

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8

IN THE MATTER OF:)
)
DENVER WATER, COLORADO) VARIANCE UNDER
) SDWA SECTION 1415(a)(3)
)
)

INTRODUCTION

I. Statutory and Regulatory Background

Under the Safe Drinking Water Act (SDWA or the Act), 42 U.S.C. §§ 300f *et seq.*, the U.S. Environmental Protection Agency (EPA) promulgates national primary drinking water regulations (NPDWRs) which specify for certain drinking water contaminants either a maximum contaminant level or treatment technique with which a public water system (PWS) must comply. EPA has promulgated a NPDWR for lead and copper that consists of a treatment technique requiring PWSs to take various steps to ensure that users of PWSs are not exposed to levels of lead and copper in drinking water that would result in adverse health effects (40 C.F.R. Part 141, Subpart I). This regulation requires all large PWSs to complete steps to determine the optimal corrosion control treatment for the system. If Colorado (the State) designates installation of optimal corrosion control treatment (OCCT), as defined in 40 C.F.R. Section 141.2, then the system must install and operate the designated OCCT (40 C.F.R. Section 141.82(e)), conduct water quality parameter monitoring, and conduct tap water monitoring to determine the levels of lead and copper being delivered to users. If tap water levels exceed certain “action levels” for these contaminants, large PWSs are required to take additional steps, including delivering public education materials to users about the health risks of lead in drinking water and initiating a lead service line (LSL) replacement program.

Under SDWA Section 1413, 42 U.S.C. § 300g-2, the Colorado Department of Public Health and Environment (CDPHE) has primary enforcement responsibility for NPDWRs, including the Lead and Copper Rule (LCR) because, among other things, it has adopted regulations that are no less stringent than the NPDWR. Colorado’s Lead and Copper Rules are located at the Colorado Code of Regulations, 5 CCR 1002-11 § 11.26 *et seq.*, and apply to the Denver Water PWS. The EPA Administrator, however, has the authority to grant a variance from any treatment technique requirement of a national primary drinking water regulation under certain circumstances. Section 1415(a)(3) of the SDWA, 42 U.S.C. § 300g-4, provides:

The Administrator may grant a variance from any treatment technique requirement of a national primary drinking water regulation upon a showing by any person that an alternative treatment technique not included in such requirement is at least as efficient in lowering the level of the contaminant with respect to which such requirement was prescribed. A variance under this paragraph shall be conditioned on the use of the alternative treatment technique which is the basis of the variance.

See also 40 C.F.R. Section 142.46. Under the SDWA, EPA retains independent enforcement authority even when states have primary enforcement responsibility under Section 1413, 42 U.S.C. § 300g-2. EPA has the authority to enforce the terms and conditions of this variance pursuant to Section 1414, 42 U.S.C. § 300g-3.

As of December 16, 2021, the regulation in effect as a matter of federal law is the Lead and Copper Rule Revisions (LCRR). The LCRR requires systems to comply with the LCR until October 16, 2024, as described in 40 C.F.R. § 141.80(a)(4)(i). Citations throughout this document refer to the LCRR unless specifically noted.

This order is a variance from the definition of “optimal corrosion control treatment” in 40 C.F.R. Section 141.2 as that term is used in 40 C.F.R Section 141.82(e) and as it relates to CDPHE’s March 2018 designation of OCCT as orthophosphate treatment for Denver Water. Section 141.82(e) of the LCRR requires that “each system must properly install and operate throughout its distribution system the optimal corrosion control treatment designated by the State under paragraph (d) of this section.” 40 C.F.R. § 141.2 defines “optimal corrosion control treatment” as “the corrosion control treatment that minimizes the lead and copper concentrations at users’ taps while insuring that the treatment does not cause the water system to violate any national primary drinking water regulations.” This order is not a variance from any of the LCRR requirements that apply after an exceedance of the trigger level or the action level based on compliance tap sampling conducted under Section 141.86 of the LCRR, or from any other provisions of the LCRR.

When Denver Water conducted the 2017 corrosion control treatment (CCT) study pursuant to 40 C.F.R. § 141.82(c) (at that time under the federal LCR) and CDPHE modified its determination of OCCT as authorized under 40 C.F.R. § 141.82(h), the utility and State were bound by 40 C.F.R. § 141.82(c) and (d), respectively, and the definition of OCCT in 40 C.F.R. § 141.2. CDPHE designated OCCT as orthophosphate because it “minimizes” the lead concentrations at users’ taps in comparison to pH and alkalinity adjustment. Denver Water, in turn, was required under 40 C.F.R. § 141.82(e) to “properly install and operate throughout its distribution system the optimal corrosion control treatment designated by the State under paragraph (d) of this section.” This variance is from the definition of “optimal corrosion control treatment” in 40 C.F.R. § 141.2. It will relieve Denver Water from that aspect of the requirement in 40 C.F.R. § 141.82(e) to install the “optimal” corrosion control treatment designated by the State under 40 C.F.R. § 141.82(d) and instead require Denver Water to comply with the terms and conditions of this variance as well as all other provisions in the LCRR , including the requirements associated with CCT. Accordingly, CDPHE is authorized to designate pH and alkalinity adjustment as OCCT even though it does not minimize lead concentrations at users’ taps, and to modify its OCCT designation under 40 C.F.R. § 141.82(h) to require Denver Water to comply with the terms and conditions of this variance, which include actions in addition to operation of CCT.

This document also provides the basis for EPA’s findings for approving an alternative treatment technique originally approved by EPA on December 16, 2019, and establishes the conditions on the extended use of this alternative treatment technique for the term of this variance.

II. Factual Background

Denver Water is a PWS which must comply with applicable requirements of the LCR.

In 2012, Denver Water's 90th percentile lead level was 17 parts per billion (ppb), exceeding the lead action level of 15 ppb. Although an action level exceedance under the LCR requires a water system to conduct lead service line replacement, Denver was not required to conduct any lead service line replacements under 40 C.F.R. Section 141.84(a) of the LCR because the LCR provided that a "water system shall replace that portion of the lead service line that it owns." See 40 C.F.R. § 141.84(d) of the LCR. Pursuant to State LCR requirements, CDPHE required Denver Water to complete an optimal corrosion control treatment study. Denver Water first completed a desktop study, which was inconclusive. Denver Water then initiated a pipe rack study using sections of 32 LSLs extracted from customers' homes. The study included testing of three forms of corrosion control treatment (silicate, pH and alkalinity adjustment, and orthophosphate) for the two different sources of water that supply water to Denver Water customers. Denver Water submitted an Optimal Corrosion Control Treatment Report to CDPHE in September 2017. The report concluded that orthophosphate provided greater lead reduction than pH and alkalinity adjustment. On March 20, 2018, CDPHE modified its designation of the optimal corrosion control treatment for Denver Water, requiring Denver Water to install and operate orthophosphate as OCCT by March 20, 2020.

