

Report

DRAFT CMS/CFI SCHEDULE LOGIC

DRAFT CMS REPORT OUTLINE

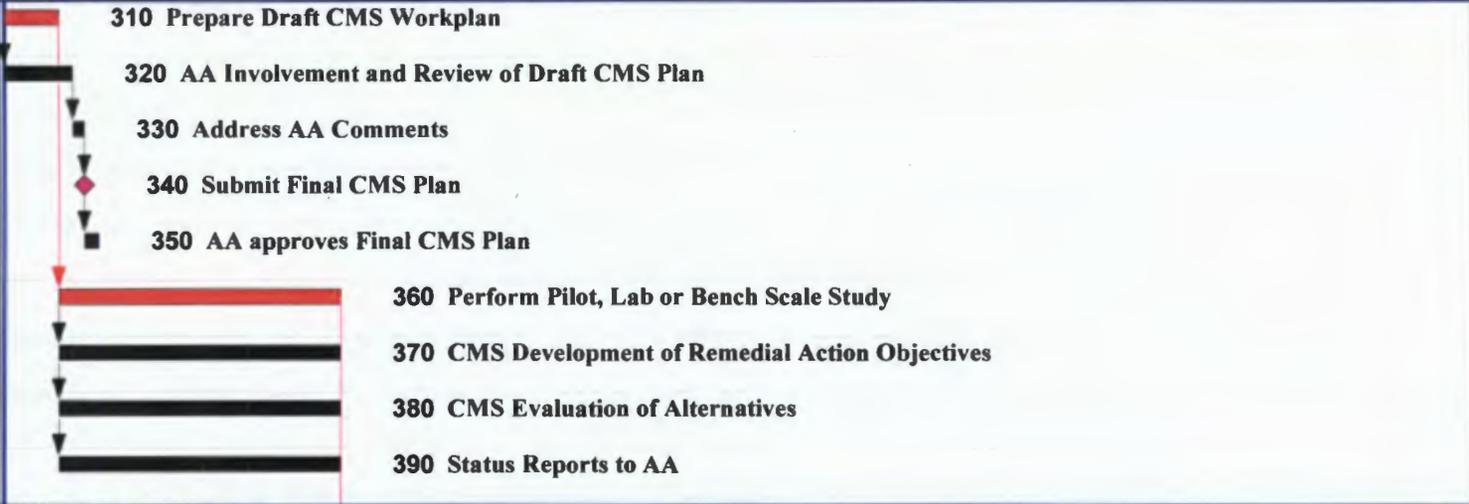
Prepared by the
Los Alamos National Laboratory
Environmental Restoration Project
July 12, 1998



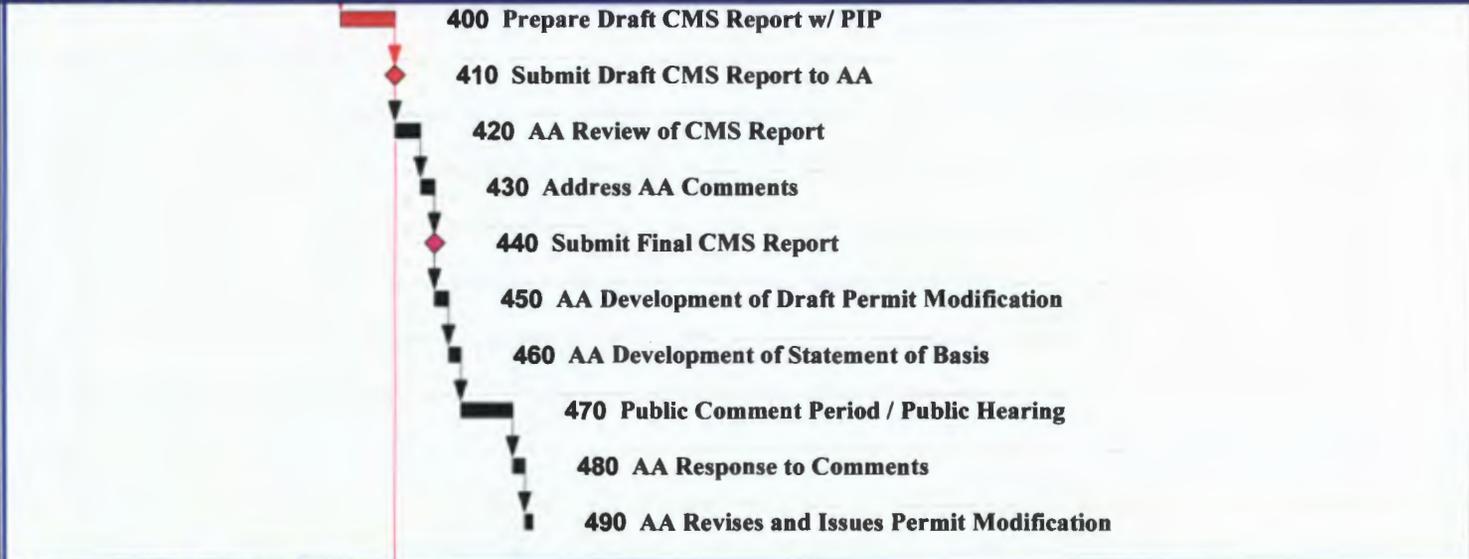
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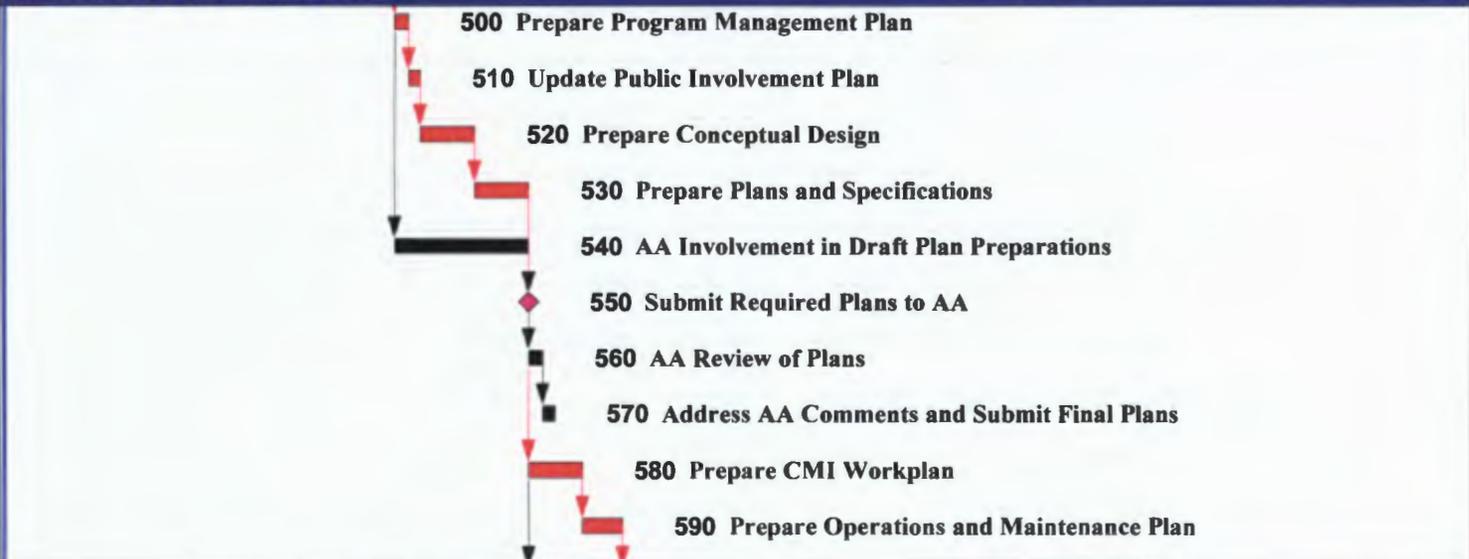
CMS PHASE



