br>(Based on Sampling Date)                                   | January<br>2025 | February<br>2025 <sup>2</sup> | March<br>2025 | April<br>2025 | May<br>2025 | June<br>2025 | Response                   |
|---|-----------------|-------------------------------|---------------|---------------|-------------|--------------|----------------------------|
| <b>Properties with Lead &gt;15 µg/L in <u>first 1 L sample bottle</u></b> | 0               | 2                             | 0             | 0             | 0           | 0            | See Appendix. <sup>3</sup> |

<sup>1</sup> Although the Elevated Lead Response Plan applies only to LCR and eligible customer requested samples, the features of the plan are applied to results generated from pre-LSL replacement water quality samples obtained from properties included in the LRP for a consistent customer experience. The actions taken at these properties to investigate elevated lead are described in Appendix CCT-1 per the definition used in the 2022 Variance. Data reflect samples analyzed by June 30, 2025.

<sup>2</sup> Properties with elevated lead were from customer requested samples. Investigations determined elevated results were due to sampling error.

<sup>3</sup> See Appendix CCT-1 Summary of Response to Elevated Lead Levels (First Six-Month Period of 2025).

## Lead Sampling Results from LCR Compliance and Customer Requested Sampling and 90<sup>th</sup> Percentiles [7.B.i.b and c]

Per Section 7.B.i.b and 7.B.i.c of the 2022 Variance, Denver Water must provide “all lead and copper compliance tap sampling results, as required in Subpart I of 40 C.F.R. Part 141 and 5 CCR 1002-11.26, as well as the results of any customer requested samples, and 90th percentile lead levels overall, for LSLs, and for copper with lead solder sites.”

<sup>7</sup> See EPA’s [Lead and Copper Rule Revisions](#) for more details on sampling methods.

<sup>8</sup> See Appendix CCT-1 Summary of Response to Elevated Lead Levels (First Six-Month Period of 2025) for elevated lead measured in the first bottle of the three-bottle test.

<sup>9</sup> See Corrosion Control Treatment Implementation Plan re-submitted to CDPHE on June 4, 2020.

Denver Water conducts LCR compliance water quality sampling at Tier 1 sites, which are defined by the LCR as single-family structures that have an LSL or copper plumbing with lead solder (CPLS) in homes built between 1983 through 1987. The compliance period occurs January through June (Spring) and July through December (Fall). The cumulative 90th percentile lead concentration for LCR compliance samples for the Spring and Fall compliance periods since program inception is presented in Table 5. The 90th percentile calculated from the LCR compliance sampling is not to exceed 15 µg/L, as defined by the action level of the LCR. Data used to calculate the 90th percentile lead concentration align with reporting requirements of the LCR.

**TABLE 5. LCR LEAD CONCENTRATIONS FOR LSL AND CPLS HOMES (SINCE PROGRAM INCEPTION)**

| Historical Cumulative LCR Lead Concentrations (µg/L) | 2019   |      | 2020   |      | 2021   |      | 2022   |      | 2023   |      | 2024   |      | 2025                |
|--|--------|------|--------|------|--------|------|--------|------|--------|------|--------|------|---------------------|
|  | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring <sup>1</sup> |
| <b>Overall 90<sup>th</sup> Percentile</b>            | 10     | 11.8 | 6.7    | 4.1  | 4.1    | 4.3  | 3.9    | 3.8  | 3.5    | 3.9  | 4.0    | 3.6  | 3.9                 |
| <b>LSL 90<sup>th</sup> Percentile</b>                | 10     | 12.4 | 6.7    | 4.3  | 4.1    | 4.5  | 4.0    | 3.9  | 3.4    | 3.6  | 3.8    | 3.7  | 5.0                 |
| <b>CPLS 90<sup>th</sup> Percentile</b>               | 7.8    | 5.1  | 4.8    | 2.9  | 3.4    | 2.3  | 1.2    | 1.7  | 1.8    | 1.7  | 1.1    | 1.3  | 1.0                 |

<sup>1</sup> The 90th percentile Spring 2025 lead concentration has yet to be approved by CDPHE. The value provided in this table is the calculated estimate. The final approved 90<sup>th</sup> percentile for Spring 2025 will be provided in the annual report.

Results from customer-requested sampling are included in the overall 90th percentile lead concentration reported in Table 6.

**TABLE 6. SUMMARY OF LCR 90<sup>TH</sup> PERCENTILE LEAD CONCENTRATIONS (JAN. 1 TO JUNE 30, 2025)**

| LCR Compliance Results for Lead – Spring 2025 Compliance Period <sup>1</sup>   | Result   | Number of Homes |
|--|----------|-----------------|
| <b>LCR Compliance 90<sup>th</sup> Percentile Lead<sup>2</sup></b>  | 3.9 µg/L | 118             |
| <b>Overall 90<sup>th</sup> Percentile Lead Concentration using LCR Compliance + Customer Requested Samples<sup>3</sup></b> | 3.7 µg/L | 529 (118 + 411) |

<sup>1</sup> The 90th percentile Spring 2025 lead concentration has yet to be approved by CDPHE. The value provided in this table is the calculated estimate. The final approved 90<sup>th</sup> percentile for Spring 2025 will be provided in the annual report..

<sup>2</sup> Includes results for all LCR compliance samples (from 1951 and older homes plus 1983 to 1987 homes with copper piping and lead solder) and reported in LIMS for the Jan. 1 to June 30, 2025, compliance period.

<sup>3</sup> Includes results from customer requested samples reported in LIMS between Jan 1. and June 30, 2025. Sampling to support the ALSLR Program is excluded from the compliance calculation.

## Corrosion Control Treatment Water Quality Parameters for pH and Alkalinity [7.B.i.d]

Per Section 7.B.i.d of the 2022 Variance, Denver Water must provide “CCT water quality parameters for pH and alkalinity.” Chemical feed systems were brought into service for enhanced pH CCT on March 3, 2020, at the Marston and Foothills Water Treatment Plants and on May 1, 2020, at the Moffat Water Treatment Plant. Trends for pH and alkalinity since Jan. 1, 2020, and operating data with adjusted pH since March 2020 can be provided upon request. Data for pH in treated water from the active water treatment plants and the distribution system are summarized in Table 7 based on the lowest daily average pH measured each month from each sampling point. Data for alkalinity in treated water from the active water treatment plants is summarized in Table 8 based on the lowest daily average alkalinity measured each month from each sampling point. On Aug. 13, 2020, Denver Water provided a letter to CDPHE that steady state performance of CCT was achieved in the distribution system. One year of data to describe CCT performance was provided to CDPHE on May 6, 2021, including pH and alkalinity data. The treatment targets for pH and alkalinity in the effluent of the three treatment plants and across the distribution system were announced by CDPHE on June 9, 2021. CDPHE established a target of  $8.8 \pm 0.2$  for pH in treated water,  $8.8 \pm 0.3$  for pH in the distribution system, and alkalinity greater than or equal to 20 mg/L as CaCO<sub>3</sub>, all effective July 1, 2021. The Northwater Treatment Plant has been placed online and replaced Moffat water treatment plant, which is no longer online or in use.

**TABLE 7. MINIMUM DAILY AVERAGE pH REPORTED EACH MONTH**

| Description   | January 2025   | February 2025 | March 2025 | April 2025 | May 2025 | June 2025 |
|---|--|---------------|------------|------------|----------|-----------|
| <b>Effluent 2022 Variance Requirement</b>                 | pH 8.8 +/- 0.2 in WTP effluent   |               |            |            |          |           |
| <b>Marston Water Treatment Plant Effluent<sup>1</sup></b> | 8.83   | --            | --         | 8.82       | 8.80     | 8.82      |
| <b>Foothills Water Treatment Plant Effluent</b>           | 8.86   | 8.83          | 8.83       | 8.80       | 8.83     | 8.83      |
| <b>Moffat Water Treatment Plant Effluent<sup>2</sup></b>  | --   | --            | --         | --         | --       | --        |
| <b>Northwater Treatment Plant Effluent</b>                | 8.80   | 8.81          | 8.80       | 8.81       | 8.81     | 8.76      |
| <b>Distribution System 2022 Variance Requirement</b>      | pH 8.8 +/- 0.3 in distribution system  |               |            |            |          |           |
| <b>Distribution System</b>                                | pH levels in the distribution have been within 8.8 +/- 0.3 since March 12, 2020. |               |            |            |          |           |

<sup>1</sup> The Marston Water Treatment Plant went offline on Jan. 21, 2025, and returned back online March 31, 2025.

<sup>2</sup> The Moffat Water Treatment Plant did not return online during this reporting period.

**TABLE 8. MINIMUM DAILY AVERAGE ALKALINITY REPORTED EACH MONTH**

| Description   | January 2025                   | February 2025 | March 2025 | April 2025 | May 2025 | June 2025 |
|---|--------------------------------|---------------|------------|------------|----------|-----------|
| <b>Effluent Variance Requirement</b>                      | ≥ 20 mg/L as CaCO <sub>3</sub> |               |            |            |          |           |
| <b>Marston Water Treatment Plant Effluent<sup>1</sup></b> | 71.7                           | --            | --         | 77.5       | 75.2     | 62.3      |
| <b>Foothills Water Treatment Plant Effluent</b>           | 73.0                           | 75.6          | 78.8       | 82.8       | 63.0     | 42.7      |
| <b>Moffat Water Treatment Plant Effluent<sup>2</sup></b>  | --                             | --            | --         | --         | --       | --        |
| <b>Northwater Treatment Plant Effluent</b>                | 45.0                           | 46.8          | 47.6       | 49.4       | 51.5     | 51.1      |

<sup>1</sup> The Marston Water Treatment Plant went offline on Jan. 21, 2025, and returned back online March 31, 2025.

<sup>2</sup> The Moffat Water Treatment Plant did not return online during this reporting period.

### Water Quality Sampling Results from Pre-LSLR Sampling [7.B.i.e]

Per Section 7.B.i.e of the 2022 Variance, Denver Water must provide “all lead and water quality results collected as part of Denver Water’s investigation of LSLs and post-LSL replacement and service line material of those sites.” Results from water quality sampling can provide an indication of lead at single-family residential properties and, when reviewed with additional results from field methods, the status of a service line can be changed in the inventory (i.e., from unknown to confirmed LSL).<sup>10</sup> The three-bottle tests are performed to aid in the classification of service line materials of properties within Denver Water’s integrated service area to provide the following:<sup>11</sup>

- To confirm the service line material before LSL replacement at properties included in the 2025 ALSLR task orders where lead has not been confirmed (i.e., p-value<sup>12</sup> < 1<sup>13</sup>).
- To inform the inventory and predictive model at properties in the City and County of Denver and in distributor areas with an unknown unlikely and unknown likely LSL (i.e., p-value > 0 and < 1). In 2024, water quality efforts were expanded in strategic locations to include customers with p-values below 0.5 to help with the continued refinement and training of the predictive model.
- To validate customer comments on the presence (or absence) of an LSL and requests to opt into (or out of) the LRP.

Lead results over 3 µg/L in the second or third sample bottle of triggers a review of inclusion in the LRP, and the property is added to the list for LSL replacement and added to the

<sup>10</sup> See Section 7.B.ii LSL Inventory for more details.

<sup>11</sup> Details and results for pre-LSL replacement sampling efforts can be provided upon request.

<sup>12</sup> In the 2019 LRPP, Appendix III.B.2 Preliminary Identification of Lead Service Lines defines “p-value” as the probability that the service has some lead material. For example, a p-value of 0 indicates that the service line does not contain lead, and a p-value of 1 indicates that a service line does contain lead. For p-values of 0.5, half of the service lines would be expected to contain lead. The p-value will be used to produce a numeric estimate of the total number of LSLs in the Denver Water service area.

<sup>13</sup> Since July 22, 2020, sampling kits are sent to properties with a p-value of 0.5 to 0.9. Service line material is verified at any property with a p-value < 1 in the field before replacement, using visual inspection of materials at the interior connection and/or potholing on the exterior.

Filter Program, if not already enrolled.<sup>14</sup> A summary of the water quality results prior to LSL replacements is presented in Table 9. The maximum lead concentration measured year-to-date was 103 µg/L. This occurred in the first bottle of samples collected at a single-family property in March 2025. This is a result of a stagnation period due to vacancy prior to sampling and the samples were collected at the spigot and not an interior faucet. Multi-family residences with five or more units that request a water quality kit are sent a one-bottle sampling kit and are included in Table 9.

**TABLE 9. SUMMARY OF WATER QUALITY RESULTS PRE-LSL REPLACEMENT AT SINGLE-FAMILY RESIDENCES USING THE THREE-BOTTLE TEST**

| <b>Water Quality Sampling for Investigation (pre-LSL Replacement)</b>                                  | <b>Count</b> | <b>Unit</b> |
|--|--------------|-------------|
| <b>Total Number of Kits Mailed Out<sup>1</sup></b>   | 4,012        | Kits        |
| <b>Total Number of Kits Received and Analyzed to Investigate the Service Line Material<sup>2</sup></b> | 1,357        | Kits        |
| <b>Maximum Lead Concentration Measured Year-to-Date</b>  | 103          | µg/L        |
| <b>Average Lead Concentration (in second and third bottles only)<sup>3</sup></b>                       | 1.26         | µg/L        |

<sup>1</sup> If a sampling kit is re-sent to a property, the additional distribution of the water quality kit is counted on top of the original distribution count. Total includes 86 one-bottle kits.

<sup>2</sup> As reported in LIMS by June 30, 2025.

<sup>3</sup> If a value was reported as less than the detection limit (i.e., < 1 µg/L) the measured value was taken as 0.5 µg/L for calculation of the average concentration.

### Water Quality Sampling Results for Post-LSL Replacement [7.B.i.e]

Per Section 7.B.i.e of the 2022 Variance, Denver Water must provide “all lead and water quality results collected as part of Denver Water’s investigation of LSLs and post LSL replacement and service line material of those sites.”

For LSL replacements completed prior to Dec. 31, 2019, letters were mailed to customers to offer post-replacement sampling three months after LSL replacement to single-family, multi-family and commercial properties. Customers could then call Denver Water to request a sampling kit. This process was discontinued on April 2, 2020.

For LSL replacements completed between Jan. 1 and Dec. 31, 2020, single-family residential property customers were automatically mailed a three-bottle sampling kit approximately four months after replacement and multi-family and commercial properties were mailed a letter offering post-LSL replacement sampling inviting the customer to request a sampling kit. The letter was sent to every unit in a multi-family building.

For LSL replacements completed after Jan. 1, 2021, all single-family, multi-family and commercial properties receive an offer letter for post-LSL replacement sampling approximately

<sup>14</sup> The threshold used as an indicator for a lead service line was reduced to reflect the impact of corrosion control treatment with pH adjustment on lead release measured in water quality samples. Samples collected on May 1, 2020, and after with lead measured equal to or greater than 3 µg/L are considered indicative of a lead service line. Samples collected prior to May 1, 2020, are assessed using the original threshold of 5 µg/L.

four months after LSL replacement.<sup>15</sup> Per the 2022 Variance, these properties must receive a water quality sampling offer within six months post-LSL replacement. Sending offers to customers four months post-LSL replacement allows the offer to make its way through the mail system to the customer prior to the six-month deadline. The offer is sent via postcard and includes a QR code to increase the ease of requesting a kit. If the customer elects to participate, single-family properties receive a three-bottle sampling kit, multi-family and commercial properties receive a one-bottle sampling kit. A summary of post-LSL replacement sampling offers is provided in Table 10.

As of May 2024, single-family properties with replacements completed by Denver Water crews will receive offer letters instead of automatically mailing a three-bottle sampling kit, with offer letters continuing to be mailed to all other residential multi-family and commercial properties.

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<sup>15</sup> See Appendix CCT-2 Post LSL Replacement Sampling – Summary of Completed Offer to Test (Cumulative since Program Inception).

**TABLE 10. SUMMARY OF POST-REPLACEMENT SAMPLING OFFERS AND WATER QUALITY  
(JAN. 1 THROUGH JUNE 30, 2025)**

| Water Quality Sampling after LSL Replacement  | Count <sup>1</sup> |          |            |            |          |           | TOTAL |
|---|--------------------|----------|------------|------------|----------|-----------|-------|
|   | Jan 2025           | Feb 2025 | March 2025 | April 2025 | May 2025 | June 2025 |       |
| <b>Total Number of Letters Mailed to Offer Post-LSL Replacement Sampling<sup>2,3,4</sup></b>  | 1,043              | 1,152    | 0          | 1,389      | 693      | 792       | 5,069 |
| <b>Total Number of Kits Mailed Out<sup>2,3</sup></b>  | 46                 | 20       | 34         | 26         | 50       | 23        | 199   |
| <b>Total Number of Kits Received and Analyzed to Confirm post-LSL Replacement Water Quality<sup>2,5</sup></b>   | 27                 | 18       | 16         | 12         | 16       | 2         | 91    |
| <b>Number of Properties with Lead ≥ 15 µg/L in First Bottle<sup>2,7</sup><br/>(triggers additional investigation effort)</b>                              | 0                  | 0        | 1          | 0          | 0        | 0         | 1     |
| <b>Number of Properties with Lead ≥ 5 and &lt; 15 µg/L in the Second and/or Third Bottle<sup>2,8</sup><br/>(triggers additional investigation effort)</b> | 0                  | 0        | 0          | 0          | 0        | 0         | 0     |
| <b>Number of Properties with Lead ≥ 5 and &lt; 15 µg/L in First Bottle<sup>2,9</sup><br/>(triggers customer education)</b>                                | 0                  | 1        | 0          | 0          | 0        | 0         | 1     |
| <b>Total Number of Kits Received and Analyzed to Confirm post-LSL Replacement Water Quality Not Previously Reported<sup>6</sup></b>                       | 43                 |          |            |            |          |           |       |

<sup>1</sup> Counts are based on the month of sample collection, per the 2022 Variance. Not applicable to “Total Number of Letters Mailed to Offer Post-LSLR Replacement Sampling” or “Total Number of Kits Mailed Out”, which are based on the date of mailing.

<sup>2</sup> Applies to single-family and multi-family residences.

<sup>3</sup> If a duplicate letter or sampling kit was sent to a property/customer, it is counted twice.

<sup>4</sup> The post-LSLR replacement offer letters that were supposed to be mailed in March 2025 were mailed in April 2025 due to a delay in printing.

<sup>5</sup> Total number of kits analyzed refers to results available in LIMS by June 30, 2025, with samples collected since Jan. 1, 2025.

<sup>6</sup> One water quality sample collected in May 2021, four water quality samples collected in October 2024, 13 water quality samples collected in November 2024, and 25 water quality samples collected in December 2024 not previously reported.

<sup>7</sup> One result from December 2024 not previously reported was not included in count.

<sup>8</sup> One result from November 2024 and one result from December 2024 not previously reported were not included in count.

<sup>9</sup> One result from December 2024 not previously reported was not included in count.

During the first half of 2025, 19 properties with a completed service line replacement did not receive an offer letter or sampling kit and required additional review due to the replacement being performed by a third party, data discrepancies, tap status changes, mailing address errors, etc. In many circumstances, a homeowner or contractor elects to replace a service line as part of redevelopment or renovation, a process that can take several months to complete. Once the data is reconciled, a water quality sampling kit or offer letter is sent to these properties. All properties received their offer letter within the six-month post-replacement timeline. A detailed list of properties that did not receive the offer and explanation is provided in Appendix CCT-3, including follow-up activities.<sup>16</sup>

<sup>16</sup> See Appendix CCT-3 Post LSL Replacement Sampling – Summary of Incomplete Offer to Test (Cumulative since Program Inception).

Mailing lists for letters offering post-replacement sampling are created every month by compiling a list of properties from the inventory where the p-value status changed to zero due to replacement of the LSL three months prior to the month the mailing list is created. The Quality Assurance/Quality Control process to determine valid addresses includes evaluating who completed the replacement (i.e., Denver Water crews or ALSLR contractors), if the property is CASS<sup>17</sup> certified and the initial status of the property in the inventory.

### Water Quality Results from Select Households (1983 to 1987 Homes) [5.D]

Section 5.D of the 2022 Variance provides that:

*... If a child up to 24 months of age resides in a Select Household and the water quality results in the first draw sample show lead concentrations above 3 ppb, Denver Water must offer a filter and enough replacement filters and cartridges, at no cost, to the customer until the child exceeds the age of 24 months.*

*Text is taken verbatim from the 2022 Variance, dated Nov. 30, 2022.*

In August 2020, Denver Water launched its outreach program to customers residing in all households built between 1983 and 1987, with a second round of outreach performed in November 2021. “Select households” are defined as homes built between 1983 to 1987 with copper piping and lead solder and that self-identify as having a formula-fed infant under the age of 24 months. If a customer from a 1983 to 1987 home requests a water quality sampling kit, Denver Water will mail a kit whether or not a formula-fed infant resides at the property. If lead is measured above 3 µg/L, and the customer self-identifies as having a formula-fed infant, the customer is invited to enroll into the Filter Program. Information on this offer is available on the Denver Water website. In the first six months of 2025, four water quality sampling results were analyzed for select households, one of which identified as having a formula-fed infant. None of the households with formula-fed infants had lead measured above 3 µg/L and therefore were not enrolled in the Filter Program.<sup>18</sup>

### 5th L Sample Collection

During the Spring 2025 LCR compliance sampling round, technicians collected five 1 Liter sequential samples at 75 properties with an LSL included in the LCR study pool in preparation for new sampling protocols described in the EPA’s LCRI published in October 2024. Results are shown in Table 11. Lead was measured less than 1 µg/L in the 5th L at 16 properties, most of which also measured less than 1 µg/L in the first draw. The results of Table 11 were compared to results described in the LRPP which included sampling using 10 sequential samples. In general, the 5th Liter profile sampling suggests the first draw (i.e., the compliance sample under the existing LCR) does not capture the highest lead concentrations within a service line. Two homes had concentrations as high as 15 µg/L in the fifth draw and there were three homes that had

<sup>17</sup> CASS (Coding Accuracy Support System) is used by the United States Postal Service to verify and improve the accuracy of an address and its associated ZIP code.

