SUPERFUND FY 2019

Annual Accomplishments Report

For nearly 40 years, the Superfund program has cleaned up the nation's most contaminated sites, directly improving public health and breathing new life into struggling areas of the country. Superfund allows communities and businesses to rediscover and repurpose land that was once abandoned or written off.

- EPA Administrator Andrew Wheeler

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Front cover:

Midvale Slag in Midvale, Utah. Cover photo by Whitney Bernson

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A Year of Change for A Future of Progress

I am proud to report that in Fiscal Year (FY) 2019, our work led to significant and lasting progress in protecting people's health, increasing people's quality of life, and revitalizing communities. The men and women who work in the regions and headquarters in the Superfund, emergency response, and supporting programs can point to many success stories and take pride in the work we have accomplished to clean up Superfund sites and respond to environmental emergencies.

2020 marks the 50th anniversary of EPA and nearly 40 years of implementing the Superfund program. At its core, Superfund is a story about people and their communities and addressing past practices in order to make way for future land use; a story about how EPA's work directly impacts the lives of millions of Americans in positive and meaningful ways.

IMPROVING—In 2019, EPA released the final Superfund Task Force Report, the culmination of hard work by EPA career staff that invigorated creativity and challenged the Superfund program to make significant changes in how Superfund sites are managed throughout the Superfund process in order to accelerate the benefits that cleanup brings to communities and the environment. Putting the improvements to work, EPA jump-started progress at sites that had long-standing obstacles; took early action to address immediate risks; increased the number of sites that can be returned to communities for reuse; and incentivized work by potentially responsible parties. EPA resolved immediate issues and unlocked the potential to keep protecting, revitalizing, innovating, and engaging for years to come.

PROTECTING—The number one goal of the Superfund program is to protect people's health and the environment by cleaning up some of the nation's most contaminated land. Since the inception of the program, EPA has successfully completed cleaning up and removing 424 sites from the National Priorities List (NPL). Implementing the Task Force recommendations demonstrates that EPA can expedite cleanups and remediation by removing hurdles in the process, holding responsible parties accountable, and addressing liability concerns of volunteers who invest in remediation and revitalization. Superfund cleanups protect communities and can be a source for economic and community growth. For example, in 2019, EPA took important actions to protect public health and the environment at the Lower Darby Creek Area Superfund site in Darby Township, Pennsylvania, including addressing over 180 contaminated residential properties in the Eastwick Neighborhood.

REVITALIZING—Perhaps 30 years ago, a Superfund cleanup success might have left a site vacant and unused with a fence around it after removing leaking drums and addressing contaminated soil and groundwater. Today, the Superfund program is clearing a path for Superfund sites to be returned to communities and reimagined by communities and property owners into thriving businesses, recreational areas, houses, and renewable energy hubs. More than 1,000 Superfund sites

support new and ongoing uses and have created thousands of jobs. By working with communities early in the cleanup process, EPA can help support their vision for the future of these sites. Having a vision for reuse attracts resources faster, accelerating cleanups and shortening the path to future productive use. For example, in 2019, Amazon opened a new $178.4 million, 855,000 square-foot distribution center at the formerly contaminated Reynolds Metals Company Superfund site in Troutdale, Oregon, providing approximately 3,000 jobs.

INNOVATING—Innovation is accelerating Superfund cleanups. Building on the Task Force recommendations, 2019 was a big year for using cutting-edge science and technology innovation to improve our evaluations and cleanups, expedite results, and be more cost effective. One example is using 3-D visualization of underlying geology and hydrology at the Dover Gas Light site in Dover, Delaware, to help us confirm results.

ENGAGING—The story of Superfund is rooted in the notion that communities impacted by Superfund sites should be part of the decisions that affect their quality of life. Over the past 40 years, the Superfund program has built a robust program of tools and resources that provide early and meaningful opportunities for communities to participate in the decision-making process. For instance, at the Colorado Smelter Site in Pueblo, Colorado, where there is a significant population of children with elevated blood lead levels, EPA meets monthly with the Community Advisory Group of engaged residents, elected officials, and other stakeholders to discuss cleanup and revitalization of the community. EPA also provides technical assistance and outreach to augment these discussions.

As part of the Task Force, the Superfund program launched a project in 2019 to evaluate how the program communicates complex health and science information to communities surrounding Superfund sites. The Superfund program also expanded the charge for the National Environmental Justice Advisory Council, asking them to look at ways the program can better engage with communities, expedite cleanups, and return sites back to communities for productive use. Results from these efforts will be released this fall.

I am pleased to share the FY 2019 Superfund Accomplishments report with you. There is a lot to be proud of this past year, and I look forward to a future full of progress for the next 40 years and beyond.

Peter C. Wright
Assistant Administrator
Office of Land and Emergency Management

Executive Summary

The Superfund program makes a visible and lasting difference in communities by cleaning up the nation's most contaminated land, tackling threats to public health and the environment, supporting local economies, and enhancing quality of life. Over its nearly 40-year existence, the Superfund program has made significant improvements in communities across the nation by cleaning up and deleting sites from the NPL; however, this important work continues until every site on the NPL is cleaned up and deleted. In FY 2019, EPA continued to seek ways to more efficiently and effectively remediate these Superfund sites and protect human health and the environment.

IMPROVING

Protecting human health and the environment is EPA's core mission. Ensuring that the Superfund program operates optimally is critical to accomplishing this mission. With this in mind, the Superfund Task Force was established in May 2017, to provide recommendations for improving and expediting site cleanups and promoting redevelopment. EPA's Superfund Task Force focused on accelerating cleanups to shorten the path to redevelopment and safe, productive reuse of Superfund sites, while protecting human health.

The Task Force identified 42 recommendations under five overarching goals: (1) Expediting cleanup and remediation; (2) Reinvigorating responsible party cleanup and reuse; (3) Encouraging private investment; (4) Promoting redevelopment and community revitalization; and (5) Engaging partners and stakeholders. The Task Force workgroups identified effective ways to implement the recommendations and reach outcome-driven results to expedite cleanups, site redevelopment, and community revitalization while protecting human health and the environment. The Final Task Force Report identified performance measures that are being integrated into EPA programs and processes to ensure the successful implementation of the lessons learned from the Task Force for the future of the Superfund program and the future of Superfund sites. The performance measures impose accountability on the Agency to maintain its commitment to reclaim, restore, and reuse Superfund sites. Since September 2019, the Agency works to continue the implementation of the recommendations and performance measures into the program.

One of the tools developed by the Task Force to expedite cleanup and remediation is the Administrator's Emphasis List, a list of sites targeted for the Administrator's immediate and intense attention. Since the initial release of the Emphasis List in December 2017, substantial progress has been made at sites placed on the list, and as of the end of the FY 2019, 14 sites had been removed from the Emphasis List after achieving their short-term milestones. EPA updates the dynamic list on a regular basis as sites achieve major milestones throughout the Superfund process.

The Tar Creek Superfund site in Ottawa County, Oklahoma was removed from the Administrator's Emphasis List in fall 2019 after EPA, in cooperation with the state of Oklahoma and the Quapaw Nation, released the final strategic plan for the site, which is one of the nation's most complex Superfund sites. The strategic plan fulfilled two major milestones — to identify and evaluate opportunities to accelerate site cleanup and to develop a strategy on tribally-owned property to ensure that the cleanup is protective in the long-term.

PROTECTING

EPA's Superfund program is responsible for cleaning up some of the nation's most contaminated land and responding to environmental emergencies, oil spills, and natural disasters to protect human health and the environment. EPA accomplishes this through removal actions to quickly address imminent threats to public health or the environment and remedial actions to address

complex sites needing a long-term (multi-year) response. In FY 2019, EPA made significant progress in investigating, designing cleanup, and cleaning up contaminated land, groundwater, and sediment. In FY 2019, 664 remedial sites were assessed which set the stage for appropriate responses to releases of hazardous waste.

At the New Bedford Harbor Superfund Site in New Bedford, Massachusetts, EPA completed 15 years of dredging, hydraulic transport, and shipment of dewatered, highly contaminated PCB subtidal sediment from New Bedford's Upper Harbor.

Sites on the NPL can bring a stigma to a community, so EPA has been prioritizing both cleanup progress and cleanup completion. In FY 2019, EPA deleted all or part of 27 sites from the NPL, the largest number of deletions in one year since 2001.

By deleting sites from the NPL, EPA provides finality to communities and signals potential developers and financial institutions that no further cleanup is required to protect human health or the environment. Deletion from the NPL also makes a site eligible for Brownfields grants that help revitalize communities and promote economic growth.

Finishing the job and deleting sites from the NPL is providing that assurance and those grants opportunities for communities around the country. For example, the Buckeye Reclamation Superfund Site in St. Clairsville, Ohio, is the first Ohio site deleted since 2002, and the Electro-Coatings Superfund Site in Cedar Rapids, Iowa, is the first Iowa site deleted since 2005.

Addressing lead and per- and polyfluoroalkyl substances (PFAS) contamination were Agency priorities in 2019 (and remain priorities in 2020). In December 2018, EPA, alongside the U.S. Department of Housing and Urban Development and the U.S. Department of Health and Human Services, unveiled an interagency effort to work collaboratively with a range of stakeholders to reduce children's exposure to lead. As part of this effort, EPA continues to work to address lead contamination at Superfund sites. At the Southside Chattanooga Superfund site in Chattanooga, Tennessee, EPA is taking early action to mitigate immediate risks to residents from lead above health-based benchmarks in residential neighborhoods.

Throughout 2019, EPA continued to make progress in accomplishing the concrete steps outlined in EPA's PFAS Action Plan.

