



Implementation Status Report for EPA Actions under the December 2018 Federal Action Plan to Reduce Childhood Lead Exposures and Associated Health Impacts

APRIL 2019





VISION

The United States will become a place where children, especially those in vulnerable communities, live, learn and play protected from the harmful effects of lead exposure.

INTRODUCTION

Since the 1970s, the U.S. Environmental Protection Agency (EPA) and its federal, state, tribal and local governmental partners have made tremendous progress in reducing children’s lead exposures and lead-related health risks. EPA efforts to reduce lead exposures and prevent lead poisoning include a wide range of activities such as funding for community interventions and outreach, education and training, surveillance and regulation and enforcement.

Blood lead levels have fallen dramatically in the United States due to the promulgation, implementation and enforcement of laws and regulations aimed at reducing lead exposure. The largest declines in blood lead levels occurred from the 1970s to the 1990s following the elimination of lead in motor-vehicle gasoline, the ban on lead paint for residential use, removal of lead from solder in food cans and bans on the use of lead pipes and plumbing fixtures. Figure 1 depicts the timeline for major actions to prevent lead poisoning and reductions in mean blood lead levels (micrograms per deciliter (µg/dL)) among children ages 1 to 5 years from 1972 to 2012.

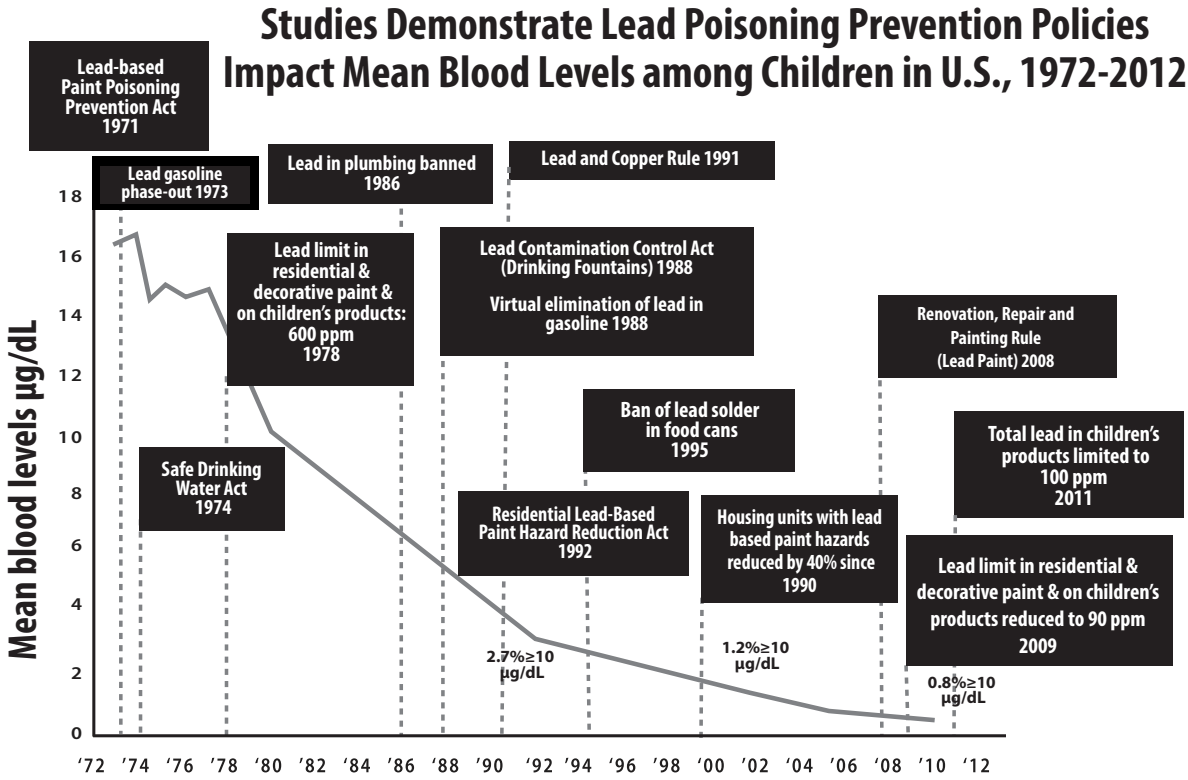


Figure 1: Source - Adapted from https://ptfch.niehs.nih.gov/features/assets/files/key_federal_programs_to_reduce_childhood_lead_exposures_and_eliminate_associated_health_impacts/presidents_508.pdf and Brown MJ and Falk H. Toolkit for establishing laws to control the use of lead paint. Module C.iii. Conducting blood lead prevalence studies. Global Alliance to Eliminate Lead Paint (2017)

The Centers for Disease Control and Prevention (CDC) has stated that no safe blood lead level in children has been identified and in 2012 set a reference level of 5 µg/dL as an elevated level for children. Despite the overall decline of blood lead levels over time, lead exposure remains a significant public health concern for some children because of persistent lead hazards in their environment. Childhood lead exposure is especially prevalent in many communities that represent the lowest income and most diverse populations with significant cumulative environmental risk from pollution.



EPA, along with the Department of Health and Human Services (HHS), co-chaired the development of the December 2018 Federal Action Plan to Reduce Childhood Lead Exposures and Associated Health Effects (Federal Lead Action Plan) through cross-governmental collaboration of the President’s Task Force on Environmental Health Risks and Safety Risks to Children, which includes 17 federal departments and offices.

The Federal Lead Action Plan focuses on reducing sources of lead exposures, expanding efforts to identify children in high risk communities for targeting intervention and services, enhancing risk communication efforts and advancing the scientific understanding of multi-media lead exposures and their relationship to blood lead levels.

The Federal Lead Action Plan outlined four interconnected goals with supporting priority actions:

Goal 1: Reduce Children’s Exposure to Lead Sources

Goal 2: Identify Lead-Exposed Children and Improve Their Health Outcomes

Goal 3: Communicate More Effectively with Stakeholders

Goal 4: Support and Conduct Critical Research to Inform Efforts to Reduce Lead Exposures and Related Health Risks

EPA ACTIVITIES UNDER THE FEDERAL LEAD ACTION PLAN

As EPA works with its partners to better coordinate activities and implement the overall federal effort to reduce childhood lead exposures and associated health impacts, the Agency is continuing its efforts to reduce lead exposures as described under the following actions.

The goal of this document is to outline the activities that the Agency is conducting under the Federal Lead Action Plan. Other federal partners are working to implement their actions as articulated in the Federal Lead Action Plan. Appendix 1 is a summary of current accomplishments and next steps under the EPA-led actions. EPA will update Appendix 1 on a regular basis and will post it on its website to inform the public of progress in accomplishing the actions.

This report is not a budget document and does not imply approval for any specific action under Executive Order 12866 or the Paperwork Reduction Act. It will inform future federal budget and regulatory development processes within the context of the goals articulated in the President's Budget. All activities included in the report are subject to budgetary constraints, interagency processes, stakeholder input and other approvals, including the weighing of priorities and available resources by the Administration in formulating its annual budget and by Congress in legislating appropriations. In some cases, activities in the report require a multi-year effort by federal, state, tribal and community partners.



