

3.1 INTRODUCTION

As discussed in Section 1.0, one of the objectives of the Missouri Risk-Based Corrective Action (MRBCA) process is to provide a department-wide, consistent decision-making process for managing contaminated sites. This framework helps a remediating party and the department answer the following key questions:

1. What is the quality and quantity of data that must be collected at a contaminated site to estimate the risk to human health, public welfare and the environment?
2. How should the data be evaluated to calculate the risks (for example, what models, toxicity values and chemical-physical properties should be used)?
3. If the calculated risks are unacceptable, what risk management activities (active remediations or activity and use limitations) are necessary to reduce risks to acceptable levels?
4. What activities are necessary to ensure that the assumptions used in the calculation of risk remain valid in the future?

Site characterization, risk assessment, and risk management activities help answer the above questions.

As noted in Section 1.0, a number of cleanup authorities and programs within Missouri address these same questions. Therefore, they are reviewed in this section. Specifics of each authority can differ, for example, terminology; chemicals of concern; public information, notification and participation procedures; documentation of the data collection and risk evaluation activities; administrative reporting; institutional controls; long-term site review requirements; and compliance and enforcement.

This technical guidance does not replace existing federal administrative and statutory requirements. A remediating party should first check with the section of the department under whose jurisdiction the site is being managed to comply with the specifics of program operations.

3.2 MISSOURI DEPARTMENT OF NATURAL RESOURCES

3.2.1 Hazardous Waste Program, Division of Environmental Quality

The Hazardous Waste Program (HWP) has primary responsibility for remediating contaminated sites under four broad authorities that are managed through five administrative sections, discussed below.

3.2.1.1 Permits Section

The HWP Permits Section manages corrective action at Resource Conservation and Recovery Act (RCRA) Treatment, Storage and Disposal (TSD) facilities in Missouri.

Missouri has incorporated the federal corrective action regulations by reference into the state regulations and has been delegated authority by the USEPA to operate the equivalent corrective action program.

The term “corrective action” refers to a process whereby RCRA TSD facilities regulated under the federal RCRA or equivalent state program are required to investigate, monitor and/or remediate releases of hazardous waste and hazardous constituents to the environment. Since 1982, corrective action requirements for releases to groundwater from hazardous waste management (regulated) units have been addressed in accordance with 40 CFR 264.100 [as incorporated by reference in 10 CSR 25-7.264(1)] via the issuance of Missouri hazardous waste management facility or USEPA RCRA permits. Since November 8, 1984, [the effective date of the RCRA Hazardous and Solid Waste Amendments (HSWA)], corrective action requirements for both hazardous (40 CFR 264.100) and solid waste management units (40 CFR 264.101) have been addressed on a case-by-case basis via hazardous waste facility permits, corrective action orders or other agreements.

A flow chart of the Missouri RCRA corrective action process is shown in Figure 3-1.

3.2.1.2 Superfund Section

In 1980, the U.S. Congress established the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), commonly known as Superfund. The federal law provided both response and funding mechanisms for the cleanup of hazardous substance disposal sites. The Superfund program is designed to clean up contaminated property where releases of hazardous substances have occurred in the past or are threatening to occur due to past practices. The federal law requires the past polluters, called responsible parties, to pay for the cleanup. Although the federal CERCLA program is not delegated to the state, the department’s Superfund Section has responsibility for many Superfund sites.

In June 1983, a state Superfund bill (Chapters 260.440 through 260.475 RSMo) was approved in Missouri. The law authorized the establishment of emergency response activities in the state to respond to hazardous substance releases and established the Registry of Abandoned and Uncontrolled Hazardous Waste Disposal Sites in Missouri.

A flow chart of the Missouri Superfund process is shown in Figure 3-2.

3.2.1.3 Federal Facilities Section

The HWP Federal Facilities Section provides oversight and review of investigations, management, and remediation of hazardous (chemical and radiological) substances at federal facilities in Missouri. Federal facilities include sites currently or previously owned or operated by the Department of Defense or the Department of Energy. In addition, the Federal Facilities Section provides guidance to ensure that activities conducted at these sites are in accordance with both state and federal environmental laws

and regulations. The Federal Facilities Section coordinates with other department programs and state agencies to ensure that human health, public welfare and the environment are protected.