CMS REPORT PHASE



CMI DESIGN AND PLANNING PHASE

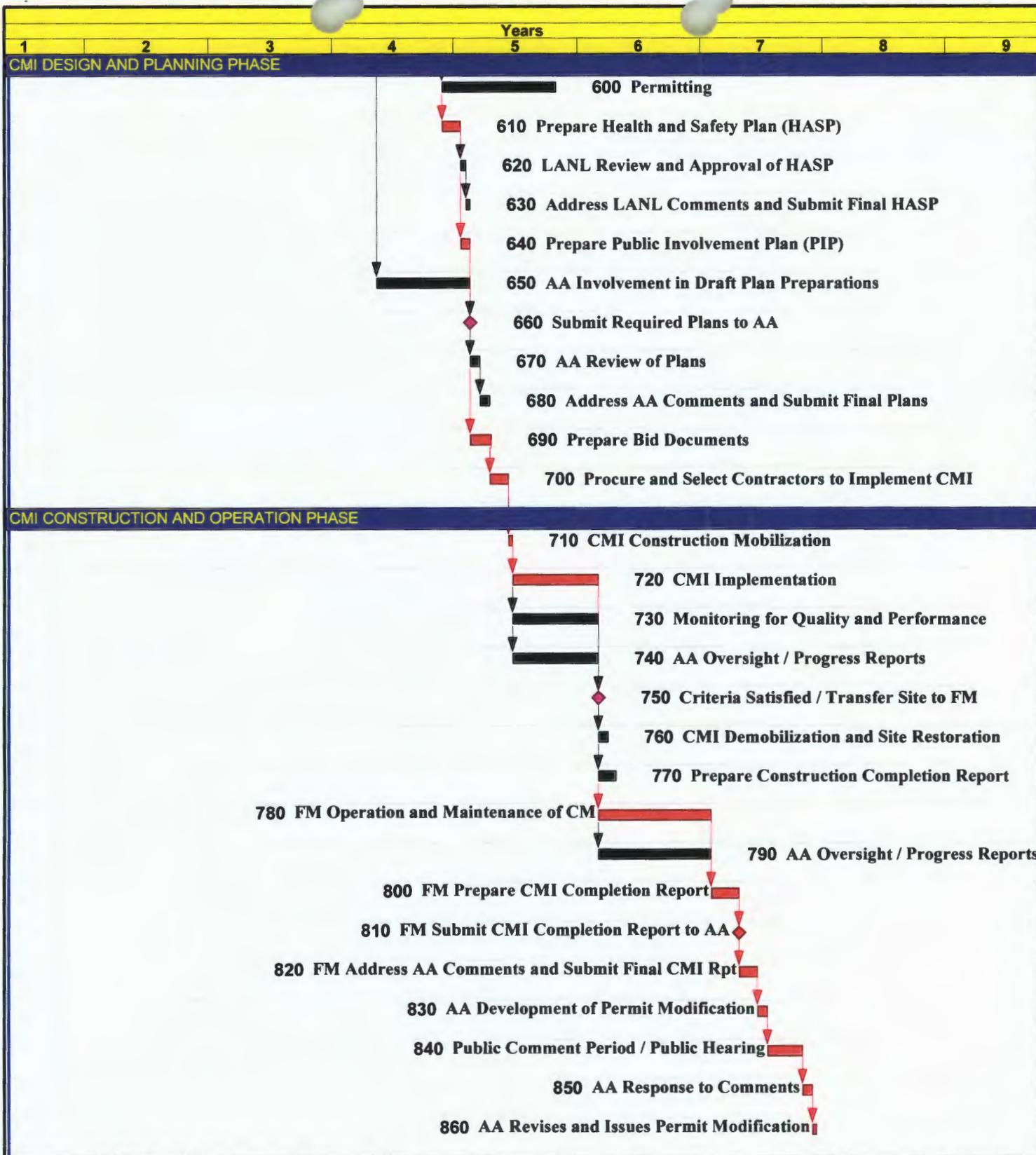


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 Critical Activity

**Draft 260 CMS/CMI Schedule Logic
 Los Alamos National Laboratory
 Environmental Restoration Project**





Draft Corrective Measures Study Report Outline

- A. Executive Summary
- B. Introduction / Purpose / Applicability
- C. Site History
- D. Description of Current Conditions
- E. Media Cleanup Standards / Remedial Action Objectives
- F. Identification, Screening, and Development of Corrective Measure Alternatives
 - 1. Process and Criteria Used to Evaluate Alternatives
 - 2. Identification
 - 3. Screening
 - a) Protection of Human Health and the Environment
 - b) Media Cleanup Standards
 - c) Release Source Control
 - d) Applicable Standards for Management of Wastes
 - e) Site Characteristics
 - f) Waste Characteristics
 - g) Technology Limitations
- G. Evaluation of a Final Corrective Measure Alternative
 - 1. Long-Term Reliability and Effectiveness
 - 2. Reduction of Toxicity, Mobility, or Volume of Wastes
 - 3. Short-Term Effectiveness
 - 4. Potential Impacts
 - 5. Implementability
 - 6. Cost
- H. Justification and Recommendation of the Corrective Measure or Measures
 - 1. Summary of the Corrective Measure or Measures and Rationale
 - 2. Design and Implementation Criteria / Precautions
 - 3. Operation and Maintenance Requirements
 - 4. Remedy-Specific Performance Standards and Expectations
 - 5. Cost Estimates and Schedules
- I. Public Involvement Plan

**Excerpts from Corrective Action Regulatory Drivers and Guidance Associated with Activities
in the Draft 260 CMS/CMI Schedule Logic and the Draft CMS Report Outline**

Environmental Restoration Project

Los Alamos National Laboratory

This document provides excerpts from regulatory and guidance documents pertaining to LANL's corrective action approach. Each activity in the Draft 260 CMS/CMI Schedule Logic is listed by activity number and activity description followed by excerpts where CA-specific information is available. Excerpts included in the CMS REPORT PHASE section also relate to the Draft Generic Corrective Measures Study Report Outline. Each excerpt is preceded by a short notation referring to the source document according to the following key:

