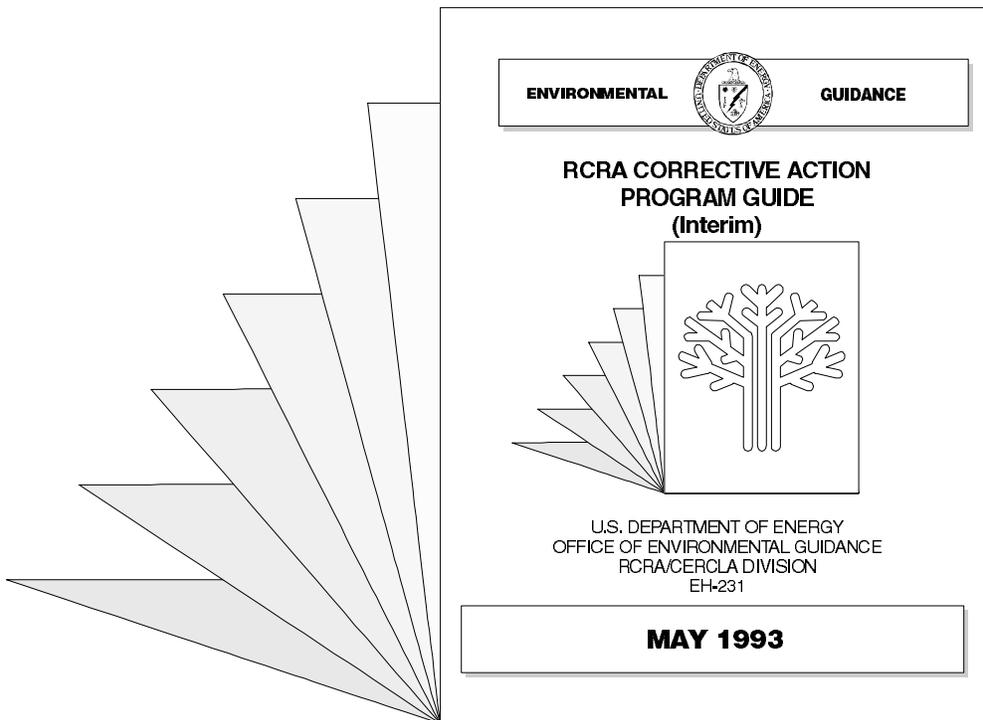


ENVIRONMENTAL



GUIDANCE

RCRA CORRECTIVE ACTION PROGRAM GUIDE (Interim)



**U.S. DEPARTMENT OF ENERGY
OFFICE OF ENVIRONMENTAL GUIDANCE
RCRA/CERCLA DIVISION
EH-231**

MAY 1993

*Resource Conservation and Recovery Act
Corrective Action Program Guide
(Interim)*

MAY 1993

Prepared by

**U.S. DEPARTMENT OF ENERGY
OFFICE OF ENVIRONMENTAL GUIDANCE
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Note to the Reader

On February 16, 1993, EPA promulgated a portion of the proposed Subpart S rule as a final rule (see *Corrective Action Management Units and Temporary Units; Corrective Action Provisions; Final Rule*, 58 FR 8658, Tuesday, February 16, 1993). This final rule sets forth the requirements for establishing corrective action management units (CAMUs) or temporary units during RCRA corrective actions. The specific requirements for CAMUs and temporary units under the final rule differ significantly from the requirements of the proposed rule (see 55 FR 30842-30844, July 27, 1990). Rather than delay publication of this guidance, the DOE Office of Environmental Guidance has chosen not to incorporate these changes into this guidance. Therefore, the discussions of CAMUs and temporary units appearing in this document are based solely on the proposed Subpart S rule. A copy of the final CAMU and temporary unit rule is provided as an appendix to this guidance. A summary of the major provisions of the rule is provided below.

The final rule does not change the most important benefit of establishing a CAMU, namely, remediation wastes (a new class of wastes established in this rule) generated during corrective action can still be disposed of in a CAMU without triggering the land disposal restrictions (LDRs) or minimum technology requirements (MTRs). However, the final rule does make several significant changes in the requirements for CAMUs and temporary units. Briefly, these changes include:

- CAMUs are no longer limited to contiguous areas of contamination, but are now linked primarily to where remediation wastes are managed; that is, designation of CAMUs is now related to the function and purpose they serve in facilitating management of remediation wastes during cleanup rather than to the areal extent of contamination.
- Establishing a new class of wastes called remediation wastes. *Only* remediation wastes can be managed in a CAMU or temporary unit.
- Permitting disposal of remediation wastes, generated at any location within the boundaries of a facility, in a CAMU.
- Creating a set of specific decision factors that must be considered when establishing CAMUs or temporary units.

Note to the Reader

(continued)

- **Establishing regulations for permits, permit modifications, orders, or order modifications establishing CAMUs or temporary units that include: (1) specific elements that must be included; (2) documentation requirements for the decision; and (3) requirements for public participation in the process.**
- **Establishing requirements for designating regulated units (i.e., land-based units such as landfills, surface impoundments, or waste piles) as CAMUs.**
- **Setting out requirements for closure of CAMUs.**
- **Limiting the designation of temporary units to tanks and container storage units.**
- **Increasing the permissible life of a temporary unit from 180 days to 1 year.**
- **Establishing specific requirements for granting extensions to the operational time limit placed on temporary units.**
- **Providing specific details on how the CAMU and temporary unit final rule will be implemented in States that are: (1) not authorized for the base RCRA program; (2) authorized for the RCRA base program, but not for corrective action; and (3) authorized for corrective action.**

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Executive Summary

The U.S. Department of Energy (DOE) is responsible for compliance with an increasingly complex spectrum of environmental regulations. One of the most complex programs is the corrective action program proposed by the U.S. Environmental Protection Agency (EPA) under the authority of the Resource Conservation and Recovery Act (RCRA) as amended by the Hazardous and Solid Waste Amendments (HSWA). The proposed regulations (to be codified as 40 CFR §264 - Subpart S: Corrective Action for Solid Waste Management Units) were published on July 27, 1990 (55 FR 30798).

The proposed Subpart S rule creates a comprehensive program for investigating and remediating releases of hazardous wastes and hazardous waste constituents from solid waste management units (SWMUs) at facilities permitted to treat, store, or dispose of hazardous wastes. This proposed rule directly impacts many DOE facilities which conduct such activities. This guidance document explains the entire RCRA Corrective Action process as outlined by the proposed Subpart S rule, and provides guidance intended to assist those persons responsible for implementing RCRA Corrective Action at DOE facilities.

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List of Acronyms

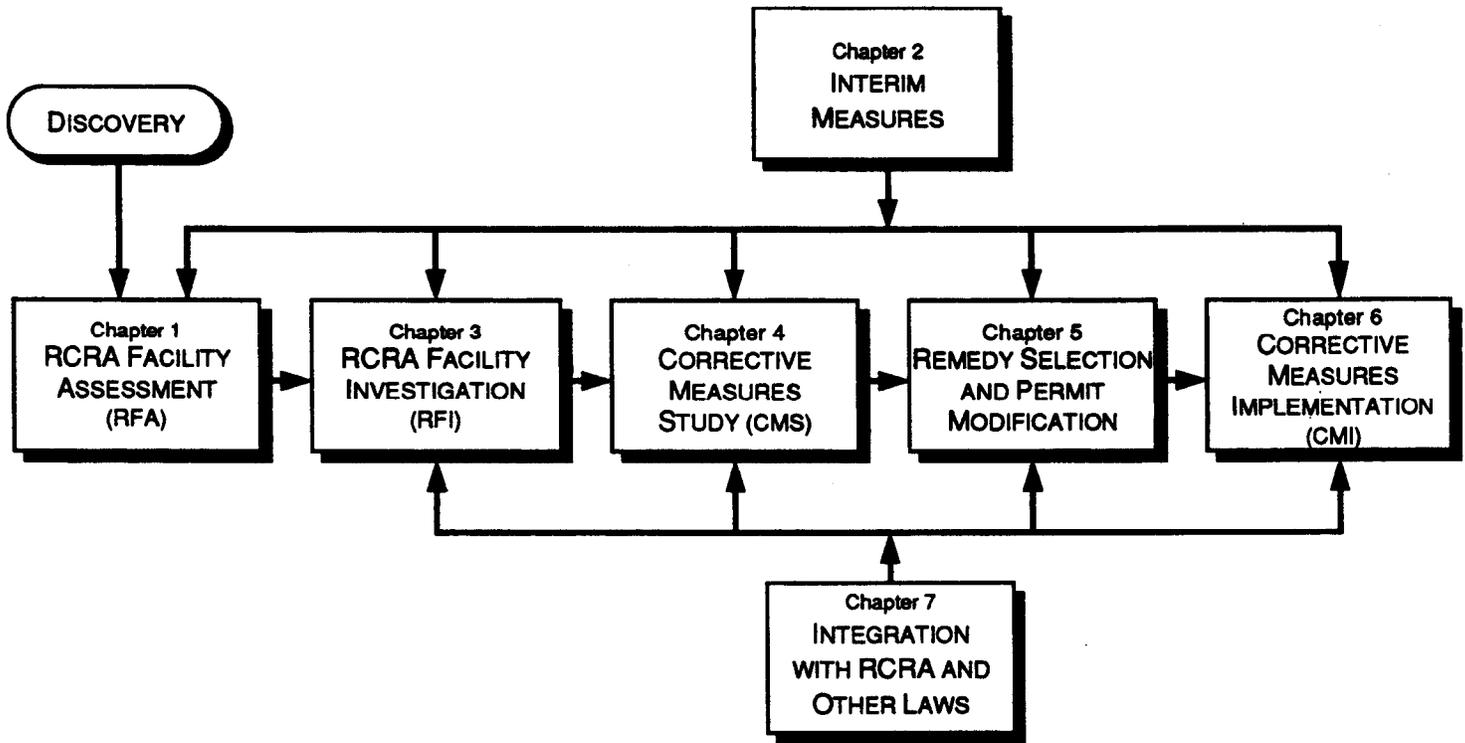
ACL	Alternate Concentration Limit
ASHERA	Asbestos Hazard Emergency Response Act
AOC	Area of Concern
BCPCT	Best Conventional Pollutant Control Technology
BDAT	Best Demonstrated Available Technology
CAA	Clean Air Act
CAMU	Corrective Action Management Unit
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	CERCLA Information System
CFR	Code of Federal Regulations
CMI	Corrective Measures Implementation
CMS	Corrective Measures Study
CPF	Carcinogenic Potency Factor
CQAP	Construction Quality Assurance Plan
CRP	Community Relations Plan
CWA	Clean Water Act
CX	Categorical Exclusion
DCQAP	Data Collection Quality Assurance Plan
DMP	Data Management Plan
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
DQOs	Data Quality Objectives
EA	Environmental Assessment
EE/CA	Engineering Evaluation/Cost Analysis
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
FFCA	Federal Facility Compliance Agreement
FR	Federal Register
FS	Feasibility Study
FWPCA	Federal Water Pollution Control Act
GACT	Generally Available Control Technologies
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
HRS	Hazard Ranking System
HSWA	Hazardous and Solid Waste Amendments
IAG	Inter-Agency Agreement
LDR	Land Disposal Restrictions
MACT	Maximum Achievable Control Technology
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MCS	Media Cleanup Standards
MEI	Maximum Exposed Individual