<sup>18</sup> See Appendix CCT-4 Summary of Water Quality Sampling Results from Select Households (1983 to 1987 Homes, Cumulative since Program Inception).

concentrations greater than 10 µg/L but less than 15 µg/L in the first draw. All results are an indication that the CCT component of the LRP is effective and CCT practices are expected to meet the needs of the LCRR and LCRI.

**TABLE 11. OVERVIEW OF 5<sup>TH</sup> LITER SAMPLING DATA IN SPRING 2025**

| 5 <sup>th</sup> L Sampling in 2025   | Count |
|--|-------|
| <b>Total Number of Properties Sampled for 5<sup>th</sup> L</b>                             | 75    |
| <b>Number of Properties with inconclusive data (all results &lt;1.0)</b>                   | 16    |
| <b>Number of Properties where the 5<sup>th</sup> L &lt; 1<sup>st</sup> L concentration</b> | 11    |
| <b>Number of Properties where the 5<sup>th</sup> L &gt; 1<sup>st</sup> L concentration</b> | 64    |

## 7.B.ii LSL Inventory

Section 7.B.ii of the 2022 Variance requires that Denver Water maintain records and report the following information with respect to its LSL Inventory:

*ii. LSL Inventory.*

- a. In Order to meet the October 16, 2024, deadline in which the requirements for an initial inventory that complies with the LCRR must be met:*
- 1. total number of service lines;*
  - 2. the total number of replaced LSLs and GRR;*
  - 3. the total number of confirmed and likely LSLs;*
  - 4. the total number of unlikely LSLs;*
  - 5. the total number of non-LSLs, indicating the number designated as non-LSLs solely based on statistical factors;*
- b. the number of Investigations conducted each year, demonstrating that the cumulative average 1.4% verification rate has been met;*
- c. an updated service line inventory map; and*
- d. the rationale for a change in the status of a service line in the inventory (e.g., Investigation, replacement, water quality data).*

*Text is taken verbatim from the 2022 Variance, dated Nov. 30, 2022.*

Denver Water must comply with the terms and conditions of the Variance as well as all other provisions in the LCRR, including the requirements associated with CCT. Therefore, in addition to the efforts to fulfill Variance requirements, Denver Water submitted an initial LCRR lead service line inventory to ensure compliance with the LCRR when it went into effect on Oct. 16, 2024, by refining the inventory to fit LCRR terminology and description. This section of this report further expands upon those efforts and the subsequent changes to the inventory.

An overview of the LSL Inventory reporting requirements is shown in Table 12.

**TABLE 12. OVERVIEW OF 7.B.II REQUIREMENTS**

| <b>Paragraph Reference</b>         | <b>Description</b>   | <b>Refer to</b>  |
|------------------------------------|--|--|
| <b>3.A</b>                         | Continue to maintain on an ongoing basis an inventory of the material of each service line connected to the public water distribution system that is a confirmed or likely LSL.<br>By October 16, 2024, Denver Water must have conducted an initial inventory that complies with the service line inventory requirements in 40 C.F.R. § 141.84(a). | Refer to Table 14.<br><br>Submitted.   |
| <b>3.C</b>                         | Continue to provide public access to its LSL inventory on its external customer website and update at least annually.<br>By October 16, 2024, the inventory was updated to list by specific street address which service lines are lead, galvanized requiring replacement, non-lead, or lead status unknown.                                       | Re-posted on July 2, 2025, using data through June 30, 2025.<br>Complete. <sup>1</sup> |
| <b>7.B.ii.a.1</b>                  | Total number of LSLs and GRR.  | Refer to Table 14.<br>See Appendix. <sup>2</sup>                                       |
| <b>7.B.ii.a.2</b>                  | Total number of replaced LSLs during the 2022 Variance.  | Refer to Table 15.   |
| <b>7.B.ii.a.3</b>                  | Total number of confirmed and likely LSLs.   | Refer to Table 14.   |
| <b>7.B.ii.a.4</b>                  | Total number of unlikely LSLs.   | Refer to Table 14.   |
| <b>7.B.ii.a.5</b>                  | Total number of non-LSLs.<br>Total number of non-LSLs determined solely by statistical methods.  | Refer to Table 14.<br>Described after Table 14.  |
| <b>7.B.ii.b</b><br><b>3B, 3.D</b>  | Number of investigations that supports a determination of the material of the service line and that are performed independently of an LSL replacement or not at the request of the customer.   | Refer to Table 21.   |
| <b>LRPP III.B</b><br><b>(p 51)</b> | Use results from investigations to update the predictive model which is used to plan and prioritize efforts of the COE Plan, ALSLR Program and Filter Program as well as refine the LSLI.  | See Section 7.B.vii.   |
| <b>7.B.ii.c</b>                    | Updated LSL Inventory Map.   | See <a href="#">online map</a> .   |
| <b>7.B.ii.d</b>                    | Rationale for change to status of the service line in the LSL Inventory.   | See Appendix. <sup>3</sup>   |

<sup>1</sup> Per discussions with EPA and CDPHE, the online map will include properties with a GRR status under confirmed lead in order to maintain clarity and continuity with customers.

<sup>2</sup> See Appendix INV-1 Summary of Service Line Status and p-Value (First Six-Month Period of 2025).

<sup>3</sup> See Appendices INV-2A Line by Line p-Value Changes: Status Descriptions and Notes (First Six-Month Period of 2025) and INV-2B Line by Line p-Value Changes by Status (First Six-Month Period of 2025).

### Current LSL Inventory [7.B.ii.a, b, c, and d]

The baseline LSL Inventory was updated using additional information and further analysis of the data presented and submitted in the September 2019 LRPP (see Table 13). The initial LSL inventory designating known, suspected and possible LSLs was subsequently submitted Feb. 5, 2020.

Table 13 below details the terminology used for various submittals of the lead service line inventory under the LRP.

**TABLE 13. LEAD SERVICE LINE INVENTORY SUBMITTALS**

| <b>Naming</b>             | <b>Submittal Date</b> | <b>Notes</b>   |
|---------------------------|-----------------------|--|
| <b>Baseline Inventory</b> | September 2019        | Included in the Denver Water proposed Lead Reduction Program Plan (LRPP). <sup>1</sup> This inventory serves as the basis for the 63,955 LSL estimate and the 7% replacement rate. |
| <b>Initial Inventory</b>  | February 2020         | Provided an initial inventory within 35 days of the effective date of the 2019 2019 Variance, per paragraph 3.A. <sup>2</sup>  |
| <b>Annual Inventory</b>   | Yearly                | Submitted along with each program year’s Annual Report and used in the application of the equivalency model to evaluate the performance of the LRP.                                |
| <b>LCRR Inventory</b>     | October 2024          | Note that the LCRR calls this an initial inventory but since Denver Water already had an initial inventory, this is specified as the LCRR inventory.                               |

<sup>1</sup> Refer to the [LRPP](#) for more information.

<sup>2</sup> Refer to the [2019 Variance](#) for more information.

Adjustments to service line designations to either the known lead or known non-lead categories are made based on available information from:

- Potholing (main-to-meter and meter-to-building).
- Interior inspections at the point of entry.
- Water quality sample results.
- Desktop review of existing Denver Water records.
- Predictive modeling.
- Customer submitted proof of replacement and City of Denver plumbing permits.
- Review of individual distributor records.

Service line reviews are an ongoing daily task of the program since 2020. Denver Water’s online map reflects changes in the service line material designation and is updated quarterly.<sup>19</sup> Large changes to the inventory occurred in 2023 and 2024 due to investigations and are described in the investigation section of this report. Beginning in October 2024, the program shifted to the terminology defined in the LCRR, grouping likely (possible and suspected LSL) and unlikely into the unknown categories unknown likely and unknown unlikely, respectively.

Figure 3 below shows the inventory dashboard. The theme of the dashboard below is to demonstrate where the program started and where it is today. Key aspects of this dashboard

<sup>19</sup> See Denver Water’s [online map](#) for more information.

include values identified as unfactored and factored. An unfactored value counts each record as an individual service line, regardless of p-value. A factored value sums the p-value of each service line such that three service lines with p-values of 0.5, 0.8, and 1 would count as 2.3 total lead service lines.

The baseline inventory, as described above, is the service line inventory submitted in September 2019 and is reflected in the left column of metrics. The current inventory column is the inventory as of June 30, 2025. The LSLR progress bar on the right side of the dashboard shows the number of lead service lines replaced since program inception (Jan. 1, 2020) and how many lead service lines Denver Water anticipates are remaining based on the factored value of the baseline inventory. Additional detail on the current lead service line inventory is further described in this section.

### LEAD REDUCTION PROGRAM

Report Period 1/1/2020 to 6/30/2025

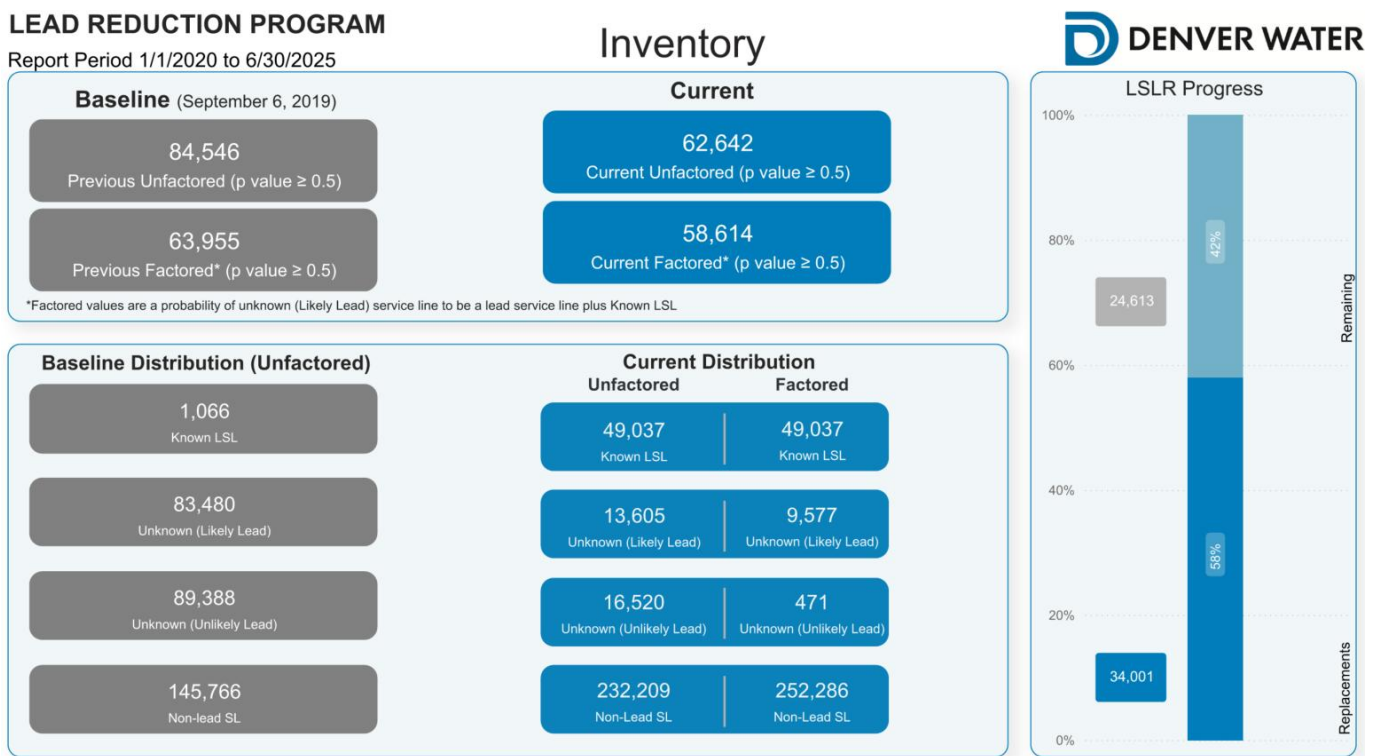


FIGURE 3. INVENTORY DASHBOARD

The information presented in Table 14 demonstrates the progress of Denver Water's understanding of the current lead service line inventory compared with the baseline inventory submitted in September 2019. The inventory is used to establish the total number of estimated lead services and the mandated annual number of replacements. For the purposes of Table 14, the total number of confirmed LSLs includes the number of properties with a known lead service that remain in the ground and those that have been replaced.

The LCRR defines galvanized requiring replacement (GRR) as any service line where either:

- 1) A portion of the line is galvanized, and that segment is or was at any time, downstream of a lead service line.
- 2) The galvanized service line is currently downstream of an unknown service line.

Currently, Denver Water does not have a clearly defined method to prove that lead was never upstream of the galvanized section and would not require replacement. Therefore, Denver Water replaces all galvanized service lines found as a precaution. Since Denver Water categorizes any service line where lead is identified as an LSL, regardless of other materials being identified, this classification encompasses GRR service lines where galvanized was confirmed downstream of lead. Therefore in 2025, as shown in Table 14, the program has confirmed 42,238 LSLs with an additional subset of 6,799 GRR service lines. It is important to note that a substantial number of these properties identified lead between the main and meter and galvanized between the meter and home. The additional 6,799 service lines classified as GRR in Table 14 represent those galvanized service lines where lead was not found. Ongoing investigations have shown that 6,481 of these properties have found copper upstream of the galvanized section. Denver Water continues to explore these properties through record review, water quality sampling, potholing and interior inspections to identify trends in the installation practices from the era when galvanized was installed. In 2025, Denver Water plans to expand the means and methods of identifying GRRs, using additional investigation methods, such as nine-liter water quality sampling and x-ray fluorescence technology, combined with the predictive model.<sup>20</sup> The expanded approach will be coordinated with regulators prior to implementation.

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<sup>20</sup> See Appendix LSL-11 Predictive Model Galvanized Approach Technical Memorandum from the 2024 Annual Report for further details.

**TABLE 14. LEAD SERVICE LINE INVENTORY AS OF JUNE 30, 2025**

| Status of Service Line  | Sept. 6, 2019 Submittal (Aug. 8, 2019 Data) | Feb. 5, 2020 Submittal (Jan. 28, 2020 Data) | Feb. 7, 2025 Submittal (Dec. 31, 2024 Data) | Aug. 8, 2025 Submittal (June 30, 2025 Data) |
|---|---|---|---|---|
|   | BASELINE INVENTORY                          | INITIAL INVENTORY                           | 2024 ANNUAL REPORT                          | CURRENT INVENTORY <sup>1</sup>              |
| <b>Confirmed LSL<sup>2</sup></b><br><i>(previously referred to as Known Lead)</i> | 1,066                                       | 1,149                                       | 40,845                                      | 42,238                                      |
| <b>GRR<sup>3</sup></b>  | <i>(Included with Confirmed LSL count)</i>  |   | 6,306                                       | 6,799                                       |
| <b>Unknown Likely LSL</b><br><i>(Suspected Lead + Possible Lead)</i>              | 83,480                                      | 82,337                                      | 16,823                                      | 13,605                                      |
| <b>Unknown Unlikely LSL</b>   | 89,388                                      | 90,745                                      | 17,199                                      | 16,520                                      |
| <b>Non-LSL<sup>4,5</sup></b>  | 145,766                                     | 146,528                                     | 230,292                                     | 232,209                                     |
| <b>Total Number of Services</b>   | 319,700                                     | 320,759                                     | 311,465                                     | 311,371                                     |
| <b>TOTAL ESTIMATED Number of Lead Service Lines<sup>6</sup></b>                   | <b>63,955</b>                               | <b>63,195</b>                               | <b>59,112</b>                               | <b>58,614</b>                               |

- <sup>1</sup> The “current inventory” is the basis of enrollment in the Filter Program (calculated as the sum of the properties with a confirmed or unknown likely LSL, plus distribution of additional filters to multiple units at the same property less the number of vacant properties).
- <sup>2</sup> Since the 2020 Annual Report, the current inventory counts for “known lead” include properties that are either known to be lead, GRR, or that have had a lead or galvanized service line replaced. The 34,001 properties categorized as “confirmed LSL” in the current inventory were replaced since program inception (see Table 15 and Table 24). Due to ongoing data integration and QC processes, 93 of the 34,001 properties identified as confirmed replacements remain to be integrated into the LRP database to drive a p-value change to 0. Of these 93, one remains as “unlikely LSL”, three as “likely LSL”, two as “confirmed LSL”, and an additional 87 are described as non-active or non-potable (coded as NULL). The counts for these categories in the current inventory (most right column) have been reduced accordingly.
- <sup>3</sup> Previous inventory reporting counted GRRs under the “confirmed LSL” count. GRRs in the June 30, 2025, LSLI include galvanized-galvanized (179 properties), copper-galvanized (6,481 properties), and galvanized-copper (214 properties) service lines. Properties with galvanized (and no lead identified in potholing) with water quality results  $\geq 3$   $\mu\text{g/L}$  lead are included in this number.
- <sup>4</sup> The “non-LSL” count currently does not include properties where galvanized was identified but did not require replacement (lead was never upstream of the galvanized service line). Denver Water plans to assess their processes in 2025 for galvanized service lines to identify which galvanized service lines require replacement.
- <sup>5</sup> Since the 2020 Annual Report, the counts for “non-LSL” do not include the properties at which the LSL was replaced as part of the LRP (see Table 15), as these are already included in the count for “confirmed LSL.”
- <sup>6</sup> See Appendix INV-1 Summary of Service Line Status and p-Value (First Six Month Period of 2025) for details on how this was calculated.

Of the 232,209 service lines identified as non-lead in the current inventory, 202,842 are included in this category based solely on statistical assumptions (140,482 from the initial Sept. 6, 2019, inventory, 5,318 since identified through desktop evaluation and 57,042 based on recommendations from the predictive model). The material of these service lines was not confirmed via field observations; rather, the service line was classified as non-lead based on the age of the building, history of development in the Denver Water service area, operating rules

requiring copper at post-1971 properties, water main tap date, etc.<sup>21</sup> Properties built or connected between 1951 and 1971 are considered unknown unlikely LSLs based on historical records and evidence of non-lead materials.<sup>22</sup> Denver Water continues to review investigation data on these service lines in an effort to further classify the materials of these service lines.

### Number of LSL Replacements Completed and Incorporated into the Inventory [7.B.ii.d]

The total number of LSLs replaced between Jan. 1 and June 30, 2025, is shown in Table 15. Denver Water does not count the replacement of copper service lines (i.e., non-LSL) toward the total number of LSL replacements for compliance purposes.<sup>23</sup>

**TABLE 15. NUMBER OF LSL REPLACEMENTS BETWEEN JAN. 1 AND JUNE 30, 2025**

| Description   | Count <sup>1</sup> |
|---|--------------------|
| Number of LSLs Replaced in January 2025                                     | 520                |
| Number of LSLs Replaced in February 2025                                    | 557                |
| Number of LSLs Replaced in March 2025                                       | 600                |
| Number of LSLs Replaced in April 2025                                       | 533                |
| Number of LSLs Replaced in May 2025   | 516                |
| Number of LSLs Replaced in June 2025  | 389                |
| Number of LSLs Replaced not Previously Reported <sup>2</sup>                | 388                |
| <b>Total Number of LSLs Replaced in the First Six Months of 2025</b>        | <b>3,503</b>       |
| <b>Total Number of LSLs Replaced since inception of LRP on Jan. 1, 2020</b> | <b>34,001</b>      |

<sup>1</sup> The number of replacements identified in the “Lead Replacement” column of Appendix INV-2B (Line by Line p-Value Changes by Status, First Six-Month Period of 2025) does not match the number of lead service line replacements shown in Table 15 due to a lag in the quality assurance review during data integration from field replacements to LRP database.

<sup>2</sup> This includes the net change to the number of LSL replacements completed since program inception not previously reported (388 added) and previously reported LSL replacements that upon review were removed (3 deduction); see Appendix LSL-4 Addresses and Types of Replacements for Properties Not Previously Counted and Duplicates (Since Program Inception) for details.

### Investigations of Service Line Material [7.B.ii.b]

Section 3.D of the 2022 Variance requires that “Denver Water . . . [i]nvestigate a cumulative average of 1.4% of the total estimated number of unknown service lines in the inventory each Program Year. . . .”

