



PROTECTING CHILDREN FROM LEAD EXPOSURES



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Since the 1970s, the U.S. Environmental Protection Agency (EPA) and its 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.

EPA'S MISSION

**Protect human health
and the environment.**

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 ($\mu\text{g}/\text{dL}$)) among children ages 1 to 5 years from 1972 to 2012.

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 $\mu\text{g}/\text{dL}$ 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 environmental justice (EJ) communities that represent the lowest income, most diverse populations with significant cumulative environmental risk from pollution. 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.

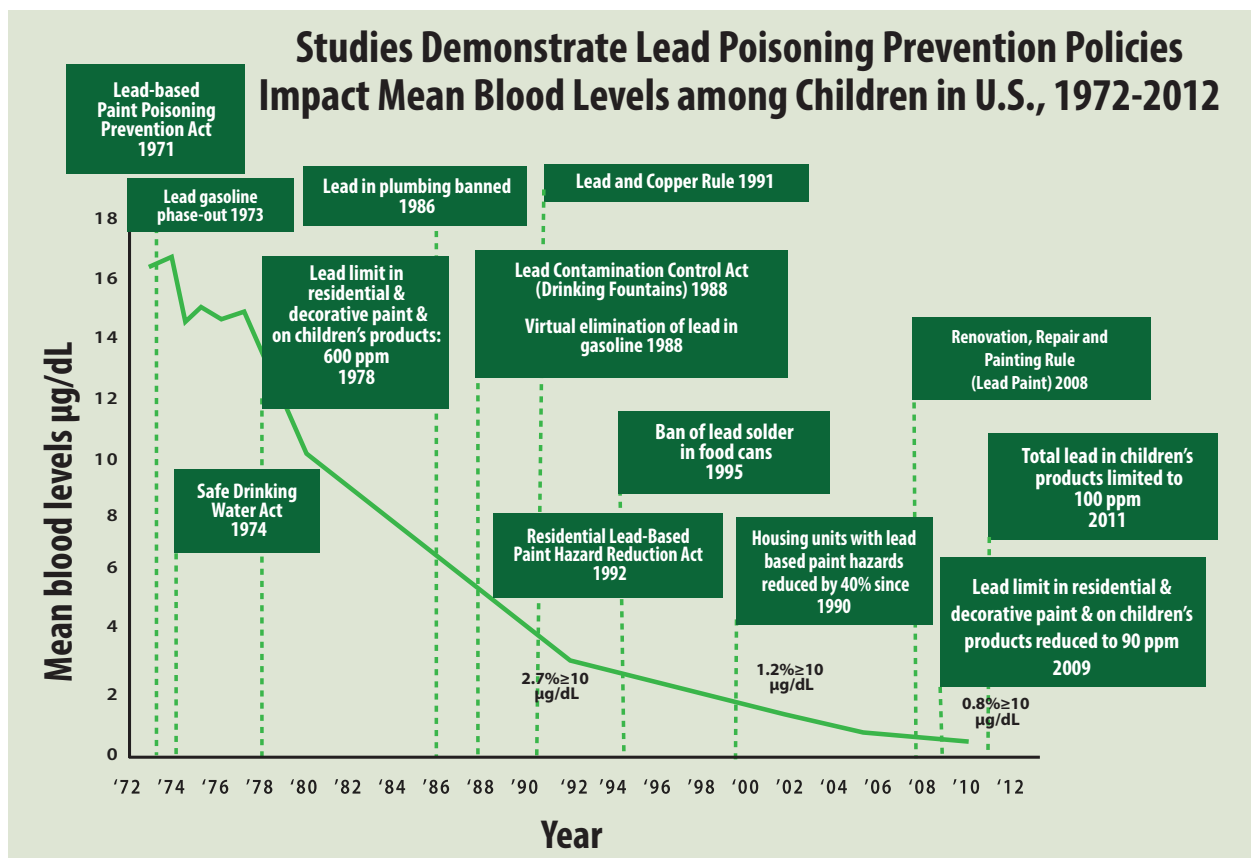


Figure 1: Source - Adapted from NIEHS - https://ptfceph.niehs.nih.gov/features/assets/files/key_federal_programs_to_reduce_childhood_lead_exposures_and_eliminate_associated_health_impacts/presidents_508.pdf. Brown MJ and Falk H. Toolkit for establishing laws to control the use of lead paint. Module C.iii.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

On April 21, 1997, the President signed the Executive Order on the Protection of Children from Environmental Health Risks and Safety Risks. This Executive Order requires all federal agencies to assign a high priority for addressing health and safety risks to children, coordinating research priorities on children's health, and ensuring that their standards account for special risks to children. The Executive Order created a President's Task Force on Environmental Health Risks and Safety Risks to Children (Task Force) to implement the Executive Order.

The Task Force is co-chaired by EPA and the Department of Health and Human Services (HHS), and one of its current priorities to improve children's environmental health is focused on reducing lead exposures. EPA continues to make children's health a top priority and is committed to protecting children from lead exposures in their environments.

FEDERAL LEAD STRATEGY

EPA, along with the partner agencies of the President's Task Force, is developing a federal strategy designed to improve the effectiveness and efficiency of the federal government in reducing children's lead exposures and lead-related health risks.

As EPA works with its partner agencies to better coordinate activities and finalize the strategy, the Agency continues its efforts to reduce lead exposures as described in this document.

This document provides examples of some of EPA's most recent and/or ongoing activities related to reducing lead exposures.



REDUCING EXPOSURES ASSOCIATED WITH LEAD IN PAINT AND LEAD DUST

Legacy lead-based paint in housing and adjacent soil is considered the largest source on average of lead exposure in children. The following initiatives represent EPA's commitment to reduce exposures associated with lead in paint and lead dust.

Dust-lead Hazard Standard

The Trump EPA proposed strengthening the dust-lead hazard standard to help reduce childhood lead exposure.

- In June 2018, the Agency proposed to change the dust-lead hazard standards from 40 micrograms/square foot ($\mu\text{g}/\text{ft}^2$) and 250 $\mu\text{g}/\text{ft}^2$ to 10 $\mu\text{g}/\text{ft}^2$ and 100 $\mu\text{g}/\text{ft}^2$ on floors and window sills, respectively. 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.
- EPA plans to issue a final rule by June 2019.

Renovation, Repair and Painting (RRP) Program

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>.

Lead Poisoning Prevention Week

- Each year during National Lead Poisoning Prevention Week (always 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 (WHO), the United Nations Environment Program (UNEP) 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>.



<https://www.epa.gov/lead/national-lead-poisoning-prevention-week>

Lead State and Tribal Assistance Grants (“STAG Grants”). Through the Lead Categorical Grant Program, EPA provides funding to authorized state and tribal programs that administer training and certification programs for lead professionals and renovation contractors.

- In both 2017 and 2018, EPA awarded approximately \$11 million to authorized state and tribal lead RRP certification programs.
- In 2019, EPA plans to continue to award grant funding to support these local programs.

These grants help ensure contractors working on pre-1978 homes, childcare facilities, and pre-schools are trained and certified in lead-safe evaluation, work practices and abatement.

All Ages Lead Model. 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 predicts lead concentration in body tissues and organs for a hypothetical individual, based on a simulated lifetime of lead exposure. This model will be peer reviewed by the Science Advisory Board in 2019.

