

UMTRA Project
Site Management Manual

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1.0 INTRODUCTION

1.1 PURPOSE

The purpose of this manual is to summarize the organizational interfaces and the technical approach used to manage the planning, design development, National Environmental Policy Act (NEPA) compliance, engineering, and remedial action required to stabilize and control the designated Uranium Mill Tailings Remedial Action (UMTRA) Project sites. This manual describes the Project's objective, participants' roles and responsibilities, technical approach for accomplishing the objective, and planning and managerial controls to be used in performing the site work. The narrative follows the flow of activities depicted in Figure 1.1, which provides the typical sequence of key Project activities. A list of acronyms used is presented at the end of the manual.

The comparable manual for UMTRA Project vicinity properties is the "Vicinity Properties Management and Implementation Manual" (VPMIM) (UMTRA-DOE/AL-050601). Together, the two manuals cover the remedial action activities associated with UMTRA Project sites.

1.2 PROJECT OBJECTIVE

The UMTRA Project's objective is to stabilize and control the uranium mill tailings, vicinity property materials, and other residual radioactive materials at the designated sites (Figure 1.2) in a safe and environmentally sound manner in order to minimize radiation health hazards to the public. Pursuant to the Uranium Mill Tailings Radiation Control Act (UMTRCA) of 1978, Public Law 95-604 (hereinafter referred to as the "Act"), the remedial actions undertaken by the Project are to be performed:

- o In compliance with the remedial action standards issued by the U.S. Environmental Protection Agency (EPA) in 40 CFR 192, effective March 7, 1983.
- o In compliance with the proposed groundwater protection standards for UMTRA Project sites (until these standards become final) that were issued by the EPA on September 24, 1987, in the Federal Register (52 FR 36000).
- o With the full participation of the affected states and Indian tribes.
- o With the concurrence of the U.S. Nuclear Regulatory Commission (NRC).

The Act requires the U.S. Department of Energy (DOE) to establish cooperative agreements with the affected states and Indian tribes for accomplishing the remedial actions. The purpose of the agreements is to establish the plan of assessment and remedial action at a site and any associated vicinity properties and to commit the parties formally to carrying out their respective statutory responsibilities under the Act.

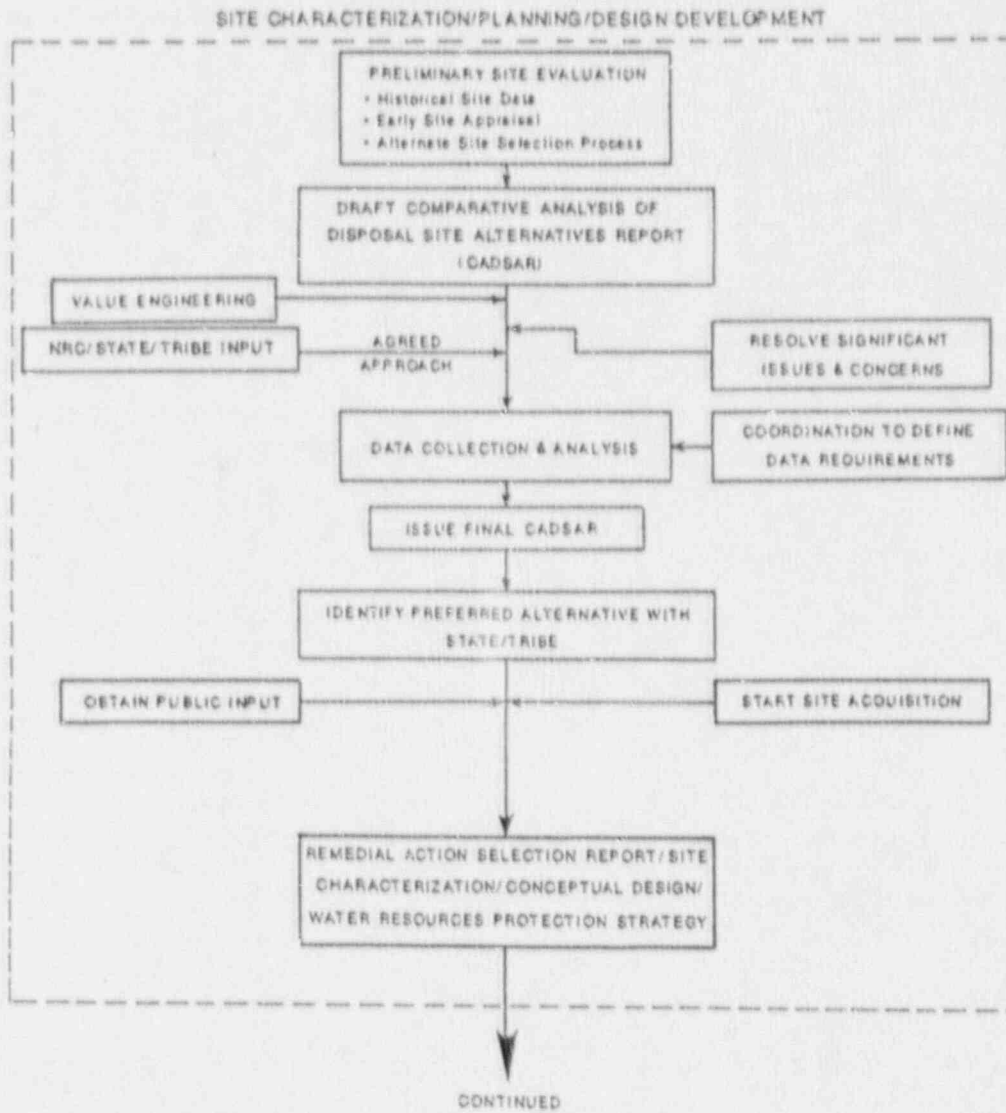


FIGURE 1.1 TYPICAL REMEDIAL ACTION ACTIVITIES

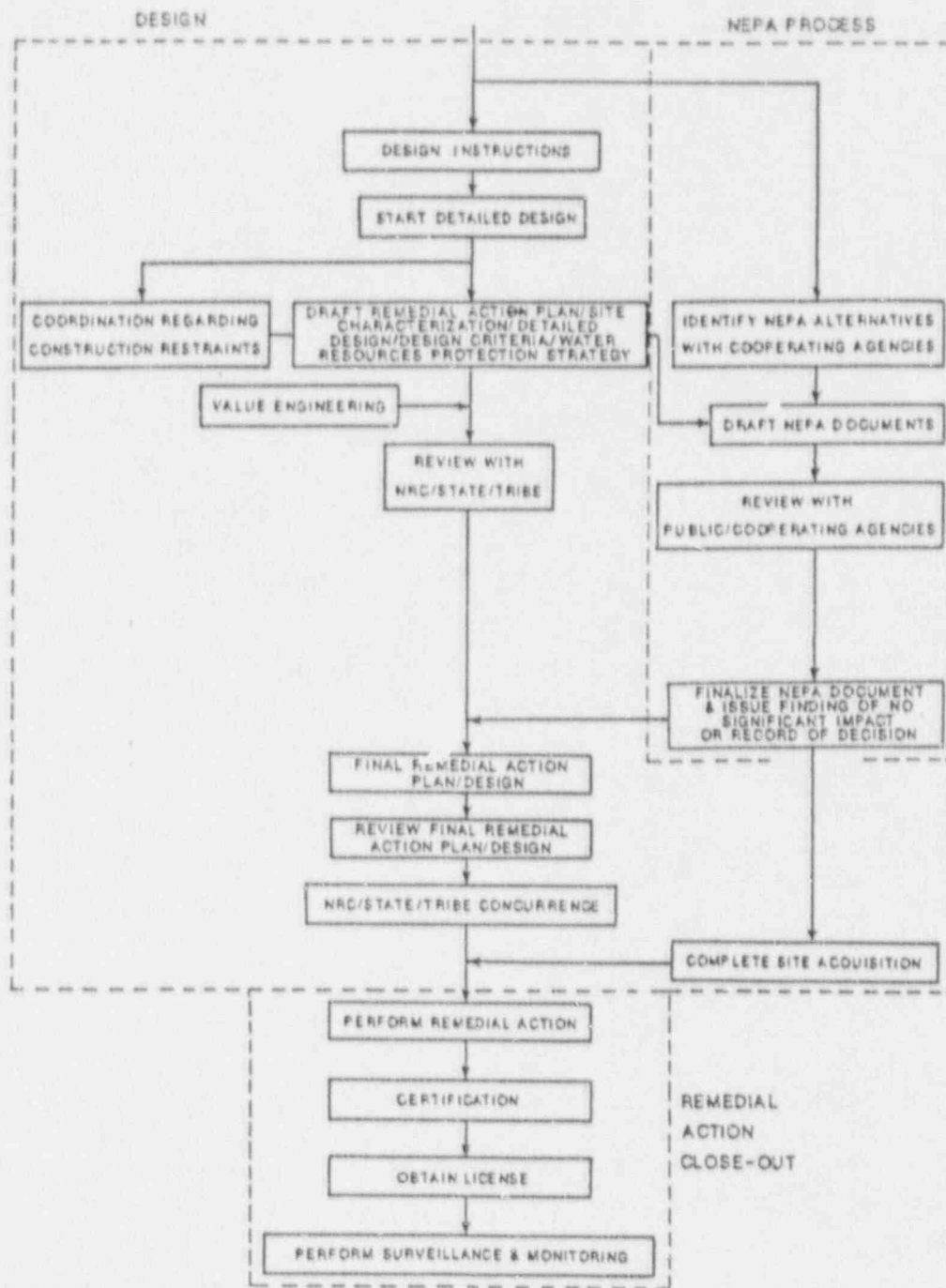


FIGURE 1.1 (Cont.) TYPICAL REMEDIAL ACTION ACTIVITIES

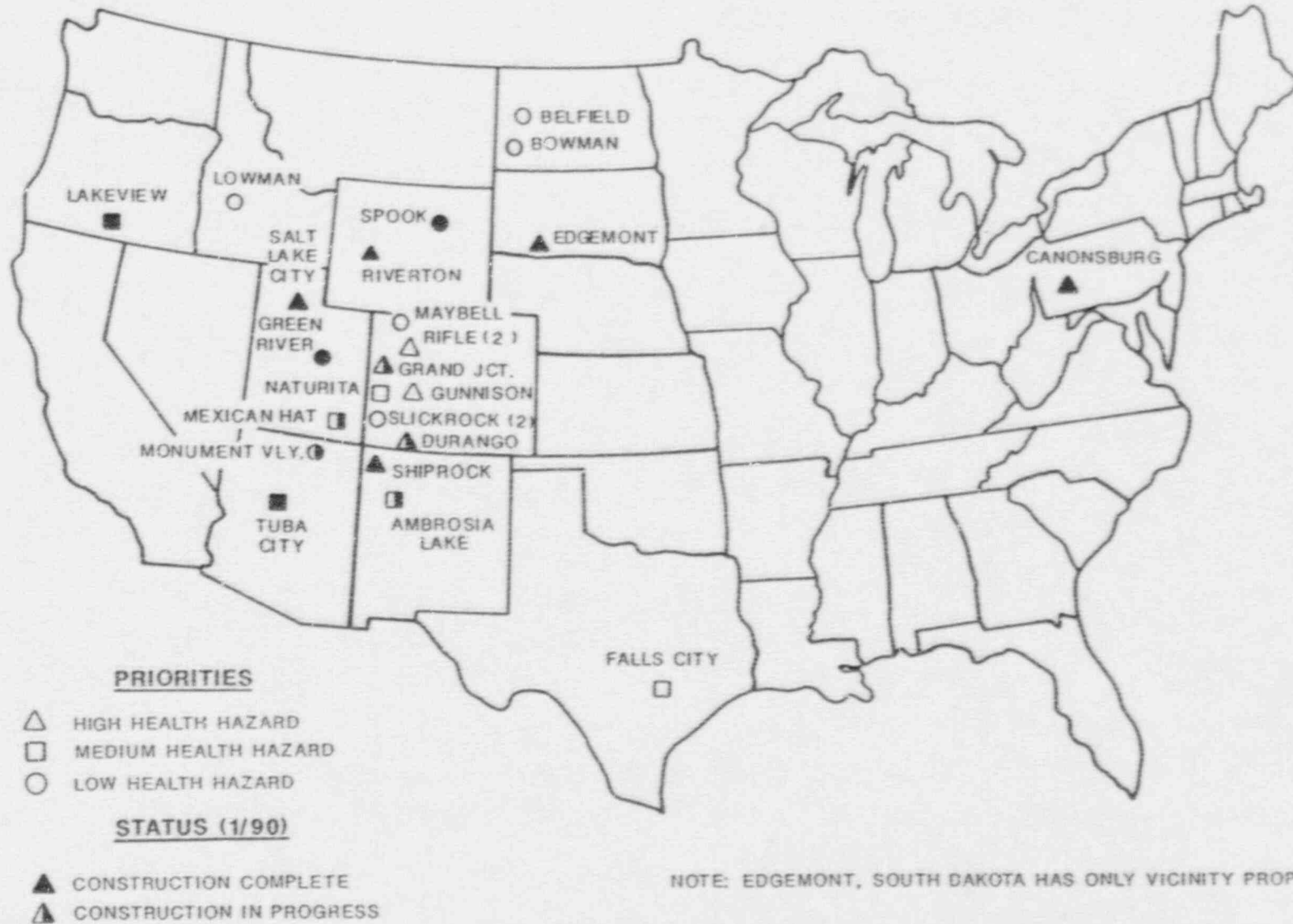


FIGURE 1.2

UMTRA PROJECT SITES

Before remedial actions are initiated, the UMTRA Project completes the environmental investigations, documentation, and public reviews required by the NEPA. As required by the Act, the DOE has assessed reprocessing of the tailings to extract valuable minerals and has determined that reprocessing is not economically feasible.

1.3 PROGRAM RESPONSIBILITIES

The Act assigns responsibility for program implementation to the DOE and other organizations. Figure 1.3 shows the various organizations involved and the following paragraphs address their specific roles in the project. On a routine basis, in dealing with site matters, the main participants are the DOE UMTRA Project Office (hereinafter referred to as the "Project Office"), its contractors, the NRC, and the affected state or Indian tribe.

1.3.1 Federal agencies

DOE

Within DOE Headquarters (HQ), the Office of Environmental Restoration and Waste Management (EM) has been assigned the primary responsibilities called forth in the Act, supported by the Office of General Counsel (OGC) and the Office of Environment, Safety and Health (EH). Policy direction and guidance are provided through the Off-Site Remediation Division of the EM. Authority for field operations has been delegated to the Albuquerque Operations Office (AL) and the Project Office.

Management of the UMTRA Project is assigned by the EM to the AL in a Project Charter. The AL has been delegated authority to manage and execute Project functions within established procurement, real estate, and other approved operational thresholds. Responsibility for AL management of the Project has been assigned to the UMTRA Project Manager, who is supported by the Project Office, the AL staff, and selected contractors. Management of the Project is conducted in accordance with overall program policy and guidance provided by DOE HQ. The Project Office organization is depicted in Figure 1.4.

The basic objectives of the DOE under the UMTRA Project are:

- o To identify and designate inactive processing sites containing uranium mill tailings that were generated under Federal contracts, to assess the potential health hazards from these materials, and to establish priorities for remedial action. Such designation is to include any residences, commercial structures, and open lands (collectively referred to as "vicinity properties") that are contaminated with tailings from the processing sites.
- o To evaluate the feasibility of reprocessing the tailings for the recovery of minerals.

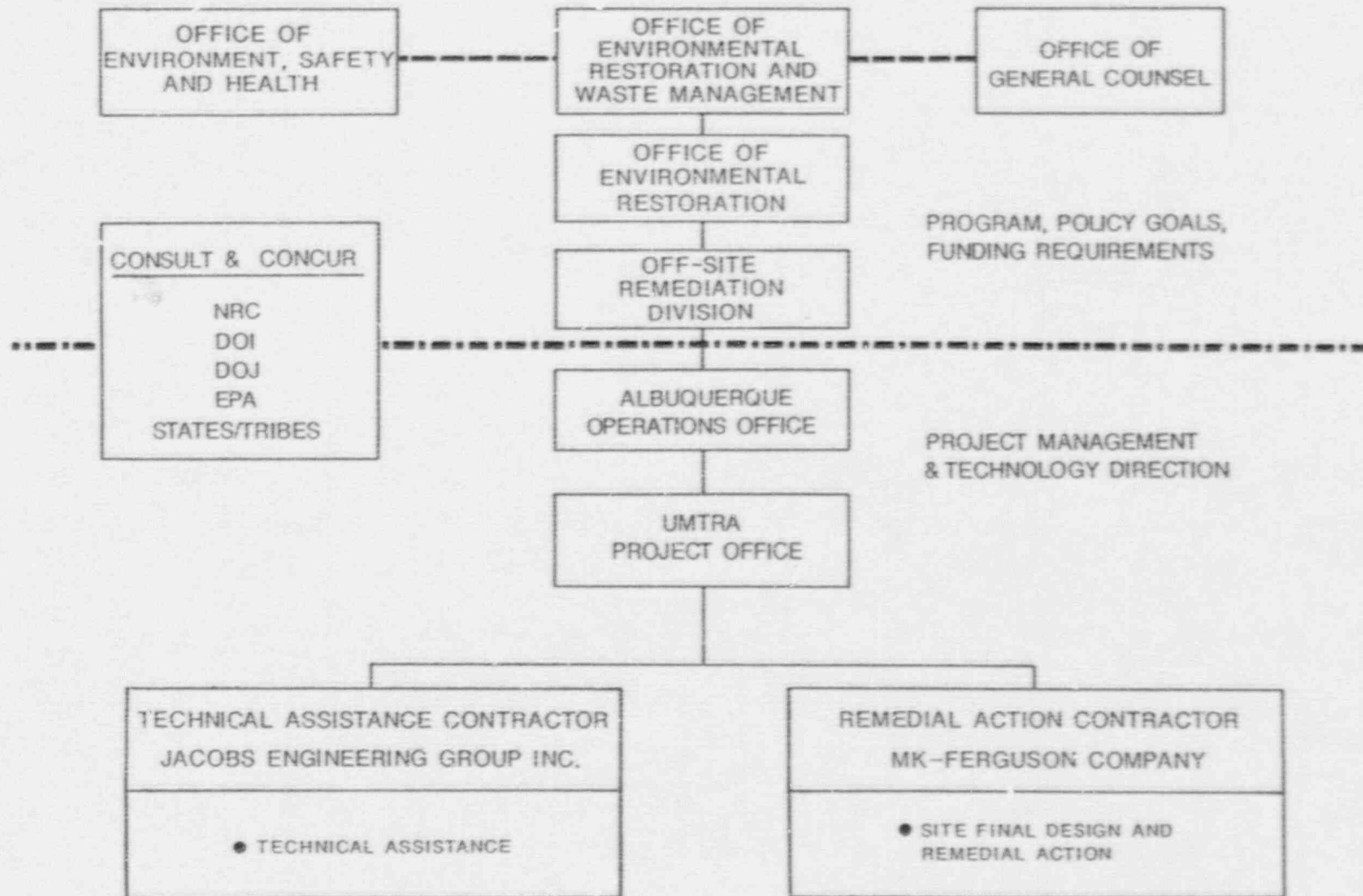


FIGURE 1.3 UMTRA PROJECT PARTICIPANT STRUCTURE

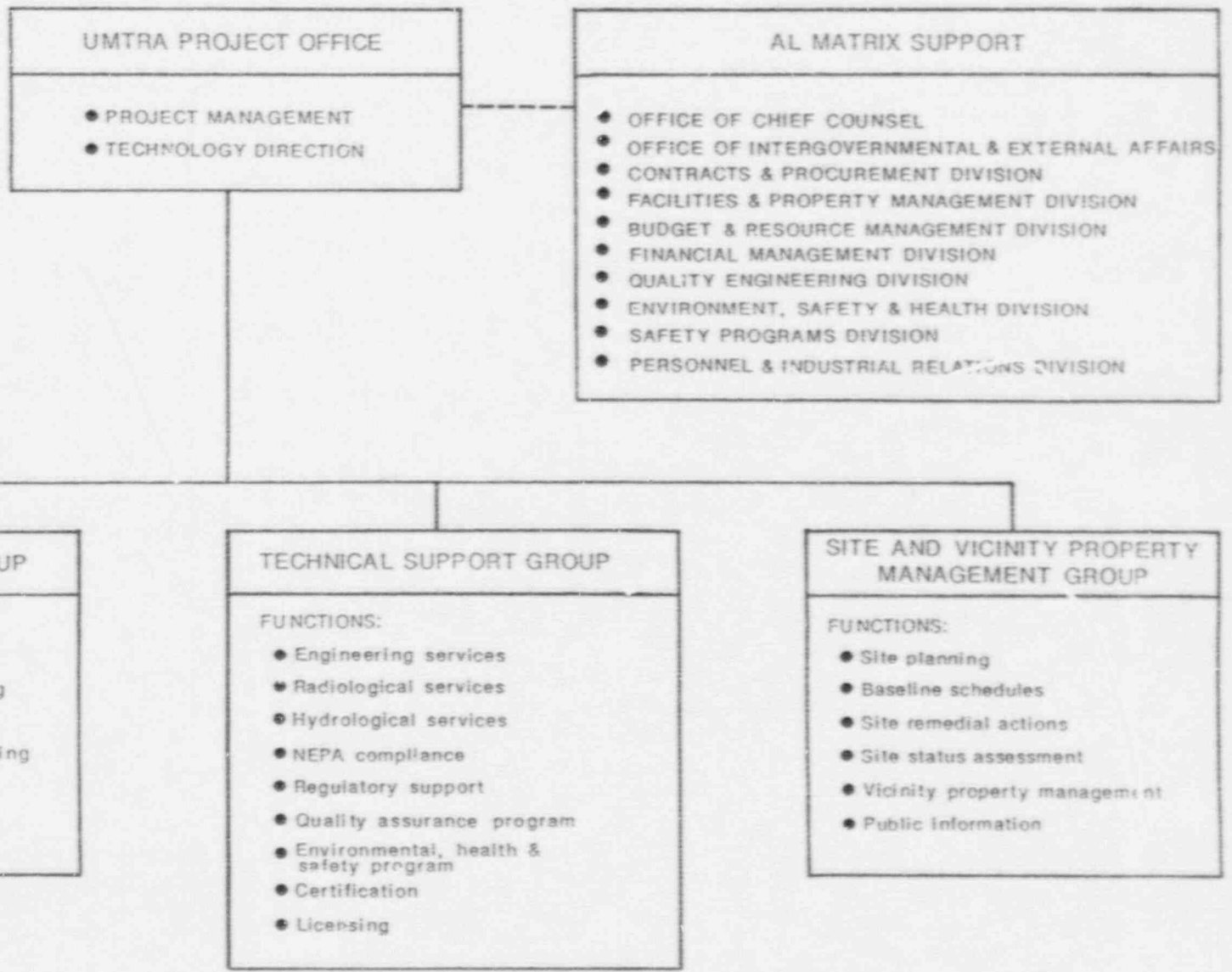


FIGURE 1.4 UMTRA PROJECT OFFICE ORGANIZATION

- o To develop uranium mill tailings stabilization and disposal technology and transfer such technology to the private sector for use at active tailings sites.
- o To stabilize and control the residual radioactive materials in a safe and environmentally sound manner in cooperation with states and Indian tribes, in accordance with the EPA standards (40 CFR 192), consistent with other applicable laws, and with the concurrence of the NRC.
- o To provide for public information and participation in the performance of remedial actions at the mill sites and associated vicinity properties.
- o To certify to the NRC that the final tailings disposal sites meet the requirements of the EPA standards.
- o To obtain a general license for all of the sites from the NRC, providing for Federal custody and long-term surveillance and monitoring.

Specific responsibilities and authorities of the EM and AL in carrying out the UMTRA Project are identified in the Project Charter.

EPA

The EPA, in accordance with the provisions of the Act, promulgated standards for remedial actions at UMTRA Project sites. The standards were published January 5, 1983, and became effective March 7, 1983.

On September 3, 1985, the U.S. Tenth Circuit Court of Appeals remanded the groundwater protection standards, 40 CFR 192.2(a)(2)-(3). These standards were remanded to the EPA for further consideration in light of the Court's opinion that the original groundwater standards were site-specific rather than of general application as required by the legislation. The EPA issued proposed groundwater protection standards for comment on September 24, 1987.

Additionally, the EPA is involved in general overview of Project activities such as review of NEPA compliance documents and consultation on the standards.