In July 2018, Denver Water requested that EPA and CDPHE consider an alternative treatment technique due to concerns that orthophosphate would require improvements at downstream wastewater treatment plants to remove the additional phosphorus to meet discharge permit requirements. Furthermore, orthophosphate changes the scale composition on all pipelines in the distribution system, including service lines and household plumbing. Once the phosphate-based scales are formed, it may be challenging for Denver Water to discontinue orthophosphate treatment. For example, transitioning from orthophosphate to another corrosion control treatment would need to be carefully managed to avoid potential releases of lead, iron, and other metals from transitioning pipe scales into the drinking water.

As a result of these concerns, Denver Water developed a Lead Reduction Program Plan (LRPP) that includes the following elements:

- Development and maintenance of an LSL inventory to identify and track LSL replacement;
- A pitcher filter program certified to remove lead;
- An accelerated lead service line replacement (LSLR) program;
- Corrosion control treatment with pH and alkalinity adjustment; and
- Communications, outreach, and education plan including Health Equity and Environmental Justice (HE/EJ) considerations

The Denver Water LRPP provides a holistic lead reduction approach that permanently removes lead service lines. EPA has determined that the Denver Water LRPP meets the SDWA § 1415(a)(3), 42 U.S.C. § 300g-4(a)(3), standard for a variance.

Denver Water implemented the LRPP on January 1, 2020, pursuant to the terms of EPA's December 16, 2019, variance. Between January 1, 2020, and the date of this Order, Denver Water has met the terms of the 2019 variance and demonstrated its alternative treatment technique to be at least as efficient as lowering lead levels as compared to the LCR requirement for optimal corrosion control treatment, which Colorado determined to be orthophosphate treatment. As a result, EPA is approving a variance from the definition of OCCT in 40 C.F.R. § 141.2 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. Colorado intends to extend its modified OCCT designation under state law.

This Order, which is effective as described below, sets the detailed requirements that Denver Water must meet as conditions of this variance. Except for the definition of “optimal corrosion control treatment,” Denver Water must continue to comply with all provisions of the LCRR as promulgated under federal law. 40 C.F.R. §§ 141.80-141.93. The deadline for compliance with the specific requirements in the LCRR is October 16, 2024. Until then, Denver must comply with 40 C.F.R §§ 141.80-141.91 as codified on July 1, 2020, (i.e., the LCR). See 40 C.F.R. § 141.80(a)(4)(i). Federal regulations may be revised in the future. Denver Water must also comply with applicable State law at 5 CCR 1002-11.26, and as may be revised in the future.

CDPHE conditionally approved Denver Water’s request to modify OCCT on November 19, 2019, subject to EPA’s approval of the variance from the federal definition of “optimal corrosion control treatment” in 40 C.F.R. § 141.2. CDPHE’s approval authorized, under State law, Denver Water to implement an alternative treatment technique that would be at least as efficient in lowering the level of lead as orthophosphate alone as OCCT. The alternative treatment technique involves Denver Water fully implementing the LRPP, submitted to EPA on September 6, 2019, and pursuant to the terms and conditions of this order. EPA has determined that this alternative treatment technique will be at least as efficient as installation of “optimal corrosion control treatment” as defined at 40 C.F.R. Section 141.2 in lowering the level of lead in drinking water so long as the conditions outlined in this order are met.

FINDINGS OF FACTS

1. This matter comes before the Regional Administrator of the EPA Region 8 on application of Denver Water for an order granting a variance pursuant to Section 1415(a)(3) of the SDWA, 42 U.S.C. § 300g-4(a)(3).
2. Pursuant to Section 1401(4)(A) of the SDWA, 42 U.S.C. § 300f(4)(A), a PWS is a system that provides drinking water to the public for human consumption through pipes or other constructed conveyances that have at least fifteen service connections or regularly serves at least 25 individuals at least 60 Days out of the year. See also 40 C.F.R. § 141.2.
3. The Denver Water system provides drinking water to the public for human consumption through pipes or other constructed conveyances that have at least fifteen service connections and regularly serves at least 25 individuals at least 60 Days out of the year, and therefore is a PWS.
4. A large PWS is defined at 40 C.F.R. § 141.2 as a PWS that serves more than 50,000 people.
5. Denver Water serves more than 50,000 people and is therefore a large PWS.
6. Pursuant to Section 1401(1)(A) of the Act, 42 U.S.C. §300f(1)(A), because Denver Water is a PWS that is also a large PWS, certain NPDWRs apply to the facility.
7. 40 C.F.R. §§ 141.81(a)(1) and 141.81(d) of the LCR required that all large PWSs complete the CCT steps and install OCCT for lead and copper by January 1, 1997, complete follow up sampling, and operate in compliance with optimal water quality control parameters (OWQPs) specified by the State by July 1, 1998. 40 C.F.R. § 141.82(e) of the LCR required Denver Water to properly install and operate throughout its distribution system the optimal corrosion control designated by the State under Section

141.82(d) of the LCR. Under 40 C.F.R. § 141.82(h) of the LCR, a State may modify its determination of the OCCT made under Section 141.82(d) of the LCR.

8. Denver Water complied with all of these provisions of the LCR. Denver Water conducted a corrosion control treatment study in the mid-1990's. Based on that study, CDPHE designated pH and alkalinity treatment as optimal corrosion control treatment for Denver Water and set a minimum pH of 7.5 and alkalinity of 15 mg/L, respectively, as OWQPs on October 18, 1995. Denver Water installed pH and alkalinity adjustment treatment prior to January 1, 1997. Denver Water has consistently monitored, met these OWQPs and has not had any excursions or violations related to OWQPs.

9. In 2012, Denver Water exceeded the lead action level of 15 µg/L but was not required to conduct any lead service line replacements because Denver does not own any service lines. Under 5 CCR 1002-11.26(3)(c), CDPHE required Denver Water to conduct a new OCCT study, which was completed in September 2017.

