Chapter 9
Federal Efforts To Correct Groundwater Contamination

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CHAPTER OVERVIEW

Based on a review of statutory and regulatory requirements, this chapter discusses the corrective action programs of the Federal statutes and programs discussed in chapter 3. Information is presented on the sources of groundwater contamination requiring corrective action and the cleanup standards specified under corrective action programs. An overview of Federal experience with corrective action is also provided. Specific corrective act ions undertaken by either Federal agencies or the responsible parties in response to regulatory or court-imposed requirements were not reviewed for this study.

The major conclusions of this chapter are:

- few Federal statutes provide for corrective action,
- cleanup standards are generally not specified in regulations, and
- Federal agency experience with such actions is limited.

STATUTORY AND REGULATORY PROVISIONS FOR SOURCES OF CONTAMINATION

Federal Government involvement in corrective action efforts for contamination problems can be characterized in one of three general ways:

1. Federal agencies have developed *regulatory requirements (e. g.,* permit conditions) for corrective actions for specific sources of contamination (e. g., under the Resource Conservation and Recovery Act (RCRA)).
2. Federal agencies are mandated by statute to *undertake and finance* corrective actions related to specific sources of contamination (e. g., under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA).
3. Explicit corrective action provisions are absent but responsible parties may be required to undertake corrective actions as a result of actions to enforce compliance with regulatory requirements (e. g., drinking water regulations and endangerment provisions).[1]

Details of corrective action provisions for the OTA source categories discussed in chapter 2 are prcsented in appendix G; the appendix contains information on the type of corrective action efforts required under each statute (e. g., permit conditions or federally funded cleanup activities) and on specified cleanup standards.

Table 36 summarizes the corrective action provisions of the Federal statutes examined in this

[1] For example, under he rgrouncl Injection (;ont rol Prog-ram established by the %tfc Drinking Water Act, the Env i mn mcnt al Protu t ion Agency may take cnforccrncnt action if there is a violation of" drinking water regulations or if the health of persons is otherwise adversely affcctcd. In add it ion, several statutes also contain prfnisions that allow the Administrator of EPA to bring lawsuits if a(t ions prt\-cnt or may present an "imminent and substant lal cndangcrmcnt to human health or the cn~ironrncnt (e. g., Section 7003 of RCRA, Section 1431 of SDW'A, Sections 504 and 311 (c) of (: WA, an(l Scrtion 106 of CEIR(; l. A).

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Table 36.—Summary of Federal Corrective Action Provisions for Sources of Groundwater Contamination

Statute	Provisions	Cleanup standards specified in regulations
Atomic Energy Act[a]	NRC requires that licenses for low-level radioactive waste sites contain plans for taking corrective measures if migration of radionuclides exceeds specified levels.	None
	Corrective action programs have been established by DOE for inactive and active radioactive disposal and storage facilities. Corrective actions with respect to groundwater contamination have not been undertaken.	None
Clean Water Act[a,b]	Federal funds are available for modification or replacement, but not necessarily cleanup, of projects involving the application of sewage sludge or wastewater under the Innovative and Alternative Technology Program (Section 201) that have not met design performance standards.	None
Coastal Zone Management Act	The statute does not authorize development of regulations for sources. Thus, if any corrective actions were to be required with respect to groundwater (e.g., from salt-water intrusion), such actions would be taken under a State program.	None
Comprehensive Environmental Response, Compensation, and Liability Act[a]	Federally funded corrective actions are authorized for sources that release, or threaten to release, specified hazardous substances, pollutants, or contaminants.[c]	None
Federal Insecticide, Fungicide, and Rodenticide Act	No explicit corrective action requirements are established for pesticide users or manufacturers.	None
Federal Land Policy and Management Act (and associated mining laws)	No explicit corrective action requirements are specified for mining operations on Federal lands.	None
Hazardous Liquid Pipeline Safety Act	Although the statute authorizes development of regulations for certain pipelines for public safety purposes, the regulatory requirements focus on prevention generally and do not provide for corrective actions.	None
Hazardous Materials Transportation Act	Although the statute authorizes development of regulations for transportation for public safety purposes, the regulatory requirements focus on prevention generally and do not provide for corrective actions.	None
Reclamation Act[a]	Corrective actions can be undertaken by the Federal Government as part of water development (including groundwater) projects.	None
Resource Conservation and Recovery Act	Subtitle C regulations require corrective actions for hazardous waste landfills, surface impoundments, waste piles, and land treatment areas. Corrective actions are not required beyond the downgradient facility property boundary.	Background levels of hazardous substances (specified on a case-by-case basis), Maximum Contaminant Levels for 14 contaminants established under the Safe Drinking Water Act (if higher than background), or alternative concentration limits (specified on a case-by-case basis).

