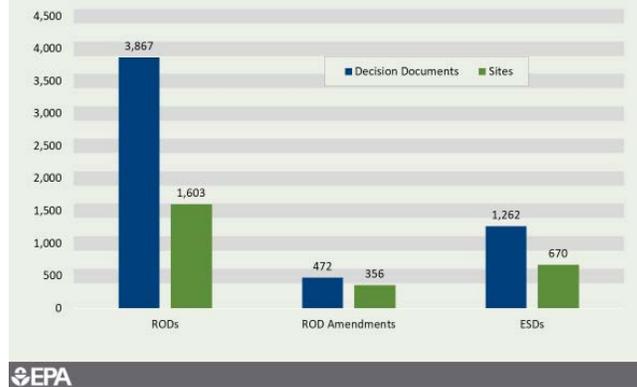


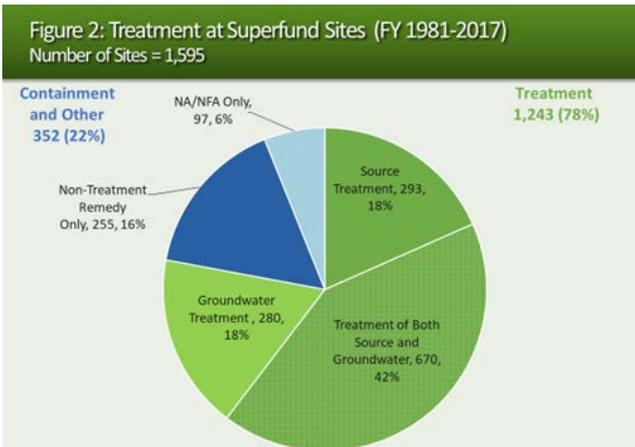
Superfund Remedy Report (16th Edition) Fact Sheet

The U.S. Environmental Protection Agency (EPA) has an important role in documenting and disseminating information on treatment technologies that advance its mission to protect human health and the environment at contaminated sites. One means by which EPA fulfills this role is through its publication, since 1991, of a series of reports providing information and analyses on Superfund remedies. The *Superfund Remedy Report (SRR) 16th Edition* (EPA 542-R-20-001) is the most recent version of this report in which EPA provides information and analyses on remedies, including treatment, selected to address contamination at Superfund sites. The SRR's remedy and site information informs stakeholders in communities affected by Superfund sites about the Superfund program's remedy decisions at sites located throughout the country. The report also helps federal, state, and tribal remediation professionals select future remedies. Analyzing remedy decision trends helps identify future demand for remedial technologies; understanding such trends helps technology developers and consulting and engineering firms evaluate markets for site characterization and treatment technologies.

Figure 1: Number of Sites and Decision Documents by Type (FY 1981-2017)



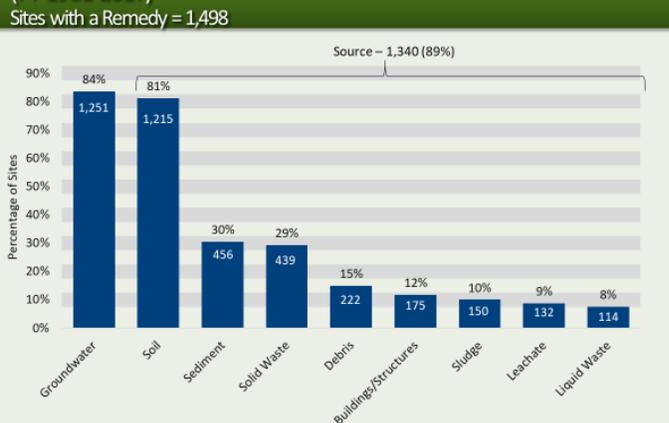
Report Scope: Through fiscal year (FY) 2017, EPA has signed 5,601 decision documents, including 3,867 records of decision (RODs), 472 ROD amendments, and 1,262 explanations of significant differences (ESDs) for 1,603 National Priorities List and Superfund Alternative approach sites (Figure 1)¹. The *SRR 16th Edition* updates historical remedy selection trends and includes detailed analysis of remedies selected in FYs 2015, 2016, and 2017.



Most of these sites have more than one contaminated medium, most frequently groundwater and soil (Figure 3). Site contaminants of concern (COCs) are organized in three major groups: volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs) and metals. Most sites have different types of COCs, with

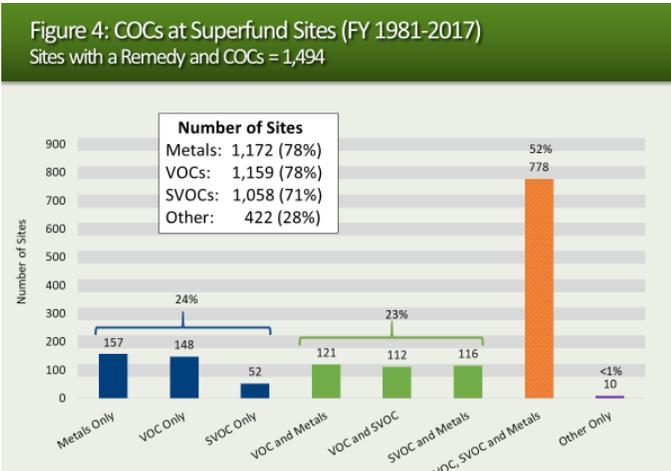
Overview of Remedies and Contaminants: For most Superfund sites, treatment has been selected, often in combination with other remedies (Figure 2). Overall, these remedies include a mix of approaches, primarily treatment, on-site containment, off-site disposal, monitored natural attenuation (MNA), and institutional controls (ICs). At complex sites, different remedies often target different site areas or media.