MSWLF	Municipal Solid Waste Landfill
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutant
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
OMB	Office of Management and Budget
O&MP	Operation and Maintenance Plan
OSHA	Occupational Safety and Health Administration
PA	Preliminary Assessment
PCB	Polychlorinated Biphenyl
PECMT	Preliminary Evaluation of Corrective Measures Technology
PIP	Public Involvement Plan
PMP	Program Management Plan
PPE	Personal Protective Equipment
POC	Point of Compliance
POTW	Publicly Owned Treatment Works
QAPP	Quality Assurance Project Plan
RA	Remedial Action
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RD&D	Research, Development, and Demonstration
RFA	RCRA Facility Assessment
RfD	Reference Dose
RFI	RCRA Facility Investigation
RI	Remedial Investigation
ROD	Record of Decision
SDWA	Safe Drinking Water Act
SI	Site Inspection
SWMU	Solid Waste Management Unit
TSCA	Toxic Substances Control Act
TSDF	Treatment, Storage, or Disposal Facility
UIC	Underground Injection Control
UST	Underground Storage Tank
VSI	Visual Site Inspection

Overview of Corrective Action

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Figure 1 RCRA Subpart S Corrective Action Process



Overview of Corrective Action

Background

The U.S. Department of Energy (DOE) is responsible for complying with an increasingly complex spectrum of hazardous waste management standards and requirements. One of the most complex programs is that prescribed by EPA for addressing releases of hazardous waste or hazardous waste constituents from hazardous waste treatment, storage, or disposal facilities (TSDFs). On July 27, 1990, EPA proposed a comprehensive program for corrective action of contamination resulting from past and present waste management practices at RCRA TSDFs subject to the Resource Conservation and Recovery Act (RCRA). This rule, referred to as the RCRA Corrective Action rule, was proposed under 40 CFR Part 264, Subpart S - *Corrective Action for Solid Waste Management Units at Hazardous Waste Management Facilities*.

Although EPA proposed the Subpart S regulations in 1990, the requirements were mandated by the Hazardous and Solid Waste Amendments of 1984 (HSWA) (which amended RCRA; see 42 USCA §6901 et seq.), and were effective immediately. EPA therefore began implementation of the program in 1984, and consequently a number of facilities, including DOE operations, are undergoing RCRA Corrective Actions. EPA has informally indicated that the Subpart S proposed rule should be used as an interim guidance until the rule is finalized. Due to the controversial nature of RCRA Corrective Action, EPA is not expected to promulgate the rule before late 1993.

In the interim, thousands of RCRA solid waste management units (SWMUs) will be undergoing corrective actions. Compliance for DOE will be complicated by a number of factors, including evolving and inconsistent EPA/State policy, the CERCLA and NEPA interfaces, the presence of radioactive mixed wastes and radiological hazards, the large number of SWMUs at most facilities, inappropriate corrective measures technologies, Congressional budget limitations, and public scrutiny.

Complicating the situation further are existing requirements for RCRA Corrective Action for regulated units - those hazardous waste management units (a subset of SWMUs) subject to 40 CFR Parts 264 and 265, and Part 270 permit requirements. Corrective action for these units is prescribed under 40 CFR Part 264, Subpart F - *Releases from Solid Waste Management Units*, which primarily addresses releases to groundwater. Subpart F focuses on SWMUs which are regulated units and prescribes a system for detecting releases (detection monitoring), for determining their magnitude and impact (compliance monitoring), and for initiating corrective action, if warranted.

Purpose

The purpose of this guidance document is to explain the corrective action process in order to assist DOE and operation contractor personnel responsible for planning, implementing and overseeing RCRA Corrective Actions. This package is tailored to address the issues facing DOE facilities. Emphasis is placed on RCRA Corrective Action pursuant to Subpart

S, as EPA is expected to propose substantial changes to the Subpart F rule, to make it more consistent with the requirements of Subpart S. However, the relationship of RCRA Subparts F and S is clearly identified within this guidance, as is the process for corrective action outlined under Subpart F. The guidance is not intended to be used alone. Rather, it is to be used in tandem with Federal and State regulations and other more detailed or technically oriented guidance documents. It is also important to point out that EPA expects there may be differences between the Subpart S proposed rule and the final rule, so it will be necessary to consult the final rule (when promulgated) to determine the specific changes that have been made.

Introduction to Corrective Action Under the Proposed Subpart S Rule

Proposed Subpart S Requirements

The 1984 HSWA amendments (Section 3004(u)) require that any permit issued to a treatment, storage or disposal facility after November 8, 1984 address corrective action for releases of hazardous wastes or hazardous waste constituents from any solid waste management unit (SWMU) at the facility. The proposed Subpart S rule (July 27, 1990; 55 FR 30796) would establish requirements for conducting investigations of actual or potential releases at RCRA facilities, evaluating potential corrective measures, and selecting and implementing corrective measures at RCRA facilities. Corrective action beyond the facility boundary is also addressed by HSWA (Section 3004(v)), and may be required where appropriate. **[Update 9/99: It should be noted that if there is evidence of conditions posing an imminent and substantial endangerment to health or the environment, EPA may choose to issue an order to abate those conditions as quickly as possible under the imminent hazard provisions of Sect. 7003 of RCRA instead of Sects. 3004(u), 3004(v), or 3008(h).]**

Interim Status Requirements [RCRA §3008(h) Corrective Action Orders]

Section 3008(h) of RCRA provides EPA with the authority to issue administrative orders or bring court action or other measures, as appropriate, when there is or has been a release of hazardous waste or hazardous waste constituents from a RCRA facility operating under interim status. Corrective action, as outlined in the proposed Subpart S rule, may be required under RCRA §3008(h) for generators, including small quantity generators, or for TSD facilities or generators when the facility is operating (prior to receiving a permit) under interim status, is closing or is closed under interim status, has lost interim status, or has failed to properly obtain interim status. Corrective action orders under RCRA §3008(h) may be issued unilaterally by EPA (or the authorized State) or they may be issued as consent agreements between the Federal facility and EPA (or the State). The corrective action process for interim status facilities follows the general requirements for permitted facilities. **[Update 4/99: It should be noted that if there is evidence of conditions posing an imminent and substantial endangerment to health or the environment, EPA may choose to issue an order to abate those conditions as quickly as possible under the imminent hazard provisions of Sect. 7003 of RCRA instead of Sects. 3004(u), 3004(v), or 3008(h).]**

Permit Schedule of Compliance

Any corrective action required at a permitted (or soon to be permitted) facility will be incorporated in the facility permit, specifically within the permit schedule of compliance. Corrective action requirements, including plans and reports, will for the most part be implemented through the schedule. Because of the complex and sequential nature of the

corrective action process, it is expected that the permit will be issued prior to completion of corrective action; the schedule of compliance is the implementing tool.