Table 36.—Summary of Federal Corrective Action Provisions for Sources of Groundwater Contamination—continued

Statute	Provisions	Cleanup Standards specified in regulations
Safe Drinking Water Act	No explicit corrective action requirements are specified for underground injection wells.	None
Surface Mining Control and Reclamation Act[a]	No explicit corrective action requirements are specified for mining operations on Federal lands.	None
	Federally funded remedial actions are authorized by the Rural Abandoned Mine Program.[d] State grants are also provided for abandoned mine programs; States establish reclamation priorities.	None
Toxic Substances Control Act	While the statute specifically addresses PCB disposal sites, no explicit corrective action requirements are established.	None
Uranium Mill Tailings Radiation Control Act[a]	Federally funded corrective actions are authorized for specified inactive sites. The statute explicitly lists those sites for which corrective actions are required.	None for inactive sites.
	Active sites are subject to the same requirements as surface impoundments under RCRA (except that corrective actions must be implemented within 18 months).	Standards for active sites are the same as RCRA (Subtitle C) except that levels for certain radioactive substances are also established.

[a]The statute authorizes federally funded remedial aCtiOn programs
[b]Federally funded corrective actions for oil spills or leaks are authorized if there is a discharge into *navigable waters* (Section 311) There are no cleanup standards, however, specified In the regulations This provision is relevant to groundwater to the extent that groundwater and surface water may be Interconnected.
[c]A "release" includes any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing. Sources explicitly *excluded* by law Include radioactive sites covered by other laws and the normal application of fertilizers (See Section 101(22) of CERCLA.)
[d]Ths programis being phased out Although it provided for groundwater restoration, projects undertaken by the Soil Conservation Service have not directly addressed groundwater

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study.[2] The following observations are made about these provisions:

- Explicit corrective action provisions (e. g., groundwater protection standards) are not specified for all sources of contamination. No explicit corrective action requirements for groundwater are established for sources in OTA Categoric:; III. IV, V, and VI (refer to ch. 2, table 5).
- Explicit regulatory requirements are specified for some sources in Categories I and II:
  - —*Category I:* Land application of hazardous wastes (under RCRA).
  - —*Category II:* Hazardous waste landfills, surface impoundments, waste piles, and land treatment areas (under RCRA); radioactive disposal sites (under the Atomic Energy Act); and uranium mill tailings sites (active sites under UMTRCA).
- Only two of the programs containing corrective action regulatory provisions establish explicit cleanup standards: RCRA and UMTRCA. The standards are based on the specified groundwater protection standard, which includes the substances to be monitored, concentration limits, the point of compliance, and the compliance period (see app. E); corrective actions are not required beyond the downgradient facility property boundary (see app. G).
- Six Federal statutes authorize federally funded remedial action programs but none of the programs specifies cleanup standards. Rather, the selection of a remedy under these programs (e. g., CERCLA and inactive sites under UMTRCA) is based on protection of health and the environment, costs, technical feasibility, the uses of an aquifer, and availability of alternative water supplies.

[2]Neither the National Environmental Policy Act nor the Water Research and Development Act are concerned with corrective action for specific sources; they are thus omitted from table 36.