The section predominantly operates under the authority of two federal laws: the Comprehensive Environmental Response, Compensation and Liability Act/Superfund Amendments and Reauthorization Act (CERCLA/SARA) and the Federal Facility Compliance Act (FFCA). CERCLA/SARA oversees the cleanup of hazardous substances. Additional authorities include cooperative agreements under the Defense State Memorandum of Agreement, cooperative agreements with the United States Army Corps of Engineers, and Federal Facilities Agreements.

Authorities for the Remedial Investigations/Feasibility Studies are pursuant to Sections 120 and 121 of CERCLA/SARA, 42 U.S.C §§ 9620 and 9621 and Sections 3006 and 6001 of RCRA, 42 U.S.C §§ 6901 et seq., as adopted in Section 260.350 et seq. and Title 10 CSR, Chapter 25 and Chapter 80.

Authorities for Remedial Actions are pursuant to Sections 120 (f) and 121 (f) of CERCLA/SARA, 42 U.S.C §§ 9620 (f) and 9621 (f) and Sections 3006 of RCRA, 42 U.S.C §§ 6925 as adopted in Section 260.350 et seq. and Title 10 CSR, Chapter 25 and Chapter 80.

Depending on the site, the corrective action process for federal facilities follows either the CERCLA or the RCRA process.

3.2.1.4 Brownfields/Voluntary Cleanup Section

The Brownfields/Voluntary Cleanup Program (BVCP) provides state oversight for voluntary cleanup of hazardous substance contamination by property owners and others. Environmental assessments of commercial and industrial property are part of many real estate transactions, and are often required by lenders and buyers as a result of the liability provisions of the federal CERCLA, or Superfund, law. If contamination is found, property owners or other interested parties often want to clean up the property and also receive a certificate of completion, no further action letter, or “clean letter” from the state that provides a measure of environmental liability protection. In addition, the contamination may be of a type or concentration that does not warrant enforcement action and may not require cleanup under existing regulations. If so, BVCP may be the only program with the authority to provide oversight of the cleanup and a certification of completion.

The BVCP provides guidance to ensure that any cleanup satisfies applicable state and federal regulations and written assurance when the project is complete. Missouri’s Hazardous Substance Environmental Remediation Law (voluntary cleanup law – 10 CSR 25-15.010) provides the Hazardous Waste Program’s Brownfields/Voluntary Cleanup Section with the resources and the authority to provide project oversight and completion letters. The participant pays oversight costs to the department.

The Missouri Department of Economic Development (DED) grants remediation tax credits for eligible sites undergoing remediation and redevelopment. DED requires a site undergoing remediation, among other things, to be enrolled in BVCP, and to have a Remedial Action Plan approved by BVCP.

A flow chart of the Missouri BVCP process is shown in Figure 3-3. Historically, the risk assessment portion of the BVCP program shown in Figure 3-3 followed the *Cleanup Levels in Missouri* (CALM) guidance document developed by the department in 1998 and updated in September, 2001. The CALM process is similar to the MRBCA in that it incorporates tiered target levels and includes the concept of activity and use limitations and long-term stewardship. The MRBCA technical guidance replaces the CALM document.

3.2.1.5 Tanks Section

The Tanks Section is charged with the oversight of releases of petroleum products from regulated underground storage tanks and from above ground storage tanks that store petroleum products for resale purposes. The risk-based process for petroleum storage tanks is described in the most recent edition of the guidance, **Missouri Risk-Based Correction Action (MRBCA) for Petroleum Storage Tanks**. This guidance was developed to implement release investigation and corrective action regulations found at 10 CSR 20-10 and 10 CSR 20-15. The authority to regulate these releases is found at Sections 319.100 - 319.139, RSMo.

The Tanks MRBCA process is similar, but not identical, to the process described in this document. The cleanup standards from the Tanks MRBCA may be applied to petroleum product releases from other sources unless such releases are subject to RCRA Subtitle C or CERCLA. In such instances, the application of RCRA or CERCLA may result in different cleanup standards. In either case, however, the corrective action should follow the procedures in this guidance, including any activity and use limitations.

3.2.2 Solid Waste Management Program, Division of Environmental Quality

The Solid Waste Management Program (SWMP) implements state laws passed by the Missouri legislature, state regulations and policies developed by department staff and the USEPA in regard to solid waste management. The SWMP staff:

- Provides administrative and technical assistance,
- Issues permits for solid waste disposal and processing facilities,
- Reviews engineering plans and specifications for new facilities and changes at existing facilities,
- Inspects and enforces state solid waste management law, regulations, and permit conditions,
- Requires corrective action at landfills as appropriate,
- Administers a statewide grant program to promote the reduction of solid waste, and
- Oversees the Solid Waste Management Districts.