10. On March 20, 2018, CDPHE modified its designation of the OCCT for Denver Water from pH and alkalinity adjustment to orthophosphate as optimal corrosion control treatment for Denver Water. This designation required Denver Water to install and operate orthophosphate as OCCT by March 20, 2020, pursuant to 5 CCR 1002-11.26(3)(c)(vi).

11. On September 6, 2019, Denver Water requested EPA approve a variance from the federal LCR that would allow it to implement the LRPP in lieu of CDPHE's designation of orthophosphate treatment as OCCT as defined by 40 C.F.R § 141.2.

12. On November 15, 2019, CDPHE conditionally granted Denver Water's request to modify the OCCT designated for Denver Water in accordance with Section 11.26(3)(d)(iii) of the Colorado Primary Drinking Water Regulations, 5 CCR §§ 1002-11.26(3)(d)(iii), subject to EPA's approval of Denver Water's variance request. Under the modification, CDPHE designated the OCCT for Denver Water as the alternative treatment technique outlined in the variance and set forth in the LRPP, along with pH/alkalinity adjustment. This decision replaced the OCCT designation made in March 2018.

13. On December 16, 2019, EPA granted the variance to Denver Water from the federal definition of OCCT in the LCR pursuant to Section 1415(a)(3) of the SDWA, 42 U.S.C. § 300g-4(a)(3), and 40 C.F.R. § 142.46 for a three-year six-month term.

14. Beginning March 3, 2020, Denver Water increased pH to fall within a range of 8.6 to 9.0 standard units at entry points (8.5 to 9.1 in the distribution systems) and alkalinity to be at or above 20 mg/L as CaCO₃.

15. On March 5, 2020, Denver Water published an inventory of lead service lines in its service areas pursuant to the terms of the December 16, 2019, variance.

16. Denver Water began enhanced pH corrosion control treatment on March 3, 2020. On June 9, 2021, CDPHE established a pH range of 8.6 to 9.0 and a minimum alkalinity of 20 mg/L as CaCO₃, at the entry points to the distribution system and a pH range of 8.5 to 9.1 and a minimum alkalinity of 20 mg/L as CaCO₃, in the distribution system.

17. On March 18, 2022, Denver Water requested that EPA issue a variance from the LCRR that would allow it to continue to implement the LRPP until completion of that program in 2035.

18. Section 8.D of the December 16, 2019, variance provided that:

[p]rior to the expiration of this variance, but no later than 90 days before the Variance End Date, EPA intends to determine whether to modify the terms of this variance under paragraph 8.I to extend the term of this variance for up to an additional twelve years. To make this determination, EPA will, at a minimum, evaluate data reported through implementation under paragraph 7 against the following criteria to consider whether the variance approach, as implemented, is ‘at least as efficient’ as the treatment technique requirements of the LCR at that time:

- i. Denver Water replaces LSLs at the required minimum cumulative average Program Year rate of 7.0%;
- ii. Denver Water distributes filters and replacement cartridges to customers identified as eligible for its filter program, as described in paragraph 5;
- iii. Denver Water operates pH and alkalinity adjustment as CCT in accordance with the water quality parameters set by CDPHE; EPA, in consultation with CDPHE, will review this information and determine if the distribution system is in the process of reaching equilibrium or has reached equilibrium with the approved water chemistry prescribed by the variance;
- iv. Comprehensive performance of the LRPP overall to date, including 90th percentile lead levels at LSL and copper with lead solder sites after operation of increased pH and alkalinity adjustment as CCT, number of LSLRs conducted, filter adoption rate, and filter performance in the field; and
- v. Denver Water complies with the terms and conditions of this variance and all provisions of the LCR other than the definition of OCCT in 40 C.F.R. Section 141.2.

19. During the first two and a half Program Years of the December 16, 2019, Variance, Denver Water:

A. replaced 12,381 LSLs.

B. achieved equilibrium with pH 8.8 in August 2020 within the distribution system achieving a 60% decrease in 90th percentile lead levels as compared to the second sampling period in 2019. As a result, Denver Water Lead and Copper Sampling results show 90th percentile lead concentrations ranging from 4.1 to 4.4 ppb through the end of calendar year 2021.

C. distributed over 100,000 filters certified to remove lead and provided replacement filters every six months to customers with confirmed and likely lead service lines, achieving an 81% customer filter adoption rate for drinking, cooking, and infant formula.

D. advanced its lead service line inventory by investigating 9,082 lead service lines.

E. during each Program Year, distributed lead outreach and education materials to more than 95% of households enrolled in the filter program and achieved a combined 7.7 million mailings, digital communications, and phone outreach efforts, and 143 events resulting in some 16,300 event attendees. Denver Water also engaged with an additional 4,200 customers using multilingual and culturally relevant outreach and targeted communications to reach diverse cohorts of customers within its service area.

F. incorporated health equity and environmental justice principles to prioritize areas within its service area for LSL replacement, in the method of distribution of filters, and to focus outreach efforts on specific neighborhoods and communities.

20. CDPHE is supportive of Denver Water's request for a variance for a 12-year term, as stated in its letter to EPA dated June 2, 2022.

21. As of December 2021, the regulation in effect as a matter of federal law is the LCRR. The LCRR requires systems to comply with the LCR until October 16, 2024, as described in 40 C.F.R. § 141.80(a)(4)(i).

22. Denver Water is currently in compliance with the December 16, 2019, variance and the LCRR.

23. Since pH and alkalinity treatment stabilized in the distribution system, Denver Water's 90th percentile lead levels have been consistently below 5 ppb, which is below the lead trigger level and lead and copper action levels as described in 40 C.F.R. § 141.80(c) of the LCRR. The overall 90th percentile lead level for the second six months of 2021 was 4.4 ppb. At properties with LSLs, the 90th percentile level was 4.5 ppb. At properties with copper plumbing and lead solder, the 90th percentile was 2.3 ppb for this same compliance period.

CONCLUSIONS OF LAW

24. Section 1415(a)(3) of the Act, 42 U.S.C. § 300g-4, and 40 C.F.R. § 142.46, authorize the EPA Administrator to grant a variance from a treatment technique:

“upon a showing by any person that an alternative treatment technique not included in such requirement is at least as efficient in lowering the level of the contaminant with respect to which such requirement was prescribed. A variance under this paragraph shall be conditioned on the use of the alternative treatment technique which is the basis for the variance.”

25. Section 1401(12) of the Act defines “person” as “an individual, corporation, company, association, partnership, State, municipality, or Federal agency (and includes officers, employees, and agents of any corporation, company, association, State, municipality, or Federal agency).” Denver Water is a public municipal water utility and political subdivision of the State of Colorado.