Goal 1: REDUCE CHILDREN'S EXPOSURE TO LEAD SOURCES

EPA is committed to reducing lead exposures from multiple sources including: paint, water, ambient air and soil and dust contamination, especially among children who are the most vulnerable to the effects of lead. EPA is the principal agency for multiple Goal 1 actions identified below and will continue to coordinate with federal, state, tribal and community partners to amplify the impact of these actions.

Objective 1.1. Reduce Children's Exposure in Homes and Child-Occupied Facilities with Lead-Based Paint Hazards

Reducing exposure to lead paint in old housing continues to offer the potential to significantly decrease blood lead levels in the largest number of children. It is important that a focus on structures include homes and locations outside the home where young children spend significant amounts of time, such as child care settings and schools (EPA, 2008).

EPA Actions:

- Consider revisions, as appropriate, to the dust-lead hazard standards to address childhood exposures to lead-contaminated dust generated from lead-based paint.
 - In June 2018, the Agency proposed to strengthen the dust-lead hazard standards for floors and window sills. These standards apply to most pre-1978 housing and child-occupied facilities, such as daycare centers and kindergarten facilities. Lead dust can be a major source of lead exposure in children and the new proposed standards for lead in dust will be an important step to reduce lead exposure among children. EPA plans to issue a final rule by summer 2019.
- Continue to implement regulations and other relevant authorities that require individuals and firms conducting lead-based paint abatement, risk assessment or inspection to be properly trained and certified, training programs to be accredited and these activities to be conducted according to reliable, effective and safe work practice standards.
 - In 2018, EPA awarded 17 grants nationwide under the Environmental Workforce Development and Job Training Program to train and certify adults in courses related to hazardous and solid waste management, preparing unemployed and underemployed adults for jobs in the environmental field, including lead abatement. By 2020, 108 students from two programs will be trained and state-certified in lead abatement.



- Increase the number (or percentage) of certified renovation firms capable of providing lead-safe renovation, repair and painting services through targeted outreach campaigns to contractors; continue to provide a nationwide list of certified renovation firms on EPA's website.
 - EPA regularly works with individuals and firms to reduce lead hazards by ensuring they are certified under the Lead Renovation, Repair and Painting (RRP) Rule and trained to use lead-safe work practices. Learn more at: <https://www.epa.gov/lead/renovation-repair-and-painting-program>.
 - EPA routinely updates the list of certified renovation firms on its website. Find a firm: <https://cfpub.epa.gov/flpp/pub/index.cfm?do=main.firmSearch>.
 - EPA completed planning for a lean pilot project in six cities to increase the number of RRP Certified firms and trained contractors. The EPA will continue to provide outreach events aimed specifically at reaching contractors by working with building code officials, hardware stores and industry trade associations and hold at least one outreach event at each of the six cities to reach contractors.

Objective 1.2. Reduce Exposure to Lead from Drinking Water

In 1991, the EPA promulgated the Lead and Copper Rule (LCR) under the Safe Drinking Water Act, to minimize lead and copper levels in drinking water. Recognizing that no safe level of lead in drinking water had been identified, the LCR set a non-enforceable health-based maximum contaminant level goal of zero for lead and requires a treatment technique to reduce lead levels to the extent feasible.

Under the LCR, water systems must work with their customers to collect tap samples from locations with lead service lines and/or leaded plumbing materials. The LCR requires water systems that are not able to limit lead levels below EPA's action level for lead in water of 15 µg/liter by optimizing corrosion treatment to replace service lines that are made of lead and conduct public education. Progress in reducing lead exposures has resulted, in part, from improving implementation of and compliance with the current LCR (EPA, 2018c).



EPA Actions:

- Revise the LCR based on input EPA recently received from state, tribal and local partners as public comments, as well as the best available peer reviewed science, to ensure the rule reflects the best ways to improve public health protection and reduce levels of lead in drinking water.
 - EPA continued analysis to support preparation of a proposal for revisions to the LCR and supporting technical documentation.
 - EPA plans to propose revisions to the LCR by summer 2019.
- Enhance implementation of the LCR by engaging with state, tribal, local and other stakeholders to identify implementation challenges, best practices and tools to address these challenges.
 - EPA conducted approximately 30 in-person trainings across the country in all 10 EPA Regions over the last two years including a full-day training on optimal corrosion control treatment to improve compliance and reduce lead exposure at the tap through successful implementation of corrosion control treatment. The training provided participants including states, technical assistance providers and water utility operators, an opportunity to work through case studies, analyze actual water system data and participate in interactive activities.
 - In August 2018, EPA hosted the National Drinking Water Workshop with 400 participants in attendance. This workshop included multiple sessions on lead testing, lead service line replacement and other LCR topics. It also included a 2-hour discussion between states, EPA, academia experts and workshop participants on key issues and implementation challenges related to the LCR.
 - In March 2019, EPA hosted the first in a series of webinars on Lead Service Line Replacement. This series showcases best practices for states and utilities implementing a voluntary lead service line replacement program. March's webinar included speakers from Washington State Department of Health and D.C. Water.
 - EPA HQ and all 10 EPA regions met regularly to discuss LCR challenges and strengthen implementation nationwide. This effort includes quarterly reviews of lead exceedance data and system violations reported to the Safe Drinking Water Information System (SDWIS).
- Assist schools and child care centers with the 3Ts approach (Training, Testing and Taking Action) to reduce lead in drinking water and increase the number of schools and child care centers that test and provide parents with information on how to minimize children's exposure to lead in drinking water.
 - In October 2018, EPA released an updated 3Ts for Reducing Lead in Drinking Water document, which introduces the new 3Ts — Training, Testing and Taking Action. The revised version is available in an interactive web-format and includes modules, customizable templates and tools that can help schools and child care facilities when

implementing their lead testing programs. To improve communication with community members and parents, EPA has added an additional communication tool in 27 languages (Translations for English Instructions). Learn more at: <https://www.epa.gov/safewater/3Ts>.