As required by the 2022 Variance, Denver Water continues to conduct investigations of service lines and make refinements to the LSL Inventory of service line materials connected to

<sup>21</sup> This is the number which retains the original number of non-lead properties (p-value = 0) from the inventory in the Lead Reduction Program Plan (see Appendix III.B.2, Preliminary Identification of Lead Service Lines).

<sup>22</sup> See Appendix II.B.2 of the Lead Reduction Program Plan for details and assumptions.

<sup>23</sup> See paragraph 4.B of the 2022 Variance and the notes for the column “Actual Previous Materials” in Appendix LSL-1 Addresses and Types of Replacements (First Six-Month Period of 2025).

its water system. Investigations are performed at properties to improve the assumptions that were used to develop the LSL Inventory.<sup>24</sup>

Investigations are counted by investigation type and may include desktop evaluation of available data from Denver Water, assessors, permits, distributors and customers, water quality sampling, potholing, predictive model and/or interior inspection. After 15 years of the LRP, there should be no remaining properties in the LSL inventory categorized as unknown likely LSL and all confirmed LSLs should be replaced.

Figure 4 below details the process flow for investigation methods used and how each method is used to identify material type and remove a property from the unknown category into the known (lead or non-lead) category. All data gathered from water quality sampling, potholing, interior inspections and desktop reviews are used to train the predictive model. The predictive model is discussed in further detail later in this section.<sup>25</sup>

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<sup>24</sup> See Denver Water's [Investigations Webpage](#) and the [2022 Variance](#) for more information.

<sup>25</sup> For additional information on the predictive model, see Appendix INV-10 Predictive Model Technical Memorandum from the 2023 Annual Report.

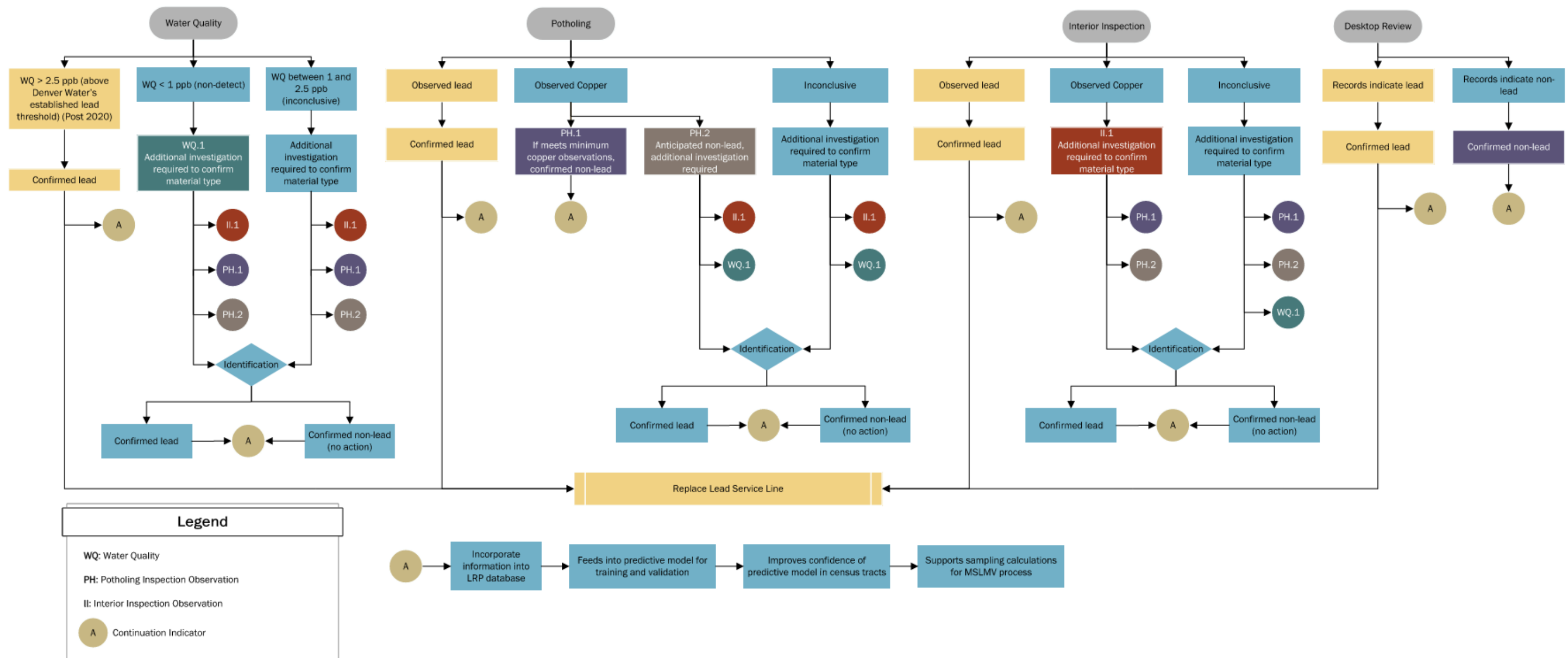


FIGURE 4. INVESTIGATION FLOW DIAGRAM

A property can be counted toward an investigation up to five times (one time per category, described later in this section) over the duration of the program. An investigation does not need to result in a p-value change, unless the method is predictive modeling.

An investigation is counted if all the following conditions apply:

- 1) The property is originally classified as unknown (see paragraphs 3.B and 3.D in the 2022 Variance).
- 2) The investigation was performed independently of LSL replacements (see paragraph 3.D in the 2022 Variance). Visual verifications that result in a copper material designation, and therefore do not result in a replacement, are counted as an investigation.
- 3) The investigation was not the result of a customer-requested water quality sample (see paragraph 1.L in the 2022 Variance).

**Definitions used to categorize the service line material:<sup>26</sup>**

|                                    |  |
|------------------------------------|--|
| Confirmed LSL                      | Based upon direct evidence that gives a 100% estimated probability per the LRPP that a service line is an LSL or a “galvanized requiring replacement” service line.  |
| Likely LSL<br>(Unknown Likely)     | Based upon available data that provides an estimated probability value between 50 to 99% that a service line is an LSL or a “galvanized requiring replacement” service line.                               |
| Unlikely LSL<br>(Unknown Unlikely) | Based on conflicting or missing data that provides an estimated probability value between 1% to 49% that a service line is an LSL based on the LRPP; or a “galvanized requiring replacement” service line. |
| Non-Lead                           | 0% likelihood of finding lead.   |

The total number of investigations to support a determination of the service line material are counted toward the required 1.4% of the unknowns in the LSL inventory investigated each year. An unknown service line is defined as any service line that does not have a p-value of 0 (non-lead) or 1 (known lead). Denver Water considers five types of investigations that can be performed on service lines:

- 1) Interior inspections.
- 2) Potholing.
- 3) Water quality sampling.
- 4) Desktop reviews.
- 5) Predictive modeling.

The Figure 5 dashboard below shows the number of investigations counted year-to-date (Jan. 1, 2025, through June 30, 2025) and program-to-date (Jan. 1, 2020, through June 30, 2025). The purpose of the dashboard is to exhibit the types and sum of investigations conducted

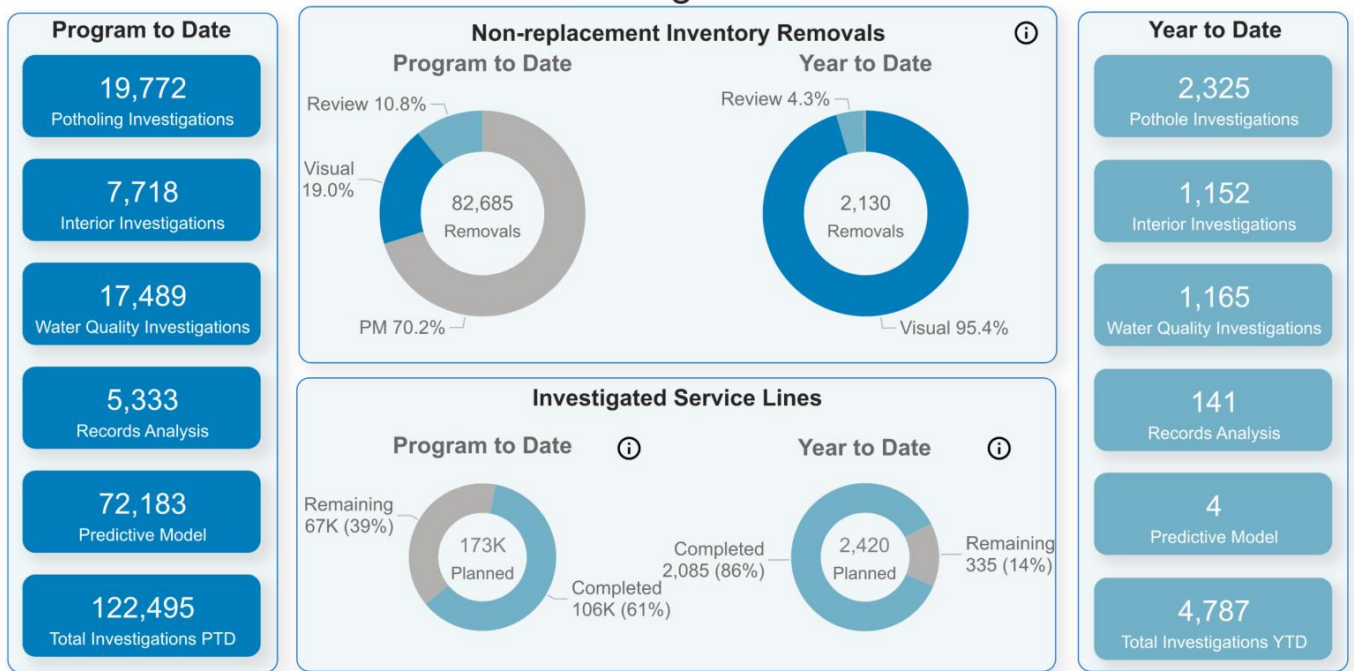
<sup>26</sup> As defined in paragraphs 1.C, 1.P, and 1.X of the 2022 Variance, dated Nov. 30, 2022, for confirmed LSL, likely LSL, and unlikely LSL, respectively. Note that the definition of non-lead was not provided in the 2022 Variance. The term “unknown” is used for both likely and unlikely lead service lines to meet requirements under the LCRR and is consistent with the terminology used on Denver Water’s public inventory.

to date and the sum of service lines investigated in 2025. It is important to note that the metric for investigations and investigated service lines are accounted for differently. Investigations can be one of the five categories listed above, and a single service line can have up to five different types of investigations. Investigated service lines, however, represent the number of individual service lines that had at least one investigation conducted. A service line that has been investigated via more than one method will only be counted once under this metric. For example, if a property had a water quality test and potholing, the efforts would count as two investigations and one investigated service line. Investigated service lines are what is used to calculate the annual metric under the Variance. Further detail on investigations conducted in this reporting period (Jan. 1 through June 30, 2025) is provided throughout this section of the report.

**LEAD REDUCTION PROGRAM**

Report Period 1/1/2020 to 6/30/2025

**Investigations**



**FIGURE 5. INVESTIGATIONS DASHBOARD**

**SERVICE LINE IDENTIFICATION PROCESS**

CDPHE published a Service Line Identification (SLID) Policy on Sept. 7, 2023, that provided a process for establishing an initial lead service line inventory and identifying unknowns in preparation for the LCRR. For a decade, Denver Water has worked on the lead service line inventory and has taken steps to achieve a completed inventory, which aligns with Steps 1 through 3 of the SLID Policy. The LRP does, however, have some practices that may differ from Step 4 of the SLID Policy for identifying unknowns and instead goes above and beyond what is required, as detailed within this section.

Denver Water incorporated predictive modeling into the LRP as an investigative method in the spring of 2023. The predictive model has been a part of the LRP since inception but was historically not used to change lead service line inventory p-values until 2023. With the large

number of unknowns in Denver Water’s service area, the predictive model drives to refine the inventory (i.e., identify unknown materials) by using machine learning, as discussed later in this section. CDPHE’s SLID Policy defines a minimum service line material verification process, or a multi-source analysis, that takes a combination of methods (interior inspections, potholing, water quality, desktop reviews, and predictive modeling) and uses the results to determine a material. Therefore, Denver Water began incorporating the predictive model into the inventory, driving to material designations (p-value changes). P-value changes due to the predictive model are counted toward Denver Water’s investigation metric defined by the 2022 Variance, as well as investigations that occurred within replacement work areas that resulted in a confirmed non-lead service line (and therefore were not replaced as part of the ALSLR Program).

#### INTERIOR INSPECTIONS

Interior inspections provide Denver Water field crews with a visual observation of the service line as it enters the premise (point of entry). This helps the field crew confirm the material that was observed at the pothole conducted between the meter and the building. There are, however, limitations to interior inspections, and at times observing the service line entering the building is not possible due to obstructions or lack of consent from the homeowner/tenant. Interior inspections alone are not sufficient for non-lead material designation and must be considered in conjunction with other types of investigations. Table 16 below details the interior inspections conducted during the reporting period.

**TABLE 16. INTERIOR INSPECTION OBSERVATIONS (JAN. 1 TO JUNE 30, 2025)**

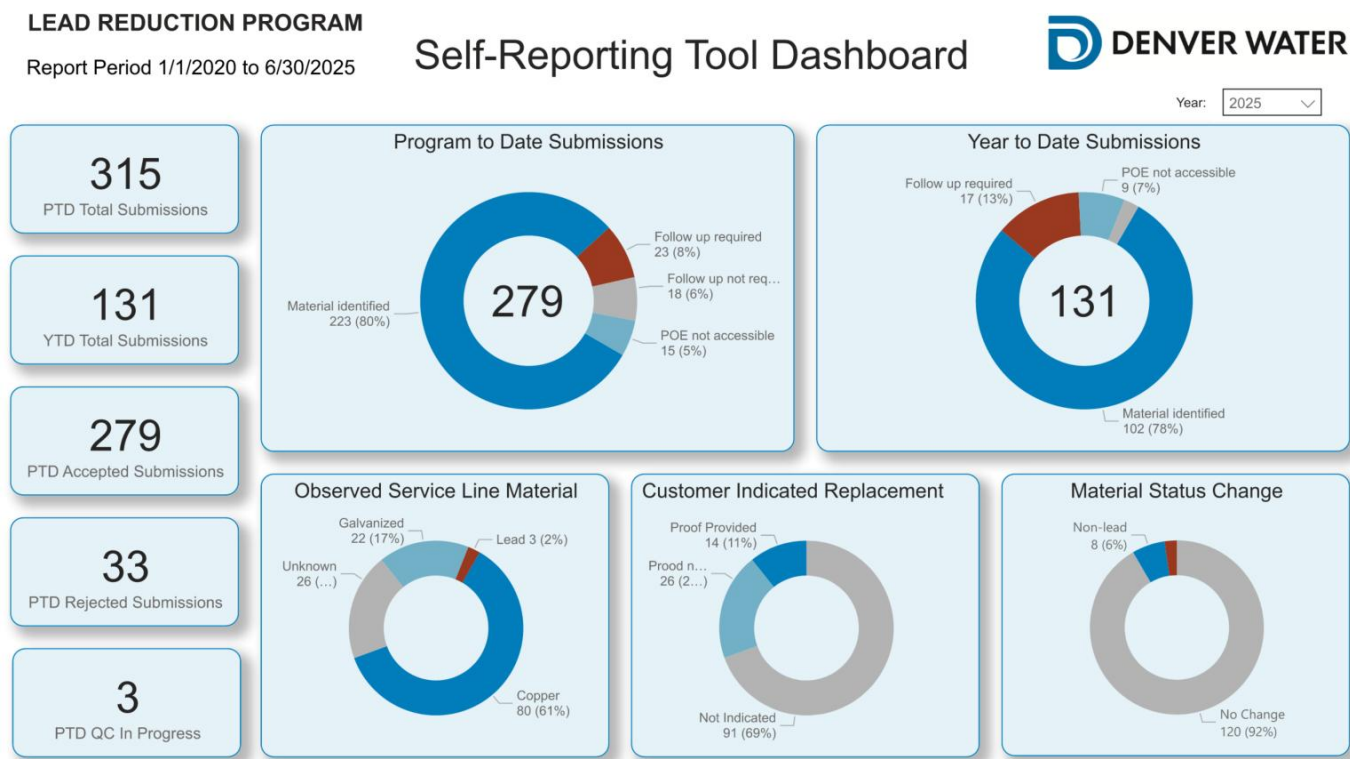
| Service Line Status   | Total Number of Investigations <sup>1</sup> | Interior Inspection Observation | Follow-up Action  |
|---|---|---------------------------------|---|
| <b>Initial Status<br/>0.5 ≤ p ≤ 0.9</b>   | 1,054                                       | Observed lead                   | Property added to list for LSL replacement and is scheduled to be replaced. |
|   | 1,570                                       | Observed non-lead               | Additional investigation is required.                                       |
|   | 566   | Incomplete <sup>1</sup>         | Additional investigation is required.                                       |
| <b>Initial Status<br/>0.01 ≤ p &lt; 0.5</b>                                     | 15  | Observed lead                   | Property added to list for LSL replacement and is scheduled to be replaced. |
|   | 203   | Observed non-lead               | Additional investigation is required.                                       |
|   | 34  | Incomplete <sup>1</sup>         | Additional investigation is required.                                       |
| <b>Total Number of Interior Inspections (First Six Months Only)<sup>2</sup></b> |   |                                 | <b>3,507</b>  |

<sup>1</sup> Includes 287 interior inspections conducted outside of the ALSLR Plan for investigative purposes.

<sup>2</sup> Includes 65 properties not included in the above categories. Of the 65, 43 properties with a February 2020 p-value of 1, 17 properties with a February 2020 p-value of 0, and five properties added to the inventory after the February 2020 submittal where an interior inspection was conducted for investigative purposes.

To increase the number of interior investigations performed, Denver Water launched a customer self-reporting tool. The tool, which is accessible to all Denver Water customers, guides the customer through the process of locating and identifying the material of their service line at the building point of entry. Data entries submitted by the customer then undergo review by LRP staff to compare the reported material with photos submitted by the customer. LRP staff confirm that the information and photos submitted by the customers meet the same data requirements as

those submitted by LRP field staff. Denver Water staff conduct follow-up coordination with the customer to obtain any missing or deficient information. Submissions that are validated by the review process are incorporated into the lead service line inventory and are counted as an interior inspection. The results of the self-reporting tool are presented in Figure 6.



**FIGURE 6. SELF-REPORTING TOOL DASHBOARD**

**POTHOLING**

Potholing can be used to identify lead status as a stand-alone investigative method or can be used in combination with other investigative methods to determine that a property is designated as “non-lead.” To confirm “non-lead”, there can be no lead or galvanized visually observed from potholing and interior inspections and there can be no contradictions with the desktop records review and/or water quality sampling results.

Verification potholing is used at properties included in the 2025 ALSLR Plan to confirm the material of the service line before replacement to help further develop the inventory. As of Aug. 10, 2020, all likely LSLs ( $0.5 \leq p\text{-value} < 1$ ) are verified prior to replacement, with potholing and/or water quality sampling, to reduce the likelihood of replacing a non-LSL.

Visual observations are conducted to observe the material type of the service line using potholing. Results from potholing as part of the ALSLR Program are presented in Table 17 along with the next steps to either replace a service line that is confirmed to be lead or to pursue additional investigative methods. If copper is observed at three or more points used for verification (e.g., copper is observed at two exterior potholes and at the interior connection), the

service line is not categorized and the p-value is not adjusted; rather, the property is subjected to additional investigation efforts (i.e., interior inspections, additional potholing, water quality sampling, desktop review) to identify the service line material. To confirm non-lead, there must be no signs of lead or galvanized pipe material visually observed when potholing activities are conducted.

**TABLE 17. POTHOLING OBSERVATIONS AS PART OF THE 2025 ALSLR PLAN (JAN. 1 TO JUNE 30, 2025)**

| Service Line Status  | Total Number of Investigations | Pothole Observation | Follow-up Action  |
|--|--------------------------------|---------------------|---|
| <b>Initial Status</b><br>$0.5 \leq p \leq 0.9$   | 2,416                          | Confirmed lead.     | Property added to list for LSL replacement and is scheduled to be replaced. |
|  | 520                            | Confirmed non-lead. | Remove property from LRP.   |
|  | 594                            | Incomplete.         | Additional investigation is required.                                       |
| <b>Initial Status</b><br>$0.01 \leq p < 0.5$   | 36                             | Confirmed lead.     | Property added to list for LSL replacement and is scheduled to be replaced. |
|  | 391                            | Confirmed non-lead. | Remove property from LRP.   |
|  | 189                            | Incomplete.         | Additional investigation is required.                                       |
| <b>Total Number of Properties Potholed within 2025 ALSLR Program (First Six Months Only)<sup>1</sup></b> |                                |                     | <b>4,219</b>  |

<sup>1</sup> Includes 73 properties not included in the above categories. Of the 73, 41 properties with a February 2020 p-value of 1, 27 properties with a February 2020 p-value of 0, and five properties added to the inventory after the February 2020 submittal.