26. The authority to issue SDWA variances for treatment technique requirements was delegated to the Regional Administrators on June 12, 2000, under EPA Delegation, 9-69, *Issuance of Variances for Treatment Technique Requirements*.

27. Denver Water proposes that it will continue to do the following instead of operating orthophosphate treatment, as required by CDPHE's March 2018 designation:

- A. develop an LSL inventory to identify and track LSLRs and investigate service lines with unknown materials (Note: the inventory is now also required by the LCRR);
- B. conduct its pitcher filter program certified to remove lead for homes with LSLs;
- C. conduct its accelerated LSLR program to replace 7 percent of the LSLs each year so that all LSLs are replaced by January 1, 2035;
- D. operate increased pH and alkalinity adjustment as CCT; and
- E. conduct its communications, outreach, and education plan.

28. The LRPP is an alternative treatment technique that, taken as a whole, is not authorized as a means of complying with the definition of OCCT as the term is used in 40 C.F.R. § 141.82(e). The LRPP involves installation of increased pH and alkalinity as CCT which was not determined by the state as OCCT in its March 2018 designation (40 C.F.R. § 141.82(d)), as well as additional actions which are not CCT.

29. Under the LRPP, Denver Water will continue to conduct full LSLRs (from the service connection to the first fitting inside the structure) of privately-owned LSLs or inspect full LSLRs conducted by others. Denver Water estimated that as of October 1, 2019, it had approximately 64,000 LSLs. Under the LRPP, Denver Water commits to replacement of all LSLs at a cumulative average rate of 7.0% per year, and complete replacement of all LSLRs by January 1, 2035. Because some homes with LSLs will have to wait multiple years for their LSLs to be replaced, Denver Water will also continue to implement a lead removal filter program to provide a filter and replacement cartridges to every household with a LSL. This variance newly adds galvanized service lines requiring replacement to the LSLR and filter program for consistency with the LCRR.

30. In conjunction with these efforts, Denver Water will continue operating increased pH and alkalinity adjustment as CCT to reduce lead and copper corrosion from all sources, including premise plumbing.

31. Finally, Denver Water has conducted an initial LSL inventory of all service line materials and published a map showing the locations of all known LSLs and lead status unknown service lines. Denver intends to conduct an initial inventory that complies with the requirements of 40 C.F.R. § 141.84(a) of the LCRR, by the compliance date of Oct. 16, 2024. Denver Water also commits to conduct a full investigation of unknown service lines and to publish that updated information. Denver Water has conducted extensive outreach to educate customers about the health risks of lead and ways that they can reduce their exposure to lead in drinking water.

32. Denver Water conducted an analysis demonstrating that these steps have provided "at least as efficient" or greater lead reductions compared to orthophosphate and have therefore provided better public health protection.

33. EPA concluded that the components of the LRPP overall are expected to provide equivalent or better public health benefits compared to what would be achieved under the definition of OCCT 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. See Appendix A for additional information on EPA’s technical evaluation of the Denver Water LRPP. EPA finds that Denver Water has demonstrated that its alternative treatment technique meets the requirements of SDWA Section 1415(a)(3), 42 U.S.C. § 300g-4(a)(3). The terms and conditions described below are intended to ensure that Denver Water’s variance will continue to be “at least as efficient” in lowering the level of lead as orthophosphate. Based upon Denver Water’s performance under the 2019 variance to date and the data collected from its implementation, EPA is approving this variance for a twelve-year period to give Denver Water the opportunity to complete implementation of the LRPP.

34. This SDWA Section 1415(a)(3), 42 U.S.C. 300g-4(a)(3), variance only relieves Denver Water of the definition of “optimal corrosion control treatment” in 40 C.F.R. § 141.2 for purposes of federal law 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. All other requirements of the federal LCRR still apply. A corresponding state action is needed to relieve Denver Water of the requirement to implement the state-designated OCCT as a matter of state law because CDPHE has primary enforcement responsibility for the LCR in Colorado currently (and/or LCRR once CDPHE obtains primacy for that rule), and SDWA Section 1414(e), 42 U.S.C. 300g-3(e), provides that nothing in the SDWA shall diminish state authority “to adopt or enforce any law or regulation respecting drinking water regulations or public water systems.” Further, while EPA has authority under 40 C.F.R. § 141.82(i) to designate corrosion control treatment for a system in lieu of the State’s designated OCCT under certain circumstances, EPA is prohibited under 40 C.F.R. § 142.19(d)(5) from exercising such authority to impose conditions less stringent than those that the State imposed for corrosion control treatment. The State has issued such an action under 5 CCR 1002-11.26(3)(d)(iii) on November 15, 2019, subject to EPA’s approval of Denver Water’s 2019 variance request.

ORDER

Based on the foregoing Findings and Conclusions and pursuant to EPA’s authority under SDWA Section 1415(a)(3), 42 USC § 300g-4(a)(3), it is therefore ORDERED:

Denver Water’s variance request is granted subject to the following terms and conditions:

1. Definitions:

A. “*Action level*” has the same meaning as action level in the LCRR, 40 C.F.R. § 141.80(c) and Sections 11.26(1)(c) and (2)(b) of the Colorado Primary Drinking Water Regulations (5 CCR 1002-11.26(1)(c) and (2)(b)).

B. “*Adoption*” or “*Adopted*” for the purposes of the filter program means that the customer enrolled in the filter program is using a filter NSF/ANSI (53) certified for lead removal for drinking, cooking, and infant fed formula (ingestion). Respondents who indicate that they use bottled water or an alternative NSF/ANSI (53) certified filter for ingestion will count as having adopted the use of a filter under paragraph 5.D below.

C. “*Confirmed LSLs*” are based upon direct evidence that gives a 100% probability per the LRPP that a service line is an LSL or a galvanized requiring replacement service line.

D. “*Contact*” means direct mailing, water bill inserts, door hangers, in person contact, email, phone calls, educational materials accompanying filters and cartridges, or any other direct communication channels identified in Denver Water’s communications, outreach, and education plan. Communications via information posted on the Denver Water website, social media websites, water bills, distribution of filters and replacement cartridges alone, or public notices that are required under the LCRR and/or this variance are excluded from this definition.

E. “*Customer Premise*,” for the purpose of these terms and conditions only, means all properties, including residential units within a multi-family property, that receive water service pursuant to a Denver Water or distributor tap license.