REVITALIZING

The ultimate measure and goal of the Superfund program is how well the affected communities we serve are transformed by reclaiming and returning land to productive use. Communities across the country rely upon the Superfund program to remedy contaminated property and give land back to the community. EPA continues to help communities develop their vision for the future of a site. Having a vision for reuse attracts resources faster and drives more timely and efficient cleanup decision-making, accelerating cleanups and shortening the path to the future productive use. Focusing on the future use of sites can also leverage resources and influences beyond EPA because it can effectively engage communities, responsible parties, and states. By redeveloping Superfund sites, communities can use thousands of acres of formerly contaminated land, strengthening local economies. Many sites that EPA has designated as ready for reuse now host parks, business districts, renewable energy facilities, wildlife habitats, neighborhoods, and farms.

At the Madison County Mines Superfund Site in Fredericktown, Missouri, EPA entered into an agreement with Missouri Mining Investments to consolidate and cap mine waste which will result in allowing approximately 1,750 acres of property to be redeveloped for future mining of cobalt and other metals. Missouri Mining Investments constructed a new tailings processing facility to recover critical minerals from existing mine waste on site, and production has already begun.

The East Helena Superfund site in East Helena, Montana, a former lead smelter, is now home to a new elementary school and future high school, a 300-home subdivision, and a state-of-the-art County Search and Rescue facility. In addition, over 180 acres of the Prickly Pear Creek floodplain and 80 acres of migratory bird habitat have been restored. Overall, 700 acres have been redeveloped or prepared for redevelopment.

INNOVATING

Innovation is a cornerstone and catalyst for accelerating cleanups and improving results. In FY19, EPA accelerated progress by using cutting-edge technologies to meet a range of challenges at Superfund sites. Innovations resulted in more precise characterizing and mapping of contamination, as well as more effective cleanups.

EPA's Superfund technology transfer program incorporated practices initiated under the Superfund Task Force to advance promising state-of the-art technologies and tools for streamlining and improving the cost and performance and shortening the duration of site cleanups. Through its ongoing technology transfer efforts, the program has contributed to advancing the practice and acceptance of innovative tools and technologies such as broadening the suite of in situ treatment options for contaminated groundwater, expanding the use of high-resolution site characterization, and fostering acceptance of field portable analytical technologies.

At the Sandy Beach Road Groundwater Plume in Pelican Bay, Texas, EPA removed the source of contamination and controlled the future movement of the contaminated groundwater plume by rethinking the original cleanup technology and using in situ carbon amendments injected along multiple treatment barriers into the nearly mile-long trichloroethylene (TCE) plume. The previous treatment required frequent maintenance and released secondary metals into the groundwater.

ENGAGING

Community members are key partners and play an important role during all phases of the cleanup process. When the community is involved, it leads to better cleanup and reuse decisions. Early and meaningful stakeholder participation is critical, so EPA continues to enhance community and stakeholder engagement to promote transparency, community support, and more timely cleanup decisions and to strengthen EPA's partnerships and engagement with states, tribal governments, local governments and regional authorities, environmental and community-based organizations including environmental justice, industry, contractors, Potentially Responsible Parties (PRPs), and land development and banking associations.

For example, in 2019, EPA published *Getting Risk Communication Right: Helping Communities Plan at Superfund Sites*, a plan to improve the Agency's risk communication and community involvement practices during the post-construction, long-term stewardship phase of Superfund site remediation. This dynamic plan continues to evolve based on dialogue with communities, external stakeholders, internal staff, and regulatory partners. Lessons learned from this effort will be applied across the lifecycle of the Superfund cleanup process.

In March 2019, EPA partnered with the Northwest Jacksonville Community Development Corporation to train 13 community members at the Fairfax Street Wood Treaters Superfund Site in Jacksonville, Florida through EPA's Superfund Job Training Initiative. The Initiative is a job-readiness program that provides training and employment opportunities for people living in communities affected by Superfund sites. After a rigorous screening and recruitment process, trainees earned three certifications and completed coursework in work-readiness training. Site contractors have hired eight graduates of the program to work onsite. The goal of the Superfund Job Training Initiative is to help communities develop job opportunities and partnerships that remain long after a Superfund site is cleaned up.

Note to reader: Consistent with EPA ethics requirements, Administrator Wheeler and Assistant Administrator Wright did not participate in the decision making process for the sites in this report that also appear on their individual recusal lists.

Fiscal Year 2019: The Year in Review

EPA's Superfund program makes a visible and lasting difference in communities by cleaning up the nation's worst hazardous waste sites, tackling threats to public health and our natural environment, supporting local economies, and enhancing quality of life.

664
Remedial site assessments completed

233
Removal actions completed

116 cleanup decisions
52 new and 64 amended

65
New remedial construction projects started

32
Optimization projects completed with another 36 underway

27
NPL Deletions (12 Full and 15 Partials)

48
Sites Ready for Anticipated Reuse

477 remedial construction projects where EPA and other project leads conducted construction or provided oversight

Funding Superfund Work

$570 million from private parties to clean up sites

$250 million disbursed or obligated for site-specific work from special accounts

About **56%** of ongoing remedial construction projects are being performed by PRPs

Funding State Superfund Work

About **$47 million** to states to clean up NPL sites

Jump-Starting Progress

4 sites removed from the Administrator's Emphasis List after achieving their milestones

- Final cleanup decision selected worth $205 million at West Lake Superfund Site
- PRP agreement for site work worth $11 million at Madison County Mines Superfund Site
- Completed the remedial investigation for 17 miles of the Passaic River at the Diamond Alkali Superfund Site
- Finalized long-term strategy for Tar Creek Superfund site covering thousands of acres

Improving

On-the-Ground Impacts of the Superfund Task Force

EPA's Superfund Task Force focused on making program improvements to accelerate cleanups to shorten the path to redevelopment and safe, productive reuse of Superfund sites.

In 2019, EPA released the final Superfund Task Force Report, the culmination of hard work and evaluation that challenged EPA to improve how the Agency manages Superfund sites. In total, 42 recommendations were implemented to remove obstacles, uncover solutions and create efficiencies.

Use of Early Action to Protect Residents Faster at Southside Chattanooga Site

Chattanooga, Tennessee

EPA is cleaning up over 1,000 properties in eight residential neighborhoods where there are high levels of lead contamination from past foundry operations. In FY 2019, EPA took an early action by signing an interim cleanup decision to address properties with the highest risk from exposure to lead in soil. A total of 28 properties were cleaned up and many more are in the cleanup process. As of February 2020, 1,449 properties were sampled; the sampling data will continue to be used to prioritize cleanups so that high-risk sites are cleaned up first.

Adapting to Speed up Progress at New Jersey's Berry's Creek

Bergen County, New Jersey

Work began in 2019 on a $332 million cleanup decision to remove two feet of sediment and place a cap that will isolate contaminated sediments. The cap will be placed over approximately 87 acres of waterways within the Berry's Creek marsh, contaminated with high levels of mercury, methyl mercury, polychlorinated biphenyls (PCBs) and chromium released from past practices of industrial facilities. EPA is using an adaptive management approach to address the parts of the site causing the highest risk and source of contamination and then using that information to inform cleanup on the remaining portions of the site.

Administrator's Emphasis List of Superfund Sites

Targeting sites from across the U.S. for the Administrator's "immediate and intense attention"

One of the 42 Superfund Task Force recommendations was the development of the Emphasis List of sites from across the U.S. that have identifiable actions and could benefit from the Administrator's direct engagement to resolve site-specific issues delaying cleanups.

At the end of FY 2019, EPA had removed 14 sites from the Emphasis List after short-term milestones were achieved. The following are examples of progress at Emphasis List sites:

Accelerating Cleanup at the B.F. Goodrich Site

Calvert City, Kentucky

The site is an operating facility, which adds a level of complexity to the evaluation of the remedial approaches. After almost a decade of site characterization and technical evaluation of cleanup approaches, the site was placed on the Emphasis List to complete the technical analysis and select a site cleanup. The Administrator set a Summer 2018 deadline to select a remedy, which expedited discussions with the involved parties regarding the remedial approach.

These discussions resulted in an interim approach for the offshore source material that prioritizes treatment and minimizes disruption to the facility operations. This ultimately led to revising and reissuing the cleanup plan for public comment in June 2018. On September 5, 2018, the Administrator signed a cleanup decision for the site. Building on the collaborative approach taken to meet the Administrator's deadline, EPA reached an agreement with the PRPs in April 2019 to begin designing the remedy while the negotiations continue for the implementation of the more than $100 million cleanup.

The site contamination is the result of chemical manufacturing that began in the mid-1950's using ethylene dichloride used to produce polyvinyl chloride.

"When EPA prioritized the site, the PRPs rallied, innovated, and worked cooperatively with each other, EPA, and KDEP to reach an agreement quickly. After a decade of study, we are able to enter a phase to clean up the site and ensure the long-term protection of the community and the environment."

- SHERI UHLENBRUCH, ENVIRONMENTAL SCIENTIST CONSULTANT KENTUCKY DEPARTMENT OF ENVIRONMENTAL PROTECTION

Jump-Starting Progress at the West Lake Landfill Site

Bridgeton, Missouri

After signing a cleanup decision for Operable Unit 1 (OU1) in 2008, the cleanup stalled, and the Agency spent close to ten years conducting additional investigations and analysis to evaluate the remedial approaches to address OU1. In 2017, EPA committed to the community that a proposed cleanup decision would be issued for public comment in early 2018, and a final cleanup decision would be finalized by the end of September 2018. The site was placed on the Emphasis List to ensure EPA kept this commitment.

Because of the attention and oversight by the Administrator, EPA issued a proposed cleanup decision for public comment in February 2018 and signed a final cleanup decision for OU1 using a combination of excavation and capping-in-place on September 27, 2018. In 2019, EPA reached a final agreement with the PRPs to move forward with the remedial design for OU1 and the design investigation for other areas of the site.

The West Lake Landfill site is an approximately 200-acre inactive solid waste disposal facility containing radioactive waste associated with the Manhattan Project.

