A Message from Mark Barolo

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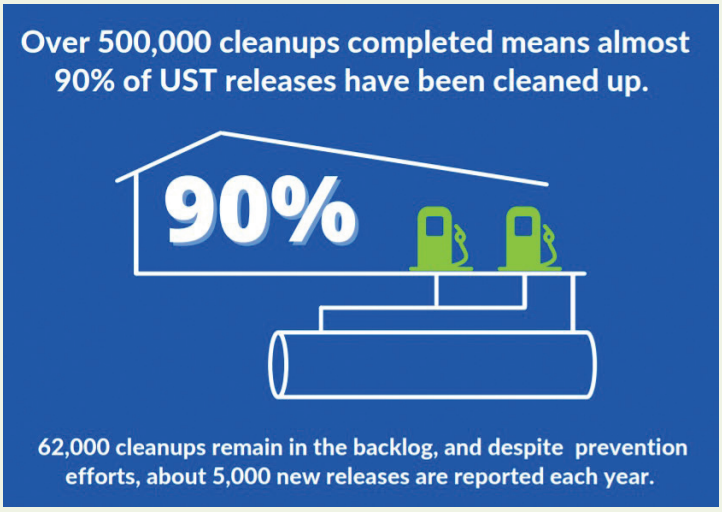
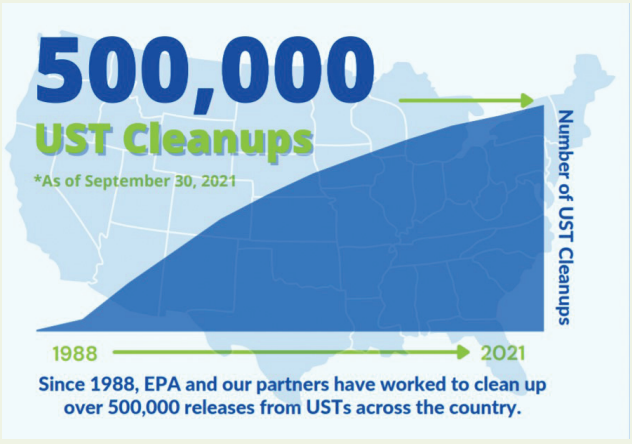
Congratulations to the National UST Program for Cleaning up Over 500,000 UST Releases





As of the end of September 2021, the national underground storage tank (UST) program cleaned up 502,786 releases. You can see our steady progress and significant achievement over the last 33 years as illustrated on this line chart. This is an impressive accomplishment for the national UST program, and it is certainly cause for celebration.

During my 25 years working in the national UST program, I have witnessed firsthand the determination, dedication, and progress of all UST partners — states, territories, tribes, industry, along with U.S. EPA — in cleaning up UST releases and protecting our environment. I feel great pride for the program's collective achievement. And I have a deep sense of gratitude for all the people I've worked with and who have contributed so significantly to the UST cleanup program's success.

Surpassing one-half million UST releases cleaned up means that almost 90% of UST releases in our country no longer pose a threat of harmful contamination to the public's health and our soil and groundwater. Our country's groundwater is a precious resource; it provides drinking water for nearly half of the people living in the United States.

We know that underground storage tanks, and releases from USTs, exist in thousands of communities in the United States, and their locations range from remote to large urban settings, with many releases in overburdened communities. Approximately 81 million people — roughly 25% of our country's population — live within 0.25 mile of an UST release, which includes releases already cleaned up and those awaiting cleanup. And over 21 million people — roughly 6% of our population — live within 0.25 mile of those UST releases remaining to be cleaned up. These communities are made up of populations with greater percentages of racial and ethnic minorities, low-income residents, linguistically isolated persons, and individuals without a high school education than the United States' population as a whole.

Cleaning up UST petroleum releases benefits our country by:

- Protecting human health as the result of reducing human exposure to both on-site and off-site contaminants.
- Increasing land productivity and economic benefit because cleaned-up abandoned UST release sites are safer, better hosts for productive land use activities, and attract higher-valued activities.
- Providing aesthetic and recreational opportunities when cleaned-up UST release sites are redeveloped into attractive and appealing neighborhood assets, such as nature parks, recreational areas, or preserved historic buildings.

Achieving this significant milestone is the collective work of many UST partners — states, territories, tribes, industry, and U.S. EPA — all of whom are dedicated to managing and cleaning up UST releases. I am grateful for the thousands of former and current staff who gave, and continue to give, their time, expertise, and energy to identifying and solving

A Message from Mark Barolo... continued

UST-related problems, culminating in protecting the health of people living in our country and our environment. Thank you to all our UST partners for your achievements and many contributions. Congratulations on reaching this remarkable and noteworthy milestone!

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What Helped us Achieve This Milestone?

We reached this achievement because of the dedication and determination of the national UST program cleanup staff. Their tenacity, displayed repeatedly over the past 30 years, fostered our ability to surpass cleaning up more than 500,000 UST releases. Moreover, there are many advances and partnerships which contributed to attaining this milestone.