F. “*Customer(s) Enrolled in the Filter Program*” means a customer premise, as defined herein where there is a confirmed or likely LSL that will automatically be distributed a filter under paragraph 5 below, unless otherwise refused by the customer.

G. “*Day*” means calendar day.

H. “*Effective Date*” is January 1, 2023.

I. “*Galvanized Requiring Replacement*” or “*GRR*” is defined at 40 C.F.R. § 141.84(a)(4)(ii).

J. “*Integrated System(s)*” means the defined term used in 5 CCR 1002-11.42(4) as a “wholesale system and one or more consecutive systems with distribution systems that are physically connected [that] ...choose to operate in a manner where the wholesaler assumes responsibility for compliance with one or more regulatory requirements applicable to the supplier responsible for the consecutive system, if the requirements of ... section 11.42(4) are met.”

K. “*Ingestion*” means the use of tap water for drinking, cooking, and infant fed formula.

L. “*Investigated*” or “*Investigate*” refers to any activity used to identify the service line materials including a lead water quality test, potholing, visual inspection, or other methods that allow for a determination of the service line material, not including customer requested sample data.

M. “*Lead Reduction Program Plan (LRPP)*” means Denver Water’s Lead Reduction Program Plan dated September 2019.

N. “*Lead Service Line*” or “*LSL*,” is defined at 40 C.F.R. § 141.2 as “a portion of pipe that is made of lead, which connects the water main to the building inlet. A lead service line may be owned by the water system, owned by the property owner, or both. For the purposes of this subpart, a galvanized service line is considered a lead service line if it ever was or is currently downstream of any lead service line or service line of unknown material. If the only lead piping serving the home is a lead gooseneck, pigtail, or connector, and it is not a galvanized service line that is considered a lead service line, the service line is not a lead service line. For purposes of Section 141.86(a) only, a galvanized service line is not considered a lead service line.”

O. “*Lead Status Unknown service lines*” or “*unknown service lines*” is defined at 40 C.F.R. § 141.84(a)(4)(iv) of the LCRR.

P. “*Likely LSLs*” are based on conflicting or missing data that provides an estimated probability value between 50% to 99% per the LRPP that a service line is an LSL or a “galvanized requiring replacement” service line.

Q. “*LSL Replacement*” or “*LSLR*” is defined in paragraph 4.B, below.

R. “*Orthophosphate Treatment*” means phosphate-based corrosion inhibitor addition per the Colorado Department of Public Health and Environment’s March 20, 2018, letter to Denver Water designating orthophosphate as OCCT.

S. “*Program Year*” has the same meaning as calendar year.

T. “*Public Notice*” for the purpose of this variance means:

- i. a Tier 2 public notice as described in 5 CCR 1002-1133(3) and 40 C.F.R. § 141.203;
- ii. a public notice that contains the same elements of Tier 2 Public Notice described above that is provided to customers enrolled in the filter program, and that is delivered by making at least two forms of direct contact with the customer subset, with messaging approved by CDPHE; and
- iii. a Tier 3 public notice as described in 5 CCR 1002-11.33(4) and 40 C.F.R. § 141.204.

U. “*Select Households*” means homes built between 1983-1987 that do not have LSLs.

V. “*Service Line Refusal List*” means a list of the households where the owner has refused access for lead service line replacement. The list should include addresses of Customer Premises and descriptions of the attempts to contact the property owner.

W. “*System*” means the community water system that Denver Water owns and operates (PWS ID# CO0116001) and the Integrated Systems covered under Master Meter, Read and Bill, or Total Service agreements with Denver Water as detailed in Appendix III.B.1 of the Lead Reduction Program Plan submitted by Denver Water in support of its variance request. Those systems are listed in Appendix B.

X. “*Unlikely LSLs*” are 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.

Y. “*Variance End Date*” means twelve years after the Effective Date.

2. Corrosion Control Treatment:

A. *pH and Alkalinity Adjustment Corrosion Control Treatment.* Denver Water must maintain pH and alkalinity adjustment as CCT in its System within the ranges established by CDPHE.

B. *Monitoring and Sampling:*

- i. *Use of Sampling Results in the 90th Percentile Calculation.* Until October 16, 2024, lead water quality tests collected to identify LSLs for the inventory under this variance and to verify lead concentrations post-replacement shall not be used in the calculation of the 90th percentile. Any customer-requested samples that meet the Tier 1 sampling requirements will still be included in Denver Water's 90th percentile compliance calculations. Beginning October 16, 2024, the requirements at 141.86(e) of the LCRR apply.
- ii. *Monitoring for Water Quality Parameters.* Until October 16, 2024, Denver Water must collect a minimum of 8 of the 50 tap samples each month to meet the required total number of 50 samples over each six-month period. After this date, Denver Water must comply with the provisions for monitoring water quality parameters at 40 C.F.R. Section 141.87.
- iii. *Identifying and Addressing Elevated Lead Levels.* Denver Water shall continue to implement the elevated lead response plan as approved by CDPHE and EPA in June 2020. Upon identification of a sampling location with elevated levels of lead, Denver Water shall take actions to reduce drinking water exposure to lead in accordance with the approved plan. After October 16, 2024, Denver Water must also comply with the find-and-fix provisions at 40 C.F.R. § 141.82(j) for tap sample sites that exceed the lead action level.

C. *Corrosion Control Treatment Compliance Metric.* Denver Water 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 CaCO₃; 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 CaCO₃. CDPHE may modify these required water quality parameter ranges through a modification decision under 5 CCR 1002-11.26(3)(d)(ii).

3. **Lead Service Line Inventory:**

A. *LSL Inventory.* Denver Water must 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 associated with a Customer Premise within Denver Water's System and update the inventory each Program Year as LSLs are replaced, and the material used for service lines are Investigated. The inventory must include all service lines within the System regardless of ownership, including in the service areas of all distributors who are a part of the Integrated System. Denver Water estimated in the initial inventory completed in October 2019 that it had 64,000 LSLs. 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).

B. *Investigation of Service Line Materials.* During the term of this variance, on an ongoing basis Denver Water must Investigate lead status unknown (likely and unlikely) service lines using lead water quality tests, potholing, visual inspections, or other methods that allow for the determination of the service line material. Denver Water must incorporate its findings under this subparagraph into its required LSL inventory annual updates.