- HSWA** EPA (US Environmental Protection Agency), April 10,1990. RCRA Permit No. NMO890010515, EPA Region VI, issued to Los Alamos National Laboratory, Los Alamos, New Mexico, effective May 23,1990, EPA Region VI, Hazardous Waste Management Division, Dallas, Texas. (EPA 1990, 0306)
- 96 S** Corrective Action for Releases From Solid Waste Management Units at Hazardous Waste Management Facilities (Proposed Rule) 61 FR 19432, May 1, 1996
- 90 S** Corrective Action for Solid Waste Management Units at Hazardous Waste Management Facilities (Proposed Rule); 55 FR 30798; July 27, 1990
- IM** RCRA Corrective Action Interim Measures Guidance (Interim Final) OSWER Directive 9902.4 June 1988
- CAP** RCRA Corrective Action Plan (Interim Final) OSWER Directive No. 9902.3 June 1988
- SB** Guidance on RCRA Corrective Action Decision Documents: The Statement of Basis, Final Decision, and Response to Comments OSWER Directive No. 9902.6 February 1991
- DOE CA** RCRA Corrective Action Program Guide, DOE/EH-0323, May 1993
- DOU** Environmental Restoration Document Of Understanding, New Mexico Environment Department, US Environmental Protection Agency, US Department Of Energy, Los Alamos National Laboratory, Sandia National Laboratories--New Mexico, November 16, 1995
- IWP** LANL (Los Alamos National Laboratory), February 1995. "Installation Work Plan for Environmental Restoration Program," Revision 4, Los Alamos National Laboratory document LA-UR-95-740, Los Alamos, New Mexico

CMS PHASE

General

HSWA The Administrative Authority may require a Corrective Measures Study (CMS) and shall notify the Permittee in writing.

96 S Formal Evaluation Not Always Necessary. At some facilities the CMS does not have to be submitted to an overseeing agency for review and approval in favor of a performance-based approach. In these scenarios, the overseeing agency (e.g., EPA or a state) might oversee the facility investigation to ensure that all releases and potential releases from the facility are adequately identified and characterized and that adequate remedial goals are developed for the facility. After the remedial goals undergo public review and comment and are approved by the overseeing agency, the facility owner/operator would design and implement a remedy sufficient to meet the remedial goals without direct agency oversight.

Schedule

HSWA The Permittee shall submit a draft CMS Plan to the Administrative Authority within ninety (90) calendar days from notification of the requirement to conduct a CMS.

No later than fifteen (15) calendar days after the Permittee has received written approval of the Regional Administrator for the CMS Plan, the Permittee shall begin to implement the Corrective Measures Study according to the schedules specified in the CMS Plan.

CMS Plan	ninety (90) calendar days after notification of the requirement to perform a CMS
Revised CMS Plan	as determined
CMS Report	sixty (60) calendar days after completion of CMS
Revised CMS Report	thirty (30) calendar days after notification of deficiency

310 Prepare Draft CMS Workplan

HSWA The CMS Plan shall provide the following information:

- a. A description of the general approach to investigation and potential remedies;
- b. A definition of the overall objectives of the study;
- c. The specific plans for evaluating remedies to ensure compliance with remedy standards;
- d. The schedules for conducting the study;
- e. The proposed format for the presentation of information; and
- f. Any pilot or bench scale studies necessary.

90 S The Regional Administrator may require the permittee to develop and submit a plan(s) for conducting any remedial investigations required under Sec. 264.510 of this subpart. Such plans shall be subject to review and approval or modification by the Regional Administrator, and shall be developed and submitted according to a schedule specified in the schedule of compliance.

Typically, a plan would include a description of the general approach to investigating and evaluating potential remedies, a definition of the overall objectives of the study, a schedule for the study, a description of the specific remedies which will be studied, and a description of how each potential remedy will be evaluated. Further, to guarantee an orderly presentation of study results, the

Regional Administrator may require the permittee to include as part of the plan the format for presenting the results of the CMS.

CAP A proposed outline of the CMS Report will be included in the CMS Workplan. This will include a description of how information will be presented.

320 AA Involvement and Review of Draft CMS Plan

DOE CA Submit the draft CMS plan to EPA for review. The draft plan represents DOE's opportunity to negotiate on certain conditions. Although the plan should be developed to comply with the requirements under the RCRA Corrective Action program, the plan should propose only those activities which are necessary to the selection of an appropriate corrective measure.

330 Address AA Comments

See activity 340

340 Submit Final CMS Plan

DOE CA If EPA requires revisions, revise and resubmit the draft plan to EPA. This activity may require meetings with EPA and negotiation on certain points. For example, the extent of any treatability testing should be limited to that which is required to evaluate the technology. The DOE should try to avoid requirements to conduct original or theoretical research during the evaluation of corrective measures technologies.

350 AA approves Final CMS Plan

HSWA After the Permittee submits the draft CMS plan, the Administrative Authority will either approve or disapprove the plan. If the plan is not approved, the Administrative Authority will notify the Permittee in writing of the plan's deficiencies and specify a due date for submittal of the revised plan. If this plan is not approved, the Administrative Authority will revise the Plan and notify the Permittee of the revisions. This Administrative Authority-revised Plan becomes the approved Plan.

90 S Discussions between the permittee and the Regional Administrator before the plan is drafted will generally be needed to ensure that appropriate remedial alternatives are considered, that appropriate target concentration levels of contaminants are used, and that the unnecessary expenditures of time or other resources for revisions which otherwise might be required are avoided.

Upon receipt of the corrective measures plan, the Regional Administrator will evaluate its adequacy. If the plan is deficient, proposed Sec. 264.523(a) would allow the Regional Administrator to modify the plan or require the owner/operator to make the appropriate modifications.

Upon approval of the plan by the Regional Administrator, Sec. 264.523(b) would require that the permittee conduct the CMS according to the approved plan, including the schedule. Both the plan and the schedule included in the plan will become an enforceable part of the permit schedule of compliance.

IWP Within 120 days of receipt of the draft report, EPA will approve or request a revision of the CMS report. EPA's response will consider comments received from NMED and the public. DOE/UC will finalize the draft CMS report and incorporate comments received from EPA within 30 days of receipt.

360 Perform Pilot, Lab or Bench Scale Study

DOE CA Determine if treatability studies are required by the CMS Plan (see 55 FR 30822). For each alternative, conduct any bench-scale treatability testing that is required by the CMS plan. This first phase of treatability testing as part of the CMS is usually performed in a laboratory. Bench-scale testing involves conducting a series of treatability tests with different parameters on small quantities of contaminated material. Analysis of the results of these small-scale tests permits evaluation and optimization of the operational parameters of the alternative quickly and at a relatively low cost. Analyze the results from the bench-scale testing, and summarize these results. Prepare a document summarizing the findings of the bench-scale treatability tests and evaluation of the alternatives. This document will be used in developing the CMS report.

