United States Government Accountability Office

Report to Congressional Requesters

September 2015

SUPERFUND

Trends in Federal Funding and Cleanup of EPA's Nonfederal National Priorities List Sites

GAO-15-812

GAO Highlights

Highlights of GAO-15-812, a report to congressional requesters

September 2015

SUPERFUND

Trends in Federal Funding and Cleanup of EPA's Nonfederal National Priorities List Sites

Why GAO Did This Study

Under the Superfund program, EPA places some of the most seriously contaminated sites on the NPL. At the end of fiscal year 2013, nonfederal sites made up about 90 percent of these sites. At these sites, EPA undertakes remedial action projects to permanently and significantly reduce contamination. Remedial action projects can take a considerable amount of time and money, depending on the nature of the contamination and other site-specific factors. In GAO's 2010 report on cleanup at nonfederal NPL sites, GAO found that EPA's Superfund program appropriations were generally declining, and limited funding had delayed remedial cleanup activities at some of these sites.

GAO was asked to review the status of the cleanup of nonfederal NPL sites. This report examines, for fiscal years 1999 through 2013, the trends in (1) the annual federal appropriations to the Superfund program and EPA expenditures for remedial cleanup activities at nonfederal sites on the NPL; and (2) the number of nonfederal sites on the NPL, the number of remedial action project completions, and the number of construction completions at nonfederal NPL sites. GAO analyzed Superfund program and expenditure data from fiscal years 1999 through 2013 (most recent year with complete data available), reviewed EPA documents, and interviewed EPA officials.

What GAO Recommends

GAO is not making any recommendations in this report. EPA agreed with GAO's findings.

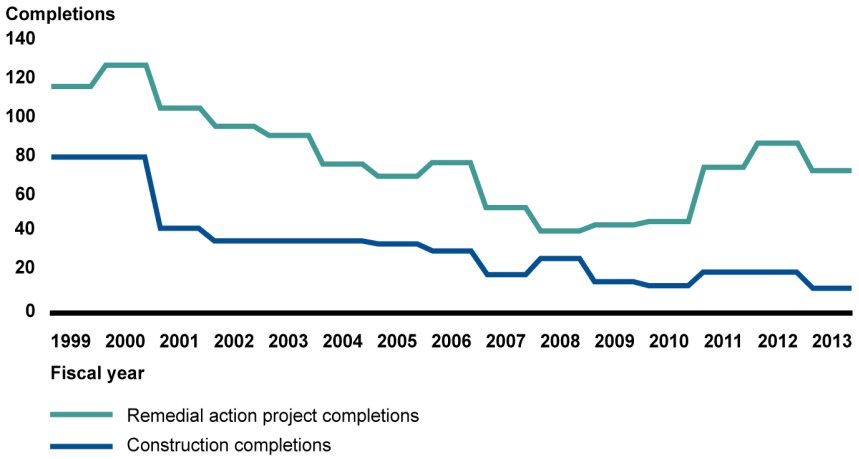
View GAO-15-812. For more information, contact J. Alfredo Gómez at (202) 512-3841 or gomezj@gao.gov.

What GAO Found

Annual federal appropriations to the Environmental Protection Agency's (EPA) Superfund program generally declined from about $2 billion to about $1.1 billion in constant 2013 dollars from fiscal years 1999 through 2013. EPA expenditures—from these federal appropriations—of site-specific cleanup funds on remedial cleanup activities at nonfederal National Priorities List (NPL) sites declined from about $0.7 billion to about $0.4 billion during the same time period. Remedial cleanup activities include remedial investigations, feasibility studies, and remedial action projects (actions taken to clean up a site). EPA spent the largest amount of cleanup funds in Region 2, which accounted for about 32 percent of cleanup funds spent at nonfederal NPL sites during this 15-year period. The majority of cleanup funds was spent in seven states, with the most funds spent in New Jersey—over $2.0 billion in constant 2013 dollars, or more than 25 percent of cleanup funds.

From fiscal years 1999 through 2013, the total number of nonfederal sites on the NPL annually remained relatively constant, while the number of remedial action project completions and construction completions generally declined. Remedial action project completions generally occur when the physical work is finished and the cleanup objectives of the remedial action project are achieved. Construction completion occurs when all physical construction at a site is complete, all immediate threats have been addressed, and all long-term threats are under control. Multiple remedial action projects may need to be completed before a site reaches construction completion. The total number of nonfederal sites on the NPL increased from 1,054 in fiscal year 1999 to 1,158 in fiscal year 2013, and averaged about 1,100 annually. The number of remedial action project completions at nonfederal NPL sites generally declined by about 37 percent during the 15-year period. Similarly, the number of construction completions at nonfederal NPL sites generally declined by about 84 percent during the same period. The figure below shows the number of completions during this period.

Trend in EPA Remedial Action Project Completions and Construction Completions at Nonfederal National Priorities List Sites, Fiscal Years 1999 through 2013



Source: GAO analysis of EPA data. | GAO-15-812

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Abbreviations

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
EPA	Environmental Protection Agency
ICTS	Institutional Controls Tracking System
NPL	National Priorities List
Panel	National Risk-Based Priority Panel
PRP	potentially responsible party
Recovery Act	American Recovery and Reinvestment Act of 2009
ROD	record of decision
SDMS	Superfund Document Management System
SEMS	Superfund Enterprise Management System
Trust Fund	Hazardous Substance Superfund Trust Fund

U.S. GOVERNMENT ACCOUNTABILITY OFFICE
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September 25, 2015

The Honorable Barbara Boxer
Ranking Member
Committee on Environment and Public Works
United States Senate

The Honorable Cory A. Booker
United States Senate

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 established the Superfund program to protect human health and the environment from the effects of hazardous substances.[1] The Environmental Protection Agency (EPA) is the principal agency responsible for administering the Superfund program. According to EPA officials and agency documents, Superfund protects the American public by cleaning up hazardous waste, contaminated sites, or releases that pose an imminent or long-term risk of exposure and harm to human health and the environment. EPA places some of the most seriously contaminated sites on the National Priorities List (NPL), and cleanups of these sites are often expensive and lengthy. At the end of fiscal year 2013, there were 1,315 sites on the NPL—1,158 nonfederal sites (about 90 percent) and 157 federal facilities.[2] Over a 15-year period from fiscal years 1999 through 2013, the Superfund program received almost $23 billion in federal appropriations in constant 2013 dollars, according to our analysis of federal appropriations data.[3]

[1]Pub. L. No. 96-510, 94 Stat. 2767 (1980) (codified as amended at 42 U.S.C. §§ 9601 – 9675 (2015)).

[2]Federal facilities are sites owned or operated by a department, agency, or instrumentality of the United States, such as the Departments of Defense, Energy, and the Interior. These agencies may have a significant role in the cleanup of these facilities, and such cleanups are funded by the agency and not by EPA's Superfund appropriation. Processes and provisions specific to these federal sites are generally not discussed in this report.

[3]Unless otherwise indicated, all dollars and percentage calculations are in constant 2013 dollars.

Some of the contaminants present at NPL sites have included polychlorinated biphenyls,[4] lead, and arsenic. According to EPA documents, the precise human health effect of many chemical mixtures at NPL sites is uncertain. However, hazardous substances found at Superfund sites have been linked to a variety of human health problems, such as birth defects, cancer, changes in neurobehavioral functions, and infertility.

Two basic types of cleanups are conducted under the Superfund program: (1) remedial actions and (2) removal actions. Remedial actions are generally long-term cleanups—consisting of one or more remedial action projects—that aim to permanently and significantly reduce contamination and which can take a considerable amount of time and money, depending on the nature of the contamination and other site-specific factors. A remedial action project is generally the physical work undertaken to address contamination at a site (e.g., sediment dredging or construction of a landfill cap). Remedial action project completions generally occur when the physical work is finished and the cleanup objectives of the remedial action project are achieved. Multiple remedial action projects may need to be completed before a site reaches construction completion (i.e., when all physical construction at a site is complete, all immediate threats have been addressed, and all long-term threats are under control). Removal actions are usually short-term cleanups for sites that pose immediate threats to human health or the environment. Examples of removal actions include removing and properly disposing of contaminated soil or other sources of hazardous materials (e.g., drum barrels) to prevent the release of hazardous substances, pollutants, or contaminants into the environment.

In prior reports,[5] we have provided information on the status of the nonfederal sites on the NPL. For example, based on our review of EPA data for our 2009 report, we determined that the number of nonfederal

[4]Polychlorinated biphenyls belong to a broad family of man-made organic chemicals known as chlorinated hydrocarbons which are chemical compounds of chlorine, hydrogen, and carbon atoms only.

[5]GAO, *Superfund: EPA's Estimated Costs to Remediate Existing Sites Exceed Current Funding Levels, and More Sites Are Expected to Be Added to the National Priorities List*, GAO-10-380 (Washington D.C.: May 6, 2010); *Superfund: Litigation Has Decreased and EPA Needs Better Information on Site Cleanup and Cost Issues to Estimate Future Program Funding Requirements*, GAO-09-656 (Washington D.C.: July 15, 2009).

sites added to the NPL each year had on average declined from fiscal years 1983 to 2007. In addition, the types of nonfederal sites added to the NPL had also changed, as mining sites—among the most expensive sites to clean up—were added to the NPL in greater numbers during this period. We also determined that nonfederal NPL sites that had not yet reached construction completion may be more complex and costly to address. In our 2010 report, we found that federal appropriations to the Superfund program were generally declining, and limited funding had delayed remedial cleanup activities—which include remedial investigations, feasibility studies, and remedial action projects—at some nonfederal NPL sites.

You asked us to look at the current status of the cleanup of nonfederal NPL sites. This report examines, for fiscal years 1999 through 2013,[6] the trends in (1) the annual federal appropriations to the Superfund program and EPA expenditures on remedial cleanup activities at nonfederal sites on the NPL and (2) the number of nonfederal sites on the NPL, the number of remedial action project completions, and the number of construction completions at nonfederal NPL sites.

For the first objective, we reviewed and analyzed Superfund program funding and expenditure data for fiscal years 1999 through 2013. We obtained expenditure data from EPA's Integrated Financial Management System for fiscal years 1999 through 2003, and from its replacement financial system Compass, for fiscal years 2004 through 2013. For the second objective, we analyzed EPA data for nonfederal NPL sites for fiscal years 1999 through 2013. Specifically, we analyzed EPA data from the agency's Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database to summarize trends in the number of new nonfederal sites added to the NPL, the number of nonfederal sites deleted from the NPL, the number of remedial action project completions, and the number of construction completions. The scope of our analyses for both objectives varied from year-to-year because we examined only nonfederal sites that were "active," i.e., on the NPL at any given point during the fiscal year. To address the objectives, we reviewed agency documents, including for example, the *Superfund Program Implementation Manual*, and interviewed EPA officials, including

[6]At the time of our review, fiscal year 2013 was the most recent year with complete and stable program data, according to EPA officials. We used expenditure data that were comparable with the same timeframe for which program data were available.

officials from Region 2, which includes the state that had the most nonfederal NPL sites in 2013. To assess the reliability of the data from EPA's databases used in this report, we reviewed relevant documents, such as the 2013 CERCLIS data entry control plan and regions' CERCLIS data entry control plans; examined the data to identify obvious errors or inconsistencies; compared the data that we received to publicly available data; and interviewed EPA officials. We determined the data to be sufficiently reliable for the purposes of this report. A more detailed discussion of our objectives, scope, and methodology is presented in appendix I.

We conducted this performance audit from October 2014 to September 2015 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence we obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

The Superfund process begins with the discovery of a potentially hazardous site or notification to EPA of the possible release of hazardous substances, pollutants, or contaminants that may threaten human health or the environment. EPA's regional offices may discover potentially hazardous waste sites, or such sites may come to EPA's attention through reports from state agencies or citizens. As part of the site assessment process, EPA regional offices use a screening system called the Hazard Ranking System to guide decision making, and as needed, to numerically assess the site's potential to pose a threat to human health or the environment. Those sites with sufficiently high scores are eligible to be proposed for listing on the NPL. EPA regions submit sites to EPA headquarters for possible listing on the NPL based on a variety of factors, including the availability of alternative state or federal programs that may be used to clean up the site. In addition, EPA officials have noted that, as a matter of policy, EPA seeks concurrence from the Governor of the state or state environmental agency head in which a site is located before listing the site. Sites that EPA proposes to list on the NPL are published in the Federal Register. After a period of public comment, EPA reviews the comments and decides whether to formally list the sites on the NPL.

EPA places sites into the following six broad categories based on the type of activity at the site that led to the release of hazardous material:

- Manufacturing sites include wood preservation and treatment, metal finishing and coating, electronic equipment, and other types of manufacturing facilities.
- Mining sites include mining operations for metals or other substances.
- "Multiple" sites include sites with operations that fall into more than one of EPA's categories.
- "Other" sites include sites that often have contaminated sediments or groundwater plumes with no identifiable source.
- Recycling sites include recycling operations for batteries, chemicals, and oil recovery.
- Waste management sites include landfills and other types of waste disposal facilities.