C. *Publication of LSL Inventory.* Denver Water must continue to provide public access to its LSL inventory on its external customer website, which will allow the public to view whether service line

materials used for any Customer Premise in the System, by the specific street address, is: confirmed lead service line; likely to have a lead service line; unlikely to have a lead service line; or no lead service line. By October 16, 2024, the inventory must list by specific street address which service lines are lead, galvanized requiring replacement, non-lead, or lead status unknown. During the term of this variance, Denver Water must update this inventory at least annually, and must continue to make the publicly accessible inventory available online.

D. LSL Inventory Compliance Metric. Denver 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. These investigations are performed independently of the LSL replacements under paragraph 4 below.

4. Accelerated Lead Service Line Replacement Program:

A. LSL Replacement. Each 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. At the end of each Program Year, the cumulative average must be calculated using the total number of LSLs replaced during the entire term of the LRPP (starting January 1, 2020) divided by the total estimated 64,000 LSLs, consistent with the initial LSL inventory conducted in 2019. If service lines initially inventoried as unlikely or non-lead are later discovered to be LSLs, they must be added to the initial number of LSLs in Denver Water's inventory and included in the calculation of the LSL replacement rate. Denver Water shall assure that the replacement rate described above results in replacement of all lead service lines and galvanized requiring replacement service lines by the Variance End Date.

B. LSL Replacement Defined. For the purpose of calculating the cumulative Program Year average replacement rate, the following types of LSL replacements will count as credit for an entire LSL replacement:

- i. full LSL replacement of a single service line;
- ii. replacement of an existing partial LSL that results in a non-lead service line from the main to the first fitting inside the structure;
- iii. replacement of a galvanized requiring replacement service line; and
- iv. full LSL replacement completed by entities other than Denver Water, such as governmental agencies, developers, homeowners, and non-profits, which have been inspected by Denver Water.

C. Full LSL Replacements. All LSLs must be replaced from the main up to the first fitting inside the structure excluding any portion of the service line that is copper. If there is no fitting within five feet of the location where the service line enters the structure, Denver Water must install a fitting to allow for connection of the service line at a location convenient for Denver Water.

D. Partial LSL Replacements. Denver Water may not make a partial replacement of an LSL during the term of the variance except for: i. emergency repairs which must be made to a service line; or ii. in coordination with planned infrastructure work and property owner consent cannot be obtained or the property cannot be accessed (e.g., due to safety concerns). A partial replacement that does not result in complete replacement of all portions of the LSL shall not be counted as an LSL replacement for the purposes of the accelerated LSL replacement program until the entire LSL is fully replaced. When Denver Water conducts a partial replacement of an LSL, it will keep the customer enrolled in its lead filter program until six months after the remaining portion of the LSL can be replaced. All partial LSLs must be replaced by the Variance End Date. Partial lead service line replacements conducted after the LCRR compliance date (October 16, 2024) must comply with all applicable requirements for conducting partial LSLRs (see 40 C.F.R. 141.84(d)).

E. Post Replacement Samples. Denver Water must offer property owners the option to have Denver Water conduct one-time lead sampling at homes where LSLs have been replaced within six months post-LSL replacement.

F. Test Out. As a condition of this variance, Denver Water may not use the “test out” provision in the LCR (40 C.F.R. § 141.84(c)). This provision is not in the LCRR and therefore, as a matter of law, it may not be used by Denver Water after the compliance date of the LCRR (October 16, 2024). All LSLs must be replaced.

G. Property Owner Consent. Denver Water intends to contact property owners at the Customer Premise a minimum of two weeks before replacement to secure the property owner’s documented consent. Work at the Customer Premise is intended to commence once consent is documented. If Denver Water has not made contact with a property owner, then Denver Water must use good faith efforts to secure consent. Good faith efforts must include at least three attempts to contact the property owner using at least two different methods of outreach. If documented consent to replace the LSL is not granted after good faith efforts are made to achieve consent, then the property will be added to Denver Water’s Service Line Refusal List as described in paragraph 4.H. below.

H. Customer Refusals and Changes in Customer Accounts. Denver Water must maintain records of the specific addresses of all Customer Premises at which the property owner does not consent to LSL replacement (i.e., Service Line Refusal List defined under paragraph 1 of this Order). When Denver Water customer account records indicate a change in ownership at the customer premise, Denver Water must determine whether the address is on the Service Line Refusal List, and as soon as possible but no later than one year of a change in Denver Water account records, undertake good faith efforts to obtain permission from the new property owner of the Customer Premise to replace the LSL. Good faith efforts include the efforts described in paragraph 4.G. above. If permission is granted and conditions allow for the LSL to be accessed and safely replaced, Denver Water must replace the LSL. No properties shall remain on the Service Line Refusal List by the Variance End Date.

I. Accelerated LSL Replacement Compliance Metric. Denver Water must annually achieve at least a 7.0% cumulative average Program Year LSL replacement rate 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.

5. Filter Program:

A. *Filters.* To the extent not already distributed, Denver Water must distribute to the occupants of all Customer Premises in its System with confirmed or likely lead service lines, or GRR, one filter and enough replacement cartridges for the first six months of use. All filters and cartridges distributed must be certified NSF/ANSI (53) for lead removal and not certified to remove fluoride. Customers who indicate that they use bottled water or an alternative filter device certified NSF/ANSI (53) will continue to be customers enrolled in the filter program unless they refuse a filter or contact Denver Water to opt-out of the filter program. Denver Water must maintain a list of customers who have refused filters or opted-out of the filter program and provide the list to EPA and CDPHE upon request.

B. *Filter Replacement Cartridges.* Denver Water must distribute replacement cartridges to all customers enrolled in the filter program per the filter manufacturers' recommended replacement rate unless the customer refuses the filter or replacement cartridges. Replacement filters must be provided to each Customer Premise enrolled in the filter program until six months after replacement of a Customer Premise's LSL or until the time the service line of the property is confirmed to be non-lead. If 2% or more of customers enrolled in the filter program, do not receive the replacement filters or cartridges (e.g., undeliverable addresses or mail issues) per the manufacturers' recommended replacement rate, then Denver Water must provide public notice to all customers enrolled in the filter program under paragraph 1.T.ii.

C. *Changes in Customer Accounts.* 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.

D. *Filters for Infants in Select Households* 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 replacement filters and cartridges, at no cost, to the customer until the child exceeds the age of 24 months.