When corrective action is required under a permit, a schedule of compliance will need to be included in that permit, or any subsequent modification to that permit, regardless of whether the facility continues its other operations.

Overview of 40 CFR §264 - Subpart F

40 CFR Part 264 - Subpart F provides a regulatory program to address releases of hazardous wastes and hazardous waste constituents to groundwater from "regulated units". "Regulated units" are defined in 40 CFR §264.90 as surface impoundments, waste piles, land treatment units, and landfills which received hazardous waste after July 28, 1982. This program prescribes a specific approach for detection, characterization, and cleanup of contaminated groundwater from regulated units. Subpart F is a "prospective" program, requiring that monitoring be established to detect contamination and that, if detected, contaminated groundwater be removed or treated in place if or when a groundwater protection standard has been exceeded. EPA is developing a proposal that would restructure the current Subpart F regulations to make them consistent with the key features of Subpart S.

Overview of the Proposed Subpart S Corrective Action Process

The 1984 HSWA established a general process for RCRA Corrective Action programs to follow. A graphic overview of the proposed corrective action rule is provided on page Overview-2. As shown in the diagram, corrective action consists of four main phases plus interim measures. Essentially these phases are:

- RCRA Facility Assessment;
- RCRA Facility Investigation;
- Corrective Measures Study; and
- Corrective Measures Implementation.

Each of the RCRA Corrective Action phases is discussed below and each is addressed in a separate chapter of this document as shown in Figure 1, page Overview - 2.

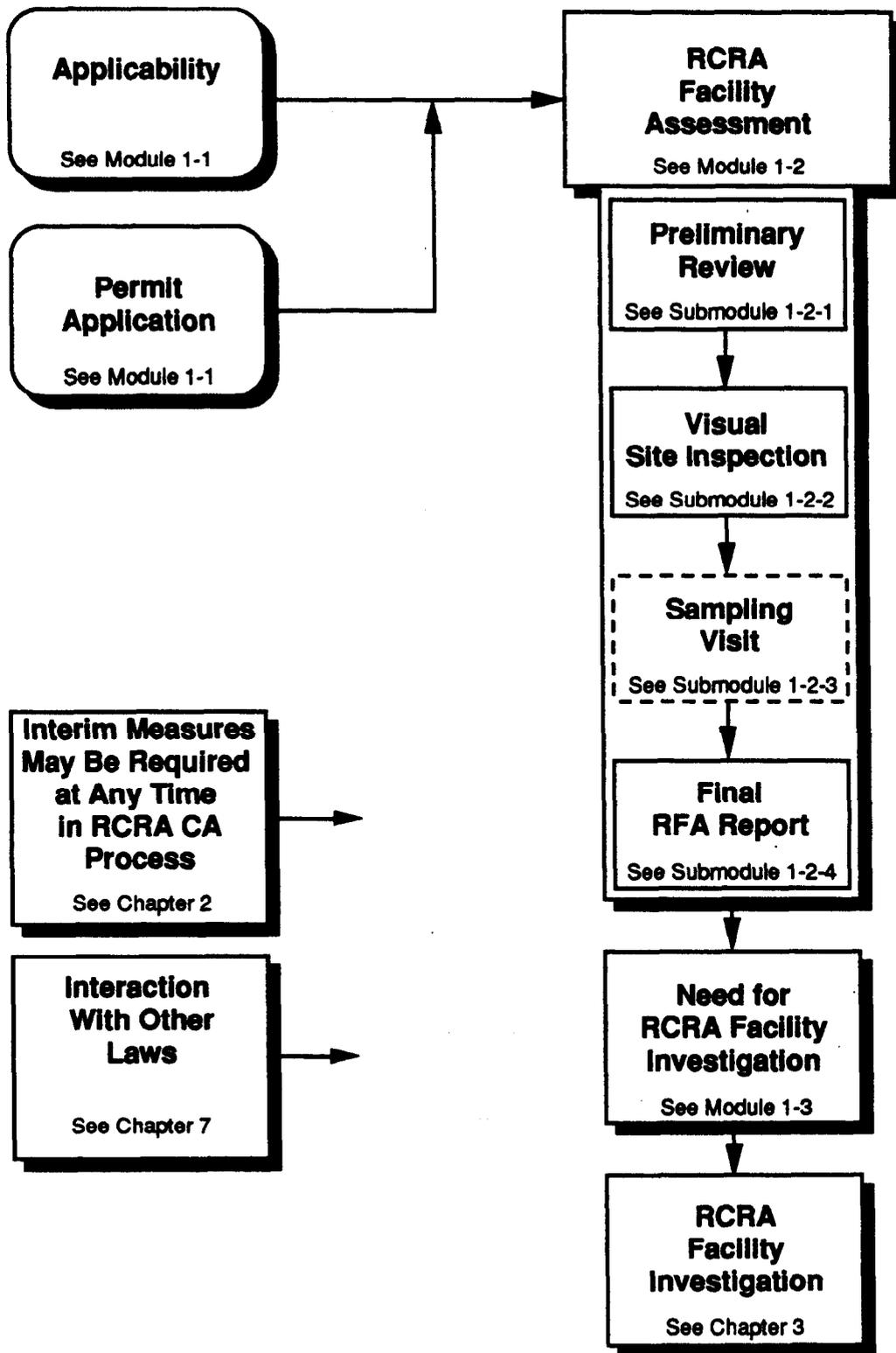


Figure 2
Chapter One: Applicability and the RCRA Facility Assessment (RFA)

Overview of the Chapters

Chapter One: Applicability and the RCRA Facility Assessment (RFA)

The RFA is the first phase of the RCRA Corrective Action process. The RFA serves as a screen, eliminating solid waste management units (SWMUs), environmental media, or entire facilities from further consideration if EPA or the authorized State determines that there is no evidence or likelihood of a release that poses a threat to human health and the environment. The RFA also serves to focus the scope of the follow-on RCRA Facility Investigation (RFI) by identifying those releases or areas that are of the most environmental concern at the facility. The overview graphic for this chapter is provided on Figure 2. This chapter will address the following modules:

Module 1-1 Applicability and Permit Application

The corrective action program is designed to be implemented as part of the permit conditions issued for RCRA treatment, disposal, or storage facilities, or for interim status facilities, through a RCRA §3008(h) order. Corrective actions will be required by modifying existing permits, included as part of new permits, or, for interim status facilities operating before November 8, 1984, as part of court actions or administrative orders. By statute, RCRA Corrective Action does not apply to the following types of activities: land treatment demonstrations, emergency responses of 90 days or less, and research, development, and demonstration (RD&D) permits.

Module 1-2 The RCRA Facility Assessment

The RFA is an initial screening tool conducted by EPA, an authorized State, or by other Federal agencies (including DOE, if DOE authorization to conduct RFAs is incorporated into a Federal Facility Compliance Agreement (FFCA)). The RFA includes a site inspection and a review of records on the facility. Since 1985 the RFA has evolved into a definite process consisting of three interrelated activities: the preliminary review, a visual site inspection (VSI), and if warranted, a sampling visit.

Module 1-3 Need for a RCRA Facility Investigation

If a release is confirmed or suspected by the RFA, EPA can require the DOE facility to conduct an RFI. This module presents the decision-making process to make this determination.