New Technical Assistance Tool: Model Law and Guidance for Regulating Lead Paint EPA provides guidance and technical assistance to other organizations around the world on lead-related rules/regulations and collaborates on how to reduce lead exposure.

- With assistance from EPA and the WHO, the UNEP developed a Model Law and Guidance for Regulating Lead Paint.
- In many countries lead is still used in paints **in high concentrations**, exposing children and workers to the potential health effects of lead. Released in November 2017, the Model Law and Guidance for Regulating Lead Paint is a technical assistance tool to support countries around the world in protecting human health and the environment by establishing new laws—or modifying existing laws—to limit lead content in paints. It is intended to be a practical “how to” resource for countries that are ready to establish such a law and includes model legal language and detailed guidance that describes key elements of effective and enforceable legal requirements.
- Learn more at: <https://www.unenvironment.org/resources/publication/model-law-and-guidance-regulating-lead-paint>.

Recent Activities to Reduce Exposures from Lead-Based Paint

- **Alaska and Idaho (2017–2018).** EPA staff participated in spring and fall home shows, reaching 500–600 consumers per home show, and conducted in-person outreach to Building Permitting Offices in Alaska and Idaho to help inform contractors during the permit application process about the RRP Rule Requirements. EPA staff distributed, “Renovate Right,” pamphlets to paint stores, window stores, carpet and tile stores, daycare centers and preschools. EPA increased RRP compliance by engaging over 50 organizations. The word has gotten out to contractors in Alaska and Idaho that they need to be certified as an RRP Firm and Renovator, if they plan to work on pre-1978 target housing.
- **Nogales, Arizona (2018).** EPA awarded a \$39,500 grant to the Sonora Environmental Research Institute (SERI) to expand Pima County’s Healthy Homes and Healthy Childcare programs to Nogales, where the institute is based. SERI held workshops for community members and child care providers, and conducted home and child care visits to identify, prevent and address environmental hazards commonly found in homes and child care facilities. SERI’s project will address multiple environmental health and safety hazards with a focus on lead-based paint, pest infestations, indoor air quality, hazardous chemicals, asthma and fire and safety hazards. SERI will also conduct outreach to medical providers on childhood lead poisoning prevention.
- **Santa Cruz County, Arizona (2018).** EPA awarded a \$45,000 grant to the Mariposa Community Health Center in Arizona’s Santa Cruz County to train Promotoras (community health workers) to educate local parents and caregivers on preventing exposure to lead, pesticides, and air pollutants in their homes. The goal is to reach at least 400 parents and caregivers, benefiting approximately 1,000 children.
- **Alameda County, California (2018).** EPA awarded a \$25,000 grant to the Alameda County Community Development Agency to provide training courses to 120 code enforcement officers in California. The officers learned how to incorporate lead-safety requirements into their inspections, respond to unsafe renovation complaints, and improve compliance with lead regulations. The training course was offered to attendees of the California Association of Code Enforcement Officers’ Annual Code Enforcement Seminar and Exhibitor Showcase to improve the ability of code enforcement officers to recognize and reduce lead hazards in homes.
- **Denver, Colorado (2015–On-going).** EPA is reaching out to increase public awareness of EPA’s RRP Rule to increase consumer demand for lead-safe renovations and to protect vulnerable populations from exposure to lead-based paint hazards in the Denver area. In addition to EPA’s compliance assistance efforts, the agency is inspecting work sites to ensure that renovators work in a lead-safe manner when disturbing paint in pre-1978 homes and child-occupied facilities.
 - EPA worked with the City and County of Denver building permitting department to get the word out on the Lead RRP Rule and lead-based paint testing to renovators and contractors.
 - EPA worked with the State of Colorado’s Department of Public Health and Environment to promote lead poisoning prevention through their child care regulations and child care inspections.
 - EPA conducted 61 lead inspections that resulted in 32 enforcement actions, 10 penalty orders totaling over \$100,000 in fines, and a supplemental environmental project resulting in lead-based paint testing.
 - EPA aired a series of public service announcement videos on English and Spanish-speaking television stations, on news station websites, and via a targeted email campaign, as well as publishing lead poisoning prevention awareness ads in local newspapers.
- **EPA Raises Awareness of Lead-Based Paint in St. Joseph, Missouri (2018).** EPA includes public education and outreach as part of its lead reduction strategy because addressing conditions before a child is exposed is still the best strategy to protect children from lead poisoning. In St. Joseph, Missouri, 15% of children tested from 2010–2015 had elevated blood-lead levels—more than three times the national average (4%). To help address this, EPA selected St. Joseph as the focal point of a geographic initiative throughout the coming year. EPA partnered closely with the City of St. Joseph, city health

department, and the Missouri Department of Health & Senior Services in outreach activities. Federal partners include the Agency for Toxic Substances and Disease Registry (ATSDR), HHS and HUD. Activities will include a variety of outreach, compliance assistance, and enforcement activities such as:

- Conducting lead-safe certified program training for commercial renovators, and compliance inspections;
- Working with area home improvement stores to share lead safety information, and demonstrate lead-safe practices for do-it-yourself home renovators;
- Visiting daycare facilities, including home daycares, to teach children and parents how to reduce exposure to lead-paint dust;
- Engaging with local community groups to determine how to best share resources and training opportunities with their members;
- And coordinating lead safety media coverage and radio public service announcements.

As part of the St. Joseph, Missouri, Geographic Initiative, four EPA team members participated in the annual Tiny Tot Town Event in St. Joseph, Missouri, on October 9, 2018. This event sought to create an interactive simulated community to introduce children to life in their town. Children explored Tiny Tot Town by strolling the streets, meeting with store owners, bankers, librarians, and other professionals in the community. Through experiential learning, children understand their town and their importance in the community. The EPA team set up a booth that highlighted how to avoid lead exposure, and educated children and parents about easy steps they can take to stay lead-free. They also passed out handbooks for parents and coloring books for children. Approximately 300 people stopped by the EPA booth to learn about living lead-free!

EPA staff participated in the Southside Fall Festival Parade on September 15, 2018 and distributed lead poisoning awareness and prevention materials to educate the community on how to reduce children's lead exposures. Approximately 1,000 people attended.

- **Philadelphia, Mississippi (2015–2018).** EPA awarded the Mississippi Band of Choctaw Indians (MBCI) Tribal Lead Grant a \$30,000 lead-based paint grant in 2018 to evaluate potential lead issues in the Philadelphia, Mississippi community. A second award of \$30,000 is proposed for 2019. EPA will continue coordinating with MBCI to evaluate potential lead concerns and encourage MBCI to develop formal lead-based paint programs for protecting vulnerable populations from exposure to lead with specific emphasis on children under age 6 years and pregnant women.