E. *Filter Adoption Assessment.*

i. *Surveys.* 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 but was not provided by Denver Water for infant formula, cooking and drinking. Surveys can be conducted in writing by mail or verbally using the same survey questions so long as responses are documented. If the filter survey questions are substantively modified, the filter survey will be provided to and approved in writing by EPA and CDPHE before distribution to customers enrolled in the filter program. If Denver Water:

a. Does not conduct the survey every other year, then Denver Water must conduct public notice to all customers under paragraph 1.T.i.

b. If Denver Water does not receive a minimum of responses from remaining program participants that is consistent with a 95% confidence level and 3% margin of error, then Denver Water must conduct public notice to all customers enrolled in the filter program under paragraph 1.T.iii, unless CDPHE determines that Denver Water must conduct public notice under paragraph 1.T.ii.

ii. *Survey of Filter Adoption Rate.* All received survey responses will be used to calculate the filter adoption rate based on: the number of responses that confirm adoption of the filter, use of bottled water, or use of an alternative filter device not provided by Denver Water that is certified NSF/ANSI (53) for ingestion. Respondents who indicate that while for cooking purposes they do not use the filter Denver Water provided, bottled water, or alternative filter device that is certified NSF/ANSI (53) but utilize one of these three options for drinking water and infant fed formula, such respondents will be summed and multiplied by 50% and the result may be counted as having adopted a filter for the purposes of determining the average filter adoption rate.

F. *Filter Performance.*

i. *Confirmation of Filter Performance Before Distribution.* If Denver Water elects to change the type, model, or manufacturer of the filter provided, then prior to distribution to customers Denver Water must test the lead removal effectiveness of twelve units of each type of filter to be distributed to customers using water from Denver Water's pipe racks as described in the LRPP from at least one Denver Water treatment plant in accordance with a testing protocol approved by EPA and CDPHE to confirm that the filters meet the requirements of the NSF/ANSI (53) certification. All filter testing results will be reported to EPA and CDPHE. Denver Water shall not distribute a filter model that fails to meet the NSF/ANSI (53) certification requirements based upon the lead samples collected under this paragraph.

ii. *Confirmation of Filter Performance and Usage in Field.* To confirm performance of filters in use at Customer Premise, Denver Water must collect samples from filters in at least 50 locations in use by customers enrolled in the filter program who are also enrolled in Denver Water's compliance tap sampling program. Sampling will have the same frequency as compliance tap sampling under LCRR. Filter samples must be collected in accordance with a testing protocol approved by EPA and CDPHE in writing that includes both first draw and lead service line samples. During the sample collection process, Denver Water will collect additional information regarding whether the filter is properly used and maintained, including but not limited to: whether the filter cartridge is properly installed and changed on time; whether the filter is being used for drinking, cooking, and infant formula; and whether the filter is being used per manufacturer's instructions.

iii. If Denver Water does not complete testing of filters under paragraph 5.F, in accordance with EPA and CDPHE approved protocols, Denver Water must provide public notice in accordance with paragraph 1.T.ii. above.

G. Filter Communication Compliance Metric. 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. Outreach and education materials must include information on the proper use of filters including filter cartridge replacement. Communications channels may include “door-to-door” communications, a customer tracking system, how-to videos, and local opportunities to engage residents (See Appendix A). 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. If Denver Water does not achieve compliance with this metric, Denver Water must provide public notice to all customers enrolled in the filter program of its failure to achieve the metric under paragraph 1.T.ii.

6. Lead Reduction Program Plan:

A. Lead Reduction Program Plan. Denver Water must update the LRPP and submit it to EPA and CDPHE for approval within six months of the effective date of this variance. Denver Water shall work in good faith to fully implement the LRPP. In no case shall a deviation from or failure to implement the LRPP modify these terms and conditions. In the event of a conflict between these terms and conditions and the LRPP, the terms and conditions in this variance take precedence. Should Denver Water seek to modify the LRPP in the future, then Denver Water must submit the proposed modifications to the LRPP to EPA and CDPHE for approval. Unless and until EPA and CDPHE approve the modifications, the September 6, 2019, LRPP is the operative LRPP for purposes of this variance.

B. Comprehensive LRPP Performance Compliance Metric. Denver Water 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 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.

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 concerns¹ 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.

¹ For the purposes of this Order, 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.

- 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.

7. Recordkeeping and Reporting Requirements:

A. Reporting. In the event that Denver Water determines that it will not meet any of the terms and conditions as defined in this document, Denver Water must notify CDPHE and EPA in writing no later than 14 Days after the determination occurs. The notification shall identify the provision of the Order that will not be met and describe the actions Denver Water is taking to address the failure to meet the terms and conditions.

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.

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 5 CCR 1002-11.26, as well as the results of any customer requested samples;
- c. 90th 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.

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).

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.

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 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;
- b. the total number of filters and replacement cartridges distributed per Program Year;
- c. the percent filter adoption for each year of the variance, 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 above 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.

v. *Compliance Metrics*. Results achieved under the compliance metrics in paragraphs 2.C, 3.D, 4.I, 5.G, 6.B and 6.C above.

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.

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.

C. *Annual Program Year Report*. No later than February 10, Denver Water must submit a Program Year report to CDPHE and EPA, containing a summary of the information and data required under this paragraph for the previous Program Year, including an assessment of which metrics were achieved. The data listed above for the 2nd semi-annual report can be combined into the annual report. The Annual Program Year Report must include a comprehensive evaluation of LRPP performance to date using the equivalency model described in the LRPP with updated inputs based on actual LRPP implementation for: 90th percentile lead levels at LSL and copper with lead solder sites after operation of increased pH and alkalinity adjustment as CCT, number of LSLRs conducted, filter adoption rate, and filter performance in the field. This requirement remains in effect for the term of the variance. The Program Year report must also document any deviations from the LRPP during the most recent Program Year. If CDPHE or EPA provides any comments or requests related to the annual report, Denver Water must provide a written response within 30 Days that addresses any identified comments/requests.

8. General Provisions:

A. *Authority.* Beginning on the Effective Date, CDPHE has primary implementation authority over the variance, subject to EPA oversight. CDPHE may make recommendations to EPA to revoke this variance. Revocation is discussed in 8.E. EPA has the ultimate authority to determine whether to revoke this variance.

B. *Term of Variance.* Unless EPA revokes, terminates, or modifies the terms of this variance, or the variance expires under 8.F, the term of this variance is 12 years, beginning on the Effective Date and ending on the Variance End Date, or the compliance date of any revision of the LCRR, whichever is sooner (See paragraph 8.F.).

C. *Modification of Conditions.* EPA has the sole authority to modify this variance and may do so at any time. EPA will notify Denver Water and CDPHE in writing of any modifications and incorporate such modifications into this variance. Denver Water and CDPHE can also request modifications in writing, which must include a rationale for the request.