Creative Funding Solutions

In 1986, Congress created a dedicated source of money – the Leaking Underground Storage Tank (LUST) Trust Fund – to provide annual appropriations that support and augment state cleanup programs with seed money. In addition, states created state financial assurance funds that raise money and spend it to clean up UST releases. According to the Association of State and Territorial Solid Waste Management Official's (ASTSWMO) 2020 annual state fund survey (https://astswmo.org/2020-annual-state-fund-survey/) since 2002 state UST financial assurance funds have paid approximately $20 billion to clean up UST releases.

For the 36 states with established state financial assurance funds, UST owners receive help in complying with the federal financial responsibility regulation and the state funds pay to clean up newly reported releases as well as ongoing cleanups. Originally envisioned as a short-term solution to historical contamination, state funds have endured as critical sources of money for newly discovered releases and are key to many states cleaning up UST releases.

Through the American Recovery and Reinvestment Act of 2009, Congress appropriated $200 million from the LUST Trust Fund to U.S. EPA for cleaning up UST releases. Through this one-time infusion of money, more than 7,800 UST releases were assessed and cleaned up. Some states, realizing that abandoned underground storage tanks can contaminate our environment, created programs specifically to address abandoned tank releases that might otherwise languish absent this type of support. Ohio's Abandoned Gas Station Cleanup Grant program (https://bit.ly/AbGasOhio) is one example of a state creating a resource that provides money to help assess and clean up abandoned USTs throughout the state.

Additional sources of money are available to assess and clean up petroleum brownfields with relatively low-risk UST releases. Cleaned-up petroleum brownfields sites offer numerous opportunities for reuse, which can help revitalize previously blighted neighborhoods. U.S. EPA's petroleum brownfields financial resources web area (https://www.epa.gov/ust/petroleum-brownfields#financial) provides more information.

Modified Processes and Procedures

In the early years of the national UST program, we evaluated UST releases with the goal of cleaning up all pollution from USTs. But cleaning up releases to the point where all traces of contamination are removed can be technically impractical and cost prohibitive, so we looked at how we could modify our policies, processes, and procedures yet still protect human health and the environment in a less expensive and still protective manner. Risk-based corrective action (RBCA), a strategy developed by the American Society of Testing Materials in 1999, and EPA's support of that strategy, helped states embrace the importance of identifying receptors and risk to UST releases, and if both are absent, ask what level of cleanup and amount of effort are needed. Using risk-based corrective action strategies to assess and clean up releases frees up money, which can then be used for cleaning up additional UST releases. As a result, more money is available to assess and clean up more UST releases.

States' adoption of risk-based decision making in cleaning up UST releases means they assess the risk each release poses, and then apply sound science and common-sense cleanup approaches that are flexible, cost effective, and protect

A Message from Mark Barolo... continued

human health and the environment. This flexibility allowed individual states to tailor solutions based on site-specific circumstances. Here are a couple examples.

- California's low threat closure policy promotes consistent closure criteria for low-threat UST releases across the state and resulted in closing over 1,000 releases a year for three consecutive years.
- Colorado enhanced its RBCA criteria by establishing two additional tier options that allow for site closure in situations where contamination extends beyond the property boundary, as long as certain conditions are met; this resulted in closing older releases that were difficult to close under previous tier criteria, even after years of active remediation efforts.

Improvements in Technology

Over the last 30 years, we've seen significant advancements in assessment and cleanup technologies. New and more sophisticated site characterization technologies using sensors and increased computing power now give us a better understanding of UST releases. In the early years of cleaning up UST releases, results from three drilled wells were often used to characterize a release; now we are using high-resolution site characterization and other sophisticated techniques and technologies to characterize particularly difficult, stalled releases, and this in turn helps us determine and tailor the best cleanup approach for each release.

Decades ago, the default approach for cleaning up UST releases was often pump and treat. Now we use a wide array of remediation technologies and our own improved knowledge of how and when to use them. These include air sparging and soil vapor extraction as well as numerous in-situ injection technologies. Taking it a step further, some states combine multiple technologies and products to manage, reduce, and control risks from petroleum UST contamination. This approach, known as a treatment train, includes a plan to use the most effective aspects of multiple technologies or products, or both, in succession to make cleanup progress. Our increased understanding and awareness of how contamination behaves has also positively impacted cleanups. Examples include our evolving understanding of light non-aqueous phase liquids transmissivity and the impact of biodegradation on contamination and vapor intrusion.

Partnerships

The national UST program's founders built the program on the premise that our partnerships are the most effective way to address USTs in the United States. They recognized that the large size and great diversity of the regulated UST community meant we needed help with managing the huge UST universe of over 2 million tanks at the time. As a result, we have always welcomed and embraced states, territories, and tribes as our co-regulators and essential partners. U.S. EPA and the national UST program have benefited greatly from our longstanding relationships with two organizations — NEIWPCC and the ASTSWMO — both of which have supported our UST partnership and the national UST program by sponsoring the National Tanks Conference, educational trainings, and informative seminars.