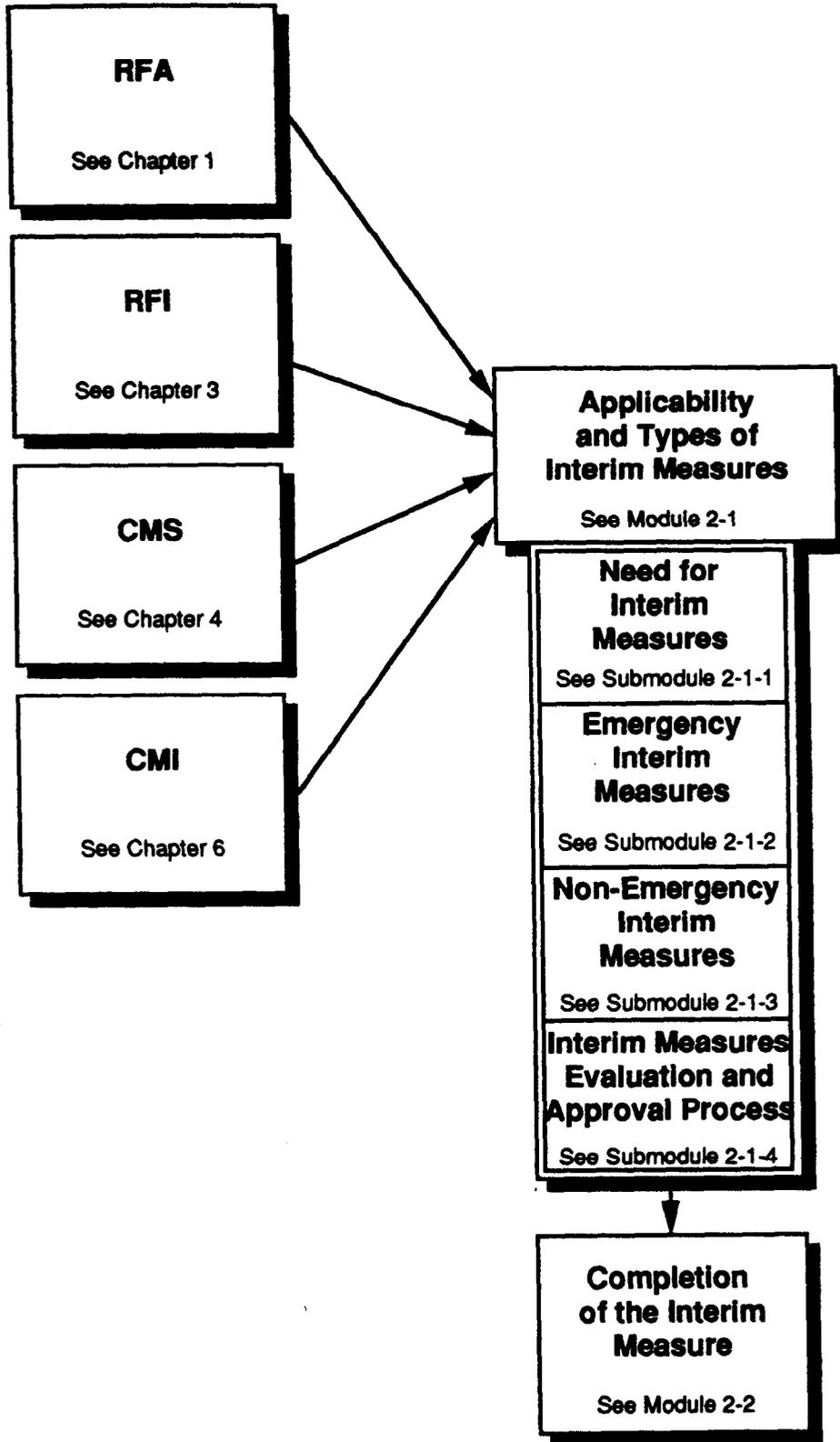


Figure 3
Chapter Two: Interim Measures

References

This lists the specific references that were used to develop this chapter as well as other references that may provide useful guidance.

Chapter Two: Interim Measures and EPA's "Stabilization Initiative"

The need for interim measures should be assessed early in the corrective action process, as well as in subsequent phases as more information on releases and potential remedial solutions becomes known. As proposed, EPA or the authorized State could require the permittee to conduct interim measures at a facility whenever that agency determined that a release from a SWMU poses a threat to human health and the environment. EPA currently intends to use interim measures as a means of obtaining near- to mid-term results in accordance with their "stabilization initiative." This initiative is intended to focus the early corrective action activities on controlling the worst releases first, in an effort to prevent further environmental degradation. These "stabilization" activities will be followed by long-term actions to comprehensively address all releases at the facility. The overview graphic for this chapter is provided on Figure 3. This chapter will address the following modules:

Module 2-1 Applicability and Types of Interim Measures

Interim measures are generally short-term actions responding to immediate threats, such as actual or potential exposure to hazardous wastes or constituents, drinking water contamination, threats of fire and explosion, and other situations posing similar threats. This module will address when interim measures are appropriate and the types of interim measures.

Module 2-2 Completion of the Interim Measure

The DOE facility needs to evaluate the interim measures that were taken at the facility to address the near- to mid-term risks of releases of hazardous wastes or hazardous waste constituents from SWMUs at the facility to determine if the action is complete, and to determine the need for further corrective action. This evaluation must be documented, and if required, submitted to the appropriate DOE or regulatory agency officials for review.

References

This lists the specific references that were used to develop this chapter as well as other references that may provide useful guidance.

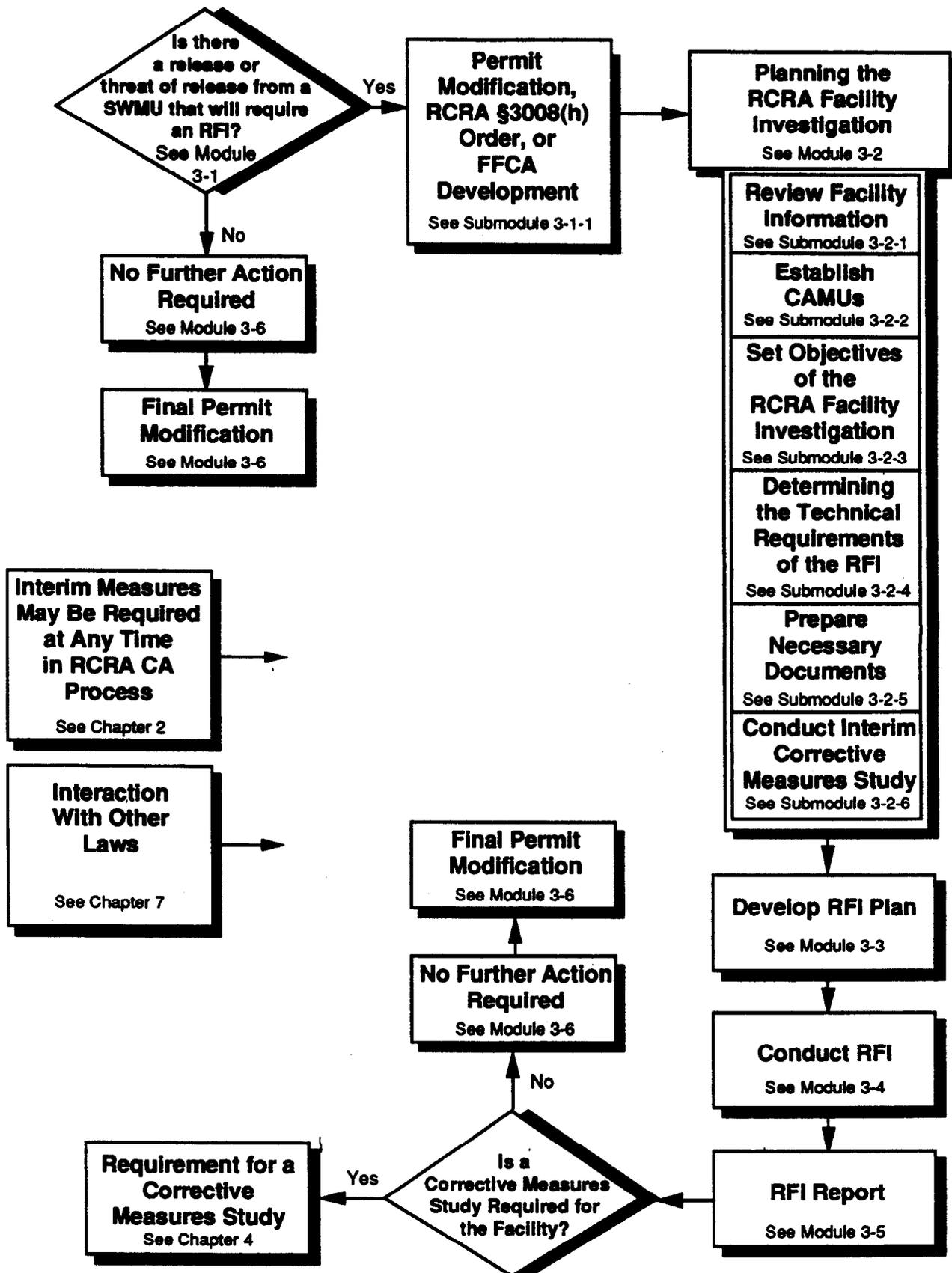


Figure 4
Chapter Three: RCRA Facility Investigation (RFI)

Chapter Three: The RCRA Facility Investigation (RFI)

The RFI is the second phase of the RCRA Corrective Action process. EPA or the authorized State would require an RFI if the RFA indicated that a release of a hazardous waste or hazardous waste constituent from a SWMU was likely to have occurred or to be occurring or, in certain limited circumstances, likely to occur in the future. Requirements for the RFI would be specified by EPA or the authorized State in a schedule of compliance in the facility's permit. The schedule would typically identify the SWMUs and environmental media that required more detailed investigation as well as the types of investigations required.

This chapter will detail the second phase of the corrective action process under Subpart S, and the overview graphic for this chapter is provided on Figure 4. This chapter will address the following modules:

Module 3-1 Requirement for a RCRA Facility Investigation

The RCRA Facility Assessment (RFA) is the first step in the corrective action process. The RFA serves as a screen to eliminate from further investigation those SWMUs that have no release or potential for a release of a hazardous waste or hazardous waste constituent which could pose a threat to human health and the environment.¹ The RFA also serves to focus any further investigations, in particular the RFI, by identifying those releases, potential releases, or areas at a facility posing the greatest environmental concern.

Usually the RFI is required under either a permit schedule of compliance or an enforcement order by the regulatory agency. The regulatory agency will apply the appropriate regulatory authority and develop specific conditions in permits or enforcement orders. The RFI is performed by the facility. These conditions will generally be based on the results of the RFA and will identify specific units or releases needing further investigation.