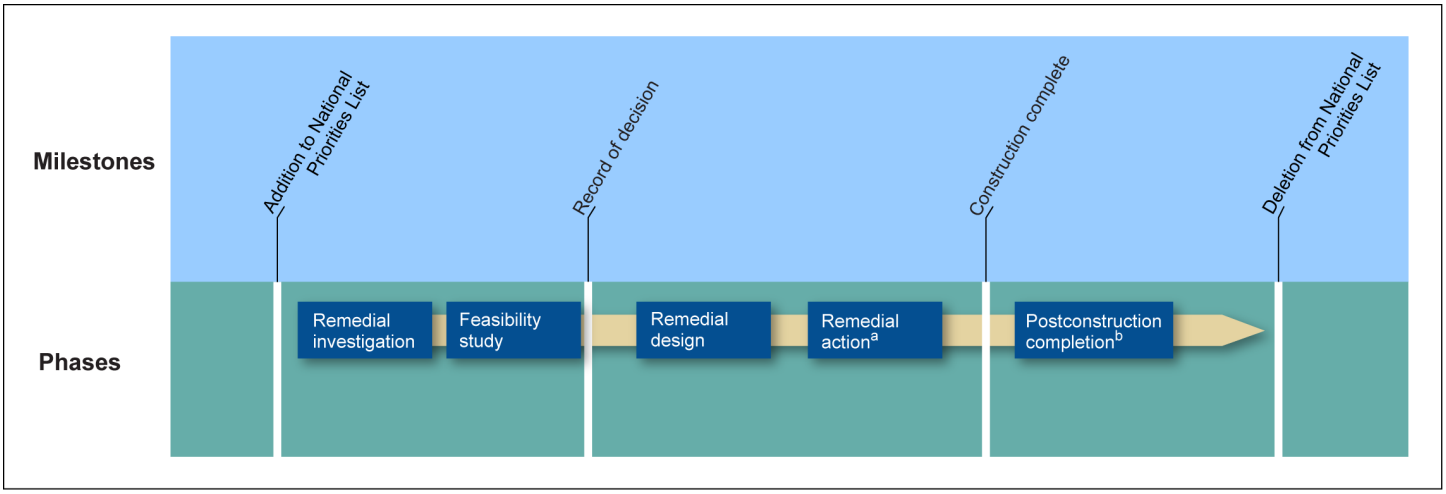
After a site is listed on the NPL, EPA or a potentially responsible party (PRP)[7] will generally begin the remedial cleanup process (see fig. 1) by conducting a two-part study of the site: (1) a remedial investigation to characterize site conditions and assess the risks to human health and the environment, among other actions, and (2) a feasibility study to evaluate various options to address the problems identified through the remedial investigation. The culmination of these studies is a record of decision (ROD) that identifies EPA's selected remedy for addressing the contamination. A ROD typically lays out the planned cleanup activities for each operable unit[8] of the site. EPA then plans the selected remedy

[7]Under CERCLA, PRPs generally include current or former owners or operators of a site or the generators and transporters of the hazardous substances.

[8]According to EPA guidance, EPA uses operable units and remedial action projects to subdivide a Superfund site into a series of smaller components that allow for effective management and implementation of cleanup activities. An operable unit is a discrete action that comprises an incremental step in cleaning up a site and commonly refers to a geographic area, a pathway of the contamination (e.g., groundwater), or type of remedy. A site may consist of one or more operable units, each of which may be addressed by one or more remedial action projects. A remedial action project is generally where the physical work undertaken to address contamination takes place at a site.

during the remedial design phase, which is then followed by the remedial action phase when one or more remedial action projects are carried out. The number of operable units and planned remedial action projects at a site may increase or decrease over time as knowledge of site conditions changes. When all physical construction at a site is complete, all immediate threats have been addressed, and all long-term threats are under control, EPA generally considers the site to be construction complete. After construction completion, most sites then enter into the post-construction phase, which includes actions such as operation and maintenance during which the PRP or the state maintains the remedy such as groundwater restoration or a landfill cover, and EPA ensures that the remedy continues to protect human health and the environment. Eventually, when EPA and the state determine that no further site response is needed, EPA may delete the site from the NPL.

Figure 1: Remedial Cleanup Process at National Priorities List Sites



Source: GAO analysis of EPA data. | GAO-15-812

Note: Phases of the remedial cleanup process may overlap, and multiple phases may be concurrently under way at a site.

[a]Remedial action projects occur during the remedial action phase; remedial action project completions also occur during this phase.

[b]Post-construction completion activities may include functions such as operation and maintenance, long-term response actions, and 5-year reviews, which ensure that Superfund cleanup actions provide for the long-term protection of human health and the environment.

Measures to Communicate Physical Cleanup Progress

According to a 2000 *Federal Register* notice,[9] during the first 10 years of the Superfund program, the public often measured Superfund's progress in cleaning up sites by the number of sites deleted from the NPL as compared to the number of sites on the NPL. However, according to the same *Federal Register* notice, this measure did not recognize the substantial construction and reduction of risk to human health and the environment that had occurred at some NPL sites. In response, EPA established the sitewide construction completion measure to more clearly communicate to the public progress in cleaning up sites on the NPL. Similarly, according to EPA documents, in 2010, to augment the sitewide construction completion measure and reflect the amount of work being done at Superfund sites, EPA developed and implemented a new performance measure, remedial action project completions. EPA includes these two performance measures in its Annual Performance Plan.

General Funding Methods for Cleanup of Nonfederal NPL Sites

The cleanup of nonfederal NPL sites is generally funded by one or a combination of the following methods;

- Potentially responsible parties are liable for conducting or paying for site cleanup of hazardous substances.
- In some cases, PRPs cannot be identified or may be unwilling or financially unable to perform the cleanup. CERCLA authorizes EPA to pay for cleanups at sites on the NPL, including these sites. To fund EPA-led cleanups at nonfederal NPL sites, among other Superfund program activities, CERCLA established the Hazardous Substance Superfund Trust Fund (Trust Fund). Historically, the Trust Fund was financed primarily by taxes on crude oil and certain chemicals, as well as an environmental tax on corporations. The authority to levy these taxes expired in 1995. Since fiscal year 2001, appropriations from the general fund have constituted the largest source of revenue for the Trust Fund. About 80 percent of the funds EPA spent to clean up nonfederal NPL sites from 1999 through 2013 came from annual appropriations. The remaining roughly 20 percent came from special

[9]65 Fed. Reg. 57,810 (Sept. 26, 2000).

accounts and state cost share. EPA has limited cost data where a PRP has conducted the cleanup.[10]

- Under CERCLA, EPA is authorized to enter into settlement agreements with PRPs to pay for cleanups, and EPA may retain and use these funds for cleanups. Funds from these settlements may be deposited into site-specific subaccounts in the Trust Fund, which are referred to as "special accounts" and are generally used for future cleanup actions at the sites associated with a specific settlement, or to reimburse funds that EPA had previously used for response activities at these sites. According to EPA documents, in fiscal year 2013, there were a total of 993 open special accounts with an end of year balance of about $1.7 billion. Most of these funds could be used for a limited number of sites—for example, 3 percent of the open accounts representing 33 sites had about 56 percent of the total special account resources available.

- States are required to pay 10 percent of Trust Fund-financed remedial action cleanup costs and at least 50 percent of cleanup costs for facilities that were operated by the state or any political subdivision of the state at the time of any hazardous substances disposal at the facility. States may pay their share of response costs using cash, services, credit, or any combination thereof. Under CERCLA, states are also required to assure provision of all future maintenance of a Trust Fund-financed remedial action.

EPA's New Information Management System

In fiscal year 2014, EPA updated its information system for the Superfund program from CERCLIS to the Superfund Enterprise Management System (SEMS). According to EPA officials and documents, SEMS consolidated five stand-alone information systems and reporting tools into one system. These systems include CERCLIS, the Superfund Document Management System (SDMS), the Institutional Controls Tracking System (ICTS), the eFacts reporting tool, and ReportLink. CERCLIS contained information on, among other things, the contaminated sites' cleanup status and cleanup milestones reached. The SDMS was a national electronic records collection system mostly with site cleanup records;

[10]There is no requirement that PRPs maintain or disclose their cleanup costs, and they generally consider such cost information to be confidential. According to EPA officials, the agency relies on the estimated remedy construction and maintenance costs identified in the record of decision to estimate the value of cleanups conducted by PRPs.

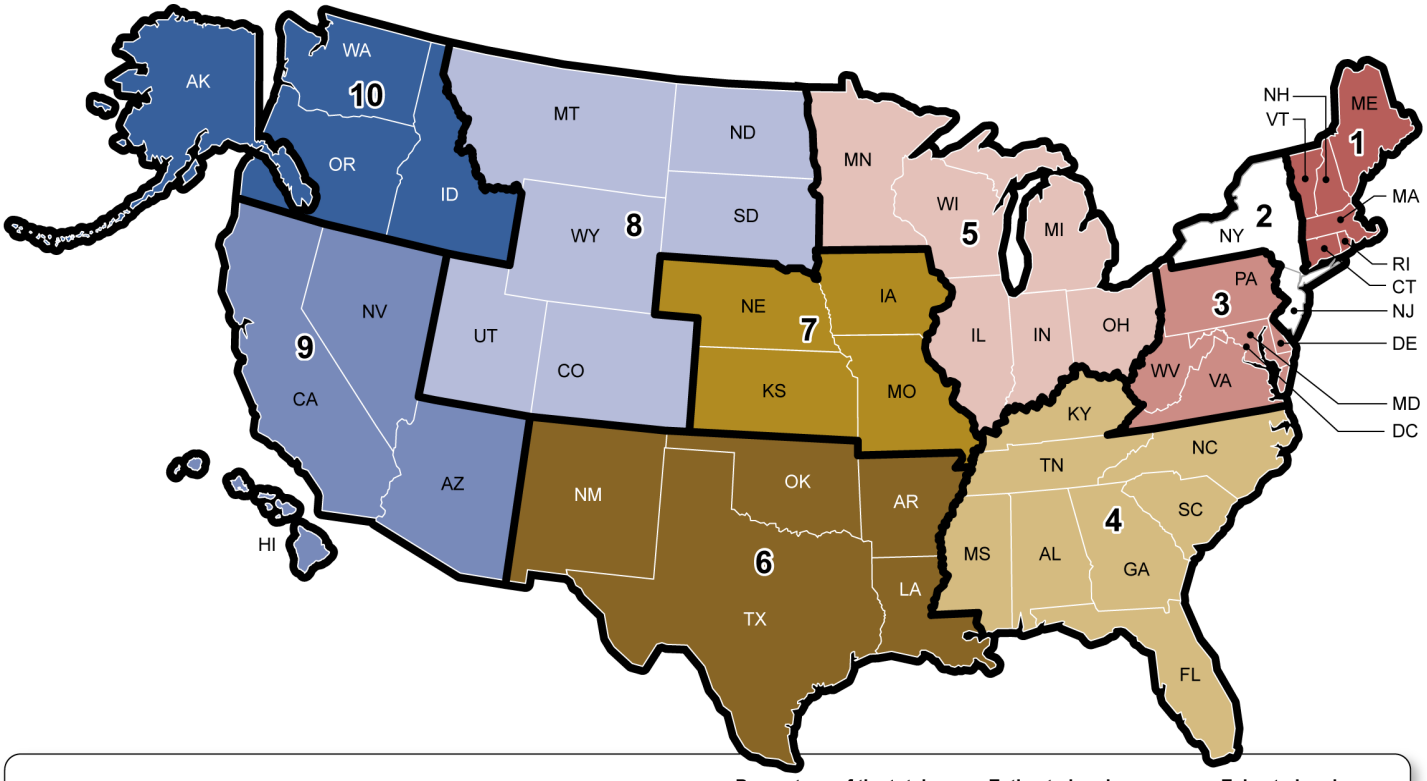
ICTS was a database with legal data related to controlling access to sites; eFacts was a visual reporting tool that generated charts and graphs; and ReportLink was a traditional reporting tool that allowed regions and headquarters to share reports. According to EPA officials, SEMS should be more user-friendly and provide more mobility, thus allowing EPA regional staff to access the system in the field through various devices. Currently, regions are in the process of entering data for each site into SEMS. The process of converting entirely to SEMS has taken additional time because, according to EPA officials, the complexity of the new software and its difference from CERCLIS has created a more significant obstacle than anticipated. In addition, EPA officials stated that the agency will not be in a position to release data comparable to the data previously shared from CERCLIS until EPA officials are confident that all regions have mastered the software to update site schedules. According to EPA officials, SEMS should be fully operable in fiscal year 2016.

Estimated U.S. Population Living within 3 Miles of a Nonfederal NPL Site

According to our analysis of EPA and Census data,[11] as of fiscal year 2013, an estimated 39 million people—about 13 percent of the U.S. population—lived within 3 miles of a nonfederal NPL site. Many of these people—an estimated 14 million—were either under the age of 18 or 65 years and older, which EPA describes as sensitive subpopulations. EPA Region 2 had the largest number of people living within 3 miles of a nonfederal NPL site—an estimated 10 million or about one-third of the region's total population. Figure 2 provides information on the number of nonfederal NPL sites in each region and the estimated number of people that lived within 3 miles of those sites as of fiscal year 2013. The state of New York had the largest number of people living within 3 miles of nonfederal NPL sites—an estimated 6 million or about 29 percent of the state's population. The state of New Jersey had the largest percentage of its estimated population living within 3 miles of a nonfederal NPL site—about 50 percent. Appendix II provides information on the estimated population that lived within 3 miles of a nonfederal NPL site, by state, as of fiscal year 2013.