Our partnerships include other state-led organizations, such as the Interstate Technology Regulatory Council (ITRC). We value and welcome their work in developing helpful technical documents and guides about technical UST cleanup issues. Resources from organizations such as ITRC help our state, territorial, and tribal partners apply innovative technologies and processes to discovering, characterizing, cleaning up, and closing UST releases. These are just a few examples of useful documents available through ITRC's Guidance & Documents web area (https://ois-isrp-1.itrcweb.org/):

- "Optimizing Injection Strategies and In situ Remediation Performance" (OIS-ISRP-1)
- "Implementing Advanced Site Characterization Tools" (ASCT-1)
- "Light Non-Aqueous Phase Liquid (LNAPL) Site Management: LCSM Evolution "Decision Process, and Remedial Technologies" (LNAPL-3)

Over many decades, U.S. EPA's Office of Research and Development (ORD) has been an essential partner by providing research that supports states, territories, tribes, and U.S EPA in cleaning up UST releases. ORD's laboratory, pilot, and field-scale efforts resulted in innovative approaches to site characterization, fate and transport, modeling, technology development, and evaluation and training — all of which advanced cleaning up UST releases. Examples of ORD's support include:

- Assessing the fate and transport of methyl tertiary-butyl ether.
- Conducting research on monitored natural attenuation.
- Examining passive and active biotreatment of UST releases and influence of ethanol on benzene, toluene, ethylbenzene, and xylene groundwater plumes.
- Researching approaches to investigating and addressing petroleum vapor intrusion.
- Developing UST Finder, (https://www.epa.gov/ust/ust-finder) the first national inventory of USTs and UST releases, to improve UST management; protect water resources; and address effects of climate change on UST facilities, the public's health, and our environment.

Our industry partners are also a vital part of our success. When I refer to industry, I include a wide swath of people — owners and operators; tank system installers, testers, and service providers; equipment manufacturers; cleanup contractors and consultants; and UST insurance providers — involved in preventing and cleaning up UST releases. I also think of others, such as standard-making organizations, tank owner associations, and equipment and service organizations, that represent people who have a hand in preventing and cleaning up UST releases.

A Message from Mark Barolo... continued

Are We Done Yet?

Let's take a moment to savor our collective success before I bring up...you guessed it...the 61,981 UST releases remaining in the cleanup backlog. There are a variety of reasons UST releases persist for many years. Perhaps those releases have been in cleanup for several years because they are complex and difficult cleanups. Others might be nearing closure but have not been closed because states need to address higher priority releases first. Perhaps some releases are from abandoned USTs. And despite our best prevention efforts, we continue to confirm approximately 5,000 UST releases each year, and they add to our backlog, even as we make progress in cleaning up UST releases.

Nonetheless, the national UST program must keep progressing and identifying opportunities to reduce the UST backlog. U.S. EPA's backlog study (https://www.epa.gov/ust/national-lust-cleanup-backlog-study-opportunities) sparked us to take a more thorough look at the characteristics of UST releases and barriers to cleaning them up, as well as potential opportunities and strategies to reduce the backlog. Many states followed suit and U.S. EPA's UST cleanup web area contains examples of cleanup strategies states are using to help reduce their backlog of cleanups remaining (https://www.epa.gov/ust/cleaning-underground-storage-tank-ust-releases#states). Recently, Michigan and Illinois, with the second and third largest cleanup backlogs in the country, respectively, partnered with U.S. EPA to analyze their backlogs, determine impediments to cleaning up UST releases, and identify strategies to address stalled cleanups. Both states are now implementing initiatives to address those stalled cleanups and reduce their backlogs of releases remaining.

Cleaning up UST Releases, Next Year and Beyond

In the months and years ahead, cleaning up UST releases will continue to evolve. Certainly, we will see changes and improvements in technologies, and as we identify areas to modify processes and procedures, we will do so. We will be mindful of the effects of climate change, such as the potential of increased flooding and elevated wildfire threats, and we will share information to help owners prepare for and recover from those natural disasters. We will strive to address the disproportionate impact of UST releases on overburdened communities by continuing our work on pilot projects in three states and Indian Country, with the goal of better addressing environmental justice concerns in cleaning up UST releases. And, of course, the national UST program will continue to rely on the strengths of our partners and our collective commitment to keeping our soil and groundwater safe for people living in the United States.

Thank you, again, to all our partners — states, territories, tribes, and industry — for your accomplishment in cleaning up over 500,000 UST releases, which means we are protecting our environment and the public's health. I admire and appreciate the dedication, creativity, and perseverance of the many current and former UST partners whose work resulted in achieving this decades-long accomplishment. Because of your combined efforts, our country is a better place for all.