¹ In the preamble to the proposed Subpart S rule, EPA states its interpretation that the term "hazardous waste" includes all solid wastes falling under the definition of "hazardous waste" found in RCRA §1004(5). Further, EPA states its position that the term "hazardous waste constituents (or constituents)" includes those substances defined under RCRA §3004(u) and specifically listed in 40 CFR §261 Appendix VIII and 40 CFR §264 Appendix IX.

Module 3-2 Planning the RCRA Facility Investigation

Planning the RFI will involve (1) reviewing all information on the release, the SWMU, interim measures, and the specific requirements of the order, permit, or FFCA, (2) assessing the benefits of establishing CAMUs at the facility, (3) establishing the objectives of the RFI, (4) determining requirements for the studies necessary to meet the objectives of the RFI, (5) preparing necessary documents, and (6) planning any activities required as part of conducting an interim CMS. The success of the RFI depends upon a deliberative effort and attention to detail being applied during the planning process.

Module 3-3 The RCRA Facility Investigation Plan

Conducting an RFI requires the development of the RFI plan. Under the proposed Subpart S rule, submission of an RFI plan is not a mandatory action; however, EPA usually requires that RFI plans be subject to EPA review and approval. The approved plan becomes a part of the facility permit and is subject to the permit schedule of compliance.

The RFI should be planned in phases. Each phase should have established criteria that provide an opportunity for the requirement for an RFI to be terminated if the results of the investigation demonstrate that a release or potential release has not occurred at the facility. This mechanism provides the opportunity to prevent wasting valuable resources on unwarranted investigations.

Module 3-4 Conducting the RCRA Facility Investigation

The actual conduct of the RFI has three elements: (1) implementation of the planned procedures for information gathering and sampling activities, (2) sample analysis and data verification, and (3) periodic progress assessments.

Module 3-5 The RCRA Facility Investigation Report

While the RFI is underway, EPA may require the submission of periodic progress reports. The exact content, format, and schedule for these reports are at the discretion of EPA. Any specific requirements for these progress reports are included in the permit, order, or FFCA.

Upon completion of the RFI, the owner/operator prepares a draft RFI report and a separate document summarizing the report, and submits these documents to EPA for review and approval. The findings of the report are the basis for a "Determination of No Further Action" or for the performance of a CMS, and represent the culmination of all the effort involved in conducting the RFI. The summary is sent to all parties on the facility's mailing list. This mailing list includes people and organizations who have been asked to be notified of the facility's activities. The list is maintained by the permitting agency.

The RFI report must document the process and findings of the investigation, and provide information to support any subsequent decisions. Note that any recommendations are not binding upon EPA. The selection of the next phase of the corrective action process is the responsibility of EPA. After review of the draft RFI report, EPA may require the owner/operator to conduct additional investigations or studies. The final, EPA-approved RFI report becomes the basis for either a Corrective Measures Study (CMS) or a "Determination of No Further Action."

Module 3-6 Determination of No Further Action

The EPA anticipates that at some facilities the releases from SWMUs identified through the RFA (or subsequent investigations) are not a threat to human health and the environment. If the EPA conducted the RFA and discovered no release or threatened release, the facility permit application continues through the normal process. However, if a RCRA §3008(h) order or permit modification (for existing permits) required the owner/operator to conduct the RFA and/or RFI, the owner/operator must request termination of the investigation requirement in the facility schedule of compliance. This requires a Class III permit modification, or rescission of the RCRA §3008(h) order. Permit modification requires negotiation of the modification with EPA, development of a draft permit, a public notice, a comment and response period, a public meeting (if necessary), incorporation of any revisions into the permit modification, and issuance of the final modified permit. For a RCRA §3008(h) order, EPA merely rescinds the order. In either case, the owner/operator is responsible for providing any supporting documentation.

References

This lists the specific references that were used to develop this chapter as well as other references that may provide useful guidance.

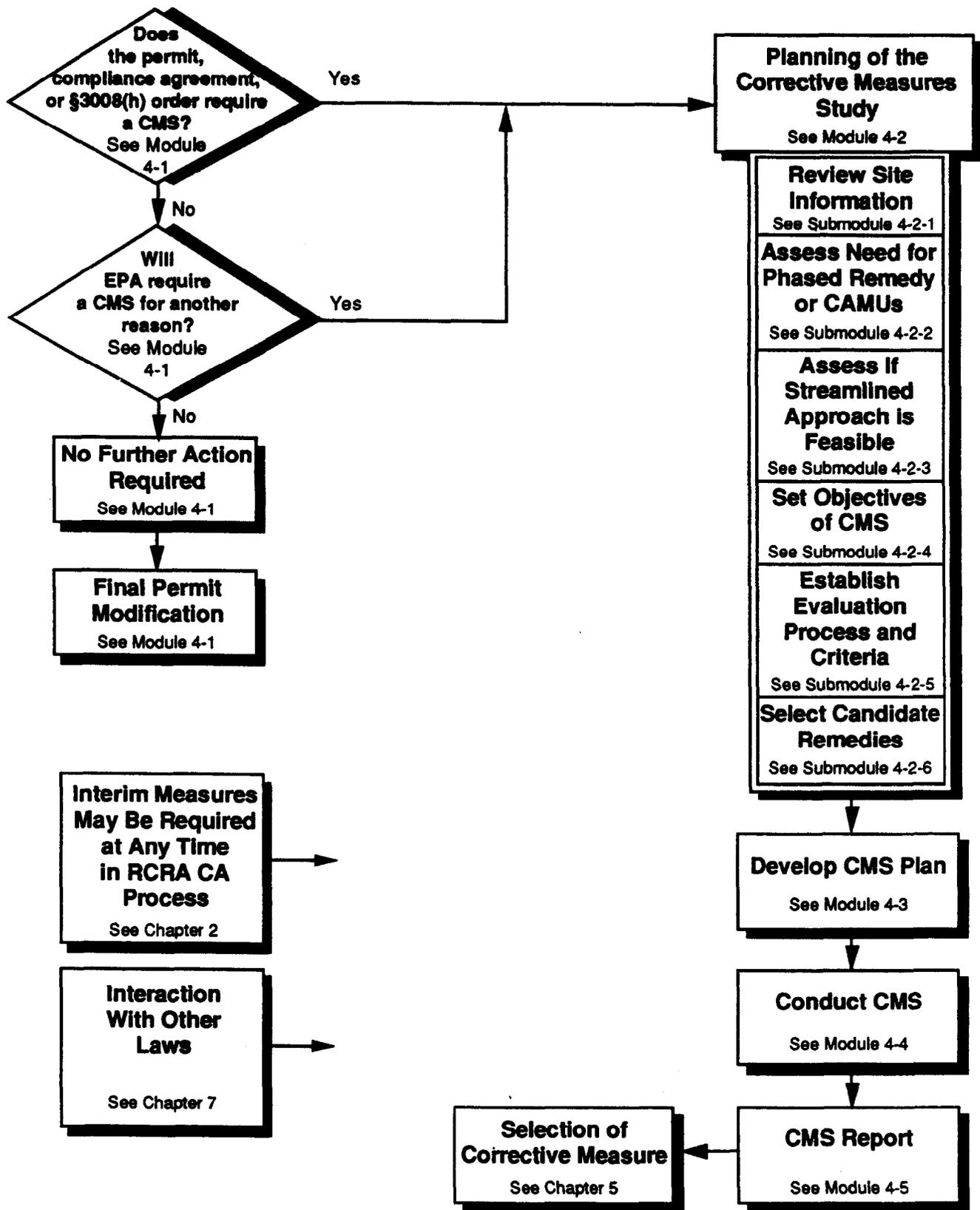


Figure 5
Chapter Four: Corrective Measures Study (CMS)

Chapter Four: The Corrective Measures Study (CMS)

A properly conducted RFI will focus the CMS on units which are sources of releases and the media pathways affected by such releases. The CMS is designed to identify and evaluate potential remedial alternatives for the releases that have been identified at the facility.

This chapter will detail the third phase of the corrective action process under Subpart S. The overview graphic for this chapter is provided on Figure 5. This chapter will address the following modules:

Module 4-1 Requirement for a Corrective Measures Study

There are two mechanisms triggering the requirement for a CMS. The primary mechanism is the discovery that the concentration of a contaminant released from a solid waste management unit (SWMU) exceeds the action level set for that contaminant. Action levels are media-specific health and environment-based contaminant concentrations considered protective of human health and the environment. Action levels are often standards issued under other statutes, such as the Maximum Contaminant Levels (MCLs) under the Safe Drinking Water Act.² *It must be noted that action levels do not necessarily represent the final concentrations that must be achieved through the implementation of a corrective measure.* Action levels act as a presumptive contaminant concentration level beyond which additional investigations are required, specifically the CMS.

The second mechanism for triggering a CMS allows EPA to require a CMS even when contaminant concentrations are below action levels, but where other considerations, such as impacts to sensitive environments, suggest a need for close evaluation of the need for remediation of the contamination.