- To continue to encourage reduction programs for lead in drinking water, EPA worked with states, utilities and local organizations to showcase efforts across the country and added additional case studies to the Leaders in Reducing Lead in Drinking Water map. Since 2018, EPA has hosted five webinars to describe the 3Ts toolkit and provide information on the Water Infrastructure Improvement for the Nation (WIIN) Act grants.
- Finalize regulatory changes to the definition of lead-free plumbing products and make other conforming changes to implement the Reduction of Lead in Drinking Water Act and the Community Fire Safety Act enacted by Congress. The final regulation is expected to result in fewer sources of lead in drinking water by implementing new standards for lead content in plumbing materials used in new installations and repairs.
 - EPA published a proposed regulation for Implementing Section 1417 of the Safe Drinking Water Act entitled “Use of Lead Free Pipes, Fittings, Fixtures, Solder and Flux for Drinking Water,” for public review and comment. The proposed regulation would modify the definition of lead-free plumbing products (e.g., pipes, fittings and fixtures) to conform to the statute enacted by Congress that prohibits a lead content level above 0.25 percent of the wetted surfaces. The proposal also includes other requirements that will ensure plumbing fixtures meet the new “lead free” definition.
 - EPA is considering comments on the proposed rule to inform final and conduct additional analysis to support preparation of a final rule by winter 2019-2020.
- Collaborate with states and tribes to provide opportunities for low- interest loans and grants through the Drinking Water State Revolving Fund and the Water Infrastructure Finance and Innovation Act loan program for updating and replacing drinking water infrastructure.
 - In fiscal year 2018, EPA invited 39 projects in 16 states and D.C. to apply for Water Infrastructure Finance and Innovation Act (WIFIA) loans. Together, the selected borrowers will receive WIFIA loans totaling approximately \$5 billion to help finance



over \$10 billion in water infrastructure investments and create up to 155,000 jobs. A description of the projects is found at: <https://www.epa.gov/newsreleases/epa-invites-39-projects-apply-wifia-loans-finance-10-billion-water-infrastructure>.

- EPA’s WIFIA loans will allow large and small communities across the country to implement projects to address two national water priorities – providing for clean and safe drinking water including reducing exposure to lead and other contaminants and addressing aging water infrastructure.
 - EPA prioritized projects that address lead and emerging contaminants in the 2018 selection round and invited a number of projects that accomplish this purpose to apply for WIFIA financing.
- Implement three newly authorized grant programs under the Water Infrastructure Improvements for the Nation Act, for which Congress appropriated \$50 million in FY2018, to fund grants to small and disadvantaged communities for developing and maintaining infrastructure, for lead reduction projects and to support the voluntary testing of drinking water in schools and childcare centers. These programs decrease exposure to lead in drinking water by providing financial incentives to test, educate and replace infrastructure.
 - EPA sent out letters to state governors announcing the Lead Testing in Schools and Child Care Programs Drinking Water grant authorized by the WIIN Act. At the beginning of 2019, EPA received letters from all 50 states and the District of Columbia confirming their commitment to reducing lead in drinking water in schools and to participate in this new grant.

EPA expects to notify states and the District of Columbia of funding allotments for the Lead Testing in School and Child Care Programs Drinking Water Grant in March 2019. EPA will host webinars for states on the new grant guidance.
 - EPA is conducting the tribal consultation on the Reduction of Lead in Drinking Water Grant authorized by the WIIN Act through the end of March 2019.

Objective 1.3. Reduce Exposure to Lead in Soil

Lead can be a relatively common soil contaminant as a result of past and current human activity or uses (i.e., lead paint deposited in surface soil) and natural occurrence (ATSDR, 2017; EPA, 2017). Young children often have higher rates of soil and dust ingestion because of their unique behaviors such as crawling and hand/object-to-mouth contact (Task Force, 2016). As such, children who play in areas near former mining and smelting sites, manufacturing facilities, processing plants, landfills and buildings with exterior lead-based paint may be exposed through incidental ingestion of small amounts of soil or soil-



derived indoor dust (ATSDR, 2017). Soil, near roadways (Mielke et al., 2013) and in yards, playgrounds, gardens and elsewhere in the community may also be a source of exposure. Contaminated soil can also be tracked into the home.

EPA Actions:

- Manage lead contamination at Superfund, RCRA Corrective Action and other sites to reduce exposure to community residents.
 - EPA reduced exposure to community members by continual efforts to manage 1,212 Superfund sites with lead as a contaminant of concern to reduce exposures to community residents.
 - EPA has completed eight consultations at Superfund lead sites in fiscal year 2019. Consultations entail review and exchange of information on key response decisions to promote national consistency in decision-making at Superfund lead sites across the country.
- Continue to reduce childhood exposures to lead in soils through removal, remedial and corrective actions at contaminated sites and reduce lead soil exposures to the most sensitive community residents.
 - EPA conducted removal actions at 49 sites with lead as a contaminant of concern.
- Continue to support the evaluation of lead exposure at contaminated sites and identify ways to protect the public's health.
 - EPA controlled human exposure at one additional Superfund site.
 - Research is being conducted to improve the Agency's understanding of the degree to which Superfund cleanups may lower blood lead levels at a wider range of lead contaminated sites. EPA's National Center for Environmental Economics and Office of Land and Emergency Management have compiled a dataset that links two decades of blood lead level measurements from children in six states with EPA data on the location and characteristics of Superfund sites, as well as other determinants of lead exposure. The investigation uses advanced statistical methods to identify the relationship between proximity to Superfund cleanups and rates of elevated blood lead levels.

The research indicates that Superfund cleanup lowered the risk of elevated blood lead levels by roughly 8 to 18% for children living within 2 kilometers (1.24 miles) of a Superfund National Priorities List (NPL) site where lead is a contaminant of concern. Learn more at <https://www.epa.gov/environmental-economics/research-environmental-economics-ncee-working-paper-series>.



-
- EPA will continue to provide guidance for project managers addressing lead-contaminated residential sites, from initial site investigation to cleanup level selection, prevention of recontamination and community health education programs.
 - EPA will continue to offer technical assistance to brownfield communities to identify best management practices and potential funding opportunities.

Objective 1.4. Reduce Exposure to Lead Associated with Emissions to Ambient Air

As a result of several regulatory actions over the past two decades, lead emissions in air have substantially declined (EPA, 2014a; EPA, 2014b; Task Force, 2016; EPA, 2018d). However, lead is still emitted into ambient air from a variety of sources, including metals processing facilities and combustion of leaded aviation fuel (avgas) by aircraft with piston engines (EPA, 2014a; Task Force, 2016). Currently, the source category with the greatest contribution to total U.S. air emissions is piston-engine aircraft operating on leaded fuel (EPA, 2018d; Task Force, 2016). The highest air concentrations in individual locations are currently found near secondary lead smelting operations, such as battery recycling facilities and other metal processing facilities (EPA, 2014a; Task Force, 2016).

EPA Actions:

- Continue to work with state and tribal air agencies to implement the National Ambient Air Quality Standard (NAAQS) for lead and aim to reduce the number of areas violating the lead NAAQS.
 - In 2008, EPA significantly strengthened the air quality standards for lead to provide health protection for at-risk groups, especially children. In 2016, the Agency completed a review of the 2008 standards. With regard to the primary (health-based) standard, the Agency concluded it continues to reflect the current scientific information and provide the requisite protection of public health with an adequate margin of safety, including for at-risk groups. More information is available at: <https://www.epa.gov/lead-air-pollution>.
 - EPA continues to work with state and local air agencies to monitor lead emissions and develop strategies to address high lead concentrations in areas across the U.S. EPA has designated 22 areas as not meeting the 2008 ambient air lead quality standards. Due to the implementation of effective control measures, EPA expects nearly all of these areas to have lead concentrations below the level of the standards by the early 2020s.
 - EPA generated preliminary design values (2016-2018) for all 2008 NAAQS nonattainment areas and other violating areas.



