

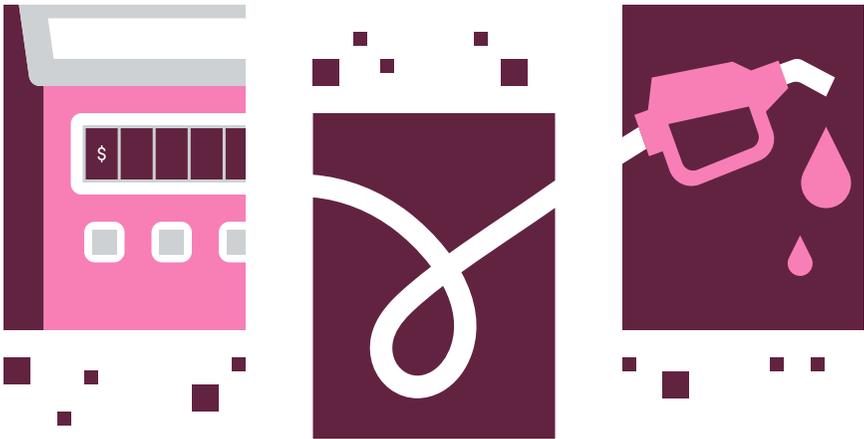
10. LET'S TALK ABOUT LUST

EPA's Underground Storage Tanks Program

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Now that we have your attention, full disclosure dictates that we tell you that LUST is an acronym for “leaking underground storage tanks,” at least in the parlance of the Environmental Protection Agency (EPA). Not exactly what you expected? EPA’s LUST work is important in protecting human health and the country’s environment, and the program achieved meaningful reforms through an evidence and evaluation project, also known as a backlog study.

Going back more than three decades, in 1984 Congress and the president added Subtitle I to the Solid Waste Disposal Act. Subtitle I created a federal environmental program to regulate underground storage tanks (USTs) containing petroleum and certain hazardous substances, with a goal of limiting corrosion and structural defections, as well as minimizing future tank leaks. Subsequent legislative amendments in 1986 and 2005 created the Leaking Underground Storage Tank (LUST) Trust Fund to address petroleum releases and to expand eligible uses of the LUST Trust Fund to include leak-prevention activities.

In response to congressional direction, EPA created the Office of Underground Storage Tanks in 1985; at that time, there were approximately 2.1 million regulated UST systems in the United States. In 1988, EPA issued the country’s first national UST regulation, and in 2015, it revised the 1988 regulation by adding additional prevention requirements and by ensuring that all USTs in the United States meet the same minimum standards.^{1,2}

EPA’s UST program’s mission, which includes addressing leaking USTs, is to protect the country’s environment and human health from UST petroleum releases. States and territories (hereafter referred to simply as “states”), EPA, and tribes accomplish this by working collaboratively with industry to prevent releases, to detect releases early, and to clean up releases. Billions of gallons of petroleum products are stored in USTs throughout the United

States, and releases from USTs are a major source of soil and groundwater contamination. The greatest potential threat from leaking USTs is contamination of groundwater, which is the source of drinking water for nearly half of all Americans.^{3,4} A leaking UST can also present other health and environmental risks, including the potential for fire and explosion.

USTs are located in every community in the United States at retail facilities, such as service stations and convenience stores. At a typical service station, USTs hold tens of thousands of gallons of fuel. USTs are also located at non-retail facilities, such as municipal facilities for school buses, police, and fire stations; marinas; taxi-fleet facilities; postal and delivery service facilities; and federal facilities like military bases. As of September 2018, there were approximately 550,000 active USTs at approximately 200,000 facilities—all regulated by EPA's federal UST regulation. Because of the large size and great diversity of the UST-regulated community, states are in the best position to oversee USTs, and they are the primary implementers of the UST program. EPA has responsibility for and authority over USTs in Indian country, and we partner with tribes to implement the UST program there.

ISSUE BACKGROUND

Since the beginning of the national UST program, EPA collected and made data public from states regarding UST performance measures.⁵ These data include information such as the number of active and closed tanks, confirmed releases, initiated and completed cleanups, facility compliance with UST requirements, and inspections. By subtracting the completed cleanups from the number of identified LUST releases, including newly confirmed UST releases reported, EPA determines the number of UST releases remaining to be cleaned up, known as the backlog.

One of EPA's performance measures—confirmed releases—provides data originated from UST owners or operators who identify releases from federally regulated petroleum UST systems and report the releases to states; then states confirm the releases. Fewer confirmed releases indicate better release prevention.