Break-Through in Identifying Opportunities to Accelerate Cleanup at the Tar Creek Site

Ottawa County, Oklahoma

In September 2019, EPA, in cooperation with the state of Oklahoma and the Quapaw Nation, released the final strategic plan for the Tar Creek Superfund site, one of the nation's most complex Superfund sites. The site was placed on the Emphasis List to bring the parties together to develop this plan to implement the site cleanup. Although significant cleanup actions had been taken at different areas of the site, a comprehensive plan for cleanup implementation and completion was needed because significant work still remains.

The plan identified short- and long-term cleanup actions and target completion dates to complete cleanup and enable reuse. Short term actions include implementing institutional controls, deleting up to 5,000 acres off the NPL, amending the 2008 cleanup decision for mining waste, issuing a plan for watersheds, and exploring innovative technologies to expedite the cleanup and identify additional reuse opportunities. Establishing this plan as a priority to the Administrator brought all parties together to identify and evaluate opportunities to accelerate site cleanup and to develop a strategy on tribally owned property to ensure that the cleanup is protective in the long-term.

Meeting Commitments in Cleaning Up Properties at the USS Lead Site

East Chicago, Indiana

The site was added to the Emphasis List with the milestone of cleaning up 100 percent of Zone 3 by fall 2018 and Zone 2 by early 2021. In FY 2019, EPA excavated and restored 178 residential properties within the site. To date, EPA and the PRPs have cleaned up 765 properties, which total 96 percent of the properties requiring cleanup, achieving a majority of the milestone. EPA continues to obtain access to the remaining properties requiring cleanup.

Since placing the site on the Emphasis List, numerous meetings facilitated constructive dialogue between EPA, community members, PRPs, and other stakeholders to re-build an effective and cooperative relationship to develop options to accelerate cleanup of the residential properties.

Administrator Reviews Cleanup Decisions over $50 Million

Administrator Wheeler also promoted accountability and national consistency by reviewing and authorizing five Superfund cleanup decisions estimated to cost $50 million or more.

Launching Progress and Securing a Final Cleanup Decision for the Silver Bow Creek Site

Butte, Montana

In April 2019, EPA released a proposed plan to amend the 2006 cleanup decision for the site, which included:

- Use of EPA-promulgated water quality criteria to replace in-stream water quality standards;
- Expanded areas for floodplain removal;
- Expanded groundwater controls;
- Removal of additional tailings; and
- Construction of stormwater retention/detention basins.

The Administrator's engagement helped move the parties, who had been stuck for over a decade, towards a consent decree to conduct significant additional work. Specific challenges related to storm water management due to the site's physical characteristics and meeting state and federal water quality standards. Placing the site on the Emphasis List signaled to all parties that the time had come to make decisions and issue a plan for public comment.

Beginning in the late 1800's, mining wastes were dumped into streams and wetlands near mining operations at the site. Smelters and mills produced aerial emissions contaminated with arsenic and heavy metals.

"This is big news for the folks of Butte-Silver Bow. After nearly four decades, this agreement brings us one step closer to not only a solutions-driven cleanup, but also removing the stigma of the Superfund listing by 2024."

- U.S. Senator Steve Daines

Protecting

#1 Goal: Protect Public Health and Environment

EPA takes response actions as part of the remedial program, which focuses on longer-term cleanups of contaminated sites on the NPL, as well as the removal program, which conducts emergency and shorter-term responses such as train derailments and environmental disaster responses

In FY 2019, EPA made significant progress in investigating, designing cleanup, and cleaning up contaminated land, groundwater, and sediment in the remedial and removal programs.

Progress at Superfund Sites

Protecting Citizens Living at and Near the New Bedford Harbor Superfund Site

New Bedford, Massachusetts

In 2019, EPA completed its 15th and final season of dredging, hydraulic transport, and shipment of dewatered, highly contaminated PCB subtidal sediment from New Bedford's Upper Harbor. EPA:

- Completed the construction of a 3-acre interim subaqueous cap protecting the Harbor;
- Began decontaminating and converting a 55,000 square foot dewatering facility to be returned to the City for commercial reuse; and
- Reached 750 residents about the risks of consuming certain types of fish through issuing fishing advisories.

In FY 2020, EPA plans to train 60 community members for work in environmental cleanup.

Since 2014, EPA has dredged 600,000 cubic yards of contaminated sediment from the harbor, enough to cover a football field about 275 feet high. Intertidal cleanup and other work will continue at the site during 2020.

Cleaning up the Portland Harbor Site to Set the Stage for Future Revitalization of the River and Waterfront

Portland, Oregon

In 2019 and early 2020, EPA reached agreements with PRPs to design remedies for specific areas of the river, which resulted in over half of all acres being under design. This success was in large part due to an incentive announced in May 2019 by the city of Portland and state of Oregon, to provide up to $24 million in funding to PRPs that came forward by a date certain to complete detailed cleanup designs. Several PRPs took advantage of this funding incentive through seven new agreements for performing remedial design.

Protecting Public Health in the Lower Darby Creek Area Site

Darby Township, Pennsylvania

In 2019, EPA took important actions to protect public health and the environment at this site. Among these, EPA:

- Excavated and removed contaminated soil from over 180 contaminated residential properties in the Eastwick neighborhood;
- Removed contaminated soil and waste at the Clearview Landfill;
- Completed the first phase of cap construction at Clearview Landfill and half of the restoration of a city park;
- Negotiated a settlement with the city of Philadelphia and Philadelphia Redevelopment Authority for $8.4 million in past and future response costs;
- Finalized remedial investigations for the Folcroft Landfill and Clearview Landfill groundwater portions of the site; and
- Conducted extensive and innovative community involvement, including issuing a Community Health and Safety Plan to develop a productive relationship with the Eastwick community.

Collaborating to Restore the Health of Grasse River (aka Alcoa Aggregation Site)

Massena, New York

In FY 2019, EPA directed the first phase of cleaning up the river, dredging approximately 95,000 cubic yards of sediment containing PCBs deposited from historical industrial activity from a 7.2 mile stretch between Massena and the Saint Lawrence River. This is a big step in carrying out the 2013 cleanup decision for the lower Grasse River which called for capping 284 acres of river bottom in the main channel, removal of PCB-contaminated sediment from near-shore areas, and backfilling of dredged areas with clean material. The estimated cost associated with the original plan was $243 million.

EPA worked with the New York State Department of Environmental Conservation, the New York State Department of Health, and the Saint Regis Mohawk Tribe Environment Division to oversee and coordinate cleanup, which focused on habitat reconstruction to help restore the river's health.

Addressing the Legacy of Contamination at Navajo Abandoned Uranium Mines

Navajo Nation

In FY 2019, EPA completed removal site evaluations at 42 of the 46 priority mine sites and two draft engineering evaluations and cost analyses as part of a continued effort to reduce the risks of radiation exposure to the Navajo people from abandoned uranium mines. EPA previously secured over $1.7 billion in settlements to address these sites including homes and wells with elevated levels of radiation.

From 1944 to 1989, nearly 30 million tons of uranium ore were extracted from hundreds of mines located on or near Navajo lands under leases from the Navajo Nation. Today, these mines are closed, but a legacy of uranium contamination remains.

Enforcement

The Agency helps save taxpayer dollars by getting those responsible for a contaminated site to either clean it up or reimburse the Agency for funds spent on cleanups.

EPA encourages the cleanup and revitalization of contaminated properties by providing guidance to address Superfund liability concerns and using site-specific enforcement tools to assist parties seeking to clean up, reuse, or redevelop contaminated properties.

In FY 2019, EPA obtained over $570 million in private party commitments to clean up Superfund site and approximately $283 million to reimburse the Agency for its past costs associated with cleanup work at Superfund sites. Additionally, EPA billed PRPs approximately $108 million – the largest amount to date for one fiscal year – for oversight costs associated with cleanup work performed by PRPs at Superfund sites.

Final Settlement at Fox River Site Ends Years of Enforcement Efforts

Green Bay, Wisconsin

In 2019, EPA and the state of Wisconsin negotiated a settlement with P.H. Glatfelter Company and Georgia-Pacific Consumer Products LP regarding the $70 million cleanup of the Fox River that will ensure the long-term success of the cleanup and will allow reuse and redevelopment of the area for the benefit of local residents. Both companies will perform long-term monitoring and maintenance work at the site, which was contaminated by PCBs from pulp and paper mills in the 1950s and 1960s.

Additionally, the agreement requires the P.H. Glatfelter Company to pay the Agency $20 million for past cleanup and to reimburse EPA and the state of Wisconsin for their future oversight costs for a total settlement value of $90 million.

The 2019 settlement concludes 20 years of successful enforcement work to hold PRPs responsible for cleanup at the site. The total value of the work performed by PRPs plus costs reimbursed to EPA and the state will exceed $1 billion.

"We are pleased that the collective efforts of the state of Rhode Island, EPA, and DOJ in these negotiations have concluded in this major milestone toward the cleanup of the Centredale Manor Restoration Superfund site and are consistent with our long-standing efforts to make the polluter pay. The settlement will speed up a remedy that protects public health and the river environment, and moves us closer to the day that we can reclaim recreational uses of this beautiful river resource."

- JANET COIT, DIRECTOR,
RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Agreement at Centredale Manor Restoration Project Site Will Pave the Way for Fishing and Swimming

North Providence, Rhode Island

In April 2019, a consent decree was approved to address cleanup of dioxin-contaminated sediments at the site. The agreement with several PRPs, valued at $96 million, provides for 100 percent recovery of the government's past and future cleanup costs and resolves approximately eight years of significant and complex litigation, mediation, and negotiations. The cleanup work is focused on the contaminated sediments in the Woonasquatucket River, including from adjacent residential properties. Once the cleanup is completed, full access to the Woonasquatucket River should be restored for local citizens. The cleanup will be a step toward the state's goal of a fishable and swimmable river.