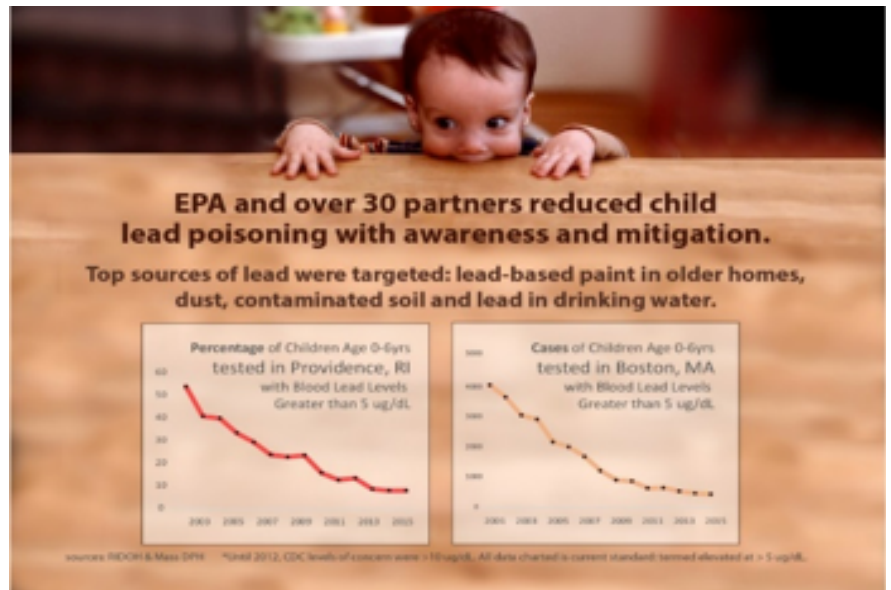
EPA's Marcus Rivas discusses the importance of lead safety with a participant in the Tiny Tot Town event in St. Joseph, Missouri on October 9, 2018.

- **EPA Provides Education and Training in Philadelphia, Pennsylvania (2018).** In the summer of 2018, EPA, along with partners from the City of Philadelphia, the Philadelphia School District, neighborhood associations, and independent non-profit organizations, are targeting communities where pre-1978 housing stock is prevalent. Outreach efforts include engaging with residents at in-person meetings, distributing technical assistance information, visiting paint/hardware stores to educate customers on safe lead work practices, training and providing technical assistance to city inspectors, and distributing information and educating contractors/renovators and property management firms regarding lead paint requirements. Information was also provided to daycare centers, childcare and healthcare-focused organizations.



EPA engages with local residents on ways to reduce or prevent childhood lead poisoning.

- **Catoosa, Oklahoma (2018).** EPA coordinated with the Cherokee Nation and hosted the first Tribal Children's Environmental Health Symposium on October 16-18, 2018.
- **EPA Works Closely with Community Partners and Achieves Reductions in Lead Poisoning in Rhode Island and Maine (2013–2018).** Since 2013, EPA has funded and managed six grants totaling approximately \$126,064 to the Childhood Lead Action Project and the Environmental Health Strategy Center for community-based projects to protect children from lead poisoning in Rhode Island and Maine. The Childhood Lead Action Project is a nonprofit organization working to eliminate childhood lead poisoning in Rhode Island through education, parent support, training and advocacy. Their projects built on the existing education, training, and community-building efforts in Providence, Rhode Island, and expands the work to East Providence and Pawtucket, communities with higher than average rates of lead poisoning in the state. These projects convened stakeholder groups in each community to plan, implement, and evaluated the activities necessary to bring the cities into alignment with the laws and regulations that govern lead. City officials with lead enforcement responsibilities were provided education to improve their understanding of the state's Lead Hazard Mitigation Act and EPA's Renovation, Repair, & Painting Rule (RRP), and outreach and education was provided to contractors and others performing renovation or repair on properties in target communities to increase their understanding of the RRP Rule and the importance of following lead-safe work practices.



EPA worked closely with partners to achieve reductions in lead poisoning in Providence, Rhode Island and Boston, Massachusetts.

- **Memphis and Shelby Counties, Tennessee (2018).** EPA and Shelby County Lead Safe Collaborative facilitated a stakeholder engagement project, utilizing appreciative inquiry, alternative dispute resolution, and organizational leadership techniques to coordinate local and state agency efforts to address community concerns with exposure to lead in water and soil in Memphis, TN. Two webinars were conducted to assist the Memphis and Shelby County Lead Safe Collaborative (MSCLSC) in developing goals and strategies to address challenges regarding the presence of lead in water and other sources in Memphis, TN. OEJS staff conducted a two-day planning meeting for MSCLSC leadership in Memphis that covered the following: 1) a review of appreciative inquiry and how it has been used with MSCLSC and Memphis Light, Gas and Water, 2) identification and prioritization of goals, 3) creation of a leadership structure and designation of persons who will assume specific roles, and 4) development of tasks and timelines.
- **Dallas, Texas (2018).** EPA held a Children's Environmental Health Symposium and trained 100 people including child care providers, nurses, school administrators, health care providers, community health workers, policy makers, and others in the community in lead poisoning prevention. Case studies, lead poisoning prevention, asthma triggers, exposures during pregnancy, childhood cancer, and other important information about the environmental impacts of lead on children's health was presented, resulting in attendees learning the latest information on lead challenges.
- **Dallas and El Paso, Texas (2015–On-going).** EPA provided more than 1,000 Protecting Children's Health Tip Sheets in English and Spanish, materials on lead poisoning prevention, and other children's health issues at a parent's health fair and distributed 1,000 copies of the Play It Safe lead poisoning prevention brochure to Poison Control Centers in Dallas and El Paso.
- **El Paso, Texas (2017).** EPA trained 146 school nurses, coaches and health professionals at the Healthy Schools Symposium in El Paso that included lead poisoning prevention.
- **Louisiana and Texas (2017).** EPA trained 70 EPA staff, renovation contractors, and citizens on ways to address environmental health risks to children.

INCREASING THE IDENTIFICATION OF AND ENFORCEMENT OF SOURCES NOT IN COMPLIANCE

- EPA and its partners use multiple statutory and regulatory authorities to prevent or reduce exposure to lead in environmental media. The Agency leads and supports a variety of compliance assurance activities conducted by EPA Regions and states, tribes, and territories implementing EPA-authorized programs. EPA collaborates with states, tribes, other federal agencies, communities, governmental and non-governmental stakeholders and industries to address lead.
- The primary goal of compliance assurance activities is to protect public health and the environment. Therefore, these activities aim to promote compliance with environmental requirements, ensure that violators are held accountable for noncompliance, deter would-be violators, and promote a level playing-field for entities that comply with the requirements.

COMPLIANCE ASSURANCE includes EPA's array of tools and activities to promote compliance and protectiveness, including:

- Compliance assistance
- Compliance monitoring
- Enforcement
- Capacity-building with partners
- Grants
- Policy development
- Data and tool development

PEDIATRIC ENVIRONMENTAL HEALTH SPECIALTY UNITS

Through Pediatric Environmental Health Specialty Units (PEHSU), EPA has provided training on lead poisoning prevention for multiple audiences including pediatricians, clinicians, nurses, and other medical and public health care experts on childhood lead exposure issues. EPA and PEHSUs have also recorded radio and television Public Service Announcements to raise awareness about the importance of getting children tested for lead.

PEHSUs are also developing and distributing informational posters for pediatricians to encourage them to counsel their patients about lead safety, and encourage parents to get vulnerable children tested. In addition, EPA participated in a Lead Roundtable workshop in April 2018 at the University of Washington with ATSDR, the Northwest PEHSU, state and local health departments, and local community groups to identify childhood lead exposure reduction awareness needs and efforts.