For each alternative that remains following bench-scale testing, evaluate the need for pilot-scale testing. Conduct any required pilot-scale treatability testing. Pilot-scale treatability testing involves building a scaled-down version of a treatment technology. Pilot-scale testing should simulate full-scale operations and usually permits only limited variance of operational parameters. The results of a pilot-scale test allow assessment of the overall effectiveness and practicality of a remedial technology. Analyze the results of the pilot-scale testing to determine:

- The effectiveness of the corrective measure in reducing the toxicity, mobility, and volume of the waste;
- The maximum rate of operation or the expected rate of reduction of the contamination; and
- The optimal operating parameters.

Submit the bench-scale testing document to meet any requirements for treatability testing reporting. Evaluate each alternative using the evaluation process and criteria discussed in the CMS plan. Eliminate from consideration those alternatives that are impractical or unreliable. Prepare a document summarizing the findings of the bench- and pilot-scale treatability tests and evaluation of each alternative. This document will be used in developing the CMS report

370 CMS Development of Remedial Action Objectives

96 S The CMS does not necessarily have to address all potential remedies for every corrective action facility. EPA advises program implementors and facility owners/operators to focus corrective measures studies on realistic remedies and to tailor the scope and substance of studies to the extent, nature and complexity of releases and contamination at any given facility. For example, some potential remedies should not be considered because they are simply implausible. In cases where EPA has identified a presumptive remedy (presumptive remedies are discussed in Section II.F.6.c of today's Notice), the purpose of the CMS will be to confirm that the presumptive remedy is appropriate to facility-specific conditions. In cases where EPA or a state is using performance standards or a similar approach, the Agency might not require submission or approval of a formal CMS at all. EPA continues to emphasize that it does not want studies to be undertaken simply for the purpose of completing a perceived step in a perceived process. While, for a complex site, review of a full range of remedial alternatives may be required, at many sites, the preferred remedial approach will be apparent early in the cleanup process and the analysis of remedial alternatives should be highly focused.

In implementing the corrective action program, EPA has found a number of opportunities to significantly increase the efficiency of corrective measures studies, as discussed below.

Integration with Site Characterization. EPA continues to emphasize that the components of corrective action (e.g., release assessment, RFI, CMS) should not be viewed as isolated steps in a

linear process. In the Agency's experience, it is generally more efficient to focus data collection on information needed to support an appropriate, implementable remedy than to attempt to complete separate evaluations at each step. As remedial alternatives are considered during a CMS, the facility owner/operator might find additional site characterization necessary. Similarly, the earlier in the corrective action process potential remedies can be identified, the more effectively information gathering can be focused.

Remedies should be protective of human health and the environment, and maintain protection over time. In meeting this remedial goal, EPA has learned that certain combinations of facility-specific circumstances are often addressed by similar approaches.

EPA expects to use treatment to address the principal threats posed by a site whenever practicable and cost-effective.

b) EPA expects to use engineering controls, such as containment, for wastes and contaminated media which can be reliably contained, pose relatively low long-term threats, or for which treatment is impracticable.

(c) EPA expects to use a combination of methods (e.g., treatment, engineering and institutional controls), as appropriate, to achieve protection of human health and the environment.

(d) EPA expects to use institutional controls such as water and land use restrictions primarily to supplement engineering controls as appropriate for short- and long-term management to prevent or limit exposure to hazardous wastes and constituents. EPA does not expect that institutional controls will often be the sole remedial action.

(e) EPA expects to consider using innovative technology when such technology offers the potential for comparable or superior treatment performance or implementability, less adverse impact, or lower costs for acceptable levels of performance when compared to more conventional technologies.

(f) EPA expects to return usable groundwaters to their maximum beneficial uses wherever practicable, within a time frame that is reasonable given the particular circumstances of the site. When restoration of groundwater is not practicable, EPA expects to prevent or minimize further migration of the plume, prevent exposure to the contaminated groundwater and evaluate further risk reduction. EPA also expects to control or eliminate surface and subsurface sources of groundwater contamination.

(g) EPA expects to remediate contaminated soils as necessary to prevent or limit direct exposure of human and environmental receptors and prevent the transfer of unacceptable concentrations of contaminants (e.g., via leaching, runoff or air borne emissions) from soils, including subsurface soils, to other media.

IWP In addition to the requirements discussed above, DOE/UC integrate RCRA and National Environmental Policy Act compliance through the CMS process. CMS plans can be used to trigger a determination of whether an environmental assessment (EA) is required, and, if so, CMS reports can serve that function. In the event that a full environmental impact statement (EIS) is required, the CMS report serves as a support document for that effort. In addition, natural resource damage assessments will be considered during the CMS process.

380 CMS Evaluation of Alternatives

HSWA

A. Technical/Environmental/Human Health/Institutional

1. Technical

The Permittee shall evaluate each corrective measure alternative based on performance, reliability, implementability and safety.

- a. The Permittee shall evaluate performance based on the effectiveness and usefulness of the corrective measure.
- b. The Permittee shall provide information on the reliability of each corrective measure including their operation and maintenance requirements and their demonstrated reliability.
- c. The Permittee shall describe the implementability of each corrective measure including the relative ease of installation (constructability) and the total time required to achieve a given level of response.
- d. The Permittee shall evaluate each corrective measure alternative with regard to safety. This evaluation shall include threats to the safety of nearby communities and environments as well as those to workers during implementation. Factors to consider include fire, explosion, and exposure to hazardous substances.

2. Environmental

The Permittee shall perform an Environmental Assessment for each alternative. The Environmental Assessment shall focus on facility conditions and pathways of contamination actually addressed by each alternative. The Environmental Assessment for each alternative will include, at a minimum, an evaluation of: the short- and long-term beneficial and adverse effects of the response alternative; and adverse effects on environmentally sensitive areas; and an analysis of measures to mitigate adverse impacts.

3. Human Health

The Permittee shall assess each alternative in terms of the extent which it mitigates short- and long-term potential exposure to any residual contamination and protects human health both during and after implementation of the corrective measure.

4. Institutional

The Permittee shall assess relevant institutional needs for each alternative.

B. Cost Estimate

The Permittee shall develop an estimate of the cost of each corrective measure alternative (and for each phase or segment of the alternative). The cost estimate shall include capital, and operation and maintenance costs.

96 S b. Remedy Selection Criteria. The 1990 proposal, like the Superfund NCP, established a two-phased evaluation for remedy selection. During the first phase, potential remedies are screened to see if they meet "threshold criteria"; remedies which meet the threshold criteria are then evaluated using various "balancing criteria" to identify the remedy that provides the best relative combination of attributes. While the CERCLA remedy selection criteria are not identical to the RCRA corrective action criteria proposed in 1990, they address the same types of considerations and should generally result in similar remedies when applied to similar site-specific conditions.