D. *Enforcement.* EPA or CDPHE may take an enforcement action, including but not limited to issuing violations and requiring public notice, if Denver Water fails to comply with the terms and conditions of the variance and the state's modification under 5 CCR 1002-11.26(3)(d)(iii), in accordance with 42 U.S.C. §§ 300g-3(a)(1) of the SDWA and Colo. Rev. Stat. §§ 25-1-114, 25-1-114.1, and 25-1.5-203; 5 CCR 1002-11.1(6)(c), respectively. Failure to comply with the conditions of the variance is subject to enforcement under Section 1414(a)(1)(A) of SDWA, 42 U.S.C. § 300g-3(a)(1)(A). Failure to meet any schedule in this variance, including the requirements in 8.E, could be enforced administratively or judicially as described in SDWA Section 1414(a)(1)(A)(ii), 42 U.S.C. § 300g-3(a)(1)(A)(ii). EPA further reserves its right to act under SDWA Section 1431, 42 U.S.C. § 300i, if it determines there may be an imminent and substantial endangerment to the health of persons.

E. *Revocation of the Variance.* EPA has the sole discretion to revoke this variance and may do so if Denver Water does not comply with the terms and conditions of the variance or if EPA believes there is a risk to public health.

i. *Conference.* Within 15 Days of learning of a failure by Denver Water to comply with the terms and conditions of this variance, or of determining there is a risk to public health, EPA will convene a conference with Denver Water and CDPHE to discuss the failure or health risk. EPA, CDPHE, and Denver Water will use this conference to attempt to determine what causes or factors may have led to the failure or health risk and to identify whether steps may be taken to resolve the failure or health risk. Within 15 Days of the conference, EPA will make a final decision on what actions, if any, Denver Water must take to resolve the failure or health risk and will notify both Denver Water and CDPHE in writing of this decision. If EPA determines a modification of the variance is necessary, it will follow the procedures in paragraph 8.C. If EPA determines it is necessary to revoke the variance, it will follow the procedures in paragraph 8.E.ii below. In addition, EPA and CPDHE reserve the right to initiate an enforcement action, including under SDWA Section 1431, 42 U.S.C. § 300i in situations of imminent and substantial endangerment, as described in 8.D.

ii. *Procedures for Corrosion Control Treatment Study and Revocation.* If EPA determines it is necessary to revoke the variance, it will notify Denver Water and CDPHE in writing of this

decision. If EPA determines additional study is warranted based on the conference, within 18 months of the date of receipt of EPA's written decision, Denver Water must complete a new corrosion control study to evaluate treatment options for the conditions in the distribution system at that time. The study must be conducted in accordance with the LCRR, and Denver Water must submit the study report to EPA and CDPHE. CDPHE will review this study report and available information and, in consultation with EPA, will designate the appropriate corrosion control treatment under applicable federal and state requirements. Denver Water must install and operate the corrosion control treatment designated by CDPHE and provide public notice to its customers in accordance with paragraph 1.T.i above. Revocation of the variance will be effective 60 days after Denver Water installs and operates the designated corrosion control treatment, until which time the provisions of the variance will remain in effect. Failure to complete these steps by this deadline will be considered a treatment technique violation under 5 CCR 1002-11.26 and 40 C.F.R. § 141.82(e).

F. Expiration of the Variance Based on Revisions to the Lead and Copper Rule. This is a variance from the definition of "OCCT" in 40 C.F.R. § 141.2 of the LCRR 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. This variance is based on a comparison of the variance approach to the requirements of the LCRR. It is not a variance from any other provision of the LCRR or future regulations. It is also not a variance from any of the LCRR requirements that apply after an exceedance of the trigger level or the action level based on compliance tap sampling conducted under Section 141.86 of the LCRR. If EPA revises the LCRR, the variance will expire on the compliance date in the revised rule. Should the variance expire based on revisions to the LCRR, Denver Water must comply with all applicable federal and state requirements in effect at that time. The procedures following revocation of the variance described in paragraph 8.E. would not apply after the compliance date of the revisions to the Lead and Copper Rule. Denver Water may also request a variance from any revised rule based on a demonstration that it meets the statutory standard for a variance from any revised rule, and EPA may consider approving a new variance from the revised rule based on that request.

G. Termination Based on Completion of All Lead Service Line Replacements. Denver Water must certify to EPA and CDPHE in writing when it has replaced all lead service lines and GRRs within its service area and no unknowns remain. If Denver Water discovers full or partial lead service lines after this certification, it must notify CDPHE and EPA within 30 Days, replace the LSL within 6 months, and provide a filter and one replacement cartridge to each residence for use until 6 months following the LSLR. Denver Water's certification of LSLR completion to EPA and CDPHE must also include a proposed plan that describes how Denver Water will address such lines that are discovered after the certification of approval is effective and must include procedures stating that Denver Water will submit to CDPHE and EPA documentation of Denver Water's compliance with such a plan. The proposed plan must be approved by EPA in consultation with CDPHE. The variance will terminate on the effective date of EPA's written approval of Denver Water's certification and plan. Once the variance terminates, Denver Water must comply with all applicable federal and state requirements in effect at that time.

H. Notices. All notices, reports, disclosures, or other communications required or related to this variance must be sent via certified U.S. Mail, overnight express delivery service, or electronic means to the recipients (or designated alternate) and addresses below.

EPA:
Safe Drinking Water Branch Chief
Water Division U.S. Environmental Protection Agency, Region 8
1595 Wynkoop St.
Denver, CO 80202-1129
Current E-mail: bahrman.sarah@epa.gov

Denver Water:
James S. Lochhead
CEO/Manager
Denver Water
1600 West 12th Avenue
Denver, Colorado 80204
E-mail: jim.lochhead@denverwater.org

Office of General Counsel:
ATTN: Jessica Brody
Denver Water
1600 West 12th Avenue
Denver, Colorado 80204
E-mail: jessica.broadly@denverwater.org

CDPHE:
Safe Drinking Water Program Manager
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, CO 80246
Current E-mail: ron.falco@state.co.us
All reports will be sent to Drinking Water Compliance Assurance through its on-line portal at <https://wqcdcompliance.com/login> or through such other means as designated in writing by CDPHE or EPA.

Attorney General's Office:
ATTN: First Assistant Attorney General, Water Quality Unit
1300 Broadway
Denver, CO 80203
Current E-mail: carrie.noteboom@coag.gov

KC Becker
Regional Administrator
EPA Region 8