[11]Census data is from the 2009-2013 American Community Survey 5-year estimate for the 50 states and the District of Columbia.

Figure 2: Estimated U.S. Population Living within 3 Miles of Nonfederal National Priorities List Sites by EPA Region, as of Fiscal Year 2013



EPA region	Number of nonfederal National Priorities List (NPL) sites	Total estimated region population (millions)	Estimated region population living within 3 miles of a nonfederal NPL site (millions)	Percentage of the total region population living within 3 miles of a nonfederal NPL site	Estimated region population under the age of 18 living within 3 miles of a nonfederal NPL site (millions)	Esimated region population 65 years and older living within 3 miles of a nonfederal NPL site (millions)
1	88	14.5	2.1	15%	0.5	0.3
2	206	28.3	10.0	35%	2.2	1.3
3	138	30.0	3.8	13%	0.9	0.5
4	167	61.8	4.3	7%	1.0	0.6
5	234	51.9	5.8	11%	1.4	0.7
6	81	39.0	2.3	6%	0.6	0.2
7	63	13.8	1.6	11%	0.4	0.2
8	44	11.0	1.4	13%	0.3	0.1
9	84	48.2	5.8	12%	1.4	0.6
10	53	13.0	2.1	16%	0.5	0.3
Total	1,158	311.5	39.2	13%	9.1	4.9

Sources: GAO analysis of EPA data and U.S. Census data; Map Resources (map). | GAO-15-812

Note: The methodology for GAO's analysis is generally based on EPA's, Office of Solid Waste and Emergency Response's approach. Data analyzed include (1) 1,158 nonfederal sites on the National Priorities List, in the 50 states and U.S. territories (Guam, Puerto Rico, and the Virgin Islands), as of the end of fiscal year 2013, and (2) Census data from the 2009-2013 American Community Survey 5-year estimate for the 1,141 nonfederal sites in the 50 states and the District of Columbia. A circular site boundary, equal to the site acreage, was modeled around the latitude/longitude for each site and then a 3-mile buffer ring was placed around the site boundary. For the 138 sites in 34 states that EPA did not have acreage information, a circular site boundary was modeled around the latitude/longitude

point, and then a 3-mile buffer ring was placed around the point. American Community Survey data was then collected for each block group with a centroid that fell within the 3-mile area and rounded. Percentage numbers were rounded to the nearest whole percent.

Annual Federal Superfund Appropriations Decreased, and EPA Expenditures on Remedial Cleanup Activities Declined

Annual federal appropriations (appropriations) to EPA's Superfund program generally declined from about $2 billion to about $1.1 billion from fiscal years 1999 through 2013. EPA expenditures—from these federal appropriations—of site-specific cleanup funds (funds spent on remedial cleanup activities at nonfederal NPL sites) declined from about $0.7 billion to about $0.4 billion during the same time period. Because EPA prioritizes funding work that is ongoing, the decline in funding led EPA to delay the start of about one-third of the new remedial action projects that were ready to begin in a given fiscal year at nonfederal NPL sites from fiscal years 1999 through 2013, according to EPA officials. EPA spent the largest amount of cleanup funds in Region 2, which accounted for about 32 percent of cleanup funds spent at nonfederal NPL sites from fiscal years 1999 through 2013. During the same time period, EPA spent the majority of cleanup funds in seven states, with the most in New Jersey—over $2.0 billion or more than 25 percent of cleanup funds. According to our analysis of EPA data, the median per-site annual expenditures for cleanup at nonfederal NPL sites declined by about 48 percent from fiscal years 1999 through 2013, and EPA spent the majority of cleanup funds on an average of about 18 sites annually. Unless otherwise indicated, all dollars and percentage calculations are in constant 2013 dollars.

Annual Federal Appropriations for the Superfund Program and EPA Expenditures of Site-Specific Cleanup Funds on Remedial Cleanup Activities Decreased

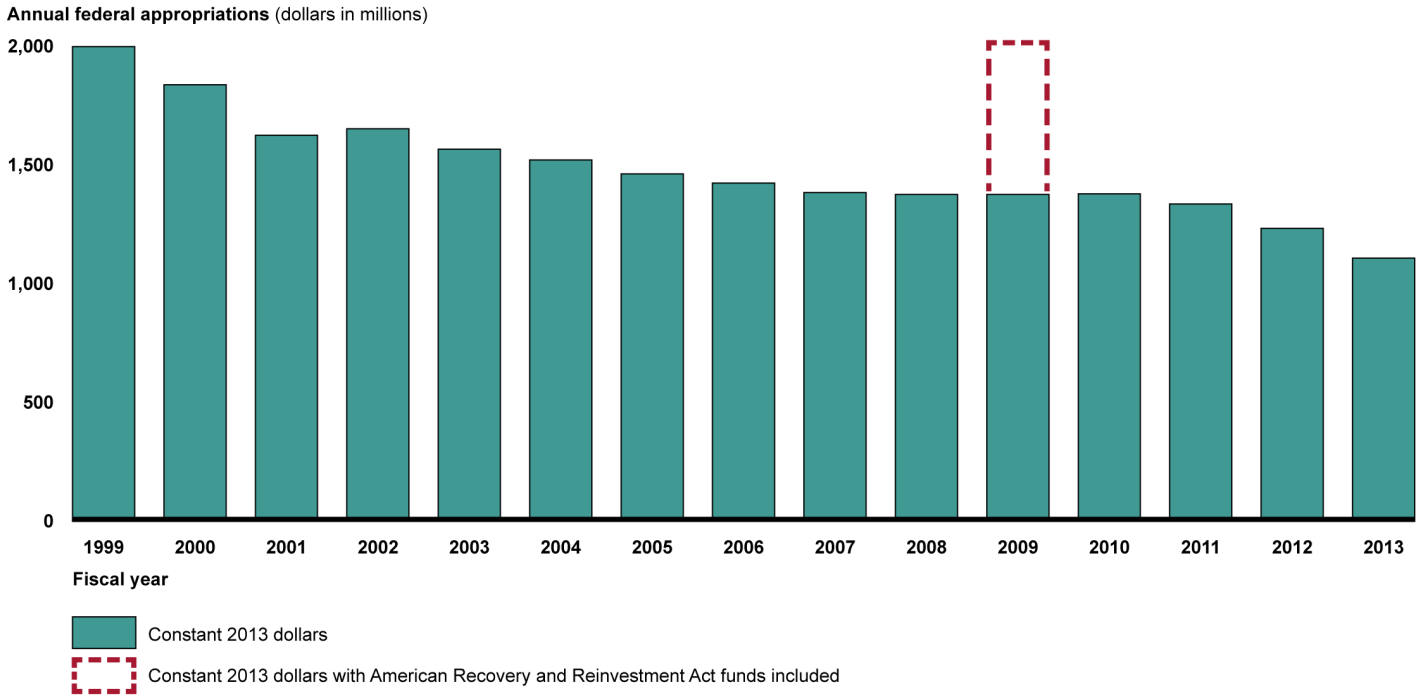
From fiscal years 1999 through 2013, the annual appropriations to EPA's Superfund program generally declined. Annual appropriations declined from about $2 billion to about $1.1 billion—about 45 percent—from fiscal years 1999 through 2013.[12] Under the American Recovery and Reinvestment Act of 2009 (Recovery Act),[13] EPA's Superfund program received an additional $639 million in fiscal year 2009.[14] Figure 3 shows the annual federal appropriations from fiscal years 1999 through 2013.

[12]Annual federal appropriations declined from about $1.5 billion to about $1.1 billion—over 26 percent—in nominal dollars. The annual appropriation to the Superfund program for fiscal year 2014 was about $1.1 billion.

[13]The Recovery Act was enacted with the purpose to promote economic recovery, make investments, and minimize and avoid reductions in state and local government services, among other things. Pub. L. No. 111-5, 123 Stat. 115.

[14]Recovery Act funds were $600 million in nominal dollars. Of the $600 million, EPA allocated $582 million to remedial cleanup activities and $18 million to internal EPA activities related to the management, oversight, and reporting of Recovery Act funds.

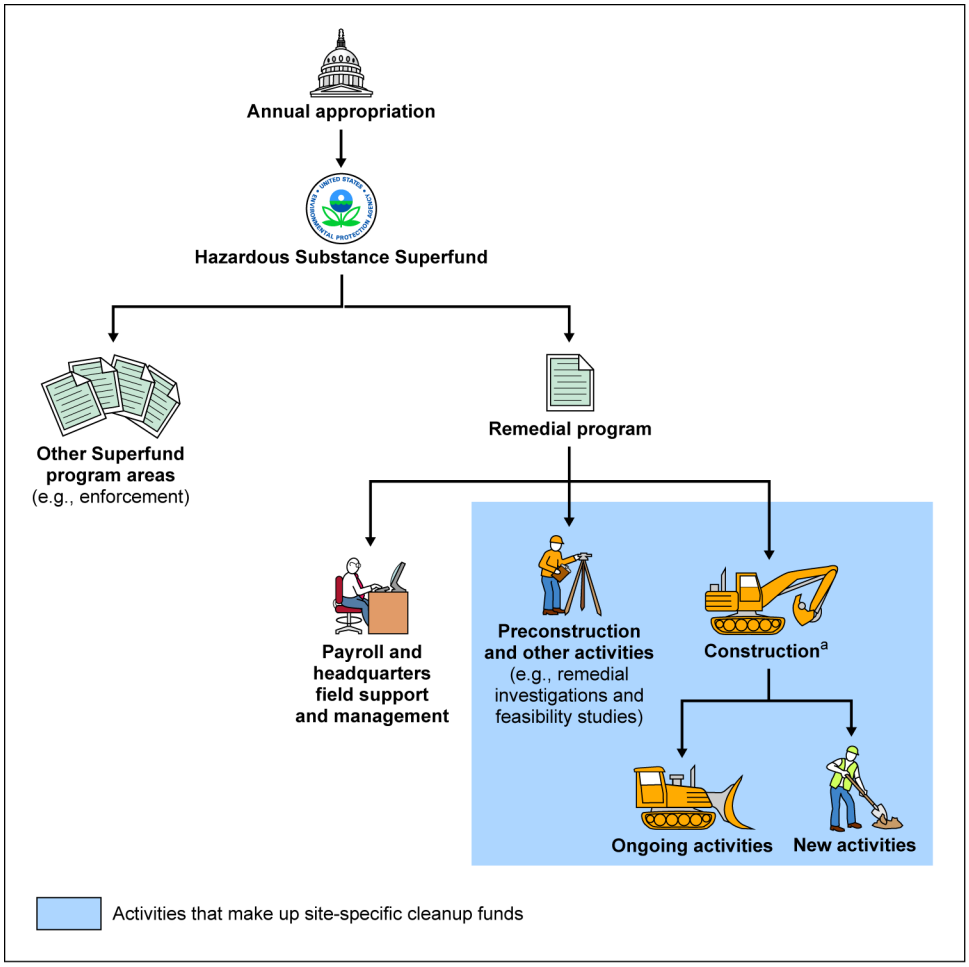
Figure 3: EPA's Superfund Program Annual Appropriations, Fiscal Years 1999 through 2013



Source: GAO analysis of data from the President's Budget Appendixes. | GAO-15-812

EPA allocates annual appropriations to the Superfund program among the remedial program and other Superfund program areas, such as enforcement (see fig. 4). The remedial program generally funds cleanups of contaminated nonfederal NPL sites. EPA headquarters allocates funds for the remedial program to various categories: payroll and other administrative activities; preconstruction and other activities (such as remedial investigations and feasibility studies); and construction (such as remedial action projects) and post-construction activities. EPA allocates funds for preconstruction and other activities to its regional offices using a model based on a combination of historical allocations and a scoring system based on regions' projects planned for the upcoming year. Each region decides how it will spend funds allocated by headquarters for its preconstruction and other remedial activities. EPA headquarters, in consultation with the regions, allocates site-specific cleanup funds for construction and post-construction activities between ongoing work and new remedial action projects.