- Evaluate the impacts of lead emissions from aircraft using leaded aviation fuel under the Clean Air Act.
 - EPA requires monitoring at airports emitting at least one ton of lead per year. In 2010, EPA required the states to conduct a year-long monitoring study at 15 airports that emit less than one ton per year to determine how these sources impact air quality.
 - EPA is completing two technical reports: Airborne Lead Concentrations at Airports Nationwide and Populations Residing Near or Attending School Near U.S. Airports. These reports will be posted on EPA’s website. More information is available at: <https://www.epa.gov/regulations-emissions-vehicles-and-engines/airport-lead-monitoring-and-modeling>.
 - Information about reductions that have occurred in lead concentrations in ambient air and reductions in lead emissions to ambient air is available at: https://gispub.epa.gov/air/trendsreport/2018/#naaqs_trends (select “lead” from drop-down menu).



Goal 2: IDENTIFY LEAD-EXPOSED CHILDREN AND IMPROVE THEIR HEALTH OUTCOMES

EPA's federal partners lead the actions under Goal 2 which are focused on improving the identification of children exposed to lead through surveillance of blood lead level data and improving access to services and support designed to improve children's physical, developmental and mental health. Please visit <https://ptfceph.niehs.nih.gov/> for future updates on Goal 2 of the Federal Lead Action Plan.

Goal 3: COMMUNICATE MORE EFFECTIVELY WITH STAKEHOLDERS

The Task Force Senior Staff Steering Committee, of which EPA is a member, will coordinate the activities under Goal 3 which are focused on improving public awareness of the dangers associated with lead exposure by consolidating and streamlining federal messaging on reducing exposures to lead. The following are EPA activities in support of the actions under Goal 3.

Objective 3.1. Consolidate and Streamline Federal Lead-Related Communication and Messaging

- Create an online portal to enhance, consolidate and streamline federal-wide communication to the public. Links will direct the public to agency-specific information. (Not everyone affected by lead exposures has access to the internet and therefore, agencies will continue to provide access to printed materials).
 - Ahead of the development of the online portal led by the Steering Committee, EPA refreshed all EPA links to lead resources and will enhance the user's ability to locate critical information.
- Provide periodic updates on the progress of implementing the Federal Lead Action Plan on the online portal.
 - EPA will provide periodic updates on the progress of EPA-led actions on its website. The updates will support the overall Federal Lead Action Plan progress reports.
 - Please see Appendix 1 for the first progress report for EPA-led actions.
- Enhance local partnerships with community organizations, local health agencies, faith-based organizations and private philanthropies to raise awareness of the dangers of exposure to lead-based paint hazards and to promote data sharing.
 - EPA's 10 regional lead coordinators oversee the development of lead-poisoning prevention efforts at the regional level. Learn more at: <https://www.epa.gov/lead/coordinators-epa-regional-offices-lead-poisoning-prevention-efforts>. Many of the regional success stories were highlighted in EPA's October 2018 Protecting Children from Lead Exposures Report: https://www.epa.gov/sites/production/files/2018-10/documents/leadpreventionbooklet2018-v11_web.pdf.



- Each year during National Lead Poisoning Prevention Week (the last full week in October), EPA, along with the U.S. Department of Housing and Urban Development (HUD) and the CDC, design and distribute outreach materials about how communities can raise awareness of lead hazards and reduce childhood lead exposure and lead poisoning. Learn more at: <https://www.epa.gov/lead/national-lead-poisoning-prevention-week>.
- Each year EPA, along with the World Health Organization, the United Nations Environment Program and other organizations around the world join to promote International Lead Poisoning Prevention Week by developing a wide range of materials, including customizable posters, to allow partnering countries and local groups to share the messages with diverse audiences and tools to help countries establish legal limits on lead paint. Learn more at: <https://www.epa.gov/international-cooperation/epa-participation-international-lead-poisoning-prevention-week-action>.
- EPA developed an infographic that can be used by the public to learn about lead in drinking water. Information on the infographic includes a diagram of the sources of drinking water, clear actions to take if residents are concerned about lead in drinking water and information on who to contact for questions. Learn more at: <https://www.epa.gov/ground-water-and-drinking-water/infographic-lead-drinking-water>.
- EPA released an interactive website that allows the public to learn more about lead in drinking water. It also highlights drinking water systems that are actively engaging in lead service line replacement activities in their communities. Learn more at: <https://www.epa.gov/ground-water-and-drinking-water/leaders-lead-service-line-replacement>.
- EPA's Small Business Innovation Research (SBIR) program supports science- and technology-based small businesses to develop and commercialize innovative environmental technologies. SBIR Phase II company NanoSafe, Inc. is developing an accurate and inexpensive lead testing platform for both soluble and insoluble lead compounds. This will allow users to quickly and affordably detect lead in their own drinking water. Learn more at: https://cfpub.epa.gov/ncer_abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/10826/report/0.
- EPA's P3 (People, Prosperity, and the Planet) Program is a unique competition open to teams of college students working to design solutions for a sustainable future. A recent P3-winning team at Old Dominion University is designing a low-cost household water filter that uses biochar to remove lead from drinking water.

Biochar is renewable and can be a cost-effective substitute to activated carbon in lead adsorption because of its porous structure, irregular surface, high surface to volume ratio and presence of oxygenated functional group. The team is working to design a household water filter that uses biochar as an adsorbent for removing lead from drinking water. The proposed filter integrates the conventional filter and adsorption

potential of biochar to create a system that can eliminate lead from supplied water. It will significantly decrease the cost for abatement of lead pollution. Learn more at: https://cfpub.epa.gov/ncer_abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/10860.

Objective 3.2. Improve Awareness of Lead Hazards, Prevention and Remediation among Diverse Populations, Especially Those Most at Risk

- Utilize the Children’s Centers and Pediatric Environmental Health Specialty Units (PEHSUs) to develop appropriate, evidence-based lead exposure prevention and intervention communication materials and disseminate them through the Centers’ established community partnerships.
 - PEHSUs are a twenty-year old network of experts uniquely qualified to train health care providers on the prevention, diagnosis, management and treatment of lead exposure in children. There are 11 Units around the country, several of which were originally lead clinics. EPA provides support to the PEHSU program that ATSDR designs, funds and manages. Learn more at: <https://www.pehsu.net/>.
 - EPA awarded \$224,500 dollars to fund five projects aimed at addressing children’s environmental health in communities in Texas, New Mexico and Arizona. These five projects addressed four pediatric environmental health issues related to lead-based paint, indoor air quality, prenatal environmental exposures and integrated pest management. One of the five grant recipients is the Southwest Center for Pediatric Environmental Health (the Region 6 PEHSU). Based at Texas Tech University Health Sciences Center in El Paso, the PEHSU partnered with colleagues from the University of Texas Rio Grande Valley School of Medicine to train health care practitioners in communities from El Paso to Brownsville. The final workshop will take place in Spring of 2019 with anticipated attendance of 50 health providers. In 2018 the PEHSU trained 160 Texas *promotoras* (health care workers) on the four pediatric environmental health issues.
- Enhance partnerships with state, tribal and local governments and key stakeholders (e.g., media, community groups, faith-based groups, advocacy groups, departments of health, departments of environmental quality, medical providers, philanthropies, federal grantees and others) that represent or serve communities at risk for childhood lead exposure.
 - EPA completed draft lesson plans for a tribal lead curriculum – *Lead Awareness in Indian Country: Keeping our Children Healthy!*

The curriculum was developed in partnership with the National Tribal Toxics Council and the National EPA-Tribal Science Council. The purpose of the curriculum is to increase understanding and awareness of childhood lead exposures, health effects and

preventative actions. Four modules were created: 1) Understanding Lead; 2) Cleaning Techniques; 3) Personal Hygiene and Nutrition; and 4) Hiring Lead Professionals.