The SWMP administers these authorities under the Missouri Solid Waste Management Law, Sections 260.003 through 260.345 RSMo and under federal RCRA statutes and regulations. The solid waste management regulations are found in 10 CSR 80. Federal authority is found in Subpart D of RCRA.

3.2.3 Land Reclamation Program, Division of Environmental Quality

The Land Reclamation Program implements state laws, regulations and policies developed by the Land Reclamation Commission to reclaim lands affected by mining of various mineral commodities. The staff provides administrative and technical assistance to the commission, issues and monitors mining permits, reviews engineering plans and specifications for new facilities, monitors reclamation progress, enforces permit conditions and state mining regulations, and administers the federal abandoned mine lands grant to reclaim properties affected by historic mining in Missouri.

Section 503(a) of the Surface Mining Control and Reclamation Act (Public Law 95-87) allows the United States Department of Interior Office of Surface Mining to delegate coal mining regulatory authority to the states.

The Missouri Land Reclamation Commission administers these authorities under both the Missouri Surface Mining Law and the Land Reclamation Act (RSMo 444). The program also administers the Metallic Minerals Law (for the department, not the Commission), also in RSMo 444. The powers and duties of the Commission can be found in RSMo 444.762 and 444.767 and include striking a balance between the surface mining of minerals, the reclamation of the land, and the protection of the state wildlife and aquatic resources.

3.2.4 Water Protection Program, Division of Environmental Quality

The Water Protection Program implements state laws, regulations, and policies developed by the Clean Water Commission to maintain and improve water quality. The staff provides administrative and technical assistance to the commission; issues and monitors wastewater discharge permits; reviews engineering plans and specifications for new facilities; monitors and assesses water quality; enforces permit conditions and state water quality regulations; and administers grants and loans for the construction of wastewater treatment facilities.

Section 402(b) of the Clean Water Act allows the USEPA to authorize the National Pollutant Discharge Elimination System (NPDES) Permit Program to the states. Section 303(c) of the Clean Water Act requires state governments to periodically review and revise its water quality standards.

The Missouri Clean Water Commission administers these authorities under Missouri Clean Water Law (RSMo 644). The powers and duties of the Commission can be found in RSMo 644.026 and include development of water quality standards [1. (7)] and implementation of the NPDES permit program [1. (13)].

Within the MRBCA process, the Water Protection Program may provide assistance at sites where impacts may migrate to a surface water body. A Memorandum of Understanding governs much of the interaction between the Water Protection and Hazardous Waste Programs.

3.2.5 Environmental Services Program, Field Services Division

The Environmental Services Program's Environmental Emergency Response (ESP EER) Section operates under the authority of the Missouri "Spill Bill" Sections 260.500 through 260.550 RSMo. ESP EER ensures cleanups are conducted when hazardous substance emergencies occur. Under the "Spill Bill", the person having control over a hazardous substance, typically referred to as the responsible party, is required to report a release either to the 24-Hour Environmental Emergency Response Spill Line (573-634-2436) or the National Response Center (800-424-8802). The "Spill Bill" also requires responsible parties to conduct cleanups whenever they have a hazardous substance emergency.

The ESP EER maintains the 24-Hour EER Spill Line, provides technical assistance and on-site responses. Once a hazardous substance emergency occurs, the ESP EER ensures the impact to the public health and the environment is mitigated in a timely fashion. The department may issue a "Hazardous Substance Emergency Declaration" which outlines the actions required by the responsible party to adequately address the emergency and conduct the cleanup. If the responsible party does not conduct the actions needed to address a hazardous substance emergency in a timely manner, the "Spill Bill" gives the department the authority to initiate a "state lead" cleanup. The Spill Bill also allows the department to recover costs incurred for actions taken to ensure a cleanup is conducted from the responsible party.

If the site requires long term remediation after the emergency phase of a release has been addressed (free product recovery, removal of impacted soil, safe drinking water supply provided, etc.), the ESP EER may continue to oversee the remediation work or transfer the EER incident site to another department program that may have regulatory authority, such as the Hazardous Waste Program Tanks Section if appropriate.