EPA awarded \$224,500 to support education on pediatric environmental health risks to five organizations in three states that will address lead poisoning prevention, environmental asthma triggers, and other children's environmental health issues. Funding was awarded in 2018 and results will be reported in 2019.



REDUCING EXPOSURES ASSOCIATED WITH LEAD IN DRINKING WATER

Improving America's water infrastructure is vital to protecting public health and reducing lead in drinking water. Over the years, EPA has provided states \$19 billion through the Drinking Water State Revolving Fund program for infrastructure improvements, including lead service line replacement projects throughout the country.

In 2018, the Water Infrastructure Finance and Innovation Act (WIFIA) program prioritized projects that reduce exposure to lead and other contaminants in drinking water systems and update the nation's aging infrastructure. While the Agency recognizes that it will be a multi-year process to bring in applications for lead projects under the WIFIA program, the Agency is pleased that in 2017 the Indiana Finance Authority's loan application for \$436 million dollars included \$6 million dollars for two lead service line replacement projects in East Chicago and Crown Point, Indiana. In 2018, EPA will soon be inviting several entities to apply for WIFIA loans that would invest more than \$300 million in lead-related projects. The Agency looks forward to investing in more projects that reduce lead in drinking in future years.

In addition, the America's Water Infrastructure Act of 2018 passed by Congress in October 2018 includes programs that could be used to strengthen the federal government's investment in reducing lead in drinking water.

Water Infrastructure Finance and Innovation Act

- On April 4, 2018, EPA announced the availability of Water Infrastructure Finance and Innovation Act (WIFIA) funding that could provide as much as \$5.5 billion in loans, leveraging over \$11 billion in water infrastructure projects.
- The 2018 WIFIA Notice of Funding Availability (NOFA) highlighted the importance of protecting public health, including reducing exposure to lead and other contaminants in drinking water systems and updating the nation's aging infrastructure.

- In response to the NOFA, potential borrowers submitted letters of interest (LOIs) requesting over \$9 billion in loans for water infrastructure projects in 26 states and territories. More than half of the LOIs addressed one or both of 2018 NOFA priorities: reducing exposure to lead and other contaminants in drinking water systems and updating aging infrastructure. Learn more at: <https://www.epa.gov/wifia>.

Water Infrastructure Improvements for the Nation Act. EPA is supporting grant programs appropriated under the Water Infrastructure Improvements for the Nation Act (WIIN) that will directly target lead-related issues.

- The assistance for Small and Disadvantaged Communities is a \$20 million grant that will allow EPA to partner with states to meet the needs of rural and disadvantaged areas.
- The Reducing Lead in Drinking Water grant will provide \$10 million dollars that will focus on reducing lead in drinking water systems, including replacing lead service lines.

WIIN Grant Announcement. The Lead Testing in School and Child Care Program Drinking Water was announced in October 2018.

- This grant program will provide \$20 million to support lead testing of drinking water at schools and child care centers.
- States that choose to participate in this voluntary grant program must submit their letters of intent by January 2019.
- Learn more at: <https://www.epa.gov/dwcapacity/wiin-grant-lead-testing-school-and-child-care-program-drinking-water>

Drinking Water State Revolving Fund. The Drinking Water State Revolving Fund (DWSRF) has provided loans that directly supported lead pipe replacement projects in cities across the United States.

- The DWSRF set-asides also funded state program activities that support lead-related projects.
- EPA collaborates with states and public water systems to update our nation's drinking water infrastructure, including important projects to reduce lead in drinking water through the distribution of EPA's DWSRFs, totaling \$1.163 billion for the fiscal year 2018.

EPA Awards STAR Grants to Research Lead in Drinking Water. In April 2018, EPA announced nearly \$4 million in funding to Virginia Polytechnic Institute and State University (Virginia Tech) in Blacksburg, Virginia, and the Water Research Foundation in Denver, Colorado, to research strategies to detect and eliminate lead exposure in drinking water. Learn more at: <https://www.epa.gov/research-grants/water-research-grants>.

Lead and Copper Rule. EPA conducted approximately 30 in-person trainings across the country in all ten 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. Additional examples of Lead and Copper Rule trainings held by EPA include:

- Lead and Copper Rule 3-Part Webinar series;
- Training with National Rural Water Association and the State of California;
- 3-day online training with Guam and Hawaii; and
- Training on Sample Site Selection being held on a regular basis.

National Drinking Water Workshop. In 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 Lead and Copper Rule (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.

Protect Your Family from Lead in Your Home. EPA updated the Real Estate Disclosure document, *Protect Your Family from Lead in Your Home*, to provide additional information and actions related to lead in drinking water. The document provides basic information on identifying and controlling lead-based paint hazards, steps to take to reduce exposure and provides information on who to contact for questions. For homes built before 1978, federal law requires that, before being obligated under a contract to buy a home and before signing a lease, buyers and renters must be provided a copy of this document. Learn more at: <https://www.epa.gov/lead/real-estate-disclosure>.

Lead Infographic. 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>.

Use of Lead Free Pipes, Fittings, Fixtures, Solder and Flux for Drinking Water. EPA published a proposed regulation for Implementing Section 1417 of the Safe Drinking Water Act (SDWA) 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 working to address comments and finalize the rule in 2019.

Leaders in Lead Service Line Replacement Story Map. 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>.

Small Systems Webinars. EPA conducts monthly webinars for Small Systems to provide training and technical assistance on new research and drinking water technologies, as well as regulatory compliance and implementation.

- Throughout 2017-2018, EPA gave various online trainings that focused on lead in drinking water.
- The most recent lead training in this series discussed EPA’s 3Ts and identifying lead-free products. It attracted over 1,200 participants, providing over 800 Continuing Education Units.

3Ts for Reducing Lead in Drinking Water in Schools and Child Care Facilities. 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. Learn more at: <https://www.epa.gov/safewater/3Ts>.



EPA Infographic

3Ts Training. EPA conducted national training for schools, water utilities, states, and others implementing voluntary lead testing programs.

- These trainings include a case study series from Massachusetts Department of Environmental Protection (MassDEP); Denver Water and Denver Public Schools; and New York Department of Health.
- EPA has also hosted several live webinars on the 3Ts toolkit and other EPA resources, and is hosting six webinars on 3Ts and WIIN in October 2018.