During the first six months of 2025, potholing was performed at 111 properties not included in the 2025 ALSLR Plan.<sup>27</sup> Results are included in Table 18. If potholing occurred at a critical customer property (i.e., schools, child care centers and other facilities that serve children) and lead is found, the property is scheduled for replacement in 2025 and therefore does not contribute to the required number of annual investigations.

<sup>27</sup> See Appendix INV-3 Results from Visual Verifications (First Six-Month Period of 2025).

**TABLE 18. POTHOLING OBSERVATIONS INDEPENDENT OF THE 2025 ALSLR PLAN (JAN. 1 TO JUNE 30, 2025)**

| Service Line Status  | Total Number of Investigations <sup>1</sup> | Pothole Observations | Follow-up Action  |
|--|---|----------------------|---|
| <b>Initial Status</b><br><b>0.5 ≤ p ≤ 0.9</b>  | 60  | Confirmed lead.      | Property added to list for LSL replacement and is scheduled to be replaced. |
|  | 21  | Confirmed non-lead.  | Remove property from LRP.   |
|  | 13  | Incomplete.          | Additional investigation is required.                                       |
| <b>Initial Status<sup>1</sup></b><br><b>0.01 ≤ p &lt; 0.5</b>  | 1   | Confirmed lead.      | Property added to list for LSL replacement and is scheduled to be replaced. |
|  | 6   | Confirmed non-lead.  | Remove property from LRP.   |
|  | 7   | Incomplete.          | Additional investigation is required.                                       |
| <b>Total Number of Properties Potholed Independent of the 2025 ALSLR Program (First Six Months Only)<sup>2</sup></b> |   |                      | <b>111</b>  |

<sup>1</sup> This includes no critical customers that were originally assigned a p-value < 0.5.

<sup>2</sup> Includes three additional properties not included in the above categories. Of the three, two properties with a February 2020 p-value of 1, and one property with a February 2020 p-value of 0.

Denver Water has discovered multiple circumstances where copper is identified upstream of galvanized and water quality sampling results are non-detect. Understanding the characteristics and trends of GRRs in Denver Water’s service area will help the predictive model improve its confidence and may allow Denver Water to avoid replacing all galvanized encountered if it is possible to prove the galvanized service line was never downstream of lead.

#### WATER QUALITY

Results from water quality sampling can provide an indication of lead at single-family residential properties, and the status of a service line can be changed in the inventory (i.e., from unknown to confirmed lead). The three-bottle tests are performed to aid in the classification of service line materials of properties within Denver Water’s integrated service area. This sampling process not only provides insight into the material profile of the service line, it also aids in the categorization of material through supporting investigations including the predictive model.

Water quality alone is known to achieve success for locating individual LSLs, but the LRP extends beyond this and looks at opportunities where water quality coupled with predictive model-reinforced learning provides guidance for larger scale lead service line inventory refinements of unlikely LSLs to known non-lead.

Results for water quality sampling at properties included in the 2025 ALSLR Plan are presented in Table 19 (i.e., verification pre-LSL replacement sampling) and results from properties not included in the 2025 ALSLR Plan are presented in Table 20 (i.e., investigative sampling).<sup>28</sup> As of Feb. 25, 2021, results from water quality sampling are assessed against a reduced threshold concentration used to indicate lead in pre-LSL replacement samples. A lower threshold was selected because of the degree of lower lead levels achieved when pH is consistently maintained at 8.8 ± 0.3 across the distribution system. This means that any sample

<sup>28</sup> See Appendix INV-4 Water Quality Observations (First Six-Month Period of 2025).

collected on or after May 1, 2020, with lead measured at or above 3 µg/L in the second or third bottle of the three-bottle test is considered conclusive for an LSL. Lead measured below this threshold at properties with an initial status of unknown likely (i.e., p-value ≥ 0.5) is inconclusive for non-lead and additional investigations or review of data are needed to determine the status of the service line material. Lead measured below this threshold at properties with an initial status of unknown unlikely (i.e., p-value < 0.5) is considered conclusive for non-lead and no additional investigations are undertaken and the property is not added to the LRP. Finally, lead measured below the detection limit of 1 µg/L is also considered indicative of non-lead only when copper is visually observed at three or more points. In summary, whereas water quality sampling at or above 3 µg/L is conclusive for lead, additional steps are taken to confirm non-lead and the p-value is not reduced to 0 based on water quality results alone.

**TABLE 19. OBSERVATIONS FROM WATER QUALITY INVESTIGATIONS AS PART OF THE 2025 ALSLR PLAN (JAN. 1 TO JUNE 30, 2025)**

| Service Line Status  | Total Number of Investigations <sup>1</sup> | Water Quality Observations   | Follow-up Action  |
|--|---|------------------------------|---|
| <b>Initial Status</b><br><b>0.5 ≤ p ≤ 0.9</b>  | 116   | Confirmed lead. <sup>2</sup> | Property added to list for LSL replacement and is scheduled to be replaced. |
|  | 127   | Non-detect. <sup>3</sup>     | Additional investigation is required.                                       |
|  | 52  | Inconclusive. <sup>4</sup>   | Additional investigation is required.                                       |
| <b>Initial Status</b><br><b>0.01 ≤ p &lt; 0.5</b>  | 2   | Confirmed lead. <sup>2</sup> | Property added to list for LSL replacement and is scheduled to be replaced. |
|  | 40  | Non-detect. <sup>3</sup>     | Additional investigation is required.                                       |
|  | 0   | Inconclusive. <sup>4</sup>   | Additional investigation is required.                                       |
| <b>Total Number of Water Quality Samples within 2025 ALSLR Program (First Six Months Only)<sup>5,6,7</sup></b> |   |                              | <b>339</b>  |

<sup>1</sup> Excludes customer requested sample results. These samples were collected at properties included in the 2025 ALSLR Plan (and therefore do not count toward the required 1.4% investigations).

<sup>2</sup> Lead measured ≥ 3 µg/L in the second or third sample bottle from the three-bottle test.

<sup>3</sup> Lead measured < 1 µg/L in the second and third sample bottle from the three-bottle test.

<sup>4</sup> All other tests where lead measured < 3 µg/L in the second and third sample bottle from the three-bottle test.

<sup>5</sup> Includes one additional property, not included in the above categories, with an initial p-value of 0.

<sup>6</sup> Includes one additional property, not included in the above categories, with an initial p-value of 1.

<sup>7</sup> Does not include two 1-bottle kit observations that are part of the 2025 ALSLR plan.

**TABLE 20. OBSERVATIONS FROM WATER QUALITY INVESTIGATIONS INDEPENDENT OF THE 2025 ALSLR PLAN (JAN. 1 TO JUNE 30, 2025)**

| Service Line Status  | Total Number of Investigations <sup>1</sup> | Water Quality Observations   | Follow-up Action  |
|--|---|------------------------------|---|
| <b>Initial Status</b><br><b>0.5 ≤ p ≤ 0.9</b>  | 62  | Confirmed lead. <sup>2</sup> | Property added to list for LSL replacement and is scheduled to be replaced. |
|  | 180   | Non-detect. <sup>3</sup>     | Additional investigation is required.                                       |
|  | 31  | Inconclusive. <sup>4</sup>   | Additional investigation is required.                                       |
| <b>Initial Status</b><br><b>0.01 ≤ p &lt; 0.5</b>  | 1   | Confirmed lead. <sup>2</sup> | Property added to list for LSL replacement and is scheduled to be replaced. |
|  | 612   | Non-detect. <sup>3</sup>     | Additional investigation is required.                                       |
|  | 6   | Inconclusive. <sup>4</sup>   | Additional investigation is required.                                       |
| <b>Total Number of Water Quality Samples Independent of 2025 ALSLR Program (First Six Months Only)<sup>5,6,7</sup></b> |   |                              | <b>903</b>  |

<sup>1</sup> Excludes customer requested sample results. These samples were collected at properties independent of the 2025 ALSLR Plan and therefore do count toward the required 1.4% investigations, if the conditions that define an investigation are met.

<sup>2</sup> Lead measured ≥ 3 µg/L in the second or third sample bottle from the three-bottle test.

<sup>3</sup> Lead measured < 1 µg/L in the second and third sample bottle from the three-bottle test.

<sup>4</sup> All other tests where lead measured < 3 µg/L in the second and third sample bottle from the three-bottle test.

<sup>5</sup> Includes 10 additional properties, not included in the above categories, with an initial p-value of 0.

<sup>6</sup> Includes one additional property, not included in the above categories, with an initial p-value of 1.

<sup>7</sup> Does not include 19 1-bottle kit observations that are independent of the 2025 ALSLR plan.

#### DESKTOP REVIEWS

The desktop review process consists of the review of existing documentation pertaining to a specific property and its service line. Typically, the purpose of the review is to determine if there is sufficient supporting evidence to indicate if a service line is non-lead, commonly due to an LSL replacement conducted pre-2020 prior to implementation of the LRP. A desktop review is used to collect, organize and combine available data for a given property using methodologies that do not require a field investigation.

The supporting evidence used in a desktop review varies, as does the information available for each individual property. Generally, supporting evidence consists of construction and plumbing permits, Denver Water work orders, customer-submitted proof of replacement (e.g., invoices) or other field notes. Records indicating a partial service line replacement require additional verification, either through desktop or field investigation, to confirm that the entire service line is non-lead following the partial replacement. In the first six-month period of 2025, desktop reviews were conducted on 141 properties.

#### PREDICTIVE MODEL

The predictive model advances the decision logic developed for the lead service line inventory by associating known service line material derived through pothole or water quality field data with property characteristics such as location, build date, tap year, property type and value, income and many other factors. The model generates a probability of lead or non-lead for properties with unknown service line material using these observable property characteristics.

The program has met the target accuracy and the other key performance metrics that are suitable for the use and application of the model as described in the application section of the Predictive Model Technical Memorandum.<sup>29</sup> Performance metrics cited in the memorandum represent global performance (i.e., considering validation data set aside from the entire Denver Water service area together). More granular performance at the census tract level is then assessed to identify areas within the service area where the model predictions are reliable, or where further training or investigation is indicated. Specifically, the 95% confidence bounds of metrics such as positive and negative predictive value, and positive and negative likelihood ratios are considered in model assessment.

While the model's global false negative rate (where lead services are misidentified as non-lead) is low, it is important to acknowledge that this misclassification is significant from a human health perspective and cannot be eliminated using the model alone. For this reason, model performance is evaluated at the census tract level prior and check against the validation data as described in Section 2.4.2.b of the CDPHE SLID Policy specific to the minimum service line validation process. Where the model performance does not meet benchmarks or the sampling results did not validate the material, model predictions are not used in decision-making. Rather, the data captured is used for additional model training and further sampling requirements are identified. The process is repeated until the necessary requirements for the validation process and performance metrics are met or exceeded for the specific census tract.

Prior to 2023, the predictive model was used to prioritize enrollment in the Filter Program, prioritize replacement of LSLs and focus investigations for uncertainty in the model to improve model performance. Beginning in 2023, the predictive model has been used as a component of a multi-source analysis (including historical records, model predictions and randomized statistical sampling) to designate service line materials (i.e., make p-value changes) to the lead service line inventory, thus removing unknowns in preparation for the LCRR inventory due date.

The predictive model is used to confirm the service line material designation when there is agreement with the lead service line inventory material designation at a property and provides opportunities to better understand material designations when there is less certainty or disagreement with a lead service line inventory material designation by identifying needed investigations or multi-source analysis.

The properties evaluated in 2025 for p-value changes using the predictive model were grouped by census tracts and evaluated for areas that met or exceeded a target negative or positive predictive metric threshold (95% confidence bound), while also considering census tract prevalence of lead and verification sampling of unknowns.<sup>30</sup> After a review of validation data against material recommendations and ensuring there are no conflicting data for the material designation change to lead or non-lead through the multi-source analysis approach, this

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<sup>29</sup> See Appendix LSL-11 Predictive Model Technical Memorandum from the 2023 Annual Report.

<sup>30</sup> For detailed explanations of predictive modelling terms such as "negative predictive value" and "confidence", see Appendix LSL-11 Predictive Model Technical Memorandum from the 2023 Annual Report.

evaluation led to four material designation changes to known non-lead and no material designation changes to known lead in the first six months of 2025.

Properties that do not yet meet the criteria defined above are evaluated for additional investigation opportunity to further improve model performance prior to making service line material change recommendations. Service lines intended to be investigated within the census tract are selected through a spatially balanced randomized sampling process and include additional properties that achieve opportunistic sample capturing based on contractor mobilization to achieve adequate and efficient sampling. The additional properties aim to achieve adequate sampling results to measure performance of the properties in the entire recommended group. Water quality sampling alone cannot be used to determine non-lead services. However, the combination of randomized water quality sampling and the predictive model (which integrates minimum service line material verification sampling from throughout the service area to identify service line materials based on property characteristics) provides verifiable performance in a manner comparable to that outlined in Section 2.4.2.b of the CDPHE SLID Policy.

#### SUMMARY

The efforts involved in the five methods of investigation described above are summarized below in Table 21 for 2025.

**TABLE 21. NUMBER OF INVESTIGATIONS PERFORMED TO DETERMINE THE MATERIAL OF THE SERVICE LINE (JAN. 1 AND JUNE 30, 2025)**

|   | Count        |
|---|--------------|
| Number of Potholing Investigations  | 2,325        |
| Number of Interior Inspections  | 1,152        |
| Number of Water Quality Samples   | 1,165        |
| Number of Desktop Investigations  | 141          |
| Number of Predictive Model Investigations                                       | 4            |
| <b>Total Number of Investigations Completed in the First Six Months of 2025</b> | <b>4,787</b> |
| <b>Number of Investigations Not Previously Reported<sup>1</sup></b>             | <b>353</b>   |

<sup>1</sup>Includes 32 pothole investigations, 32 interior inspections, 289 water quality investigations, no predictive model investigations and zero desktop evaluations that were not included in the annual report.

Table 22 calculates the unknown service lines investigated for 2025 and the cumulative annual average percent since program inception. Per the 2022 Variance, Denver Water must investigate a cumulative annual average of 1.4% of all unknowns (likely and unlikely LSLs) based on the September 2019 baseline lead service line inventory.

**TABLE 22. YEAR OVER YEAR COMPARISON OF UNKNOWN SERVICE LINES INVESTIGATED**

|  | 2020  | 2021  | 2022   | 2023   | 2024    | 2025             |
|--|-------|-------|--------|--------|---------|------------------|
| <b>Annual Unknown Service Lines Investigated</b>   |       |       |        |        |         |                  |
| <b>Annual Regulatory Target</b>  | 1,169 | 1,169 | 1,169  | 2,420  | 2,420   | 2,420            |
| <b>Total Number of Unknown Service Lines Investigated</b>  | 3,326 | 4,562 | 4,918  | 71,776 | 17,962  | 2,085            |
| <b>Number of Service Lines Investigations Reported after Submission of the Annual Report<sup>1</sup></b> | 2,034 | 0     | - 825  | 0      | 198     | 350              |
| <b>Cumulative Unknown Service Lines Investigated</b>   |       |       |        |        |         |                  |
| <b>Cumulative Unknown Service Lines Investigated<sup>2</sup></b>   | 5,360 | 9,922 | 14,015 | 85,791 | 103,753 | TBD <sup>4</sup> |
| <b>Cumulative Annual Average of Unknown Service Lines Investigated</b>                                   | 5,360 | 4,961 | 4,672  | 21,448 | 20,751  | TBD <sup>4</sup> |
| <b>Cumulative Annual Average Percent of Unknown Service Lines Investigated<sup>3</sup></b>               | 3.1%  | 2.9%  | 2.7%   | 12.4%  | 12.0%   | TBD <sup>4</sup> |

<sup>1</sup> Investigations not previously reported occurred at properties confirmed after the data cut-off used to prepare the annual reports. Includes properties removed from the investigation counts due to replacements occurring later in the same program year.

<sup>2</sup> This number represents the distinct number of service lines investigated since program inception. If a property was counted in a previous year for one type of investigation and then in the current year as another type of investigation, it would only be counted once in the cumulative unknown service lines investigated.

<sup>3</sup> Per the 2022 Variance, Denver Water must investigate a cumulative annual average of 1.4% of all unlikely and likely LSLs (unknowns) from the September 2019 inventory (172,868).

<sup>4</sup> To be calculated in the 2025 Annual Report.

### Updated LSL Inventory Map [7.B.ii.c]

On March 5, 2020, the LSL Inventory was made publicly available on the Denver Water Lead Reduction Program [website](#).

On July 2, 2025, the publicly available map was updated and reposted, incorporating the June 30, 2025, LSL Inventory. An updated inventory summary table is provided with each semi-annual report.<sup>31</sup> The website map is updated quarterly to reflect changes to the LSL Inventory and will be updated and re-posted in the fall.

### Summary of Changes to the LSL Inventory [7.B.ii.d]

Between Jan. 1 and June 30, 2025, updates to the LSL Inventory continued as additional data were gathered and reviewed. During this period, 7,543 changes were made to the LSL Inventory of which 6,015 were changes to the status of the service line (i.e., p-value).<sup>32</sup> This

<sup>31</sup> See Appendix INV-1 Summary of Service Line Status and p-Value (First Six-Month Period of 2025).

<sup>32</sup> See Appendix INV-2B Line by Line p-Value Changes by Status (First Six-Month Period of 2025).

included: changes based on confirmation from Denver Water, customers and distributors; review of historical data; direct evidence such as water quality and/or potholing; and replacements. In addition to material status changes, 123 service lines were removed from the inventory as tap cuts or non-potable service connections. Service lines previously deemed inactive were added back to the inventory upon review of the data, affecting 32 properties in this reporting period. An additional 14 service lines were added to the inventory from new construction and development.<sup>33</sup> These changes are accounted for in Table 14.

#### LCRR INVENTORY SUBMITTAL

The State of Colorado required an initial lead service line inventory to be submitted by Oct. 16, 2024, with all properties classified as unlikely LSL and likely LSL to be classified as unknown. To prepare for this submittal and reduce the number of unknowns in the lead service line inventory, Denver Water conducted over 90,000 investigations in 2023 and the first half of 2024, equating to 78,459 distinct service lines investigated. The initial lead service line inventory under the LCRR was submitted to the regulators prior to the Oct. 16, 2024, deadline. Denver Water continued to conduct investigations on 11,629 distinct service lines to refine the inventory in 2025 and submitted a supplemental inventory on Feb. 21, 2025.

Denver Water has investigated about 61% of the unknown service lines from the baseline inventory submitted in 2019. Under the LCRI, Denver Water will continue to focus on identifying service line materials to further refine the lead service line inventory and remove properties from the unknown category.

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<sup>33</sup> See Appendix INV-2B Line by Line p-Value Changes by Status (First Six-Month Period of 2025).

## 7.B.iii LSL Replacements

Section 7.B.iii of the 2022 Variance requires that Denver Water report and maintain records of LSL replacements, including the following:

*iii. LSL Replacements.*

- a. the address and date of all LSL replacements occurring during the variance, including by year;*
- b. the type of LSL replacement (as outlined in paragraph 4.B);*
- c. the unique customer identification number of Customer Premises on the refusal list and documented attempts to contact the property owner; and*
- d. those Customer Premises where Denver Water performed a partial LSL replacement and property owner consent could not be obtained.*

*Text is taken verbatim from the 2022 Variance, dated Nov. 30, 2022.*

Replacements under the ALSLR Program started on March 5, 2020, and results from Jan. 1 to June 30, 2025, are described in this section. An overview of the LSL replacement requirements is shown in Table 23.

**TABLE 23. OVERVIEW OF 7.B.III REQUIREMENTS**

| Paragraph Reference | Description  | Refer to  |
|---------------------|--|---|
| 4.E                 | Offer post-LSL replacement sampling within six months.   | Ongoing.  |
| 7.B.iii.a           | Address and date of all replacements.  | See Appendix. <sup>1</sup>  |
| 7.B.iii.b           | Type of replacement.   | See Table 24 and Appendix. <sup>2</sup>   |
| 7.B.iii.c<br>4.H    | Refusal list with service point ID and documented attempts for customer contact.<br>Track changes in customer account holders against Service Line Refusal List.                                       | See Appendix. <sup>3</sup>  |
| LRPP III.D (p 62)   | Provide education and filters to residents of multi-family properties on the Service Line Refusal List.  | Not applicable for this reporting period. <sup>4</sup>                            |
| 7.B.iii.d           | Number of properties where a partial replacement was performed, and consent was not granted by the property owner to replace a lead service line in full.  | See Table 24 and Appendix. <sup>3</sup>   |
| LRPP III.D (p 57)   | Replace LSL at properties with consistently high lead release and critical customers.  | Described in this section.  |
| LRPP III.D (p 58)   | Complete approximately 2,000 investigations per year in the first five years of the Lead Reduction Program to update the predictive model and improve the quality of information in the LSL Inventory. | See Table 21.   |
| LRPP III.D (p 60)   | Property owners will be reminded via English and Spanish signage placed at the limits (ends of streets) within geographic work areas four to five weeks in advance of construction.                    | Implemented July 20, 2020.  |
| LRPP III.D (p 60)   | Provide flushing instructions following LSL replacement.   | Provided to all customers in post-LSL replacement education package. <sup>5</sup> |

<sup>1</sup> See Appendix LSL-1 Addresses and Types of Replacement (First Six-Month Period of 2025).