As of September 2018, EPA and states confirmed more than 543,000 releases from federally regulated USTs nationwide since the beginning of the national UST program. In the 1990s, EPA and states reported annual releases of between 25,000 to 66,000 releases (the highest ever in one year). Between 1989 and 1998—the first 10 years after issuing the 1988 federal UST regulation—EPA and states reported 367,000 releases, or 68 percent of all releases confirmed. Since then, a steady drop in the number of releases reported occurred. For the last 10 years, the number of releases detected each year stabilized, ranging from a high of 7,100 to a low of 5,500 per year; EPA and states reported a total of 55,000 releases between 2009 and 2018. For the last three years, EPA and states reported approximately 6,000 releases each year. The number of declining releases reported each year shows that EPA and state's prevention work is doing what it is supposed to do: helping to keep petroleum from contaminating the environment.

After confirming releases, EPA either direct responsible parties to initiate cleanup or EPA or the states directly begins the cleanup. The number of releases cleaned up each year varies. However, after the first 10 years of the UST program, cleanups have only decreased. In the 1990s, EPA and states averaged 23,300 cleanups per year; in the 2000s, averaged 15,500 each year; and for the last nine years, averaged 11,100 per year, with an average of 8,600 each year for 2016 through 2018. As of September 2018, the number of releases cleaned up nationwide since the beginning of the national UST program was approximately 478,000. That means 88 percent of all releases have been cleaned up, and 65,000 releases—or 12 percent—remain in the backlog of releases that still need to be cleaned up. Even though those remaining releases may be technically challenging, may lack funding for cleanup, or be abandoned, reducing the backlog remains a national UST program priority, and we are continuing steady progress on this effort.

During the 2000s, EPA increased its focus on performance measures and the White House Office of Management and Budget (OMB) pressed the UST program to show strong results in the number of releases cleaned up each year. This was partly due to the Government Performance and Results Act (GPRA) of 1993, which established strategic-planning and performance-measurement requirements in federal agencies. Because EPA directly implements an extremely small fraction of the releases cleaned up in the UST program, the bulk of the day-to-day oversight for cleaning up releases rests with state programs. EPA's 10 regional offices provide oversight of states, and the EPA's Office of Underground Storage Tanks provides national direction and oversight.

Each year, as part of the federal government's annual budget cycle, EPA negotiated with OMB to determine the national GPRA target for releases to be cleaned up. Once the national target was established, EPA worked with states to determine state targets. States were extremely concerned about setting targets that were achievable, because their performance success was strongly judged on whether or not they met their targets. Also, there was no incentive to agree to stretch goals if there was a possibility of missing them. We became engaged each year in divisive and unproductive debates as we attempted to negotiate these targets. Resentment, frustration, and disagreement bubbled up annually between staff in EPA and the states. Collectively, we spent a lot of time and energy negotiating and debating targets; that was time not spent working together toward completing cleanups or developing enhanced strategies to improve cleanups.

Without fail, each year states argued that all the easy cleanups were already done and only the difficult ones were left, meaning they could complete fewer and fewer each year. EPA had no data to either confirm or deny this claim, nor was there information to determine what were reasonable targets for each state to achieve. Yet, EPA was expected to lead states to meet or exceed national targets. Moreover, there was no incentive for OMB to lower the national target for this measure, given that EPA could provide no evidence to support why the target should be lowered.

EVIDENCE AVAILABILITY

EPA decided to identify and analyze what obstacles were preventing cleanup of the then approximately 100,000 releases. EPA also wanted to determine what opportunities existed to address those obstacles and develop strategies to bring more releases to closure. EPA referred to its analysis as the “2011 backlog study,” and it provided a detailed, data-driven look at releases still in need of cleanup.⁶

Because states are the primary implementers of the UST program, EPA does not keep a database of releases that it could use in this analysis. States maintain and are the primary repositories of all site-specific data for the UST program; EPA maintains data about USTs in Indian Country, but that encompasses only about 0.5 percent of the federally regulated UST systems. As a result, we realized we needed to work with states to collect site-specific data on remaining releases to better determine the issues and opportunities. However, states structured their databases in ways that met their own needs, meaning their databases were quite distinct, with different data fields, terms, and levels of data quality.

Given the extraordinary time and effort required to collect and standardize this information from 56 states, territories, and Washington, D.C., and then create a dataset consistent enough to analyze, EPA instead decided to use a smaller subset of 14 states for the analysis. These states were responsible for 66 percent of the national backlog. EPA collected data from each of the 14 states, then worked with them to understand the data well enough to make consistent data points and analyze those points from a national perspective.

EPA published the results of the analysis in 2011. The study included a chapter on national findings and a state-specific chapter on findings for each state. EPA named the study *The National LUST Cleanup Backlog: A Study of Opportunities* to emphasize that the purpose of the analysis was to identify opportunities to move more releases to cleanup-completed status.⁷ In the study, EPA carefully pointed out areas with data limitations or gaps. The analysis provided a critical understanding of the makeup of the backlog. It turns out the backlog is not homogeneous. Releases stayed in the backlog due to various factors, including a lack of money, technical cleanup challenges, abandoned tanks, and priority rankings. We identified unique strategies to address subsets of releases with different challenges. Understanding the data allowed us to identify which strategies would best address the variety of underlying issues.