Module 4-2 Planning the Corrective Measures Study

There are six principal steps to planning a CMS. These steps are (1) reviewing existing information about the SWMUs at the facility, (2) assessing if a phased remedy or establishment of a corrective action management unit (CAMU) is appropriate based on data collected during the RFI, (3) determining if a streamlined CMS is appropriate, (4) determining the objectives of the CMS, (5) establishing the process and criteria for evaluating the alternatives for the corrective measure, and (6) selecting candidate corrective measures for evaluation. Depending upon DOE, EPA, State, or other requirements or constraints, the sequence of steps may vary.

² Examples of the promulgated standards used as action levels and supplemental mechanisms used to develop action levels are discussed in the proposed Subpart S rule at 55 FR 30814-30820.

In addition, during the planning process the facility should consider any requirements for compliance with other statutes. Examples include requirements for compliance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the National Environmental Policy Act (NEPA), the Clean Water Act (CWA), and the Toxic Substances Control Act (TSCA). Areas where integration with other laws should be considered are discussed in this chapter; however, details are provided in Chapter 7.

Module 4-3 The Corrective Measures Study Plan

Conducting a CMS includes the development of the CMS Plan. Under the proposed Subpart S rule, EPA may require: (1) that the plan follow specific criteria, (2) that development of the plan be included in the facility permit schedule of compliance, or (3) that the plan be subject to EPA review and approval. Further, under the proposed rule, a requirement for the submission of a CMS plan is at the discretion of EPA. Plan submission is not a mandatory action. However, if EPA requires submission of a plan, the approved plan becomes a part of the facility permit and is subject to the permit schedule of compliance.

Module 4-4 The Corrective Measures Study

Conducting CMS testing is a two-step process involving: (1) testing the effectiveness of each alternative for the corrective action, and (2) analyzing and evaluating the testing results according to the evaluation process and criteria developed during the planning process and described in the CMS Plan. While this process is usually conducted during the CMS, under the proposed Subpart S rule EPA has the authority to require testing to occur concurrently with the RFI in order to prevent a delay in conducting the corrective measure. Generally, concurrent testing would occur in the form of treatability studies to determine which corrective measure appears most effective in addressing the contamination at the facility.

Module 4-5 The Corrective Measures Study Report

During the conduct of the CMS, EPA (or the State) may require periodic progress reports. Based upon the information in these reports, EPA may change any part of the CMS. Upon completion of the CMS, the owner/operator prepares a draft CMS report and submits the report to EPA for review and approval. The CMS report must discuss how each alternative for the corrective measure satisfies the standards and selection factors.

After review of the draft CMS report, EPA may require the owner/operator to conduct additional investigations or studies of other alternative corrective measures. The final, EPA-approved CMS report becomes the basis for the remedy selection process discussed in Chapter 5. It should also be noted that the owner/operator's preferred corrective measure is not binding upon EPA. The selection of the corrective measure is solely the responsibility of EPA and is based upon a specific procedure and set of criteria discussed in Chapter 5.

References

This lists the specific references that were used to develop this chapter as well as other references that may provide useful guidance.

Chapter Five: Remedy Selection and Permit Modification

Based upon the results of the CMS, the facility needs to develop the corrective measure alternative or alternatives based on site characteristics, waste characteristics, and technology limitations. Then each alternative must be evaluated based on the technical, environmental, human health, and institutional concerns. A preliminary corrective measure alternative needs to be recommended using technical, human health, and environmental criteria.

The DOE facility needs to identify the appropriate corrective measures and recommend them to the regulatory agency. These recommendations will be reviewed and the public will be provided with the opportunity to review and comment on the proposed action. The CMS needs to ensure that the proposed measures will be effective in correcting threats posed by the release. The overview graphic for this chapter is provided on Figure 6.

Module 5-1 General Standards and Specific Selection Factors

This module discusses the general performance standards and specific selection criteria for corrective measures. The discussion of these topics relates to the development of the evaluation process and criteria discussed in Chapter 4. Examples of the use of the corrective measures decision criteria are provided and applied in reference to the types of situations at DOE facilities.

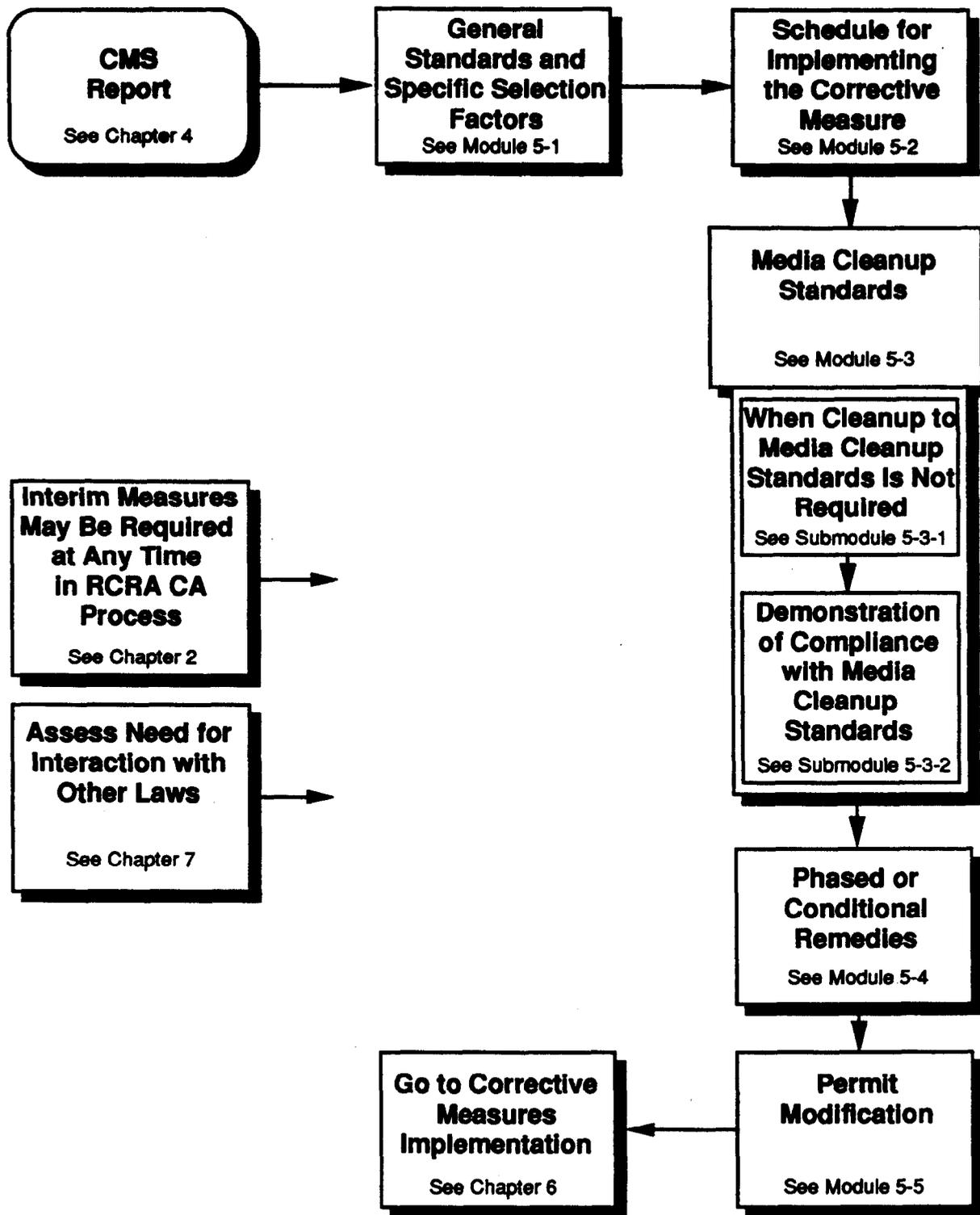


Figure 6
Chapter Five: Selection of Corrective Measures

Module 5-2 Schedule for Implementing the Corrective Measure

This module discusses the development of the schedule for conducting the corrective measure and the use of phased implementation. The discussion of phased implementation will focus on integration of a phased corrective measure with the use of CERCLA operable units at sites with a requirement for compliance with both RCRA and CERCLA.

Module 5-3 Media Cleanup Standards

This module in Chapter 5 will discuss several important topics:

- Development of the actual media cleanup standards;
- The use of other factors in setting these standards;
- When cleanup to MCS is not required; and
- Demonstration of compliance with MCS.

Module 5-4 Phased or Conditional Remedies

This module discusses the use of conditional remedies and the relationship of a conditional remedy to a phased corrective measure. The seven requirements for a conditional remedy will be discussed, as will the implications of each of the conditions on a DOE facility's corrective action program.

Module 5-5 Permit Modification

This module discusses the permit modification process for requiring implementation of a corrective measure. This process follows different procedures from the other permit modifications in the RCRA Corrective Action process, and creates a long-term binding agreement to conduct the corrective measure. The module discusses the process and the implications of the final permit modification upon operations at the facility.

References

This lists the specific references that were used to develop this chapter as well as other references that may provide useful guidance.