3.3 MISSOURI DEPARTMENT OF HEALTH AND SENIOR SERVICES

3.3.1 Section for Environmental Public Health, Division of Community and Public Health

The Section for Environmental Public Health implements state laws, regulations, and policies to protect the public health through identification, prevention of disease, and evaluation of exposures to toxic chemical and radioactive substances. The staff provides technical assistance to the Department of Natural Resources by preparing or reviewing quantitative human health risk assessments, public health assessments, health studies, and

health consultations for sites contaminated with hazardous waste or hazardous substances.

Under state statute, 192.011 RSMo, the Department of Health and Senior Services (DHSS) monitors the adverse human health effects of the environment and prepares population risk assessments regarding environmental hazards, including those relating to water, air, toxic waste, solid waste, sewage disposal and others. DHSS makes recommendations to the Missouri Department of Natural Resources for improvement of public health as related to the environment. Under state statute 260.445.5 and 260.480.2(2) RSMo, DHSS evaluates the human health effects of abandoned or uncontrolled hazardous waste sites and of releases of hazardous substances as defined in 260.500 RSMo. Evaluations can include immediate public health investigatory response to actual or potential environmental contamination, assessing risk of exposure to hazardous substances, and advice on suitability of different remedial activities to reduce or eliminate human health hazards.