<sup>2</sup> See Appendix LSL-2 LSL Replacement Refusal List (First Six-Month Period of 2025).

<sup>3</sup> See Appendix LSL-3 Properties with a Partial Replacement (Cumulative since Program Inception).

<sup>4</sup> There were 11 multi-unit properties added to the Refusal List in 2025. These customers are in the Filter Program, receive mailed educational materials (both with the replacement filters and via the annual filter reminder postcard), and will receive sampling kits in late 2025.

<sup>5</sup> See Appendix COE-21 Updated Post-Replacement Flushing Instructions from the 2022 Annual Report.

Figure 7 below shows lead service line replacements year-to-date (Jan. 1, 2025, through June 30, 2025) as well as program-to-date (Jan. 1, 2020, through June 30, 2025). The dashboard also details the consent form responses received during this reporting period. Further details on lead service line replacements and consent form responses for this reporting period are available within this section of the report.

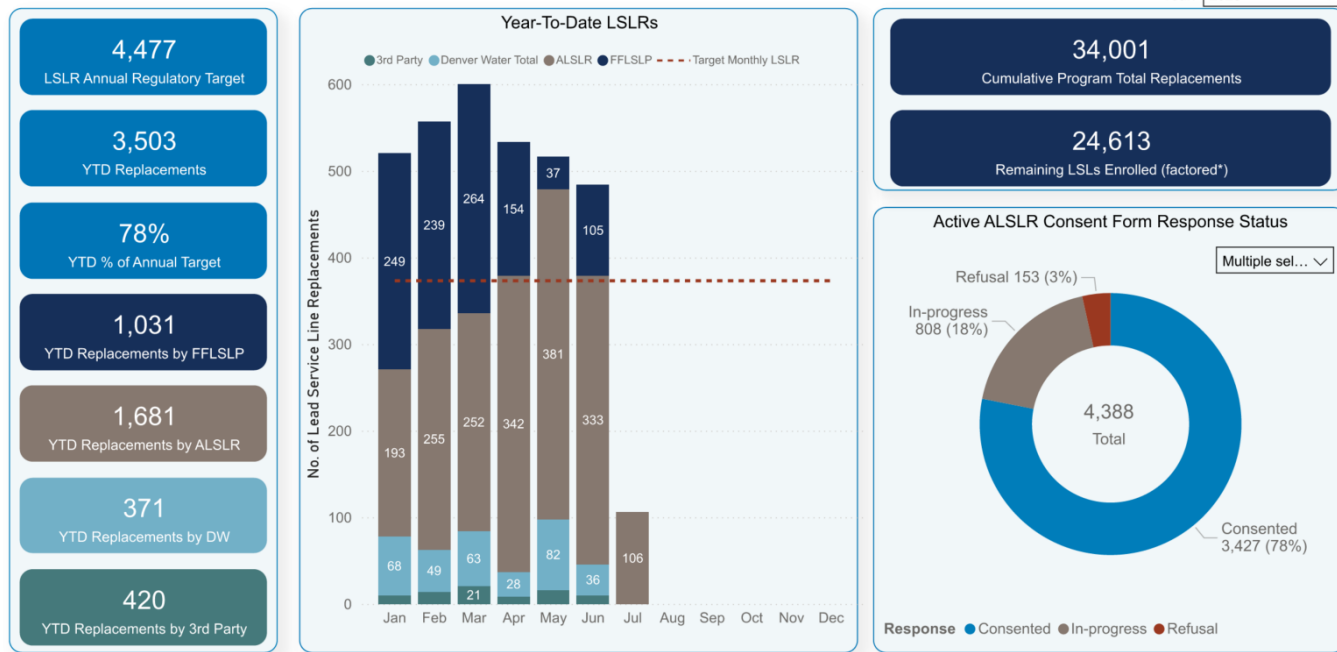
**LEAD REDUCTION PROGRAM**

Report Period 1/1/2020 to 6/30/2025

**ALSLR**



Year: 2025



**FIGURE 7. LEAD SERVICE LINE REPLACEMENT DASHBOARD**

**Summary of LSL Replacement Activity during the Reporting Period including Address and Date of Replacement [7.B.iii.a]**

Denver Water crews started LSL replacements in the sixth program year on Jan. 1, 2025. ALSLR contractors started on Jan. 6, 2025, and federal contractors started on Jan. 2, 2025. The ALSLR and federal contractors focused primarily on geographic task order work areas, with newly consented properties from adjacent task orders from previous program years. Newly consented properties include properties that had an ownership change that resulted in the new owner providing consent, or properties that were either a refusal or previously non-responsive that recently consented. A total of 14 geographic task orders, each with approximately 300 to 450 properties, were developed and issued to three ALSLR contractors. A total of 11 work areas, each with approximately 300 to 400 properties, were developed and issued to three federal contractors. A list of addresses and dates for each replacement can be found in the appendices.<sup>34</sup>

Denver Water crews completed LSL replacements as part of water main replacement work and emergency repairs and assisted with geographic area LSL replacements. Denver Water crews continue to target critical customers at schools, daycare centers, and childcare facilities within the City and County of Denver to confirm the status of the service line and replace lead where found. The properties originally included in previous ALSLR Plans that required additional follow-up to make three reasonable attempts at contact were included in the 2025 ALSLR Plan. Any daycare or childcare facility added to CDPHE’s licensed childcare facility dataset since 2020

<sup>34</sup> See Appendix LSL-1 Addresses and Types of Replacement (First Six-Month Period of 2025).

was added to the 2025 ALSLR Plan. At the start of the year, the critical customer list included 790 properties verified as critical customers within the City and County of Denver.<sup>35</sup> Most of these were properties from previous ALSLR Plans with a small number of newly identified critical customers for the 2025 ALSLR Plan. Since the start of the year, 37 properties were removed from the critical customer list upon confirmation of a non-LSL via investigation and two LSLs were replaced in the 2025 ALSLR Plan. At the end of this reporting period, 15 critical customers remain with either likely or confirmed LSLs. For these remaining properties, all contact attempts have not resulted in a response or the property is slated for future activities. Investigations of service line materials and replacement (as needed) will be completed as consent is received.

As part of the Elevated Lead Response Plan, Denver Water crews perform prioritized individual replacements at properties where lead is measured above 150 µg/L and at properties where lead is measured above 25 µg/L, the properties shall be prioritized as they are added to task orders as part of the 2025 or future ALSLR Plan.

#### Type of LSL Replacements Completed during this Reporting Period [7.B.iii.b]

Section 4.A of the Variance provides that “[e]ach Program Year, Denver Water shall achieve a minimum replacement rate of at least 7.0% of the estimated number of LSLs and GRRs in its distribution system based on a cumulative average.” The overall intention of this requirement is to ensure that all LSLs are replaced within 15 years following the effective date of the Dec. 16, 2019, Variance.

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<sup>35</sup> This number includes all critical customers within the service area, regardless of p-value.

**TABLE 24. TYPE OF LSL REPLACEMENTS (JAN. 1 TO JUNE 30, 2025)**

| Type of LSL Replacement<br>Jan. 1 to June 30, 2025 <sup>1</sup>  | Denver Water<br>(Watermain,<br>Emergency,<br>and ALSLR) <sup>2</sup> | Third Party<br>(Developer,<br>Homeowner,<br>and Other) <sup>3</sup> | Total         |
|--|--|---|---------------|
| <b>Full Lead Replacement<sup>4</sup></b>   | 1,806  | 80  | 1,886         |
| <b>Partial Lead Replacement, such that no Lead Remains After Replacement<sup>5</sup></b>   | 936  | 0   | 936           |
| <b>Full Galvanized Replacement</b>   | 16   | 0   | 16            |
| <b>Partial Galvanized, such that no Lead or Galvanized Remains After Replacement<sup>6</sup></b>                                 | 277  | 0   | 277           |
| <b>TOTAL REPLACEMENTS Not Previously Reported<sup>7</sup></b>  | 50   | 338   | 388           |
| <b>TOTAL REPLACEMENTS in Reporting Period, with no Lead Remaining After Replacement</b>  | <b>3,083</b>   | <b>420</b>  | <b>3,503</b>  |
| <b>TOTAL REPLACEMENTS completed since LRP Inception</b>  | <b>32,208</b>  | <b>1,793</b>  | <b>34,001</b> |
| <b>Emergency Repair, Partial Replacement (i.e., where consent was NOT granted and lead may remain in the ground)<sup>8</sup></b> | 137  | 2   | 139           |

<sup>1</sup> Properties that had a replacement on or before June 30, 2025, may not have been captured in the database for this report due to the time necessary to QA the data following the replacement date. Replacements affected by this time lag will be reported in the Annual Report for 2025.

<sup>2</sup> Includes LSL replacements completed as part of water main projects, emergency repairs, scheduled repairs, and ALSLR and federal individual and geographic replacements completed by Denver Water or its contractors.

<sup>3</sup> Includes LSL replacements completed by developers, property owners and other government agencies as identified in Appendix LSL-1 (Addresses and Types of Replacement (First Six-Month Period of 2025)).

<sup>4</sup> Includes replacements of service lines described as lead-lead, lead-galvanized, lead-unknown and galvanized-unknown. This also includes service lines designated as either unknown-unknown or copper-copper with p-value  $\geq 0.5$  at properties where a service line replacement was completed by someone other than the ALSLR contractors (such as third party).

<sup>5</sup> Includes replacements of service lines described as lead-copper, lead-PEX, lead-PVC and copper-unknown. If verification reveals copper at three or more locations, the service line is counted as replaced if the p-value is  $\geq 0.5$ . See Appendix LSL-1 (Addresses and Types of Replacement (First Six-Month Period of 2025)).

<sup>6</sup> Includes replacements of service lines described as copper-galvanized, galvanized-copper, and galvanized-PEX.

<sup>7</sup> This includes replacements completed since Program inception but not previously reported (388 added); see Appendix LSL-4 (Addresses and Types of Replacements for Properties Not Previously Counted and Duplicates (Since Program Inception)).

<sup>8</sup> Includes all properties cumulative since program inception; see Appendix LSL-3 (Properties with a Partial Replacement (Cumulative since Program Inception)).

### Customer Consent and Refusal List for LSL Replacement [7.B.iii.c]

Per Section 7.B.iii.c of the 2022 Variance, Denver Water must provide “the unique customer identification number of Customer Premises on the refusal list and documented attempts to contact the property owner.” Distribution of notification letters, including consent forms, was initiated in October 2024, to property owners included in the 2025 ALSLR Plan. Notifications then are mailed to all properties identified in the geographic work areas of the 2025 ALSLR Plan, after which multiple contacts are made to obtain signed consent forms.<sup>36</sup> Reconnaissance or pre-construction meetings are conducted with each property owner to plan the LSL replacement work and schedule the replacement. The lead service line replacement

<sup>36</sup> See Appendix LSL-2 LSL Replacement Refusal List (First Six-Month Period of 2025).

consent form was updated in 2024 to allow for tenant signature and removed the option for refusal to maximize the likelihood of obtaining consent.

A summary of the number of property owners contacted and number of signed consent forms returned is presented in Table 25. Between Jan. 1 and June 30, 2025, a total of 153 property owners refused to participate in the ALSLR Program or were non-responsive following multiple attempts at contact. At least three attempts to obtain voluntary consent from a property owner are undertaken before work can start to replace the LSL.

**TABLE 25. SUMMARY OF CONSENT AND LSL REFUSAL LIST (JAN. 1 TO JUNE 30, 2025)**

| Description  | Customer Consented <sup>1</sup> | Customer Refused <sup>2</sup> |
|--|---------------------------------|-------------------------------|
| <b>Total Number of Properties for which Consent was Given or Refused during the First Six Months of 2025</b> | 3,427                           | 153                           |

<sup>1</sup> The total number of signed consent forms represent the ALSLR contractors and Denver Water crew work. A revised procedure to track all Denver Water crew consents was implemented in 2023.

<sup>2</sup> The total number of refusals year-to-date includes attempts made by the ALSLR contractors (68 properties), federal contractors (84 properties) and Denver Water crew efforts (one property). These include properties with descriptions of “consent not granted due to refusal” (15 properties) and “non-responsive” after at least three attempts were made and the task order goes through administrative close out (138 properties). When a customer refuses or is non-responsive, the service point ID is provided to the COE team for follow-up. See explanations in Appendix LSL-2 LSL Replacement Refusal List (First Six-Month Period of 2025).

A range of outreach methods is used to contact property owners.<sup>37</sup> Denver Water sends at least two attempts at contact by mail plus one attempt at contact using a different method, such as email, phone calls or door-to-door canvassing. A property is described as pending while the task order for the affected work order remains open (i.e., there is ongoing construction activity). A property is considered non-responsive and added to the Refusal List as task orders for a work area are closed out (i.e., the construction crew demobilizes). This process is part of administrative closeout of the task order. Non-responsive properties, in addition to the two mailers and one door-to-door canvas, will receive two to three more door-to-door attempts as well as an email and/or phone call for additional outreach attempts.

While the ALSLR contractors are in an area with active construction activity, additional attempts, such as door-knocking, phone calls and emails, may be made to contact the property owner to seek consent. If an owner refuses to participate in the ALSLR Program, the property is added to the LSL Replacement Refusal List, along with an explanation for refusal, if available. If a property owner declines due to a previous undocumented service line replacement, additional information may be requested from the owner to document a past replacement to support the removal of the property from the LRP.

When a property owner declines to participate, Denver Water is committed to continuing engagement with the property owner to encourage participation. A database is maintained to track attempted contacts at properties where consent to replace the LSL has not been

<sup>37</sup> See Appendix COE-12 2025 COE Plan included with the Annual Report for 2024.

provided.<sup>38</sup> An outreach approach was identified for customers with properties on previous Refusal Lists who have not had an ownership change and therefore have not been contacted through the ownership change follow-up process. Denver Water conducts investigative potholes at properties from previous years' Refusal Lists within or adjacent to identified 2025 task orders, provided there is no conflict, no street moratoriums or the property is already identified as lead as part of 2025 task orders. At non-responsive properties, Denver Water conducts a four-point investigation (two potholes main-to-meter and two potholes meter-to-building), and, at refusal properties, Denver Water conducts two main-to-meter potholes where possible to identify the service line material. Previous refusals that could be identified as non-lead under a four-point investigation were removed from the inventory. Denver Water will continue outreach to previous refusals where lead was found to gain consent and perform a replacement despite previous contact attempts and refusal. Additionally, any change to the property ownership triggers additional outreach to obtain consent to replace the LSL. Between Jan. 1 and June 30, 2025, one changes in ownership occurred at properties on the Refusal List. Follow-up is underway to gain consent for replacement from the new owner within a year of the change of ownership.<sup>39</sup>

There are circumstances where consent has been given, but an inspection of the property reveals a safety or security hazard that prevents the LSL replacement from being performed. The property owner is informed, both verbally and in writing, that the hazard must be addressed within 14 days of receiving the notification. If the problem is not fixed within that timeframe, the property is treated as not responsive and is added to the list of non-responsive properties until the issue is resolved and the LSL can be replaced.<sup>40</sup>

#### [Emergency Repairs Resulting in a Partial LSL Replacement \[7.B.iii.d\]](#)

During this reporting period, 24 partial replacements occurred as a result of emergency repair, water main replacement or third-party contractor work (i.e., some lead may remain in the ground). This affected a total of 139 properties since program inception in January 2020 as a result of:<sup>41</sup>

- No consent or no available contact information for the property owner and therefore consent could not be obtained at the time of the work (this affected two properties).
- The property owner declined replacement at the time of the work (this affected 33 properties).
- No consent to perform the full replacement due to no response from the property owner (this affected 84 properties).

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<sup>38</sup> See Appendix LSL-2 LSL Replacement Refusal List (First Six Months of 2025).

<sup>39</sup> See Appendix LSL-5 Ownership Changes for Properties on the Refusal List (First Six-Month Period of 2025).

<sup>40</sup> See Appendix COE-D.12 Safety or Repairs Needed Notification Letter of Second Quarter Report (2020).

<sup>41</sup> See Appendix LSL-3 Properties with a Partial Replacement (Cumulative since Program Inception).

- Restricted access due to the interior plumbing arrangement or unsafe working conditions (this affected 12 properties).
- Property redevelopment (this affected two properties).
- To be rescheduled because property owner was not comfortable with replacement during COVID-19 (this affected one property).
- A segment of the service line was replaced. The other half of the service line is believed to have been previously replaced due to customer records but pending documentation and approval (this affected one property).
- Meter to main replaced, meter to building potholing and/or replacement scheduled for a later date (this affected four properties).

Attempts to obtain consent to complete the replacement in full were made and outreach with the property owner continues for acquiring consent or to address any safety issues that currently bar entry to the property.

## 7.B.iv Filters

Section 7.B.iv of the 2022 Variance requires Denver Water report and maintain records related to its filter distribution program. Specifically, Section 7.B.iv requires reporting and recordkeeping of the following:

*iv. Filters.*

- a. summary of addresses of Customer Premises where filters and replacement cartridges have been provided, and certification of the number of homeowners with confirmed or likely LSLs that are not part of filter program because they use their own filter or bottled water. Detailed records must be retained by Denver Water and provided to EPA or CDPHE upon request;*
- b. the total number of filters and replacement cartridges distributed per Program Year;*
- c. the percent filter adoption for each year of the variance<sup>42</sup>, and the method used to determine this rate;*
- d. a list of unique customer identification numbers reporting the use of bottled water or a filter certified NSF/ANSI (53) for removal of lead, and any changes in the list;*
- e. a list of unique customers identification numbers for customers enrolled in the filter program who have refused a filter or replacement cartridges or have opted out of enrollment in the filter program;*
- f. filter lead sampling results collected under paragraph 5.F above;*
- g. information about filter use under paragraph 5.E; and*
- h. Denver Water shall notify CDPHE and EPA within 30 Days if data indicate lead levels are about 5 ppb in filtered drinking water and shall provide the measured levels of lead in filtered water. All other levels shall be reported in the semi-annual and yearly reports.*

*Text is taken verbatim from the 2022 Variance, dated Nov. 30, 2022.*

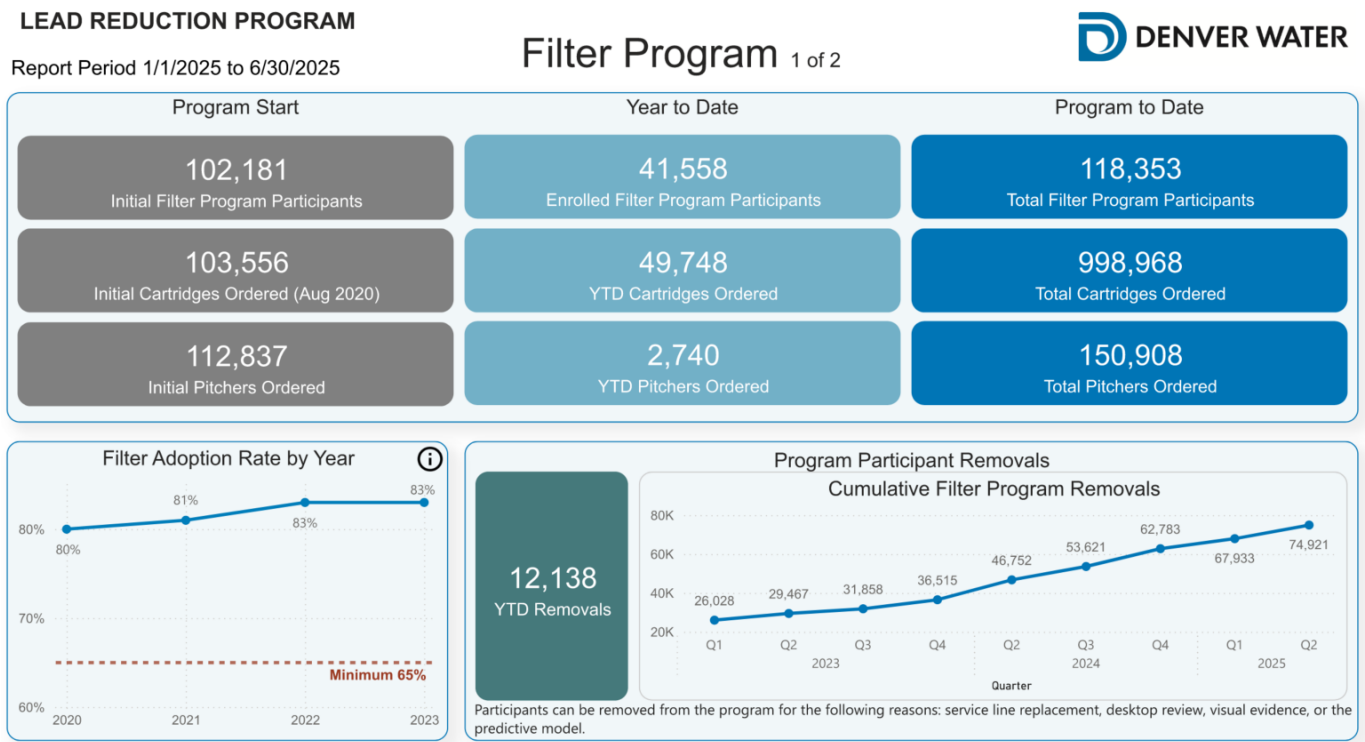
Denver Water provides pitcher filters and filter cartridges to all customers within the service area that have the potential for a lead service line. Every six months, per the manufacturer's recommendations, customers receive filter cartridge replacements. The initial pitcher filter distribution was launched in 2020, and any customers that are added to the program are promptly sent a filter pitcher and cartridge. Customers can request a pitcher or cartridge replacement, read about the Filter Program and watch a video on proper filter usage through Denver Water's filter webpage.