Agreement at the Koppers Co. Site Leverages Private Party Investment

Charleston, South Carolina

EPA is using enforcement tools to encourage more private investment in the cleanup and reuse of NPL sites. In 2019, EPA and DOJ finalized a Prospective Purchaser Agreement (PPA) with Highland Resources, Inc. for the site, which has sat idle after the bankruptcy of previous developers. Under the PPA, the developer will implement a $30 million remedy change that supports residential land use and is expected to spur development in the area. This PPA will help facilitate additional cleanup and redevelopment and may lead to deletion of the majority of this NPL site.

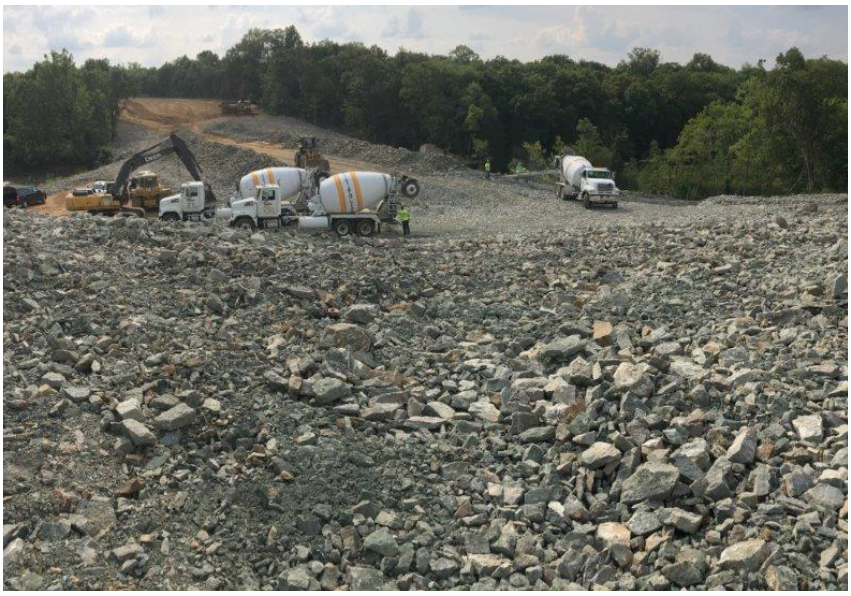
Settlement for Atlantic Wood Industries, Inc. Site to Pay for Past and Future Cleanup

Norfolk, Virginia

In FY 2019, EPA negotiated with multiple federal and private parties, as well as the Commonwealth of Virginia, to receive $55.3 million in settlement funds for the site, which will fund the remaining costs of the $100 million cleanup. The settlement also provides the Commonwealth of Virginia with $8.5 million for past costs and future activities at the site. To expedite progress, construction was ongoing at the site while negotiating the settlement. Approximately 80 percent of the cleanup has been completed.

Agreement at the Big River Mining Tailings/St. Joe Minerals Corp. Site will Clean Up Residential Yards and Address Lead Contamination from Nearby Mining

Desloge, Missouri



In FY 2019, the Agency finalized enforcement agreements with two PRPs, concluding approximately five years of negotiations and setting in motion the cleanup of lead-contaminated yards near the large mine waste piles at the site. Under the agreement with the Missouri Department of Natural Resources, the state is cleaning up the remaining 57 of 98 residential properties and paying the Agency $65,000 in past and future costs. NL Industries will pay $13 million to be placed in a special account for cleanup of residential properties at the site. The site, located in a former mining region known as the "Old Lead Belt," approximately 70 miles south of St. Louis, is the result of historic mining activities and involves contaminated surface soils, sediments, surface water, and groundwater.

Federal Facilities

From nuclear weapons plants and military bases to landfills and fuel distribution stations, the U.S. government operates thousands of facilities across the country. Many federal facilities are contaminated because of past waste disposal practices and unintentional releases.

Federal facility NPL sites are among the largest in the Superfund program and can encompass challenges like complex groundwater contamination, munitions, radiological waste, and contaminants of emerging concern such as PFAS. These sites include active and closed military installations, vast nuclear weapons complexes, and many other sites on federal lands. At these sites, other federal agencies have lead cleanup authority, and EPA has oversight authority.

EPA's Federal Facilities Cleanup Program facilitates faster and more effective cleanup and reuse of 174 federal facilities on the NPL while ensuring protection of human health and the environment.

Federal Facilities in Reuse

In FY 2019, federal facility cleanups resulted in:

- **1,617,583 metric tons of contaminated soil remediated**
- **4,205 lbs of soil gas contamination removed**
- **29,011 cubic yards of contaminated sediment addressed**
- **582,615,200 gallons of contaminated groundwater treated**
- **149 tons of debris disposed**
- **2,584 acres protected through implementation of land use controls**

In FY 2019, 22 federal facility Superfund sites in reuse hosted a total of **1,400 businesses that generate $9.4 billion in annual sales and provide 115,000 jobs with $7 billion in annual employment income.** These sites often encompass thousands of acres of land with buildings, roads and other infrastructure, and their efficient cleanup and reuse can play a pivotal role in a community's economic growth.

Innovating Allows for Safe Reuse and Job Creation While Cleanup Continues

Sacramento, California

BEFORE

Since its 2001 base closure, McClellan Air Force Base has been recognized as a model success story for Superfund redevelopment. In September 2019, EPA and the state of California signed the 16th and final cleanup decision, which outlines how EPA, the Air Force, the state of California, and the developer, McClellan Business Park, will work together to excavate contaminated soils, install a protective cap, and put in place institutional and engineering controls.

AFTER

As parcels of land are cleaned up, they have been put into reuse. Groundwater cleanup continues without impacting reuse opportunities.

Today, the McClellan business park and commercial airport support thousands of jobs and have generated $580 million in public and private investment. A large majority of the site is either in reuse or is reuse ready.

The 3,400-acre McClellan Air Force Base was an active depot for 65 years and one of the largest employers in the Sacramento area. During the operation of the Air Force base, some chemicals used for mission operations, such as industrial solvents, metal plating wastes, and low-level radioactive wastes were released and contaminated soil and groundwater.

Ensuring Clean Drinking Water for a PFAS-Impacted Community

Portsmouth, New Hampshire

In April 2019, a new groundwater treatment system began operating at the former Pease Air Force Base to address PFAS in drinking water. This treatment system increases the amount of safe drinking water available for nearby communities. The new treatment system is able to treat more than 350 million gallons of contaminated groundwater annually in combination with a previously constructed treatment system and is a result of a collaborative effort between EPA, the Air Force, and the state of New Hampshire Department of Environmental Services to provide Pease Air Force Base with clean drinking water and support the extensive redevelopment at the Pease International Tradeport.

Pease Air Force Base was closed in 1991, and the Air Force transferred most of the land to the Pease Development Authority. Today, the Pease International Tradeport is a commercial business park that includes the Portsmouth International Airport and employs more than 9,000 people.

Continuing Progress to Restore Groundwater

Richland, Washington

In FY 2019, 2.4 billion gallons of contaminated groundwater were treated across the Hanford site from six pump and treat facilities, and nearly 90 tons of groundwater contaminants were removed. Since 2008, these six facilities have treated more than 20 billion gallons of groundwater and removed more than 500 tons of groundwater contaminants.

The site was established in 1943 at the height of World War II to produce plutonium for the Manhattan Project. Millions of tons of solid waste and hundreds of billions of gallons of liquid waste were generated during the plutonium production days. Radioactive materials and chemical contaminants were released at many locations at Hanford, with some causing large groundwater contaminant plumes.

EPA's Contract Lab Program

Accurate environmental sampling data is necessary for EPA to define the nature and extent of contamination and to determine appropriate cleanup at Superfund sites.

The national network of EPA personnel, commercial laboratories, and support contractors provide, analyze, inspect, and validate sampling data.

IN FY 2019

299 sites supported

3,041 projects supported

74,172 analyses performed (10% increase from FY 2018)

Protecting People's Health from Lead Exposure at Superfund Sites

In December 2018, EPA, alongside the U.S. Department of Housing and Urban Development and the U.S. Department of Health and Human Services, unveiled an interagency effort to work collaboratively with a range of stakeholders, including states, tribes, local communities, businesses, property owners, and parents to reduce children's exposure to lead with the aim of improving children's health.

As part of this effort, EPA is continuing to address lead contamination at Superfund sites in order to protect human health and the environment.

Superfund Site Cleanups Lower Blood Lead Levels in Children

Recent EPA research results indicate that Superfund cleanups lowered elevated blood lead levels by roughly 13 to 26 percent for children living within 2 kilometers of a Superfund site where lead is a contaminant of concern. The results are from an analysis of more than one million children's blood lead levels from across six states over two decades.

Protecting Peoples' Health from Lead and Arsenic at the Eureka Smelter

Eureka, Nevada

In FY 2019, EPA completed a $20 million action to remove contaminated soils containing high levels of lead and arsenic from 183 residential properties near the site. To eliminate exposure and stabilize the site, EPA placed rock covers on highly contaminated hillsides and constructed drainage controls around slag piles.

EPA Reduces Human Health Exposure to Lead in the Midwest

Lead is a primary contaminant of concern at many Superfund sites in EPA Region 7 as a result of historic and ongoing lead mining and ore processing in Missouri, Kansas, and Nebraska.

In FY 2019, EPA cleaned up in Region 7:

173,000 cubic yards of lead contaminated soil at over 740 properties

Since the creation of the Superfund Program, EPA has cleaned up in Region 7:

4,000,000 cubic yards of lead contaminated soil at 25,000 properties

Major Milestones in Protecting People's Health and Cleaning Up Mine Waste at Bunker Hill Mining & Metallurgical Complex Site

Coeur d'Alene River Basin, Idaho

In 2019, EPA and its state, local, and tribal partners:

- Cleaned up 33 residential and commercial properties to reduce people's exposure to lead and other metals;
- Paved and repaired roads to prevent exposure to underlying heavy metals contamination, adding up to over 550 road segments addressed since the project started in 2013;
- Removed over 380,000 cubic yards of mine waste from the Old Success mine;
- Upgraded the treatment plant to treat mine water and ensure flooding would not impact the remedy;
- Added a groundwater collection system to pull contaminated water out of the ground;
- Hauled approximately 10,000 truckloads of contaminated waste to repositories for state disposal; and
- Closed and capped the Government Gulch waste repository, providing new level ground to support redevelopment.