NRC

The NRC, per the Act, is involved in the following areas:

- o Consultation in the designation of the mill sites and establishment of site boundaries.
- o Concurrence in cooperative agreements executed with the states and Indian tribes.

- o Enforcement of the EPA standards.
- o Concurrence in the selection and performance of remedial action for each site.
- o Issuance of a general license for long-term site surveillance and monitoring.
- o Concurrence in land acquisition and disposal decisions.
- o Concurrence in a DOE decision to permit tailings reprocessing for mineral recovery.

In order to provide an orderly process for executing their respective statutory responsibilities under the Act, the DOE and the NRC entered into a Memorandum of Understanding (MOU) in July 1985. This MOU is currently being revised.

Others

Other Federal agencies' responsibilities for carrying out provisions of the Act include:

- o Consultation by the U.S. Department of Interior (DOI) concerning sites on Indian lands (including concurrence), the possible use of public lands for disposal sites, and impacts to threatened and endangered species and cultural resources.
- o Review of NEPA compliance documents and concurrence in a site's Remedial Action Plan (RAP) by the DOI for Indian or Bureau of Land Management (BLM) land withdrawals, or where impacts to threatened and endangered species and cultural resources may occur.
- o Determination by the U.S. Department of Justice (DOJ) regarding liability of owners and operators of the designated sites for remedial action costs.
- o Consultation by the U.S. Army Corps of Engineers (COE) and U.S. Fish and Wildlife Service (FWS) concerning impacts to floodplains and wetlands.

1.3.2 State/Indian tribe

The affected state or Indian tribe, through cooperative agreements with the DOE, has the following responsibilities:

- o Recommendations for alternative disposal sites.
- o Acquisition of processing and disposal sites where deemed appropriate.
- o Consultation on NEPA compliance documentation.

- o Consultation on the protection of cultural resources (State Historic Preservation Officer, or SHPO).
- o Concurrence in RAPs.
- o Task force participation.
- o Encouragement of public participation.
- o Cost sharing (by states) to the extent of 10 percent of costs related to site acquisition, engineering, and remedial action to include vicinity property cleanup activities (Indian tribes do not contribute).
- o Construction monitoring during remedial action.

1.3.3 DOE prime contractors

The Project Office's site activities are supported by the following contractor organizations:

- o Technical Assistance Contractor (TAC). The TAC develops the Comparative Analysis of Disposal Site Alternatives Report (CADSAR) and develops and implements site characterization; conducts off-site radon monitoring; monitors technology development; coordinates the NEPA review process and prepares NEPA compliance documentation; develops remedial action concepts; prepares Remedial Action Selection reports (RASs), RAPs, conceptual designs, and design criteria; conducts special studies; addresses all groundwater protection issues; develops water resources protection strategies; reviews final designs; provides technical assistance during construction; recommends certification of remedial actions; coordinates site licensing; and conducts interim surveillance and monitoring activities at disposal sites. The TAC is responsible for development, implementation, and operation of Project-level programs for environmental health and safety (EH&S), quality assurance (QA), public participation and information, document control, and cost and schedule control and integration. Jacobs Engineering Group Inc. serves as the TAC and the integrating contractor for the Project.
- o Remedial Action Contractor (RAC). The RAC performs detailed engineering for the disposal sites and construction and inspection necessary for the conduct of remedial action. The RAC is also responsible for on-site health and safety, radiation, and environmental monitoring efforts. With the exception of the Salt Lake City, Utah, site, MK-Ferguson Company serves as the RAC for the UMTRA Project sites. The State of Utah, per the cooperative agreement, served as the RAC for the Salt Lake City processing site and the Clive disposal site. MK-Ferguson Company served as the RAC for the Utah vicinity properties.

1.4 PROJECT PLANNING STRUCTURE

1.4.1 Major system acquisition

The Project, because of its importance and high dollar value, is designated by DOE HQ as a major system acquisition (MSA) per DOE Order 4240.1. As such, the Project must comply with the applicable DOE directives that govern management of MSAs. These directives require specific planning documents (i.e., a "Project Charter," "Project Plan," and "Project Management Plan"). These, in turn, are supplemented as needed to detail specific Project operations.

The Project documents, categorized as to management or technical content, are summarized below. Most of the documents are available through the UMTRA Project Office; the document control number is given in parentheses. These documents provide the basis for orderly and systematic planning of the remedial actions.

1.4.2 Management planning documents

- o Project Charter (MSA-143) (UMTRA-DOE/AL-400124.0167). Delineates the respective responsibilities and authorities of DOE HQ, the AL, and the Project Office, and defines the terms and conditions for management of the Project by the AL.
- o Project Plan (MSA-143) (UMTRA-DOE/AL-400124.0167). Serves as the overall Project baseline and includes: specific cost, technical, and performance objectives; major milestones; resource estimates; acquisition strategy; environmental, health, and safety requirements; and schedules.
- o Project Schedule and Cost Estimate Report (UMTRA-DOE/AL-400127.0166). Supports the "Project Plan"; provides a uniform basis for planning and managing the Project; and presents site cost and schedule information which is updated on an annual basis.
- o Project Management Plan (UMTRA-DOE/AL-400125). Describes how the Project is planned and managed and how the various systems are integrated for control purposes.
- o Acquisition Strategy Plan. Describes the contractual means by which the Project work will be performed.
- o Project Work Breakdown Structure. Establishes the framework for Project execution and for reporting Project and site cost, schedule, and technical performance.
- o Integrated Project Management System Description (UMTRA-DOE/AL-400126). Contains the policies and procedures used to organize, plan, authorize, control, evaluate, and report Project and site work.

- o Contractor Management Plans. Supplement Project documentation and describe the contractors' organization and management control procedures.
- o Key Programmatic Steps and Activities for Implementing the Uranium Mill Tailings Remedial Action Program (UMTRA-DOE/AL-400129.0000). Presents the basic procedures and key programmatic steps established to carry out a site's remedial action.
- o Public Information Plan (UMTRA-DOE/AL-400224.0184) and Public Participation Plan (UMTRA-DOE/AL-400225.0010). Describe the plans for involving the public in the decision-making process and outline the policy, procedures, and guidelines for carrying out the requirements of the Act to encourage public participation.
- o UMTRA Project Document Control System Manual (UMTRA-DOE/AL-400424). Outlines the activities and responsibilities associated with acquiring, controlling, retaining, retrieving, retiring, and disposing of Project and site documents.
- o Contractors' Document Control Procedures. Details the contractors' methods for carrying out their responsibilities for Project document control.

1.4.3 Technical planning documents

General documentation

- o Plan for Implementing EPA Standards for UMTRA Sites (UMTRA-DOE/AL-400724.0163). Presents the Project's procedures and testing and evaluation criteria that shall be followed in planning for the implementation of the EPA standards.
- o Certification Plan for the UMTRA Project Processing Sites (UMTRA-DOE/AL-400728.000). Establishes the Project's policy and procedures for site certification.
- o UMTRA Project Licensing Plan (UMTRA-DOE/AL-350124). Establishes the Project's site licensing concept and describes the functions of participatory agencies; licensing certifies that the remedial actions meet the EPA standards.
- o Outdoor Radon Monitoring Plan for the UMTRA Project Sites (UMTRA-DOE/AL-150225.0000). Describes the monitoring schedules and methods used to measure ambient radon concentrations around UMTRA Project sites.
- o Site Management Manual (UMTRA-DOE/AL-40005.0000, Rev. 1). Documents the organizational and technical approach used to manage the activities required to stabilize and control the UMTRA Project sites.
- o UMTRA Project Quality Assurance Plan (PQAP) (UMTRA-DOE/AL-400324.0185). Establishes the guidelines for Project participants' quality assurance (QA) programs.

- o Management and Overview Quality Assurance Program Plan (UMTRA-DOE/AL-400325). Supplements the PQAP and defines the Project-level QA responsibilities of the Project Office, AL, and TAC.
- o UMTRA Project Audit/Surveillance Program Plan (UMTRA-DOE/AL-400326.0000). Establishes the four types of appraisals to be conducted in support of the UMTRA Project.
- o Contractor Quality Assurance Program Plans. Supplement the Project plans and detail the contractors' programs.
- o UMTRA Project Environmental, Health, and Safety Plan (UMTRA-DOE/AL-150224.006). Identifies the basic Federal health and safety standards and special DOE requirements applicable to the Project environmental, health, and safety program.
- o Contractor Environmental, Health, and Safety Plans. Supplement the Project plan and detail the contractors' programs (e.g., health physics procedures and monitoring plans).
- o Technology Development Program (UMTRA-DOE/AL-200124.0164). Summarizes Project research activities and findings; outlines plans for finalizing research programs; and describes methods of technology transfer.
- o Technical Summary of the UMTRA Project Technology Development Program (1980-1984) (UMTRA-DOE/AL-200125). Provides an integrated technical summary of the Project technology development program.
- o Guidance for Surveillance and Monitoring for the UMTRA Project Long-Term Care Program (UMTRA-DOE/AL-350124.0001, Rev. A). Establishes the Project procedures to be used to perform long-term surveillance and monitoring of disposal sites after completion of remedial action.
- o Alternate Site Selection Process for UMTRA Project Sites (UMTRA-DOE/AL-200129.0007). Describes the procedures to be used by the Project Office in conjunction with the affected state or Indian tribe to select and agree mutually on an alternate site for off-site disposal.
- o Technical Approach Document (UMTRA-DOE/AL-050425.0002). Describes the general technical approaches for site characterization, disposal cell design, and cell performance assessments to be used in preparing RAPs and disposal cell and remedial action designs; defines the technical approach in developing water resources protection strategies for demonstrating compliance with the EPA groundwater protection standards.
- o Design Criteria for Stabilization of Inactive Uranium Mill Tailings Sites (UMTRA-DOE/AL-050424.0049). Provides criteria for the RAC in preparing site designs.

- o Contractors' Engineering Procedures. Supplement the Project guidance and detail contractors' policies and procedures in performing design and engineering.
- o Guidelines for Production of UMTRA Project Documents. Describes the correct formats for various UMTRA Project documents, the preferred writing style and word usage, and guidelines established for consistency purposes.
- o Policy and Procedures for Classification of Class III Groundwater at UMTRA Project Sites. Establishes the guidelines for determining Class III groundwater in the application of supplemental standards.
- o "Regulatory Alternatives for Groundwater Compliance for the U.S. Department of Energy's UMTRA Project" (working draft). Defines, describes, and provides application guidance.

Site-specific documents

- o Comparative Analysis of Disposal Site Alternatives Report (CADSAR). Provides the basis for agreement with the affected state or Indian tribe on a preferred alternative for a site's remedial action and with the NRC that the preferred alternative will meet the EPA standards.
- o Site NEPA compliance documents. Includes "Environmental Assessments" (EA) or "Environmental Impact Statements" (EIS), "Findings of No Significant Impact" (FONSI) or "Records of Decision" (ROD), and other documents (e.g., floodplain assessment) required to comply with the NEPA for a site. The preparation of this documentation is guided by 1) "Contents of Environmental Assessments Prepared for the UMTRA Project" (UMTRA-DOE/AL-150126.0010); 2) "Contents of Environmental Impact Statements Prepared for the UMTRA Project" (UMTRA-DOE/AL-150125.0006); and 3) "Procedures for Preparation, Printing, and Distribution of UMTRA Project National Environmental Policy Act Documents" (UMTRA-DOE/AL-150127.0000).
- o Environmental Analysis and Data Report (EADR). Provides the detailed data and analysis (e.g., air quality modeling and calculations of excess health effects due to radiation exposure) that are used to evaluate the environmental impacts of remedial action in an EA; these details were previously included in appendices to an EA.
- o Remedial Action Selection Report. Summarizes the detailed site characterization, design, and water resources protection information that is provided in the RAP; initiates preparation of the RAP.
- o Remedial Action Plan. Incorporates site characterization data; identifies the series of site activities and the design required to effect the long-term stabilization and control of the residual

radioactive materials for a site; and document the disposal cell design and groundwater protection strategy required to demonstrate compliance with the EPA standards.

- o Long-Term Surveillance Plan. Describes the surveillance and monitoring requirements for the disposal site after remedial actions have been completed and provides the basis for obtaining the site license.
- o Special Studies Findings Reports. Presents the findings, conclusions, and recommendations on selected topics identified by the UMTRA Project Manager to assist in the performance of site planning and remedial actions; examples include "Reduction of Verification Sampling in Windblown Areas" and the "Vegetative Cover Special Study."
- o Economic Evaluations of Inactive Uranium Mill Tailings. A series of studies conducted to determine the economic viability of reprocessing the tailings for recoverable uranium, vanadium, and molybdenum; the studies were conducted at the Salt Lake City, Shiprock, Gunnison, Grand Junction, Old and New Rifle, Maybell, Riverton, Spook, Ambrosia Lake, Mexican Hat, Tuba City, and Durango UMTRA Project sites.

1.4.4 Site planning evolution

As the Project has evolved, the site planning has been refined to reflect Project needs, lessons learned, and value engineering. This has resulted in changes to the site planning and design documents. For example, site characterization information was formerly presented in the Processing (and Disposal, if applicable) Site Characterization Reports. Now the information is included as part of the Remedial Action Plan and site NEPA compliance document.

Table 1.1 summarizes the documents prepared to date and the documents planned for the future. The current approach for a site's remedial action planning is addressed in this manual.

Table 1.1 UMTRA Project site planning documentation

Site	Processing Site Characterization Report	Disposal Site Characterization Report	CADSAR	Remedial Action Plan contents ^a			NEPA Documentation		
				Site Conceptual Design	Site Conceptual Design/Site Characterization	Final Design/Site Characterization	Water resources protection strategy	EIS	EA
CAN	P			P				P	
SLC	P	P		P				P	
SHP	P			P					P
DUR	P	P (2 sites)		P				P	
GUN	P	P	P			X	X		X
GRJ	P	P				X	X	P	
RFL						X	X	P	
RVT	P					X	X		P
TUB	P			P					P
HAT				P					P
LKV	P	P (2 sites)		X			X		P
AMB	P					X	X		P
NAT			P			X	X		X
FCT			P			X	X		X
GRN			P			X	X		P
SRK			P			X	X		X
BEL			P			X	X		X
BOW			P			X	X		X
MAY			P			X	X		X
LOW			P			X	X		X
SPK			P			P	P		P
MON				P					P

^aThese columns show the various types of RAPs that have been produced during the Project. For example, early RAPs such as that for Canonsburg contained only a site conceptual design, and site characterization was published in separate documents for the processing and disposal sites. The RAPs being published now contain a final design, site characterization, and the water resources protection strategy.

P - Published as of September 1990.

X - To be published.

2.0 REMEDIAL ACTION OPTIONS

2.1 INTRODUCTION

The existing conditions at each site are evaluated to identify viable remedial action options and to select a preferred alternative. Engineering assessments prepared between 1978 and 1982 represented the initial effort to characterize all of the processing sites and identify remedial action options. These assessments contained preliminary information on site conditions and problems, alternative remedial actions, and the scope and estimated cost of remedial action alternatives. They included consideration of stabilization of tailings in place or on the site at the processing sites and removal of tailings to alternate disposal sites. These initial assessments are used as source material for initial site characterization and analysis activities.

The identification of the preferred alternative for remedial action at a site progresses through a series of activities that result in the production of site planning documentation. These activities and documents are discussed in the following sections. The Project Office, TAC, RAC, NRC, affected state or Indian tribe, site task force, and public are all involved in this process. Peer reviews by external experts are also conducted for selected sites.

2.2 DISPOSAL SITE ALTERNATIVES

Although the alternate site selection process and the DOE's preferred alternative were originally described in each site's NEPA compliance document, no separate document was prepared early in the process to provide a basis for the DOE and affected state or Indian tribe to express their agreement on a preferred alternative formally. This led to delays in the remedial action process because of a lack of coordination and agreement on data collection needs and designation of alternate sites.

To formalize the process and to avoid delays, the Project Office instituted the CADSAR (Section 1.4.3). The draft report provides the basis for the DOE and NRC and affected state or Indian tribe to agree on site characterization data requirements and the technical approach for remedial action. The final report provides the basis for selection of a preferred remedial action alternative. The CADSAR is prepared using historical information and the results of the early site appraisal, alternate site selection process, and site characterization, including the planned data collection activities that are discussed in the following sections.

It is the Project Office's practice to involve all participants, to the extent appropriate, in the preparation of the CADSAR to ensure that all efforts and decisions affecting sites' characterization and analyses are considered from the start. This varied input assists in improving the quality and timeliness of decision making with respect to a site's remedial action.

2.2.1 Public participation

A significant feature of the CADSAR participation effort is the encouragement of local input by the Project Office and the affected state or Indian tribe. Because of the sensitivity of the disposal issues, local community input into the selection process is encouraged and facilitated in various ways. Community leaders are contacted and informed about the Project. A local task force, comprised of elected or appointed officials, special interest groups, and interested citizens, is often established by the state or Indian tribe. The task force works with the Project Office through the state or Indian tribe and reviews the results of each phase of the process. Public meetings are held to inform the public of Project goals and activities and to receive input on major decisions affecting the site. The Project Office further encourages local input via use of the local media. Notices of meetings are published in the newspapers, and announcements are broadcast by television and radio stations. Section 9.0 details the Project's Public Information and Participation Program (PIPP).

2.2.2 Early site appraisal

An early appraisal of the processing site is conducted to identify any features that could present problems or increase the difficulty in the site meeting the EPA standards in a cost-effective manner. The early site appraisal is not intended to characterize the processing site fully, but rather to provide sufficient information to determine whether or not stabilization in place (SIP) or stabilization on site (SOS) are viable options. This site appraisal, and subsequent site remedial action planning activities, are performed by a multidisciplinary team typically composed of civil and geotechnical engineers, environmental specialists, geologists, health physicists, and groundwater hydrologists. The team members work on a site's planning from conceptual design development through the review of the site's final design. This approach promotes continuity of effort on a particular site and builds up an experience base for transition to other sites.

The site team collects, through a literature search, historical data on site characteristics. In addition, a site visit is conducted to investigate field conditions and site access for data collection. The NRC and affected state or Indian tribe are encouraged to participate in the early site appraisal, including the site visit. Generally, the data collection process progresses as depicted in Figure 2.1.

Upon completion of the site visit, a memorandum of findings is issued, identifying any major visible problems with the site. The site team also develops a summary of additional data initially needed to characterize the site adequately. Particular attention is paid to data needs in the areas of high risk. This list of initial data needs is augmented by any additional data needs determined during the alternate site selection process.

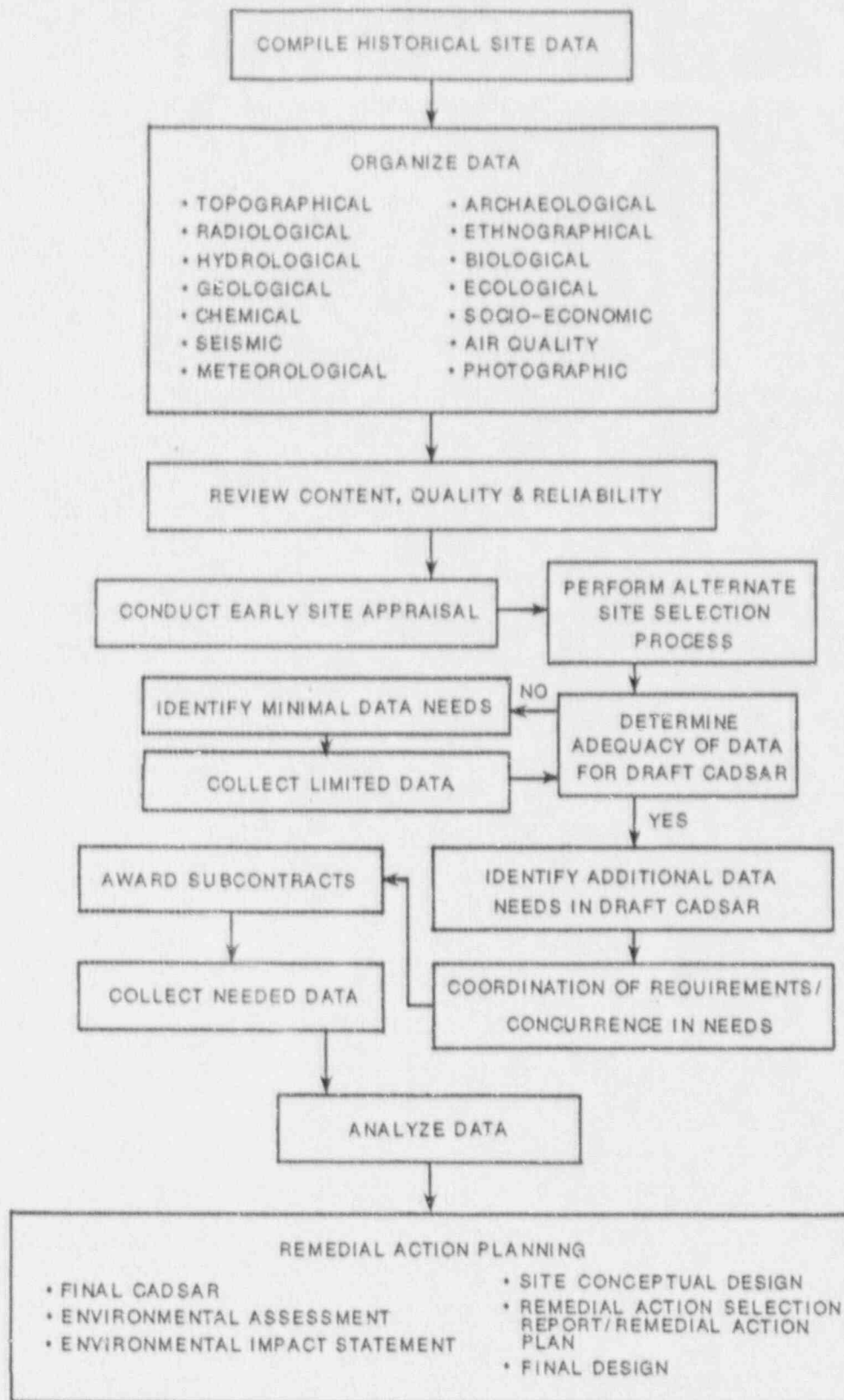


FIGURE 2.1 DATA COLLECTION PROCESS

2.2.3 Alternate site selection

The purpose of the alternate site selection process (ASSP) is to select sites, other than the processing site, to become candidates for the preferred alternative or disposal site. The selection process proceeds through the phases shown in Figure 2.2 and is discussed below. Each succeeding phase is more detailed in the selection criteria applied for selecting the alternate disposal sites. The process is iterative and, if no suitable sites are found within the initial search region, the region is expanded and the process repeated. Details on the process are contained in the "Alternate Site Selection Process for UMTRA Project Sites" (UMTRA-DOE/AL-200129.0007).