EPA's Small Business Innovation Research Program

EPA's Small Business Innovation Research (SBIR) program supports science- and technology-based small businesses to develop and commercialize innovative environmental technologies through monetary awards. SBIR-winning company NanoSafe, Inc. recently demonstrated 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. They are now competing for an SBIR Phase II award. Learn more at: https://cfpub.epa.gov/ncer_abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/10826/report/0

EPA's People, Prosperity, and the Planet (P3) Program

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 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

Recent Activities to Reduce Exposures to Lead in Drinking Water

- **Flint, Michigan (2017).** The City of Flint created the FAST Start program to identify and replace lead service lines across the city. Initial funding for the program was provided by the State of Michigan. In March 2017, EPA awarded \$100 million in supplemental drinking water state revolving funds (DWSRF) pursuant to the WIIN to the Michigan Department of Environmental Quality to support infrastructure improvements in Flint. These supplemental DWSRF were provided to address the declared emergency under the Robert T. Stafford Disaster Relief and Emergency Assistance Act relating to the public health threats associated with the presence of lead or other contaminants in drinking water. The City allocated \$40 million of WIIN funds toward lead service line replacements. Funding is also made available through the settlement of the Concerned Pastors for Social Action v Khouri case (finalized in April 2017) which is expected to provide an additional \$47 million. The City reported that since FAST Start began, crews from five area companies have completed excavation at 15,592 homes. Overall, to date, service lines to 7,358 homes have been identified as lead and/or galvanized steel and have been replaced, including 1,130 homes found this year.
- **Nevada (2018).** EPA funded a multi-purpose grant for \$89,000 to support exploration of lead in drinking water at Nevada elementary schools. This project will improve understanding school drinking water in Nevada. Public water suppliers generally have not included schools in their sampling plans as the Lead and Copper Rule (LCR) places a higher emphasis on single-family homes. The Nevada Department of Environmental Protection is undertaking a statewide sampling project for 400 public elementary and pre-kindergarten schools, prioritizing older and historic schools where the presence of lead is

more likely. In addition to sampling and analysis, a portion of the funding will provide resources for replacement of water fountains and culinary faucets. If sampling results indicate significant infrastructure replacement needs, referrals to the U.S. Department of Agriculture Rural Development Direct Loan and Grant Program are planned.

- **New England States (2018).** In response to EPA's, New England states', and water utility proactive measures, as of August 2018, more than 99% of the public water supply systems that are obligated to meet requirements of the Lead and Copper Rule are meeting the drinking water lead action levels.
- **Las Cruces and Gadsden, New Mexico (2018).** EPA conducted one-day workshops on EPA's 3Ts Reducing Lead in Drinking Water in Schools and Child Care Facilities in New



EPA's Miguel Moreno provides information on drinking water regulations during the 3Ts workshop in Las Cruces, New Mexico



Tribal school sampling for lead conducted and documented to reduce exposure risks in children Sac and Fox Nation (Jeremy Fincher)

Mexico. Utilizing a collaborative approach with its state partner, the New Mexico Environment Department, EPA hosted a 3Ts workshop for Las Cruces and Gadsden School District officials and environmental/custodial staff.

- **Sac and Fox Nation, Oklahoma (2018).** EPA partnered with Indian Health Services, Bureau of Indian Affairs and the Bureau of Indian Education in conducting a voluntary sampling project of tribal schools, daycare centers, and Head Start programs, at tribes with public water systems regulated by EPA.
- **Sac and Fox Nation, Oklahoma (2018).** Lead in Drinking Water Sampling for Tribal Schools. EPA initiated a project to sample drinking water for lead contamination at tribal schools, daycares, and Head Start facilities. The project targeted facilities where children consume water daily and providers volunteered to participate. By the end of 2018, EPA will have completed sampling at over 100 school sites and provided follow-up sampling and consultation to reduce exposure at sites that sampled above an action level of 15 parts per billion (ppb).

USS LEAD SUPERFUND SITE

The U.S. Smelter and Lead Refinery, Inc. (USS Lead) Superfund Site is located in the city of East Chicago, Indiana. Part of the site is a 322-acre residential area with approximately 1,100 properties, including homes, various commercial businesses, parks, schools and public buildings. On November 30, 2012, EPA issued its final cleanup plan for the residential area that has been divided into three zones.

The plan includes removal and off-site disposal of soil with lead concentrations exceeding 400 milligrams per kilogram, or mg/kg, and arsenic concentrations exceeding 26 mg/kg. In September 2016, EPA began cleaning up soil at priority properties (high lead and/or arsenic concentrations at the surface and/or pregnant women and children under the age of seven present) in zones 2 and 3. Followed by soil removal actions with sampling of indoor dust at cleaned properties and providing indoor cleanup, if necessary. EPA cleaned up the soil at 55 properties before pausing work due to winter conditions.

As of November 2017, EPA had sampled almost all Zone 2 and 3 properties. In 2017 and 2018, EPA removed 37,614 tons of lead- and/or arsenic-contaminated soil from 287 properties in zone 2 of the site and 27,662 tons of lead- and/or arsenic-contaminated soil from 240 properties in zone 3 of the site. Indoor cleaning was conducted at residences where sampling identified indoor dust contamination above screening levels.

EPA updated its community engagement plan in 2017 to revamp communication and enhance service to the residents of the site. Several improvements were made including publishing a dedicated hotline number for the site, appointing a dedicated and experienced Community Involvement Coordinator as the full-time point-of-contact for residents and establishing a community information office at the former Carrier Gosch Elementary School.

The Department of Housing and Urban Development (HUD) and the East Chicago Housing Authority (EHCA) demolished the former West Calumet Housing Complex—part of Zone 1 of the Superfund site. All residents have moved out. EPA worked closely with EHCA and HUD to ensure demolition of the complex did not pose environmental or health risks to the surrounding neighborhoods.



In fall 2018, EPA expects to announce its proposed plan to cleanup lead and arsenic in soil in Zone 1 of the site—the former location of the now demolished West Calumet Housing Complex. EPA will take public comments on the plan for 60 days and hold a public hearing in the community.

In October 2018, EPA and local health agencies sponsored a blood lead level testing event in one of the neighborhoods in the Superfund site to encourage parents to have their children tested for lead. Forty-two children and 11 adults were tested at a mobile lab. EPA recently awarded a \$50,000 Superfund Technical Assistance Grant for communities to the East Chicago Calumet Coalition.



REDUCING EXPOSURES TO LEAD IN SOIL

- Lead is a common soil contaminant because of past and current human activity or uses (e.g., mining, lead smelter). Children who live near or play on lead-contaminated soil can be exposed through incidental ingestion of small amounts of soil or soil-derived indoor dust. Contaminated soil can also be tracked into the home. Young children often have higher rates of soil and dust ingestion from crawling, as well as hand and object-to-mouth contact.
- EPA actions to reduce childhood exposure from lead in soil include:
 - Managing lead contamination at Superfund, Resource Conservation and Recovery Act Corrective Action, and other sites through removal, remedial and corrective actions;
 - Sponsoring lead education events in communities that include offering free testing of soil from residential yards and gardens and blood lead testing for children;
 - Updating the Superfund Lead-Contaminated Residential Sites Handbook; and
 - Offering technical assistance to brownfield communities to identify best management practices, and potential funding opportunities.
- More information is available at: <https://www.epa.gov/superfund/lead-superfund-sites>.

Superfund Cleanups Reduce Blood Lead Levels in Children

At many Superfund sites across the country, EPA has been and is continuing to clean up soil contaminated with lead to protect human health and the environment. Lead in soil can be toxic when ingested or inhaled. Local governments may test blood lead levels in children living near Superfund sites before, during, and after cleanup to confirm that exposure to lead has been reduced.