Cleanup at Bunker Hill

71% reduction in the average blood lead level of tested children (since 1988)*

294 on-site businesses

2,857 people employed

$290,486,359 in annual sales revenue generated

$107,123,016 in annual employment income

** may also be attributable to other reductions in lead sources*

Emergency Management and Environmental Response

EPA's Office of Emergency Management and Office of Superfund Remediation and Technology Innovation work together to respond to, prepare for, and prevent environmental emergencies.

Restoring Water and Land after Hurricanes and Typhoons

During FY 2019, EPA provided expertise to respond to four nationally significant storms—Hurricanes Florence, Michael, and Dorian, and Super Typhoon Yutu. EPA personnel ensured that Superfund sites were secure in advance of the storms and worked with federal, state, territorial, and local partners to protect public health.

FEMA tasked EPA to assess, collect, and dispose of household hazardous waste and restore drinking water and wastewater services affected from Super Typhoon Yutu. Agency teams collected and disposed of **1,536 transformers** and **74,198 items of hazardous debris**. EPA completed response operations in July with the final disposition of hazardous material from Rota, Tinian, and Saipan.

Responding to Hazardous Waste from California Wildfires

In November 2018, the Camp and Woolsey wildfires severely affected California, displacing thousands of people, burning more than 100,000 acres, and resulting in more than 80 deaths. FEMA tasked EPA with evaluating the hazardous materials and wastes resulting from the fires and collecting and removing household hazardous waste and asbestos material. From November 2018 to February 2019, EPA removed and disposed of household hazardous waste from more than 13,000 residences and properties.

Recovery of Hazardous Containers and Tanks Displaced from Midwest Flooding

In response to extensive flooding in the midwestern United States in March 2019, EPA supported states in addressing hazardous material releases, oil discharges, and drinking water and wastewater impacts. FEMA assigned EPA with the task of recovering containers and tanks of pesticides, fuel, and ammonia gas displaced by floodwaters.

Cleaning up the Canadian National Tunnel Train Derailment

On June 28, 2019, 46 rail cars from a 140-car Canadian National (CN) Railway train derailed in a tunnel that runs under the St. Clair River between Sarnia, Ontario and Port Huron, Michigan, resulting in a spill of over 12,000 gallons of 94 percent sulfuric acid. The spill contaminated large quantities of ballast and comingled with wreckage from numerous surrounding cars.

EPA's On Scene Coordinators responded to the incident and formed a unified command, with approximately 300 CN, international, federal, state, county, and city responders on site to conduct cleanup operations. EPA established eight perimeter air monitoring locations, and sulfuric acid was detected at the two monitoring stations located at the tunnel's entrance. Over 110,000 gallons of liquid were pumped from the sump area and sent for disposal over a series of days.

Preventing Large-Scale Releases, Fire, and Explosions at the Tonawanda Coke Corporation

Tonawanda, New York

In October 2018, the Tonawanda Coke Corporation suspended operations and abandoned its facility, leaving behind numerous coal and coke piles, drums, and tanks with coal tar sludges, acids, bases, flammable liquids, and potentially explosive materials.

EPA took immediate action to prevent a large-scale release of hazardous waste and to mitigate the potential for fire and explosions that would have been devastating to the surrounding residential community, nearby industrial facilities, and the Niagara River, which borders the site. EPA quickly stabilized the site through a phased shutdown of plant operations. This shutdown included securing all drums, containers, and tanks; treating waste; and systematically de-energizing process lines filled with hazardous substances.

Using the VIPER system, EPA's Environmental Response Team was extensively involved in air monitoring of the site during the initial stage of the removal action. The state of New York is set to retake cleanup responsibility at the site later in 2020.

EPA's Environmental Response Team (ERT)

ERT provides technical and logistical assistance including field support, technical advice, and training. It is a special team recognized in the National Contingency Plan.

Providing Real-Time Air Sampling after the International Terminal Corporation (ITC) Fire

Deer Park, Houston, Texas

On March 17, 2019, storage tanks caught fire at the ITC facility, potentially releasing hazardous contaminants into the air. ERT used the Trace Atmospheric Gas Analyzer, a mobile laboratory, to provide real-time sampling of contaminants in all neighborhoods downwind of the fire until May 21, 2019. EPA's environmental monitoring was coordinated with state, county, and local agencies' assessment efforts.

U.S. Coast Guard Uses EPA Technology to Detect and Prevent Potential Emergency

Ogden, Utah

In 2019, ERT provided training to the U.S. Coast Guard's Strike Teams to use the Viper real-time transmission system, which was utilized at the Ogden Swift Building, the site of more than 40,000 abandoned containers of chemicals including flammables, corrosives, toxic substances, and potential explosives. EPA's Viper data transmission system uses sensors to detect potentially harmful releases of chemicals in air and water. The Viper system was able to detect the presence of chemicals at the Ogden site, providing important information to response authorities and local officials. View an interactive Story Map with accompanying videos of this response in Ogden, Utah on our website at response.epa.gov/OgdenSwiftBuilding.

ERT Field Analytical Support to Super Typhoon Yutu

Saipan, Commonwealth of the Northern Mariana Islands

ERT chemists traveled to Saipan in February 2019 and set up a field laboratory to quickly detect total petroleum hydrocarbons, the primary contaminant from breached transformers, in the environment. This work reduced what would otherwise be weeks-long delays in obtaining results had the samples needed to be shipped back to U.S. mainland laboratories. ERT also identified and prioritized areas for soil cleanup.

Ensuring Sites are Resilient to Extreme Weather Events

In addition to the Superfund program's existing processes that consider the risks and effects of severe weather events, the Agency has taken additional steps to ensure that these considerations are woven into cleanup processes. EPA developed and is implementing the Climate Resilience Action Plan, which includes a series of actions to further integrate information on the potential impacts of extreme weather events into remedy risk assessments. The plan stems from the results of a 2012 Superfund analysis that found that a significant percentage (60 percent) of NPL sites are in locations that may be vulnerable to the effects of extreme weather events.

In 2019, EPA updated three key climate resilience technical fact sheets designed to help federal, state, and local governments and other stakeholders identify, prioritize, and implement measures to ensure Superfund sites are resilient to extreme weather events. Additionally, through 2019, the Superfund program trained more than 180 EPA Remedial Project Managers and supporting technical staff on climate resilience considerations at contaminated sites.

Revitalizing

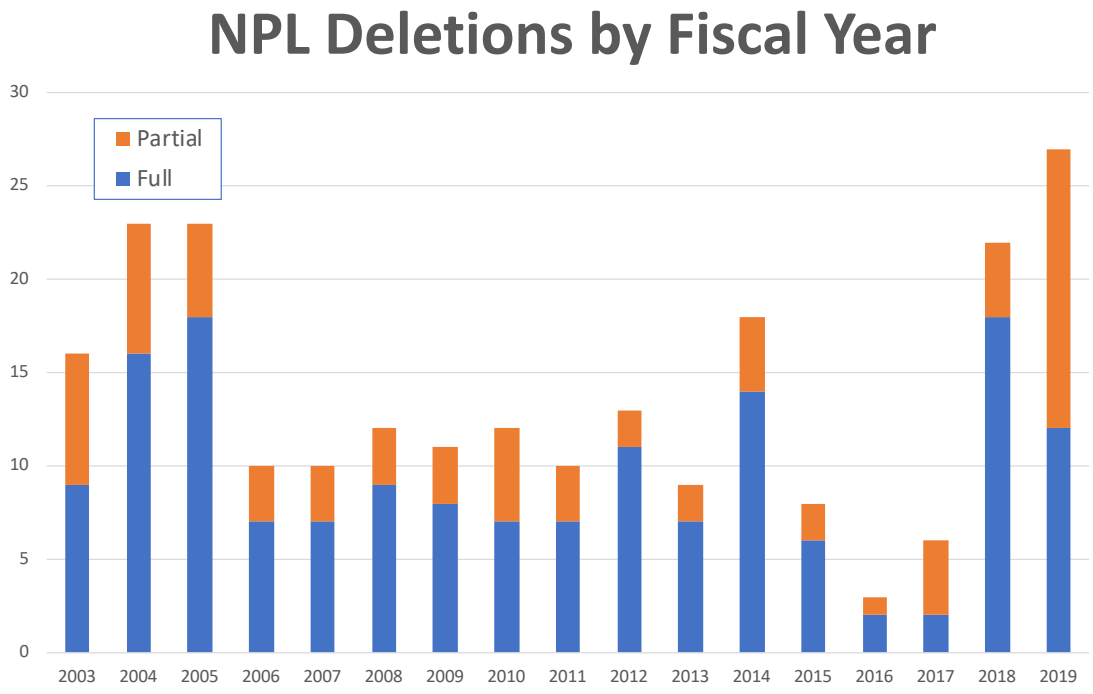
20 Years of Transformations

This year, EPA celebrated the 20th anniversary of the Superfund Redevelopment Initiative, launched in 1999 with the goal of returning formerly contaminated lands to long-term sustainable and productive reuse for communities across the country.

Focusing on the future use of sites leverages resources and engages communities, responsible parties, and states in more timely and efficient cleanup decision-making needed to reclaim and return land to productive use for the benefit of the community.

Superfund Sites Leaving the National Priorities List After Successful Cleanups

Sites on the NPL can bring a stigma to a community, so EPA has been prioritizing both cleanup progress and cleanup completion. Finishing the job and deleting sites from the NPL announces to communities and signals to potential developers and financial institutions that cleanup is complete. Deletion from the NPL helps the community move forward and is necessary for a site to be eligible for Brownfields grants that help revitalize communities and promote economic growth.