- o Phase I - Designation of a Search Region. In the first phase, the criteria for selecting an alternate site are determined, and an initial search region is selected in consultation with the affected state or Indian tribe. Their participation is important because, per the cooperative agreements, they are responsible for eventually recommending the alternate disposal sites and possibly for acquiring the disposal site. Typically, the region is defined within a five-mile radius around the processing site. However, other factors considered in the selection process (such as local political boundaries and known favorable or unfavorable regional characteristics) may result in the modification of this search region.
- o Phase II - Preliminary Screening of Search Region. During the second phase, regional screening guidelines are developed based on a literature search of geotechnical, hydrological, and environmental factors. The individual state or Indian tribe is typically consulted when selecting regional screening guidelines. The guidelines are applied to areas within the search region (an area is defined as a location 40 to 600 acres in size) to eliminate those that are unsuitable for tailings disposal. This is performed in consultation with the affected state or Indian tribe and the local task force. The guidelines used are not ranked or weighted by their relative importance. They are used to eliminate broad areas that would require a more complex design or pose regulatory problems, and these areas are not considered further in the process.
- o Phase III - Identification and Evaluation of Sites. As part of the third phase, the remaining potential areas are examined, and usually three areas are selected for further evaluation. The literature is again reviewed, and the areas with characteristics conducive to tailings disposal that will meet the EPA standards (without overly complex design features) are further narrowed. Criteria considered include accessibility and terrain; nearby structures; constructibility; the presence or absence of complex watersheds; flooding potential; geomorphic stability; potential surface water quality impacts; aquifer characteristics; depth to groundwater; direction of groundwater flow; aquifer and

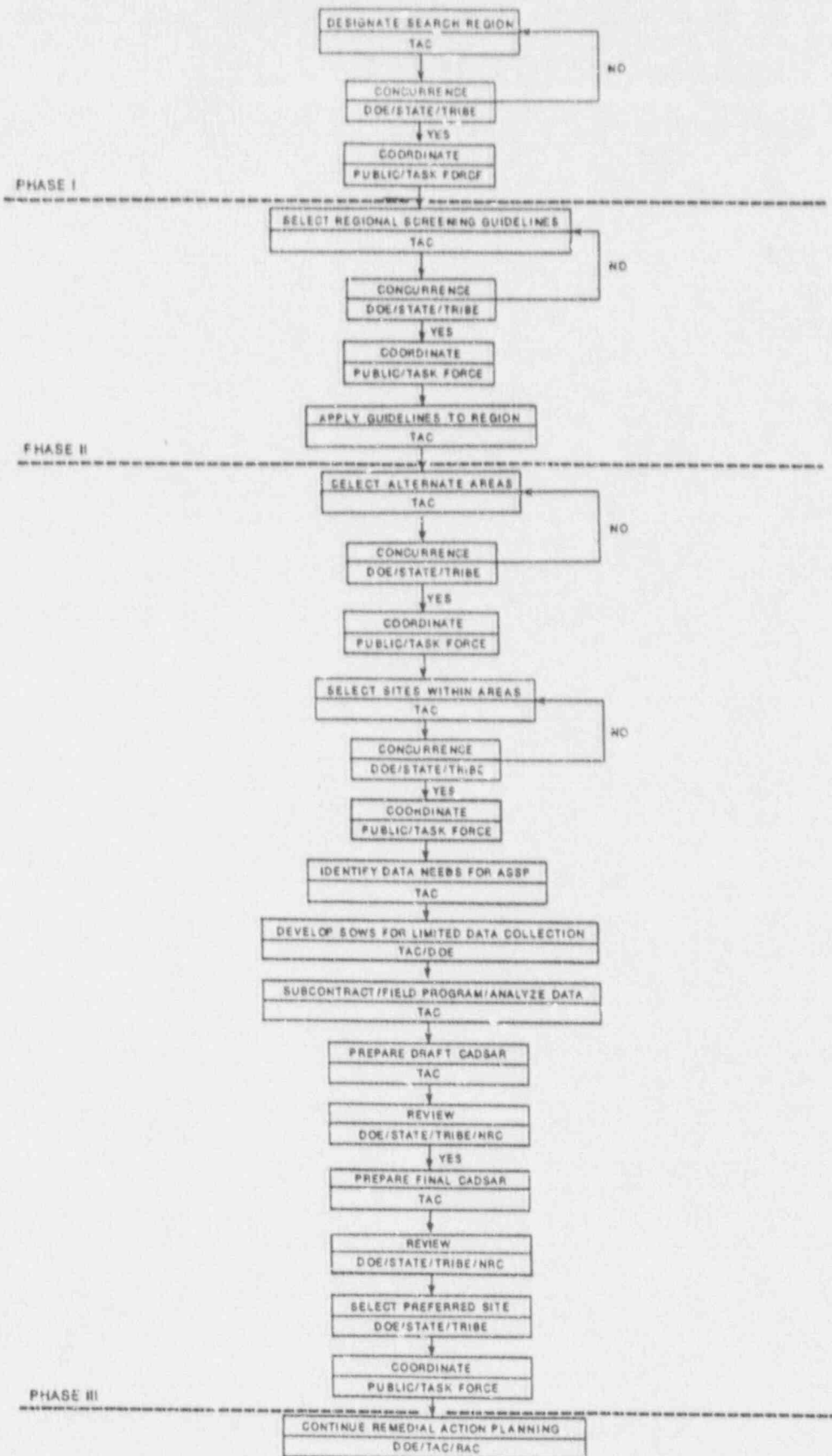


FIGURE 2.2 ALTERNATE SITE SELECTION PROCESS (ASSP)

subsoil geochemical properties; background water quality; classification of groundwater; nearby faults and fault zones; latest seismic activity and extent; erosion potential; liquefaction potential; slope stability; distance to parks, monuments, critical wildlife habitats, and prime farmlands; and distances to borrow areas for cover, erosion protection, and other materials.

Once the three areas are identified, a public meeting is held by the Project Office to receive public input on the selections. Public comments are integrated into consideration of the suitability of each area to receive the mill tailings. A field inspection is then conducted to select no more than three specific sites from all areas. Members of the local task force are invited to participate in the field inspection. A site generally ranges from 40 to 100 acres in size. If the information needed is not available for a specific site or immediately adjacent areas, the site will be drilled and test pits dug to provide information regarding depth to groundwater, lithology, soils thickness, and other hydrological and geological features. The minimum number of holes needed to provide this information is used.

After the initial drilling and test pitting and resulting data analyses are complete, the sites are rated using 32 geotechnical, hydrological, environmental, and economic factors. These factors are ranked and weighted according to their relative importance. This process culminates in the identification of a maximum of three proposed disposal sites that 1) may meet the EPA standards based on known data and previous Project experience, and 2) will be included in the draft CADSAR for selection of the preferred site.

If the early site appraisal indicates that SIP or SOS is a viable option and there are no other significant reasons to consider other sites, the ASSP will be conducted only to identify a site(s) for comparison in the CADSAR and the EA or EIS.

2.2.4 Draft CADSAR

The draft CADSAR is prepared after completion of the early site appraisal and the ASSP. The available technical data for the processing and alternate disposal sites are evaluated, and a limited data collection effort is conducted to define geotechnical and groundwater conditions. The document's primary purpose is to identify alternatives that will meet the EPA standards so that the DOE, NRC, and affected state or Indian tribe can agree upon an approach for a site's remedial action and related site characterization requirements.

The draft CADSAR includes, but is not limited to:

- o A description of all remedial action options based on sites selected through the ASSP. Remedial action options not included are no longer considered in future design work.
- o A summary of historical information and initial site characterization work.
- o A description of processing and disposal site characterization activities to be performed.
- o An identification of key technical issues to be resolved.
- o An analysis of geohydrologic characteristics and the site's ability to meet the proposed groundwater protection standards.
- o An identification and preliminary assessment of transportation options.
- o An identification of potential environmental and socioeconomic concerns.
- o Rough, order-of-magnitude cost estimates for remedial action options.
- o An implementation schedule for site remedial action activities.

Upon completion, the draft CADSAR may be subjected to a value engineering process. The value engineering recommendations, after approval by the Project Office, are incorporated into the site's remedial action planning.

The draft CADSAR is also reviewed jointly by the Project Office, the NRC, and the affected state or Indian tribe at a formal meeting. The draft CADSAR is sent to the organizations 5 days prior to the meeting for review and comment. The primary purposes of the formal meeting are to 1) identify and resolve significant issues and concerns; 2) agree upon an approach for the selection of a site's remedial action; 3) examine the alternate disposal sites' abilities to meet the EPA standards; and 4) determine the level of characterization activities at each site.

At this point, selected information is made available to the general public through coordination with the local task force, usually at a public meeting. This includes the results of the ASSP, the identification of remedial action alternatives, and additional data collection needs. Public comments are incorporated into the decision-making process for selection of the preferred alternative.

2.2.5 Site characterization

After the Project office, NRC, and affected state or Indian tribe agree on the additional site data required, site characterization progresses as described in the following sections.

Data collection

After Project Office approval of the required data to be collected, scopes of work (SOWs) and data collection subcontracts are developed. Each discipline (hydrology, radiology, engineering, and environmental) develops scopes of work for the required data relative to its needs for preparation of NEPA compliance documents and the RAP. These are internally reviewed to ensure that each SOW is in conformance with the prior assigned budget for the various types of data required. Each discipline coordinates its activities with the respective site manager and the site team with the objectives of:

- o Reviewing the approaches, requirements, and completeness of the data requested.
- o Conducting the review and approval of the proposed SOWs for data collection.
- o Assuring integration of data collection activities with the site schedule and existing site data.
- o Providing verification and acceptance of the data received.

This promotes a uniform approach to data collection activities and SOW preparation.

During this time, the SOWs are transmitted to the affected state or Indian tribe and the RAC for input. Specifically, the affected state or Indian tribe is requested to emphasize groundwater characterization work, and the RAC is requested to emphasize geotechnical investigations. This is done to ensure that these participants are satisfied as to the data collection plan in their areas of concern. All comments are considered, evaluated with respect to budget constraints, and incorporated into final SOWs as appropriate. These are subsequently reviewed by the Technical Data Review Committee and put out for solicitation; subcontracts are then awarded by the TAC. Radiological characterization is performed by a contractor of the DOE's Idaho Operations Office according to TAC-prepared SOWs.

Data gathering and analysis are performed in the following areas:

- o Groundwater hydrology and geology (drilling and test pit excavation).
- o Land survey.
- o Topography (aerial surveys).
- o Archaeology.

- o Biology (including threatened and endangered species).
- o Radiology.
- o Geophysical well logging.
- o Water sampling (organic, inorganic, and radio-chemistry).
- o Soil and rock characteristics.
- o Geochemistry of disposal site materials.
- o Site-specific and regional geology.
- o Emanation fraction and diffusion coefficient.
- o Subsurface hydraulic measurements and testing.
- o Seismicity.
- o Geomorphology.
- o Surface hydrology.
- o Surface geophysics.

Field work and analysis

Field work is scheduled to meet data analysis requirements and subsequent document production. The data obtained from the field investigations are analyzed in various commercial laboratories and must pass the UMTRA Project Quality Assurance/Quality Control (QA/QC) process. The data received are circulated for review and formal acceptance by the site team. The site team reviews all data to evaluate the results, identify any risks not anticipated during the early site appraisal, and determine whether additional data are needed because of newly discovered risks.

Pre-remedial action radon levels are determined at the processing and disposal site(s) (if applicable) during this time. The radon monitoring data are used to 1) determine the background values at the site boundary; 2) confirm the overall pattern of radon concentrations in the vicinity of the site to assist in the most effective placement of continuous monitors to be used during the remedial action construction; and 3) determine pre-remedial action radon levels at the processing site to which measurements collected during the construction period may be compared. Details on radon monitoring are contained in the "Outdoor Radon Monitoring Plan for the UMTRA Project Sites."

Generally, once field work is underway, the public is notified of activities taking place by the issuance of a press release to local and state media, identified interest groups, local officials, the local task force, and other individuals who have expressed an interest in the Project.

Documentation of data

The site characterization data are processed for use in developing the site conceptual design and the NEPA compliance document. This is done to derive conclusions regarding the conceptual design and the environmental impacts of the design. Essential site characterization data (e.g., geology) are included as attachments to the RAP. The remaining data are archived and are available through the UMTRA Project Office, if needed (Figure 2.3).

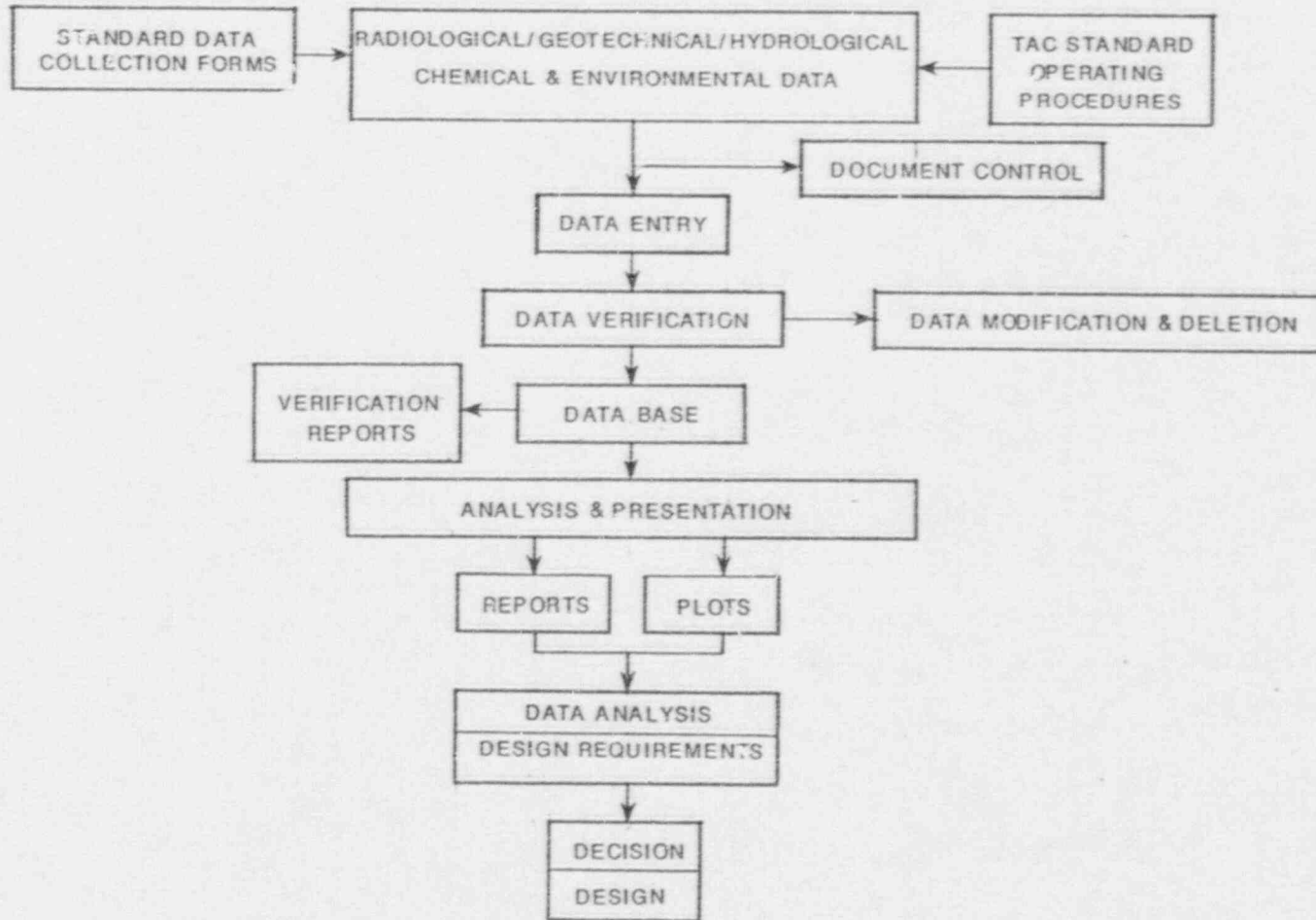


FIGURE 2.3 SITE DATA PROCESSING

2.2.6 Final CADSAR

The final CADSAR evaluating the disposal sites is prepared after data collection and site characterization are completed. The report includes, but is not limited to:

- o A summary of the site characterization data collected.
- o A technical evaluation of the alternatives regarding their suitability to assure compliance with the EPA standards (this would include a description of proposed conceptual designs for the options).
- o A more detailed assessment of transportation options.
- o An updated budget estimate for the most suitable options.
- o A brief discussion of potential environmental and socio-economic concerns.
- o A ranking of all the remedial action alternatives considered.
- o An implementation schedule for Project activities.

Comments from the initial review cycle and the results of the completed site characterization are incorporated into a preliminary final CADSAR. This version is forwarded to the NRC and affected state or Indian tribe prior to a formal review meeting. The final CADSAR is reviewed jointly with the participating agencies. The purpose of this review is to reach agreement with the affected state or Indian tribe on the preferred remedial action and with the NRC that the preferred alternative will meet the EPA standards. Following resolution of comments, the DOE and the state or Indian tribe agree upon a preferred remedial action to be evaluated and presented in the NEPA compliance document. At this point, the final CADSAR is issued, and a public meeting is held to inform the community of the actions that have taken place and of the proposed identification of the preferred alternative for NEPA compliance purposes.

2.3 TAILINGS REPROCESSING

The Project is required by the Act to consider the potential for reprocessing of the uranium tailings. Recovery of the residual minerals may be permitted consistent with the site's remedial action. Additionally, reprocessing must be as cost effective as any other option in order to be considered as a remedial action alternative.

In March 1982, the DOE contracted for economic evaluation studies of the Salt Lake City, Shiprock, Gunnison, Grand Junction, Old and New Rifle, Maybell, Riverton, Spook, Ambrosia Lake, Mexican Hat, and Tuba City UMTRA Project sites. The objective of these studies was to obtain the necessary data to determine the economic viability of reprocessing the tailings for recoverable uranium, vanadium, and molybdenum. The results of these

economic evaluations demonstrated that under market conditions, reprocessing was not economically viable at any of the 12 sites.

The Durango site was not included in the initial evaluation because of site access restrictions; however, the site was recognized historically as having a high potential for economically viable reprocessing. In October 1983, the Project Office authorized a special study to determine if reprocessing at Durango was technically feasible and economically beneficial. The study was conducted based on available information, since site access was still restricted. It was again determined that reprocessing was not economical because of market conditions.

As a result, reprocessing of the tailings is no longer considered a viable remedial action option for the Project.

3.0 NEPA REVIEW PROCESS

3.1 BACKGROUND

The Project's NEPA review process generally runs concurrently with the site characterization and conceptual design effort. The process is designed to comply with the "Council on Environmental Quality Regulations for Implementing the Procedural Provisions of the NEPA" (40 CFR 1500-1508) via the DOE's "Environmental Compliance Guide" (DOE/EV-0132). The Project Office discharges its NEPA responsibilities in conjunction with DOE HQ-EH and the assistance of the TAC.

The Project Office is responsible for:

- o Administering the NEPA review process.
- o Preparing the appropriate site NEPA compliance document (i.e., either an EA or an EIS).
- o Preparing the related FONSI for an EA or a ROD for an EIS.
- o Preparing other supporting NEPA compliance documents (e.g., action description memoranda, floodplains and wetlands assessments and statements of findings, cultural resources analyses and clearances, and biological assessments).
- o Ensuring that the planned site remedial action is consistent with that assessed in the site NEPA compliance document.

The DOE initially made the decision to prepare an EA for low and medium priority sites and an EIS for high priority sites. Subsequently, it was decided that EAs would be prepared for the high priority Shiprock, Gunnison, and Riverton sites.

3.2 NEPA COMPLIANCE DOCUMENTS

Producing the NEPA compliance documents involves coordination with the DOE's Office of NEPA Project Assistance (EH-22) and other government agencies. The TAC assumes the lead role in coordination and preparation of all NEPA compliance documents.

Project EAs are prepared in accordance with the "Contents of Environmental Assessments for the Uranium Mill Tailings Remedial Action Project" and provide:

- o The information and analyses necessary to determine if the preferred remedial action alternative is a major Federal action significantly affecting the quality of the human environment under the guidelines of the NEPA, thereby determining whether an EIS should be prepared.
- o A mechanism to collect and analyze data to ensure that the preferred remedial action alternative is in compliance with environmental laws and regulations other than the NEPA.

- o The initial baseline data for analysis of alternate disposal sites for inclusion in an EIS (if the preparation of an EIS becomes necessary) or for the selection of an alternate disposal site if the preferred alternative of SIP or SOS is determined to be unacceptable.

The objective of preparing an EIS is also to comply with the requirements of the NEPA. The NEPA requires that the preferred alternative, other reasonable action alternatives, and no action alternative be assessed. Additional guidance on the documents' preparation and distribution is included in the "Procedures for Preparation, Printing, and Distribution of UMTRA Project National Environmental Policy Act Documents."

Figures 3.1 and 3.2 depict the sequence of events, participants, and decision points in preparing EAs and EISs. The tasks involved in their preparation are shown in Tables 3.1 and 3.2. Adequate time is included in the NEPA review process to allow for identifying and resolving unknown issues without affecting remedial action schedules. Also, the length of time required to complete a NEPA compliance document will vary with the site's priority, the likelihood of relocation of the contaminated materials, and environmental and related issues.

In addition to the preparation of EAs and EISs, environmental reports, action description memoranda, Federal Register notices, and documents to comply with floodplains and wetlands, threatened and endangered species, and cultural resources protection legislation are prepared.