The 1990 proposal identified four remedy threshold criteria and five balancing criteria. The four threshold criteria proposed in 1990 were that all remedies must: (1) be protective of human health and the environment; (2) attain media cleanup standards; (3) control the source(s) of releases so as to reduce or eliminate, to the extent practicable, further releases of hazardous waste (including hazardous constituents) that might pose threats to human health and the environment; and (4) comply with applicable standards for waste management. EPA believes these threshold criteria remain appropriate as general goals for cleanup and screening tools for potential remedies.

There has been some confusion regarding the proposed threshold criterion that remedies attain media cleanup standards. Attaining media cleanup standards does not necessarily entail removal or treatment of all contaminated material above specific constituent concentrations. Depending on the site-specific circumstances, remedies may attain media cleanup standards through various combinations of removal, treatment, engineering and institutional controls. For example, in situations where waste is left in place in an engineered landfill or under a cap, media cleanup standards would be attained, in part, through long-term engineering and institutional controls.

The 1990 proposal identified five balancing criteria for choosing among remedies that meet the threshold criteria. The five balancing criteria proposed in 1990 were: (1) Long-term reliability and effectiveness; (2) reduction of toxicity, mobility or volume of wastes; (3) short-term effectiveness; (4) implementability; and (5) cost. The balancing criteria were not ranked in terms of relative importance.

DOU The primary criteria for developing and selecting remedies are long-term reliability and effectiveness; reduction of toxicity, mobility, or volume of contaminants; short-term effectiveness; implementability; and cost. Potential remedies, which could conceivably include new technologies, will be evaluated based on their ability to meet the following standards: protection of human health and the environment; attainment of established cleanup levels; control of the source of release; and compliance with waste management requirements.

IWP Cleanup is considered to be any measure taken to ensure protection of human health and the environment, not necessarily the total removal of a contaminant. It may not be necessary to clean up areas of widespread, very-low-level contamination. The low levels of risk to human health resulting from low-level contamination would not be significantly reduced by cleanup because contaminant concentrations may be so close to background levels. Thus, cleanup is approached on a case-by-case basis, and it is the responsibility of DOE/UC to demonstrate to EPA that remediation would provide no significant reduction in risk.

390 **Status Reports to AA**

HSWA The Permittee shall at a minimum provide the Administrative Authority with signed monthly management status reports.

The Permittee shall submit quarterly progress reports which summarize environmental data collected during the previous quarter.

90 S Reports of Corrective Measure Study (Sec. 264.524). As proposed, Sec. 264.524 would provide authority for the Regional Administrator to require progress reports on the Corrective Measure Study at intervals appropriate to the site-specific study requirements.

CAP The Permittee will, at a minimum, provide the implementing agency with signed [monthly, bimonthly, or quarterly] progress reports.

CMS REPORT PHASE

General

IWP If the selected remedy involves leaving in place residual contamination that could adversely impact natural resources, the DOE/UC may carry out a natural resources damage assessment under the provisions of CERCLA (EPA 1990, 0559, pp.8665-8865; DOE 1991, 0560).

Schedule

See CMS schedule section.

IWP DOE/UC recognize the need for innovative and cost-effective remedial technologies. New technologies developed at the Laboratory could offer distinct advantages over currently available technologies (e.g., downhole monitors and stabilization techniques) not fully developed at the time the remedy is selected. In such cases, DOE/UC may propose that EPA postpone selecting a remedy until these technologies are functional if there is a distinct technical, time, or cost advantage.

400 Prepare Draft CMS Report w/ PIP

DOE CA In keeping with the intent to promote public participation in RCRA and CERCLA investigative and remedial activities, the facility should develop a public involvement plan (PIP). The PIP should be a formal document, and should be reviewed and updated on a regular basis. The elements of a PIP include:

- Provisions for interviewing local governmental officials, community leaders, and affected individuals to assess the concerns of the surrounding population;
- Specific plans to provide notification on the availability of information on site conditions and investigation results;
- Plans for conducting public meetings to communicate directly with the citizens in the local community; and
- Providing a local information repository and administrative record.

Many of the elements of a PIP will support the community relations requirements of the permit modification and remedy selection process. The DOE Office of Environmental Guidance has developed a guidance document entitled Public Participation in Environmental Restoration Activities (1991) that provides a detailed discussion of the elements of a PIP.

410 Submit Draft CMS Report to AA

See activity 430

420 AA Review of CMS Report

See activity 430

430 Address AA Comments

DOE CA Upon review of the draft CMS report, EPA may require the owner/operator to conduct analyses of additional alternatives. EPA may also require the owner/operator to expand upon the investigation of an alternative already evaluated during the CMS. If the report has been returned by EPA for additional work, conduct any additional investigations, revise, and resubmit the report to EPA for review and approval.

440 **Submit Final CMS Report**

HSWA The CMS Final Report shall summarize the results of the investigations for each remedy studied and of any bench-scale or pilot tests conducted. The CMS Report must include an evaluation of each remedial alternative. The CMS Report shall present all information gathered under the approved CMS Plan. The final report must contain adequate information to support the Regional Administrator in the remedy selection decision making process.

The Report shall at a minimum include:

1. A summary of the corrective measure or measures and rationale
2. Design and implementation precautions
3. Cost Estimates and Schedules

Two (2) copies and one compatible disk copy of the draft and final reports shall be provided to the Administrative Authority by the Permittee.

96 S c. Facility Owner/Operator Should Recommend a Preferred Remedy. EPA emphasizes that it expects facility owners/operators to develop and recommend remedies or remedy performance standards (if a performance-based model is being used), including proposed media cleanup levels, points of compliance and compliance time frames, that address the proposed threshold criteria and present an advantageous combination of the proposed balancing criteria. During remedy selection, EPA will consider the facility owner/operator's preferred remedial alternative, other remedial alternatives and public comment. Although it is the responsibility of the facility owner/operator to develop and recommend a preferred remedial alternative or remedy performance standard, the Agency can reject any alternative and require further analysis or prescribe a different remedial alternative or remedy performance standard.

CAP CMS Report shall include the following elements:

Introduction/Purpose

Description of Current Conditions

Media Cleanup Standards

Identification, Screening, and Development of Corrective Measure Alternatives

Evaluation of a Final Corrective Measure Alternative

Recommendation by Permittee for a Final Corrective Measure Alternative

Public Involvement Plan

460 **AA Development of Statement of Basis**

SB The regulatory agency's proposed remedy for a facility is presented to the public in a SB, and, where applicable, the draft permit modification. The SB provides a brief summary of all of the alternatives studied in the detailed analysis phase of the RFI/CMS, highlighting the key factors that led to the identification of the proposed remedy.

470 **Public Comment Period / Public Hearing**

SB The SB is made available for public comment, in addition to the administrative record, including the RFI and CMS Reports, and, where applicable, the draft permit modification. The public may comment on the RFI and CMS, as well as the proposed remedy, at this time. If warranted, the regulatory agency may require the owner or operator to perform additional CMSs in response to public comment.