In FY 2019, EPA deleted all or part of 27 sites from the NPL, the largest number of deletions in one year since 2001. Since the beginning of the Superfund program, EPA has deleted 424 sites from the NPL and has made 105 partial deletions at 81 NPL sites (some sites have multiple partial deletions).

FY 2019 Deleted NPL sites

- Buckeye Reclamation (St. Clairsville, Ohio)
  - First Ohio site deleted since 2002
- Duell & Gardner Landfill (Dalton Township, Michigan)
- Electro-Coatings, Inc (Cedar Rapids, Iowa)
  - First Iowa site deleted since 2005
- Ellenville Scrap Iron and Metal (Ellenville, New York)
- Intel Corp. (Santa Clara III) (Santa Clara, California)
- Intermountain Waste Oil Refinery (Bountiful, Utah)
- MGM Brakes (Cloverdale, California)
- Mystery Bridge Rd/U.S. Highway 20 (Evansville, Wyoming)
- Peter Cooper (Gowanda, New York)
- Strasburg Landfill (Newlin Township, Pennsylvania)
- Tennessee Products (Chattanooga, Tennessee)
- Tomah Armory (Tomah, Wisconsin)

FY 2019 Partially deleted NPL sites

- Beckman Instruments (Porterville Plant) (Portville, California)
- Beloit Corp. (Rockton, Illinois)
- Cleburn Street Well (Grand Island, Nebraska)
- Escambia Wood (Pensacola, Florida)
- Libby Asbestos (Libby, Montana)
- Novak Sanitary Landfill (South Whitehall Township, Pennsylvania)
- Omaha Lead (Omaha, Nebraska)
- Robintech, Inc./National Pipe Co. (Vestal, New York)
- Shaw Avenue Dump (Charles City, Iowa)
- South Minneapolis Residential Soil Contamination (Minneapolis, Minnesota)
- South Valley (Albuquerque, New Mexico)
- South Weymouth Naval Air Station (Weymouth, Massachusetts)
- Townsend Saw Chain Co. (Pontiac, South Carolina)
- Twin Cities Army Ammunition Plant (New Brighton, Minnesota)
- Vasquez Boulevard and I-70 (Denver, Colorado)

"The deleting of the site is the culmination of decades of work to turn what was once a staple of toxicity and danger into a multimillion-dollar, multi-use recreation. The deletion is the ultimate statement to magnify this work."

- DAVID SMITH, MAYOR OF VILLAGE OF GOWANDA, NY

Deleting the Peter Cooper Site from the NPL Makes Way for a Ballfield and Playground

Gowanda, New York

On September 30, 2019, EPA deleted the site from the NPL after completing cleanup and putting in place restrictions to protect people and the environment from contamination. Now the site hosts a new ballfield, playground, gazebo, walking paths, and parking.

Years of investigation and cleanup went into addressing contamination at the site, where an animal glue factory and inactive waste disposal area once stood. To plan for future use, the Superfund program provided funding to study the feasibility of developing the site as a recreation area.

Deleting 45-acre area of the Libby Asbestos Site Shows Progress

Libby, Montana

In April 2019, EPA deleted a 45-acre area of the site from the NPL, a significant milestone at a site that ranks among the agency's most challenging. The partial deletion of the site reflects the progress EPA and its partners continue to make in cleaning up and restoring these properties. EPA and the Montana Department of Environmental Quality determined that all required cleanup activities were completed, and human health and the environment are protected. EPA will continue to maintain regular reviews and continue work on the other portions of the site.

Returning Superfund Sites to Productive Reuse

Reusing and returning Superfund sites back to productive use has resulted in dramatic changes in communities by improving the quality of life, raising property values, and providing needed services to communities. In 2019, 48 sites reached Sitewide Ready for Anticipated Use status. This measure reflects the importance of considering future land uses as part of the Superfund cleanup process and communicates to our communities that a cleanup is protective of public health for certain anticipated uses.

Today, about **1,000 Superfund sites** support new and ongoing uses. EPA has collected data on more than **9,180 businesses** at many of these sites. In FY 2019, these businesses generated **$58.3 billion in sales** and employed more than **208,400 people** who earned a combined income of more than **$14.4 billion**.

Over the last 9 years (2011-2019), these businesses' ongoing operations have generated at least **$326.7 billion** (inflation adjusted) in sales, which is more than 22 times the $14.4 billion (inflation adjusted) EPA has spent cumulatively at these sites.

"This will not only preserve history for residents but will become an economic driving force, you'll have people that live, work, play there, which overall contributes to a better quality of life for the entire community."

Speaking about the plan to build luxury apartments with commercial space and a brewery at the Peter Cartridge site in King Mills, Ohio:

- SCOTT LIPPS, OHIO STATE REPRESENTATIVE

Excellence in Superfund Site Reuse Awards

Each year, EPA's Excellence in Superfund Site Reuse Awards recognize partners who have worked collaboratively and gone the extra mile to support site redevelopment in ways that are beneficial to communities and compatible with cleanups. These Superfund sites and stakeholders were recognized for their contributions to reuse in FY 2019.

Improving the Quality of Life by Returning Land to the Community for Green Space at the Croydon TCE Site

Croydon Township, Pennsylvania

Once an abandoned place with ground and surface water contaminated by volatile organic contaminants, primarily TCE, the site has been transformed into the Croydon Woods Nature Preserve, greatly improving the quality of life and providing needed services to local communities. The Preserve, one of the last remaining coastal plain forests in the state, provides publicly accessible green space, a location for field trips and educational opportunities for a local elementary school, habitat for many mammals, birds, reptiles, and amphibians, as well as a migratory stop for traveling birds. Residential, commercial, and industrial land uses are ongoing at the site.

"Property had been abandoned…people didn't care about it…Since we've taken over, we have reversed decades of abuse and neglect, the community has said, 'this is now ours,' now taking care and appreciation."

- JEFF L. MARSHALL, PRESIDENT, HERITAGE CONSERVANCY ON CROYDON TCE SITE, BRISTOL TOWNSHIP, PA

"It was Win, Win, Win, across the board, adding value to the quality of the neighborhood, which in the end is increasing home values, tax revenues, it's a rising tide, lifting all boats."

- ROBERT G. LOUGHERY, [FORMER] COMMISSIONER, BRISTOL TOWNSHIP, PA

Transforming Land into a Pasture for Honeybees and Other Wildlife at the Tulsa Fuels and Manufacturing Site

Collinsville, Oklahoma

Following the cleanup of this former zinc smelter, local partners and EPA worked together, and the site now hosts close to 30 beehives, all rescued and relocated from places where the swarms presented a nuisance and would have otherwise been exterminated. The ecologically restored Superfund site is now home to fields of clover, a plant well suited to supporting the protection of bees and the production of high-quality honey.

Breathing New Life into East Helena with Schools, Residences, and a Migratory Bird Habitat

East Helena, Montana

BEFORE

AFTER

This cleaned-up site, a former lead smelter, is now home to a new elementary school and future high school, a 300-home subdivision, and a state-of-the-art County Search and Rescue facility. In addition, over 180 acres of the Prickly Pear Creek floodplain and 80 acres of migratory bird habitat have been restored. Overall, 700 acres have been redeveloped or are being prepared for redevelopment. Since 2011, EPA has worked with the local community through workshops and meetings to develop long-term goals and priorities.

Redeveloping the Operating Industries, Inc. Former Landfill into a Place to Live, Work, and Play

Monterey Park, California

This site was transformed into a hub of economic, recreational, and residential activity. It now hosts the 500,000 square-foot Monterey Market Place shopping center and may be utilized for solar development. The 190-acre landfill operated from 1948 to 1984 and contaminated air, groundwater, and soil with various organic and inorganic compounds from hazardous wastes. The vision for the site's future use was developed early in the cleanup process facilitating redevelopment.

BEFORE

AFTER

"It's become the gem for Walpole. We use it, our seniors are here, other groups come here, everyone has contributed. We have a walking trail, a police station. From a blighted, underutilized site, it's now vibrant, used, aesthetically pleasing."

- ROBIN CHAPELL,
HEALTH DIRECTOR, WALPOLE, MA

Returning the Blackburn & Union Privileges Site Back to Productive Use Serving the Community

Walpole, Massachusetts

In 2019, the Town of Walpole acquired funding to redevelop the site into a vibrant new place with a police station, senior center, and walking trails. A variety of industrial manufacturing through the 19th and 20th centuries resulted in significant contamination, including asbestos, lead, arsenic, and nickel.

BEFORE

AFTER

Success Breeds Success — Revitalizing the Reynolds Metals Company Site to Provide Jobs and Income to the Local Community

Troutdale, Oregon

In 2019, Amazon opened a new $178.4 million, 855,000 square-foot distribution center at the formerly contaminated site providing approximately 3,000 new jobs. Until this expanded use, the site had been revitalized into a large-scale industrial park, including a FedEx Ground sorting facility, which also provided jobs and income to the community. Redeveloping this former site is an excellent example of a partnership between the public and private sectors to strengthen a local community. The site won a Superfund Site Reuse Award in 2018.

Sites Recovering Metals and Critical Minerals from Existing Mine Waste

Madison County Mines

Fredericktown, Missouri

On February 28, 2019, EPA entered into an agreement with Missouri Mining Investments to consolidate and cap mine waste which will result in allowing approximately 1,750 acres of property to be redeveloped for future mining of cobalt and other metals. Missouri Mining Investments constructed a new tailings processing facility to recover critical minerals from existing mine waste on site, and production has already begun.

For years, the site's cleanup had been hindered by negotiations. Now, the mine has reopened to better supply U.S. domestic needs for cobalt, which is a critical component used in medical equipment, electric cars, and even fighter jets. The reopening of the mine could employ hundreds of people and increases national security supplies of this vital metal.