Figure 4: EPA's Process for Allocating Annual Federal Appropriations to the Superfund Program



Source: GAO analysis of EPA information. | GAO-15-812

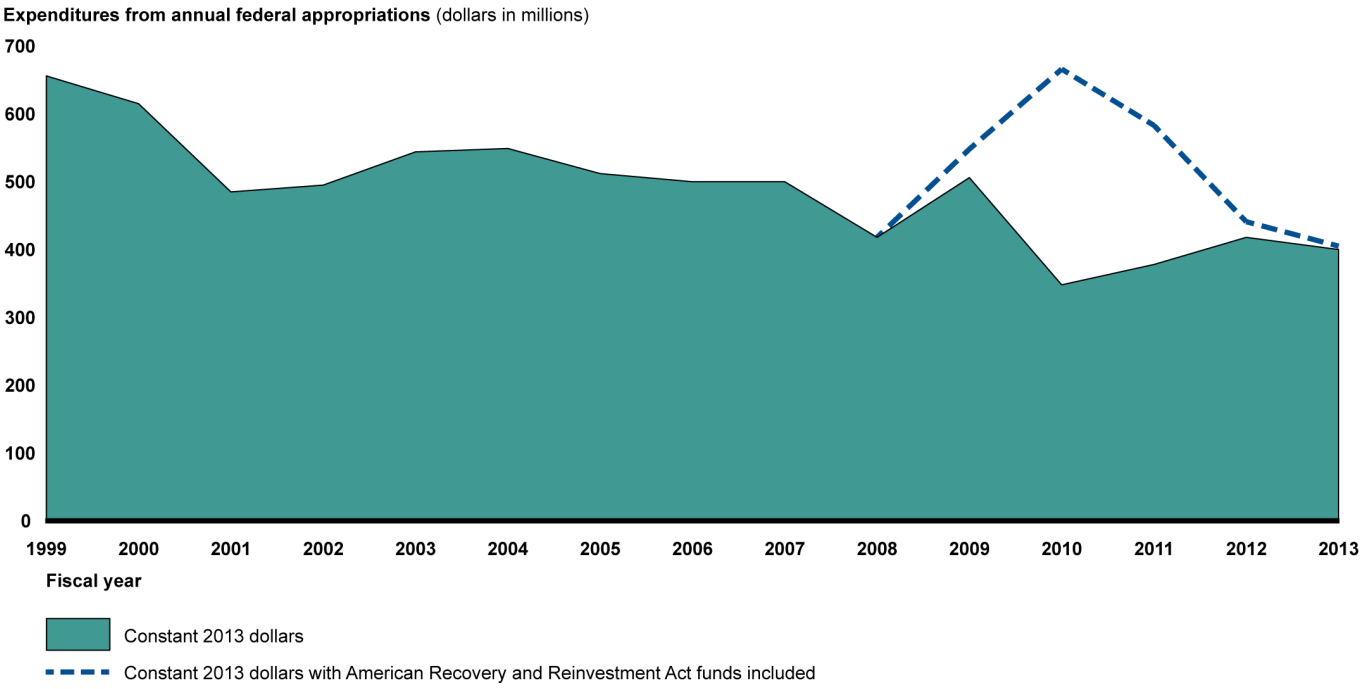
[a]Construction includes post-construction activities, such as long-term response actions and 5-year reviews.

From fiscal years 1999 through 2013, the decline in appropriations to the Superfund program led EPA to decrease expenditures of site-specific cleanup funds on remedial cleanup activities from about $0.7 billion to about $0.4 billion.[15] We define site-specific cleanup funds as those funds

[15]Site-specific cleanup fund expenditures from annual appropriations declined from about $0.5 billion to $0.4 billion—about 18 percent—in nominal dollars.

spent on preconstruction, construction, and postconstruction, which comprise remedial cleanup activities. Expenditures of Recovery Act funds account for the increase in cleanup funds expenditures from fiscal years 2009 through 2011.[16] Figure 5 shows EPA's expenditures of cleanup funds at nonfederal NPL sites for fiscal years 1999 through 2013.

Figure 5: EPA Expenditures of Site-Specific Cleanup Funds on Remedial Cleanup Activities at Nonfederal National Priorities List Sites, Fiscal Years 1999 through 2013



Source: GAO analysis of EPA data. | GAO-15-812

[16]According to EPA officials, EPA obligated Recovery Act funds in fiscal year 2009 but, according to our analysis of EPA data, the majority of the funds were spent through fiscal year 2011.

EPA's Prioritization of Ongoing Work in the Context of Decreased Funding Delayed the Start of Some New Remedial Action Projects

EPA policy prioritizes funding ongoing work over starting new remedial action projects. EPA officials explained that funding ongoing work is prioritized for a variety of reasons, such as the risk of recontamination and the additional cost of demobilizing and remobilizing equipment and infrastructure at a site. To establish funding priorities for new remedial action projects, EPA's National Risk-Based Priority Panel (Panel)—comprised of EPA regional and headquarters program experts—ranks new remedial action projects based on their relative risk to human health and the environment. The Panel uses five criteria to evaluate proposed new remedial action projects: (1) risks to human population exposed (e.g., population size and proximity to contaminants), (2) contaminant stability (e.g., use and effectiveness of institutional controls like warning signs), (3) contaminant characteristics (e.g. concentration and toxicity), (4) threat to a significant environmental concern (e.g., endangered species or their critical habitat), and (5) program management considerations (e.g., high-profile projects). Each criterion is ranked on a weighted scale of one to five with the highest score for any criterion being five. According to EPA documents, the priority ranking process ensures that funding decisions for new remedial action projects are based on common evaluation criteria that emphasize risk to human health and the environment. The Panel then recommends the new projects to fund to the Assistant Administrator of the Office of Solid Waste and Emergency Response who makes the final funding decisions.[17]

A decline in funding delayed the start of some new remedial action projects, according to EPA officials. Over the 15-year time period from fiscal years 1999 through 2013, EPA generally did not fund all of the new remedial action projects that were ready to begin in a given fiscal year, according to our analysis of EPA data, (see table 1). During this time, EPA did not fund about one-third of the new remedial action projects in the year in which they were ready to start. According to EPA officials in headquarters and Region 2, delays in starting new remedial action projects can potentially lead to elevated costs. For example, site conditions can change, such as contaminants migrating at a groundwater site, which will require recharacterization of the location. Also the extent of the contamination may change or adjustments may be necessary to the remedy designs which could take additional time and money. In addition, there may be unmeasured economic costs to the community by

[17]The Office of Solid Waste and Emergency Response manages the Superfund program.

delaying the productive reuse of a site, according to EPA officials. Due to an increase in funding from the Recovery Act, EPA started all new remedial action projects ready to start in fiscal years 2009 and 2010, and most new remedial action projects in fiscal year 2011, according to our analysis of EPA data. However, in fiscal year 2012, EPA did not fund and start any of the 21 new remedial action projects through the Panel process[18] that were ready to begin that year. The 21 unfunded projects were estimated to have cost over $117 million[19] in 2012, according to EPA officials. In fiscal year 2013, EPA did not fund 22 out of 30 projects due to priorities for declining funds as well. According to EPA officials, in that year, these unfunded projects were estimated to have cost approximately $101 million. EPA officials stated that they expect the trend of being unable to fund all new remedial action projects to continue.[20] According to EPA officials, prior to funding new remedial action projects, EPA considers both the funds needed in the current fiscal year to begin the project and ongoing funds that will be required in subsequent fiscal years to complete the project.

[18]According to EPA officials, there are some large and relatively costly nonfederal NPL sites that require annual site-specific funding agreements. These are agreements between EPA headquarters and regional offices that provide a planned funding amount that a site will receive in each future fiscal year. These funding agreements are determined after the ranking of a project by the Panel, and approval is given to begin work. In general, this occurs for sites where remediation is anticipated to continue over multiple fiscal years and is expected to cost more than $100 million.

[19]This amount is in nominal dollars.

[20]According to EPA officials, in fiscal year 2014, EPA did not fund five new remedial action projects out of a total of 31.

Table 1: Annual Funding Decisions for New Remedial Action Projects at EPA's Nonfederal National Priorities List Sites Ranked by the National Risk-Based Priority Panel, Fiscal Years 1999 through 2013

Fiscal year	Projects funded	Projects not funded	Total projects	Percentage projects funded	Percentage projects not funded
1999	16	0[a]	16	100%	0%
2000	15	12	27	56%	44%
2001	4	16	20	20%	80%
2002	17	7	24	71%	29%
2003	9	12	21	43%	57%
2004	27	19	46	59%	41%
2005	17	9	26	65%	35%
2006	18	6	24	75%	25%
2007	19	0	19	100%	0%
2008	16	10	26	62%	38%
2009	26	0	26	100%	0%
2010	18	0	18	100%	0%
2011	12[b]	4	16	75%	25%
2012	0[b]	21	21	0%	100%
2013	8[b]	22	30	27%	73%

Source: GAO analysis of EPA data. | GAO-15-812

Note: EPA's National Risk-Based Priority Panel (Panel) does not rank new remedial action projects financed entirely by special account funds. The numbers in each fiscal year represent funding decisions for new remedial action projects ready to begin construction during that particular fiscal year. According to EPA officials, in total, funding for 94 discrete new remedial action projects was delayed—34 percent of the total number of remedial action projects considered for funding during fiscal years 1999 through 2013. Percentage numbers were rounded to the nearest whole percent.

[a]We did not include 20 remedial action projects that were presented to the Panel in fiscal year 1999 because, according to EPA officials, the agency could not differentiate between those projects that were not funded, and those removed from consideration because they were not construction-ready in that fiscal year.

[b]The number of new remedial action projects funded in fiscal years 2011, 2012, and 2013 does not match the number EPA reports publically in its annual accomplishment reports due to reporting differences. For EPA accomplishment reports, see http://www.epa.gov/superfund/accomplishments.htm (accessed July 23, 2015).

According to EPA officials, as annual appropriations have declined, EPA has generally relied on funds available from prior year Superfund appropriations to fund new remedial action projects and some other work. According to EPA officials, funds from prior year appropriations generally become available for use through deobligations and special account reclassifications. Typically, deobligations occur when EPA determines that some or all of the funds the agency originally obligated for a contract to conduct an activity are no longer needed (e.g., EPA will deobligate funds that it had previously obligated to construct a landfill cover because

the final costs were less than originally anticipated). According to EPA officials, reclassifications occur when EPA uses special account funds to reimburse itself for its past expenditures of annually appropriated funds, which then makes the funds originally used for these activities available for the agency to use. Starting in fiscal year 2003, EPA began distributing deobligated funds in a 75/25 percent split so that headquarters kept 75 percent of the deobligated funds for national remedial program priorities, which have been, in large part, used to begin new remedial action projects, and returned 25 percent to the region that provided the deobligated funds. On average, EPA annually provided about $58 million in deobligated funds for construction and post-construction activities during fiscal years 2003 through 2013,[21] according to our analysis of EPA data. According to EPA officials, deobligations are an unpredictable funding stream, and our analysis of EPA data indicates that the amount of deobligations and reclassifications provided for cleanup fluctuated during the fiscal years 2003 through 2013 time period, from a high in fiscal year 2003 of about $102 million to a low in fiscal year 2009 of about $32 million.

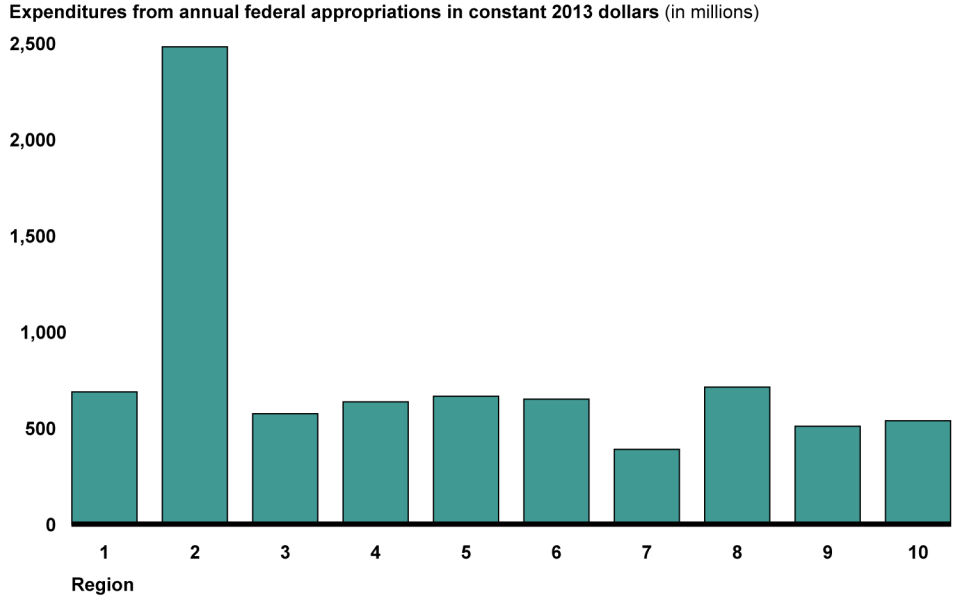
EPA Spent the Most Cleanup Funds in One Region, and Primarily in Seven States

EPA spent the most cleanup funds from annual appropriations on nonfederal NPL sites in Region 2 from fiscal years 1999 through 2013, according to our analysis of EPA data. EPA spent almost $2.5 billion in this region—which is about 32 percent of the total cleanup funds on nonfederal NPL sites during that time frame and over three times the cleanup funds spent on any other region.[22] According to EPA officials, Region 2 has a significant number of large, EPA-funded sites that have required considerable expenditures to clean up over a long period of time. The agency does not expect this trend to continue, but anticipates that more cleanup funds will be devoted to the cleanup of large mining and sediment sites in the West. Region 8 received the second most in cleanup funds with about $0.7 billion over the same time period. Figure 6 shows EPA's expenditure of cleanup funds at nonfederal NPL sites in each region from fiscal years 1999 through 2013.

[21]According to an EPA official, deobligated funds cannot be readily identified in the financial database before fiscal year 2003, because EPA had not established the specific fund code for deobligations until fiscal year 2002.

[22]EPA consistently spent the most nonfederal NPL cleanup funds per year from fiscal years 1999 through 2013 in Region 2. On average, EPA spent about $165 million per year in Region 2, followed by about $47 million in Region 8, and about $46 million in Region 1.