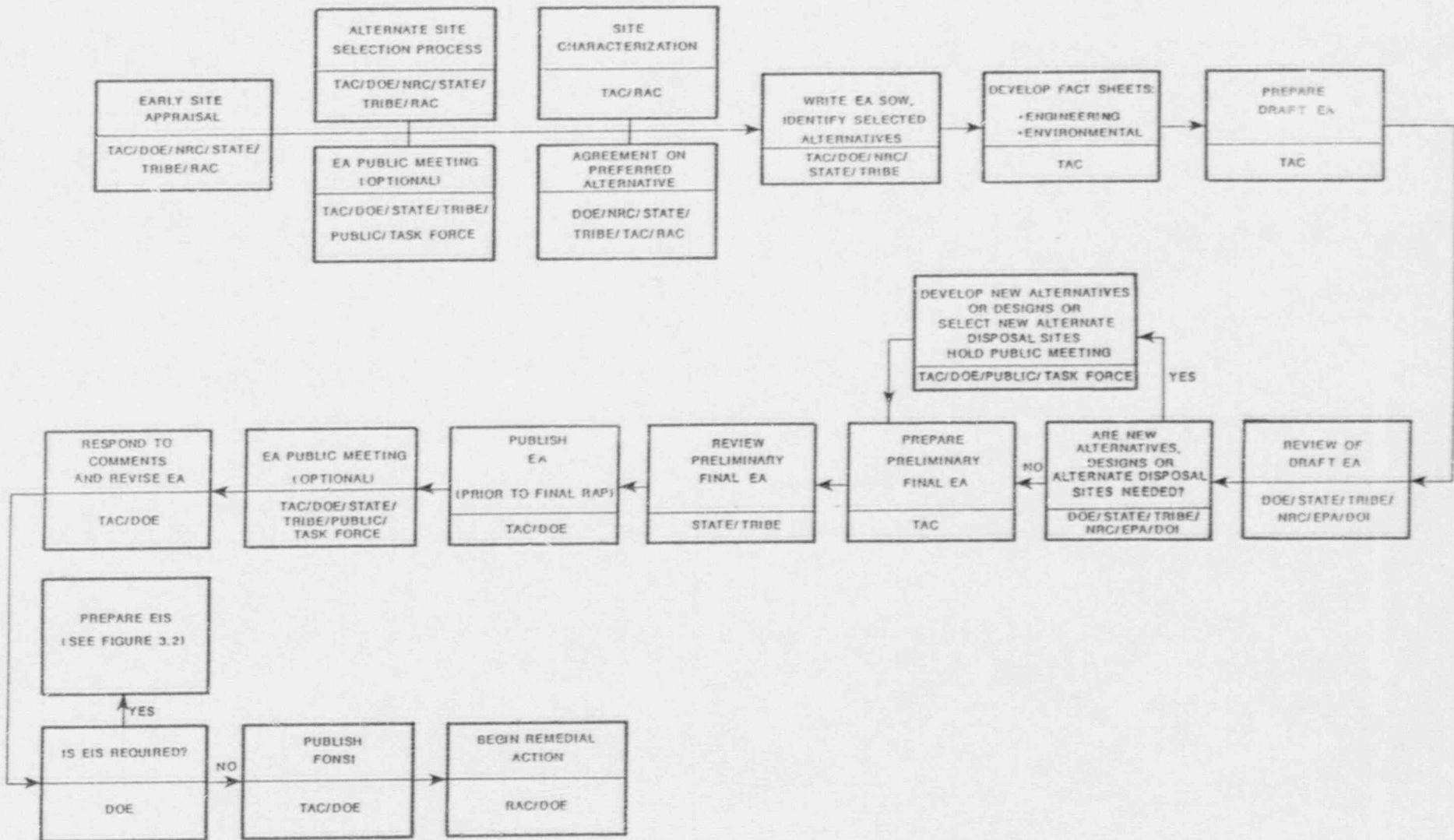


FIGURE 3.1 ENVIRONMENTAL ASSESSMENT PROCESS

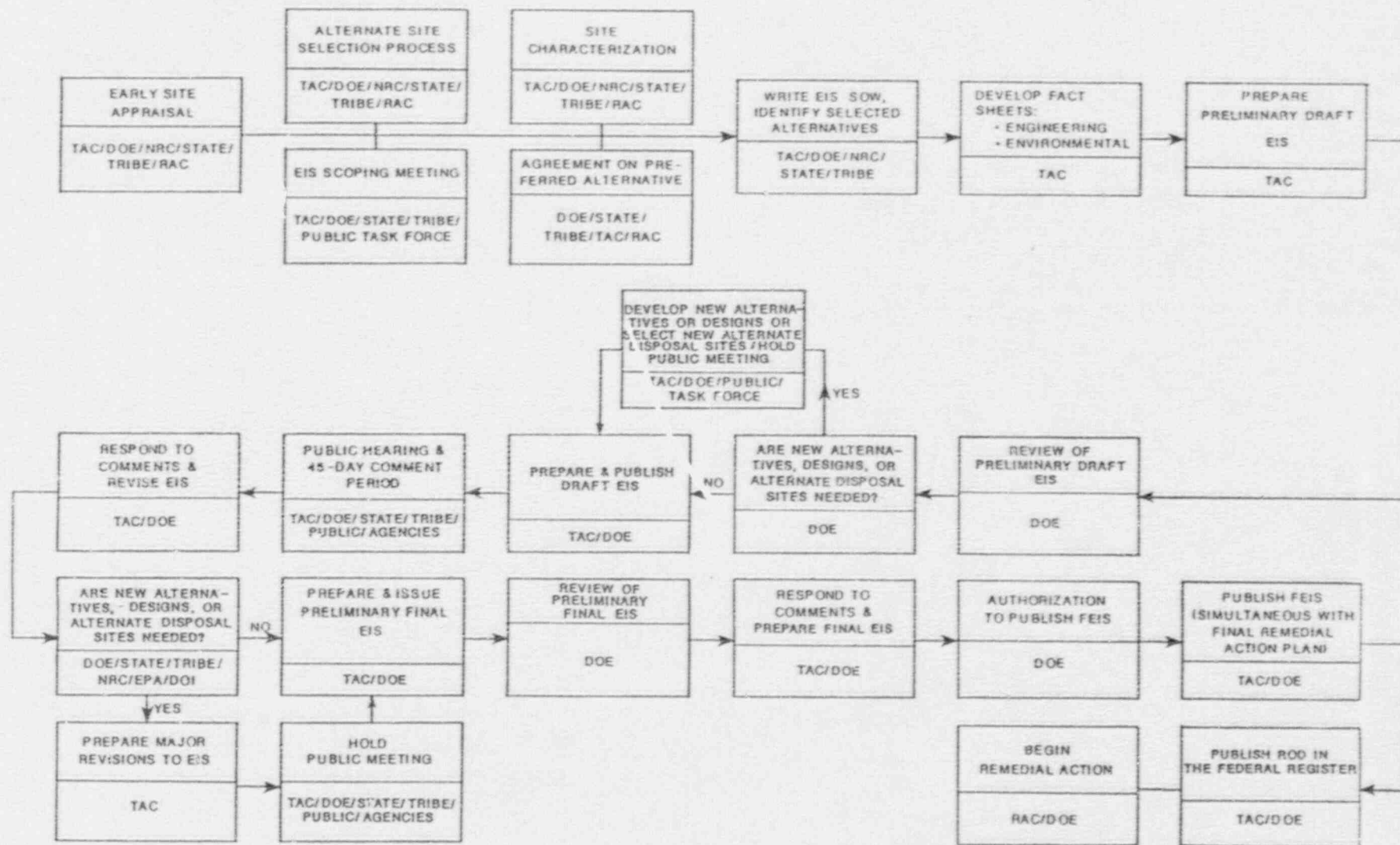


FIGURE 3.2 ENVIRONMENTAL IMPACT STATEMENT PROCESS

Table 3.1 Environmental assessment tasks

Planning

- o Start ASSP at least six months prior to initiation of the EA process.
- o Conduct a data review to identify critical issues, and assess the need for additional data collection (coordinated with CADSAR process) at least one month prior to initiation of the EA process.
- o Begin consultation with Federal and state agencies for: threatened and endangered species (FWS); cultural resources (SHPO); 404 Permits (COE and Federal Emergency Management Administration); and floodplains and wetlands assessment (FWS and COE).
- o Obtain the description and status of the planned data collection, and begin associated permit applications.
- o Conduct a site investigation to identify critical environmental issues and collect available data.
- o Hold public meetings.
- o Conduct EA team meetings to identify critical issues and the approaches to management of these issues.
- o Prepare a SOW for the production of the EA, including a schedule, discussions of key issues, assignments, writing guidelines, and copies of appropriate data.
- o Prepare the engineering fact sheet.

Draft Document

- o Produce and distribute EA fact sheet including the engineering fact sheet, document outline, document schedule, and discussions of key issues.
- o Produce draft EA and EADR for review.
- o Obtain DOE HQ, cooperating agencies, and public comments.

Final Document

- o Prepare comment and response document (CARD).
 - o Revise draft EA and EADR in response to comments.
-

Table 3.1 Environmental assessment tasks (Concluded)

Final Document (Concluded)

- o Obtain state or Indian tribe comments on preliminary final EA and revise accordingly.
- o Receive DOE HQ-EH approval to print and distribute.
- o Publish final EA.

Finding of No Significant Impact (FONSI)

- o Prepare draft FONSI.
 - o Hold public meetings as necessary.
 - o Summarize public comments.
 - o Prepare final FONSI.
 - o Prepare transmittal letter for FONSI and summary of public comments.
 - o Receive DOE HQ-EH approval to publish FONSI.
 - o Publish FONSI.
-

Table 3.2 Environmental impact statement tasks

EIS Planning

- o Start ASSP at least six months prior to initiation of the EIS process.
- o Conduct a data review to identify critical issues, and assess the need for additional data collection (coordinated with CADSAR process) at least two months prior to initiation of the EIS process.
- o Begin consultation with Federal and state agencies for: threatened and endangered species (FWS); cultural resources (SHPO); 404 Permit (COE and Federal Emergency Management Administration); and floodplains and wetlands assessment (FWS and COE).
- o Obtain the description and status of the planned data collection, and begin associated permit applications.
- o Conduct a site investigation to identify critical environmental issues and collect available data.
- o Hold public scoping meetings.
- o Conduct EIS team meetings to identify critical issues and the approaches to management of these issues.
- o Prepare a SOW for the production of the EIS, including a schedule, discussions of key issues, assignments, writing guidelines, and copies of appropriate data.
- o Prepare the engineering fact sheet.

Draft Document

- o Produce and distribute an EIS fact sheet including the engineering fact sheet, document outline, document schedule, and discussions of key issues.
 - o Produce preliminary draft EIS and appendices for review.
 - o Revise preliminary draft EIS and request review and approval to publish from HQ DOE.
 - o Publish draft EIS and request comments from cooperating agencies and the public.
 - o Hold public comment hearing(s).
-

Table 3.2 Environmental impact statement tasks (Concluded)

Final Document

- o Prepare comment/response section as Chapter 6.0 of final EIS.
- o Request DOE HQ review.
- o Revise preliminary final EIS in response to comments.
- o Receive DOE HQ-EH approval to print and distribute.
- o Publish final EIS.

Record of Decision (ROD)

- o Prepare draft ROD.
 - o Hold public meetings as necessary.
 - o Summarize public comments.
 - o Prepare final ROD for DOE HQ approval.
 - o Publish ROD.
-

4.0 REMEDIAL ACTION DESIGN

4.1 MAJOR DESIGN OBJECTIVES

As discussed previously, the purpose of site remedial actions is to stabilize and control the uranium mill tailings and other contaminated materials in compliance with the EPA standards. Consistent with the EPA standards, the following major design objectives have been implemented by the Project Office.

- o Design controls, to the extent reasonably achievable, to be effective for up to 1000 years with minimum maintenance and a minimum design life of 200 years.
- o Reduce the average radon flux from the site to less than 20 picocuries per square meter per second.
- o Reduce contaminant levels in areas released for unrestricted use to levels that do not exceed five picocuries per gram of radium-226 above background in the top 15 centimeters of soil and do not exceed 15 picocuries per gram above background in any 15-centimeter layer below that depth.
- o Prevent inadvertent human intrusion and discourage deep-rooted plant and animal intrusion into the disposal cell through design measures and surveillance activities.
- o Ensure that existing or anticipated beneficial uses of groundwater and surface water are not adversely affected.
- o Protect against releases of contaminants from the site during construction.
- o Provide, as required, flood protection, sediment control, wastewater treatment, and environmental monitoring and reporting during construction.
- o Minimize areas disturbed during construction and minimize human exposure to contaminated materials.

The original groundwater standards were remanded to the EPA for further consideration in light of the Court's opinion that the water standards were site-specific rather than of general application as required by the legislation. The EPA issued proposed standards for comment on September 24, 1987 (52 FR 36000). In response to the Court's remand, the newly proposed EPA groundwater protection standards involve:

- o Protection of human health, safety, and the environment.
- o Consideration of radiological and nonradiological hazards.
- o Consistency with the requirements of the Resource Conservation and Recovery Act (RCRA), as amended.

- o General standards applicable to all UMTRA Project sites (i.e., not site-specific as was the case for the remanded standards).

4.2 DESIGN PROCESS

4.2.1 Introduction

The process for selecting the remedial action to be implemented at a processing site involves comprehensive and interrelated activities that start with the conceptual design and end with the RAP. Figure 4.1 depicts the normal process. The final determination by the Project Office as to the type and extent of remedial action required for each site is based on the EPA standards, the environmental impacts of the alternative actions, and the physical conditions at the site.

4.2.2 Remedial Action Plan

The RAP presents the series of activities required to effect the long-term stabilization and control of the residual radioactive materials from the processing site. The first step in preparing the RAP is preparation of the RAS. The format of the RAS is set forth in the NRC's Standard Format and Content for Documentation of Remedial Action Selection at Title I Uranium Mill Tailings Sites, and the RAS generally contains a summary of the following information:

- o General information, including processing/disposal site geography and demography and a description of the proposed action.
- o A discussion of the geologic stability of the disposal site, including descriptions of the types of studies conducted to determine that the remedial action meets the EPA standards, regional and site geology, geomorphic and seismotectonic stability, and geologic suitability.
- o A discussion of the geotechnical stability of the disposal site, including site and materials characterizations, a geotechnical engineering evaluation, and construction details such as construction methods, features, and verification testing.
- o A discussion of surface water hydrology and erosion protection at the disposal site, including a description of the hydrology and the potential impacts on the conceptual design, flooding determinations, water surface profiles and channel velocities, erosion protection design, rock durability, quality control for erosion protection, and upstream dam failures.

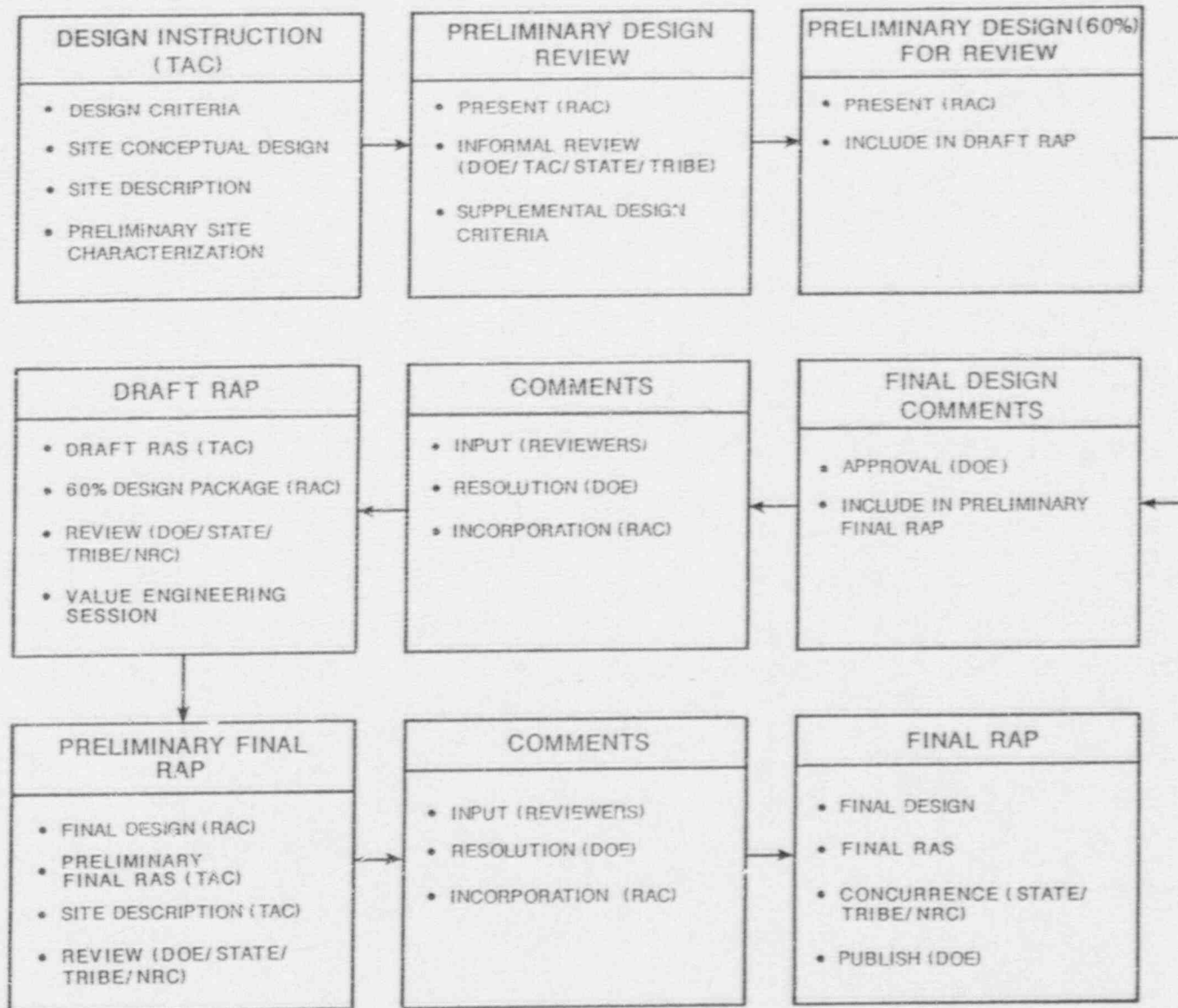


FIGURE 4.1 DESIGN PROCESS

- o A demonstration of compliance with the proposed EPA groundwater protection standards, including hydrogeologic characterizations of both the processing and disposal sites, a description of the conceptual design features for water resources protection, the compliance demonstrations for the disposal site and the processing site (groundwater cleanup), and a discussion of any proposed supplemental standards applications.
- o A discussion of radon attenuation and site cleanup, including a thorough description of the radon barrier design and a description of the processing site cleanup.

Attachments are then added to the RAS to complete the RAP. These attachments provide all pertinent details on the following subjects:

- o The RAC's final design including all calculations, specifications, and subcontract documents.
- o The site geology report.
- o The groundwater hydrology report.
- o The water resources protection strategy.

The RAP may include additional attachments that are deemed appropriate for a particular UMTRA Project site.

Draft RAP

The draft RAP is produced, as far as practical, during the preparation of a site's NEPA compliance documentation. It is published concurrently with a draft EA and as soon as possible after publication of a draft EIS. Although a draft RAP may not be complete, a significant amount of the conceptual design for the site is provided in the EA or EIS.

The purpose of the draft RAP is to 1) describe the engineering of the proposed remedial action to the participating agencies, and 2) demonstrate compliance with the EPA standards.

To the maximum extent practical, production of certain critical sections of the RAP begins as early as preparation of the CADSAR. The RAP follows the NRC's staff technical position paper "Standard Format and Content for Documentation of Remedial Action Selection at the Title I Uranium Mill Tailings Sites." Likewise, as site characterization is undertaken, results are compiled and arranged in a format that fits readily into the RAP.

The detailed design is initiated by the issuance of the design instructions. Table 4.1 summarizes the disciplines and the related functions involved in design definition for the design instructions. During this period the RAC provides the 60-percent design

Table 4.1 Design definition for design instructions

Discipline	Functions
Civil engineering	Specify disposal cell layout, erosion protection requirements, surface water control features, construction schedules, and volume estimates; compile relevant calculations.
Geotechnical engineering	Define soil, rock, and tailings geotechnical characteristics; disposal cell stability and deformation analyses; compile relevant calculations.
Geohydrology	Characterize groundwater and interconnected surface water conditions at the site; define existing groundwater contamination and any potential for future contamination of groundwater and surface water after remedial action; develop a water resources protection and compliance strategy.
Geology	Define site and regional geology, site and regional seismicity, and on-site design earthquake parameters.
Radiological engineering	Define areal and vertical extent of subpile and off-pile contamination and specific health and safety requirements; calculate radon source term and thickness of radon barrier.
Cost	Confirm quantities and prepare cost estimates for the site design and alternatives.

package, construction costs, and constructibility review. A value engineering analysis is performed on the draft RAP. The results, after approval by the Project Office, are incorporated into the detailed design.

After submittal of the draft RAP, all design data, original calculations, sketches, and other supporting materials are consolidated into notebooks that are labeled and filed. A separate notebook is used to maintain the review comments, additional data, and other information received during the review and approval cycle to facilitate incorporation of material into the final RAP.

Draft RAP review

The purpose of the draft RAP review is to check the document for validity, accuracy, and completeness. The draft RAP should

clearly define the site design requirements. The more important requirements discussed at the review meeting for this document include:

- o Functions to be performed by the design, such as long-term stability and control of radioactive contaminants.
- o Application of the "Design Criteria" and compliance with the EPA standards, the Technical Approach Document, and other applicable site-specific design criteria.
- o Identification of pertinent Federal, state, and local standards concerning safety, environmental effects, and quality.
- o Determination that the optimum design conforms to all design requirements at a reasonable cost.
- o Identification of conditions pertinent to post-remedial action use and possible misuse, such as human or other intrusion.
- o Reference to pertinent information and documentation associated with similar processes and design.
- o Site accessibility.
- o Transportation options and alternatives relative to optimum costs, safety, and potential adverse environmental impacts.
- o Schedule requirements.
- o Critical design features, including any absolute constraints such as liners, covers, erosion protection, and site safety features during and after remedial action.
- o Testing and inspection considerations.
- o Required documentation.

The review meeting is conducted within 60 days after receipt of draft RAP comments from the NRC, affected state or Indian tribe, RAC, and other interested participants. After the formal review, the state provides written agreement for initiation of the preliminary design. The state shares the remedial action costs under the cooperative agreement. The state also acknowledges that it must have funds committed under the cooperative agreement prior to the initiation of the design.

The NRC, DOE, TAC, and RAC then meet for a verbal exchange of comments. The DOE initiates revision of the draft RAP towards preparation of the preliminary final RAP based on the taped verbal comments.

Preliminary final RAP

Agreed-upon comments from the draft RAP review meeting are accumulated and incorporated into the preliminary final RAP. Comments regarding the design are incorporated into the detailed design by the RAC. The RAC then prepares the site's final remedial action design, which is to be included in the preliminary final RAP. During the period of detailed design, the RAP is revised to incorporate any additional site data acquired and major design changes made since issuance of the draft RAP and to address applicable comments from the review cycle. The preliminary final RAP will be issued to the NRC, state, or Indian tribe for final review and comment.

Final RAP

The final RAP will be revised to address any additional comments from the NRC, state, or Indian tribe and will be reissued to the same parties for concurrence. Upon concurrence, the final RAP, including the final design, is incorporated as Appendix B of the cooperative agreement with the affected state or Indian tribe. The parties may, at any time, request in writing to the DOE that the RAP be modified and agree to negotiate in good faith concerning any requested modification.

In order to facilitate and expedite field-initiated changes so that delays in remedial action are avoided, the Project Office employs a change classification system. The classification system categorizes field changes into three distinct classes based upon their severity of impact to the control and stabilization of the tailings. Proposed field changes are documented by a Project Interface Document.

4.2.3 Detailed design

As part of the regular detailed design process, the RAC reviews the approved site planning and design development documents (i.e., the EA or EIS, draft RAP, and other applicable site data or reports) for clarity, adequacy, accuracy, completeness, and compliance with good engineering design practices. Any additional data required to support the detailed design are identified and obtained. Technical issues raised by this review are resolved with the Project Office as quickly as possible. The detailed design is accomplished in two phases: the preliminary design (60 percent design package) and final design.

Preliminary design

The preliminary design work includes preparation of initial drawings, specifications, design analyses, transportation plans, and reports or studies. The reports or studies outline the most practical and economic approach to remedial action and include a discussion of long lead-time materials, equipment, and labor requirements.

A preliminary cost estimate and construction schedule are also prepared. The design is prepared consistent with the approved design criteria.

The preliminary design and specifications are reviewed in two sessions. Prior to the formal design review, an informal review meeting is conducted. The DOE Site Engineer, TAC representatives, and, if they wish to participate, state or Indian tribe and NRC representatives, meet to discuss design implementation. This informal meeting normally occurs when the preliminary design is 30 percent complete. The purpose of this meeting is to ensure that the Project Office agrees with the design approach being implemented. For the informal review meeting, written comments are not required.

A formal design review is conducted when the design is approximately 60 percent complete. The design review meeting is held after receipt and review of the design (as included in the draft RAP) by the review participants. Important items considered at the review session are:

- o Conformance of the design to the EPA standards and to the requirements and design criteria specified in the RAP.
- o Optimization of the design with particular emphasis on transportation options, disposal cell configuration, cover material requirements, erosion, and groundwater protection features.
- o The cost estimate and schedule for performing the site's remedial action.
- o The environmental, health, and safety coverage.
- o The planned procurement strategy (i.e., type and number of subcontracts, bid items, and potential bidders for subcontracting).
- o Agency review comments.

Final design

Within 30 days after the formal design review meeting, review comments are provided to the RAC for use in completing the final design. The design proceeds in accordance with the prescribed format after all questions regarding data and criteria have been resolved, except where resolution will not substantially affect the design. The cost estimate and construction schedule are revised to reflect the final design, and certain surveillance and monitoring features such as the need for groundwater monitoring and placement of boundary markers are included for NRC review. The design is reviewed internally by RAC construction personnel for the purposes of 1) contributing practical expertise in construction methods and

techniques; and 2) realizing economies and efficiency by such practices as the identification of long lead-time materials, equipment, and labor requirements.

After approval of the final design by the Project Office, the design is incorporated into the preliminary final RAP and the document is sent to the NRC and affected state or Indian tribe for formal review. A review meeting will be scheduled shortly after the review comments are received. The purpose of the review is to discuss relevant concerns and comments on the preliminary final RAP and design and to initiate incorporation of the responses into the final RAP and design. All information related to the design is made available for the review meeting, including minutes of earlier reviews, trade-off studies, cost data, test data, reports from consultants, and the like. After the meeting, the RAC incorporates approved changes, and the final RAP and final design are then forwarded to the NRC and affected state or Indian tribe for formal concurrence.

The affected state or Indian tribe and the NRC concur with the final RAP prior to initiation of remedial actions. However, the DOE, with written consent from the state or Indian tribe, and the NRC may proceed with remedial action prior to concurrence with the final RAP. This process is typically referred to as a "Conditional Concurrence."

4.3 DESIGN GUIDANCE

To provide a consistent approach to Project design analysis, the Technical Approach Document (TAD) was prepared and is periodically updated. The TAD provides a systematic approach to addressing design features for a site. Additionally, the Project developed the "Design Criteria for Stabilization of Uranium Mill Tailings Sites" to guide the detailed design. This document contains a set of operating procedures concerning formats for drawings, specifications, calculations, schedules, cost estimates, and quality assurance. The TAD is consistent with state-of-the-art engineering practices, the EPA standards, and the NRC's "Standard Review Plan for Remedial Action Plans." The document will undergo periodic revision to incorporate advances in design issues. The "Plan for Implementing EPA Standards for UMTRA Sites" is used for additional understanding of the design objectives and requirements.

The following considerations also guide the performance of site design work:

- o Quality assurance: The Project's QA program ensures that all work (including site design) is performed satisfactorily in accordance with the "UMTRA Project Quality Assurance Plan." Section 11.0 details the QA program.
- o Environmental, health, and safety: The Project's Environmental, Health, and Safety Program ensures that site designs consider the health and safety of the workers and the general public in accordance with the "UMTRA Project Environmental, Health, and Safety Plan."

- o Regulatory requirements: Site designs take into consideration the applicable Federal and state laws.

4.4 DESIGN REVIEWS

4.4.1 Purpose

As noted previously, a site's design is reviewed for compliance with UMTRA Project requirements at certain predetermined points in the design process. These formal reviews take place upon completion of the draft CADSAR, final CADSAR, draft RAP, and upon receipt of the preliminary final RAP review comments. The purpose of the design reviews is to ensure that the optimum design is achieved considering all elements and that Project participants are involved early in the process in order to facilitate later concurrences on the final RAP and final design.

4.4.2 Conduct

The Project's formal design review meetings consist of a systematic process whereby a design is evaluated by participants not directly associated with its development. Informal design meetings are conducted, as necessary, to ensure that designs are being developed in accordance with the design criteria.