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<sup>42</sup> The 2022 Variance requires a filter adoption survey every other year, rather than every year, as previously required in the 2019 Variance. As stated in the LRPP technical amendment, Denver Water will use the adoption rate of the previous year's survey on non-survey years for the purposes of the equivalency model.

The Filter Program includes the distribution of pitcher filters, ongoing outreach and education to encourage pitcher filter use and the distribution of filter cartridge replacements. The Filter Program targets properties with confirmed and unknown likely LSLs (i.e., with p-values 0.5 and higher). Using the current LSL Inventory from Table 14, it is estimated that Filter Program participants consist of approximately 41,558 Denver Water household units.

Figure 8 features the Filter Program dashboard that helps capture day-to-day tracking of the filter program. The dashboard tracks Filter Program participants, pitcher deliveries and cartridge deliveries since the initial pitcher distribution in 2020 as well as year-to-date and program-to-date information. The dashboard also shows the filter adoption rate from every year of the program (2020 through 2023 only, as a formal filter survey will be sent in the latter half of 2025 under the updated Variance) and Filter Program participant removals.<sup>43</sup> Filter Program participants are removed either for a service line replacement or an investigation that identifies the service line as confirmed non-lead. Further details on the Filter Program are described throughout this section.



**FIGURE 8. FILTER PROGRAM (1 OF 2) DASHBOARD**

Figure 9 below shows the year-over-year Filter Program refusals, occupancy changes, and opt-outs, as well as the number of pitchers and every quarter since program inception. Additional details on the refusals and opt-outs are described in Section 5.C, 7.B.iv.a, and 7.B.iv.e of this report.

<sup>43</sup> Per the Variance, the formal filter adoption survey is to be sent every other year, beginning in 2023. Therefore, a formal filter adoption survey will be sent in the latter half of 2025.

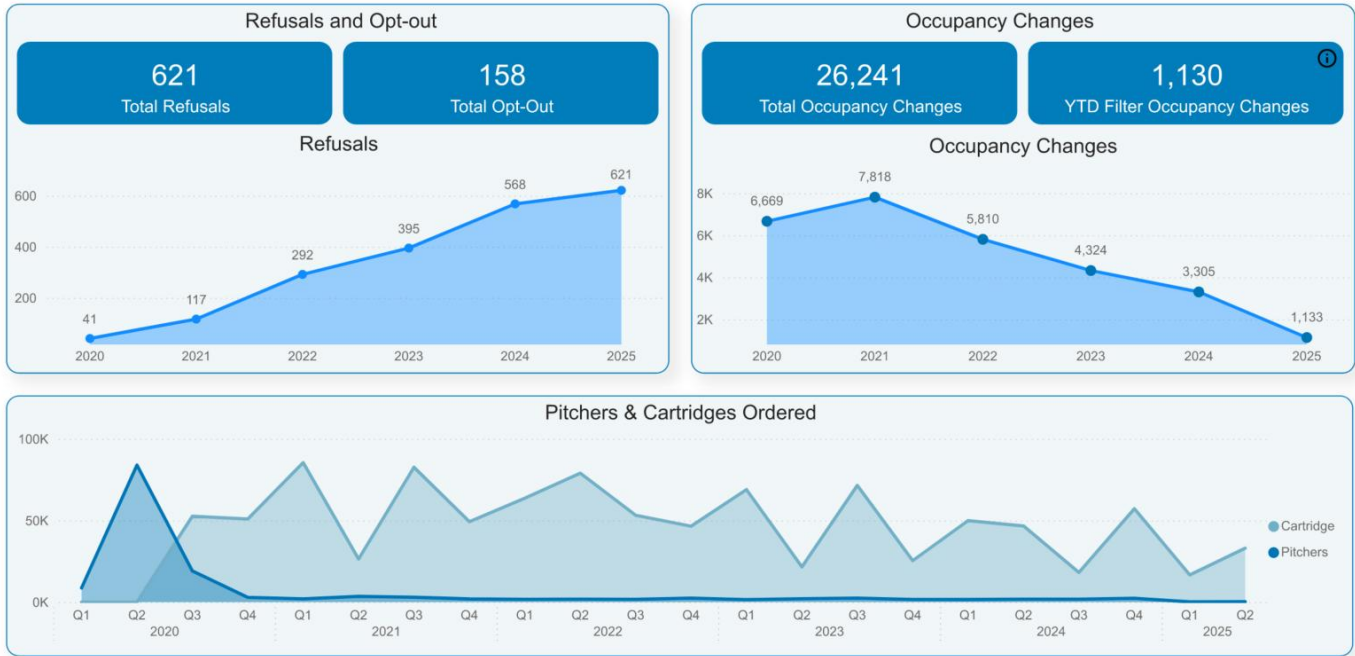


FIGURE 9. FILTER PROGRAM (2 OF 2) DASHBOARD

This section summarizes the milestones of the Filter Program to-date, including filter refusals/opt-outs, six-month supply of replacement filters distributed post-LSL replacement, filter survey results from the ALSLR Program and filter performance testing in the field. An overview of the filter reporting requirements is shown in Table 26.

TABLE 26. OVERVIEW OF 7.B.IV REQUIREMENTS

| Paragraph Reference            | Description  | Refer to   |
|--------------------------------|--|--|
| 7.B.iv.a                       | Summary of addresses of all customers enrolled in the Filter Program and provided with filters and cartridges. Certification of number of customers with a confirmed or likely LSL that use their own filter or bottled water. | See Table 27.  |
| 7.B.iv.b                       | Total number of filters and cartridges distributed per year.   | See Table 27.  |
| 7.B.iv.c                       | Percent filter adoption rate during a survey year. <sup>1</sup> Description of method to determine the filter adoption rate.   | See the 2023 Annual Report.  |
| 7.B.iv.d                       | Maintain list of addresses and Service Point Identification that use a filter or bottled water and any changes to the list.  | See Appendix. <sup>2</sup>   |
| 7.B.iv.e<br>5.A                | Maintain Filter Refusal or Opt-Out List. Maintain list of addresses and SP IDs that have refused enrollment in the Filter Program or opted out.  | See Appendix. <sup>3</sup>   |
| 7.B.iv.f<br>7.B.iv.g<br>5.F.ii | Confirmation of filter performance in the field (50+ locations included in the LCR compliance sampling). Collect samples using a protocol approved by EPA and CDPHE.   | See Appendix for sample results from Feb. 10 to April 22, 2025. <sup>4</sup> Protocol for filter sample collection approved July 17, 2020, by EPA. |

| Paragraph Reference                                  | Description   | Refer to  |
|--|---|---|
|  | Collect additional information regarding the use and operation of the filter.   | Included in this section.   |
| <b>7.B.iv.h</b>                                      | Notify CDPHE and EPA within 30 days of receiving sample results indicating measurable lead in filtered samples.   | See Appendix. <sup>4</sup>  |
| <b>5.B</b>   | Distribute replacement cartridges to customers enrolled in the Filter Program per the filter manufacturers' recommended replacement rate and until six months after LSL replacement.  | See this section.<br>Distribution as part of Filter Program since March 24, 2020. |
| <b>5.C</b>   | Provide education materials within 30 days of a change in customer account.<br>Provide filters and replacement cartridges within 35 days of a change in customer account.   | Information provided upon request   |
| <b>5.D</b>   | Offer filters to 1983 to 1987 households with a child up to 24 months of age and lead > 3 µg/L in the first bottle of the three-bottle test.<br>Develop COE plan to focus on this audience.   | See this section and results in section 7.B.i CCT.<br>See 2025 COE Plan.          |
| <b>5.E.i</b>   | Survey enough customers enrolled in the Filter Program to receive a minimum of responses from remaining program participants that is consistent with a 95% confidence level and 3% margin of error.<br>Seek approval from CDPHE and EPA for the filter adoption survey questions prior to distribution. | See 2023 Annual Report.<br>Approved on Sept. 10, 2020. <sup>5</sup>               |
| <b>5.G</b>   | Document contact to provide lead outreach and education materials to at least 95% of customers enrolled in the Filter Program each year.  | Postcards will be sent in the second half of 2025.                                |
| <b>LRPP Executive Summary (p 9) and III.C (p 56)</b> | If the localized filter adoption rate is less than 65%, additional outreach and education will be provided to that area.  | Not applicable for this reporting period.   |
| <b>LRPP III.C (p 55)</b>                             | Survey filter use as part of ALSLR Program following LSL replacement.   | See this section and Appendix. <sup>6</sup>                                       |

<sup>1</sup> The 2022 Variance requires a filter adoption survey every other year (starting in 2023), rather than every year, as previously required in the 2019 Variance. As stated in the LRPP technical amendment, Denver Water will use the adoption rate of the previous year's survey on non-survey years for the purposes of the equivalency model.

<sup>2</sup> See Appendix FIL-1 Filter Program Opt-Outs (First Six-Month Period of 2025).

<sup>3</sup> See Appendix FIL-2 Filter Program Refusals (First Six-Month Period of 2025).

<sup>4</sup> See Appendix FIL-3 Confirmation of Filter Performance in Field Results (First Six-Month Period of 2025).

<sup>5</sup> See Third Quarter Report of 2020 (Appendix FIL-29 OMB Approved Filter Adoption Survey Questions).

<sup>6</sup> See Appendix FIL-4 Informal Filter Adoption Survey Results Summary (First Six-Month Period of 2025).

### Initial Filter Distribution to All Customers Enrolled in the Filter Program [7.B.iv.a]

Per Section 7.B.iv.a of the 2022 Variance, Denver Water must provide a “summary of addresses of Customer Premises where filters and replacement cartridges have been provided, and certification of the number of homeowners with confirmed or likely LSLs that are not part of the filter program because they use their own filter or bottled water. Detailed records must be retained by Denver Water and provided to EPA or CDPHE upon request.” Denver Water began filter distribution on Feb. 12, 2020, with distribution to customers included in the ALSLR Program in 2020 (Year 1). Denver Water initiated broader filter distribution on March 28, 2020, to all customers enrolled in the Filter Program. Initial filter distribution was completed on Sept. 21, 2020.

Pitcher filter distribution continues for occupancy changes and customer-requested replacements for broken or missing pitcher filters, as shown in Table 27 for pitcher filter distribution.

**TABLE 27. SUMMARY OF FILTER DISTRIBUTION (JAN. 1 TO JUNE 30, 2025)**

| Description   | Count | Comment                    |
|---|-------|----------------------------|
| <b>Initial Pitcher Distribution for Customers Enrolled in 2025</b>  | 2,000 |                            |
| <b>Total Number of Households Provided with a Filter Kit between Jan. 1 and June 30, 2025</b>                         | 2,498 |                            |
| <b>Number of Households that Use their own NSF-Certified Filter or Bottled Water between Jan. 1 and June 30, 2025</b> | 5     | See Appendix. <sup>1</sup> |
| <b>Number of Households that Declined to Use a Filter or Bottled Water between Jan. 1 and June 30, 2025</b>           | 53    | See Appendix. <sup>2</sup> |

<sup>1</sup> See Appendix FIL-1 Filter Program Opt-Outs (First Six-Month Period of 2025).

<sup>2</sup> See Appendix FIL-2 Filter Program Refusals (First Six-Month Period of 2025).

The count for initial distribution of pitcher filters in Table 27 includes new customers enrolled in the Filter Program, customers that were previously enrolled in the Filter Program but that failed to receive their initial pitcher filter, and customers added to the Filter Program due to a change in occupancy. Customers receiving an initial pitcher filter in 2025 represent roughly 5% of the current 41,558 customers enrolled in the Filter Program. Circumstances where customers did not receive their initial pitcher filter arose for a variety of shipping reasons, usually due to a missing or erroneous address.

An analysis of return-to-sender addresses was performed in 2020 and described in the Third Quarterly Report for 2020. A more stringent evaluation was conducted in the third quarter of 2024 utilizing aerial photography, street level imagery, and metered consumption data to validate the property address and inclusion in the LRP. Upon reconciliation, a filter kit was re-sent to the correct address or if determined to be a vacant lot or premise, the property was removed from the LRP. This evaluation has been conducted on all return-to-sender addresses identified since September 2024 and will continue to be used in the future. In the past six

months, 3,564 properties were reviewed. 185 of these properties were pitcher kit deliveries and 3,379 were replacement cartridge deliveries.

### Replacement Filter and Replacement Filter Cartridge Distribution to Customers Enrolled in the Filter Program [7.B.iv.b]

Per Section 7.B.iv.b of the 2022 Variance, Denver Water must report “the total number of filters and replacement cartridges distributed per Program Year.”

Between Jan. 1 and June 30, 2025, filter kits were distributed to an additional 2,000 customers enrolled in the Filter Program, bringing the total distribution amount for 2025 to 2,331.<sup>44</sup>

During this same period, 49,748 replacement filter cartridges were distributed to 45,636 addresses of customers enrolled in Filter Program in accordance with the manufacturer’s recommendation for replacement within six months. Following the improvements made in July 2021 to address late filter distribution, all properties enrolled in the Filter Program received replacement filter cartridges within the six-month replacement interval.<sup>45</sup> Of the 49,748 replacement filter cartridges distributed, 4,681 attempted replacement cartridge deliveries were unsuccessful and returned to sender. All addresses were reviewed as part of the return-to-sender evaluation. An unsuccessful delivery prompts an investigation, and, upon reconciliation, a replacement filter is re-sent to the correct address or if vacant, the property is removed from the LRP. A summary of distribution of post-LSL replacement filters is provided in Table 28.

**TABLE 28. SUMMARY OF SIX-MONTH SUPPLY POST-LSL REPLACEMENT FILTER DISTRIBUTION (JAN. 1 TO JUNE 30, 2025)**

| Description   | Count | Comment   |
|---|-------|---|
| <b>Number of Households Provided with Six-Month Supply of Filter Replacements Post Lead Service Line Replacement between Jan. 1 and June 30, 2025<sup>1,2</sup></b> | 4,685 | This includes emergency repairs and replacements performed by Denver Water and third parties. |

<sup>1</sup> This value may not match the number of lead service line replacements completed between Jan. 1 and June 30, 2025. For example, if a customer received their initial filter pitcher and replacement filters within two months of having their lead service line replaced, additional replacement filters are provided on the six-month replacement schedule and not as part of the lead service line replacement activities.

<sup>2</sup> This value includes filter distribution to properties where the lead service line replacement was completed by a third party, as identified in Table 24.

### Filter Distribution to Formula-fed Infants in Select Households [5.D]

Section 5.D of the 2022 Variance states, “Upon request, Denver Water will provide lead water quality sampling at no cost to any customer within its service area. If a child up to 24 months of age resides in a Select Household and the water quality results in the first draw sample show lead concentrations above 3 ppb, Denver Water must offer a filter and enough

<sup>44</sup> This number refers to the number of addresses that received a new filter based on occupancy changes, high-capacity, broken filters, lost filters, etc. This number also includes hand deliveries to customers. However, it does exclude any Return to Senders. The number of filters distributed to these properties totals 2,740.

<sup>45</sup> See the First Semi-Annual Report of 2021 for more details.

replacement filters and cartridges, at no cost, to the customer until the child exceeds the age of 24 months.”

No 1983 to 1987 households with children under 24 months of age requested enrollment in the Filter Program during the first six-month reporting period of 2025 (i.e., a select household as identified in paragraph 5.D of the 2022 Variance).<sup>46</sup>

### Formal Filter Adoption Survey [7.B.iv.c]

Under Section 5.E.i of the 2022 Variance, “Denver Water must conduct a survey in 2023 and every other program year of randomly selected customers enrolled in the Filter Program to receive a minimum of responses from remaining program participants that is consistent with a 95% confidence level and 3% margin of error. The survey must inquire whether the customer has used the filter for water to make infant formula (if applicable); cooking and drinking; or is using bottled water or a filter device that is certified NSF/ANSI (53) for lead removal not provided by Denver Water for infant formula, cooking and drinking.” Per Section 7.B.iv.c of the 2022 Variance, Denver Water must report “the percent filter adoption for each year of the variance, and the method used to determine this rate.”

Filters are used to reduce exposure to lead before the lead service line is replaced and for six months following LSL replacement. The rate of filter adoption by customers enrolled in the LRP is used as an input in the equivalency model.

Filter adoption assumes customers are accepting, installing, using and maintaining their pitcher filter properly, including replacing the filter cartridge at the appropriate time and using the pitcher filter for drinking, cooking and infant formula. The minimum filter adoption rate identified in the Lead Reduction Program Plan necessary to match the performance of the orthophosphate alternative is 65%.

The formal filter adoption survey will be conducted in the latter half of 2025 and results will be included in the 2025 Annual Report. The previous survey was conducted in 2023 and resulted in an 83% adoption rate. For additional details, refer to the [2023 Annual Report](#).

### Informal Filter Adoption Survey

Informal surveys of filter use are conducted during ALSLR pre-construction meetings and during virtual meetings asking customers about filter adoption and use. Responses from 2,591 participants were captured in the LRP database from the pre-construction meetings and 210 customers responded to questions in the informal filter adoption survey.<sup>47,48</sup>

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<sup>46</sup> See Appendix CCT-4 Summary of Water Quality Sampling Results from Select Households (1983 to 1987 Homes, Cumulative since Program Inception).

<sup>47</sup> See Appendix FIL-4 Informal Filter Adoption Survey Results Summary (First Six-Month Period of 2025).

<sup>48</sup> See Appendix FIL-5 Informal Filter Adoption Survey Detailed Responses (First Six-Month Period of 2025).

- Of those 210 customers, 200 indicated that they used filtered or bottled water for drinking (95%) and 198 customers indicated they use their filter for cooking (94%).
- 100% of households with a formula-fed infant indicated that they used filtered water when preparing formula. All six customers indicated they have an infant under 24 months who is formula fed and all six customers used filtered water.

Looking solely at customers who are leaving the filter program: Of the total 2,591 responses, 1,523 had service line replacements between Jan 1, 2025, and June 30, 2025. This accounts for 43% of all customers who had their LSLs replaced in 2025 (3,503 total line replacements) and suggests that most customers are using filtered or bottled water for drinking, cooking and infant formula during their time in the filter program:

- Of the 1,523 customers who had service line replacements, 83 customers responded to the informal filter adoption survey. 76 customers indicated that they used filtered or bottled water for drinking (92%) and 73 customers indicated they use their filter for cooking (88%).
- 100% of households with a formula-fed infant indicated that they used filtered water when preparing formula. One customer indicated they have an infant under 24 months who is formula fed and they used filtered water.

### Occupancy Changes [5.C]

Section 5.C of the 2022 Variance states “If a change in the customer name of the water account associated with a customer enrolled in the filter program occurs at any time, Denver Water must provide the new customer with educational materials as soon as possible but no later than 30 Days following the change in customer account. If the Customer Premise or a residential unit at the Customer Premise is enrolled in the filter program, Denver Water must distribute a new filter and replacement cartridges per manufacturers’ recommended replacement rate to the new customer within 35 Days of the change in customer account. Denver Water will also make filters available for pick-up at the customers’ election.”

Denver Water was notified of 1,130 occupancy changes which include both property owners and tenants between Jan. 1 and June 30, 2025. Of those occupancy changes, 1,112 property owners were alerted of these occupancy changes and received an introductory booklet.<sup>49</sup> Occupancy changes are tracked daily to provide multiple mailings per week to allow new occupants to receive their LRP Introductory Letter and LRP Overview Booklet within 14 days of the change in occupancy. Occupancy changes are added to weekly filter distribution batches to allow new occupants to receive a pitcher filter within 35 days of notice of new occupancy. Both

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<sup>49</sup> Property owners can have multiple occupancy changes within one week. Rather than sending multiple introductory booklets, one introduction booklet will be sent to the property owner. Multiple pitcher kit deliveries can be sent to a property to accommodate multi-units or multiple mailing addresses where only one introduction booklet is provided.

the introductory materials and the filters were distributed within 30 and 35 days respectively, at all properties where a change in occupancy occurred for this reporting period.

### Filter Opt-Out List of Customers using Bottled Water or an Alternate Filter [7.B.iv.d]

Per Section 7.B.iv.d of the 2022 Variance, Denver Water must report “a list of unique customer identification numbers reporting the use of bottled water or a filter certified NSF/ANSI (53) for removal of lead, and any changes in the list.”