Figure 6: EPA Expenditures of Site-Specific Cleanup Funds on Remedial Cleanup Activities at Nonfederal National Priorities List Sites, by Region, Fiscal Years 1999 through 2013



Source: GAO analysis of EPA data. | GAO-15-812

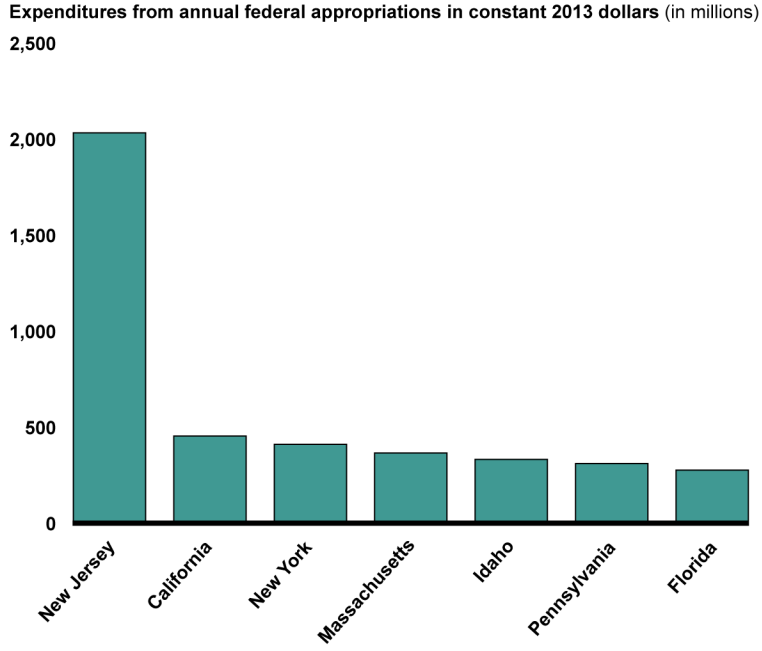
According to our analysis of EPA data, EPA spent the majority of nonfederal NPL cleanup funds in seven states—New Jersey, California, New York, Massachusetts, Idaho, Pennsylvania, and Florida—during the 15-year period from fiscal years 1999 through 2013. New Jersey sites received the most cleanup funds with over $2.0 billion (or more than 25 percent of cleanup funds over this period).[23] The agency also spent the largest portion of Recovery Act funds in New Jersey. According to EPA officials, New Jersey has a large number of sites that do not have PRPs to perform the cleanup and needs federal appropriations to cleanup these sites.[24] In addition, sites in areas of highly dense population like many in New Jersey cost more to cleanup, according to EPA officials. Agency officials expect the current level of expenditures in New Jersey to decline

[23]EPA spent the most cleanup funds in every year from fiscal years 1999 through 2013 on New Jersey sites, according to our analysis of EPA data.

[24]Cleanup work performed directly by PRPs is not included in our analysis because EPA does not track cost data on PRP-led projects

in the future because the cleanup at some of the sites will be completed. Figure 7 shows EPA's expenditure of cleanup funds in the seven states from fiscal years 1999 through 2013.

Figure 7: EPA Expenditures of Site-Specific Cleanup Funds on Remedial Cleanup Activities at Nonfederal National Priorities List Sites in the States Where EPA Spent the Most Cleanup Funds, Fiscal Years 1999 through 2013



Source: GAO analysis of EPA data. | GAO-15-812

Median Annual Expenditures per Site Declined and on Average, EPA Spent the Majority of Cleanup Funds at 18 Sites Annually

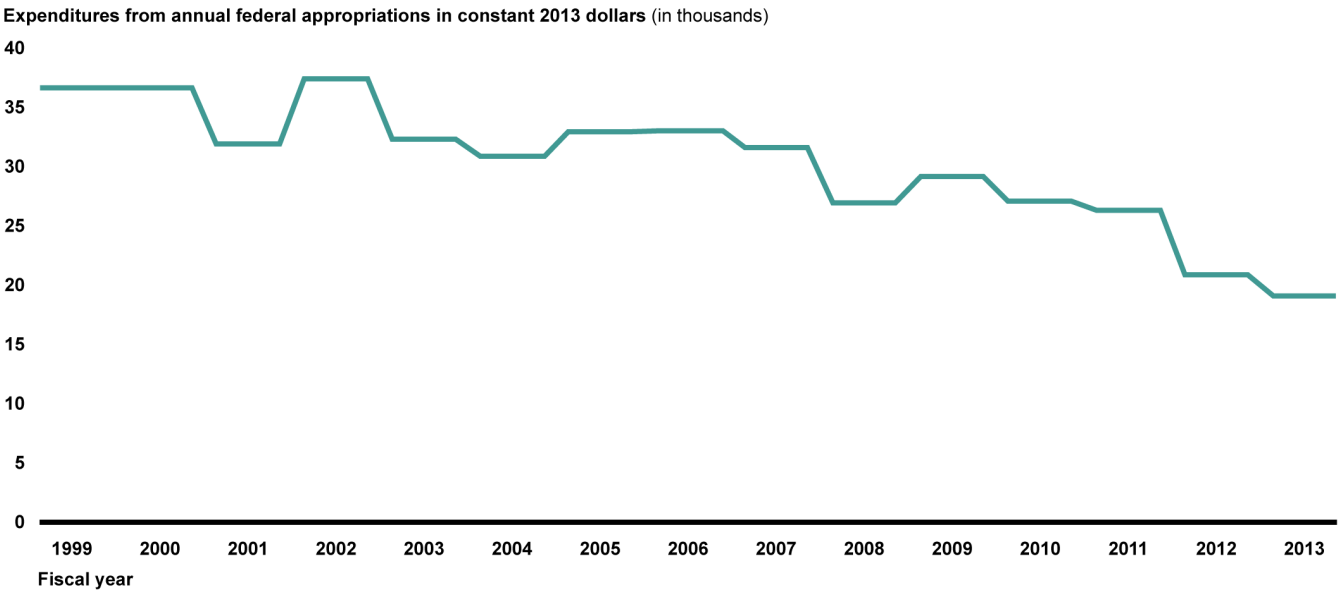
According to our analysis of EPA data, the median per-site annual expenditures on remedial cleanup activities at nonfederal NPL sites generally declined from fiscal years 1999 through 2013.[25] The median per-site annual expenditures declined by about 48 percent from about $36,600 to about $19,100 from fiscal years 1999 through 2013.[26] The decline was more pronounced in recent years, decreasing by about 35 percent from fiscal years 2009 through 2013, compared to about a 12 percent decline from fiscal years 1999 through 2003. Figure 8 shows the median per-site annual expenditures of cleanup funds from annual appropriations at nonfederal NPL sites from fiscal years 1999 through 2013. According to EPA officials, these declines mirror, with some lag time, declines in appropriations, the most significant of which occurred starting in fiscal year 2000 and then again starting in fiscal year 2011. In addition, the agency expects to see further declines in annual cleanup funds expenditures following the same pattern in the near future, according to EPA officials. Specifically, given recent declines in appropriations, EPA expects to see declines in expenditures after a short lag time, while outyear[27] trends would depend on future appropriations.

[25]Throughout the report, we used the median value due to the large variance in the per-site EPA financial and program data.

[26]The median per-site annual expenditures declined by about 30 percent or from about $27,400 to about $19,100 in nominal dollars.

[27]An outyear is any fiscal year beyond the budget year for which projections are made in, for example, the President's budget submission.

Figure 8: EPA's Median Per-Site Annual Expenditures of Site-Specific Cleanup Funds on Remedial Cleanup Activities at Nonfederal National Priorities List Sites, Fiscal Years 1999 through 2013



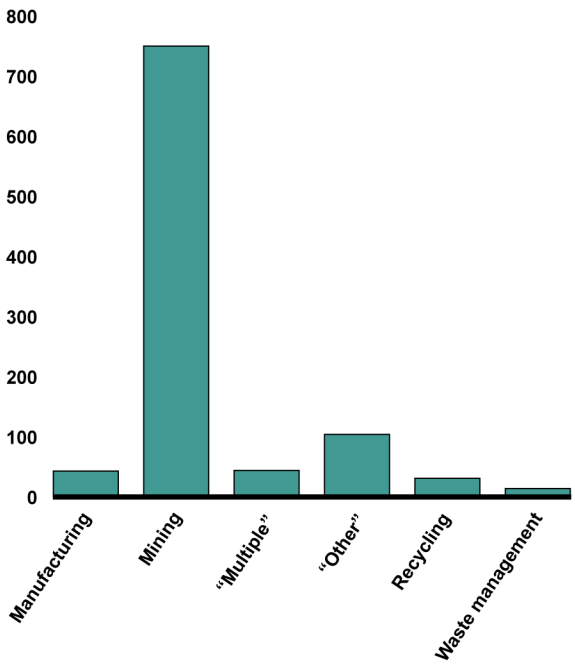
Source: GAO analysis of EPA data. | GAO-15-812

EPA spent the majority of cleanup funds on a few sites—on average about 18 sites—each year from fiscal years 1999 through 2013, according to our analysis of EPA data. The specific sites where EPA spent the majority of cleanup funds varied from year to year, but 6 sites were part of the 18 in more than half the years of the 15-year period—Vineland Chemical Company, Inc. (New Jersey), Bunker Hill Mining and Metallurgical Complex (Idaho), Welsbach and General Gas Mantle-Camden Radiation (New Jersey), Tar Creek-Ottawa County (Oklahoma), New Bedford (Massachusetts), and Federal Creosote (New Jersey). EPA spent at least $175 million from annual appropriations at each of these 6 sites over the 15 years.

EPA's costs to clean up sites differed depending on the type of site. According to our analysis of EPA data on expenditures of cleanup funds from annual appropriations, mining sites were the most expensive to clean up. From fiscal year 1999 through 2013, EPA spent, on average, from about 7 to about 52 times the annual amount per site at mining sites than at the other types of sites. For example, the average median per-site annual expenditure of cleanup funds was about $750,000 for mining sites compared to about $104,000 for "other" sites and to about $14,000 for waste management sites. According to EPA officials, mining sites are

costly to clean up because, among other characteristics, they typically cover a large area and have many sources of contamination. One example of a mining site is the Bunker Hill Mining and Metallurgical Complex in Idaho where EPA spent almost $330 million to clean up part of the site from fiscal years 1999 through 2013.[28] Figure 9 shows the average median per-site annual expenditure of cleanup funds from annual appropriations at nonfederal NPL sites by type of site from fiscal years 1999 through 2013.

Figure 9: EPA's Average Median Per-Site Annual Expenditure of Site-Specific Cleanup Funds on Remedial Cleanup Activities at Nonfederal National Priorities List Sites, by Site Type, Fiscal Years 1999 through 2013



Source: GAO analysis of EPA data. | GAO-15-812

[28]More information on the funding of the Bunker Hill cleanup appears at http://yosemite.epa.gov/R10/CLEANUP.NSF/7780249BE8F251538825650F0070BD8B/Who+pays+for+the+Bunker+Hill+Superfund+Site+cleanup (accessed July 9, 2015).

The Number of Nonfederal Sites on the NPL Remained Relatively Constant, while the Number of Remedial Action Project Completions and Construction Completions Generally Declined

According to our analysis of EPA data, the total number of nonfederal sites on the NPL annually remained relatively constant, while remedial action project completions and construction completions generally declined during fiscal years 1999 through 2013.[29] The total number of nonfederal sites on the NPL increased from 1,054 in fiscal year 1999 to 1,158 in fiscal year 2013 and averaged about 1,100 annually. According to our analysis of EPA data, the number of remedial action project completions at nonfederal NPL sites generally declined by about 37 percent during the 15-year period. Similarly, from fiscal years 1999 through 2013, the number of construction completions at nonfederal NPL sites generally declined by about 84 percent.

The Total Number of Nonfederal Sites on the NPL Remained Relatively Constant

From fiscal years 1999 through 2013, the number of new nonfederal sites added to the NPL and the number of nonfederal sites deleted each year from the NPL generally declined, while the total number of nonfederal sites on the NPL remained relatively constant, according to our analysis of EPA data. More specifically, during the fiscal years of our review, there was a period of decline in the number of sites added to the NPL followed by a few years where there was a slight increase. For example, the number of new nonfederal sites added to the NPL each year declined steadily from 37 sites in fiscal year 1999 to 12 in fiscal year 2007. According to EPA officials, there are several reasons for the decline in the number of new nonfederal sites added to the NPL. For example, some states may have been managing the cleanup of sites with their own state programs, especially if a PRP was identified to pay for the cleanup.[30] Additional reasons for the decrease during this time period include:

[29]Our analysis of EPA data included all remedial action project completions and construction completions at the nonfederal NPL sites from fiscal years 1999 through 2013, regardless of who performed the activity.

[30]According to our 2013 report on alternatives to placing sites on the NPL, Massachusetts, New Jersey, and California were among the states with the most mature environmental programs and had 247 sites, 221 sites, and 180 sites, respectively, in their states' program. For more information, see GAO, *Superfund: EPA Should Take Steps to Improve Its Management of Alternatives to Placing Sites on the National Priorities List*, GAO-13-252 (Washington, D.C.: Apr. 9, 2013).