The DOE Site Engineer chairs the formal design review meetings and is responsible for scheduling the meetings and preparing an agenda. Appropriate representatives from the DOE, TAC, and RAC participate. The NRC and affected state or Indian tribe may participate, as appropriate. Each representative prepares review comments with respect to the design, especially in areas where design requirements or EPA standards may not be met. The comments should describe the problem or concern and the recommended corrective action.

At the formal review meeting, when problems with the design are identified, the participants point out possible approaches to solutions within the limitations of the meeting. However, detailed engineering is not attempted at the meeting. Disagreements on design requirements that cannot be mutually resolved will be resolved by the DOE Site Engineer.

A designated secretary takes notes on the items discussed during the review, collects signed comment sheets from all the reviewers, and distributes the meeting minutes. Meeting minutes assign responsibility for taking the corrective action on each open item and the required completion dates. Corrections to the minutes are provided to the DOE Site Engineer after review by the attendees. The TAC Site Manager or RAC Site Design Engineer, as appropriate, is responsible for follow-up on open action items and incorporating the agreed-upon changes into the reviewed design.

4.5 VALUE ENGINEERING

In addition to design reviews, which consider cost effectiveness, the Project Office may conduct a formal value engineering (VE) analysis of the site design at the completion of the draft CADSAR. A formal VE analysis of the site design may also be conducted at the completion of the draft RAP. The objective of the Project's VE efforts is to analyze a site design's ability to achieve remedial action at the lowest cost that will satisfactorily and reliably meet the EPA standards. The VE sessions are conducted by a multidisciplinary team composed of members from the Project Office, TAC, RAC, and affected state or Indian tribe. A NRC representative may attend the close-out session and provide comments on the proposed design changes and their potential impact on compliance with the EPA standards, as appropriate.

5.0 REAL ESTATE ACTIVITIES

5.1 PARTICIPANTS

Project real estate activities, including obtaining NRC concurrence in planned acquisitions, are governed by the Act and applicable Federal regulations. The Act requires that the affected state acquire the disposal site unless it is acquired directly by the DOE in accordance with Section 106 of the Act. The terms and conditions of the cooperative agreement cover a state's activities with respect to acquisition and disposition of land. Upon completion of a site's remedial action, the title to the tailings and state-acquired disposal site are transferred to the DOE.

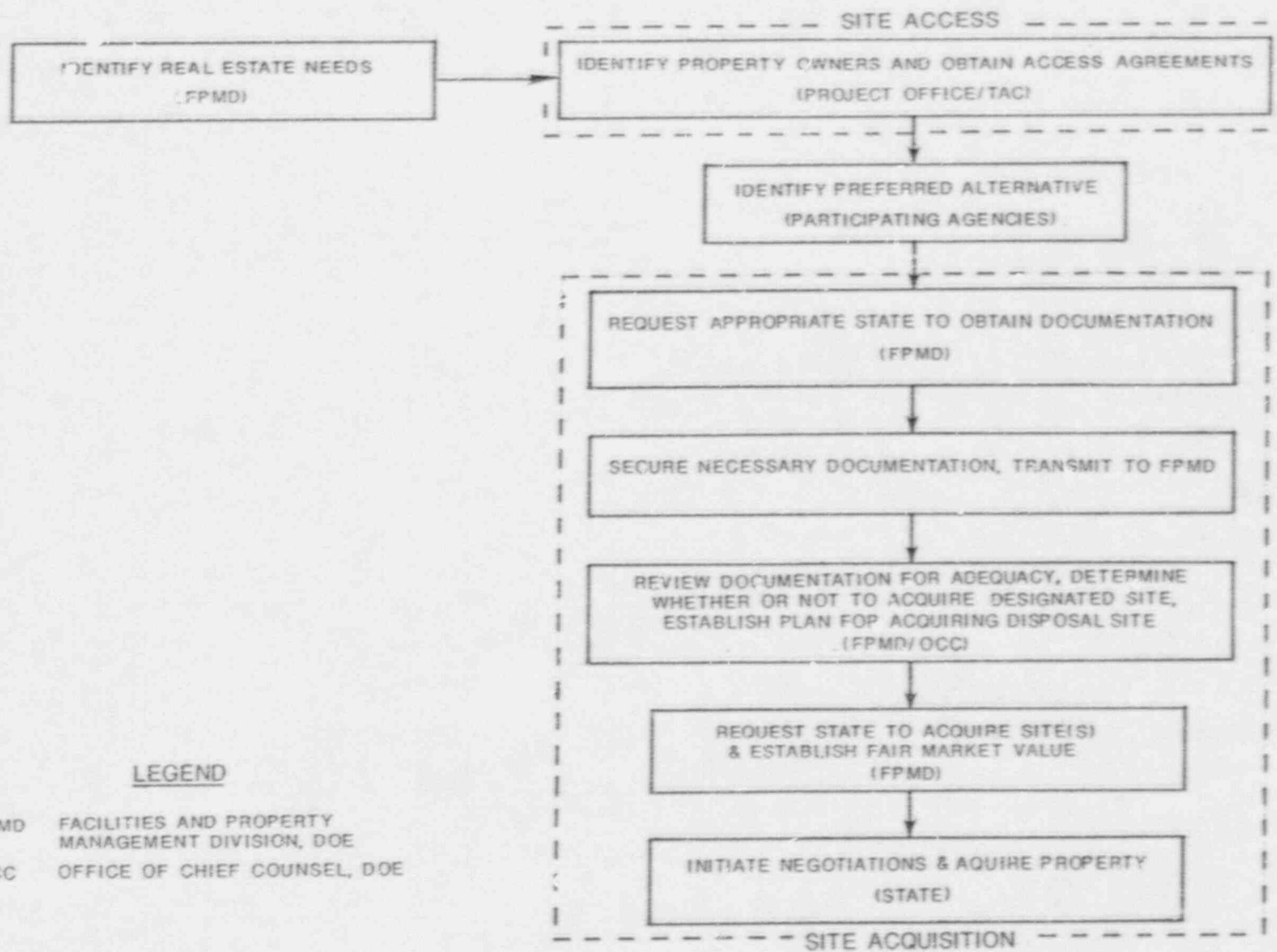
The Project Office is supported by the AL's Office of Chief Counsel, Facilities and Property Management Division, and Contracts Procurement Division, as well as the DOE HQ Office of Project and Facilities Management, in real estate activities to assure a site's availability for remedial action. Other Federal agencies (such as the COE, BLM, and DOJ) may also participate in the site acquisition process, as requested.

5.2 SITE ACCESS

Access and use agreements are necessary to allow data collection at the designated site, potentially contaminated areas adjacent to the site, alternate disposal sites (if applicable), and potential rock and earth borrow material areas. Site access activity begins with a location description of the lands of concern and identification of the land owners (Figure 5.1). The mill sites were identified through a formal designation process documented in the Federal Register. Other areas requiring access are identified through the site characterization process. Property owners are typically identified through a review of county tax records or procurement of title evidence, if needed.

Access to the designated site and, as appropriate, alternate disposal sites is obtained by AL through negotiation of an access agreement. The TAC obtains access to potentially contaminated areas adjacent to the site and those areas containing rock and earth suitable for cover materials. Access authorization is documented by the TAC using either a "Right-of-Entry" or "Use Agreement" form or other documents required by the landowner. Access authorizations are obtained prior to the start of data collection and typically require a period of 3.5 months. Access to the designated sites, adjacent contaminated areas, or alternate disposal sites is not automatic and assured. Public sentiment and private decisions can either preclude or significantly delay desired entry.

Permits, clearances, and licenses required for data collection (e.g., well permits and archaeological clearances) are secured by the TAC, either directly or through subcontractors, during this period. The DOE and the affected state or Indian tribe play key roles in obtaining access agreements as well as assisting in the timely acquisition of permits and licenses.



LEGEND

- FPMD FACILITIES AND PROPERTY MANAGEMENT DIVISION, DOE
- OCC OFFICE OF CHIEF COUNSEL, DOE

FIGURE 5.1 REAL ESTATE ACTIVITIES

5.3 SITE ACQUISITION

The site acquisition process (Figure 5.1) begins after the preferred alternative has been identified through the CADSAR process. A number of acquisition strategies are developed depending upon the preferred remedial action (i.e., SIP, SOS, or relocation). In any case, the disposal site must be acquired by the state if the land is privately or state owned and by the DOE if it is BLM or Indian land. The state must acquire the designated site, if 1) the designated site will be the disposal site (SIP or SOS); or 2) windfall profits could result from relocation of the tailings to a disposal site other than the designated site. In some cases, the DOE may acquire a disposal site through withdrawal of public lands from the DOI. Procedures are now established to transfer real estate jurisdiction to the DOE permanently.

The site acquisition process must be completed prior to the RAC's award of subcontracts for construction at the disposal site, with the exception of sites on Indian lands. While preliminary acquisition tasks such as preparation of legal descriptions and appraisals may be initiated concurrent with the preparation of NEPA compliance documents, no acquisition decisions are made that could prejudice the NEPA review process and the remedial action decision for an UMTRA Project site.

The acquisition of disposal sites may pose significant problems since some site owners may not be willing sellers. In such cases, state condemnation actions may be necessary, which for some states require state legislative action. Other risks for disposal site acquisition include court-determined values in excess of appraised values, mineral values, dependence on state resources for acquisition actions, and the time required for condemnation proceedings. To cope with these risks, the Project Office identifies sufficient lead time for the initiation of site acquisition activities and maintains close coordination with states, Indian tribes, or other involved parties.

6.0 REMEDIAL ACTION

6.1 INTRODUCTION

Remedial action includes all the phases of construction required to implement the preferred alternative leading to isolation of the contaminated materials in compliance with Project requirements (Figure 6.1). It includes initial activities such as ground breaking, development of site access roads and staging areas, facility construction, building demolition, and major actions such as tailings handling, radon barrier placement, erosion protection, and site restoration. Remedial action generally requires multiple construction seasons with winter shutdown periods. The remedial action schedule in Figure 6.2 depicts typical remedial action activities involved with the SIP option. Figure 6.3 provides an overview of the construction management activities involved in carrying out remedial action.

The affected state or Indian tribe is encouraged to monitor remedial action to ensure its satisfaction with the process. The NRC monitors certain key construction activities to support its legislated responsibility to concur in the performance of remedial action. Audit or surveillance reports prepared by the participating agencies are forwarded to the Project Office for use in the site certification process. The DOE, RAC, and affected state or Indian tribe are also encouraged to keep local officials and the general public informed on remedial action progress. Generally, the Project Office holds a public meeting at the start and the end of each construction season in order to inform the general public of plans and progress at the site. Public interest is a major factor in determining the need for and frequency of these meetings.

6.2 REMEDIAL ACTION CONTRACTOR

The RAC manages the performance of the remedial actions at the designated sites and disposal sites. The performance of remedial action is accomplished in accordance with the approved design. The RAC performs the following tasks:

- o Maintain, at each job site or combination of job sites, a construction management staff to coordinate and direct the work and to handle public inquiries specifically relating to remedial action activities.
- o Detail the procedures to be followed in the performance of construction inspection and radiological monitoring of remedial action.
- o Conduct, coordinate, and document all construction progress and final completion inspections.
- o Prepare and maintain logs of all necessary revisions and field changes to the design drawings and specifications.

NOTE: The work is not necessarily performed in the sequence shown. Some activities may be concurrent; audits, surveillances, and inspections are conducted periodically throughout the remedial action.

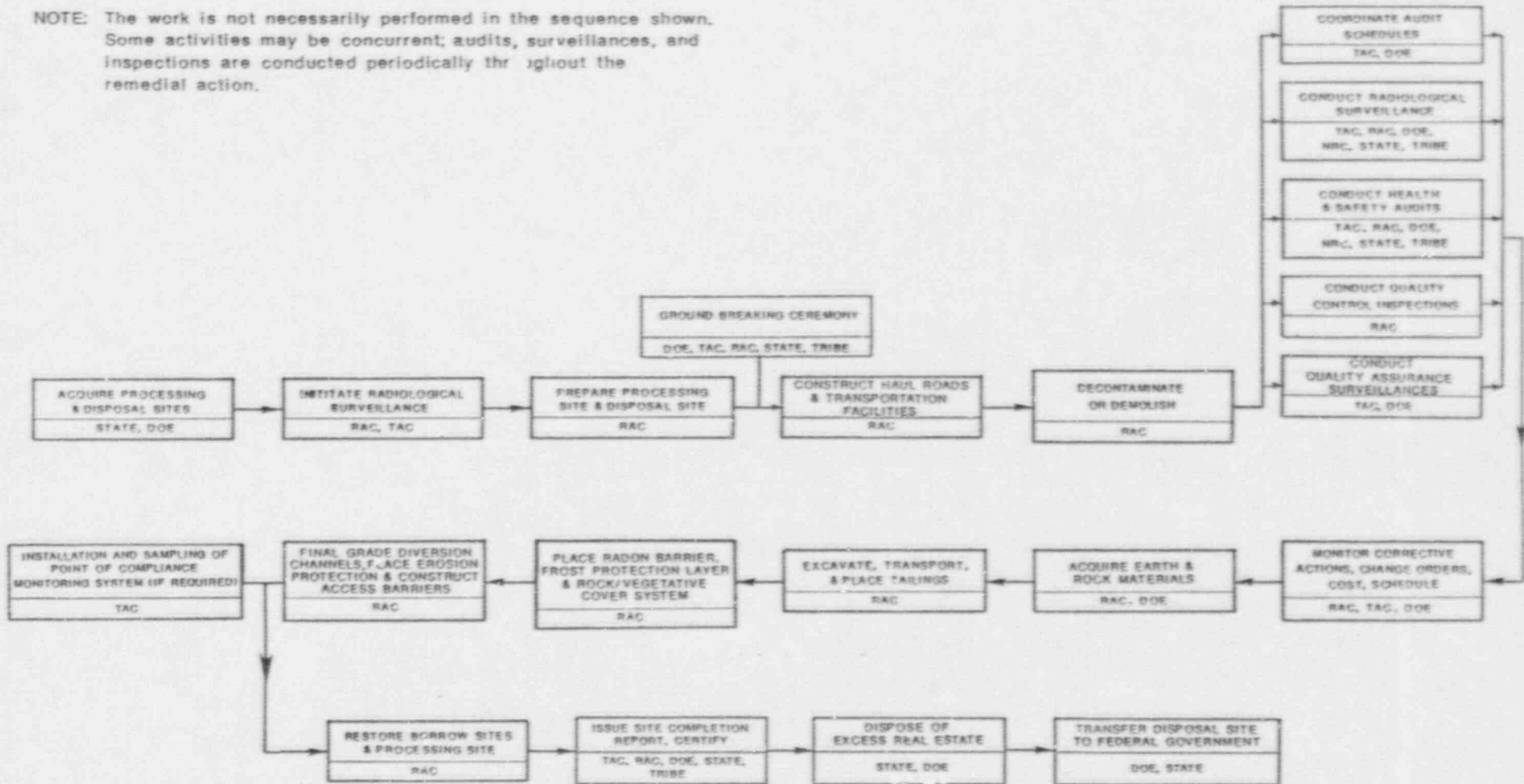


FIGURE 6.1

TYPICAL REMEDIAL ACTION ACTIVITIES

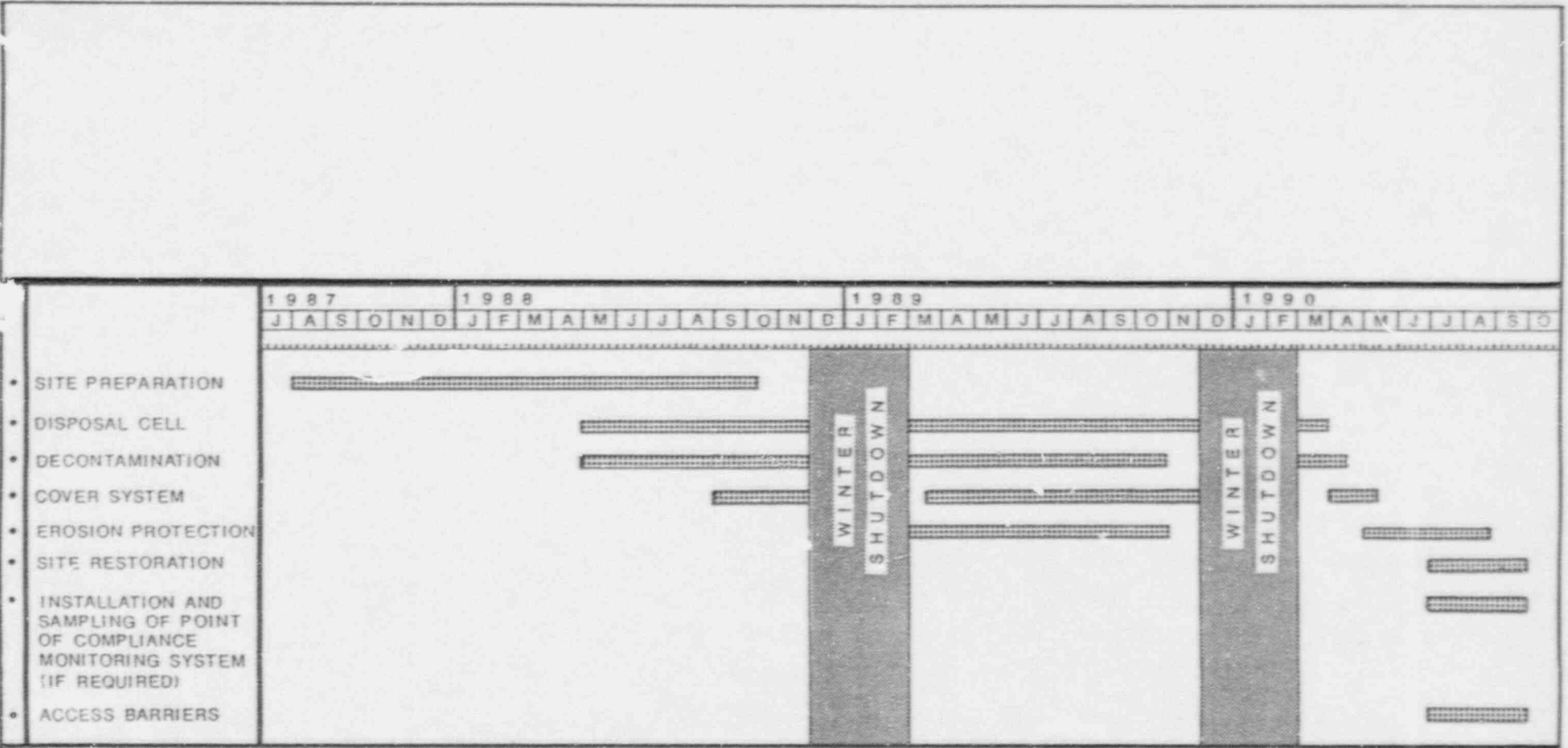


FIGURE 6.2 GENERIC SCHEDULE FOR STABILIZATION IN PLACE

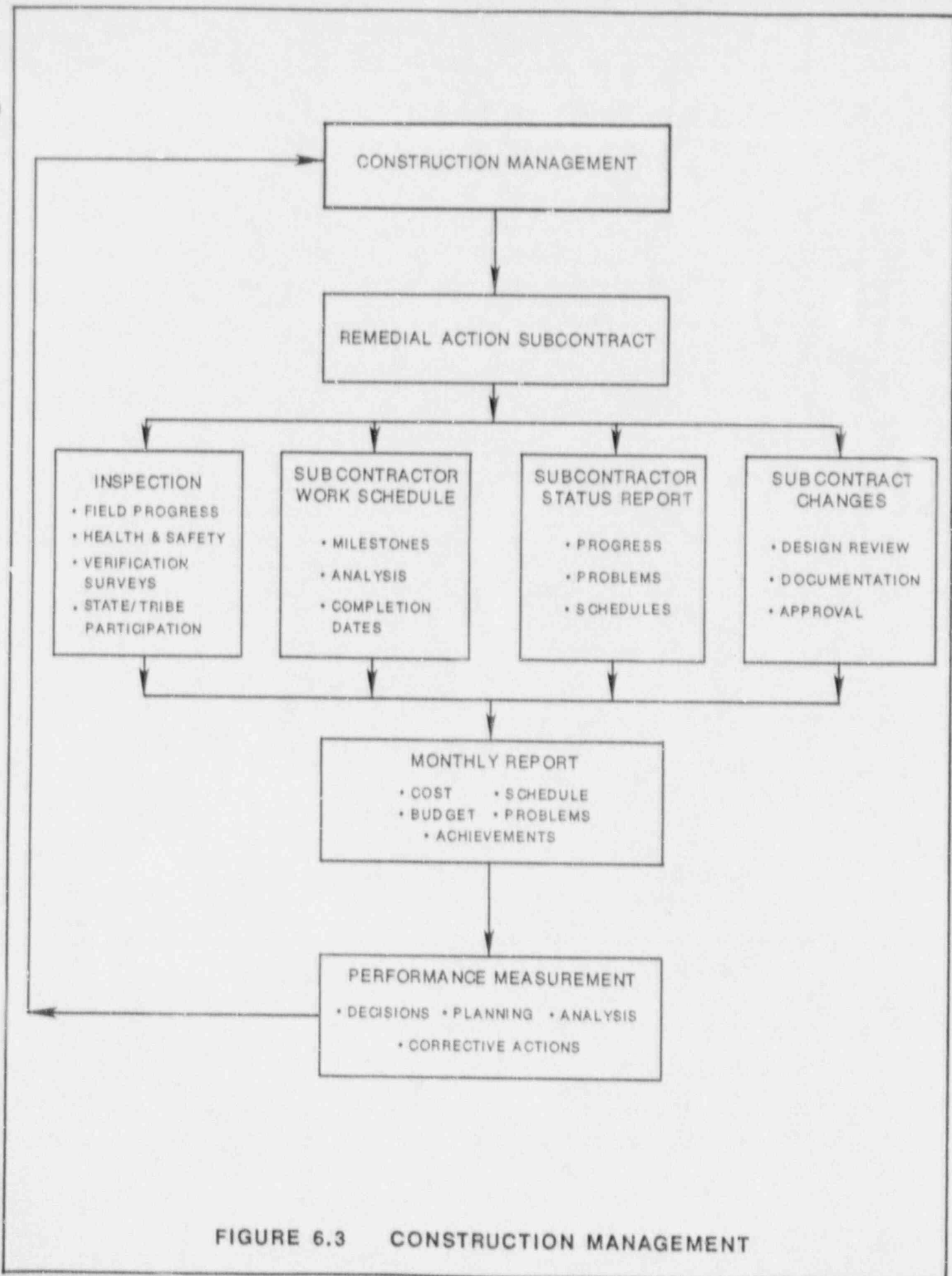


FIGURE 6.3 CONSTRUCTION MANAGEMENT

6.3 SUBCONTRACTING

Potential subcontractors for performing the various components of the remedial action are solicited and determined to be qualified by the RAC. Subcontracts are awarded through a competitive process, consistent with Federal procurement regulations. Figure 6.4 depicts the subcontracting process.

The subcontracting strategy varies with the scope of work included in each remedial action work package. The scope of work is defined as accurately as possible at the time the request for proposal is issued. Since absolute accuracy is not always possible, especially when trying to determine volumes of excavation and backfill materials, subcontract packages are issued on a unit price basis using the best evaluation of the total quantities at the time of bid. This provides the potential subcontractors with the best available information. It also assists in avoiding disputes arising from variations in quantities. The subcontractor is paid for actual quantities handled, which are controlled and verified by an on-site RAC representative. Each remedial action subcontractor is responsible to the RAC Site Manager for on-site and functional direction.