The agency should provide a reasonable opportunity for submission of written and/or oral comments and an opportunity for a public meeting regarding the proposed remedy, the RFI/CMS reports or any information contained in the administrative record for the draft permit modification or corrective action order. Pursuant to 40 CFR 124.10(b), the agency must allow at least 45 days for public comment on draft permit modifications.

450 AA Development of Draft Permit Modification

DOE CA EPA, often in consultation with the facility owner/operator, develops a draft permit modification specifying the corrective measure. Under proposed 40 CFR §264.526(b) the draft permit modification is required to include:

- A description of the technical features of the corrective measure that are necessary for achieving the general standards established for corrective measures (40 CFR §264.526(b)(1));
- A listing of all media cleanup standards (MCS) established for the corrective measure (40 CFR §264.526(b)(2));
- The specific requirements for demonstrating compliance, including points of compliance, the frequency and duration of sampling, and specific analytical, sampling, and data management requirements (40 CFR §264.526(b)(3));
- The period of performance required;
- Specific requirements for the management of waste generated during implementation of the corrective measure (40 CFR § 264.526(b)(4));
- The requirements and procedures for decontamination, removal, or closure of any units or structures used during implementation of the corrective measure;
- A detailed schedule for implementing all the major technical features, and a target date for completion of the corrective measure; and
- Any requirements for submission of periodic progress reports.

480 AA Response to Comments (RTC)

SB Following receipt of public comments, the regulatory agency is required to prepare a RTC prior to the issuance of any final permit decision pursuant to 40 CFR 124.17. This RTC must be prepared in accordance with 40 CFR 124.17. A RTC should also be prepared after the public comment period but prior to those facilities undertaking corrective action pursuant to an enforcement order. If the proposed remedy is selected for implementation, RTCs should be finalized within 30 workdays after the public comment period ends. More time may be needed to finalize RTCs when the proposed remedy is not selected for implementation.

490 AA Revises and Issues Permit Modification

90 S Permit Modification for Selection of Remedy (Section 264.526) After a preliminary selection of remedy, the Agency will need to revise the permit to incorporate the remedy. This decision (selection of remedy) is a major one in the corrective action process, and the public is entitled to review and comment on the Agency's preliminary decision concerning appropriate remedial activities at the facility. Moreover, this modification provides an opportunity for the public to comment on activities (e.g., the remedial investigations and the CMS) that have led up to the identification and selection of the remedy. As a result, the Agency believes that a major modification of the permit is appropriate. Therefore, the Agency is proposing today in Sec. 264.526(a) to require a major permit modification for the purpose of specifying the selected corrective measures and imposing a schedule of compliance for implementing the remedy.

IWP The preliminary selection of remedies based on EPA's response to CMS reports is finalized by a major modification of the schedule of compliance given in the HWSA Module. The EPA can modify the permit to specify remedies selected through the CMS process. The permit modification must be conducted according to the Procedure established in Section N of the HWSA Module. The Modification process includes a formal public comment and revision period before written notice of the permit modification is issued.

DRAFT

CMI DESIGN AND PLANNING PHASE

General

96 S Components of corrective measures implementation might include: conceptual design, operation and maintenance, intermediate design plans and specifications, final design plans and specifications, construction work plan, construction completion report, corrective measure completion report, health and safety plan, public participation plan and progress reports; however, in many cases, only a subset of these documents will be required for individual corrective measures implementations.

90 S The Regional Administrator may require the permittee, upon modification of the permit according to Sec. 264.526, to prepare detailed construction plans and specifications to implement the approved remedy at the facility, unless such plans and specifications have already been specified in the permit modification. Such plans shall be subject to review and approval or modification by the Regional Administrator, and shall be developed and submitted in accordance with the permit schedule of compliance. Upon approval by the Regional Administrator, the plan shall be incorporated expressly or by reference into part of the permit schedule of compliance.

CAP Unless the implementing agency specifies otherwise, the documents required for CMI are:

Conceptual Design, Operation and Maintenance Plan
Intermediate Plans and Specifications
Final Plans and Specifications
Construction Workplan
Construction Completion Report
Corrective Measure Completion Report
Health and Safety Plan
Public Involvement Plan
Progress Reports

If the Permittee can justify, to the satisfaction of the implementing agency, that a plan and/or report of portions thereof are not needed in the given site-specific situation, then the implementing agency may waive that requirement.

Intermediate design plans may not be required at specific design points. A CMI Workplan may be submitted to the implementing agency rather than the Conceptual Design, Intermediate Plans and Specifications, and the Construction Workplan. The implementing agency may not require submittal of Final Plans and Specifications and Construction Workplan.

IWP DOE/UC will prepare CMI plans after approval of the permit modification and upon EPA request. In general, CMI plans will include

- Remedy designs (i.e., detailed construction plans and specifications to implement the selected remedy);
- Type and frequency of reports to be submitted on the progress of implementation;
- Requirements for completion of the remedy;
- Determination of technical practicability; and
- Verification plans.

Schedule

CAP

Conceptual Design	[DATE]*
Operation and Maintenance Plan	[DATE]*
Intermediate Plans and Specifications	[NUMBER] days after Conceptual Design Approval
Final Plans and Specifications	[NUMBER] days after the implementing agency comments on Intermediate Plans and Specifications
Construction Workplan	Concurrent with Final Plans and Specifications
Construction Completion Report	[DATE]*
Corrective Measure Completion Report	[DATE]* (based on when completion criteria are believed to have been satisfied)
Health and Safety Plan	[DATE]*
Public Involvement Plan	[DATE]*
Progress Reports	[MONTHLY, BI-MONTHLY, other]*

* Note: see extract below for explanation

DOE CA The EPA develops a proposed schedule for implementing the corrective measure, and includes the proposed schedule in the draft permit or permit modification. The owner/operator of the facility has the opportunity to influence schedule development through the conclusions of the RCRA Facility Investigation (RFI) and Corrective Measures Study (CMS) reports, through negotiation and discussion with EPA, through use of the public comment period, and through the submission of A-106 reports to EPA. The owner/operator must take an active role, participating with EPA in developing the proposed schedule.

There are many factors which influence the schedule for the corrective measure. Examples include the availability of the necessary technical expertise, the availability of funding, the complexity of construction, or the demonstrated time a corrective measure will need to reach the established cleanup standard. For example, treatability studies conducted during the CMS may provide an estimate of the length of time required to treat a certain volume of waste (e.g., the maximum feed rate for an incinerator). The proposed schedule will reflect the length of time required to treat the volume of contaminated material at the SWMU under consideration. (55 FR 30825)

The schedule, once approved, becomes an enforceable part of the facility permit. To remain in compliance with the terms of the permit, the owner/operator must notify EPA of any deviations from the schedule prior to occurrence and request a permit modification before becoming non-compliant. During development of the schedule, DOE should request inclusion of provisions allowing flexibility in the schedule. Adequate flexibility should minimize the number of modifications to the schedule. (55 FR 30825)

500 Prepare Program Management Plan

DOE CA The PMP should include:

- A description of the overall management strategy for implementing the corrective measure;
- A description of the roles and responsibilities of the personnel involved in the project; and
- A description of the qualifications of the personnel assigned to the project.