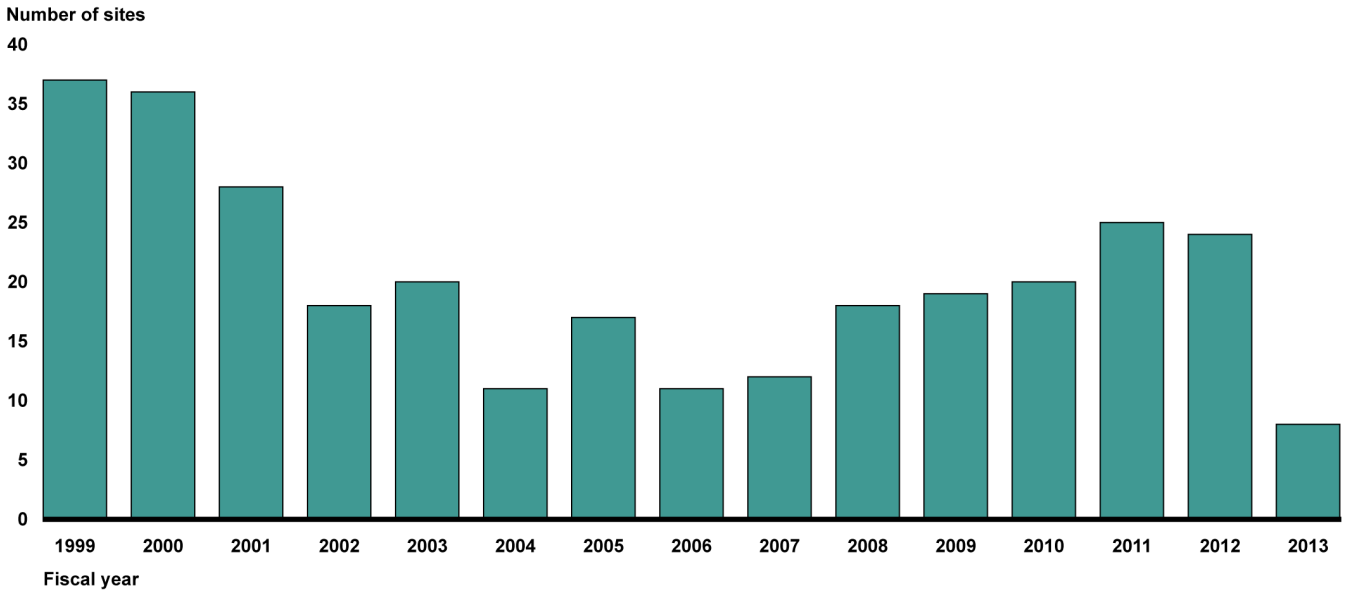
(1) funding constraints that led EPA to focus primarily on sites with actual human health threats and no other cleanup options, (2) use of the NPL as a mechanism of last resort, and (3) referral of sites assessed under Superfund to state cleanup programs.

In contrast, from fiscal years 2008 through 2012, there was a general increase in the number of new nonfederal sites added to the NPL annually, according to our analysis of EPA data. In fiscal year 2008, EPA added 18 sites and by 2012, the number of sites added annually had increased to 24. According to EPA officials, the numbers may have increased from fiscal years 2008 through 2012, because the agency expanded its focus to consider NPL listing for sites with potential human health and environmental threats, and it shifted its policy to use the NPL when it was deemed the best approach for achieving site cleanup rather than using the NPL as a mechanism of last resort. Also, states' funding for cleanup programs declined, and states agreed to add sites to the NPL where they encountered difficulty in getting a PRP to cooperate or where the PRP went bankrupt, according to EPA officials. Furthermore, these same officials stated that the increase in the number of new sites added to the NPL could be due to referrals from the Resource Conservation and Recovery Act program because of business bankruptcies, especially in the most recent years.[31] In fiscal year 2013, however, the number of new nonfederal sites added to the NPL declined to 8, the lowest number since fiscal year 1999. In total, EPA added 304 nonfederal sites to the NPL—an average of about 20 sites annually—from fiscal years 1999 through 2013.[32] Figure 10 summarizes the number of new nonfederal sites added to the NPL each year from fiscal years 1999 through 2013.

[31]Owners or operators of active facilities that treat, store, or dispose of hazardous waste must take corrective actions to clean up contamination from the facility under the Resource Conservation and Recovery Act. If the owner or operator goes bankrupt, they may be unable to complete the corrective action. If the site is referred to the Superfund program, and subsequently added to the NPL, then federal funding may be used to complete the cleanup.

[32]According to EPA officials, 21 new nonfederal sites were added to the NPL in fiscal year 2014.

Figure 10: Number of New Nonfederal Sites Added to the National Priorities List Each Year, Fiscal Years 1999 through 2013



Source: GAO analysis of EPA data. | GAO-15-812

In terms of the types of sites added to the NPL from fiscal years 1999 through 2013, the largest number of sites added to the list were manufacturing sites (120 sites or about 40 percent) followed by "other" sites (90 sites or about 30 percent). In addition, EPA added 35 mining sites (about 12 percent), 32 waste management sites (about 11 percent), 21 recycling sites (about 7 percent), and 6 "multiple" sites (about 2 percent)—sites that fell into more than one of these categories—according to our analysis of EPA data. During this time frame, the amount of time between when a site was proposed to be added to the NPL and when it was added to the NPL ranged from 2 months to over 18 years, with a median amount of time of about 6 months.[33] According to EPA officials, there are a variety of reasons to explain why some sites take longer to add to the NPL. For example, EPA could propose a site to be added to the NPL and, in response to the *Federal Register* notice announcing the proposal, EPA could receive numerous, complex comments that required considerable time and EPA resources to

[33]This calculation excludes the Ringwood Mines/Landfill site located in New Jersey, which was deleted from the NPL in 1994 and restored to the NPL in 2006.

address. In addition, a proposal to add a site to the NPL could act as an incentive for PRPs to resume negotiations with EPA or the state to clean up the site.[34] Moreover, large PRPs with greater financial assets may request additional time to pursue other cleanup options; hire law firms and technical contractors to submit challenging comments to EPA on the proposal to add the site to the NPL; and support outreach efforts that generate state and local opposition to the proposal. EPA officials also noted that certain sites, such as recycling and dry cleaning,[35] are generally added quickly to the NPL because other alternatives may not be available.

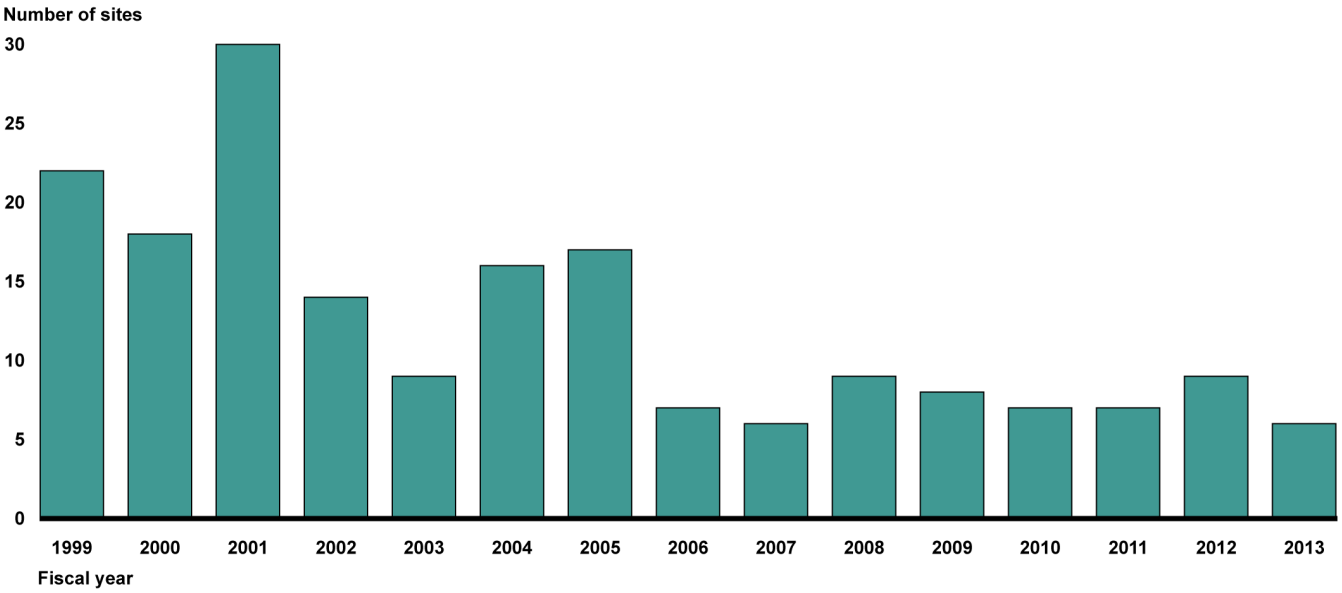
From fiscal years 1999 through 2013, the number of nonfederal sites deleted from the NPL generally declined, according to our analysis of EPA data. EPA deleted 22 nonfederal sites in fiscal year 1999 and, in fiscal year 2013, EPA deleted only 6 nonfederal sites. In total, EPA deleted 185 nonfederal sites from the NPL during these years.[36] According to EPA officials, the decline in the number of nonfederal sites deleted from the NPL is due to the decline in annual appropriations and the fact that the sites remaining on the NPL are more complex, and they take more time and money to clean up. The median number of years from the time a nonfederal site was added to the NPL to the time EPA deleted it from the NPL ranged from about 13 years for those sites deleted in fiscal year 1999, to about 25 years for those sites deleted in fiscal year 2013, with an average median of about 19 years. Region 2 had the largest number of nonfederal sites—41—deleted from the NPL, followed by Regions 6, 3, 4, and 5, which deleted 29, 25, 23, and 23 nonfederal sites, respectively. Figure 11 shows the number of nonfederal sites EPA deleted from the NPL each year from fiscal years 1999 through 2013.

[34]According to EPA officials, EPA's goal is to clean up a site. As such, the agency will often hold off on making a listing decision to allow time for negotiations or cleanup to progress.

[35]According to EPA officials, owners of recycling and dry cleaning sites generally do not have the assets to clean up the site, and dry cleaning sites generally have groundwater contamination, which is expensive to clean up.

[36]According to EPA officials, EPA deleted 14 nonfederal sites from the NPL in fiscal year 2014.

Figure 11: Number of Nonfederal Sites Deleted from the National Priorities List Each Year, Fiscal Years 1999 through 2013



Source: GAO analysis of EPA data. | GAO-15-812

From fiscal years 1999 through 2013, according to our analysis of EPA data, the total number of nonfederal sites on the NPL remained relatively constant, and averaged about 1,100 sites annually. From fiscal years 1999 through 2013, the total number of nonfederal sites on the NPL increased less than 10 percent—from 1,054 sites to 1,158 sites as of the end of these fiscal years.[37] In addition, the type of nonfederal sites on the NPL changed during this same time period. For example, in fiscal year 1999, there were 10 mining sites on the NPL or about 1 percent of all nonfederal NPL sites. By fiscal year 2013, there were 44 mining sites on the NPL, which was about 4 percent of all nonfederal NPL sites. Appendix III provides more detailed information from fiscal years 1999 through 2013 on the number of nonfederal sites on the NPL at the end of each fiscal year, following any additions and deletions; as well as the number of nonfederal sites on the NPL each fiscal year by type.

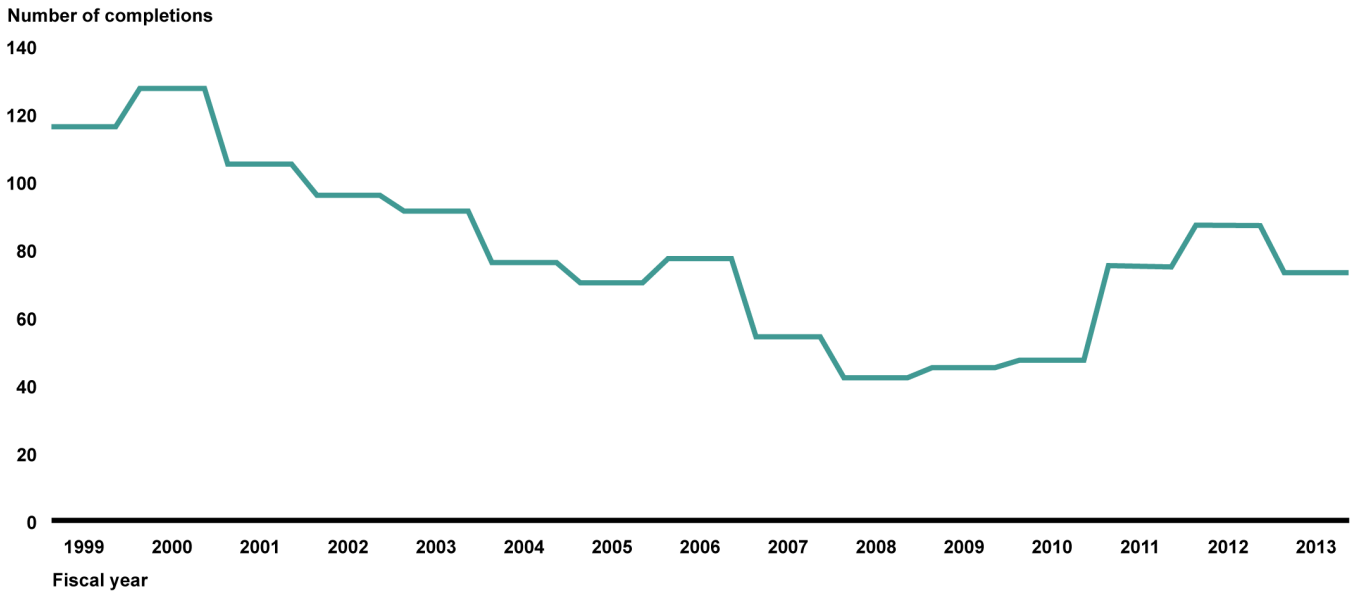
[37]According to EPA officials, for fiscal year 2014, EPA added 21 nonfederal sites to the NPL and deleted 14, resulting in a total of 1,165 sites on the NPL.