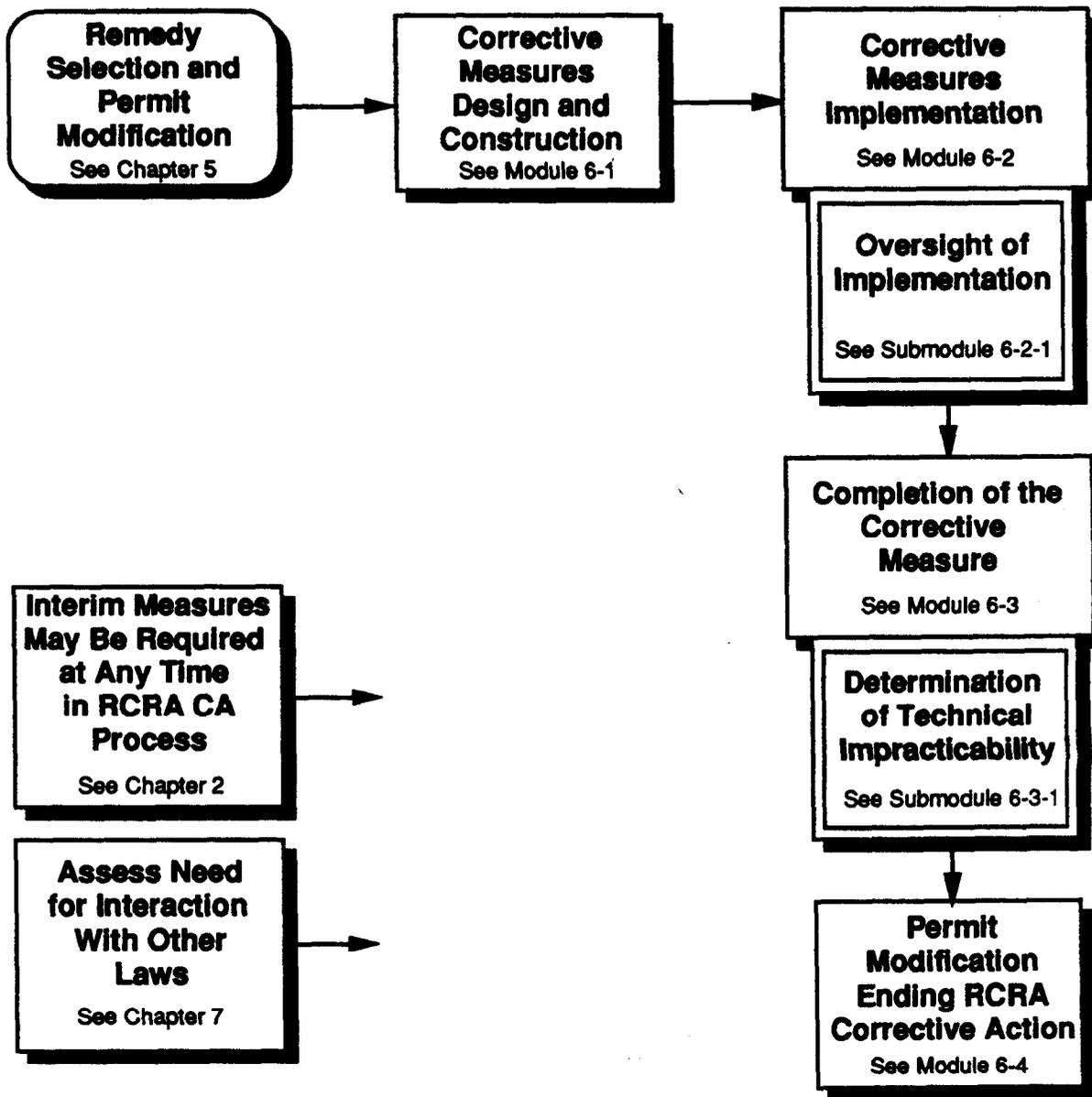


Figure 7
Chapter Six: Corrective Measures Implementation (CMI)

Chapter Six: Corrective Measures Implementation (CMI)

After EPA or the authorized State has approved the corrective measure through the permit modification process, the DOE facility will often be required, in the modified permit/order, to develop a corrective measures design. EPA or the authorized State will approve or modify the design and incorporate it into the schedule of compliance. Three conditions must be met in order to complete corrective measures: (1) all media cleanup standards must be met; (2) all actions required in the permit to address the source or sources of contamination must be satisfied (i.e., implement source controls); and (3) the permittee must comply with procedures specified in the permit for removal or decontamination of units, equipment, devices or structures required to implement the corrective measures.

This chapter will detail the fourth and final phase of the corrective action process under Subpart S, and the overview graphic for this chapter is provided on Figure 7. This chapter will address the following modules:

Module 6-1 Corrective Measures Design and Construction

Under the proposed Subpart S rule, EPA may require the owner/operator to submit a detailed plan, including corrective measures specifications, and complete construction drawings for the corrective measure. Such a requirement usually appears in the facility schedule of compliance in the modified permit or in the Federal Facility Compliance Agreement (FFCA). The proposed Subpart S rule does not provide specific requirements for these plans to implement the corrective measure.

Module 6-2 Corrective Measures Implementation (CMI)

Implementing the corrective measure is a two phase-process. The first phase involves the construction of the corrective measure, and starts once EPA approves the design, specifications, and the construction, quality assurance, and other plans. The second phase of Corrective Measures Implementation (CMI), operation of the corrective measure, begins once construction and acceptance testing are complete.

Module 6-3 Completion of the Corrective Measure

Under the proposed Subpart S rule, a corrective measure is complete when:

- The facility demonstrates compliance with the media cleanup standards (MCS) established in the modified permit;
- All permit requirements for actions addressing the source of the release are satisfied; and
- The facility demonstrates compliance with the procedures specified in the permit for the removal and/or decontamination of all equipment, devices, or structures used in conducting the corrective measure.

In addition to developing a document detailing the specific information supporting the claim that the corrective measure is complete, the facility is required to obtain certification of the completion of the corrective measure from an independent professional(s) skilled in the appropriate discipline(s).

If, after a "reasonable effort" (which includes active efforts to achieve all requirements of the permit) the owner/operator demonstrates the corrective measure is incapable of meeting a given performance standard of the modified permit, then the owner/operator may request a Determination of Technical Impracticability. The Determination of Technical Impracticability represents a finding that remediation of the release is not feasible from a technical standpoint, and such a determination does not represent a discharge of the requirement to conduct RCRA Corrective Action nor does it discharge the owner/operator's obligation for the ultimate cleanup of the facility. EPA reserves the authority to require additional efforts if advances in technology provide a corrective measure capable of remediating the contamination at the facility.

Module 6-4 Permit Modification Ending RCRA Corrective Action

Following documentation and certification of the completed corrective measure, the owner/operator must request a Class III permit modification to end the requirement to conduct RCRA Corrective Action. This type of permit modification requires negotiation of the modification with EPA, development of a draft permit, a public notice, a comment and response period, a public hearing (if necessary), incorporation of any revisions into the permit modification, and issuance of the final modified permit or Federal Facility Compliance Agreement (FFCA). For an Interim status facility, EPA will rescind the RCRA §3008(h) corrective action order and modify the FFCA.

In the preamble to the proposed Subpart S rule, EPA states that the requirement to conduct RCRA Corrective Action ends only upon completion of the corrective measures at all SWMUs at the facility. In the case of completed corrective measures at widely separated SWMUs which are affecting different media, the owner/operator may request a partial release from the RCRA Corrective Action program. In either case, *all* implementation and reporting requirements established in the permit remain in effect until all corrective measures at the facility are complete. Failure to continue required actions such as monitoring or reporting, even if the corrective measure at a SWMU is complete, may represent non-compliance with the terms of the facility permit.

References

This module lists the specific references that were used to develop this chapter as well as other references that may provide useful guidance.

Chapter Seven: Integration with RCRA and Other Environmental Laws

The last chapter of this document addresses the integration of the proposed corrective action rule with other RCRA requirements and with other laws. This chapter will address the following modules:

Module 7-1 Resource Conservation and Recovery Act (RCRA)

The applicable RCRA requirements include the generator/transporter requirements, waste characterization, Subpart F, waste management and land disposal restrictions, Subtitle D (solid wastes), public participation and community relations, and closure. The overview graphic for this module is provided on Figure 8.

Modules 7-2 to 7-9 Integration With Other Environmental Laws

The other laws include the Occupational Safety and Health Act (OSHA), the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), the National Environmental Policy Act (NEPA), the RCRA Underground Storage Tank Program, the Clean Water Act (CWA), the Safe Drinking Water Act (SDWA), the Clean Air Act (CAA), the Toxic Substances Control Act (TSCA), and State laws. The overview graphic for this module is provided on Figure 9.

References

This lists the specific references that were used to develop this chapter as well as other references that may provide useful guidance.