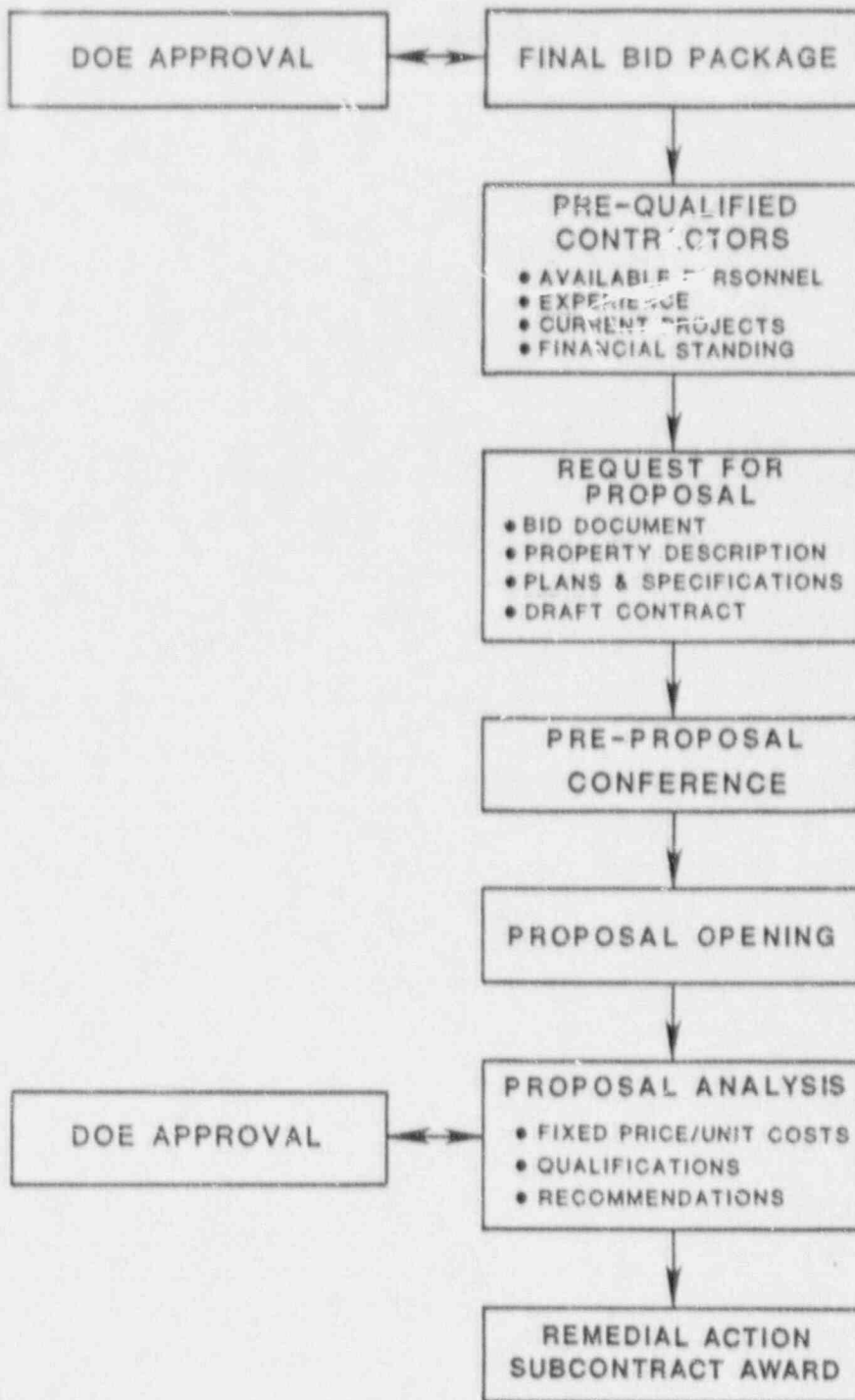


FIGURE 6.4 REMEDIAL ACTION SUBCONTRACTING

7.0 SITE CERTIFICATION AND LICENSING

7.1 REMEDIAL ACTION CLOSE-OUT

In preparation for a site's remedial action close-out and subsequent certification and licensing, the construction activities are documented throughout the remedial action process to demonstrate compliance with approved design requirements and standards. This documentation records QA audits and surveillances, QC inspections, testing results, and the radiological surveillances performed to provide an independent assessment that the quality of the work performed meets the EPA standards.

At the completion of construction activities, the RAC prepares a checklist using various site documents. Once this checklist is completed, the on-site RAC quality control personnel perform an on-site inspection and verify that the site meets all of the requirements specified in the RAP and any additional design modifications that were approved by the DOE and NRC. The Project Office is then notified that the site is ready for a close-out inspection by the DOE, TAC, NRC, and state or Indian tribe.

The DOE and TAC QA team prepare a site-specific checklist prior to each close-out inspection. When all items on the checklist have been verified as being complete, a formal report is prepared. The report is provided to the RAC; the RAC's response is required within 30 days. The response is then reviewed for adequacy and, if it is determined to be acceptable, an acceptance report is forwarded to the RAC as a close-out letter. If the response is not acceptable, the Project Office requests additional information.

7.2 COMPLETION REPORT

At the completion of construction, the RAC prepares and submits to the Project Office a draft site completion report documenting construction activities and detailing the verification procedures that were followed in the construction process. The site completion report includes, but is not limited to, pre- and post-remedial action conditions, a description of the remedial action, and a complete, reproducible set of as-built drawings, specifications, calculations, and radiological verification measurements. Significant deviations from the approved, final site design are documented. Documentation from the Project Office and NRC authorizing the construction changes is also included. The TAC assists the Project Office in reviewing the site completion report and supporting documentation. Copies of the draft completion report are submitted to the NRC and affected state or Indian tribe for review and comment. The RAC incorporates these comments and prepares the Final Completion Report for inclusion in the Site Certification Report. This review results in a recommendation on a site's certification.

7.3 SITE CERTIFICATION

Upon completion of the remedial action, the Project Office certifies that the remedial action is complete. Site certification demonstrates that the remedial action is successfully completed (i.e., it is consistent with

the approved RAP and final design) and, thus, the EPA standards have been met. The Project Office, with the assistance of the TAC, reviews the site completion report, and the results of various site audit reports. Also, the TAC prepares a final audit report, and the DOE prepares a certification summary. These three documents are used to prepare a certification report for processing. The NRC concurs in the DOE's certification that the remedial action is complete. Details on the certification process, which takes approximately 16 months, are contained in the "Certification Plan for the UMTRA Project Processing Sites." Figure 7.1 shows the certification process with typical time durations.

7.4 LICENSING

The NRC will issue a general license for post-remedial action surveillance and monitoring of Title I sites in accordance with 10 CFR 40.27. The license to begin surveillance and monitoring activities will be issued when 1) the NRC concurs in the DOE's certification that remedial action is complete and in the transfer of title or custody of the disposal site to the Federal government and 2) when the NRC formally accepts the site-specific, long-term surveillance plan. This plan will define the DOE's responsibilities for ensuring that the integrity of the disposal site is maintained under the surveillance and monitoring program (Section 8.0).

Major areas of responsibilities in the licensing process are shown in Figure 7.2. The process is detailed in the "UMTRA Project Licensing Plan."

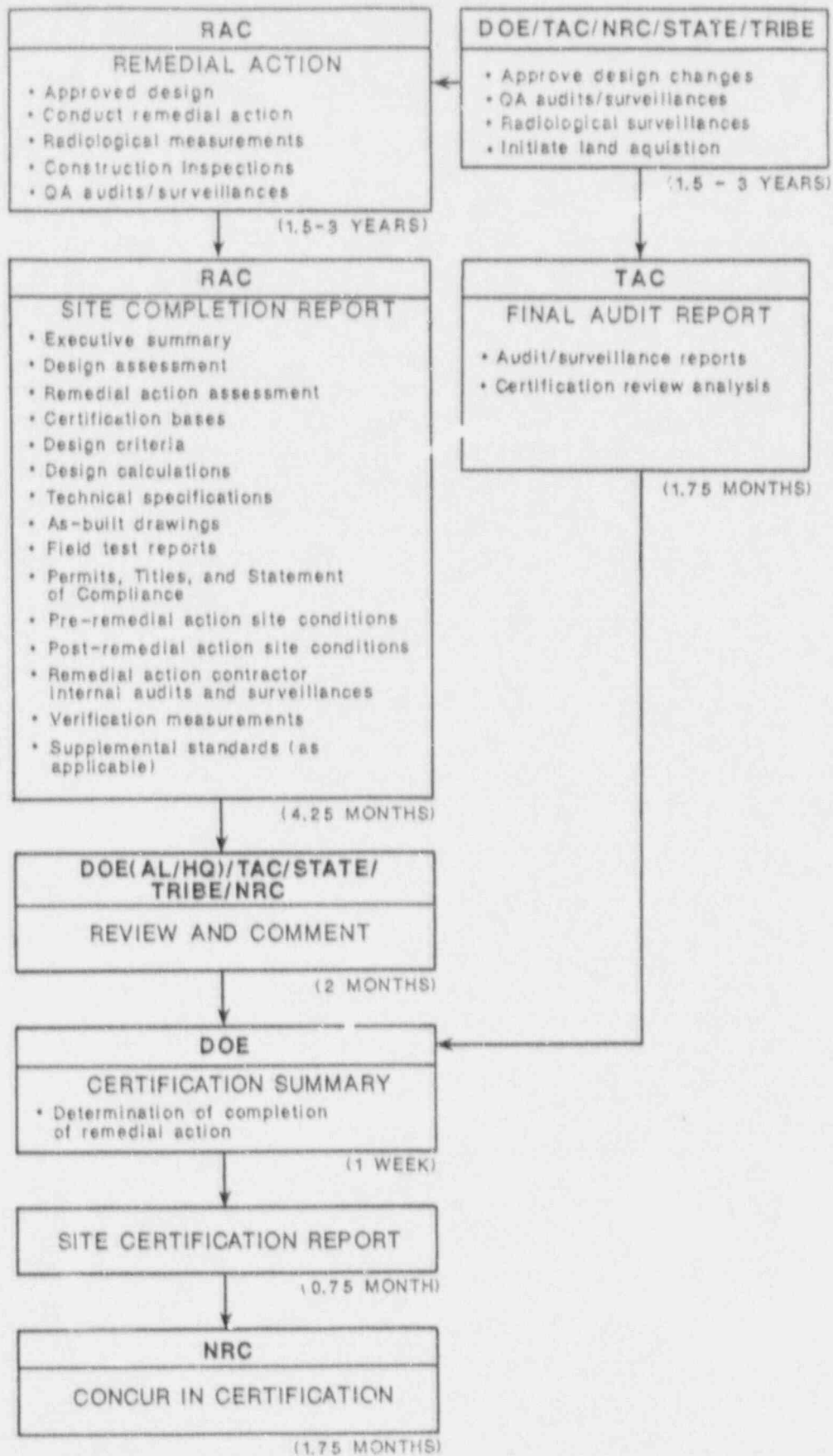


FIGURE 7.1 SITE CERTIFICATION PROCESS

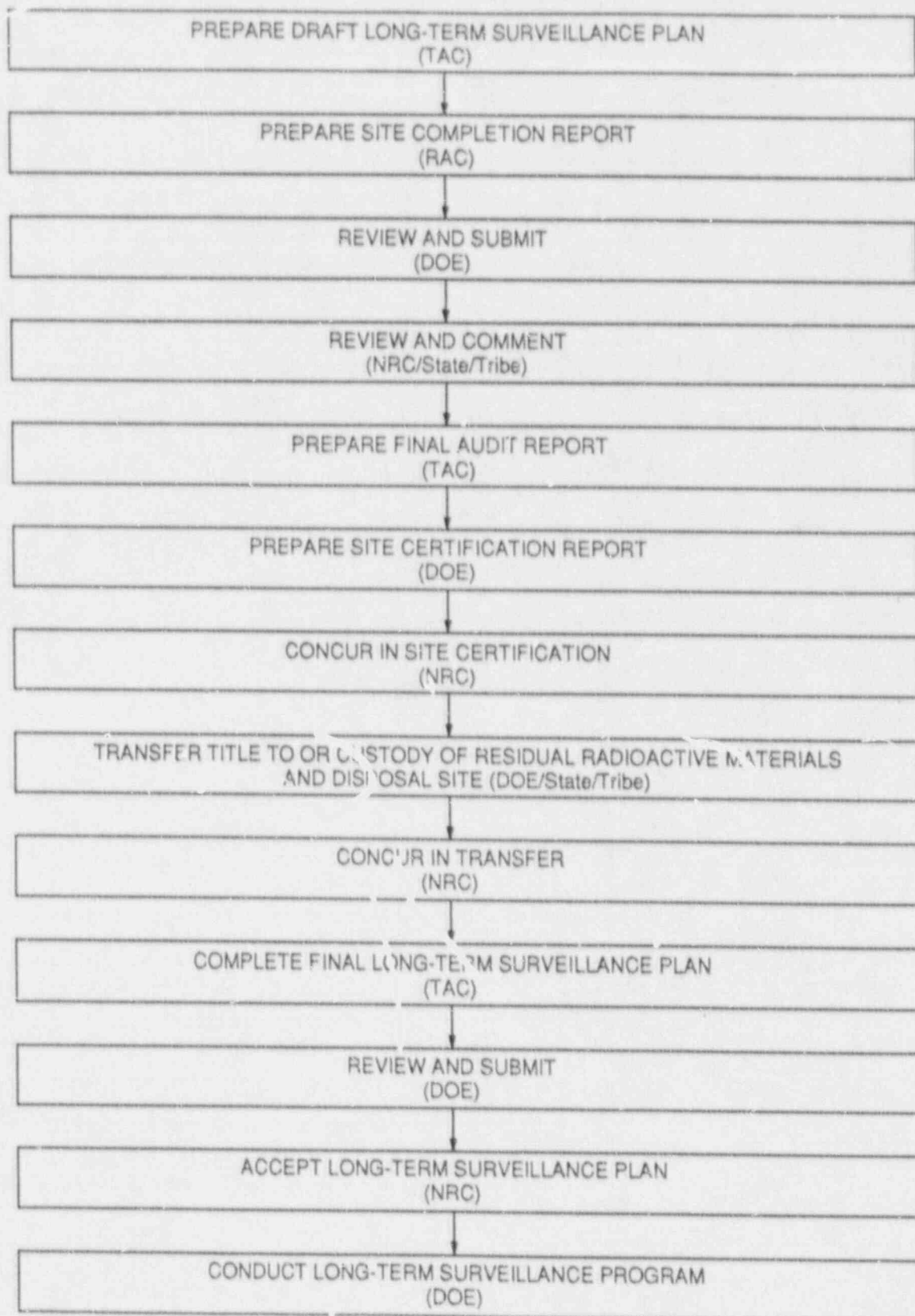


FIGURE 7.2
SITE LICENSING PROCESS

8.0 SURVEILLANCE AND MONITORING PROGRAM

8.1 PURPOSE

The purpose of the surveillance and monitoring program is to ensure that the disposal sites continue to function as designed. Title I of the Act, as amended, requires that after the remedial action is completed in accordance with the EPA standards (40 CFR 192), the disposal sites be cared for under a general license issued by the NRC. The Act also stipulates that the Federal government (normally the DOE) will be the long-term licensee and thereby the owner of these disposal sites. The licensing, custody, and surveillance and monitoring program for the Title I disposal sites are governed by the NRC's regulations in 10 CFR 40. The general license will become effective for each disposal site when 1) the NRC concurs in the DOE's certification that the remedial action is complete (40 CFR 192); 2) the NRC concurs in the transfer of title or custody of the residual radioactive materials and the disposal site; and 3) the NRC receives an acceptable site-specific, long-term surveillance plan (LTSP). The NRC's receipt of an acceptable site-specific LTSP is dependent on the completion of the first two licensing requirements described above. The UMTRA Project Office will conduct all activities related to the surveillance and monitoring program until such time as a specific disposal site is licensed. At that time, programmatic responsibility for the long-term surveillance program will be transferred to the DOE's Grand Junction Project Office.

The licensing process begins with the selection of a disposal site and design of the remedial action. Figure 8.1 outlines the key activities in the licensing process. This phase includes the preparation of the appropriate NEPA document (EA or EIS) and a RAP. The RAP contains the specific design criteria, construction requirements, groundwater characterization, and final site conditions. The NRC and the affected state or Indian tribe concur in the RAP.

The next phase is the performance of the remedial action in accordance with the RAP under the requirements set forth in 40 CFR 192, Subpart A. Upon completion of the Subpart A remedial action, the NRC formally concurs in the DOE's certification that the remedial action activities have been completed in accordance with the approved RAP. The final step in this phase is the transfer of title to the residual radioactive materials and the permanent disposal site into Federal custody. The NRC must concur in the transfer of custody.

The third phase, licensing, occurs when the NRC receives an acceptable site-specific LTSP. This LTSP defines the DOE's responsibilities under the general license and sets forth the conditions for surveillance and monitoring. Licensing of the disposal sites may be accomplished in two phases. The Uranium Mill Tailings Remedial Action Amendments Act of 1988 (which amends the UMTRCA) allows the DOE to complete all remedial actions under 40 CFR 192, Subpart A, for the first phase. When the groundwater restoration requirements under 40 CFR 192, Subpart B, have been satisfied, the NRC will concur in the second phase of the remedial action. The site-specific LTSP will be amended appropriately, and the second phase of the general license will be issued.

REMEDIAL ACTION DESIGN	
(TAC/DOE)	REMEDIAL ACTION PLAN <ul style="list-style-type: none"> • Site characterization data • Site conceptual design and supporting calculations • Water Resources Protection Strategy
(RAC/DOE)	<ul style="list-style-type: none"> • Final design and specifications
(NRC/State/Tribe)	<ul style="list-style-type: none"> • Review and concurrence
(TAC/DOE)	NEPA AND REGULATORY COMPLIANCE <ul style="list-style-type: none"> • Impacts assessments for remedial action design (EIS/EA) • Public participation
(State/Tribe/Federal agencies)	<ul style="list-style-type: none"> • Agency review (draft)
(DOE/TAC/RAC)	<ul style="list-style-type: none"> • Permits, licenses, and approvals
(DOE)	<ul style="list-style-type: none"> • Federal Register notice (ROD/FONSI)
(DOE/State/Tribe)	DISPOSAL SITE ACQUISITION

REMEDIAL ACTION	
(RAC/DOE)	SITE REMEDIAL ACTION
(DOE/TAC/RAC/NRC)	REMEDIAL ACTION APPRAISALS <ul style="list-style-type: none"> • Site Remedial Action Inspection Plan • Site Radiological Survey Plan • Construction inspections
(RAC/TAC/DOE)	
(RAC/State/Tribe)	
(TAC/DOE/RAC/NRC/State/Tribe)	<ul style="list-style-type: none"> • Quality assurance audits, in-process surveillance • Radiological surveillances
(RAC)	SITE COMPLETION REPORT <ul style="list-style-type: none"> • Review
(NRC/State/Tribe)	

LICENSING	
(RAC)	CERTIFICATION REPORT <ul style="list-style-type: none"> • Site completion report • Final audit report • Certification summary • Concurrence
(TAC)	
(DOE)	
(NRC)	
(DOE/State/Tribe)	TRANSFER OF TITLE OR CUSTODY <ul style="list-style-type: none"> • Concurrence
(NRC)	
(DOE/TAC)	LONG-TERM SURVEILLANCE PLAN <ul style="list-style-type: none"> • Final site conditions • Site surveillance and monitoring requirements • Legal description and site ownership • Record keeping and reporting requirements • Review (draft) • Acceptance (Final)
(NRC/State/Tribe)	
(NRC)	

SURVEILLANCE AND MONITORING PROGRAM	
(DOE/Contractor)	<ul style="list-style-type: none"> • Site inspections • Groundwater monitoring • Custodial maintenance or repair • Corrective action • Annual inspection report • Corrective action certification
(NRC)	

FIGURE 8.1
KEY ACTIVITIES LEADING TO THE SURVEILLANCE AND MONITORING PROGRAM

The fourth and final phase of the licensing process is surveillance and monitoring, which begins after the NRC receives an acceptable site-specific LTSP. Section 8.2 summarizes the surveillance and monitoring conditions that will be included in an acceptable site-specific LTSP.

8.2 LONG-TERM SURVEILLANCE PLAN

The DOE will prepare a detailed LTSP that will identify and describe, on a site-specific basis, the surveillance and monitoring conditions required to 1) carry out the long-term surveillance program at that site; 2) ensure that the disposal cell continues to function as designed; and 3) ensure that the integrity of the disposal site is maintained. The surveillance and monitoring conditions specified in the LTSP will become licensing conditions for a specific disposal site.

The "Guidance for Surveillance and Monitoring for the UMTRA Project Long-Term Care Program" (UMTRA-DOE/AL-350124.0001, Rev. A) describes the procedures for carrying out the surveillance and monitoring activities and is used as a guide for the development of site-specific LTSPs. The following information will be included in each LTSP:

- o A legal description of the disposal site, including documentation on whether land and interests are owned by the DOE or an Indian tribe.
- o A detailed description, which can be in the form of a reference, of final site conditions including existing groundwater conditions.
- o A description of the long-term surveillance program, including the proposed frequency of inspections; the frequency and extent of the groundwater monitoring program, if required, and appropriate constituents and concentration limits; the inspection procedures and inspection personnel qualifications; the criteria for record keeping and reporting; and procedures for quality assurance.
- o The criteria for follow-up inspections in response to observations from routine inspections of extreme natural events.
- o The criteria for instituting maintenance, repair, or emergency (corrective action) measures.

Figure 8.2 shows the key activities in the surveillance and monitoring program.

8.2.1 Final site conditions

After completion of the remedial action, the RAP and all pertinent supporting documentation will be archived in a permanent site file. When the site is completed, aerial photographs will be taken to provide baseline site and geomorphic conditions. These photographs will be retained in the permanent site files. In the event conditions change over the design life of the disposal cell or site,

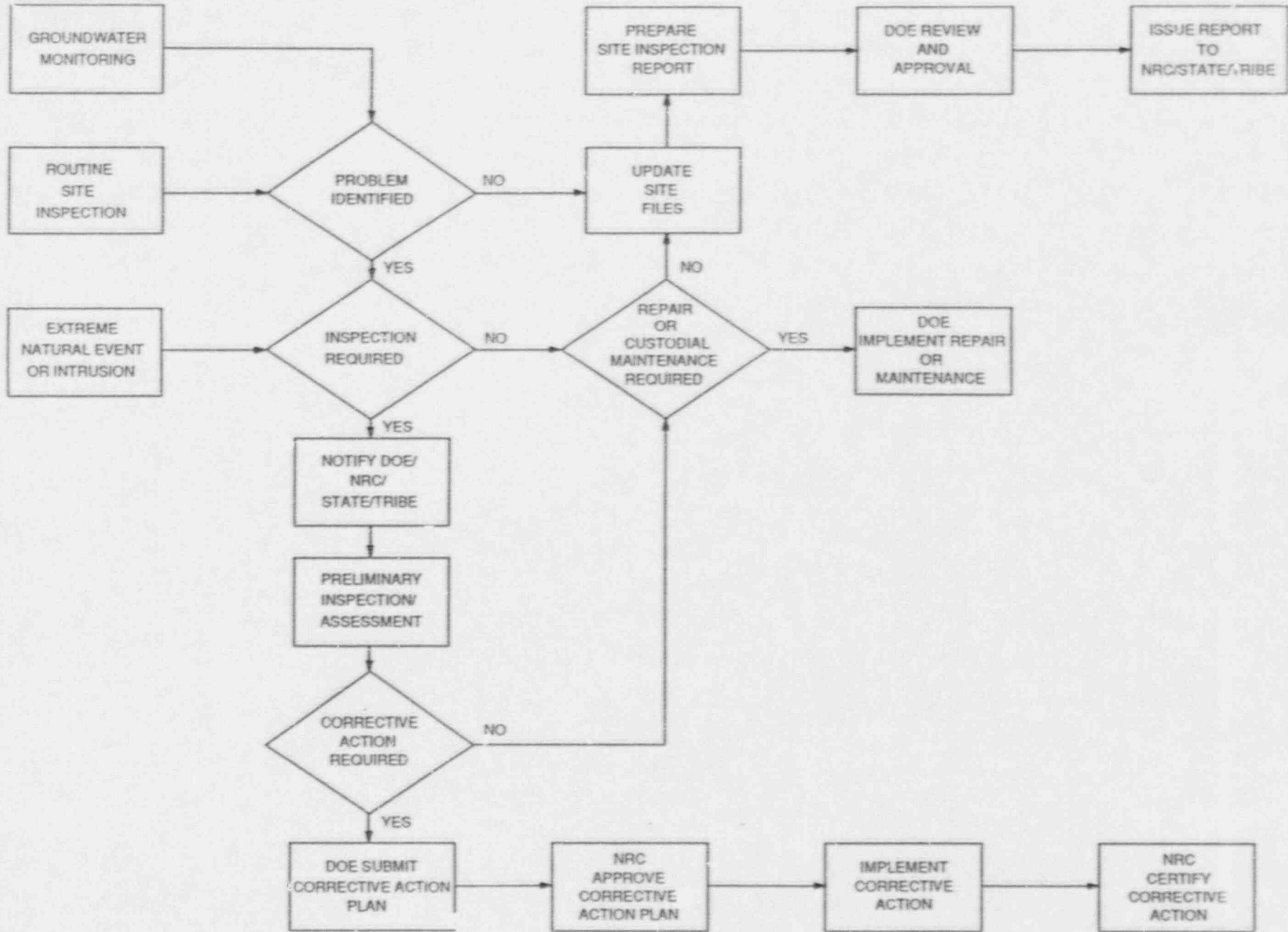


FIGURE 8.2
SITE SURVEILLANCE AND MONITORING

the aerial photographs will be used to document the magnitude of change that has occurred. This site file will also include the as-built drawings, a final topographic survey, a vicinity map, and site base maps.