Remedial Action Project Completions and Construction Completions Generally Declined

According to our analysis of EPA data, from fiscal years 1999 through 2013, the number of remedial action project completions at nonfederal NPL sites declined by about 37 percent, and the length of time to complete the projects increased slightly. The number of remedial action project completions in each year gradually declined by about 59 percent from 116 projects (fiscal year 1999) to 47 projects (fiscal year 2010). For fiscal years 2011 through 2012, the number of remedial action project completions increased to 75 and 87, respectively. According to EPA officials, these increases were due to the increase of funds from the Recovery Act. In fiscal year 2013, the number of remedial action project completions dropped to 73. In total, 1,181 remedial action projects were completed from fiscal years 1999 through 2013.[38] In general, according to EPA officials, the decline in remedial action project completions is due to the decline in appropriations and the complexity of current projects, which take longer to complete. These officials also stated that the decline in staffing, especially in the last few years, and particularly in the regions, had a negative impact on the Superfund remedial program and made it difficult to complete work. Figure 12 provides information on the number of remedial action project completions at nonfederal NPL sites from fiscal years 1999 through 2013.

[38]The decline in the number of remedial action project completions continued into fiscal year 2014 with 61 completions, according to EPA officials.

Figure 12: Number of Remedial Action Project Completions at Nonfederal National Priorities List Sites, Fiscal Years 1999 through 2013



Source: GAO analysis of EPA data. | GAO-15-812

According to our analysis of EPA data, Region 2 had the highest number of remedial action project completions (242 projects or about 20 percent of the total project completions), followed by Regions 3, 5, and 4 at 171 projects (or about 14 percent), 140 projects (or about 12 percent), and 128 projects (or about 11 percent), respectively. New Jersey, Pennsylvania, and New York completed the most remedial action projects—over 100 projects in each state—during the 15-year time frame.

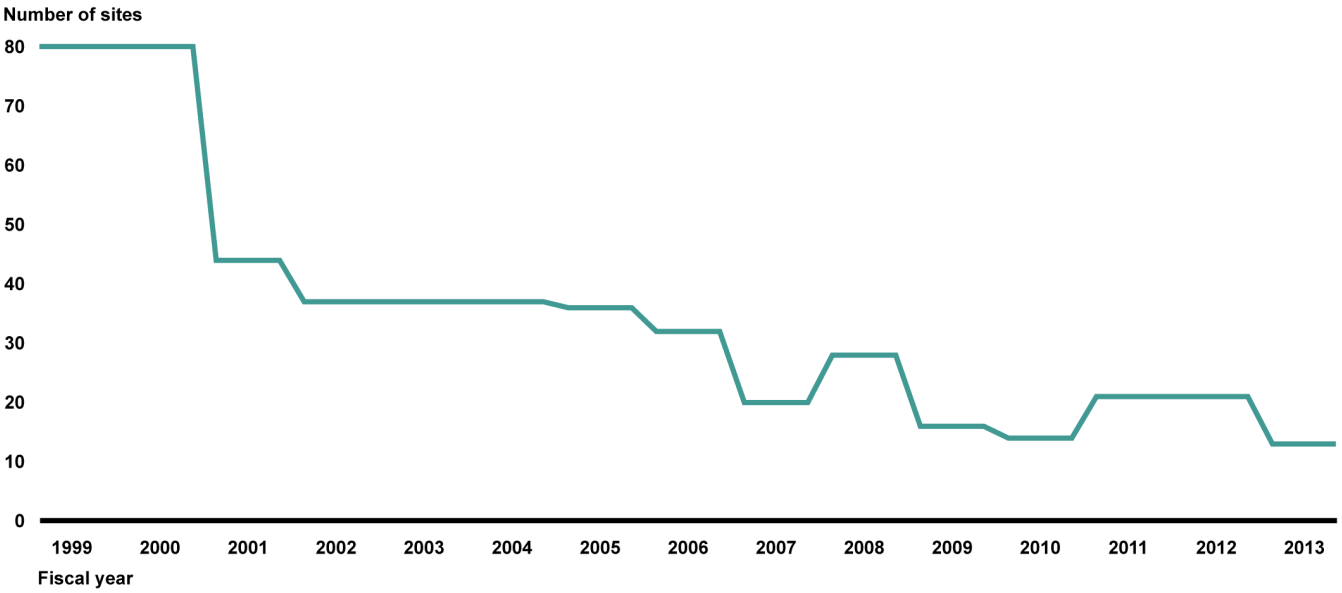
In addition to fewer remedial action project completions, our analysis of EPA data also shows that the length of time to complete these projects increased slightly from one year to the next. From fiscal years 1999 through 2013, the average median length of time to complete these projects was about 3 years. In fiscal year 1999, the median amount of time to complete projects was about 2.6 years. Over time, the median amount of time gradually increased to almost 4 years in fiscal year 2013. Regions 6 and 3 had the lowest average median times of about 2 years to complete projects. In contrast, Region 10 had the highest average median time of over 5 years to complete projects. According to EPA officials, remedial action project completions are taking longer to complete because they are getting more complex. In addition, these officials stated that, as noted above, shortages in EPA regional staffing

levels and a decline in state environmental agency personnel are causing delays throughout the Superfund program from site assessments to completion of remedial action projects.

Similar to the decline in the number of remedial action project completions, from fiscal years 1999 through 2013, the number of construction completions at nonfederal NPL sites generally declined by about 84 percent, according to our analysis of EPA data. Specifically, fiscal years 1999 and 2000 had the largest number of construction completions at nonfederal NPL sites—80 sites each fiscal year. In contrast, in fiscal year 2013, the number of construction completions at nonfederal NPL sites declined to 13. During the 15-year time frame, 516 nonfederal NPL sites reached construction completion.[39] According to EPA officials, the decline in the number of construction completions at nonfederal NPL sites is because, as noted above, the sites are getting more complex and difficult to clean up, funds available to perform the cleanup are declining, the number of sites available for construction completion have declined from fiscal years 1999 through 2013, and regional staff is declining. In addition, adverse weather conditions, such as excessive rain, and the discovery of new contaminants can delay progress at some sites, according to these same officials. Figure 13 shows the trend in the number of construction completions at nonfederal NPL sites from fiscal years 1999 through 2013. In fiscal year 1999, the median number of years to reach construction completion was about 12 years, and in fiscal year 2013, it was about 16 years. During the 15-year period, Region 2 had the largest number of construction completions at nonfederal NPL sites, 104, followed by Region 5 with 95 sites.

[39]The decline in the number of construction completions at nonfederal NPL sites continued into fiscal year 2014, with 7, according to EPA officials.

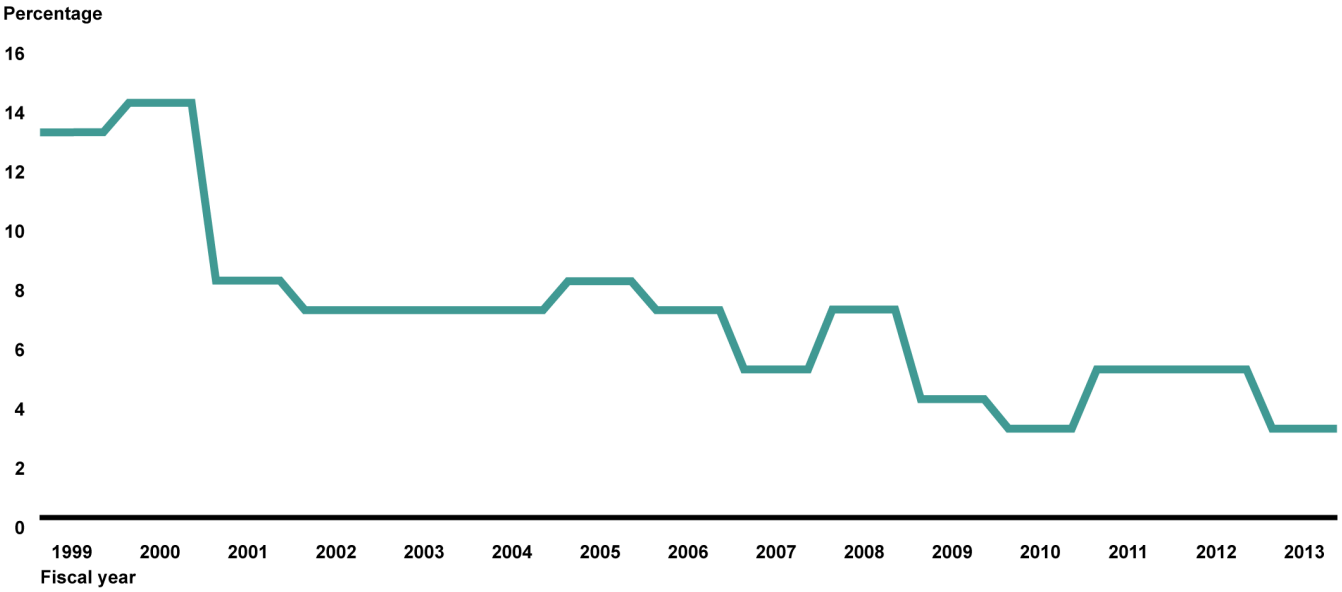
Figure 13: Number of Construction Completions at Nonfederal National Priorities List Sites, Fiscal Years 1999 through 2013



Source: GAO analysis of EPA data. | GAO-15-812

According to EPA officials, one of the reasons for the decrease in the number of construction completions was the decline from fiscal years 1999 through 2013 in the total number of nonfederal sites that were available for construction completion. Our analysis of EPA data indicates that, while the number of sites available for construction completion has declined, so too has the number of construction completions compared to those sites available for construction completion as shown in figure 14. For example, in fiscal year 1999, there were 80 construction completions at nonfederal NPL sites out of 630 available for construction completion (or about 13 percent). However, in fiscal year 2013, there were 13 construction completions out of 428 (or about 3 percent).

Figure 14: Percentage of Construction Completions at Nonfederal National Priorities List Sites Out of the Total Number of Nonfederal National Priorities List Sites That Were Available for Construction Completion, Fiscal Years 1999 through 2013



Source: GAO analysis of EPA data. | GAO-15-812

Agency Comments

We requested comments on a draft of this product from EPA. EPA did not provide written comments. In an e-mail received on September 11, 2015, the Audit Liaison stated that EPA agreed with our report's findings and provided technical comments. We incorporated these technical comments, as appropriate.

As agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days from the report date. At that time, we will send copies to the appropriate congressional committees, the Administrator of EPA, and other interested parties. In addition, the report will be available at no charge on the GAO website at http://www.gao.gov.

If you or your staff members have any questions about this report, please contact me at (202) 512-3841 or gomezj@gao.gov. Contact points for our

Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made contributions to this report are listed in appendix IV.

J. Alfredo Gómez
Director, Natural Resources and Environment

Appendix I: Objectives, Scope, and Methodology

This appendix provides information on the objectives, scope of work, and the methodology used to determine, for fiscal years 1999 through 2013, the trends in (1) the annual federal appropriations to the Superfund program and Environmental Protection Agency (EPA) expenditures for remedial cleanup activities at nonfederal sites on the National Priorities List (NPL) and (2) the number of nonfederal sites on the NPL, the number of remedial action project completions, and the number of construction completions at nonfederal NPL sites.

To determine the trend in the annual federal appropriations to the Superfund program and EPA expenditures for remedial cleanup activities at nonfederal sites on the NPL from fiscal years 1999 through 2013, we reviewed and analyzed Superfund program funding data. In addition, we analyzed expenditure data from EPA's Integrated Financial Management System for fiscal years 1999 through 2003, and from its replacement financial system Compass, for fiscal years 2004 through 2013.[1] These data included Superfund agency expenditures from annual appropriations, including American Recovery and Reinvestment Act of 2009 funds, but they excluded expenditures of Homeland Security Supplemental appropriation, special accounts, and state cost share funds, as well as funds received from other agencies (i.e., funds-in interagency agreements and intergovernmental personnel agreements) and expenditures in support of Brownfields program activities. EPA provided agencywide data for site and nonsite expenditures segregated by expenditure category and source of funding. EPA provided the financial data in nominal values, which we converted to constant 2013 dollars. We analyzed these data to identify the trend in total expenditures of annual federal appropriations for, among other things, the remedial action cleanup process and the median expenditure by site and type of site (e.g., mining and manufacturing). The scope of our analyses for both objectives varied from year-to-year because we examined only nonfederal sites that were "active," i.e., on the NPL at any given point during the fiscal year. We also obtained and analyzed information on the nonfederal NPL sites that, according to EPA, had remedial action projects that were ready to begin but were not funded because of resource constraints.