- EPA conducted a working session on the tribal lead curriculum at the March 2019 National Tribal Toxics Council Meeting.
- Increase outreach events and engagement processes in collaboration with at-risk communities and lead-safe coalitions to provide education on the dangers of lead exposures, strategies for reducing exposures in children and actions to support exposed children and their families.
 - EPA will continue to sponsor lead education events in communities that include offering free testing of soil from residential yards and gardens and free blood lead testing for children.

Goal 4: SUPPORT AND CONDUCT CRITICAL RESEARCH TO INFORM EFFORTS TO REDUCE LEAD EXPOSURES AND RELATED HEALTH RISKS

Key priorities under this goal are prioritizing and addressing the critical research and data needs to inform lead policy and guide decisions. The majority of the research to address the actions identified under Goal 4 is expected to be implemented by EPA, HHS and HUD; other agencies will also conduct lead-focused research, as needed, to support their missions.

Implementing actions under this goal will require effective collaboration among the federal agencies. An interagency workgroup is working to further define, prioritize and address the critical research needs. The outcomes are expected to inform lead policies and guide decisions through the application of tools, data, information and approaches. The outcomes will also allow identification of the most effective public health practices to reduce children's lead exposures and its health impact. Prioritizing, leveraging and coordinating lead research among agencies will identify opportunities to increase the value of individual agency efforts, while remaining cognizant of the different missions, capabilities and resources of the various federal agencies.

EPA is working with its federal partners on the actions under Goal 4. To that end, EPA is co-leading the



development of a cross agency research workshop with the National Institute of Environmental Health Sciences, CDC and HUD . The following are EPA activities in support of the actions under Goal 4.

- Enhance and apply data and tools (e.g., models or approaches) and determine the key drivers of blood lead levels from multimedia exposures to inform lead regulatory decisions and site assessments.
 - EPA developed the All Ages Lead Model (AALM) to provide a tool for rapidly evaluating the impact of possible sources of lead on blood and other tissue levels in humans from birth to 90 years of age. The AALM is designed to predict lead concentration in body tissues and organs for a hypothetical individual, based on a simulated lifetime of lead exposure. This model is being submitted for peer reviewed by the Science Advisory Board.
 - EPA applied lead multimedia exposure and biokinetic models in support of the forthcoming final dust-lead hazard standards.
- Generate data, maps and mapping tools to identify high exposure communities or locations and disparities for prioritization efforts to reduce children’s blood lead levels.
 - EPA provided technical assistance to EPA Region 5 partners in support of their efforts to identify high exposure locations.
- Generate data to address critical gaps for reducing uncertainty in lead modeling and mapping for exposure/risk analyses and for estimating population-wide health benefits of actions to reduce lead exposures.
 - EPA is conducting initial analysis of incoming multimedia samples from the U.S. Department of Housing and Urban Development sponsored American Healthy Homes Survey II. Learn more at: https://www.hud.gov/program_offices/healthy_homes/ahhs_ii.
 - EPA sponsored public webinars on small drinking water systems: “Actual vs. Predicted: Lead Scale Observations from the Field;” “Destabilization of Lead Pipe Scales in a Long-Term Vacant Home in Cincinnati.”
- Identify approaches to prevent, mitigate and communicate about lead exposures and risks in exposed communities.
 - EPA created a communications tool to help consumers choose point-of-use filters to reduce lead content in drinking water. Water safety concerns such as those of Flint, MI highlight the role of certified filters in reducing lead in drinking water for children. Point of use, or POU, drinking water filters are used to remove impurities from water at the point that it is actually being used. While there is no mandatory federal requirement for the use of POU drinking water filters or for testing or third-party certification, consumers can increase their level of confidence in their water by purchasing filters

that have been tested by an accredited third-party certification body. Learn more at: <https://www.epa.gov/water-research/consumer-tool-identifying-pou-drinking-water-filters-certified-reduce-lead>.

- EPA provided ongoing technical support to assess effectiveness of corrosion control treatment in multiple cities, applying innovative lead mitigation methods for addressing lead in drinking water.
- Evaluate the effectiveness of actions (e.g., interventions, programs, policies, enforcement) to prevent lead exposure, mitigate health effects and communicate on lead exposures/risks.
 - EPA, with support from the Douglas County Health Department and the City of Omaha, is conducting a study to determine the effectiveness of the actions to address lead contamination in residential soil, dust and paint at the Omaha Lead Superfund Site in reducing elevated blood-lead levels in young children.

APPENDIX 1

Implementation Status of EPA Actions Under the 2018 Federal Action Plan To Reduce Childhood Lead Exposures and Associated Health Impacts: Fiscal Year 2019, 2nd Quarter

GOAL 1: REDUCE CHILDREN'S EXPOSURE TO LEAD SOURCES

Objective	Action	Status*	2Q FY 19 Accomplishments	3Q Next Steps	More Information
Objective: 1.1 Reduce Children's Exposure in Homes and Child-Occupied Facilities with Lead-Based Paint Hazards	Consider revisions, as appropriate, to the dust-lead hazard standards to address childhood exposures to lead-contaminated dust generated from lead-based paint.	On track	Conducted rulemaking activities.	EPA plans to issue a final rule by summer 2019.	EPA proposed to strengthen the dust-lead hazard standards for floors and window sills. These standards apply to most pre-1978 housing and child-occupied facilities, such as daycare centers and kindergarten facilities. Lead dust can be a major source of lead exposure in children and the new proposed standards for lead in dust will be an important step to reduce lead exposure among children.
	Continue to implement regulations and other relevant authorities that require individuals and firms conducting lead-based paint abatement, risk assessment or inspection to be properly trained and certified, training programs to be accredited and these activities to be conducted according to reliable, effective and safe work practice standards.	On track	Provided support to EPA, states, tribes, federal agencies and the public for implementation of these regulations.	Report the number of compliance assistance and outreach activities that support the abatement, risk assessment and inspection components of the Lead-Based Paint Program.	Examples of activities may include: outreach, education, oversight and processing accreditation applications. EPA provides annual funding to authorized states and tribal programs that administer training and certification programs for lead professionals and renovation contractors.
	Increase the number (or percentage) of certified renovation firms capable of providing lead-safe renovation, repair and painting services through targeted outreach campaigns to contractors; continue to provide a nationwide list of certified renovation firms on EPA's website.	On track	Updated list of certified renovation firms. Conducted compliance assistance to increase the number of RRP certified firms. Completed planning for a pilot project in six cities to increase the number of RRP certified firms and trained contractors. Conducted outreach and education activities to support the RRP Program.	Publish updated list of certified renovation firms on EPA website . Report number of RRP firms certified and trained contractors in 3rd Quarter. Target additional resources in the same six cities to increase the number of RRP certified firms and trained contractors.	In 2016, EPA targeted six cities across the U.S. for outreach, training for contractors and enforcement of the RRP rule during National Lead Poisoning Prevention Week in October 2016. In 2019, the EPA will continue to provide outreach events aimed specifically at reaching contractors by working with building code officials, hardware stores and industry trade associations and hold at least one outreach event per city to reach contractors. EPA provides annual funding to authorized states and tribal programs that administer training and certification programs for lead professionals and renovation contractors.