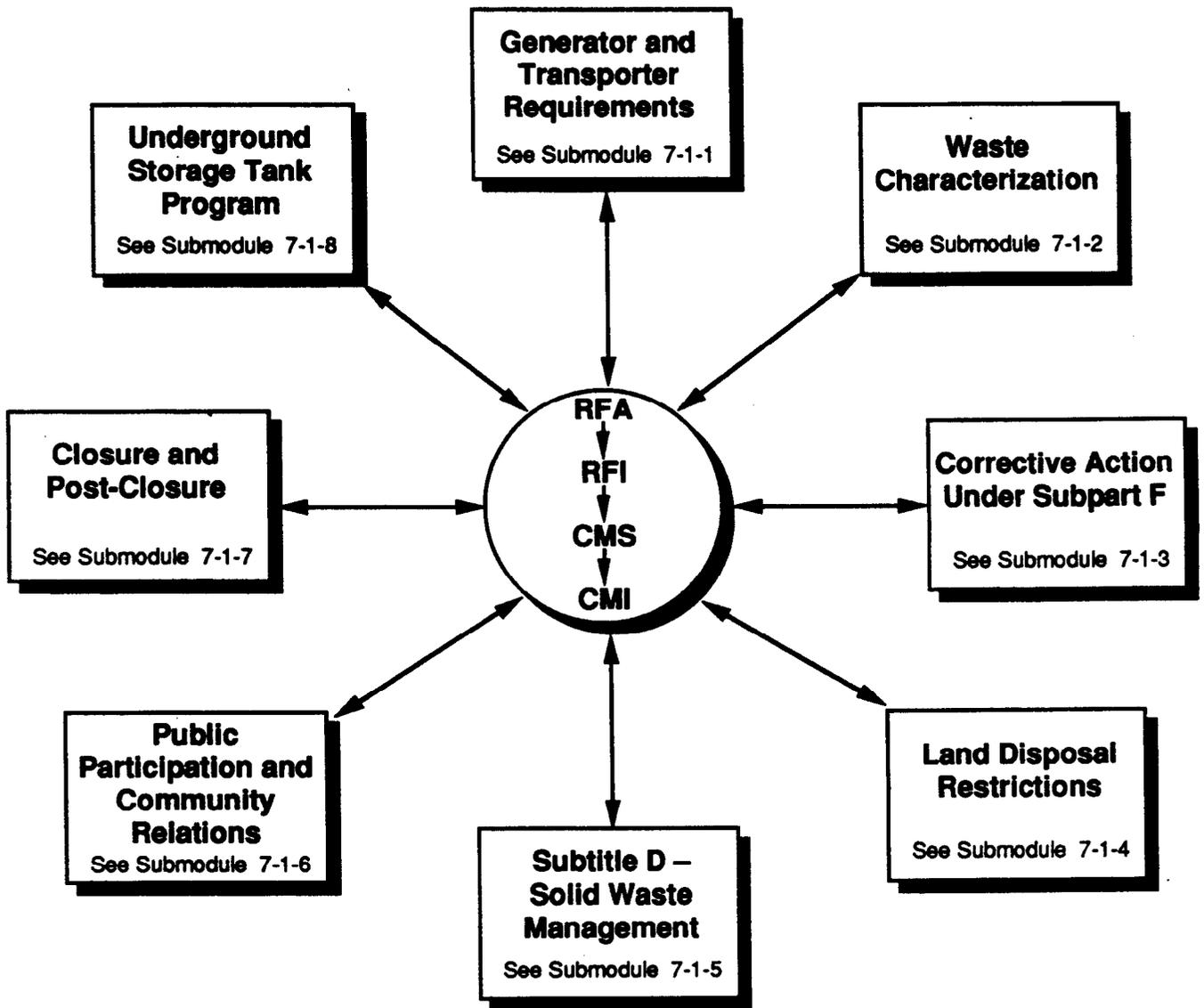


Figure 8
Chapter Seven: Integration with RCRA and Other Environmental Laws
Module 7-1 – Integration with RCRA

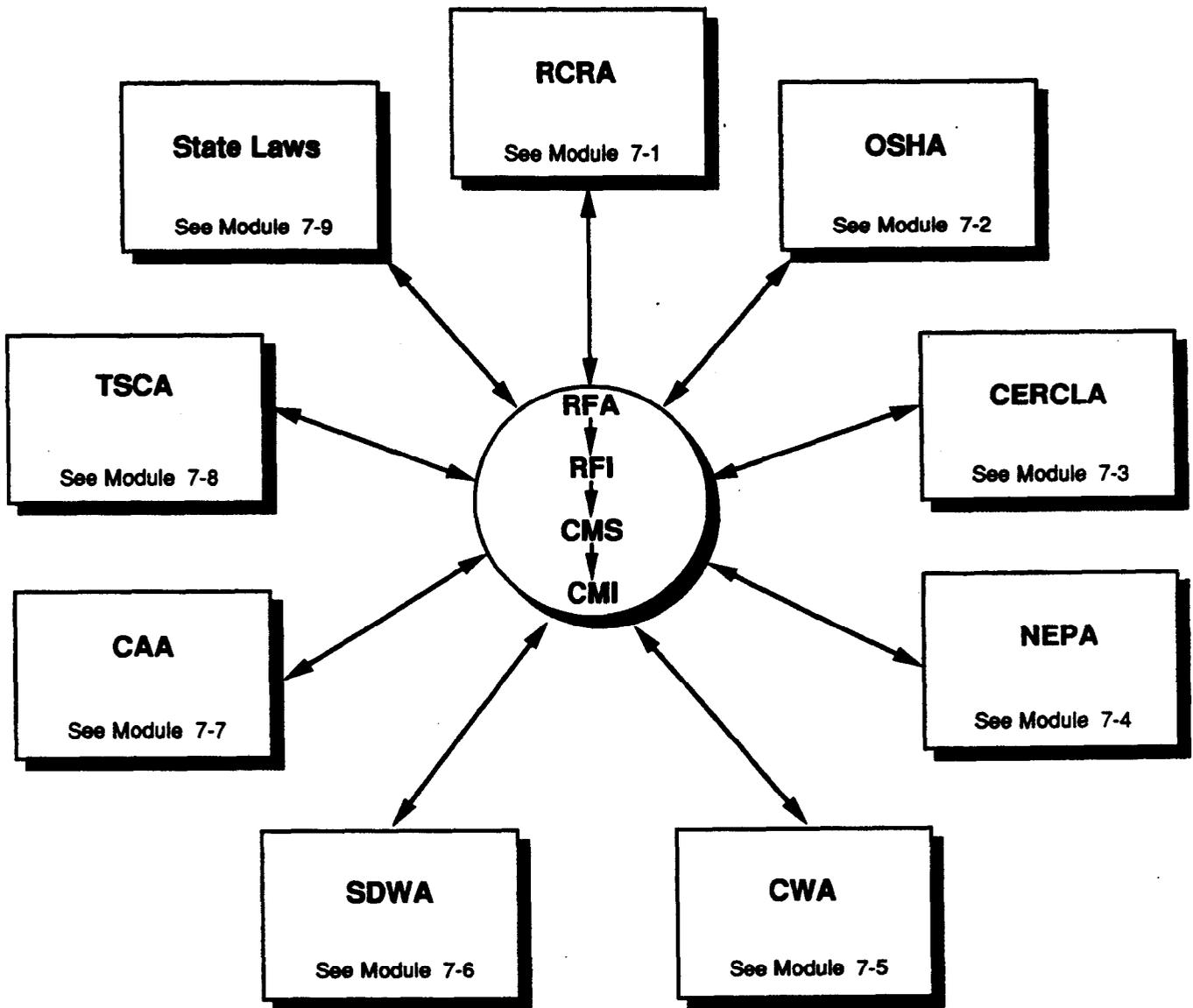


Figure 9
Chapter Seven: Integration with RCRA and Other Environmental Laws
Modules 7-2 to 7-9 – Other Laws

References

Corrective Measures for Solid Waste Management Units (SWMUs) at Hazardous Waste Management Facilities; 55 FR 30796; July 27, 1990

KEY TO THE GRAPHIC APPROACH

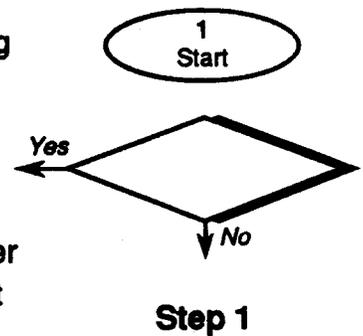
Purpose: Environmental requirements facing DOE facilities are often detailed, complex, and subject to change. Graphic (i.e., flowchart) guidance provides thorough and accurate guidance on environmental topics in an easily understandable format. This guidance document uses diagrams, flowcharts, and supplemental text.

Structure: This guidance document subdivides regulatory definitions into modules. Each module addresses a key portion of the regulations. Each module consists of the following elements:

- A diagram showing how the module corresponds to the regulatory issues addressed in the other modules,
- Flowcharts presenting a decision process for applying the subject regulations, and
- On the pages opposite flowcharts, text providing supplemental information.

Flowchart Symbols: The following symbols have been used in the flowcharts in this document:

- Headings, to label sections of the flowchart and associated supplemental text;
- Ovals, labeled "Start," representing the beginning of a flowchart;
- Diamonds, presenting the decision process;
- Step Numbers, to allow cross-referencing to other steps in the flowchart and between the flowchart and the supplemental text;
- Dashed-Line Rectangles, containing "continued on," "continued from," or "go to" statements; and
- Solid-Line Rectangles, presenting results of the decision-making process.



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