- 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 (NCEE) and Office of Land and Emergency Management are investigating the effects of the Superfund program nationally on childhood lead poisoning. They 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 whether a causal relationship exists between proximity to Superfund cleanups and rates of elevated blood lead levels.
- Preliminary results indicate that Superfund cleanup lowers the risk of elevated blood lead levels by roughly 10% for children living within 2 kilometers of a Superfund National Priorities List (NPL) site where lead is a contaminant of concern.
- Watch for the NCEE Working Paper that will be posted at the following website before the end of the year: <https://www.epa.gov/environmental-economics/research-environmental-economics-ncee-working-paper-series>

Recent Progress in Cleaning Up Superfund Sites with Lead Contamination

- **Pueblo, Colorado (2014–2018).** EPA has increased funding and accelerated cleanup at the Colorado Smelter Superfund site. EPA listed the Colorado Smelter, a silver and lead smelter operated in Pueblo, Colorado, from 1883 to 1908, on the National Priorities List in December 2014. The site was listed due to high levels of arsenic and lead identified in smelter slag, in neighborhood soils and at approximately 1,700 residential properties both indoors and in yards.

In summer of 2018, EPA announced \$15 million a year for the next 5 years will be used to accelerate the cleanup of the Colorado Smelter Superfund site. The additional funding will speed up the sampling and cleanup activities in the residential area of the site and should result in the completion of the cleanup about six years sooner than previously estimated. EPA's work will help to significantly lower blood lead levels particularly in children, who are most vulnerable to the harmful effects of lead poisoning. In addition to accelerating the cleanup at the Smelter site, EPA has provided over \$500,000 since 2014 to the Pueblo Department of Public Health and Environment for lead investigations, health education and outreach, blood lead screenings and in-home lead risk assessments.

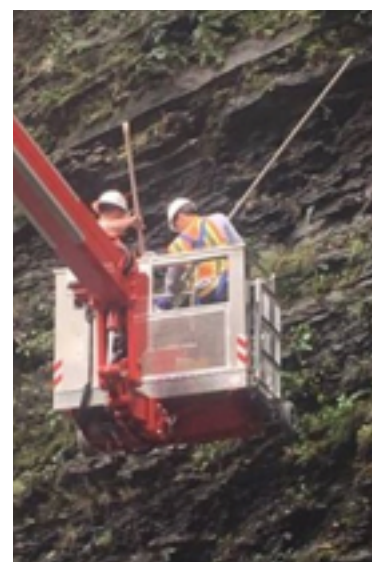


Colorado Smelter cleanup crews excavate contaminated soil from a residential property in Pueblo, Colorado

- **American Lead Site, Indianapolis, Indiana (2018).** In spring of 2018, the removal program completed a federal-lead time-critical removal action at the American Lead site. EPA cleaned up 101 residential properties. In September 2018, the remedial program requested the removal program address two additional residential properties with lead results over 1,200 ppm discovered during remedial sampling event. The two additional properties were cleaned up. In addition, the removal program may need to address a cleanup at a middle school pending analytical results.
- **Jacobsville, Evansville, Indiana (2018).** The Jacobsville Neighborhood Soil Contamination site includes the Jacobsville neighborhood as well as 12 other neighborhoods in Evansville, Indiana. Part of the Jacobsville neighborhood was formerly occupied by several manufacturing companies that date back

to the 1880s. The area includes residential, commercial and industrial properties, but the Superfund cleanup addresses residential properties only. The cleanup consists of ongoing excavation of residential properties (4.5 square miles) to remove lead- and arsenic-contaminated soil. Cleanup is approximately half-way completed, with over 2,000 of an estimated 4,000 properties remediated. The total estimated cost is over \$100 million.

- **Smelterville, Idaho (2018).** New Signage at Bunker Hill Superfund Site Recreation Spots. Beginning in Summer 2018, new signs were posted at local recreation spots at the site. The signs give tips for reducing exposure to lead and other harmful metals while enjoying the outdoors. Signs are being placed in areas of known contamination: along the South Fork and Lower Coeur d'Alene River, the Chain Lakes and nearby floodplain, and historical mine sites. Panhandle Health District and the Idaho Department of Environmental Quality had the lead on developing the signs, with input from EPA and other partners.
- **Silver Bow Creek/Butte, Montana (2017–On-going).** As part of the ongoing clean up at the Butte-Silver Bow site, the Residential Metals Abatement Program under EPA oversight continues to conduct assessments and abatements of residential yards and inside homes. In 2017, the program completed 132 projects. The projects consisted of 30 soil abatements, 99 residential attic abatements, and 3 interior dust abatements. Children live or frequently visit most of the residences where abatement activities occurred. Over 400 children were tested and less than 0.02% had elevated blood lead as defined by the Centers for Disease Control and Prevention. In 2017, the program completed 200 environmental assessments that provided targets for 2018 projects. In 2018, 180 assessments and 86 abatements have been completed and 800 flyers and postcards have been sent out thus far. Approximately 75% of 3700 homes have been assessed and/or abated to date.
- **Ithaca, New York (2018).** Lead shot from the Ithaca Gun Company was dumped into a gorge and lead shot and lead contaminated soils have migrated onto a parcel of land popular with outdoor hiker and other outdoor enthusiasts. As part of its ongoing efforts in partnership with New York State and local officials to address soil contamination from the former Ithaca Gun Factory and Ithaca Falls Natural Gorge Trail area, EPA collected samples in September along the cliff face on the southern portion of the Fall Creek area. Because of the steep and difficult terrain in this area, EPA used specialized equipment to sample portions of the 200' high cliff face. The work is ongoing. EPA has already removed more than 6,000 tons of lead contaminated soil from above the gorge and 200 cubic yards of contaminated soil from a one-quarter acre area on the walkway, which has significantly reduced park-goers' exposure to lead contaminated soil.



Environmental Workforce Development and Job Training Program (2018)

This year EPA awarded seventeen grants nation-wide under the Environmental Workforce Development and Job Training Program to train and certify adults in courses related to hazardous and solid waste management, preparing them for jobs in the environmental field. For example, two grant recipients in Region 9, the Los Angeles Conservation Corps (Los Angeles) and Hunters Point Family (San Francisco) were each awarded \$200,000 to conduct environmental training, including lead abatement, for unemployed and underemployed adults. By 2020, 108 students from these two programs will be trained and state-certified in lead abatement.

EPA CLEANUP LOWERING LEAD HEALTH RISKS IN NORTHERN IDAHO COMMUNITIES

A massive EPA Superfund cleanup under way in Northern Idaho is seeing big public health successes. Old mining and smelting practices left behind heavy metals like lead throughout the Bunker Hill Superfund Site. Children there once had historically high blood-lead levels, some of the highest recorded in the country. Today, with more than 7,000 residential and recreational properties cleaned up sitewide, those levels are down by more than 50 percent, to near the national average. The cleanup's habitat restoration, trail projects, and hillside re-vegetation have helped make the area a safer destination for outdoor recreation. To encourage people to "Play Clean" outdoors, an active lead health outreach and education program helps limit lead exposure.

The outreach program includes education for families at an annual Kids Health and Safety Fair, in-school activities for early grades, annual blood-lead testing, and much more. This year, EPA worked with partners to train local clinicians about children's blood-lead health.

Shoshone Medical Center's Kids Health and Safety Fair (2018). Annually, EPA partners with the Idaho Department of Environmental Quality and Panhandle Health District to staff an interagency booth at the fair. This event is an opportunity to engage directly with local families about ways to reduce exposures to lead and other toxic metals, while recreating or at home. In 2018, about 600 individuals came to the fair. It's one of our best opportunities for lead outreach and education.