Ballard Mine Site

Soda Springs, Idaho

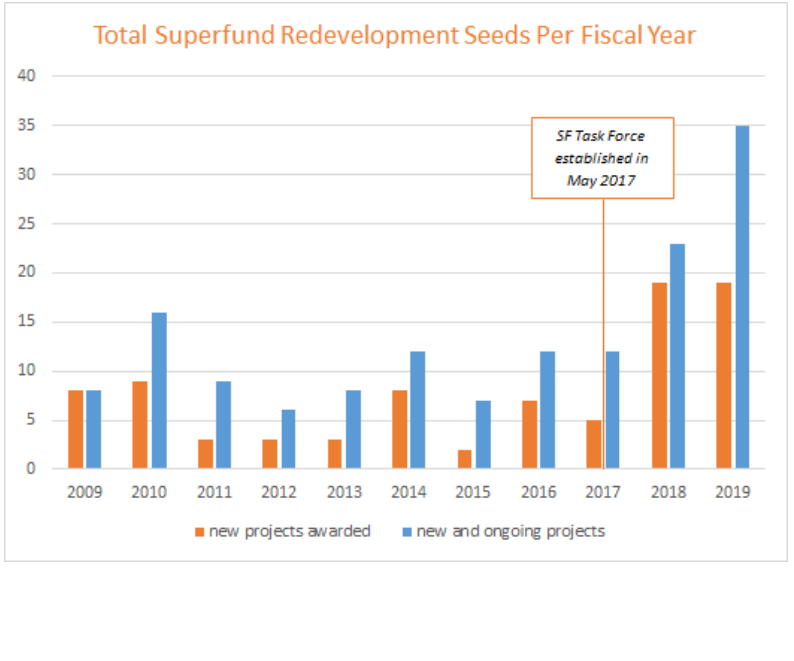
In FY 2019, EPA issued the final cleanup decision for the 534-acre Ballard Mine site, a former open-pit phosphate mine. The cleanup will cost $41 million and address the approximately 19 million cubic yards of waste rock left at the site that may be harmful to people and animals. The waste rock includes shale rock that contains elevated levels of contaminants such as selenium, arsenic, and uranium.

One company intends to recover some of the four million cubic yards of phosphate at the same time it is cleaning up the mine.

Regional Superfund Redevelopment Seed Projects

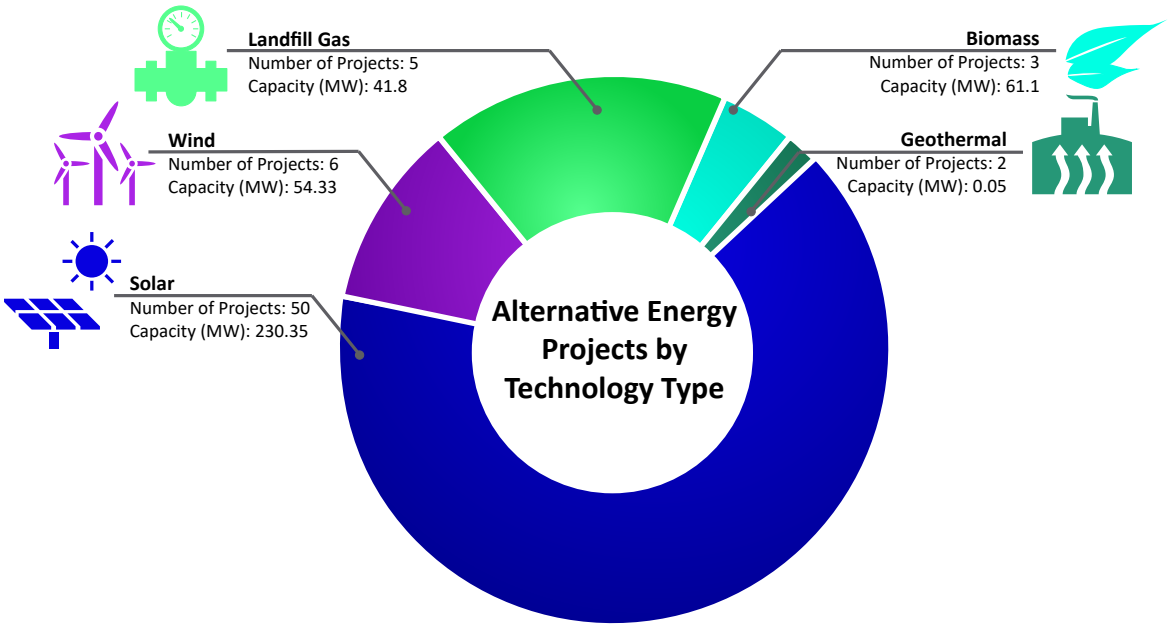
Regional "seeds" are resources that provide an important catalyst and initial investment to bring stakeholders to the table, clarify land use controls, identify suitable reuse options that communities can pursue, and steps to return sites to use.

Thirty-five regional seed projects were supported in FY 2019—the most regional seeds in program history—including seeds in all 10 regions. Seven regional seed projects were completed in FY 2019.



"The Cinnaminson Solar Farm continues the work of our Solar 4 All program by putting landfill space with very limited development options to good use in the production of clean, renewable solar energy. Our solar projects are just one more way that PSE&G is working to advance New Jersey energy policy and provide a clean energy future for our state."

- KAREN REIF, VICE PRESIDENT OF RENEWABLES AND ENERGY SOLUTIONS FOR PUBLIC SERVICE ELECTRIC AND GAS CO.



Superfund Sites Redeveloped for Alternative Energy Generation

Alternative energy resources include renewable energy production as well as other energy sources, such as converting methane gas produced during natural decomposition of wastes into an electricity source.

Superfund sites can be well suited for alternative energy production. Sites in both urban and rural areas near utilities and transportation networks help keep development costs low.

Alternative energy resources can help communities create jobs and diversify local economies. They also are an important part of America's energy security and environmental sustainability. Many active and former Superfund sites are now home to alternative energy facilities.

As of September 2019, 66 alternative energy projects are located on 64 Superfund sites; they have a total installed capacity of 388 megawatts, enough to power more than 94,000 homes.

Innovating

On the Cutting-Edge of Technology

Superfund sites greatly vary in characteristics including the extent and type of contamination and underlying hydrogeology. The Superfund program uses innovation to help tailor assessments and cleanups to these unique characteristics and challenges.

In FY 2019, EPA accelerated progress at several sites by using cutting-edge technologies to meet a range of challenges. Innovations resulted in more precise characterizing and mapping of contamination as well as more effective cleanups.

The Superfund program promotes and advances the use of improved and innovative technologies. In FY 2019, the Contaminated Site Clean-Up Information website hosted more than 100 live seminars to over 22,000 participants and served as a clearinghouse for information on state-of-the-practice technologies and approaches with approximately 170,000 users.

Successful Results and Cost Savings at the Sandy Beach Road Groundwater Plume Site

Pelican Bay, Texas

In FY 2019, EPA completed all cleanup actions to remove the source and control the future movement of a contaminated groundwater plume by rethinking the original cleanup technology and using ***in situ carbon amendments injected along multiple treatment barriers*** into the nearly mile-long TCE plume in a sandstone aquifer. The contamination was affecting three public water supply wells and at least 12 residential drinking water wells. The previous treatment required frequent maintenance and released secondary metals into the groundwater.

Innovative Study Provides Certainty at the Compass Plaza Well TCE Site

Rogersville, Missouri

EPA expedited negotiations with the PRP who signed the consent order in September 2019 — only 90 days from the start of negotiations — as a result of the work of EPA's Office of Research & Development (collaborating with the U.S. Geological Survey) on an innovative ***compound specific isotope analysis study***. This study provided compelling evidence and certainty of the location of the original TCE release by locating and analyzing degradation byproducts in a complex subsurface area with two aquifers and Karst geology with sinkholes.

Using High Tech to Track Contamination

Southside Chattanooga Lead Site

Chattanooga, Tennessee

In FY 2019, EPA was able to quickly and effectively identify and clean up residential yards where lead exceeded cleanup levels using innovative ***x-ray fluorescence (XRF) technology*** combined with an ***incremental sampling methodology (ISM) approach***. XRF causes elements like lead to fluoresce so that they can be quickly and accurately found in the soil without having to send many samples to the lab. ISM characterizes contamination in soils by collecting, combining, and processing soil samples so that they better represent where the contamination is located.

Dover Gas Light Site

Dover, Delaware

In FY 2019, EPA used data from a ***high-resolution site characterization*** to evaluate the most effective cleanup options at the site. The method included a probe that made coal tar residuals in the soil fluoresce as the probe was pushed into the ground. A camera captured images of the fluorescence every 1.5 centimeters. Also, EPA used a membrane interface probe to find and measure the amount of benzene, naphthalene, benzo(a) pyrene, and chrysene contamination from a former manufactured gas plant as well as chlorinated and petroleum solvents from a former industrial dry cleaner. The data was used to create a 3-D visualization or picture of the contaminated groundwater plume.

Ongoing Cleanup Activities Heat Up at the Cleburn Street Well Site

Grand Island, Nebraska

In FY 2019, EPA successfully removed more than 1,000 pounds of perchloroethylene contamination and achieved cleanup goals using in ***situ thermal remediation (ISTR)***.The ISTR included a system of 53 electrode wells, 39 multi-phase extraction wells, and 12 temperature sensor wells that operated for five months, applying over 3,000 megawatt hours of energy, and achieving temperatures above 194°F. This helped trace contamination to three drycleaners and a solvent distribution facility.

"The success of the cleanup at the Cleburn Street site demonstrates the speed and effectiveness of the thermal cleanup technology. Post-cleanup samples of soil and groundwater confirm that thermal treatment removed more than 99 percent of the contaminants in just six months."

- EPA Region 7 Administrator Jim Gulliford

Engaging

Communities are Why We Do This

Community members are key partners and have a voice during all phases of the cleanup process, playing an important role in assisting EPA with gathering information about a site. When the community is involved, it leads to better cleanup and reuse decisions.