The as-built drawings will define the final site conditions, including the locations of all permanent site surveillance features (e.g., boundary and survey monuments, site markers, and signs), the locations of all monitor wells that may be required, and any other surveillance or monitoring features that may be required (e.g., erosion markers or settlement plates).

8.2.2 Site inspections

Routine site inspections will be conducted to 1) identify conditions that, if left unattended, could lead to damage of the disposal cell or other site features and 2) identify the need for any custodial maintenance or repairs (e.g., sign replacement and weed control) that may become necessary over time. These site inspections will be conducted annually for the first five years following licensing. At the end of five years, the frequency and extent of these inspections will be reassessed based on site-specific conditions.

Additional follow-up inspections will be conducted if a problem is identified during routine site inspections or is reported during other surveillance or monitoring activities. Contingency inspections will be conducted when information is received from other parties that indicates site integrity may be threatened by extreme natural events (e.g., severe earthquake) or intentional intrusion.

8.2.3 Corrective action and custodial maintenance

If any of the inspections described above or any of the site monitoring programs identify a problem that threatens the ability of the disposal cell to function as designed, a corrective action plan will be developed and approved by the NRC. The corrective action plan could define the need for additional site characterization or evaluative monitoring, or define additional remedial action to correct the situation. The NRC will certify that corrective action has been successfully completed.

Planned custodial maintenance (e.g., grass mowing and weed control) may be required at some disposal sites. In addition, fence repair or some other unscheduled maintenance may also be required. These activities may be identified initially or during a site inspection or from information received from other parties. If this is necessary, the DOE will award a contract to perform any maintenance that may be required.

8.2.4 Groundwater monitoring

Monitoring of groundwater conditions may be necessary to comply with the EPA groundwater protection standards (40 CFR 192). The groundwater monitoring program, including the constituents monitored and the concentration limits established for each constituent, will be dependent on the water resources protection strategy outlined in the RAP. The site-specific LTSP will establish the frequency of groundwater sampling.

8.2.5 Record keeping and reports

All reports of inspections, maintenance, monitoring data, and any corrective action that may be required will be compiled in a permanent site file. This permanent file will be updated annually and retained for review by the NRC.

The DOE will prepare and submit an annual site inspection report to the NRC, which will include the groundwater monitoring data and documentation of any maintenance or corrective actions that may have been required at the site. A copy of this report will be sent to the NRC within 90 days of the inspection. For problems requiring significant maintenance or other corrective action, the DOE will prepare and submit a preliminary inspection and assessment report to the NRC within 60 days of the inspection.

9.0 PUBLIC AND COOPERATING AGENCY PARTICIPATION

9.1 SCOPE

The DOE, EPA, and NRC are required to encourage public participation in carrying out the provisions of the Act. Where appropriate, the DOE is directed to hold public hearings and/or meetings in the states where processing sites and final disposal sites are located. These public hearings and meetings may cover selection of the appropriate remedial action and execution of cooperative agreements.

Under the cooperative agreements, affected states or Indian tribes have the prerogative of appointing local citizen task forces to interact with the DOE and the state or Indian tribe for the purpose of information exchange on site activities. Task forces have been established at a number of sites. The states and Indian tribes take the lead in designating members of local citizens' advisory groups or task forces to provide input on public opinion. The Project Office and its contractors work closely with these groups.

In accordance with the Act and to facilitate interface with Project participants, the Project Office has implemented a policy of close coordination with the various entities involved, as described in the appropriate sections of this manual. Affected states and Indian tribes have a major consultation role with regard to the Project (Figure 9.1). Also, the public participation program is designed to provide public input into the decision-making process. Public input influences Project policy decisions and final selection of the remedial action alternative. The public has the opportunity to weigh the positive and negative aspects of the proposed alternatives and to understand the advantages and disadvantages of the preferred alternative in order to compare the acceptability of its risk with that of other alternatives. While the Project explains what can be done, the public has input on local concerns and issues. Active public participation improves the quality of the decisions.

The Public Participation Plan outlines the Project Office approach to achieve compliance with public participation provisions of the Act and with the NEPA. The Public Information Plan details Project policy for the dissemination of information to the public by means of various forums and media.

9.2 PUBLIC PARTICIPATION

Given the potential social, economic, and environmental impacts of the Project, the DOE has developed a program to inform and involve the public. This program includes printed materials, meetings, press releases, information mailings, and tours. Project participants are provided with copies of all approved public information materials, including new materials as they are published. All public inquiries are answered in a thorough and coordinated manner. The following activities are typical of those conducted by the Project Office:

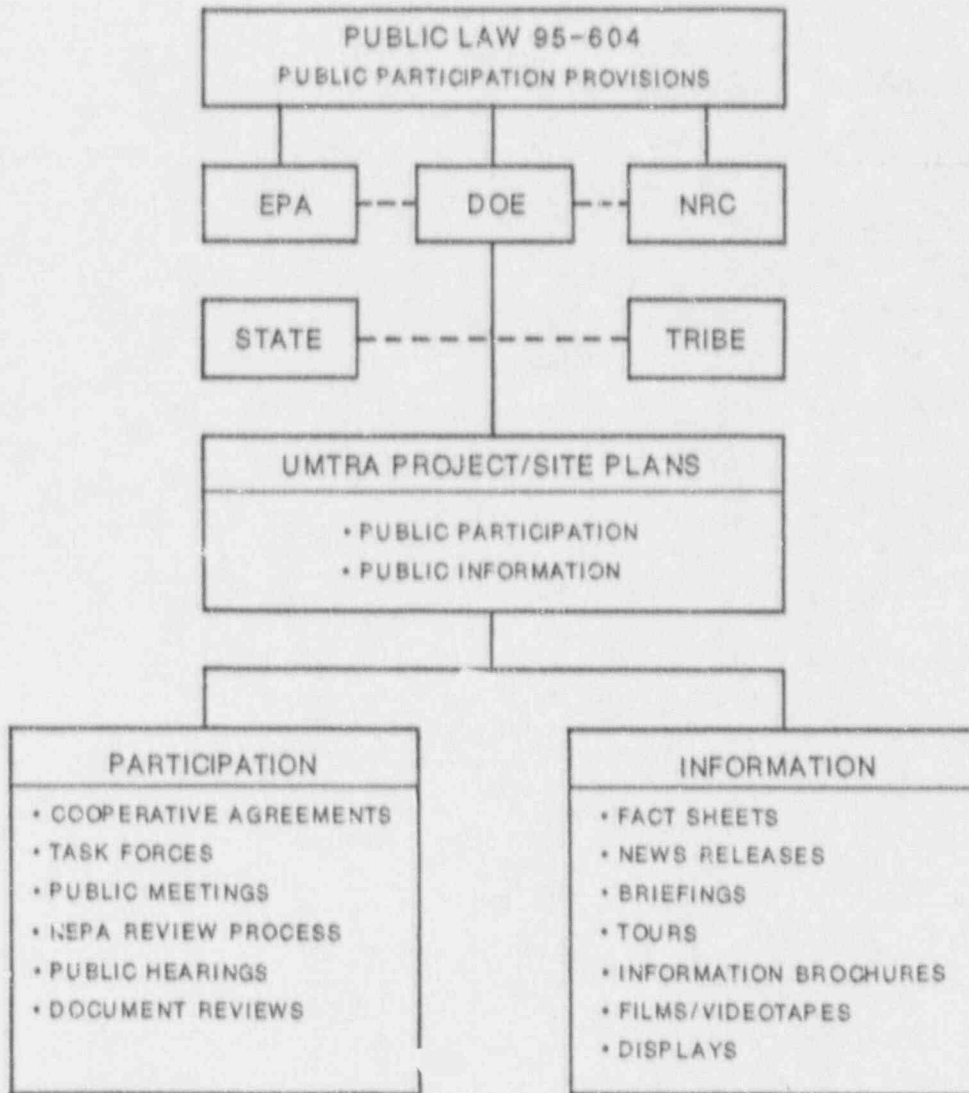


FIGURE 9.1 PUBLIC PARTICIPATION AND INFORMATION

- o Attendance at annual coordination meetings with the states and Indian tribes to receive and transmit information on site and Project progress.
- o Attendance at periodic meetings with local task forces.
- o Informational meetings and workshops.
- o Briefings on the Project to concerned local and state elected officials, as requested.
- o Press releases on newsworthy items.

9.3 RESPONSIBILITIES

9.3.1 Office of Intergovernmental and External Affairs

The AL's Office of Intergovernmental and External Affairs (OIEA), with guidance and overview from the Project Office, acts as the prime contact within the DOE on all public information activities and coordinates all Project-related public information programs. This office reviews all public affairs interactions with state and local officials, the media, special interest groups, and the general public and coordinates these interactions with the appropriate DOE HQ offices. It acts as the lead DOE representative in matters related to public information programs in the affected states.

The OIEA informs state officials of public information efforts that affect the sites and communities within their respective states. It consults with state officials, as needed, in the development of public information materials and uses the states' help, to the extent possible and mutually agreed upon, in the dissemination of public information. The office is also responsible for media relations including arranging for and conducting special briefings, press releases, and media representation at public meetings and hearings.

In addition, the OIEA may request assistance from the Project Office in the preparation, reproduction, and distribution of public information materials; the development and updating of Project briefing books; the development of testimony, presentations, and special reports; the development of information and press kits; and the development and maintenance of outreach lists of government officials, media representatives, special interest groups, and community leaders.

9.3.2 Project participants

Project participants identify the need for:

- o Scope and content of public information materials.

- o Briefings or meetings with special interest groups; Federal, state, and local officials; and the media.
- o On-site tours.
- o Development of plans for assessing and managing the social, economic, and environmental impacts of the Project.

These activities are undertaken upon approval and under the direction of the Project Office, with concurrence by the OIEA.

9.3.3 Technical Assistance Contractor

The TAC is responsible for:

- o Administering the PIPP, in accordance with guidance issued by the Project Office and OIEA.
- o Assisting the Project Office in coordinating PIPP activities with Federal, state, and local governments and Indian tribes.
- o Maintaining the PIPP plans.
- o Preparing the site-specific PIPP plans included in the RAP.
- o Preparing and/or managing the preparation of Project briefing materials to be disseminated to the public.
- o Intergovernmental affairs.

9.3.4 Remedial Action Contractor

The RAC is responsible for:

- o Attending and making presentations (as necessary) at public meetings.
- o Appointing an on-site representative to respond to public inquiries during remedial action construction (this representative must coordinate responses with the TAC and OIEA).
- o Briefing site employees on DOE policy and guidelines with respect to public information and participation and the method of obtaining Project information.
- o Distributing generic and site-specific fact sheets to all interested parties, under the direction of the Project Office and in accordance with OIEA policy.

9.3.5 Project personnel

Project personnel are highly visible to the public since remedial actions are an ongoing public concern. All questions from the media and public are referred to the OIEA, thereby ensuring coordination of responses to the public and the media and consistency with Project-wide policy. The TAC can assist in the processing of these requests, thereby ensuring a timely and consistent response to public inquiries. Requests by the community to present programs concerning Project activities are coordinated in advance with the OIEA.

10.0 PROJECT MANAGEMENT

10.1 INTRODUCTION

The Integrated Project Management System (IPMS) is operated by the Project Office to provide a uniform, structured approach for managing Project and site work and for complying with the DOE requirements for management of an MSA.

10.2 DECISION POINTS

The decisions in Table 10.1 represent key milestones that reflect Project progress. They reflect Project requirements and the MSA process and have been incorporated into Project planning and management objectives. The MSA key decisions #2 and #3 are based on the Canonsburg site, the lead site for the Project. The RAP for each subsequent site is submitted for approval to the Director, Division of Off-Site Remediation. The MSA key decision #4 will follow the completion of remedial action and certification for the last site.

10.3 INTEGRATED PROJECT MANAGEMENT SYSTEM CONCEPT

The IPMS is based on measuring and reporting progress against controlled cost, schedule, and technical baselines. These baselines are established by the Project Office; any changes thereafter are formally controlled by the Project Change Control Board (CCB) and require approval of the UMTRA Project Manager and, as appropriate, the Contracting Officer. Contractors establish supporting baselines predicated upon their authorized funding, schedule, and scope of work. Contract and site performance is reported through formats specified by the Project Control Group.

Basically, the IPMS uses a feedback control concept. A plan is established, performance is measured against the plan, and action is taken when plan and performance diverge significantly. Project planning consists of defining the work to be performed within the Project Work Breakdown Structure (PWBS) (Figure 10.1), dividing the work into manageable units, assigning it to performing organizations (DOE participant, another Federal agency, or contractor), establishing a schedule for performing the assigned work, and budgeting the resources necessary for accomplishing the work.

The IPMS (Figure 10.2) is comprised of the following major subsystems:

- o Work definition: Ensures that all Project work is identified and defined within the PWBS and is planned, scheduled, and budgeted prior to starting.
- o Work authorization: Provides control for initiating work and for changes to previously authorized work.

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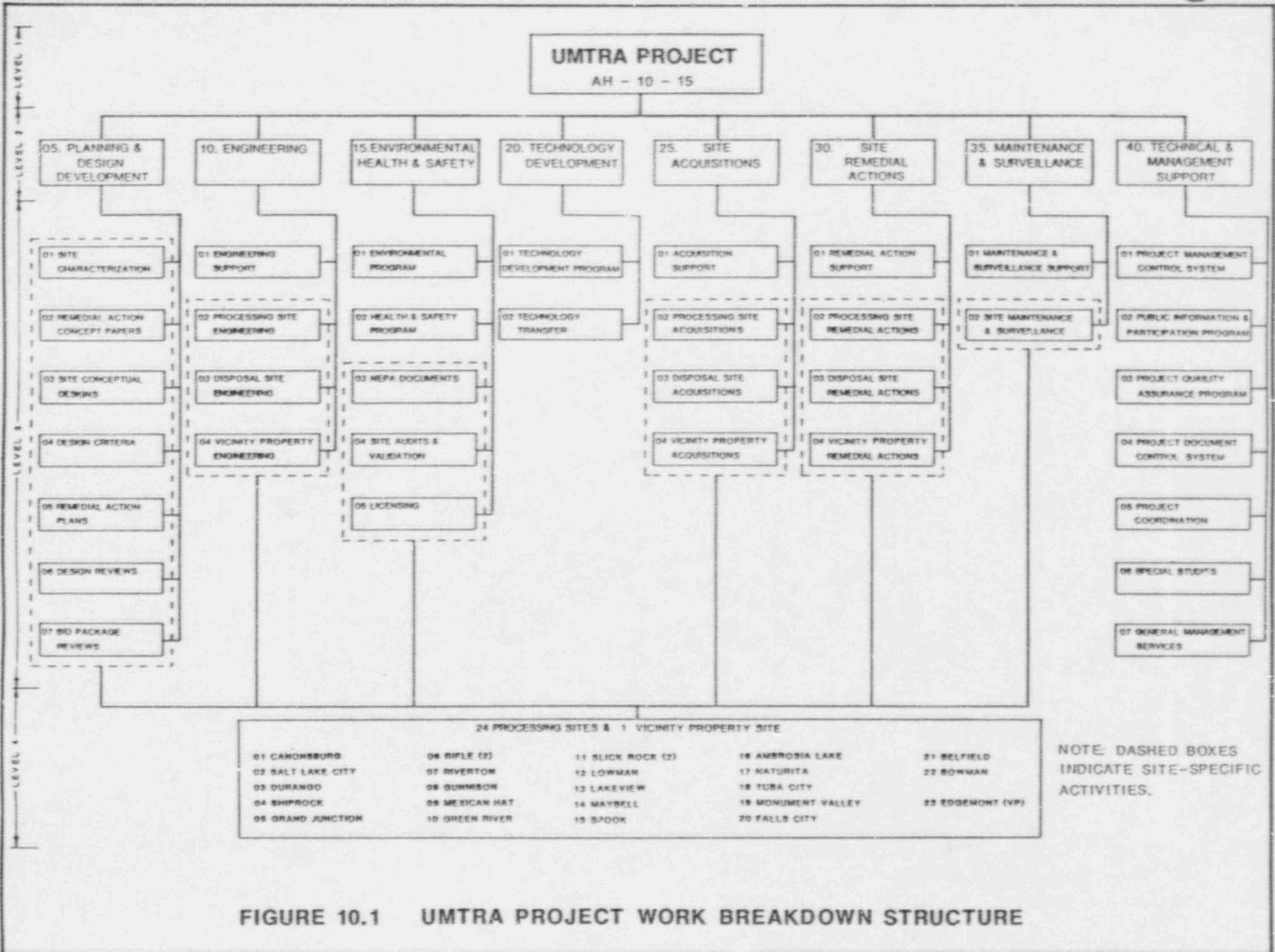


FIGURE 10.1 UMTRA PROJECT WORK BREAKDOWN STRUCTURE

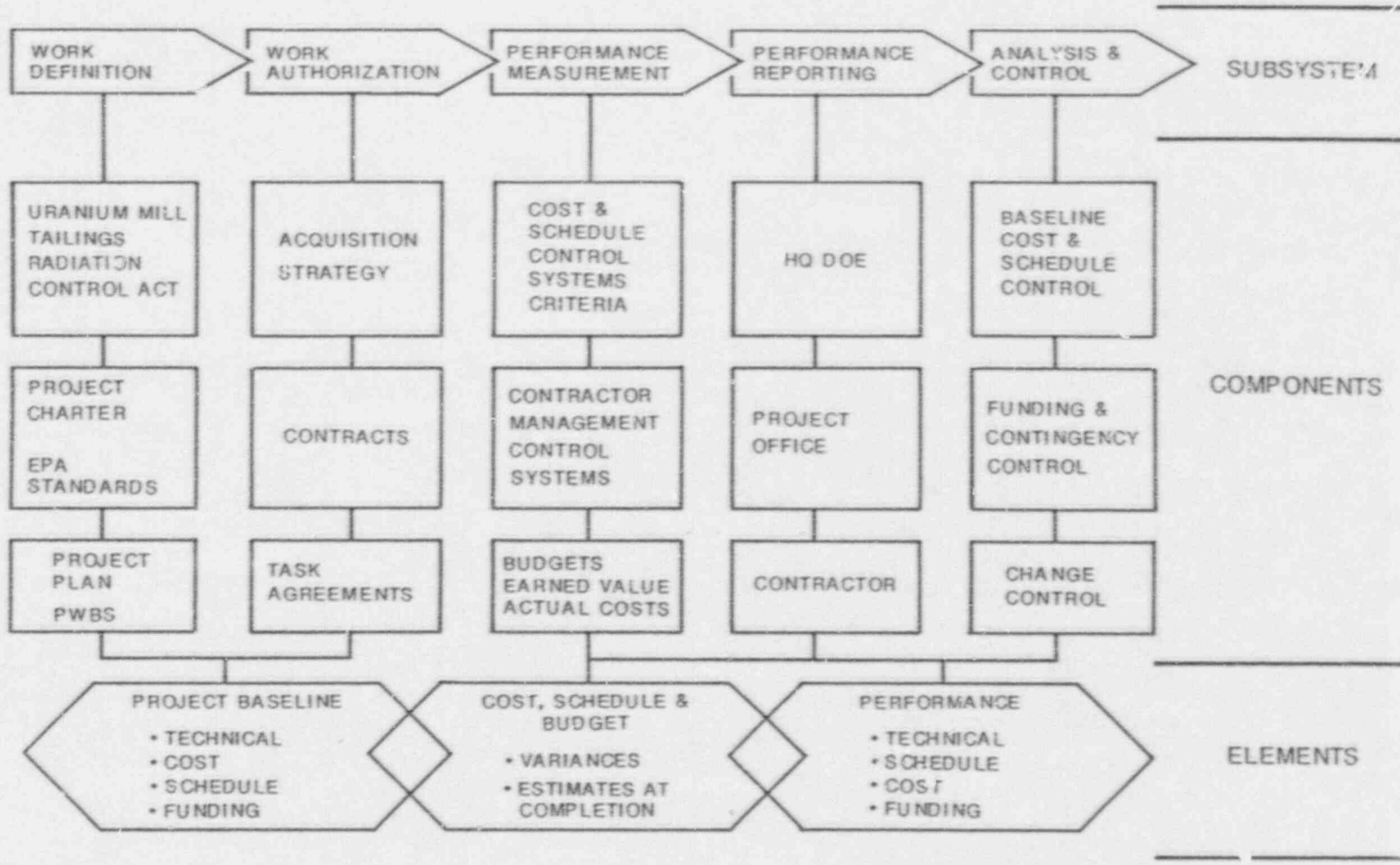


FIGURE 10.2 INTEGRATED PROJECT MANAGEMENT SYSTEM

Table 10.1 Key UMTRA Project milestones

Decision	Date	Authority
Land Acquisition/Public Land Withdrawal	Per site schedule	DOE HQ/Assistant Secretary for Management and Administration
Award TAC Contract	2nd Qtr FY 82 (complete)	AL
Award RAC Contract	3rd Qtr FY 83 (complete)	AL
State/Tribe Cooperative Agreements	Completed	AL
MSA Key Decision #1 - Confirmation of the Project Mission and Approval of the Project Plan.	3rd Qtr FY 83 (complete)	DOE HQ/Acquisition Executive
MSA Key Decision #2 - Approve First RAP. Proceed to Engineering Development.	4th Qtr FY 83 (complete)	DOE HQ/Acquisition Executive
MSA Key Decision #3 - Approve Engineering Design for First Site. Proceed to Remedial Action.	4th Qtr FY 83 (complete)	DOE HQ/Acquisition Executive
MSA Key Decision #4 - Terminate Project and Commence Long-Term Site Surveillance and Maintenance.	4th Qtr FY 94	DOE HQ/Acquisition Executive

- o Performance measurement: Provides for controlled Project baselines, consistent work measurement, and systematic and in-depth progress analysis.
- o Performance reporting: Provides standard procedures for collecting and integrating essential cost, schedule, and technical information for managing Project, site, and contractor performance.
- o Analysis and control: Assures that change control procedures are followed and the integrity of the controlled baselines is maintained.

10.4 PROJECT INTEGRATION AND CONTROL

Project integration and control (Figure 10.3) are achieved within the IPMS by monitoring, evaluating, and managing cost, schedule, and technical performance against controlled Project baselines. Additional control is achieved through compliance with applicable Federal guidelines, DOE and AL directives, and Project Office and contractor operating procedures.

Project activities are monitored and controlled at three activity levels: 1) the Project level; 2) the site level; and 3) the contract level. Control baselines are established and documented at each activity level in support of the controlled Project baselines. Variance thresholds are established for each level, and performance is measured and evaluated in terms of the variance from the baseline.

10.4.1 Technical control

Project technical control is achieved, as discussed previously, through a sequence of baselined remedial action activities (e.g., CADSAR, RAS/RAP, and final design) that are formally reviewed, approved, and concurred in as appropriate. The baselined activities are controlled consistent with specific contractor change control procedures.

10.4.2 Cost control

The Project Office controls costs through cost management at the Project, site, and contract level; application of the DOE Cost and Schedule Control System Criteria (CSCSC); use of AL financial reports and contractor cost reports; and Project change control procedures. These control techniques result in the following: 1) agreement on the Project cost baseline and reconciliation thereto; 2) minimization of changes to the approved cost baseline; 3) controlled communication on costs among Project participants; 4) highlighting of trends; and 5) maintenance of a consistent approach to evaluating and processing changes.