GOAL 1: REDUCE CHILDREN'S EXPOSURE TO LEAD SOURCES

Objective	Action	Status*	2Q FY 19 Accomplishments	3Q Next Steps	More Information
Objective 1.2 Reduce Exposure to Lead from Drinking Water	Revise the Lead and Copper Rule (LCR) based on input EPA recently received from state, tribal and local partners, as well as the best available peer reviewed science, to ensure the rule reflects the best ways to improve public health protection and reduce levels of lead in drinking water.	On track	Continued analysis to support preparation of a proposal for revisions to the LCR and supporting technical documentation.	Prepare Federal Register for proposal of LCR revisions, technical support documents (including the Health Risk Reduction Cost Analysis) and administrative record. Propose revisions to the LCR by summer 2019.	
	Enhance implementation of the LCR by engaging with state, tribal, local and other stakeholders to identify implementation challenges, best practices and tools to address these challenges.	On track	<p>Hosted the first in a series of webinars on lead service line replacement. This series showcases best practices for states and utilities implementing a voluntary lead service line replacement program. March's webinar included speakers from Washington State, Department of Health and D.C. Water.</p> <p>EPA HQ and all 10 EPA regions met regularly to discuss LCR challenges and strengthen implementation nationwide. This effort includes quarterly reviews of lead exceedance data and system violations reported to the Safe Drinking Water Information System (SDWIS).</p>	<p>Release an updated version of the Optimal Corrosion Control Treatment (OCCT) manual. This new version will incorporate technical updates and feedback states have provided since the manual's initial release in March 2016.</p> <p>Continue to host webinars on lead service line replacement. This series showcases best practices for states and utilities implementing a voluntary lead service line replacement program.</p> <p>Continue to meet regularly to discuss LCR challenges and strengthen implementation nationwide.</p> <p>The LCR includes requirements for utilities to communicate important lead information about health effects, sources, what consumers can do and what your utility is doing to reduce exposure.</p>	<p>View Lead and Copper Rule (LCR) tools and resources</p> <p>EPA's Leaders in Reducing Lead in Drinking Water</p>

GOAL 1: REDUCE CHILDREN'S EXPOSURE TO LEAD SOURCES

Objective	Action	Status*	2Q FY 19 Accomplishments	3Q Next Steps	More Information
<p>Objective 1.2</p> <p>Reduce Exposure to Lead from Drinking Water</p>	<p>Assist schools and child care centers with the 3Ts approach (Training, Testing and Taking Action) to reduce lead in drinking water and increase the number of schools and child care centers that test and provide parents with information on how to minimize children's exposure to lead in drinking water.</p>	<p>On track</p>	<p>Released a revised 3Ts toolkit to assist those implementing lead monitoring in schools and child care facilities in October 2018. The revised version is available in an interactive web-format and includes modules and customizable templates. EPA recognizes that communicating early and often about testing plans, results and next steps will build confidence in a school's ability to provide a safe environment. To improve communication with community members and parents, EPA has added an additional communication tool in 27 languages: Translations for English Instructions.</p> <p>Worked with states, utilities and local organizations to showcase efforts across the country and added additional case studies to the Leaders in Reducing Lead in Drinking Water map.</p>	<p>Continue to work with states, utilities and local organizations to showcase efforts across the country.</p> <p>Continue to add additional case studies to the Leaders in Reducing Lead in Drinking Water map.</p> <p>Update an existing Memorandum of Understanding (MOU), Reducing Lead Levels in Drinking Water in Schools and Child Care Facilities. The updated MOU will include current and new partners aimed to provide a more meaningful coordinated approach to help schools and child care programs. This will be done in conjunction with the recently revised 3Ts toolkit and the newly announced Lead Testing in Schools and Child Care Programs Drinking Water grant authorized by the WIIN Act.</p> <p>Update the 2006 list of 65 funding sources for schools to test for and remediate lead in drinking water. This update will include the previously identified sources, the newly released WIIN grants and additional new sources.</p>	<p>View tools and resources to reduce lead in drinking water in schools and child care facilities.</p>

GOAL 1: REDUCE CHILDREN'S EXPOSURE TO LEAD SOURCES

Objective	Action	Status*	2Q FY 19 Accomplishments	3Q Next Steps	More Information
Objective 1.2 Reduce Exposure to Lead from Drinking Water	Finalize regulatory changes to the definition of lead-free plumbing products and make other conforming changes to implement the Reduction of Lead in Drinking Water Act and the Community Fire Safety Act enacted by Congress. The final regulation is expected to result in fewer sources of lead in drinking water by implementing new standards for lead content in plumbing materials used in new installations and repairs.	Delayed	Considered comments on the proposed rule to inform final and conduct additional analysis to support preparation of a final rule.	Prepare regulatory and supporting technical documentation for the final rule to be published in winter 2019-2020.	
	Collaborate with state and tribes to provide opportunities for low-interest loans and grants through the Drinking Water State Revolving Fund and the Water Infrastructure Finance and Innovation Act loan program for updating and replacing drinking water infrastructure.	On track	Developed a new factsheet on Addressing Lead in Drinking Water with the Drinking Water State Revolving Fund and case studies. Eligibilities between the Drinking Water State Revolving Fund (DWSRF) and the Water Infrastructure Finance and Innovation Act (WIFIA) overlap.	Release DWSRF factsheet and case studies by the end of March 2019. Continue working with WIFIA's FY18 Selected Projects (12 projects will reduce lead or other drinking water contaminants) to apply for WIFIA financing.	https://www.epa.gov/drinkingwatersrf/reports-and-fact-sheets-about-drinking-water-state-revolving-fund-dwsrf WIFIA FY18 Selected Projects
	Implement three newly authorized grant programs under the Water Infrastructure Improvements for the Nation Act, for which Congress appropriated \$50 million in FY 2018, to fund grants to small and disadvantaged communities for developing and maintaining infrastructure, for lead reduction projects and to support the voluntary testing of drinking water in schools and child care centers. These programs decrease exposure to lead in drinking water by providing financial incentives to test, educate and replace infrastructure.	On track	Sent out letters to state governors announcing the Lead Testing in Schools and Child Care Programs Drinking Water Grant authorized by the WIIN Act. At the beginning of this 2019, EPA received letters from all 50 States and the District of Columbia confirming their commitment to reducing lead in drinking water in schools and to participate in this new grant. Expect to notify states and the District of Columbia funding allotments for the Lead Testing in School and Child Care Programs Drinking Water Grant in March 2019. Hosting webinars for states on the new grant guidance. Conducting the tribal consultation for the Lead in Drinking Water Grant authorized by the WIIN Act through March 2019.	Review state workplans for the Lead Testing in Schools and Child Care Programs Drinking Water Grant authorized by the WIIN Act and begin the process to award grants to states. Develop tribal grant guidance. Finalize the request for application for the Reduction of Lead in Drinking Water Grant authorized by the WIIN Act and prepare for release in 4Q.	View more information on the WIIN Grants