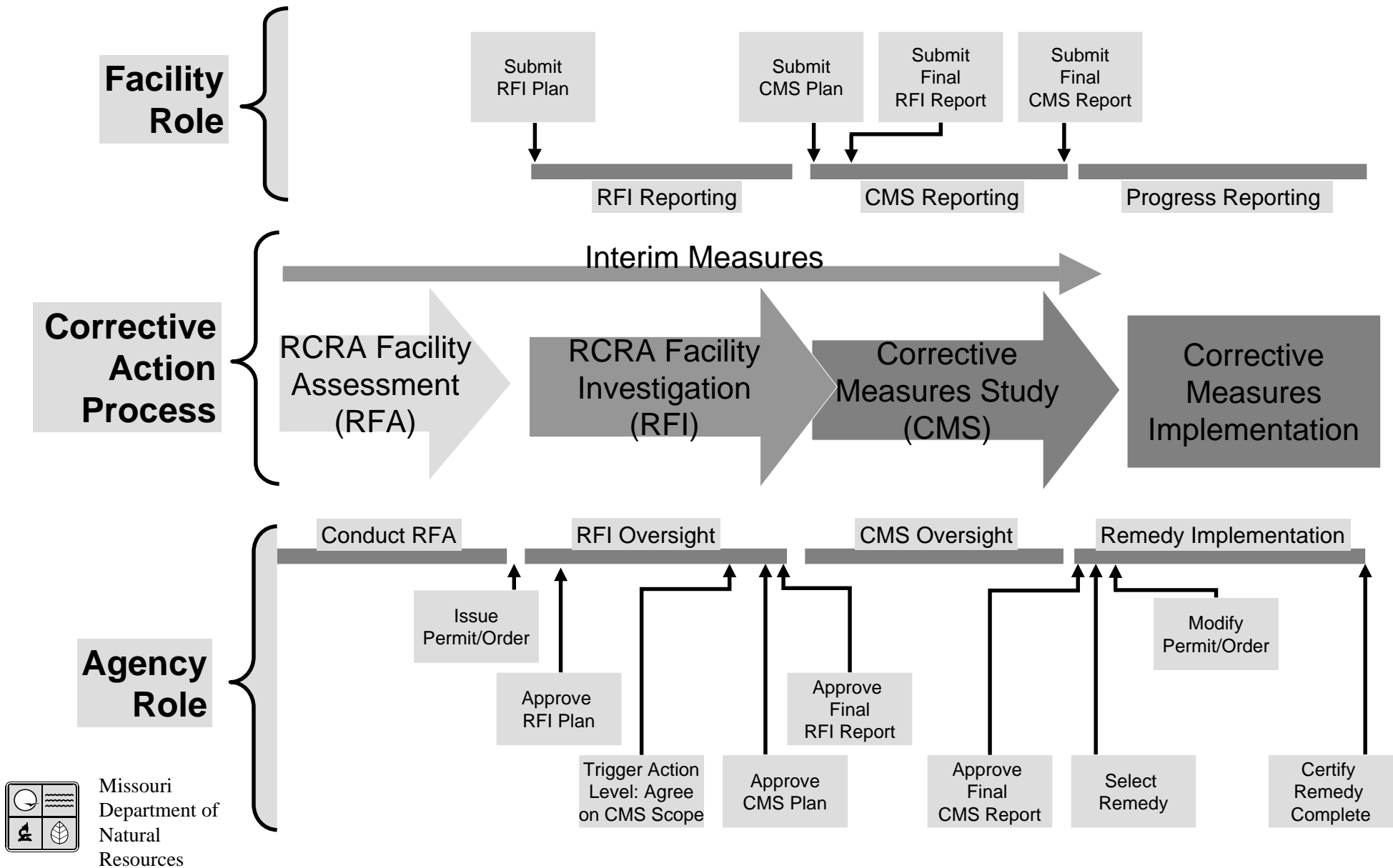


Figure 3-1. Corrective Action Process under RCRA

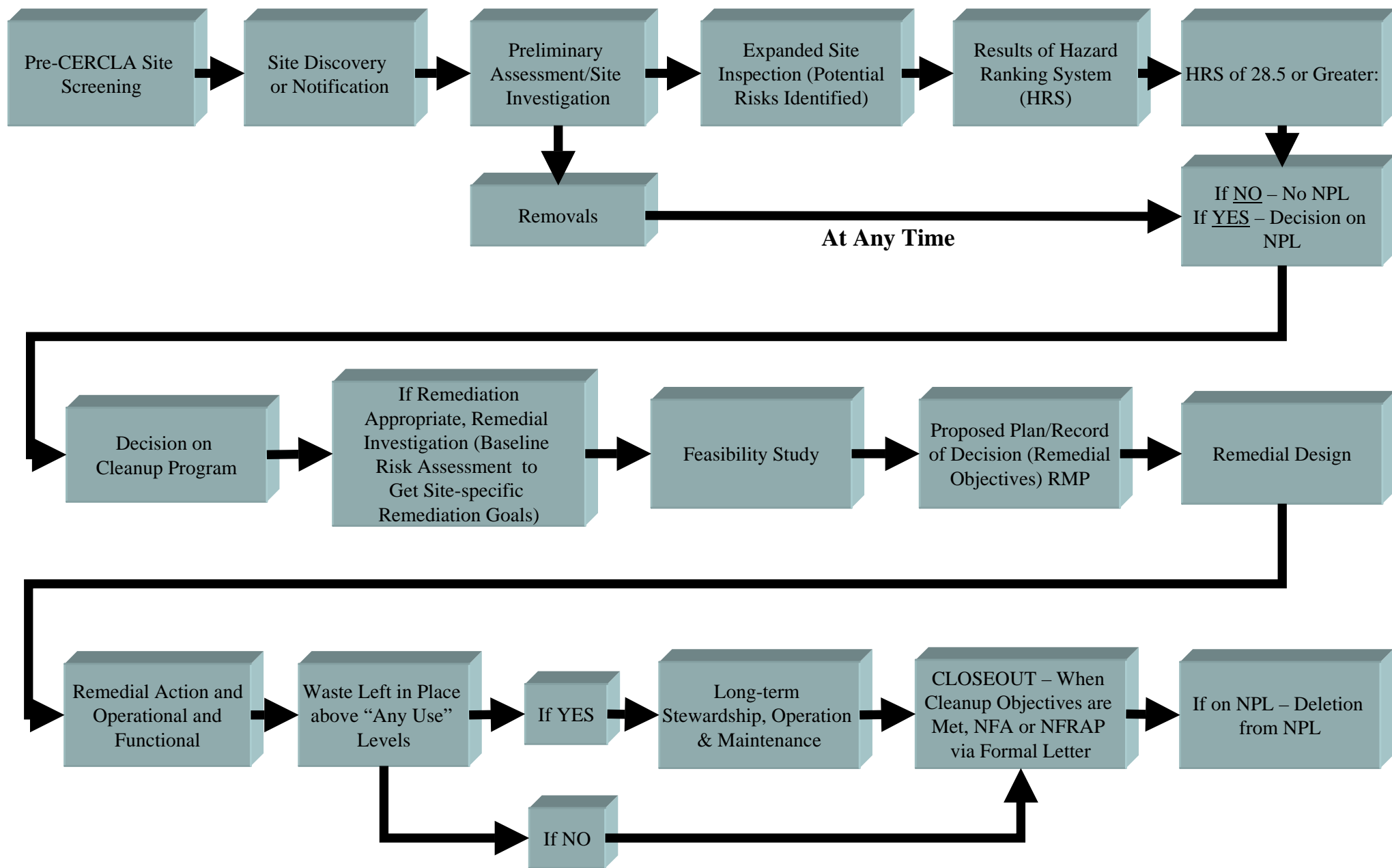