Figure 3: Media Addressed at Superfund Sites with Remedies (FY 1981-2017)



¹ Decision documents for FYs 18 and 19 currently being analyzed.

over 50% of site cleanups addressing all three major groups and 25% addressing two (Figure 4).

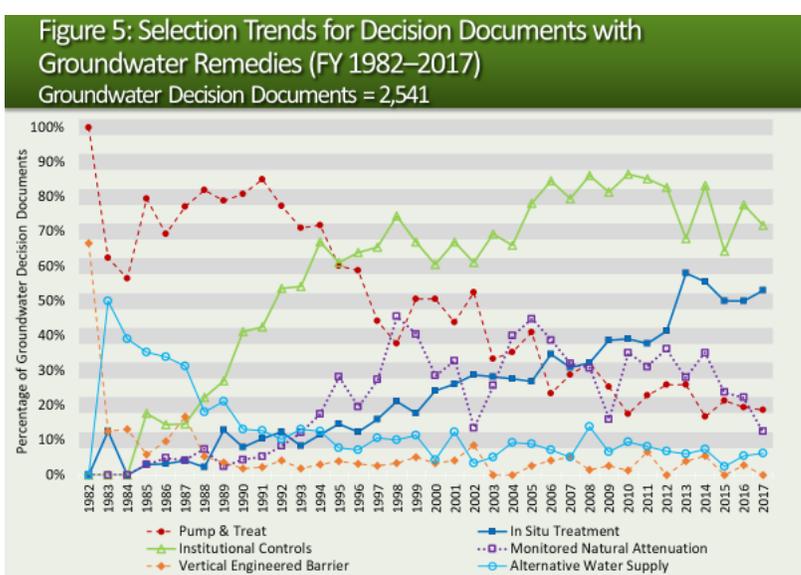


The report focuses on remedies selected in 272 recent decision documents signed at 189 sites in FYs 2015 to 2017. Of these 272 documents, 64% include a remedy for source materials (such as, soil and sediment) and 40% for groundwater. Remedies were also selected for soil gas and air related to vapor intrusion.

Source Remedies: For FYs 2015 to 2017, more than 40% of decision documents with source remedies include treatment. One-fifth of all source decision documents include in situ treatment with solidification/stabilization, soil vapor extraction, and in situ thermal treatment most frequently selected. The most common ex situ treatment method is physical separation, primarily to reduce waste volume (e.g., dewatering sediments). Metals, polycyclic aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs) are the COCs most commonly addressed.

Of the 175 recent source documents, over 20% include a remedy for sediments. Most sediment decision documents (88%) include dredging, excavation, off-site disposal, or on-site containment. Some treatment was also selected; for example, dewatering, amendments, and in situ amended caps. Other sediment remedy examples include wetlands restoration, EMNR, MNR, and ICs. Metals, PCBs, and PAHs are the COCs most frequently addressed.

Groundwater Remedies: For the 110 groundwater decision documents signed in FYs 2015 to 2017, remedies are primarily a mix of in situ treatment, pump and treat, and MNA; most also include ICs. In situ groundwater treatment is selected in over half of these documents (Figure 5). Of these, bioremediation and chemical treatment remain the most frequently selected. Selection of P&T remains low, at an average of 20%. Addressed in 74% of recent groundwater decision documents, halogenated VOCs (primarily chlorinated VOCs) are the most common type of groundwater COC.



This SRR edition includes a new section summarizing groundwater technical impracticability (TI) waivers. From FYs 1988 to 2017, 105 decision documents have included TI waivers for groundwater at 96 sites. EPA also discusses optimization reviews and gives examples of optimization efforts that have informed remedy selection in recent decision documents.

Vapor Intrusion Remedies: Forty FY 2015 to 2017 decision documents selected remedies that target air or soil gas associated with vapor intrusion. Vapor intrusion mitigation was selected for existing structures in eight recent decision documents, and 40 documents entail selection of ICs for either existing structures or future construction. For sites with vapor intrusion remedies, source or groundwater remedies may have been selected to address subsurface contamination, or such remedies may be planned.

Conclusions: Superfund site cleanup remedies continue to show a robust use of multiple treatment, containment, and disposal remedies to address complex contamination. Remedy selection trends also indicate program needs for expanded technical information and support related to specific technologies or site cleanup challenges. For example, continued growth in the use of in situ groundwater technologies suggests an ongoing need for additional knowledge and support associated with their selection, design, and implementation.