EVIDENCE USE

Several states were concerned about the implications of being part of an analysis that defined them as having a “backlog” and the potential negative connotations of that moniker. Several states also resisted EPA pointing out that they might have inefficiencies or challenges in their programs since it might appear that their programs were unsatisfactory. Despite those concerns, several states examined the findings and realized there were aspects of their programs that merited further examination. Interestingly, some nonparticipating states found the results compelling enough that they initiated state-performed backlog studies of their own.

EPA regions used information from the analysis to achieve a greater level of specificity in discussions with states about possible state-specific strategies. Several states took the analysis, built on it, and developed strategies to clean up more releases. The bottom line is that the situation is much more nuanced than “all the easy releases are cleaned up and only the difficult ones remain.”

Through the analysis, EPA identified a number of opportunities to potentially move releases through cleanup to completion. Those opportunities include: expediting site assessments, optimizing remedial design, applying risk-based decision-making, providing performance-based financial incentives to cleanup contractors, addressing orphan or abandoned releases, reviewing case files for releases close to closure, and reviewing case files for old releases with no activity.

One of the most significant results of the analysis was that, even for those intimately involved in the UST program, our perceptions of the program changed completely. We no longer present uninformed arguments, such as “You need to do more.” And we no longer hear in reply, “We cannot do more.” The analysis empowers us to now have more fruitful discussions about specific pockets of releases that meet certain descriptions and whether crafting specific solutions will move those releases toward cleanup and completion.

Overall, the UST program is now much more strategic in the work it does. After evaluating the evidence, EPA took specific actions that were an outgrowth of that information, and states took additional steps as well. For example, because we discovered that one of the factors forestalling cleanups was the technical complexity of some releases, EPA then developed and provided tools to help cleanup staff better address technically complex releases. Examples of tools that EPA developed and presented include webinars on high-resolution site characterization and guidance on how to clean up releases affected by petroleum-vapor intrusion. EPA is currently developing guidance for onsite remediation and is addressing common but complicated contaminants from LUST releases.

States also implemented specific strategies to address some of the identified obstacles to cleaning up releases.

- California implemented several policy initiatives to clean up more releases. One approach is called the “low-threat closure policy.” The policy requires California to evaluate the risks of releases and, in cases where little to no risk is present, determine if the release can be closed even if contamination remains. For the first couple of years after California implemented the policy, it closed more than 1,000 releases per year. From 2012, when the policy was implemented, to 2018, California reduced its backlog of releases by more than half, from 7,703 to 3,128.
- Florida state law had required that money from state funds can only pay to clean up releases based on priority. But the highest priorities are often the most challenging and costly, limiting the money available to address additional releases. In 2011, Florida knew it had the highest backlog of releases in the country, and it changed its legislation to address more releases, including a voluntary program where lower-

risk releases can be assessed for low-cost closure. Since then, Florida increased the number of releases cleaned up per year, and in the past two years, it has cleaned up more than 850 releases per year. Florida reduced its backlog of releases from 13,507 in 2011 to 9,332 in 2018.

Clearly, EPA is seeing steady progress in the program's core metrics, and this is helping to produce positive environmental and health outcomes. Since the beginning of the study analyzing the backlog of UST releases in 2009 through the end of September 2018, EPA and state partners reduced the national backlog from approximately 100,000 to 65,000 releases remaining to be cleaned up.

LESSONS

- **Ask specific questions to get specific answers.** The better EPA decision makers understand the specific evidence about the UST program, the more effective and efficient we can be about working toward and achieving the program's mission of protecting the environment and human health from petroleum UST releases. In order to develop program strategies that succeed in making a difference, it is necessary to conduct an in-depth review of underlying data to understand the real issues behind the problem. We were so pleased with our progress and results that in 2014 we conducted a similar study, this time of UST releases in Indian Country. The goal was to determine how to more effectively address releases where EPA is directly responsible. In 2018, EPA updated that study and is now drawing from the findings to determine region-specific strategies to clean up more releases in Indian Country.
- **A domino effect of evidence use can occur.** Having found value from studies of the LUST backlog, we looked for other opportunities to use evidence-based analysis. Although not described in this case study, EPA performed two additional UST analyses that used evidence to better understand the UST program and its impacts. In partnership with EPA's National Center for Environmental Economics, the UST program studied the impacts of preventing and cleaning up UST releases on housing prices.⁸ The study showed that, on average, there is a 3 to 6 percent depreciation when a high-profile UST release is discovered and a 4 to 9 percent appreciation after the UST release is cleaned up. Partnering with EPA's Office of Communications, Partnerships, and Analysis, the UST program studied the impacts of more frequent inspections on compliance rates at UST facilities in Louisiana.⁹ Results from that study suggested that increasing inspection frequency from roughly every six years to every three years, as required under the Energy Policy Act, improved UST facility compliance by 11 percent. ■