510 Update Public Involvement Plan

DOE CA Update the public involvement plan (PIP) to reflect the need to keep the public abreast of progress and/or problems as the Corrective Measures Implementation proceeds. Upon completion of the engineering plans and design, the facility should prepare and distribute an updated fact sheet and conduct an informal public hearing to discuss the implementation of the corrective measure. Preparation and distribution of additional fact sheets and regularly scheduled informal public hearings should be conducted throughout the implementation process. This additional effort will keep the public aware of the progress in implementing the corrective measure.

520 Prepare Conceptual Design

90 S Remedy Design (Sec. 264.527). After EPA has approved the remedy through the permit modification process, the facility owner/operator will often be required in the modified permit to develop a remedy design. Proposed Sec. 264.527 would require the permittee to prepare detailed construction plans and specifications for implementing the remedy. The schedule for submission of the plans would be included in a schedule of compliance detailed in the permit. This proposed requirement is analogous to the Superfund program's adoption of design standards following the Record of Decision on remedy selection. The Agency would approve or modify the design and incorporate it into the schedule of compliance.

CAP Conceptual Design (15% Design Point)

- A. Introduction/Purpose
- B. Corrective Measures Objectives
- C. Conceptual Model of Contaminant Migration
- D. Description of Corrective Measures
- E. Project Management
- F. Project Schedule
- G. Design Criteria
- H. Design Basis
- I. Waste Management Practices
- J. Required Permits
- K. Long-lead Procurement Considerations
- L. Appendices

530 Prepare Plans and Specifications

90 S The Regional Administrator may require the permittee, upon modification of the permit according to Sec. 264.526, to prepare detailed construction plans and specifications to implement the approved remedy at the facility, unless such plans and specifications have already been specified in the permit modification. Such plans shall be subject to review and approval or modification by the Regional Administrator, and shall be developed and submitted in accordance with the permit schedule of compliance. Upon approval by the Regional Administrator, the plan shall be incorporated expressly or by reference into part of the permit schedule of compliance. The plans and specifications must include, but are not limited to, the following:

- (1) Designs and specifications for units in which hazardous wastes and non-hazardous solid wastes will be managed, as specified in the approved remedy.
- (2) Implementation and long-term maintenance plans.
- (3) Project schedule.
- (4) Construction quality assurance program.

IWP CMI plans will contain a section that provides detailed construction plans for implementing remedies. In some cases, the technical details may have been provided in the CMS report. The remedy design should include

- Design specification of PRSs,
- Implementation and long-term maintenance plans,
- Major milestones,
- Project schedule, and
- A quality assurance plan for the construction.

540 AA Involvement in Draft Plan Preparations

See activity 550

550 Submit Required Plans to AA

DOE CA The owner/operator may be required to submit any or all of the documents prepared during this process to EPA for review and approval.

See the annotated references under activity 530 Prepare Plans and Specifications.

560 AA Review of Plans

See activity 570

570 Address AA Comments and Submit Final Plans

DOE CA If the documents were unacceptable to EPA, the owner/operator should request a meeting with EPA to discuss and negotiate any revisions before revising the documents. The owner/operator should recognize that under the proposed Subpart S rule, discussion and negotiation of any revisions is a discretionary action by EPA. EPA could, within their authority, unilaterally revise the document and require the facility to implement the revised plan. Once these discussions and negotiations are complete, the facility should revise and resubmit the documents to EPA.

580 Prepare CMI Workplan

- CAP** Construction Workplan
- A. Introduction/Purpose
 - B. Project Management
 - C. Project Schedule
 - D. Construction Quality Assurance/Quality Control Programs
 - E. Waste Management Procedures
 - F. Sampling and Analysis
 - G. Construction Safety Procedures
 - H. Documentation Requirements
 - I. Cost Estimate/Financial Assurance

590 Prepare Operations and Maintenance Plan

- CAP** Operation and Maintenance Plan
- A. Introduction/Purpose
 - B. Project Management
 - C. System Description
 - D. Personnel Training
 - E. Start-up Procedures

- F. Operation and Maintenance Procedures
- G. Replacement Schedule for Equipment and Installed Components
- H. Waste Management Practices
- I. Sampling and Analysis
- J. Corrective Measure Completion Criteria
- K. Operation and Maintenance Contingency Procedures
- L. Data Management and Documentation Requirements

600 Permitting

No CA-related annotated references for this activity.

610 Prepare Health and Safety Plan (HASP)

DOE CA The development of a health and safety plan (HASP) for the implementation of the corrective measure is a requirement under the Occupational Safety and Health Act (OSHA). The specific requirements for a HASP are outlined at 29 CFR §1910.120 - Hazardous Waste Operations and Emergency Response (HAZWOPER). The minimum requirements for a HASP are:

- Site characterization and hazard analysis;
- Employee training necessary to successfully fulfill the HASP;
- A description of the conditions for use of personal protective equipment (PPE);
- A description of the medical surveillance requirements for employees engaged in onsite activities;
- Environmental monitoring equipment operation;
- Methods of site control employed during the investigation;
- Decontamination procedures;
- Emergency response procedures;
- Confined-space entry procedures; and
- Spill containment procedures.

620 LANL Review and Approval of HASP

See activity 630

630 Address LANL Comments and Submit Final HASP

DOE CA The owner/operator may be required to submit any or all of the documents prepared during this process to EPA for review and approval.

See the annotated references under activity 530 Prepare Plans and Specifications.

640 Prepare Public Involvement Plan (PIP)

90 S Upon approval of the plans and specifications for the remedy, the permittee shall place the plans and specifications in the information repository, if required under Sec. 270.36 and provide written notice of the availability for inspection of the approved plans and specifications for the remedy to all individuals on the facility mailing list. If an information repository has not been required pursuant to Sec. 270.36, the notice shall specify where the plans and specifications are available for inspection.

650 AA Involvement in Draft Plan Preparations

90 S The Permittee may be required by the Regional Administrator to provide {pg 30880} progress reports during the design, construction, operation and maintenance of any remedy. Frequency and format of reports shall be determined by the Regional Administrator and specified in the permit schedule of compliance.

IWP This schedule and content of the progress reports will be developed in CMI plans and will thus be tailored to each PRS. The reports may include

- Summaries of progress,
- Problems encountered and resolutions,
- Personnel changes,
- Upcoming work for the next reporting period, and
- Laboratory and field sampling reports.

660 Submit Required Plans to AA

See activity 680

670 AA Review of Plans

See activity 680

680 Address AA Comments and Submit Final Plans

DOE CA The owner/operator may be required to submit any or all of the documents prepared during this process to EPA for review and approval.

See the annotated references under activity 530 Prepare Plans and Specifications.

690 Prepare Bid Documents

No CA-related annotated references for this activity.