Region 10 Panhandle Health District Fair



Region 10 Panhandle Health District Fair

Addressing Lead under The Brownfields Program

The Brownfields Program is grant-based. Communities compete nationally for either Assessment, Cleanup, Revolving Loan Fund (RLF) or Workforce Development and Job Training grants. Sites with lead contamination are only addressed if they are community priorities. Each EPA Regional office is also provided a small amount of contract funding for direct assessment of some sites under the Targeted Brownfields Assessment Program.

- **Benham, Kentucky (2015–2018).** The Brownfields program is grant-based. Communities compete nationally for either Assessment, Cleanup, Revolving Loan Fund (RLF) or Workforce Development and Job Training grants. Sites with lead contamination are only addressed if they are community priorities. Each Regional office is also provided a small amount of contract funding for direct assessment of some sites under the Targeted Brownfields Assessment Program. A Brownfields Cleanup Grant in the amount of \$200,000 was awarded to the city of Benham, Kentucky for the removal of asbestos-containing material (ACM) and lead-based paint (LBP) from a former doctor's office and clinic that was constructed in 1919. Benham plans to reuse the site as a community resource, but there were

lingering concerns from the building materials. All lead based paint removal from the exterior and interior of the building was performed and completed by Chase Environmental Group in accordance with all applicable removal requirements.

- **Vanceburg, Kentucky (2018).** A Brownfields Cleanup Grant in the amount of \$200,000 was awarded to the city of Vanceburg, Kentucky for cleanup activities at the Old Shoe Factory, in 2015 with cleanup completed in September 2018. The grant was managed by the Buffalo Trace Area Development District. Cleanup addressed primarily Asbestos Containing Materials (ACM) but also significant Lead Based Paint (LBP). The lead was in the form of paint which covered the structural brick of the building. The building itself was a 2-story, dilapidated building in complete disrepair. During the cleanup all lead-based painted brick was segregated and disposed of properly. Future land use will be energy efficient, low income housing to support the inflow of new businesses.
- **Spirit Lake Nation, North Dakota (2018).** Using \$229,146 in EPA Brownfields grants, the Spirit Lake Tribe cleaned up 12 buildings with lead, asbestos, and other hazardous contaminants. The presence of abandoned, lead-paint contaminated structures on the reservation increases risk of community members' exposure to lead. EPA has provided over \$1.4 million in federal funding to support the cleanup of Spirit Lake Brownfields sites.



Brownfields Cleanup, Spirit Lake Reservation. Photo of an abandoned building contaminated with asbestos, lead-based paint, and lead in the soil.

New Testing Method for Lead in Contaminated Soil Protects Public Health and Saves Money

EPA scientists have been working on a bioavailability method that simulates how the human digestive system absorbs lead and arsenic in soil.

“Bioavailability” refers to the amount of a substance that is absorbed by the body’s gastrointestinal system following exposure. In May 2017, EPA validated the method after it was shown to meet rigorous regulatory acceptance criteria. This means that states and public health risk assessors can use the method during cleanups at EPA Superfund sites and other locations with lead and arsenic contamination issues. In addition to protecting public health, the bioavailability method improves the accuracy of human health risk assessments. Scientists and public health officials can now use the artificial stomach method to determine if arsenic and lead in contaminated soils are bioavailable and, if they are, can then remove those specific sections of soil.



EPA researcher Karen Bradham uses a “virtual stomach” that mimics human digestion to determine if lead and arsenic in contaminated soils are bioavailable.

Learn more at: <https://www.epa.gov/sciencematters/new-testing-method-lead-and-arsenic-contaminated-soil-saves-money-and-protects-public>.

Recent Activities to Prevent Exposures to Lead Contaminated Soil

- **Birmingham and Anniston, Alabama; Chattanooga, Tennessee; Fair Play and Anderson, South Carolina (2012–2018).** EPA continues to address instances where high lead levels contamination is endangering human health by deploying On-Scene Coordinators (OSCs) to assist with removing contaminated soil and replacing it with clean fill and topsoil. Through EPA’s Emergency Response and Removal Program, EPA actively considers residential properties containing high levels of lead in soil a high priority for removal action based on available resources.

- **West Oakland, California (2018).** For more than 10 years, EPA, the California Department of Toxic Substances Control, City of Oakland and Alameda County have partnered to clean up properties in West Oakland contaminated by historical industrial activities. In the spring and summer of 2018, EPA and DTSC removed lead-contaminated soil at 11 residences located close to a former lead smelter. EPA is also conducting a soil study to better understand the presence of lead and other heavy metals in the soil in West Oakland. In 2018 EPA is collecting soil samples from about 200 locations. The results will be posted online and will help EPA and partner agencies identify next steps and prioritize areas requiring further evaluation.
- **Gibbsboro, New Jersey (2017).** In the spring of 2017, EPA reached an agreement with the Sherwin Williams Company to clean up lead-contaminated soil at the Route 561 Dump site. The dump site includes businesses, a vacant lot, White Sand Branch creek, and wetlands. Sherwin-Williams will pay an estimated \$14 million to clean up the site and in this phase of the project will remove approximately 23,000 cubic yards of contaminated soil. The excavated areas will be backfilled and a soil cover will be placed over vegetated areas and an asphalt cap will be placed over portions of commercial properties, ensuring that property owners, occupants, and the general public will be protected from future lead exposure.
- **Vineland, New Jersey (2018).** The Former Kil-Tone Company manufactured arsenic-based pesticides from the late 1910s to the late 1930s on the property located in Vineland, NJ. EPA has found elevated concentrations of arsenic and lead related to the former Kil-Tone Company's operations at the facility property and in the soil at properties nearby the former manufacturing facility. Since 2015, EPA has sampled soil at more than 100 properties near the former Kil-Tone facility. In 2016, EPA issued a cleanup plan selecting a remedy of soil excavation, off-site disposal, backfilling and restoration of residential properties known to be impacted by the site. EPA completed sampling, soil removal and restoration work on six properties last fall and winter. This fall, EPA will sample 27 more residences prior to conducting additional cleanup work, thereby reducing potential lead exposure to property owners.
- **West Deptford, New Jersey (2017).** During a routine residential sewer line repair, buried lead battery casings, associated with Matteo and Sons Inc, were found on the property. Former operations at the Matteo site included crushing and recycling batteries, scrap metal recycling, and landfilling. In 2017, EPA finalized its \$9.4 million plan to address lead contaminated soils at approximately 20 residential properties that were impacted by Matteo. Under the EPA's final cleanup plan, soil contaminated at levels that pose a potential risk to people's health will be removed and disposed of properly at a facility licensed to handle the waste. Excavated areas will be covered with clean soil.
- **Lockport, New York (2018).** EPA finalized its nearly \$7 million plan to clean up lead-contaminated soil at approximately 28 residences that are impacted by the former Flintkote Plant property at the Eighteen Mile Creek Superfund Site, in Lockport, New York. As part of a multi-phased, comprehensive cleanup of the Eighteen Mile Creek Site, EPA will remove and transport approximately 14,000 cubic yards of contaminated soil for off-site disposal at facilities licensed to handle the waste. The excavated areas will be restored with clean soil.
- **Red Hook, Brooklyn, New York (2018).** Under EPA oversight, the New York City Department of Parks and Recreation (NYC Parks) will begin the cleanup of lead contaminated ball fields in Red Hook Park, Brooklyn. The ball fields were contaminated with lead from a historic secondary lead smelting facility known as Columbia Smelting and Refining Works, which once stood atop what is now Ball Field 7. NYC Parks will remove all part features such as fencing, most of the trees, curbing, other structures and the top layer of soil. NYC Parks will place a visual barrier over the contaminated soil, and cover the barrier with one foot of clean material. Artificial turf will be installed over the ball fields. These actions will reduce potential lead exposures to children using the park for sports activities.
- **Arecibo, Puerto Rico (2017).** Before it temporarily stopped operating in the spring of 2014, The Battery Recycling Company, Inc. smelted lead batteries into lead ingots, which are bars of lead that can be reused in manufacturing. In the process of smelting the lead batteries, The Battery Recycling Company, Inc. generated large quantities of waste, including lead slag and lead-contaminated dust. Workers also

carried lead dust on their clothes into their cars and homes, putting their families and others potentially at risk. As a result of previous operations, the site is contaminated with lead, arsenic and heavy metals. EPA added this former battery recycling facility in Arecibo, Puerto Rico to its Superfund National Priorities List.