Figure 3-2. Cleanup Process under CERCLA

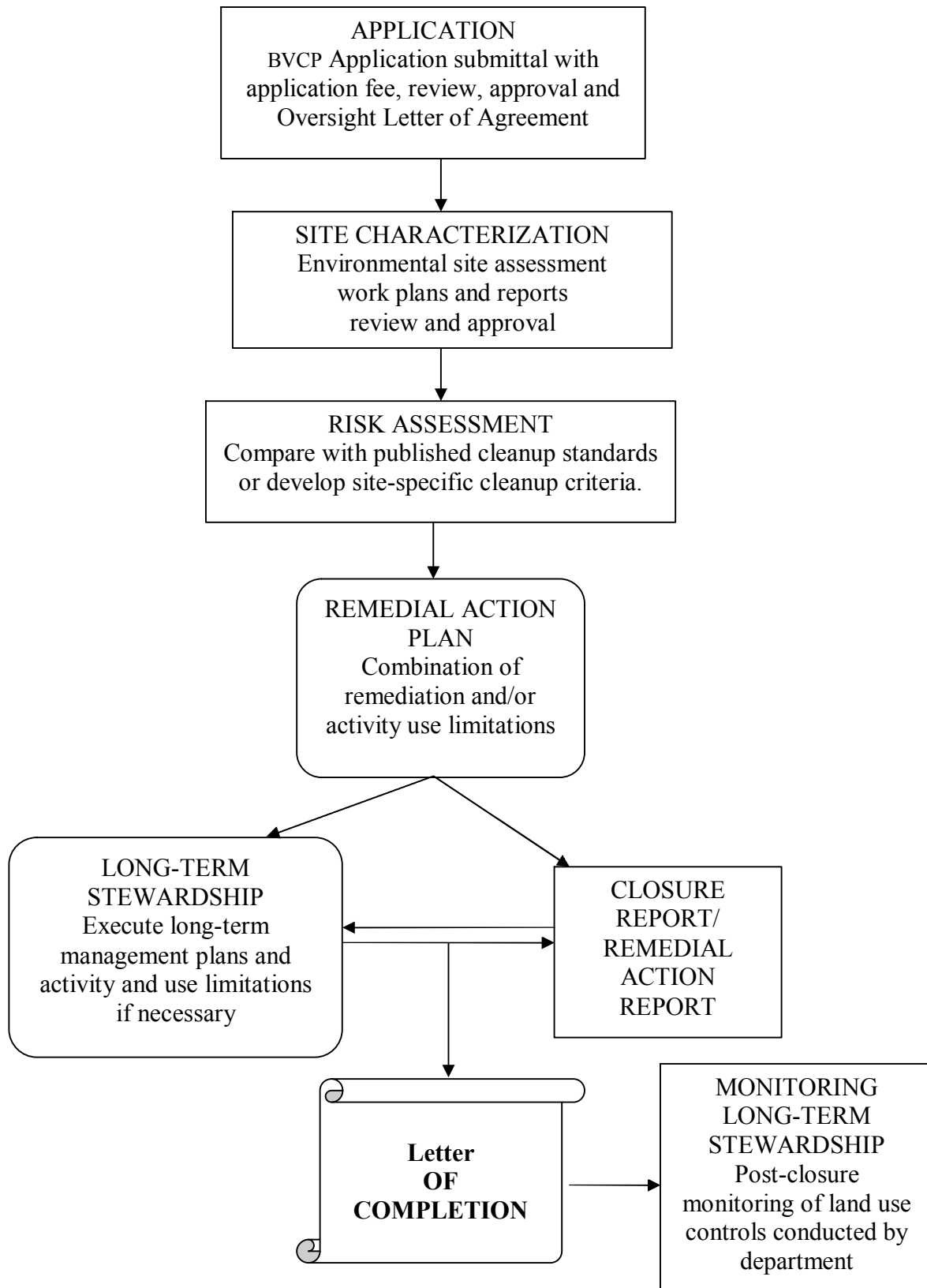


Figure 3-3. Brownfields/Voluntary Cleanup Program Process