[1]At the time of our review, fiscal year 2013 was the most recent year with complete and stable program data, according to EPA officials. We used expenditure data that were comparable with the same timeframe for which program data were available.

To determine the trend in the number of nonfederal sites on the NPL, the number of remedial action project completions, and the number of construction completions at nonfederal NPL sites from fiscal years 1999 through 2013, we analyzed EPA's program data from fiscal years 1999 through 2013. At the time of our analysis, EPA officials stated that 2013 would be the most recent year with complete and stable data, and these data were available in the agency's Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database. As of June 2015, EPA officials stated that the agency was not in a position to release data for fiscal year 2014 that would be comparable to the fiscal years 1999 through 2013 data until fiscal year 2016. However, in July 2015, EPA officials were able to provide fiscal year 2014 data on the number of new nonfederal sites added to the NPL, nonfederal sites deleted from the NPL, remedial action project completions, and construction completions because the agency gathers these data through manual data requests for which each EPA regional office certifies the data that it provides to EPA Headquarters. We obtained data from EPA for all of the nonfederal sites that were or had been on the NPL, as of the end of fiscal year 2013.[2] One site, the Ringwood Mines/Landfill site, had two final dates—the date a site is formally added to the NPL via a *Federal Register* notice—because the site was restored to the NPL after it had been deleted. We used the latest final date that was provided by EPA in our analysis. The Ringwood Mine/Landfill site was included in the results of our analysis of new nonfederal sites added to the NPL and number of nonfederal sites on the NPL, but we excluded it from our analysis of the median amount of time between when a site is proposed and when it is added to the NPL. Our analysis included nonfederal sites that were on the NPL, including sites that had been deleted, through fiscal year 2013. We analyzed site-level data for nonfederal NPL sites to summarize trends in the number of new nonfederal sites added to the NPL and the number of nonfederal sites that reached construction completion and deletion. We also analyzed the number of remedial action project completions in each of the 15 years in our analysis. Our analysis did not include (1) four sites that started off on the NPL but were deferred to another authority and deleted from the NPL and (2) five sites that were proposed but never became final on the NPL.

[2]These data excluded any sites that were proposed, removed, or withdrawn from the NPL.

To address both objectives, we reviewed agency documents including, for example, the *Superfund Program Implementation Manual*, and we interviewed EPA officials in headquarters and Region 2 to discuss the trends we identified in our analyses and potential reasons for these trends. We spoke with EPA staff in Region 2 because Region 2 sites received the most site-specific cleanup funds for remedial cleanup activities, Region 2 had the state—New York—with the largest population living within a 3-mile buffer of its nonfederal NPL sites, as of fiscal year 2013, and included the state—New Jersey—that had the largest number of nonfederal NPL sites in fiscal year 2013. We also interviewed knowledgeable stakeholders from the Association of State and Territorial Solid Waste Management Officials and the National Academy of Sciences. Additionally, we reviewed prior GAO reports on EPA's Superfund program. A list of related GAO products is included at the end of this report.

To assess the reliability of the data from the EPA databases used in this report, we reviewed relevant documents, such as the 2013 CERCLIS data entry control plan guidance and regions' CERCLIS data entry control plans; examined the data to identify obvious errors or inconsistencies; compared the data that we received to publicly available data; and interviewed EPA officials. We determined the data to be sufficiently reliable for the purposes of this report.

In addition, to determine the estimated population that lived within 3 miles of nonfederal sites on the NPL, we generally relied on EPA's Office of Solid Waste and Emergency Response methodology and analyzed data from (1) CERCLIS on the 1,158 nonfederal sites on the NPL in the 50 states and U.S. territories (Guam, Puerto Rico, and the Virgin Islands), as of the end of fiscal year 2013, and (2) Census from the 2009 through

2013 American Community Survey 5-year estimate[3] for the 1,141 nonfederal sites in the 50 states and the District of Columbia. A circular site boundary, equal to the site acreage, was modeled around the latitude/longitude for each site and then a 3-mile buffer ring was placed around the site boundary. For the 138 sites in 34 states that EPA did not have acreage information, a circular site boundary was modeled around the latitude/longitude point, and then a 3-mile buffer ring was placed around the point. American Community Survey data was then collected for each block group with a centroid that fell within the 3-mile area and rounded. Percentage numbers were rounded to the nearest whole percent.

We conducted this performance audit from October 2014 to September 2015 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings based on our audit objectives.

[3]The American Community Survey is an ongoing survey on topics such as social, economic, demographic, and housing characteristics of the U.S. population. The 5-year estimates from the American Community Survey are "period" estimates that represent data collected over a period of time. The primary advantage of using multiyear estimates is the increased statistical reliability of the data for less populated areas and small population subgroups. The most recent 5-year estimate covers 2009 through 2013. Because the American Community Survey data are based on probability samples, estimates are formed using the appropriate estimation weights provided with each survey's data. Because each of these samples follows a probability procedure based on random selection, they represent only one of a large number of samples that could have been drawn. Since each sample could have provided different estimates, we express our confidence in the precision of our particular sample's results as a percentage of the estimate, the sampling error divided by the estimate. Unless otherwise noted, all estimates have errors of 5 percent or less.

Appendix II: Estimated Population, by State, That Lived within 3 Miles of a Nonfederal Site on the National Priorities List as of Fiscal Year 2013

State	Number of nonfederal NPL sites	Total estimated state population (thousands)	Estimated state population that lived within 3 miles of a nonfederal NPL site (thousands)	Percentage of total estimated state population that lived within 3 miles of a nonfederal NPL site	Estimated state population under the age of 18 that lived within 3 miles of a nonfederal NPL site (thousands)	Estimated state population 65 years and older that lived within 3 miles of a nonfederal NPL site (thousands)
New York	83	19,487	5,579	29	1,162	736
California	74	37,659	5,309	14	1,299	604
New Jersey	107	8,832	4,454	50	1,037	568
Florida	49	19,091	2,686	14	579	396
Pennsylvania	89	12,731	2,529	20	557	369
Washington	36	6,820	1,755	26	399	205
Texas	46	25,639	1,712	7	457	155
Michigan	65	9,886	1,330	14	314	167
Minnesota	23	5,348	1,169	22	248	136
Massachusetts	25	6,605	999	15	224	140
Indiana	34	6,515	993	15	231	126
Ohio	34	11,550	850	7	200	123
Illinois	40	12,849	741	6	197	90
Wisconsin	38	5,707	707	12	165	99
Missouri	30	6,007	651	11	157	87
Colorado	15	5,119	621	12	143	58
North Carolina	35	9,651	620	6	144	73
Utah	11	2,814	546	19	142	56
Virginia	20	8,101	477	6	116	54
Connecticut	13	3,584	463	13	105	66
Maryland	10	5,834	398	7	91	48
Iowa	10	3,063	363	12	82	50
Arizona	7	6,480	361	6	91	35
Nebraska	12	1,842	346	19	90	39
Delaware	12	908	323	36	77	39
South Carolina	24	4,680	320	7	73	41
Oregon	12	3,869	302	8	72	35
Rhode Island	10	1,052	280	27	60	40
New Hampshire	19	1,319	253	19	58	32
New Mexico	13	2,070	251	12	58	34
Georgia	14	9,810	232	2	60	30

State	Number of nonfederal NPL sites	Total estimated state population (thousands)	Estimated state population that lived within 3 miles of a nonfederal NPL site (thousands)	Percentage of total estimated state population that lived within 3 miles of a nonfederal NPL site	Estimated state population under the age of 18 that lived within 3 miles of a nonfederal NPL site (thousands)	Estimated state population 65 years and older that lived within 3 miles of a nonfederal NPL site (thousands)
Montana	16	999	206	21	43	29
Louisiana	8	4,568	200	4	47	25
Kansas	11	2,868	194	7	54	20
Tennessee	13	6,402	176	3	41	22
Mississippi	8	2,977	129	4	33	17
West Virginia	7	1,854	119	6	21	17
Vermont	11	626	103	16	18	14
Arkansas	9	2,933	80	3	21	11
Idaho	4	1,583	79	5	21	10
Kentucky	13	4,361	74	2	17	12
Hawaii	1	1,376	71	5	19	7
Alabama	11	4,799	63	1	16	8
Maine	10	1,328	52	4	11	7
Oklahoma	5	3,786	46	1	12	7
Nevada	1	2,730	22	1	5	3
Wyoming	1	570	15	3	4	2
South Dakota	1	825	1	0	0	0
Alaska	1	720	.	.	.	.
District of Columbia	0	619	.	.	.	.
North Dakota	0	690	.	.	.	.
Guam	1	Not available				
Puerto Rico	15	Not available	.	.	.	.
Virgin Islands	1	Not available	.	.	.	.

Source: GAO analysis of EPA data and U.S. Census data. | GAO-15-812

Note: The methodology for GAO's analysis is generally based on EPA's Office of Solid Waste and Emergency Response's approach. Data analyzed include (1) 1,158 nonfederal sites on the National Priorities List (NPL), in the 50 states and U.S. territories (Guam, Puerto Rico, and the Virgin Islands), as of the end of fiscal year 2013 and (2) Census data from the 2009-2013 American Community Survey 5-year estimate for the 1,141 nonfederal NPL sites in the 50 states and the District of Columbia. A circular site boundary, equal to the site acreage, was modeled around the latitude/longitude for each site and then a 3-mile buffer ring was placed around the site boundary. For the 138 sites in 34 states that EPA did not have acreage information, a circular site boundary was modeled around the latitude/longitude point, and then a 3-mile buffer ring was placed around the point. American Community Survey data was then collected for each block group with a centroid that fell within the 3-mile area and rounded to the nearest 1,000. Percentage numbers were rounded to the nearest whole percent.

Appendix III: Nonfederal Sites on the National Priorities List, Fiscal Years 1999 through 2013

Appendix III provides information from fiscal years 1999 through 2013 on the number of nonfederal sites on the National Priorities List (NPL) at the beginning and end of the fiscal year after accounting for new sites added to and existing sites deleted from the NPL during the fiscal year (table 2); and the number of nonfederal sites on the NPL by site type for each fiscal year (table 3).

Table 2: Nonfederal Sites on the National Priorities List, Fiscal Years 1999 through 2013

Fiscal year	Number of nonfederal sites on the NPL at the start of the fiscal year	New nonfederal sites added to the NPL	Nonfederal sites deleted from the NPL	Number of nonfederal sites on the NPL at the end of the fiscal year
1999	1,039	37	22	1,054
2000	1,054	36	18	1,072
2001	1,072	28	30	1,070
2002	1,070	18	14	1,074
2003	1,074	20	9	1,085
2004	1,085	11	16	1,080
2005	1,080	17	17	1,080
2006	1,080	11	7	1,084[a]
2007	1,084	12	6	1,090[a]
2008	1,090	18	9	1,099[a]
2009	1,099	19	8	1,110[a]
2010	1,110	20	7	1,123[a]
2011	1,123	25	7	1,141[a]
2012	1,141	24	9	1,156[a]
2013	1,156	8	6	1,158[a]

Source: GAO analysis of EPA data. | GAO-15-812.

[a]The total includes one site—the Ringwood Mines/Landfill—that was deleted from the National Priorities List (NPL) in 1994 and restored to the NPL in 2006.

Table 3: Number of Nonfederal Sites on the National Priorities List, by Site Type, Fiscal Years 1999 through 2013

	Site type						
Fiscal year	Manufacturing	Mining	"Multiple"	"Other"	Recycling	Waste management	Total
1999	390	10	31	121	93	409	**1,054**
2000	399	13	31	127	95	407	**1,072**
2001	401	18	31	132	93	395	**1,070**
2002	402	20	32	136	94	390	**1,074**
2003	405	23	31	141	96	389	**1,085**
2004	405	25	31	145	96	378	**1,080**
2005	408	27	31	149	94	371	**1,080**
2006	411	28	31	152	92	370	**1,084**[a]
2007	417	29	30	153	93	368	**1,090**[a]
2008	419	33	30	159	92	366	**1,099**[a]
2009	423	37	31	164	92	363	**1,110**[a]
2010	426	39	31	173	92	362	**1,123**[a]
2011	435	43	31	180	92	360	**1,141**[a]
2012	443	44	31	186	94	358	**1,156**[a]
2013	448	44	30	188	94	354	**1,158**[a]

Source: GAO analysis of EPA data. | GAO-15-812.

Note: The "multiple" site type includes sites with operations that fall into more than one of EPA's categories. The "other" site type includes sites that often have contaminated sediments or groundwater plumes with no identifiable source.

[a]The total includes one site—the Ringwood Mines/Landfill—that was deleted from the National Priorities List (NPL) in 1994 and restored to the NPL in 2006.

Appendix IV: GAO Contact and Staff Acknowledgments

GAO Contact

J. Alfredo Gómez, (202) 512-3841 or gomezj@gao.gov

Staff Acknowledgments

In addition to the individual named above, Vincent Price and Diane Raynes (Assistant Directors), Antoinette Capaccio, Katherine Carter, John Delicath, Michele Fejfar, Diana C. Goody, Catherine Hurley, John Mingus, David Moreno, and Dan Royer made key contributions to this report.

Related GAO Products

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