The number of properties that chose to opt-out of the Filter Program to date is relatively small. Customers that opt-out of the Filter Program are contacted by Denver Water to understand the reason for opting out. Of the 158 customers that have opted out since the launch of the Filter Program, 43 use bottled water as an alternative to the filter and 32 use their own filter certified National Sanitation Foundation (NSF) 53 for lead removal. For the 83 remaining customers, Denver Water was unable to confirm if the customer was using an NSF 53-certified filter.<sup>50</sup> A summary of the Filter Program opt-outs is shown in Table 29. Contact with customers continues as part of an annual reminder to customers that have opted out or previously refused to participate in the Filter Program.<sup>51</sup>

**TABLE 29. SUMMARY OF FILTER PROGRAM OPT-OUTS**

| Program Year  | Total Opt-Outs | Number of Properties                                 |                               |   |
|---|----------------|--|-------------------------------|---|
|   |                | Confirmed Using Own Supplied NSF 53 Certified Filter | Confirmed Using Bottled Water | No Confirmation of NSF 53 Certified Filter or Bottled Water |
| 2020 (Jan. 1 to Dec. 31, 2020)                        | 66             | 9  | 8                             | 49  |
| 2021 (Jan. 1 to Dec. 31, 2021)                        | 45             | 6  | 5                             | 34  |
| 2022 (Jan. 1 to Dec. 31, 2022)                        | 18             | 9  | 9                             | 0   |
| 2023 (Jan. 1 to Dec. 31, 2023)                        | 10             | 4  | 6                             | 0   |
| 2024 (Jan. 1 to Dec. 31, 2024)                        | 14             | 2  | 12                            | 0   |
| 2025 (Jan. 1 to June 30, 2025)                        | 5              | 2  | 3                             | 0   |
| <b>Total Since LRP Inception</b>                      | 158            | 32   | 43                            | 83  |
| <b>Total Removed from LRP Since Program Inception</b> | 78             | 15   | 12                            | 51  |
| <b>Total Remaining in LRP</b>                         | 80             | 17   | 31                            | 32  |

<sup>50</sup> See Appendix FIL-1 Filter Program Opt-Outs (First Six-Month Period of 2025).

<sup>51</sup> The use of an NSF 53 certified filter could not be confirmed at some properties based on call center records.

## Filter Refusal List [7.B.iv.e]

Per Section 7.B.iv.e of the 2022 Variance, Denver Water must report “a list of unique customers identification numbers for customers enrolled in the filter program who have refused a filter or replacement cartridges or have opted out of enrollment in the filter program.”

From Jan. 1 to June 30, 2025, notice of refusal to participate in the Filter Program was received for 53 properties.<sup>52</sup> The reasons given for refusal included that the pitcher is too heavy to use or that the resident had a water quality test and is not concerned about the low level of lead in their water. This brings the total number of refusals to 621 since the inception of the LRP. A summary of the refusals to date is shown in Table 30.

**TABLE 30. SUMMARY OF FILTER REFUSAL LIST**

| Reporting Period                                      | Number of Properties Refusing to Participate |
|---|--|
| 2020 (Jan. 1 to Dec. 31, 2020)                        | 41   |
| 2021 (Jan. 1 to Dec. 31, 2021)                        | 76   |
| 2022 (Jan. 1 to Dec. 31, 2022)                        | 175  |
| 2023 (Jan. 1 to Dec. 31, 2023)                        | 103  |
| 2024 (Jan. 1 to Dec. 31, 2024)                        | 173  |
| 2025 (Jan. 1 to June 30, 2025)                        | 53   |
| <b>Total Since LRP Inception</b>                      | <b>621</b>                                   |
| <b>Total Removed from LRP Since Program Inception</b> | <b>255</b>                                   |
| <b>Total Remaining in LRP</b>                         | <b>366</b>                                   |

### Summary of Data to Document Filter Distribution and Filter Program Participation

Additional details related to filter kit distribution are provided in the Appendices:

- List of premise addresses and service point identification numbers for all households that refuse to participate in the Filter Program.<sup>53</sup>
- Filter adoption survey results summary from informal filter use surveys conducted in the field as part of LSL replacement and virtual meeting filter survey summary.<sup>54</sup>
- Detailed responses from the informal filter use field survey responses collected as part of LSL replacement activities.<sup>55</sup>
- Confirmation of pitcher filter performance in the field.<sup>56</sup>

<sup>52</sup> See Appendix FIL-2 Filter Program Refusals (First Six-Month Period of 2025). This includes customers who have had their line replaced and are refusing delivery of their final replacement cartridge.

<sup>53</sup> See Appendix FIL-2 Filter Program Refusals (First Six-Month Period of 2025).

<sup>54</sup> See Appendix FIL-4 Informal Filter Adoption Survey Results Summary (First Six-Month Period of 2025).

<sup>55</sup> See Appendix FIL-5 Informal Filter Adoption Survey Detailed Responses (First Six-Month Period of 2025).

<sup>56</sup> See Appendix FIL-3 Confirmation of Filter Performance in Field Results (First Six-Month Period of 2025).

- List of premise addresses and service point identification numbers for all households that opt-out of the Filter Program.<sup>57</sup>

#### Confirmation of Filter Performance in the Field [7.B.iv.f]

Per Section 7.B.iv.f of the 2022 Variance, Denver Water must report lead sampling results from filters. Field sampling is conducted by Denver Water in conjunction with LCR compliance sampling (see section 7.B.i). All samples collected to meet this requirement for the first -six month compliance period of 2025 are included in this reporting period. Samples were collected from 72 properties between Feb. 10, 2025, and April 22, 2025. Samples are collected using a protocol with three sample bottles to differentiate between lead measured in the first draw LCR compliance sample and lead measured in water used in filter testing and referred to as the filter influent sample. The third sample is collected from filter effluent and used with the filter influent sample to calculate the percentage of lead removal.

Lead was measured in the unfiltered tap water at less than 1 µg/L in 19 samples collected on the same day the filter effluent sample was collected. Lead was measured below the detection limit in filtered water at 64 of the 72 properties and below 3 µg/L at most properties with two exceptions<sup>58</sup>. If lead is measured above 10 µg/L from a filter, the filter is removed from the property, the customer is provided with a new filter, and the “old” filter is sent to the Denver Water lab for additional testing (using the water supplied from the lead pipe rack). Zero properties in this reporting period had lead measured above 10 µg/L in the filter effluent sample.

Results from filter testing in the field are also reviewed to identify properties with elevated lead in the first bottle for inclusion in the Elevated Lead Response Plan. There were zero properties with lead measured above 15 µg/L in the first bottle.

#### Information About Filter Usage and Maintenance Collected during Filter Performance Testing [7.B.iv.g]

Per Section 7.B.iv.g of the 2022 Variance, Denver Water must report information about filter use. Observations of filter use during filter performance testing in the field are reported with sampling results. When there are customers who are identified for inclusion in the filter performance testing in the field that do not use their filter, a sample is not collected from the filter. For this reporting period, no customers indicated that they did not use the filter provided by Denver Water.

#### Confirmation of Direct Contact with 95% of All Customers Enrolled in the Filter Program [5.G]

Per Section 5.G of the 2022 Variance, “Denver Water must make direct contact with lead outreach and education materials to 95% of all customers enrolled in the filter program in every Program Year.” In 2025, proof of contact with customers enrolled in the LRP is measured based

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<sup>57</sup> See Appendix FIL-1 Filter Program Opt-Outs (First Six-Month Period of 2025).

<sup>58</sup> See Appendix FIL-3 Confirmation of Filter Performance in Field Results (First Six-Month Period of 2025).

on the mailing of filter reminder postcards. The postcards will be mailed in the second half of 2025 and will be discussed in the 2025 Annual Report.

## 7.B.v Compliance Metrics per Paragraphs 2.C, 3.D, 4.I, 5.G, 6.B and 6.C

Section 7.B.v of the 2022 Variance requires that Denver Water report and maintain records of the following compliance metrics:

*v. Compliance Metrics. Results achieved under the compliance metrics in paragraphs 2.C [CCT Metric], 3.D [LSL Inventory Compliance Metric], 4.I [Accelerated LSL Replacement Compliance Metric], 5.G [Filter Communication Compliance Metric], 6.B [Comprehensive LRPP Performance Metric], and 6.C [Health Equity and Environmental Justice Metric] above.*

*Text is taken verbatim from the 2022 Variance, dated Nov. 30, 2022.*

A summary of the performance metrics that will ultimately be used to evaluate the overall performance of the LRP is presented in Table 31.

**TABLE 31. SUMMARY OF COMPLIANCE**

| <b>Paragraph</b> | <b>Description</b>   | <b>Comment</b>                                   |
|------------------|--|--|
| <b>2.C</b>       | <b>C. Corrosion Control Treatment Metric.</b> Denver Water <u>must maintain pH and alkalinity within the ranges designated by CDPHE. For the entry points to the distribution system, pH must fall within a range of 8.6 to 9.0 and a minimum alkalinity of 20 mg/L as CaCO<sub>3</sub>; for distribution system location, pH must fall within a range of 8.5 to 9.1 and a minimum alkalinity of 20 mg/L as CaCO<sub>3</sub>.</u> CDPHE may modify these required water quality parameter ranges through a modification decision under 5 CCR 1002-11.26(3)(d)(ii).   | <b>See Section 7.B.i</b>                         |
| <b>3.D</b>       | <b>D. LSL Inventory Compliance Metric.</b> Denver <u>Water must Investigate a cumulative average of 1.4% of the total estimated number of unknown service lines in the inventory each Program Year from January 1, 2020, to the Variance End Date. By the Variance End Date there must be no remaining sites in the inventory categorized as a lead, galvanized requiring replacement, or lead status unknown, as defined in paragraph 1.</u>  | <b>See Section 7.B.ii</b>                        |
| <b>4.I</b>       | <b>I. Accelerated LSL Replacement Compliance Metric.</b> Denver Water <u>must annually achieve at least a 7.0% cumulative average Program Year LSL replacement rate</u> as determined based on reporting required in paragraph 7.B. If not achieved, Denver Water shall provide public notice within 30 Days to all customers enrolled in the filter program, as required under paragraph 1.T.ii.  | <b>See Section 7.B.iii</b>                       |
| <b>5.G</b>       | <b>G. Filter Communication Compliance Metric.</b> Denver Water <u>must make direct contact with lead outreach and education materials to 95% of all customers enrolled in the Filter Program</u> in every Program Year. . . Compliance shall be tracked by mailing lists and mail receipts, lists of customer email addresses for customers who elect to receive email communication, or other forms of documentation approved by CDPHE.   | <b>See Section 7.B.vi</b>                        |
| <b>6.B</b>       | <b>B. Comprehensive LRPP Performance Metric.</b> Denver Water <u>must demonstrate to EPA’s satisfaction, using the updated equivalency model results as reported under paragraph 7.C, that the combined actual performance of the LRPP as implemented continues to be “at least as efficient as” OCCT</u> as that term is used in 40 C.F.R § 141.82(e) and as it relates to CDPHE’s March 2018 designation of OCCT as orthophosphate treatment for Denver Water, in reducing lead exposure on an annual basis.   | <b>To be presented in the 2025 Annual Report</b> |
| <b>6.C</b>       | <b>C. Health Equity and Environmental Justice (HE and EJ) Compliance Metric.</b><br>i. Denver Water <u>must annually achieve a cumulative Program Year LSL replacement rate in areas with HE and EJ concern that is equal to or greater than the total replacement rate.</u> This calculation is the number of LSLs replaced per year in areas with HE and EJ concerns divided by total number of LSLs in areas with HE and EJ concerns must be equal to or greater than the average number of LSLs replaced per year overall divided by total number of LSLs as of the variance effective date.<br>ii. Denver Water <u>must make direct contact with lead outreach and education materials to more than 95% of customers as identified in areas with HE and EJ concerns</u> enrolled in the filter program in every Program Year. | <b>To be presented in the 2025 Annual Report</b> |

## 7.B.vi Communications, Outreach and Education

Section 7.B.vi of the 2022 Variance requires that Denver Water report and maintain records for COE activities:

- vi. Communications, Outreach and Education. A summary of activities conducted under the Communications, Outreach and Education program, including the updated communications, outreach and education plan for the new Program Year. The summary will include, at a minimum:*
- a. a description of outreach activities conducted, including copies of the outreach materials provided; and*
  - b. a list of any partner organizations who conducted, or were involved in the implementation of the communications, outreach and education plan.*

*Text is taken verbatim from the 2022 Variance, dated Nov. 30, 2022.*

During the first six months of 2025, Denver Water continued its public outreach and engagement efforts based on the strategies described in the 2025 COE Plan. This included hosting three virtual community meetings, convening the Stakeholder Advisory Committee and supporting program-wide efforts to advance investigation efforts. COE efforts specific to each LRP element are included in the relevant sections of this report.

**TABLE 32. OVERVIEW OF 7.B.VI REQUIREMENTS**

| <b>Paragraph</b>         | <b>Description</b>  | <b>Comment</b>   |
|--------------------------|---|--|
| <b>7.B.vi</b>            | 2020 COE Plan<br>2021 COE Plan<br>2022 COE Plan<br>2023 COE Plan<br>2025 COE Plan                         | See First Quarter Report of 2020.<br>See Fourth Quarter Report of 2020.<br>See Second Semi-Annual Report of 2021.<br>See 2022 Annual Report.<br>See 2023 Annual Report.<br>See 2024 Annual Report. |
| <b>7.B.vi.a</b>          | Description of COE activities conducted.<br>Copy of materials.  | Discussed in this section.<br>See Appendices for copies of materials included. <sup>1</sup>  |
| <b>7.B.vi.b</b>          | Ambassador Program Overview.  | See Section 7.B.vii.   |
| <b>7.B.vi.c</b>          | Response, date and time of in-person surveys of filter adoption and use.                                  | See Section 7.B.iv.<br>See Appendix. <sup>2</sup>  |
| <b>8.G</b>               | Notify customers enrolled in Filter Program of LRP and launch multi-media campaign.                       | Multi-media campaign launched March 23, 2020.  |
| <b>LRPP III.E (p 64)</b> | Targeted messaging to homes with copper piping and lead solder to flush the tap after periods of non-use. | See 2020, 2021, 2022, 2023 and 2025 COE Plans.   |
| <b>LRPP III.F (p 74)</b> | Stakeholder Advisory Committee  | Discussed in this section.   |

<sup>1</sup> See Appendices COE-2 through COE-11 for a copy of materials.

<sup>2</sup> See Appendix FIL-8 Informal Filter Adoption Survey Detailed Responses (First Six-Month Period of 2025).

**Outcomes of COE Activities between Jan. 1 and June 30, 2025 (unless otherwise noted) [7.B.vi.a]**

- Denver Water hosted two bilingual, one-hour virtual community meetings in January and March 2025 focused on preparing customers for lead service line replacement. To promote the meetings, 6,987 outbound calls were made to customers identified for an upcoming lead service line replacement the day before and the day of the events, with 4,060 bilingual voicemail messages left for those who did not answer. In total, 1,356 customers participated in a construction-focused virtual community meeting during the first six months of the year.
- Denver Water also hosted a bilingual, one-hour virtual community meeting in April focused on investigations. To promote the meetings, 2,372 outbound calls were made to customers at properties identified for 2025 investigation activities, with 1,211 bilingual voicemail messages left for those who did not answer. 410 customers participated in the investigations-focused virtual community meeting.
- In addition, Denver Water received requests for LRP presentations and/or attendance at community events from four local, state and national organizations and held these presentations at various times during this reporting period.

- The Stakeholder Advisory Committee convened its first 2025 meeting on May 1. The meeting included progress updates on the LRP in 2025, as well as overviews of upcoming efforts, such as investigations, construction activity and the filter adoption survey, along with communications and outreach tactics. A site visit for the committee to Denver Water’s Northwater Treatment Plant is being planned for late summer 2025.
- Contact was made on eight occasions with Denver City Council and Mayor’s Office and officials in suburban jurisdictions to share information and updates on the LRP.
- The LRP website received 592,441 visits and 964,291 page views since the launch of comprehensive LRP information on March 5, 2020.<sup>59</sup>
- Denver Water social media activity reached approximately 26,046 individuals.
- The LRP was mentioned in 44 news media stories, with a potential aggregate readership of 541 million across online news, blogs and television.<sup>60</sup>

The following section highlights COE program activities carried out in 2025 from Jan. 1 through June 30 (unless otherwise noted), organized by strategy type.

## Public Outreach

Overview of activity grouped by outreach component:

- Virtual Meetings
  - Denver Water hosted two bilingual, one-hour construction preparedness virtual community meetings on Jan. 15 and March 19 for customers slated to receive a service line replacement in the early months of 2025.
  - These meetings were an opportunity to inform customers about what to expect before, during and after service line replacement, including the importance of filter use and flushing.
  - To promote the meetings, 6,987 outbound calls were made to customers identified for service line replacement the day before and the day of the event, with 4,060 bilingual voicemail messages left for those who did not answer. Emails were also sent to those for whom we had email contact information.<sup>61</sup> In total, 1,356 customers participated in these meetings.
  - Denver Water also hosted a bilingual, one-hour virtual community meeting on April 23 focused on investigations. The meeting detailed the ways Denver Water identifies the material of a service line and aimed at enlisting customers to support the process.

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<sup>59</sup> See Appendix COE-11 Website Traffic.

<sup>60</sup> See Appendix COE-10 Earned Media Report.

<sup>61</sup> See Appendix COE-4 Virtual Community Meeting Email Invitations.

- To promote the meeting, 2,372 outbound calls were made to customers at properties identified for 2025 investigation activities, with 1,211 bilingual voicemail messages left for those who did not answer. Emails were also sent to those with available email contact information.<sup>62</sup> As a result, 410 customers participated in the meeting.
- In total, 1,766 customers participated in a virtual community meeting in the first six months of 2025.
- Presentations were provided to organizations upon request to provide an overview of the LRP, gather feedback and identify areas for potential coordination. These meetings included the following:
  - Denver Land Use, Transportation and Infrastructure Committee Meeting (Jan. 14).
  - City Council District 5 Open House (Feb. 11).
  - Denver Public Schools Family Liaison Meeting (May 1).
  - AWWA ACE – PFAS and Lead – Communication Tools (June 8).
  - AWWA ACE – Accelerating Lead Service Line Replacements Workshop & Site Visit (June 9).
- Stakeholder Advisory Committee
  - The Stakeholder Advisory Committee met for its first meeting of 2025 on May 1.
    - Representatives reflected a diverse group of organizations including health care, education, nonprofit and government.<sup>63</sup>
    - At the meeting, Denver Water reviewed LRP progress through April 2025 and provided an overview of upcoming efforts for the year, including investigations, construction activity, the filter adoption survey and communication and outreach tactics.
- Government Relations
  - Eight proactive contacts and/or meetings were held with local government officials and staff, including Denver City Council and Mayor’s Office and officials in suburban jurisdictions, to share information and updates for the LRP.
    - Now that the LRP is well underway, most updates included information on upcoming work areas and construction in the respective Denver City Council Districts, as well as updates on issues potentially impacting customers.

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<sup>62</sup> See Appendix COE-4 Virtual Community Meeting Email Invitations.

<sup>63</sup> See Appendix COE-2 Stakeholder Advisory Committee 2025 Membership List.

- Outside of the proactive updates, staff continued to be responsive to questions from government officials, as needed.
- Distributor Communications
  - An update on the LRP was provided at the Jan. 21 and March 18 distributor forum meetings.
  - Distribution of water quality sampling kits and results continues when requested by distributor customers. Distributor customers also receive replacement filters and, when there is a change in occupancy, a new filter kit.
  - Denver Water sends distributor customers the same program removal mailings as City and County of Denver customers. Mailings are sent when a property is removed from the LRP either due to an investigation confirming a non-lead service line or six months after a lead service line has been replaced.
  - On a bimonthly basis, distributors with properties in the LRP are provided an inventory update that reflects any changes made to the status of properties in their area because of investigations or service line replacements.
- Earned Media
  - The LRP was covered in digital, print and broadcast news, including the Association of Metropolitan Water Agencies, The Colorado Sun, Fort Morgan Times and several local news outlets from across the country.<sup>64</sup>
  - There were 342 posts about the LRP on social media channels in this reporting period, resulting in 26,406 impressions. Ambassador Program partners also shared Denver Water social media posts on their own networks.
  - Denver Water also provided content for organization and neighborhood newsletters on request.
- Digital Communications
  - Denver Water distributed an email on May 1 to a database of 51,900 subscribers. The email focused on promoting Denver Water’s efforts to investigate service line material and how customers can help, including completion of water test kits, using the self-reporting tool and providing any other relevant documentation to Denver Water. The email also encouraged customers to check out the online program dashboard to keep tabs on program progress.<sup>65</sup>
  - The LRP website, [denverwater.org/Lead](https://denverwater.org/Lead) (English) and [denverwater.org/Plomo](https://denverwater.org/Plomo) (Spanish), was updated with recordings of the virtual community meetings,

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<sup>64</sup> See Appendix COE-10 Earned Media Report.