- **San Antonio, Texas (2018).** Remediation and removal. Following the Resource Conservation and Recovery Act program assessment of Wood Industries, a former plastic recycler in San Antonio with limited resources, the EPA removed the threat posed by the lead left on the site, approximately 4000 tons of cracked automotive batteries contaminated with 15% lead. While the site is now located in a sparsely developed commercial and industrial area, a new housing development has just started within sight of the facility. EPA will treat the battery casing, chips and ash with a proprietary reagent to allow for proper disposal off-site. The cleanup is expected to take six weeks. After that, efforts to put the property back into productive use will continue.



Clean up at Wood Industries, San Antonio, Texas

- **Coordinating Environmental Health Workshops in Portsmouth, Virginia.** On September 8, 2018, EPA coordinated an environmental health workshop in Portsmouth, Virginia, with federal, state and local partners. Virginia residents living near several Superfund sites attended the workshop to learn more about environmental health topics that impact their communities. The weekend workshop offered representatives from federal, state and local environmental and health organizations who were on hand to distribute literature, engage with residents and answer questions. In addition, the workshop offered free blood lead screening for children with results available in minutes. EPA also offered free soil lead screening. Residents were invited to bring soil samples from their yard or garden and have them screened for lead with same day results. Some of the partners in the workshop included the following: ATSDR; Virginia Department of Health; Virginia Department of Environmental Quality; Virginia Cooperative Extension; Portsmouth Health Department; Hampton Roads Community Health Center; Wesley Community Service Center; the Elizabeth River Project; and others.



EPA's Larry Brown, a Community Involvement Coordinator, discusses the free lead soil screening process with community members at the Portsmouth Environmental Health Fair.

Soil Screening, Health, Outreach and Partnerships — SoilSHOPS

A SoilSHOP (soil screening, health, outreach and partnership) is a community health educational event where people can learn more about potential lead contamination in their soil and how to prevent or reduce exposures. The purpose of a SoilSHOP is to increase community awareness about the hazards of lead in soil, and provide information on how to avoid exposures to lead while gardening or playing in the yard.

SoilSHOP events, performed hand-in-hand with other federal agencies, state and local groups, have had an impact and made a difference in the participating communities. SoilSHOPS are an excellent example of how a multi-disciplinary team can find ways to engage a local community with a known health concern and then take action to reduce the risk associated with the potential exposure to lead contamination in neighborhood soils.

Learn more about soilSHOPS at: <https://www.atsdr.cdc.gov/soilshop/faq.html>

- Smelterville, Idaho (2018).** EPA partnered with ATSDR, Idaho Department of Environmental Quality, Panhandle Health District, Idaho Health and Welfare, Silver Valley Community Resource Center, and community members to bring an outreach event called a SoilSHOP to Idaho's Silver Valley. Working with partners, EPA helped deliver a SoilSHOP where community members could get their yard soil tested on the spot. Much work remains, and the cleanup continues, but EPA and our partners cleanup efforts have made the Silver Valley community safer and healthier for all who live, work and play there. Community members were encouraged to bring samples of soil from their homes and neighborhoods to the SoilSHOP to be screened for lead and other metals. The event was held in September 2018, in Smelterville, Idaho, during the Shoshone Medical Center's Kids Health and Safety Fair. It was the first SoilSHOP held at the Bunker Hill Superfund Site.
- Newburgh, New York (2018).** In April 2018, EPA teamed up with ATSDR, Brooklyn College & USDA to offer Newburgh residents free soil testing at Newburgh's 3rd Annual Urban Farming Fair & SoilSHOP Event. Experts were on hand to interpret results and to provide residents with lead and gardening information. This was part of a broader ongoing effort launched through a partnership with local, state and federal agencies to tackle the serious problem of high blood lead levels in Newburgh's children.
- Providence, Rhode Island (2018).** In April 2018, EPA, along with ATSDR, conducted their fourth annual event in a Providence, Rhode Island neighborhood with a long industrial history and many active Brownfields projects. EPA partnered with the City of Providence, Groundwork Rhode Island, the Childhood Lead Action Project, and the Southside Community Land Trust. Community members were encouraged to collect a sample of soil from their home or neighborhood and bring it to the SoilSHOP event for lead screening by the EPA Mobile Lab Unit. Forty-five soil samples were screened for lead. The City Parks Department Earth Day Cleanup on April 28th hosted the SoilSHOP event, which was attended by many community members. Feedback from the community and EPA's partners was extremely positive. Participants had an opportunity to talk with health and environmental partners about their results, and were offered additional information on ways to reduce lead exposure around the home and neighborhood, and how and where to get additional soil samples tested for those concerned about lead exposure.
- Vashon, Washington (2018).** EPA participated in a soilSHOP and educational outreach event at the Vashon Farmer's Market with ATSDR, the University of Washington Pediatric Environmental Health Specialty Unit, state and local health departments, and local community groups. Vashon and Maury Islands are part of the Tacoma Smelter plume where the smelter released particles with lead and arsenic into the air which were deposited downwind in different directions and may still be found in soils.





REDUCING EXPOSURES TO LEAD IN THE AMBIENT AIR

As a result of several regulatory actions over the past two decades, ambient air lead emissions have decreased tremendously. Lead is still emitted into air from a variety of sources including metals processing facilities and combustion of leaded aviation fuel by aircraft with piston-engines. Currently, the source category with the greatest contribution to total U.S. air emissions is piston-engine aircraft operating on leaded fuel. 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.

The EPA is taking several steps to identify and help reduce lead emissions from these sources.

- 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 and with regard to the primary (health-based) standard concluding 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 air quality standards. Due to the implementation of effective control measures, all 22 areas are expected to have lead concentrations below the standards by 2021.
- EPA has adopted standards that control lead emissions from specific categories of stationary sources, such as lead smelters and EPA is evaluating lead emissions from the combustion of leaded aviation fuel in small aircraft. In related action and amid concerns about lead emissions from small aircraft, FAA and their industry partners are conducting the Piston Aviation Fuel initiative to identify replacement unleaded

fuels. 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 in lead emissions to ambient air is available at: https://gispub.epa.gov/air/trendsreport/2018/#naaqs_trends (select “lead” from drop-down menu)

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