In FY 2019, EPA held or participated in 840 public meetings, conducted more than 1,050 in-person interviews with community members living near Superfund sites, and distributed more than 1,075 factsheets, mailings, postcards, ads, or newsletters that reached more than 252,000 people living near Superfund sites.

Using a Variety of Tools to Meet the Needs of the Community at the Colorado Smelter Site

Pueblo, Colorado

Robust community involvement is important at this site because of the significant population of children with elevated blood lead levels. EPA has accelerated sampling and cleanup of 1,700 residential properties where elevated levels of lead and arsenic resulted from historic smelter operations.

EPA is utilizing a variety of tools and assistance to meet the needs of this multi-cultural and environmental justice community. For instance, EPA:

- Meets monthly with a Community Advisory Group (CAG) comprised of about 40 highly engaged residents, elected officials, and other stakeholders to discuss the cleanup and future revitalization. To ensure these meetings are focused on topics of importance to the community, CAG members advise on developing the agenda;
- Supports a neutral facilitator under the Conflict Prevention and Resolution Center contract to assist the CAG and community in engaging in meaningful and productive discussions with EPA; and
- Provides technical information assistance to the CAG and community through EPA's Technical Assistance Services for Communities to augment presentations and discussions and to provide outreach materials needed for door-to-door distribution.

EPA responded to the community's economic challenges and high level of unemployment and under employment. In FY 2019, EPA continued to help with job placement resulting from a 2018 Superfund Job Training Initiative project that provided local job seekers with new skills, certifications, and hands-on training needed for the large sampling, cleanup, and construction operation. The team also utilized Superfund Redevelopment regional seed funding to support visioning in the community and development of a revitalization plan that is now being considered for adoption by the Pueblo City Council.

The work continues. As of December 31, 2019, of the 1,700 properties, EPA completed soil sampling at 1,241, indoor dust sampling at 901, soil cleanups at 493, and indoor dust cleanups at 425 properties. EPA's solid partnerships with the Pueblo Department of Public Health and Environment and the Colorado Department of Public Health and Environment are key to this success.

Reaching Duwamish Fishing Communities Through Community Health Advocates

Seattle, Washington

In FY 2019, EPA continued its partnership with Public Health – Seattle & King County (PHSKC) through a cooperative agreement to develop culturally appropriate and effective health messaging promoting safe fish consumption. Over 20 ethnic groups currently fish in the Duwamish River, which is contaminated with PCBs and, presents greater health risks to low-income, immigrant, and refugee communities who are more likely to eat contaminated fish.

As community members rely on each other as trusted sources of health information, PHSKC trained 24 people of three targeted fishing communities as Community Health Advocates in 2018. Since then, the Community Health Advocates have empowered themselves to serve as experts in their communities about safe fish consumption practices.

In addition, PHSKC worked with a subset of Community Health Advocates to form a Community Steering Committee that helped develop a program plan of targeted health promotion strategies for the Duwamish fishing communities. The plan went beyond what traditional regulatory agencies could feasibly develop because it is informed by, and tailored to, the needs and cultures of the impacted communities.

"We started with a lack of knowledge and confidence, but throughout the training, we gained more knowledge… Also, the community is more educated, so the conversation is getting easier, and I'm able to deliver the message as well as answer questions. I started out nervous about 'what if they ask questions?' but now I am able to answer all the questions and come back to the meeting and share that with Public Health."

- A COMMUNITY HEALTH ADVOCATE

"I feel very fortunate to be able to join this Community Steering Committee group. I feel that I am being valued to be able to express and make decisions around the subjects that matter to human life. I am valued and my voice is being heard—to make decisions and inputs to protect people's health around contaminations in the Duwamish. … At the Community Steering Committee, we are being empowered to be power in the communities."

- MEMBER OF THE COMMUNITY STEERING COMMITTEE

EPA Awards Georgia Resident for Outstanding Contributions to Community Involvement

Brunswick, Georgia

EPA awarded Rachael Thompson with the Citizen Excellence in Community Award for her outstanding leadership in collaborative community engagement at multiple Superfund sites in the Brunswick, Georgia community. Ms. Thompson, the Executive Director of the Glynn Environmental Coalition, was dedicated, creative, and innovative in building a collaborative relationship between EPA and the community to work together to clean up these sites.

Among her many activities to ensure the community was adequately informed and able to give feedback about the cleanup activities at the local Superfund sites, Ms. Thompson provided a Saturday class on risk assessments for the local community and helped the community use EPA's Technical Assistance Grant to hire a technical advisor to independently interpret EPA's technical documents.

Superfund Provides Job Training for Cleanup Work

Fairfax Street Wood Treaters, Jacksonville, Florida

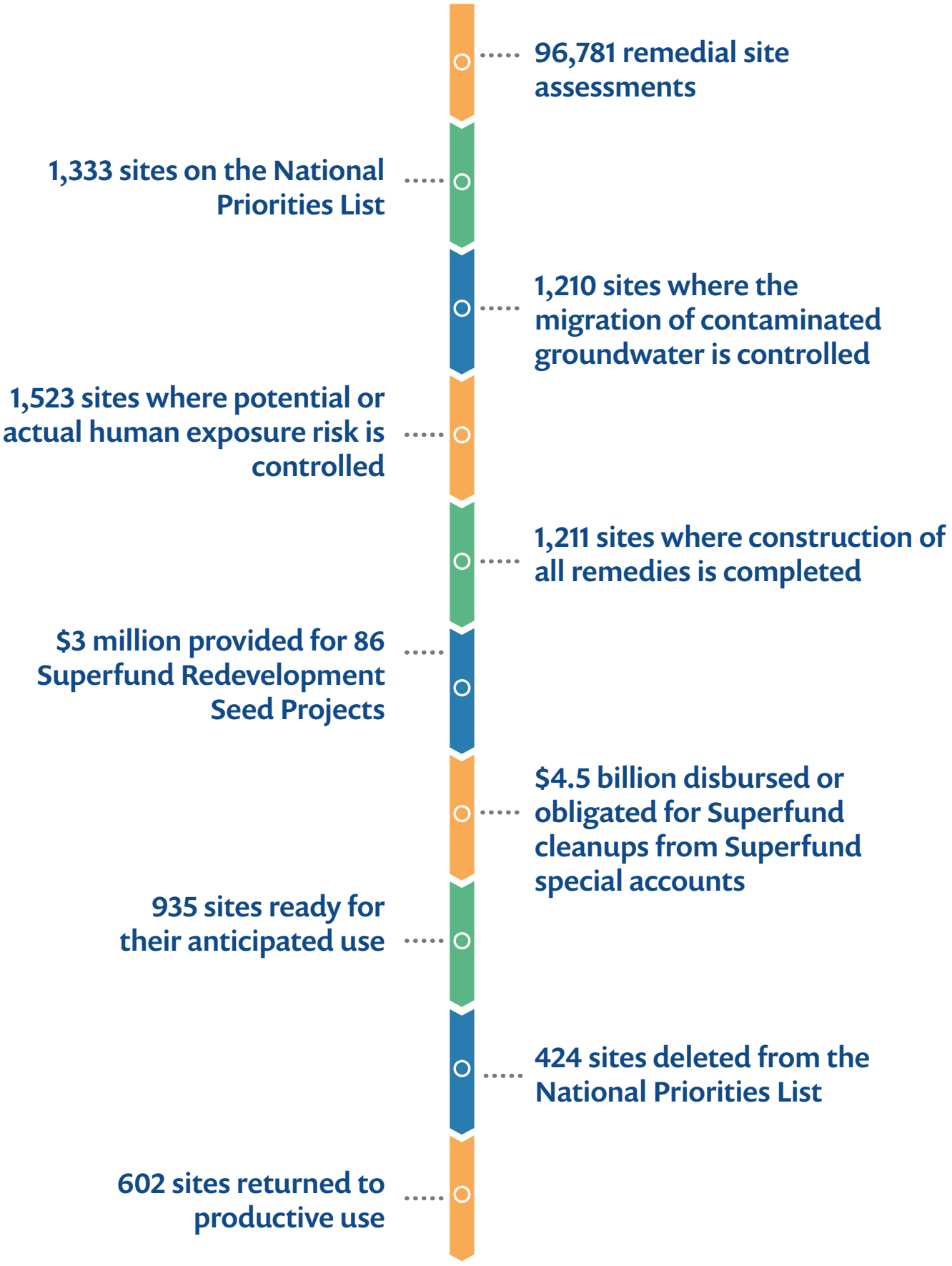
The Superfund Job Training Initiative is a job-readiness program that provides training and employment opportunities for people in communities affected by Superfund sites. The Superfund Job Training Initiative's goal is to help communities create job opportunities and partnerships that remain long after site cleanups are completed.

In March 2019, EPA partnered with the Northwest Jacksonville Community Development Corporation to train 13 community members at the site. After a rigorous screening and recruitment process, trainees earned three certifications in 40-hour Hazardous Waste Operations and Emergency Response , 10-hour Occupational Safety and Health Administration Construction Outreach, and CPR/first aid courses. The trainees also received professional development training. After completing the program, eight graduates were placed into jobs working to clean up the site in their community.

"I felt like I got to know my neighborhood a little bit more. I got to be a part of the cleanup all the way to the end – that was a very good feeling. I was trying to make ends meet at first. When I got this job, I saw how many opportunities there were to have a better, more comfortable life, and it motivated me to do better."

- DAJAH JONES-ROBINSON, SUPERFUND JOB TRAINING INITIATIVE GRADUATE AT THE SITE

39 Years of Superfund Progress



"Working with EPA was critical to the process. We wouldn't have invested, risked acquiring it, unless we were sure EPA was behind us, in the sense of – this is what you have, these are the risks, this is what we are doing to mitigate the situation, and that at this foreseeable time, we think that tide has turned and this site is safe."

- Jeff L. Marshall, President,
Heritage Conservancy on Croydon
TCE Site, Bristol Township, PA

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