<sup>65</sup> See Appendix COE-9 May Subscriber Email.

dashboards, an updated lead service line inventory and an updated pipe replacement map with the work areas for 2025. Since the launch of the LRP, [denverwater.org/Lead](https://denverwater.org/Lead) has received 592,411 visits and 964,291 page views. There were 42,933 unique website visits from Jan.1 to June 30, 2025. Since launching in October 2021, [denverwater.org/Plomo](https://denverwater.org/Plomo) (the Spanish version of the website) has received 19,075 visits and 25,095 page views. There were 5,851 unique website visits from Jan. 1 to June 30, 2025.<sup>66</sup>

### Material Development and Owned Media [7.B.vi.a]

The following materials were developed from Jan. 1 through June 30, 2025:

- The public-facing dashboard was updated to share progress and key metrics for the LRP through June 2025.<sup>67</sup> The updated dashboard is posted monthly to [denverwater.org/Lead](https://denverwater.org/Lead) and is available in both English and Spanish.
- Information on the LRP was included in the June issue of WaterNews, the monthly bill insert included with the bills of more than 180,000 customers currently receiving a bill from Denver Water. The information expressed appreciation and celebrated customers for their support as the LRP passed its halfway point, with more than 32,000 of the estimated 64,000 lead service lines replaced.<sup>68</sup>
- [A 2024 Year-in-Review summary](#) was developed to capture milestones, progress and key program updates in a more digestible format than the full annual report. Stakeholders can share the summary with their organizations, networks and leadership to provide an overview and snapshot of the program.<sup>69</sup>
- In the first half of the year, commonly used customer-facing program materials were reviewed for potential updates. Small updates throughout were identified to reflect the current lead service line inventory estimate, add links to resources, simplify language and ensure consistent messaging. These refinements were completed and are currently in use. New customer-facing materials or 2025 updates to program processes are described below.
- Water Quality
  - The test kit sampling instructions and Chain of Custody cards were updated to direct customers to only sample water from the kitchen sink, to simplify language and instructions where possible, and to gather additional information about the customer’s communication preferences.<sup>70</sup>

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<sup>66</sup> See Appendix COE-11 Website Traffic.

<sup>67</sup> See Figure 1.

<sup>68</sup> See Appendix COE-3 June Issue of WaterNews.

<sup>69</sup> See Appendix COE-1 2024 Year-In-Review.

<sup>70</sup> See Appendix COE-5 Water Quality Test Chain of Custody Card and Sampling Instructions.

- Investigations
  - A letter and email to request that targeted customers submit information through the self-reporting tool were created to further promote the tool and gather information from properties where service line material remains unknown. Request letters and emails to customers started in March 2025.<sup>71</sup>
  - In April 2025, we created and began sending letters and emails with results from the customer self-reporting tool submissions used to help with the service line material verification process.<sup>72</sup>

### Internal Communications and Coordination

The following summarizes efforts to continue to educate Denver Water’s employees and contractors about the components and messaging of the LRP. This ongoing engagement helps Denver Water staff and representatives provide customers with accurate information and enhances efforts to make the LRP accessible by all.

- Internal trainings and information-sharing sessions continued as needed or requested to update Denver Water teams and departments on the LRP and prepare them for handling customer or community inquiries as appropriate. Three sessions were held between Jan. 1 and June 30.
- Talking points continue to be developed and updated for Customer Care and other customer-facing groups to support consistent and timely responses to customer inquiries.

#### Above and Beyond Example

- In April, a customer contacted Denver Water to share kudos for the construction crew who performed their lead service line replacement. The customer specifically shared their appreciation for a small but kind act: As the crew finished work in their basement, they also filled a long-standing spider hole with the leftover concrete. This act of kindness reminds the customer of their positive experience when they are in the basement.

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<sup>71</sup> See Appendix COE-6 Self-Reporting Tool Request Letter/Email.

<sup>72</sup> See Appendix COE-7 Self-Reporting Tool Results Letter/Email.

## 7.B.vii Health Equity and Environmental Justice

Section 7.B.vii of the 2022 Variance requires Denver Water to report and maintain records related to activities implemented to achieve its Health Equity and Environmental Justice principles:

- vii. Health Equity and Environmental Justice. A summary of activities conducted and designed to address HE and EJ principles set forth in the LRPP, including:*
- a. a description of how the HE and EJ principles are being incorporated into the accelerated LSL replacement program, lead filter program, and communications, outreach and education plan;*
  - b. socioeconomic or demographic data collected from outside sources (e.g., census data, local public health agencies) to target communications, outreach and education programs to specific neighborhoods, demographic cohorts, or non-English speaking groups;*
  - c. description of the values used to calculate compliance with the HE and EJ compliance metric for LSLR and lead outreach and education materials, as described in paragraph 6.C.i; and*
  - d. summary of information showing that outreach and education materials have been provided to at least 95% of the households in He and EJ areas of concern enrolled in the filter program in 6.C.ii. Detailed records must be retained by Denver Water and provided to EPA or CDPHE upon request.*

*Text is taken verbatim from the 2022 Variance, dated Nov. 30, 2022.*

An overview of HE&EJ reporting requirements is presented in Table 33.

**TABLE 33. Overview of 7.B.vii Requirements**

| Paragraph Reference          | Description  | Refer to  |
|------------------------------|--|---|
| <b>7.B.vii LRPP V (p 77)</b> | Summary of activities conducted and designed to address HE&EJ principles.  | Described in this section. See LRPP (p 77).                   |
| <b>7.B.vii.a</b>             | Description of how HE&EJ principles were incorporated into the implementation of the: <ul style="list-style-type: none"> <li>• ALSLR Program.</li> <li>• Filter Program.</li> <li>• COE Plan.</li> </ul>                                   | See First Quarter Report of 2020 and updates in this section. |
| <b>7.B.vii.b</b>             | Socioeconomic or demographic data collected from other sources to target communications, outreach and education programs to specific neighborhoods, demographic cohorts, or non-English speaking groups.                                   | See this section for how data informed COE activities.        |
| <b>7.B.vii.c</b>             | Description of values used to calculate compliance with the HE&EJ compliance metric for LSLR and lead outreach and education materials.  | Described in this section.                                    |
| <b>7.B.vii.d</b>             | Summary of information showing that outreach and education materials have been provided to at least 95% of the households in HE&EJ areas of concern enrolled in the Filter Program.  | See Section 7.B.vi.a. and this section.                       |
| <b>LRPP V (p 77)</b>         | Commitment to continue to consult and collaborate with the organizations and HE&EJ experts, stakeholders, community members and customers to continually improve upon integration of the HE&EJ principles with the Lead Reduction Program. | See this section.   |
| <b>LRPP V (p 79)</b>         | Collaborate with other agencies to address lead exposure from all sources.   | Described in this section.                                    |

### HE&EJ Integration in the Lead Reduction Program

As the Lead Reduction Program has evolved, so too have its efforts and activities specific to ensuring all customers are given opportunity and access to program benefits. The Ambassador Program, described below, has expanded to include more community partners focused on general outreach and activities that support specific program elements. Partners have also become intertwined with the identification of ALSLR work areas to approach engagement in a way most impactful for specific communities. Time and again, Denver Water finds that the work of trusted partners results in tangible, positive benefits for the program, such as the 10-15% increase in consent form response rates once partners are involved. Given that Denver Water’s efforts are woven into both general program outreach and specific program elements, this report has been refreshed so that community partner activities are described either under the overall program section and/or within specific element sections, based on the focus of activities completed. Because the nature of equity efforts and best practices are often evolving, key lessons learned are also described at the end of this section.

The following sections describe how equity principles were integrated into the various components of the LRP during the first half of 2025.

## Incorporating HE&EJ Principles via Communications, Outreach and Education [7.B.vii.a, 7.B.vi.b and to support 7.B.vii.c]

### *Ambassador Program*

Denver Water's Ambassador Program is a partnership with community organizations to educate customers about the LRP. These customized collaborative efforts expand the LRP's reach, build awareness of program requirements and create momentum for behavior change in hard-to-reach communities. The following reviews the efforts taken by community partners during this reporting period:

- The [Center for African American Health](#) offers resources that support communities in overcoming the root causes of health problems so they can maximize their individual and family health.
  - Shared LRP information at three of their programming events, including their annual Health Expo, reaching 1,066 community members.
  - Included LRP information in each of their monthly newsletters, with a distribution of over 3,450 individuals.
  - Promoted the LRP on social media platforms including Facebook (3,400 followers), LinkedIn (464 followers), Twitter (474 followers) and Instagram (864 followers).
- [CREA Results](#) is a community organization that supports community outreach activities in the following neighborhoods:
  - Berkeley.
  - Clayton.
  - College View.
  - Elyria-Swansea.
  - Five Points.
  - Globeville.
  - Mar Lee.
  - Ruby Hill.
  - West Highland.
  - Westwood.
- During the first six months of 2025, CREA Results engaged in the following work:
  - Participated in five in-person or virtual events to educate residents within targeted neighborhoods about the LRP with an estimated reach of 385 people.
  - Hosted a radio show about the LRP on KNRV (1150 AM), a Spanish language radio station, with an estimated reach of 10,000 listeners per show.
  - Posted LRP information on Facebook 10 times with an estimated 1,215 views.

- [Denver Public Schools](#) is the public school system for the City and County of Denver, and the largest in the integrated service area.
  - Shared LRP information with DPS families at 16 community events, such as vaccine fairs, hiring fairs and health clinics, reaching 2,176 individuals and 450 families.
  - Distributed information at DPS Community Hubs (a total of six) reaching over 800 individuals and families. Community Hub events included hiring fairs, food giveaways and other family-oriented gatherings.
  - Posted LRP information on Facebook three times with an estimated 271 views.
  - Sent LRP information via various newsletters six times with an estimated 8,529 opens by subscribers.
- [The Park People](#) is a local organization working with communities to plant trees and improve parks for a healthy, resilient future.
  - Used sponsorship support for the purchase, distribution and planting of 1,500 trees in public right-of-way areas or private yards within low tree canopy communities across the metro area.
- [Tepeyac Community Health Center](#) is a nonprofit community health center whose mission is to inspire health, well-being and humanity in the Denver community, through all of life's stages.
  - Shared LRP messaging on their rotating digital message board in the clinic lobby and waiting area.
- [Una Mano, Una Esperanza](#) is a community organization that supported community outreach activities in the Athmar Park, Mar Lee, Ruby Hill and Westwood neighborhoods.
  - Promoted the LRP at eight community events, including child care provider trainings, family-friendly community gatherings and other Una Mano, Una Esperanza service programs, reaching 1,645 people.
  - Promoted the LRP on Facebook to their 3,500 followers.

### Example of Partners in Action:

- Community partner Center for African American Health shares information on the LRP at community events and is responsible for providing feedback from the community on the program to Denver Water. Additionally, during this reporting period, CAA Health provided feedback that many Denver Water customers at their events were primarily interested in learning more about bill assistance options from Denver Water. In response, Denver Water created a bill assistance handout that will support communications across the entire organization, not just in the LRP.

### *Materials*

All customer-facing materials produced in 2025 have been translated into Spanish. The construction preparedness virtual community meetings presentation, promotional materials and follow-up communications were provided in both Spanish and English. Monthly dashboards for the LRP are available in Spanish and English at [denverwater.org/Plomo](https://denverwater.org/Plomo) and [denverwater.org/Lead](https://denverwater.org/Lead).

The Spanish version of the LRP website, [denverwater.org/Plomo](https://denverwater.org/Plomo), continues to be updated and available to customers. To access the Spanish content, customers may simply click on the green “Español” button in the top right-hand corner of [denverwater.org/Lead](https://denverwater.org/Lead) or visit [denverwater.org/Plomo](https://denverwater.org/Plomo).

### *Early Childhood*

Opportunities to spread LRP messaging to the early childhood community and providers continued during the first six months of 2025. In collaboration with Denver Water’s Youth Education team, LRP messaging continues to be integrated into engagement with youth and their families. Community partner CREA Results continues to use the Youth Education team’s Water Wall, an interactive educational display targeted to children. The Youth Education team also incorporates LRP content on filter use into appropriate classroom visits where they engage students in hands-on learning activities. In partnership with CDPHE, content on the LRP was included in the January edition of its “Our Voice” newsletter, which goes out to 1,407 subscribers in Colorado’s early childhood community.

Sponsorships continue to be an avenue for spreading awareness of the LRP in the early childhood community. In March, Denver Water again sponsored the Rocky Mountain Early Childhood Conference. The sponsorship included hosting an LRP booth to interact with conference attendees who are largely educators and administrators in the early childhood community, as well as sharing two posts on the Denver Early Childhood Council’s social media pages. Denver Water also sponsored the Denver Children’s Museum Free Joy Park Night. As part of this sponsorship, the museum included LRP information in its monthly e-newsletter, and Denver Water hosts a booth on the free Joy Park evenings to engage with parents.

## Critical Customers

Denver Water continues to conduct outreach to critical customer properties to confirm service line material, ensure customers at these properties have filters and replace lead service lines where found. During this reporting period, two critical customer properties received service line replacements and another 37 were removed from the program due to confirmation of a non-lead service line.

## HE&EJ Principles Applied to ALSLR Program [7.B.vii.a]

Denver Water provides its training program regarding customer interaction annually to ALSLR field observers and contractors. The 2025 training was provided Feb. 20 and included the following topics:

- Denver Water customer journey.
- Self-awareness and working across communities.
- Working with customers when English is not a first language and interpretation protocol.
- Managing behaviors when working in the public sector (in the field and inside homes).
- Key program messages.
- Review of materials customers receive, including updated documents developed since the previous year's training.

Two virtual community meetings were held in January and March targeted toward customers identified for upcoming service line replacement to share what to expect before, during and after construction. The meetings were fully bilingual, from the initial meeting promotion to the meeting presentation and Q&A responses. The meeting recordings are also available in Spanish and English at [denverwater.org/Plomo](https://denverwater.org/Plomo) and [denverwater.org/Lead](https://denverwater.org/Lead).

Denver Water and its contractor teams conduct additional outreach efforts beyond the minimum required to seek consent. These efforts include additional mailings, phone calls and emails to reach customers. In 2025, Denver Water took additional efforts via phone calls and emails to contact refusal customers from previous years who were in or near previous work areas to gain consent for service line replacement. Similarly, additional phone calls and emails were made to customers where an interior investigation of the service line was needed to confirm service line material. These outreach efforts were categorized by the type of refusal to provide a better explanation and level of understanding to customers as to why Denver Water needs and wants to conduct the replacement. This included further explanation of water testing results and a request for additional investigations to confirm whether the service line is lead. The team also continued ongoing evaluation of prior refusals. Every property that declines service line replacement is evaluated to better understand the rationale behind the decision, such as belief

that the line was previously replaced, health considerations, etc. Staff then attempts outreach to the property owner to further discuss and attempt to resolve the previous refusal.

Construction field crews continue to use the iSpeak poster, which allows customers to select their preferred language from among 64 languages. Crews are then able to work with the customer and Denver Water to provide support in the preferred language.

### [2026 ALSLR Work Areas](#)

2026 ALSLR work area planning is underway and will be presented in the annual report.

### [HE&EJ Principles Applied to Filter Program \[7.B.vii.a\]](#)

Per Section 7.B.vii.a of the 2022 Variance, Denver Water must report “a description of how the HE and EJ principles are being incorporated into the accelerated LSL replacement program, lead filter program, and communications, outreach and education plan.”

All customers enrolled in the Filter Program received their initial filter kit in 2020 with enough replacement filters to last approximately six months. The distribution of additional replacement filters began on Aug. 27, 2020, an approximate five-month cycle following the same schedule used for the initial filter distribution. This distribution continues in 2025.

### [Tenant Outreach](#)

Introductory program materials and filter kits continue to be provided to apartment complexes for distribution to tenants upon move-in. Coordination also continues with property managers to track material distribution. This ensures tenants of single-unit and multi-unit residences have access to the program benefits.

### [HE&EJ Compliance Metric \[7.B.vii.c\]](#)

Section 6.C of the 2022 Variance requires Denver Water to ensure that the Program does not result in disproportionate impacts to areas with Health Equity and Environmental Justice concerns:

*C. Health Equity and Environmental Justice (HE and EJ) Compliance Metric. Denver Water will follow principles of environmental justice and equity in implementing the LRPP overall as reflected in its HE and EJ principles set forth in the LRPP. In addition, Denver Water will ensure that LSLRs are being conducted in a manner that does not result in disproportionate impacts to areas with HE and EJ concerns<sup>1</sup> as of the effective date of this variance. If Denver Water, CDPHE, and EPA determine that the changes in areas with HE and EJ concerns in future program years compared to those identified as of the effective date of the variance are significant, then the variance may be modified under 8.C to update the identified areas with HE and EJ concerns relied upon in this metric.*

- i. *Denver Water must annually achieve a cumulative Program Year LSL replacement rate in areas with HE and EJ concern that is equal to or greater than the total replacement rate. This calculation is the number of LSLs replaced per year in areas with HE and EJ concerns divided by total number of LSLs in areas with HE and EJ concerns must be equal to or greater than the average number of LSLs replaced per year overall divided by total number of LSLs as of the variance effective date.*
- ii. *Denver Water must make direct contact with lead outreach and education materials to more than 95% of customers as identified in areas with HE and EJ concerns enrolled in the filter program in every Program Year.*

<sup>1</sup> For the purposes of this Variance, areas with HE and EJ concerns are defined as any census block group with, as of the variance effective date, an 80th percentile ranking or above (when compared to either the U.S. or State) in EPA’s EJScreen tool for one or more Supplemental Index. Text is taken verbatim from the 2022 Variance, dated Nov. 30, 2022.

The HE&EJ compliance metric is calculated using the equation below.

$$\frac{\text{average number of LSLs replaced per year}}{\text{total number of LSLs}} < \frac{\text{average number of LSLs replaced within HE\&EJ areas per year}}{\text{total number of LSLs within HE\&EJ areas}}$$

An area is defined as having HE&EJ concerns using EPA’s former EJScreen tool with a state or federal 80th percentile ranking or above for one or more of the following Supplemental Indexes:

- Particulate Matter 2.5
- Ozone
- Diesel Particulate Matter
- Air Toxics Cancer Risk
- Traffic Proximity
- Lead Paint
- Superfund Proximity
- Risk Management Plan Facility Proximity
- Hazardous Waste Proximity
- Underground Storage Tanks
- Wastewater Discharge

The 2025 HE&EJ metric will be presented in the 2025 Annual Report.

In addition to replacements within areas of HE&EJ concerns, Denver Water is also required to send outreach to 95% of customers within these areas. As mentioned in Section 5.B, in 2025, proof of contact with customers enrolled in the LRP is measured based on the mailing of filter reminder postcards. The postcards will be mailed in the second half of 2025 to meet the

required 95% outreach metric for both properties within the Filter Program and properties within areas of HE&EJ concern.

## PART 3: LEARNING BY DOING

Five of the six elements that together make up the LRP are used to evaluate the overall effectiveness of the program (COE Plan, LSL Inventory, Filter Program, ALSLR Program and Corrosion Control Treatment). The sixth element is Learning by Doing — presented as a strategy (versus a desired outcome), as quantitative performance metrics were not identified in the Variance.

As part of the Learning by Doing element of the LRP, Denver Water is committed to:

- Evaluating the performance of the LRP to improve outcomes.
- Establishing an Advisory Committee to inform Denver Water on more efficient and effective ways to implement the LRP to achieve the 2022 Variance goals.

This means that Denver Water incorporates the Learning by Doing approach to improve outcomes during the life of the LRP. During the first six months of 2025, efforts continued to identify potentially more efficient or effective ways to implement the LRP in the Learning by Doing log. The outcomes tracked in the Learning by Doing log will be presented as a part of the 2025 Annual Report.

The following are Learning by Doing activities from the first six months of 2025:

- Customers with a p-value less than or equal to 0.5 have been categorized as “unknown unlikely.” As such, those customers do not receive pitcher filters or the same information informing them about the LRP Program as properties with known or likely unknown lead service lines would. Beginning in 2025, unknown unlikely properties were included in potholing activities, resulting in those customers receiving program information and notifications. Initially, the same cover letter as known lead and unknown likely properties was being used in the consent form package, which was confusing for unknown unlikely properties that had not received communications about the LRP other than the required LCRR notification. To resolve the confusion for customers at unknown unlikely properties, a new version of the cover letter was developed to provide more context on why they were receiving LRP requests and what was required from them.
- To prevent refusal and non-response properties from being left behind, Denver Water approved a water shut-off policy for long outstanding properties if they continued to not contact Denver Water. The policy proved successful during its initial stages of implementation. To aid construction efforts and reduce financial costs associated with individual replacements, the shut-off policy has been standardized. The first mention of the potential for water shut off for non-consent is included in the second consent form notification/reminder letter and door hangers reminding customers to complete the consent form.

The LRP team continues to use the Learning by Doing approach to address challenges and improve effectiveness of outreach in hard-to-reach communities.