700 Procure and Select Contractors to Implement CMI

No CA-related annotated references for this activity.

CMI CONSTRUCTION AND OPERATION PHASE

710 CMI Construction Mobilization

DOE CA The first task in the preliminary phase of implementation is to verify the conditions at the facility through review of the RCRA Facility Investigation (RFI) report, the Corrective Measures Study (CMS) report, and the facility permit and Statement of Basis. The next phase of the preliminary implementation is to review the implementation plans, drawings, and calculations.

If the plans, drawings, and other documents are satisfactory, then begin construction of the corrective measure. (40 CFR §264.527(b)(1)) The initial phase of construction is mobilization of the necessary equipment, personnel, and resources. Mobilization of the necessary resources is often a complex process, and can take many months to complete. Included in mobilization is the acquisition of any equipment, tools, materials, prefabricated structures or devices, and hiring and training the personnel required for construction of the corrective measure.

720 CMI Implementation

See activity 730

730 Monitoring for Quality and Performance

DOE CA Actual construction of the corrective measure is the next step in the process. The construction process includes conducting necessary quality assurance procedures, inspections, and preparing reports. Prepare and submit any periodic progress reports required by the permit or Federal Facility Compliance Agreement (FFCA). An example would be a report on the progress of constructing a particular treatment unit, including information on the progress of construction, the results of inspections and acceptance testing, and success in adhering to the schedule of compliance. (40 CFR §264.528)

740 AA Oversight / Progress Reports

90 S Since implementation of remedies will often take place over extended time periods, Sec. 264.528 of today's proposal provides that the Regional Administrator may require periodic progress reports from the permittee. These progress reports may contain information on construction, operation, and maintenance of the selected remedy. The Regional Administrator would specify the frequency and format of such reports in the permit schedule of compliance, when s/he approved the remedy design. Such reports would be designed to summarize the progress of remedy implementation, discuss changes or problems with the remedy, and provide data obtained during remedy implementation.

750 Criteria Satisfied / Transfer Site to FM

DOE CA Upon completion of any phase of the construction of the corrective measure, conduct the necessary inspections and acceptance testing as specified in the construction quality assurance plan (CQAP). This process will ensure the corrective measure meets the specifications and performance standards established for the corrective measure.

760 CMI Demobilization and Site Restoration

No CA-related annotated references for this activity.

770 Prepare Construction Completion Report

No CA-related annotated references for this activity.

780 FM Operation and Maintenance of CM

DOE CA This process consists of implementing the operations and maintenance plan. Conduct the sampling and analysis required to demonstrate compliance. The sampling and analysis must conform to the requirements of the data collection quality assurance plan (DCQAP) developed during the planning process. Prepare and submit any progress reports required under the permit or FFCA. (40 CFR §264.528) At the completion of each round of sampling and analysis, compare these results against the media cleanup standards established in the facility permit. Once the contamination concentrations are at or below MCS, the period over which the facility must demonstrate compliance begins.

790 AA Oversight / Progress Reports

DOE CA Under the proposed Subpart S rule, EPA will conduct periodic inspections to assess the progress in implementing the corrective measure. In performing this function, EPA will review the periodic progress reports submitted by the facility, and may also conduct onsite inspections and oversight of the design, construction, operation, and maintenance of the corrective measure. (40 CFR §264.529)

800 FM Prepare CMI Completion Report

90 S Remedies specified pursuant to Sec. 264.526 shall be considered complete when the Regional Administrator determines that:

- (1) Compliance with all media cleanup standards (or alternate levels) as specified in the permit have been achieved, according to the requirements of Sec. 264.525(e); and
- (2) All actions required to control the source(s) of contamination have been satisfied; and
- (3) Procedures specified for removal, decontamination, closure, or post-closure care of units, equipment, devices or structures required to implement the remedy have been complied with.

(b) Upon completion of the remedy, the permittee shall submit to the Regional Administrator, by registered mail, a request for termination of the corrective action schedule of compliance according to the procedures for Class III modifications in Sec. 270.42. The request shall include a certification that the remedy has been completed in accordance with the requirements of Sec. 264.530(a), and that all other terms and conditions specified in the permit pursuant to Subpart S have been satisfied. The certification must be signed by the permittee and by an independent professional(s) skilled in the appropriate technical discipline(s).

Where protective levels could not be attained, or where wastes were left on site in disposal units, long-term management would be required through the permit.

IWP CMI plans will contain criteria to be used to demonstrate completion of remedies. Upon completion of remedy, DOE/UC will submit a request for termination of the schedule of compliance for the corrective action. The request will contain a certification that DOE/UC have met or exceeded all of the criteria established for this purpose.

810 FM Submit CMI Completion Report to AA

90 S Upon receipt of the certificate of completion, the Regional Administrator would determine whether the remedy has been completed in accordance with the requirements of proposed Sec. 264.530. If the Regional Administrator determines that the applicable requirements for remedy completion established in the permit schedule of compliance have not been met, the Regional Administrator would generally notify the permittee of such a decision and of the steps that must be

taken to complete the remedy. After such steps have been taken, the permittee should submit a new certificate of completion in accordance with the requirements of this section.

820 FM Address AA Comments and Submit Final CMI Rpt

IWP EPA will then review the request, along with public comments, to determine whether a remedy has been completed in accordance with the requirements of the HSWA Module and CMI plan. After such determination, the EPA will modify the HSWA Module to terminate the schedule of compliance for the corrective action.

830 AA Development of Permit Modification

See activity 860

840 Public Comment Period / Public Hearing

See activity 860

850 AA Response to Comments

See activity 860

860 AA Revises and Issues Permit Modification

90 S When, upon receipt of the certification, and in consideration of public comments and any other relevant information, the Regional Administrator determines that the corrective measure remedy has been completed in accordance with the terms and conditions of the permit and the requirements for remedy completion under Sec. 264.530(a), the Regional Administrator shall:

- (1) Modify the permit to terminate the corrective action schedule of compliance, according to the Class III procedures of Sec. 270.42.

DOE CA If EPA determines that all requirements of the facility permit have been met, then the request is processed as a Class III owner/operator-requested permit modification. A Class III permit modification requires:

- Notification of all parties on the facility mailing list and the appropriate State and local governmental entities;
- Publication of a newspaper notice of the request;
- A 60-day comment period;
- A public hearing on the request; and
- A copy of the proposed modification and supporting documents being placed in a location accessible to the public.

The requirements for Class III permit modifications are found at 40 CFR §270.42(c). (40 CFR §264.530(c)(1))

DOU Upon completion of the remedy, DOE/laboratory will submit a final cleanup verification report and may also submit a request to terminate the schedule of compliance. The final cleanup verification report or request to terminate the schedule of compliance will include verification that all media cleanup levels have been achieved (See Annex F) and actions required for source control have been satisfied. The Administrative Authority will then review the submittal to determine whether a remedy has been completed in accordance with the requirements. After such determination, the Administrative Authority will modify the permit to remove the site from the permit list.