GOAL 1: REDUCE CHILDREN'S EXPOSURE TO LEAD SOURCES

Objective	Action	Status*	2Q FY 19 Accomplishments	3Q Next Steps	More Information
Objective 1.3 Reduce Exposure to Lead in Soil	Manage lead contamination at Superfund, RCRA Corrective Action and other sites to reduce exposure to community residents.	On track	Reduced exposure to community members by continual efforts to manage 1,212 Superfund sites with lead as a contaminant of concern. Completed eight consultations at Superfund lead sites thus far in FY19.	Continue to manage lead contamination at Superfund, RCRA Corrective Action and other sites to reduce exposure to community residents. Efforts expected to include: Updating lead technical information and tools for application of the Integrated Exposure Uptake Biokinetic (IEUBK) lead model. Validating IEUBK model for use with updated input parameters. Conducting additional superfund site lead consultations.	
	Continue to reduce childhood exposures to lead in soils through removal, remedial and corrective actions at contaminated sites and reduce lead soil exposures to the most sensitive community residents.	On track	EPA conducted removal actions at 49 sites with lead as a contaminant of concern.	Continue to reduce childhood exposures to lead in soils through removal, remedial and corrective actions at contaminated sites and reduce lead soil exposures to the most sensitive community residents.	

GOAL 1: REDUCE CHILDREN'S EXPOSURE TO LEAD SOURCES

Objective	Action	Status*	2Q FY 19 Accomplishments	3Q Next Steps	More Information
Objective 1.3 Reduce Exposure to Lead in Soil	Continue to support the evaluation of lead exposure at contaminated sites and identify ways to protect the public's health.	On track	Controlled human exposure at one additional Superfund site.	Continue to support the evaluation of lead exposure at contaminated sites and identify ways to protect the public's health. Actions will include distributing outreach materials to regions gathered through the Interagency Task Force.	
Objective 1.4 Reduce Exposure to Lead Associated with Emissions to Ambient Air	Continue to work with state and tribal air agencies to implement the National Ambient Air Quality Standard (NAAQS) for lead and aim to reduce the number of areas violating the lead NAAQS.	On track	Generated preliminary Design Values (2016-2018) for all 2008 NAAQS nonattainment areas and other violating areas.	Continue to work with states to monitor lead emissions and work towards taking action on 2008 Lead NAAQS redesignation requests and maintenance plans.	Eleven of the 22 initial areas designated nonattainment for the 2008 Pb NAAQS are attaining. For the majority of the remaining nonattainment areas, lead emissions and monitored concentrations are declining due to implemented control measures and all nonattainment areas have fulfilled air quality implementation plan requirements. https://www.epa.gov/green-book/green-book-lead-2008-area-information
	Evaluate the impacts of lead emissions from aircraft using leaded aviation fuel under the Clean Air Act.	On track	Completing two technical reports: Airborne Lead Concentrations at Airports Nationwide and Populations Residing Near or Attending School Near U.S. Airports.	Post the two completed technical reports to EPA's website.	https://www.epa.gov/regulations-emissions-vehicles-and-engines/airport-lead-monitoring-and-modeling

GOAL 2: IDENTIFY LEAD-EXPOSED CHILDREN AND IMPROVE THEIR HEALTH OUTCOMES

EPA's federal partners lead the actions under Goal 2 which are focused on improving the identification of children exposed to lead through surveillance of blood lead level data and improving access to services and support designed to improve children's physical, developmental and mental health. Please visit <https://ptfceh.niehs.nih.gov/> for future updates on Goal 2 of the Federal Lead Action Plan.

GOAL 3: COMMUNICATE MORE EFFECTIVELY WITH STAKEHOLDERS

Objective	Action	Status*	2Q FY 19 Accomplishments	3Q Next Steps	More Information
Objective 3.1 Consolidate and Streamline Federal Lead-Related Communication and Messaging	Create an online portal to enhance, consolidate and streamline federal-wide communication to the public. Links will direct the public to agency-specific information. (Not everyone affected by lead exposures has access to the internet and therefore, agencies will continue to provide access to printed materials).	On Track	Refreshed EPA links to lead resources and made sure that relevant links that were not currently located on https://www.epa.gov/lead are linked to the website.	Continue to refresh links and connect links to web page as applicable.	https://www.epa.gov/lead
	Provide periodic updates on the progress of implementing the Action Plan on the online portal.	On Track	Created Implementation Status for EPA Actions Under the 2018 Federal Action Plan: To Reduce Childhood Lead Exposures and Associated Health Impacts web page.	Will update web page periodically.	https://www.epa.gov/leadactionplanimplementation .

GOAL 3: COMMUNICATE MORE EFFECTIVELY WITH STAKEHOLDERS

Objective	Action	Status*	2Q FY 19 Accomplishments	3Q Next Steps	More Information
Objective 3.2 Improve Awareness of Lead Hazards, Prevention and Remediation among Diverse Populations, Especially Those Most at Risk	Utilize the Children’s Centers and PEHSUs to develop appropriate, evidence-based lead exposure prevention and intervention communication materials and disseminate them through the Centers’ established community partnerships.	On Track	Provided \$1,128,425 for fiscal year 2019 to support the PEHSU network. Continued to play a partnership role in the PEHSU program, making recommendations to ATSDR on program design, management and direction and by annually providing 35 to 40% of the funding support. In addition, the children’s environmental health coordinators in EPA regional offices work regularly with their PEHSU counterparts to plan and implement children’s environmental health outreach and education efforts in communities across the region.	Continue to support the work of PEHSUs in providing expert consultations to health care providers on prevention, diagnosis and treatment of lead exposure during pregnancy and childhood; addressing childhood lead exposure in grand rounds, medical and nursing educational settings and seminars; providing expertise to lay audiences through briefings, conferences and webinars; and, collaborating with research centers on research translation and messaging on a variety of children’s health issues, including lead.	PEHSUs are a twenty-year-old network of experts uniquely qualified to train health care providers on the prevention, diagnosis, management and treatment of lead exposure in children. There are 11 units around the country, several of which were originally lead clinics. EPA provides support to the PEHSU program that ATSDR designs, funds and manages. Learn more at: https://www.pehsu.net/
	Enhance partnerships with state, tribal and local governments and key stakeholders (e.g., media, community groups, faith-based groups, advocacy groups, departments of health, departments of environmental quality, medical providers, philanthropies, federal grantees and others) that represent or serve communities at risk for childhood lead exposure.	On Track	Completed draft lesson plans for tribal lead curriculum – Lead Awareness in Indian Country: Keeping our Children Healthy! Conducted working session on the tribal lead curriculum at the March 2019 National Tribal Toxics Council Meeting.	Plan and conduct pilot(s) with tribal partners.	The curriculum was developed in partnership with the National Tribal Toxics Council and the EPA-Tribal Science Council. The purpose of the curriculum is to increase understanding and awareness of childhood lead exposures, health effects and preventative actions. Four modules were created: 1) Understanding Lead; 2) Cleaning Techniques; 3) Personal Hygiene and Nutrition; and 4) Hiring Lead Professionals.