Photo credit: Office of Technology Assessment

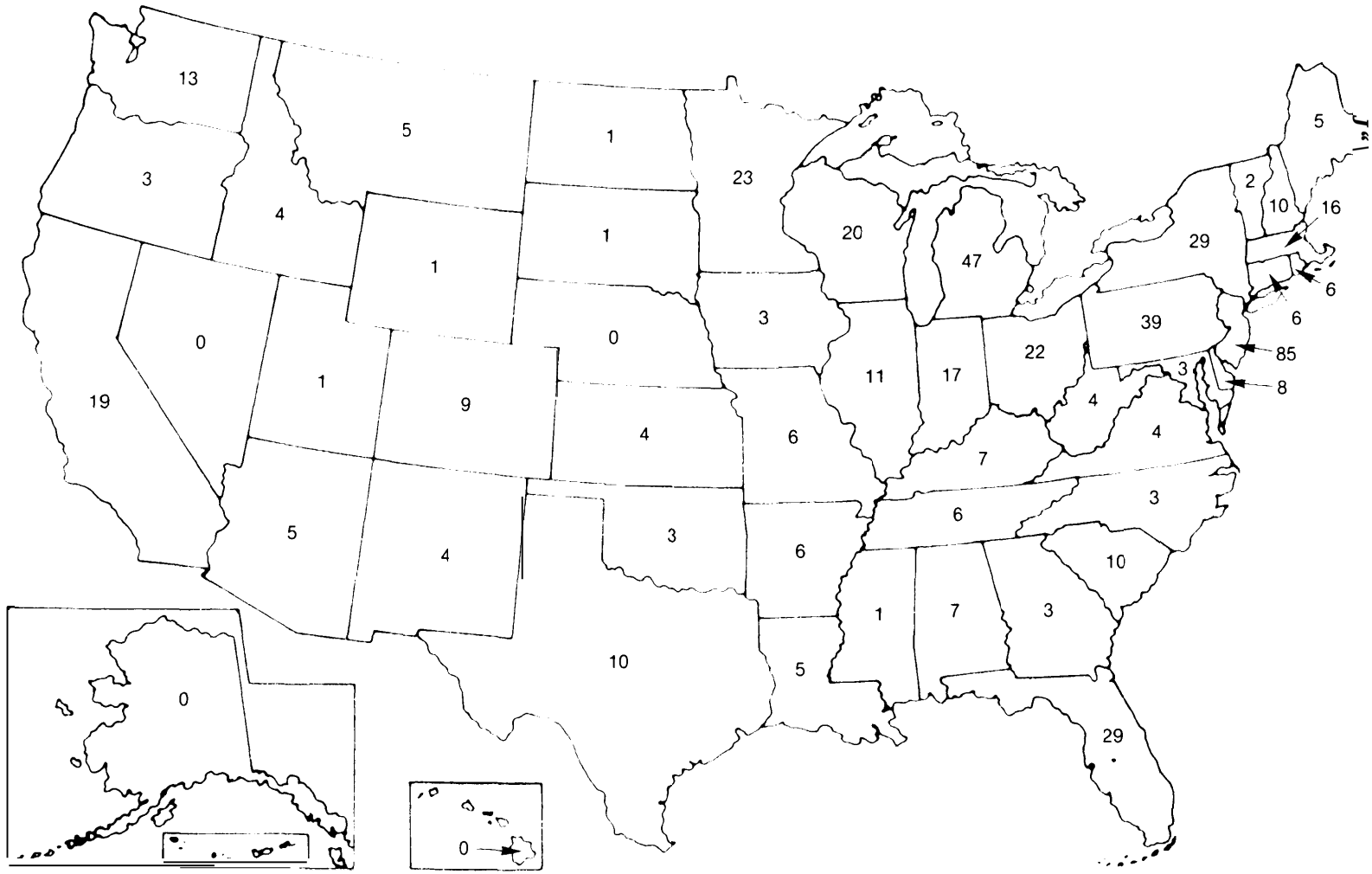
Corrective action team wears protective clothing as they drill a recovery well.

FEDERAL GOVERNMENT EXPERIENCE

Federal agency experience with respect to the site-specific design and implementation of corrective actions is limited relative to the total number of individual sites sources identified as requiring remedial action. In addition, little of the experience relates specifically to the cleanup of contaminated groundwater. Examples of federally funded corrective action programs follow:

- Remedial actions under CERCLA can be undertaken only at sites on the National Priorities List (NPL) (see app. G). As of Sep-

National Priorities List Update #1



Credit: EPA, 1984b

The National Priorities List identifies target sites for remedial action under the Comprehensive Environmental Response, Compensation, and Liability Act. This map shows the number of sites in each State as of September 1984. (Additional sites are located in American Samoa (1), Marianas (1), Guam (1), Puerto Rico (8), and the Pacific Trust Territories (1).)

tember 1984, 538 uncontrolled hazardous waste sites were listed for priority action; EPA projects that the NPL could eventually contain between 1,400 and 2,200 sites (EPA, 1984a, 1984b).[3] Groundwater contamination has been detected at 410 of the listed sites.[4] As of July 1984, remedial actions had been completed at on; y six sites on the NPL (U.S. House of Representatives, 1984); and of these six, none involved the cleanup of contaminated groundwater. Engineering studies are underway or have been completed at 258 NPL sites, and construction has begun at more than 60 sites using Federal funds (EPA, 1984a).

- Under its Installation Restoration Program (IRP),[5] the Department of Defense has inventoried 911 installations and identified 200 that may require remedial action. As of August 1983, site investigations to confirm contamination problems had been completed at 32 sites, remedial actions at two sites had been completed, and an additional 16 actions were under way. Data on the actual number of sites contaminating groundwater were not available (Daley, 1983).
- UMTRCA led to the designation of 25 inactive uranium mill tailings sites in need of remedial action. Preliminary engineering studies indicate that groundwater contamination either has occurred or has the potential to occur at all of the sites. To date, the Department of Energy has not selected remedial actions for any of the designated UMTRCA sites, although options have been formally proposed for two sites (Baublitz, 1983).

[3] EPA was reported to have added 244 site s to the NPL on Oct 3, 1084 (*Washington, Post*, 1984). CERCLA requires that EPA update t he N PL at least annually (Section 105 (B) of t he National Contingency Plan).

[4] This figure is based on the 546 sites original), placed on or proposed for the NPL (EPA, 1 9 83a, 1983b). A detailed assessment by an EPA consultant of data collected for 86 (of the 546) sites indicates that on-site groundwater conaminat ion has been detected at over 60 percent of them; off-site cent uminat ion has been detected at over 27 percent of the sites (Ikx)z.-Allcn & Hamilton, Inc , 1983).

[5] The IR P is a DOD program similar to CERCLA for hazardous waste sites on DOD property

CHAPTER 9 REFERENCES

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