GOAL 4: SUPPORT AND CONDUCT CRITICAL RESEARCH TO INFORM EFFORTS TO REDUCE LEAD EXPOSURES AND RELATED HEALTH RISKS

Objective	Action	Status*	2Q FY 19 Accomplishments	3Q Next Steps	More Information
Key Priorities: Prioritize and Address the Critical Research and Data Needs to Inform Lead Policies and Guide Decisions	Enhance and apply data and tools (e.g., models or approaches) and determine the key drivers of blood lead levels from multimedia exposures to inform lead regulatory decisions and site assessments.	On Track	Continued to co-lead the development of a cross agency research workshop with NIEHS, CDC and HUD. Applied lead multimedia exposure and biokinetic models in support of the forthcoming final dust- lead hazard standards.	Provide materials for All-Ages Lead Model (AALM) to EPA Science Advisory Board for external peer review.	
	Generate data, maps and mapping tools to identify high exposure communities or locations and disparities for prioritization efforts to reduce children's blood lead levels.	On Track	Continued to co-lead the development of a cross agency research workshop with NIEHS, CDC and HUD. Provided technical assistance to EPA Region 5 partners in support of their efforts to identify high exposure locations.	Explore opportunities to provide technical assistance to other regional partners as they work on identifying high exposure locations.	
	Generate data to address critical gaps for reducing uncertainty in lead modeling and mapping for exposure/ risk analyses and for estimating population-wide health benefits of actions to reduce lead exposures.	On Track	Continued to co-lead the development of a cross agency research workshop with NIEHS, CDC and HUD. Conducting initial analysis of incoming multimedia samples from the U.S. Department of Housing and Urban Development sponsored American Healthy Homes Survey II. Sponsored public webinar on small drinking water systems, "Actual vs. Predicted: Lead Scale Observations from the Field;" "Destabilization of Lead Pipe Scales in a Long-Term Vacant Home in Cincinnati."	Continue receipt and analysis of incoming multimedia samples from the HUD sponsored American Healthy Homes Survey II. Conduct data analyses for children's soil/ dust ingestion rates in support of future modeling.	For more information on the HUD sponsored American Healthy Homes Survey II, visit: https://www.hud.gov/program_offices/healthy_homes/ahhs_ii .
	Identify approaches to prevent, mitigate and communicate about lead exposures and risks in exposed communities.	On Track	Continued to co-lead the development of a cross agency research workshop with NIEHS, CDC and HUD. Created tool for identifying point of use filters certified to reduce lead. Provided ongoing technical support to assess effectiveness of corrosion control treatment in multiple cities, applying innovative lead mitigation methods for addressing lead in drinking water.	Conduct public small drinking water systems workshop at EPA Region 6, May 21-22, 2019. Provide ongoing technical support to assess effectiveness of corrosion control treatment in multiple cities, applying innovative lead mitigation methods for addressing lead in drinking water.	https://www.epa.gov/water-research/consumer-tool-identifying-pou-drinking-water-filters-certified-reduce-lead

GOAL 4: SUPPORT AND CONDUCT CRITICAL RESEARCH TO INFORM EFFORTS TO REDUCE LEAD EXPOSURES AND RELATED HEALTH RISKS

Objective	Action	Status*	2Q FY 19 Accomplishments	3Q Next Steps	More Information
<p>Key Priorities:</p> <p>Prioritize and Address the Critical Research and Data Needs to Inform Lead Policies and Guide Decisions</p>	<p>Evaluate the effectiveness of actions (e.g., interventions, programs, policies, enforcement) to prevent lead exposure, mitigate health effects and communicate on lead exposures/risks.</p>	<p>On Track</p>	<p>Continued to co-lead the development of a cross agency research workshop with NIEHS, CDC and HUD.</p>	<p>EPA, with support from the Douglas County Health Department and the City of Omaha, is conducting a study to determine the effectiveness of the actions to address lead contamination in residential soil, dust and paint at the Omaha Lead Superfund Site in reducing elevated blood-lead levels in young children.</p>	

REFERENCES

- Agency for Toxic Substances and Disease Registry (ATSDR). (2017). Lead toxicity, Where is it Found? <https://www.atsdr.cdc.gov/csem/csem.asp?csem=34&po=5>
- Mielke H.W., Gonzales C.R., Powell E.T., Mielke P.W. (2013). Environmental and health disparities in residential communities of New Orleans: The need for soil lead intervention to advance primary prevention. *Environment International* 51:73–81. <https://doi.org/10.1016/j.envint.2012.10.013>
- President’s Task Force on Environmental Health Risks and Safety Risks to Children (Task Force). (2016). Key Federal Programs to Reduce Childhood Lead Exposure and Eliminate Associated Health Impacts. https://pifceh.niehs.nih.gov/features/assets/files/key_federal_programs_to_reduce_childhood_lead_exposures_and_eliminate_associated_health_impactspresidents_508.pdf
- U.S. Environmental Protection Agency, National Center for Environmental Assessment (EPA). (2008). Child-Specific Exposure Factors Handbook (Final Report). <http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=199243>
- U.S. Environmental Protection Agency, (EPA). (2014a). Policy Assessment for the Review of the Lead National Ambient Air Quality Standards, Office of Air Quality Planning and Standard, RTP. U.S. – EPA-452/R-14-001. https://www3.epa.gov/ttn/naaqs/standards/pb/data/140501_pa_pb_fin.pdf
- U.S. Environmental Protection Agency, (EPA). (2014b). Report on the Environment. <https://cfpub.epa.gov/roe/indicator.cfm?i=13>
- U.S Environmental Protection Agency (EPA). (2017). America’s Children and the Environment, 3rd Edition. <https://www.epa.gov/ace/ace-biomonitoring-lead>
- U.S. Environmental Protection Agency (EPA). (2018c). Basic Information about Lead in Drinking Water. <https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water>
- U.S. Environmental Protection Agency (EPA). (2018d). Our Nation’s Air. <https://gispub.epa.gov/air/trendsreport/2018/>