The Project Office uses the CSCSC to manage the contractors and to standardize contract and site performance reporting. The CSCSC requires the contractors to:

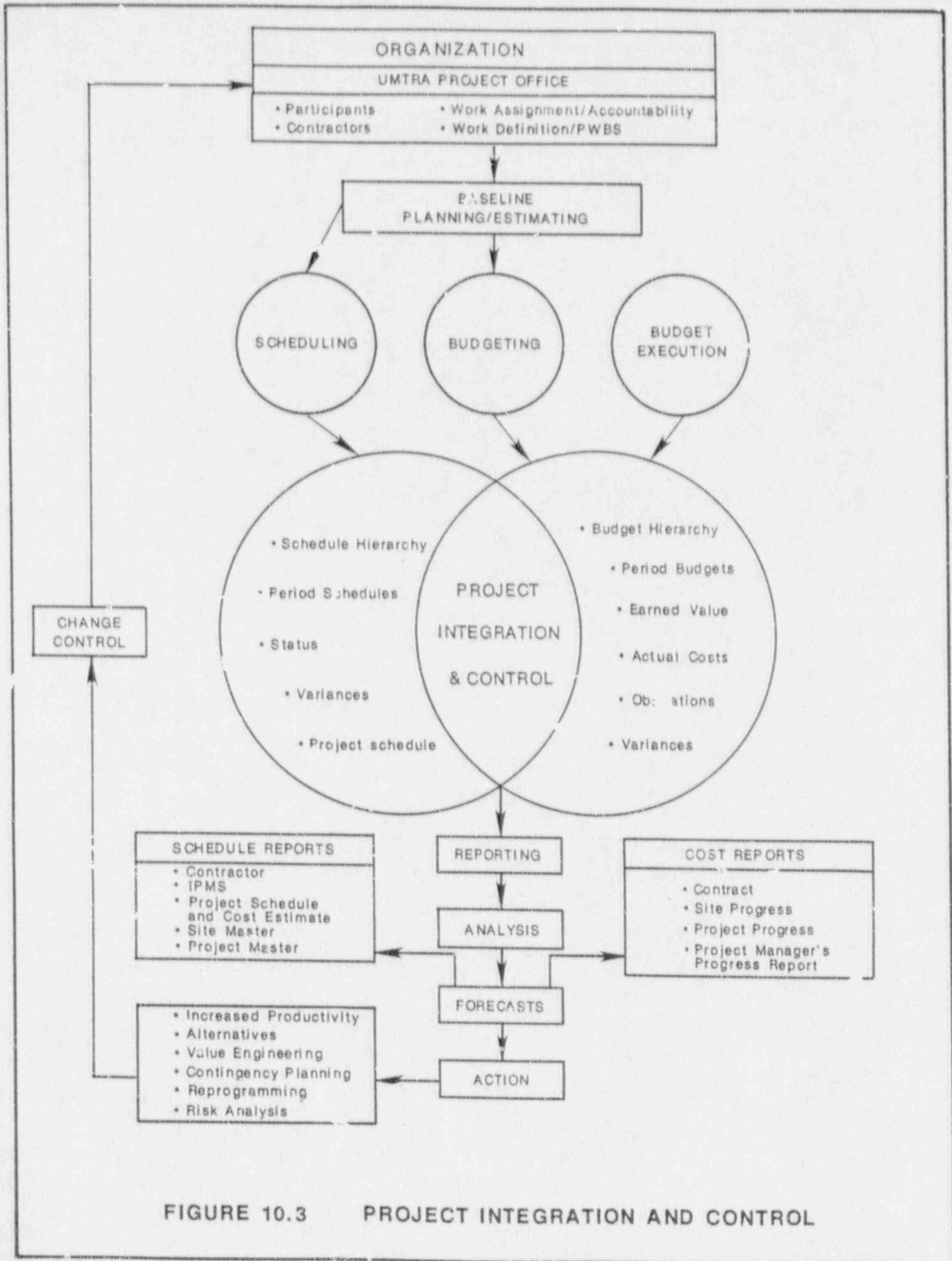


FIGURE 10.3 PROJECT INTEGRATION AND CONTROL

- o Define technical objectives clearly.
- o Organize the contract work around a logical extension of the PWBS.
- o Assign participants' responsibilities for work accomplishment.
- o Establish time-phased work plans reflecting:
 - Scheduling of defined work in the sequence it will be performed to meet specific Project milestone dates.
 - Budgeting of the work according to the sequence of tasks necessary to complete the work.
- o Measure work accomplishment objectively.
- o Analyze and report cost and schedule variances in a timely manner.
- o Identify and execute corrective action plans.
- o Monitor cost and schedule variances and corrective action plans to assure that the plans achieve the desired results.

Cost control includes the analysis of contractors' cost projections by the Project Office to determine their impact on Project cost. Contractor estimates of costs at completion are evaluated to ensure that they are based upon current schedules and authorized work and that the schedule basis for the estimates is consistent with documented technical requirements and objectives.

In addition to monitoring contractor estimated costs, site risk assessments are conducted at least annually by the Project contractors. All available information on past performance and performance trends (e.g., land costs, constructibility costs, productivity trends, schedule slippages, political implications, and design changes) and the current and long-term prospects for Project funding requirements are considered, correlated, and evaluated. A site's estimated cost and contingency is revised, if necessary, in accordance with the Project change control procedures to ensure orderly progression of the Project toward meeting its objectives.

10.4.3 Funds control

The Project funding baseline is predicated on the cost baseline and is provided on a fiscal year basis through the annual, AL-approved funding plan. The objective of funds control by the Project Office is to optimize resource application to ensure effective and efficient cost, technical, and schedule performance. To meet this objective, the Project Control Group prepares approved funding programs and maintains an obligation tracking

system. These are used to analyze planned funding utilization and actual performance in terms of authorizations, obligations, commitments, expenditures, and contingencies.

The funding process starts with the development of cost estimates for site activities by the various contractors, which are reviewed by the TAC and approved by the Project Office. Evaluation of the information contained in the site cost database and assessment of the most current planning estimates results in the development of preliminary, revised site cost estimates. These estimates are time-phased in accordance with previously defined funding allotments and prior-year budget requests. Estimates of out-year expenditure requirements are then derived by the Project Control Group at the site level and compiled to develop a Project-level requirement. The baseline budget estimate also serves as the basis for long-range funds control.

The resulting funding plan is detailed in the Project Schedule and Cost Estimate (PSCE) report, which is updated annually. This report identifies the amounts and sources of funds required to complete the planned work and the contingency that may be expended over the life of the Project. The report is updated to reflect changes in technical, cost, and schedule requirements as these changes are processed by the CCB and approved by the UMTRA Project Manager. After authorization, they are incorporated into Project planning. A record of these changes is maintained to provide traceability to the baselined cost estimate in the PSCE report.

The report is also updated to reflect changes in funding requirements that may be necessary as a result of Project participant cost performance and forecasted changes in schedule or technical requirements that are likely to occur in the future. Project cost data are also evaluated to determine if a change is required. These changes are tracked until they go through the change control cycle and are either incorporated into the PSCE or the requirement is eliminated.

10.4.4 Schedule control

The Project Office has developed and implemented uniform schedule controls to ensure that 1) all contractors and their subcontractors proceed with schedule development using similar methods to meet common Project objectives, and 2) schedules are updated on a monthly basis and reflect the consensus. This effort is performed by the TAC, and the results are reported to the Project Office. Other contractors are responsible for ensuring that the TAC receives necessary schedule data in a timely manner. The contractor's submitted schedule reports are the prime source of information for reporting schedule status to DOE HQ. Schedule controls include:

- o Project-wide use of IPMS schedule reports.

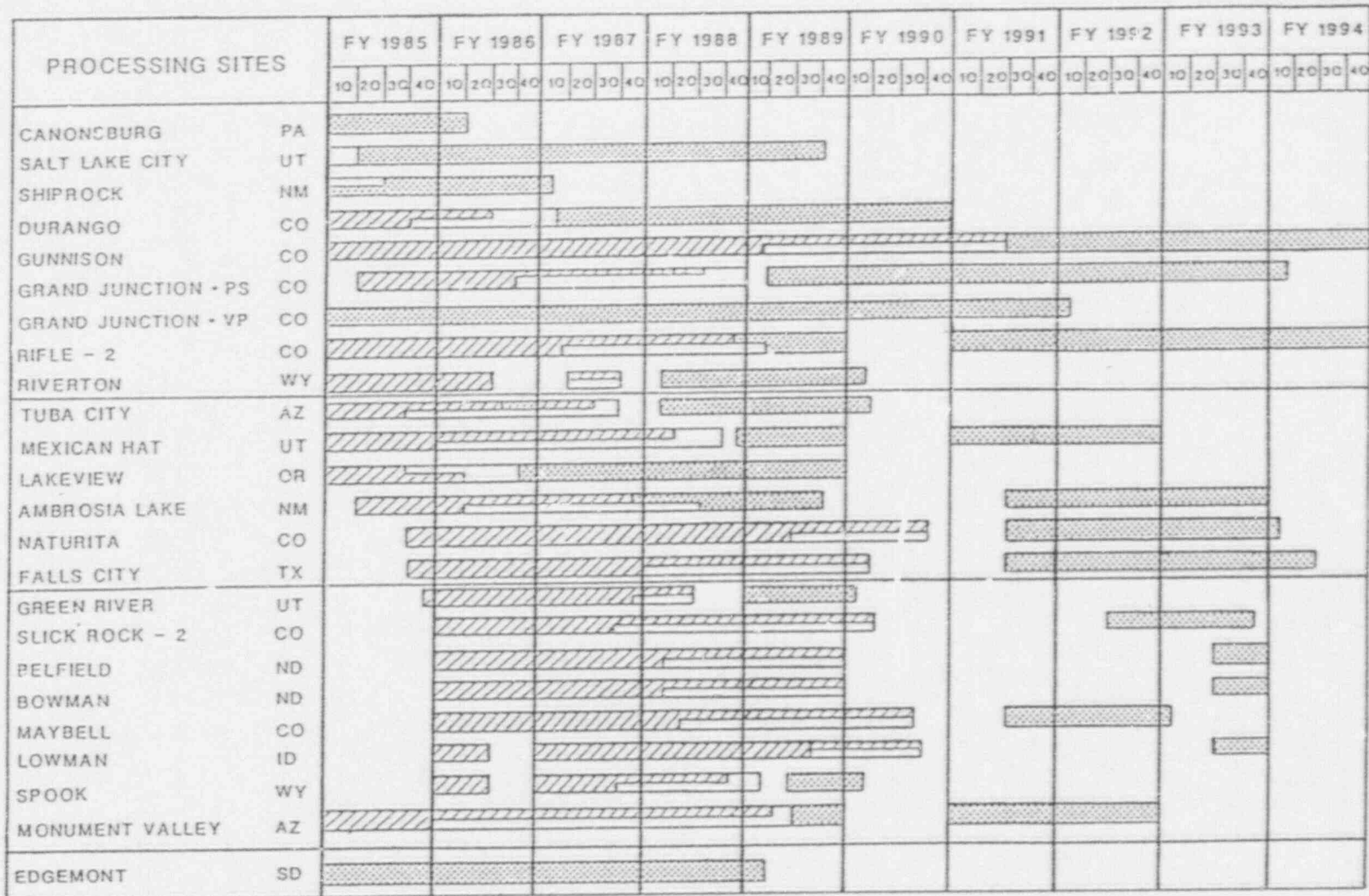
- o Standard procedures for schedule planning and maintenance, and status reporting.
- o A hierarchy of schedules that starts at the Project level (Figure 10.4) and extends down to contractor work package schedules (Figure 10.5).
- o Maintenance of traceability throughout the schedule hierarchy by use of the PWBS element codes.
- o Retaining milestones that appear in higher level schedules in subordinate schedules.
- o Approval of Project and contractor schedules by the UMTRA Project Manager.
- o Approval of schedule baseline changes by the CCB and UMTRA Project Manager.



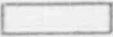
Changes to MSA Key Decision dates are negotiated with DOE HQ. The Project Office retains the authority to revise supporting milestones if there is no impact to the Key Decision dates. Authorized changes are incorporated into contractor schedules per the UMTRA Project Manager's direction.

Additionally, in accordance with the Project Charter, the Project Office and DOE Headquarters develop a set of "HQ-controlled" milestones for each upcoming fiscal year. The HQ-controlled milestones assist DOE HQ in carrying out its program management responsibilities. Typically, these milestones represent the initiation or completion of key site activities, significant management tasks, or Project plans. The status of the HQ-controlled milestones is reported monthly in the Project Manager's progress report.

10.5 MANAGEMENT INFORMATION PROGRAM

Management information is received from contractors through specified reports and through informal reports as required. The TAC checks contractor reports for accuracy and completeness and analyzes the data to determine the current status of the contract, to identify significant problem areas, to spot developing trends, and to forecast future status. Financial management information on contracts supplied by AL is used in this analysis process. From this input, the TAC prepares a monthly site progress report and monthly vicinity property progress reports for the Project Office.



 PLANNING & DESIGN, NEPA
 REMEDIAL ACTION
 ENGINEERING

PS - PROCESSING SITE
 VP - VICINITY PROPERTIES

(VP WORK INCLUDED IN PROCESSING SITES EXCEPT FOR GRAND JUNCTION)

AS OF 8/89 (FY91 BUDGET)
(PROGRAM LEVEL - 91C)

FIGURE 10.4 UMTRA PROJECT SITES MASTER SCHEDULE

PROJECT MILESTONE TARGET REPORT

RUN DATE: 25OCT90 11:09:31
 DATA DATE: 01OCT90
 PROJECT START: 1JUL84
 REQUIRED END: 30SEP94
 FORECAST END: 30SEP94

ACTIVITY IDENTIFIER	ACTIVITY DESCRIPTION	WORKING START	WORKING COMPLETION	BASLINE START	BASLINE COMPLETION	VARIANCE	STATUS
1000-15-880	RESPOND TO NRC COMMENTS & ISSUE FCR TO DOE	28DEC90	28FEB91	28DEC90	28FEB91	0	FORECAST-ON SCHED
* 1504-15-800	DRAFT SITE CERTIFICATION	06JUL90 A	28SEP90 A	01JAN90	23FEB90	-155	COMPLETE-BEHIND
* 1504-15-810	FINAL SITE CERTIFICATION	28SEP90 A	28SEP90 A	23APR90	15JUN90	-75	COMPLETE-BEHIND
* 1504-15-861	TAC/DOE REVIEW & ISSUE DCR TO NRC *	03AUG90 A	15OCT90 E	03AUG90	15OCT90	0	STARTED-ON SCHED
1504-15-865	NRC REVIEW OF DCR	19OCT90	13DEC90	19OCT90	13DEC90	0	FORECAST-ON SCHED
1504-15-867	DOE TRANSMITS NCR COMMENTS TO TAC/RAC	21DEC90	27DEC90	21DEC90	27DEC90	0	FORECAST-ON SCHED
* 1504-15-869	TAC REVIEW NRC COMMENTS	21DEC90	17JAN91	21DEC90	17JAN91	0	FORECAST-ON SCHED
1504-15-870	STATE/TRIBE REVIEW OF DCR	19OCT90	13DEC90	19OCT90	13DEC90	0	FORECAST-ON SCHED
1504-15-872	DOE/TAC/RAC/NRC RESOLVE ISSUES	25JAN91	28FEB91	25JAN91	28FEB91	0	FORECAST-ON SCHED
1504-15-900	PREPARE FINAL AUDIT REPORT & ISSUE TO DOE	26OCT90	13DEC90	26OCT90	13DEC90	0	FORECAST-ON SCHED
* 1504-15-950	DOE PREPARE CERTIFICATION REPORT & ISSUE TO NRC	01MAR91	21MAR91	01MAR91	21MAR91	0	FORECAST-ON SCHED
1504-15-960	NRC REVIEW & CONCURRENCE IN CERTIFICATION REPORT	29MAR91	16MAY91	29MAR91	16MAY91	0	FORECAST-ON SCHED
3502-15-003	SITE CUSTODIAL MAINT. - 90	03SEP90 A	28SEP90 A	01SEP90	28SEP90	0	COMPLETE-ON SCHED
* 3502-15-005	FINAL S&M PLAN	25JAN91	21MAR91	23APR90	15JUN90	-198	FORECAST-BEHIND
3502-15-0051	NRC APPROVE FINAL S&M PLAN	29MAR91	02MAY91	25JUN90	27JUL90	-198	FORECAST-BEHIND
3502-15-0052	DOE APPROVE FINAL S&M PLAN	29MAR91	02MAY91	25JUN90	27JUL90	-198	FORECAST-BEHIND
3502-15-0053	NRC ISSUES LICENSE *	03MAY91	03MAY91	03MAY91	03MAY91	0	FORECAST-ON SCHED
3502-15-007	SITE CUSTODIAL MAINT. - 91	02SEP91	30SEP91	02SEP91	30SEP91	0	FORECAST-ON SCHED
3502-15-100	QA INSPECTION/RPT - 90	01AUG90 A	28SEP90 A	01AUG90	28SEP90	0	COMPLETE-ON SCHED
3502-15-110	QA INSPECTION/RPT - 91	01APR91	30APR91	01APR91	30APR91	0	FORECAST-ON SCHED
3502-15-LTSM	BEGIN LONG-TERM S&M (TRANSFER TO DOE-GJPO)	01OCT91	01OCT91	01OCT91	01OCT91	0	FORECAST-ON SCHED

* Flags Key Milestones
 *** Flags Headquarters Monitored Milestones

FIGURE 10.5 CONTRACTOR WORK PACKAGE PLANNING SCHEDULE

10.5.1 Reporting

Project Manager's Progress Report (PMPR)

To prepare and submit the PMPR to DOE HQ in accordance with MSA requirements, the TAC selects information from contractor reports, Project meeting records, weekly activity reports, and AL financial reports. Project and site status are assessed from the latest actual schedule progress, financial status, and technical performance and are compared with their planned levels. Deviations are analyzed for their significance, potential impacts of problems are determined, and alternative courses of action are considered in preparation of the report.

The goal for reporting to DOE HQ via the PMPR is to present summary-level data in a clear, accurate, and concise manner. The emphasis is on significant accomplishments, emerging trends, and significant problems and solutions. In accordance with the Project Charter, DOE-HQ is also kept informed of Project status in order to provide support as required.

Annual Report to Congress

The Act required the DOE to submit an "Annual Report to the Congress" each January 1 until 1986. However, the report will continue to be prepared for informational purposes. This report includes the status of various Project and site activities required to be performed under the Act. Although primarily the responsibility of the Project Office, this report is prepared in consultation with the other agencies and contains any separate views, comments, or recommendations of these agencies, states, or Indian tribes. The Project Office is assisted in preparation of this report by the TAC.

10.5.2 Project status reviews

Project status reviews are held periodically to review cost, schedule, technical, and other aspects of the Project. They are chaired by the UMTRA Project Manager and are attended by the Project Office staff and AL support personnel.

Numerous other meetings are conducted on a routine basis to review Project and site progress and disseminate information. The major meetings are shown in Table 10.2. In addition, meetings are conducted with state and Indian tribal organizations on matters of mutual interest (e.g., review of site designs) as required.

As a result of the meetings, items may be identified that require follow-up action. Deadlines are established for implementing actions along with identification of those responsible for their implementation. If there are cost or schedule implications, implementation proceeds provided it does not exceed the cost or schedule thresholds established by the Project change control

Table 10.2 Other UMTRA Project meetings

Meeting	Participants	Period
Site status update	TAC	Weekly
Management status	TAC	Weekly
Project schedule coordination	Project Office; TAC; RAC	Monthly
Change Control Board	Project Office; TAC; RAC	Monthly
States/tribes	Project Office; TAC; State/tribe representatives	Annually
Project reviews	Program Office; Project Office; contractors	Semi-annually

process. Otherwise, the item is processed through the change control cycle.

10.5.3 Document control

Project information is controlled and disseminated in a formal, structured manner. In addition to an UMTRA Project Document Control System (PDCS), the Project participates in the DOE Technical Information Center and Remedial Action Program Information Center.

- o UMTRA PDCS: The purpose of document control is to provide an active and continuing program for the acquisition, control, dissemination, retention, retrieval, retirement, and disposition of all pertinent Project and individual site records and documents. The UMTRA PDCS is operated by the TAC under direction from the Project Control Group and applies to all Project participants and the records and documents generated relevant to the management, support, and performance of the Project. It processes information requests from Project participants and the general public and all Freedom of Information requests. Details of the system's operation are contained in the "UMTRA Project Document Control System Manual."
- o Technical Information Center (TIC): Research and technical development reports prepared for the Project by contractors and laboratories are put into the DOE Central Energy Information Data Base and related information systems by the UMTRA PDCS. The Office of Technical Information, through the TIC at Oak Ridge, Tennessee, ensures that Project-related information is fully and promptly

reported within DOE to its contractors, other government agencies, other members of the energy community, and, when suitable, the general public.

- o Remedial Action Program Information Center (RAPIC): The RAPIC provides a unique technical information service for the four DOE remedial action programs--the UMTRA Project, Formerly Utilized Sites Remedial Action Program, Grand Junction Remedial Action Program, and Surplus Facilities Management. The primary information support activities to the UMTRA PDCS include:
 - Maintaining a computerized bibliography of information pertinent to the Project activities and including this information in an annual bibliography of documents abstracted and indexed during the fiscal year.
 - Serving as a document repository and providing copies of requested documents.
 - Providing technical information support at Project-sponsored conferences.
 - Maintaining a computerized database and publishing a directory of remedial action contacts.
 - Performing manual and computerized literature searches.
 - Answering general information requests.

11.0 QUALITY ASSURANCE AND ENVIRONMENTAL, HEALTH, AND SAFETY PROGRAMS

11.1 INTRODUCTION

Project and site construction activities are required to be carried out in such a manner that the quality of the performance and the health and safety of workers and the public are not jeopardized. To ensure their proper performance, the Project Office conducts a two-tiered site QA and EH&S program.

The Project Office is responsible for assuring that Project-level plans covering these programs have been implemented and that the programs are operating as approved. This is accomplished by conducting various types of appraisals (i.e., field audits and surveillances) of the RAC's site operations. The TAC is responsible for administering training and certification programs for all QA auditors and site surveillance personnel, coordinating QA activities between the DOE and Project contractors, and coordinating the site certification activities. The TAC also conducts QA audits and in-process surveillances, as appropriate, of its own internal departments, its subcontractors, and other Project participants to ensure compliance with all applicable codes, standards, specifications, and procedures. The TAC maintains the information and control system for the collection, documentation, and dissemination of data with respect to these activities. These activities indicate Project quality status, and they are eventually used in site certification. All radiological, health and safety, and engineering construction audit and surveillance activities are scheduled and coordinated by the TAC as well. The RAC is responsible for implementing and documenting the site programs in accordance with Project Office direction. Most of the activities performed by the Project Office, the TAC, and the RAC are discussed below. Remedial action close-out and surveillance and monitoring were discussed in Sections 7.0 and 8.0, respectively.

11.2 PROJECT OFFICE AND TAC ACTIVITIES

The Project Office also uses the TAC for performing independent, scheduled and unannounced appraisals of the RAC's work. These appraisals for verifying work quality consist of audits and surveillances. They are conducted to provide the Project Office with the knowledge that site activities are being accomplished in accordance with the RAC plans and procedures approved by the Project Office. These appraisals also support the site certification process because the reports issued are a major consideration in a site's certification.

Both the scheduled and unannounced appraisals are conducted through a structured approach, with the TAC assigned the responsibility for their coordination, scheduling, performance, and reporting and for conducting any required follow-up activities. Checklists (such as a Remedial Action Inspection Plan) are prepared prior to each appraisal and tailored to the activities (i.e., quality assurance, radiological measurements, or health and safety) and site being reviewed. They take into account the appraisal purpose and the stage of remedial action activity being reviewed. Details are contained in the UMTRA Project Audit/Surveillance Program Plan. The scheduled appraisals are tied to critical remedial action construction

activities such as final excavation, contaminated material placement, radon barrier placement, and erosion protection. They are developed on an annual basis, and a schedule is published and distributed to involved Project participants. The schedule also serves as a tracking system in that the appraisal, report, response, and required close-out activities are monitored and followed up.

The state or Indian tribe and NRC may participate in the scheduled or unannounced Project Office appraisals, or they may conduct their own independent appraisals. The state or Indian tribe and NRC may make an independent, on-site inspection of 1) construction work as it is performed to verify that all work is in conformance with the approved designs and specifications, as well as the approved Project procedures and documents; and 2) the QA/QC activities. In addition, they may perform an independent on-site check of radiological excavation control and review safety and health physics activities.

A formal appraisal report is prepared by the TAC for the Project Office to review. This report may include contributions from the other agencies that may have participated (i.e., the state or Indian tribe and NRC) unless they choose to prepare their own report. The report is provided to the RAC, and its response is required within 30 to 45 days. The RAC's response is reviewed for adequacy. If the response is acceptable, an acceptance report is forwarded as an appraisal close-out letter; if the response is not acceptable, the Project Office requests additional information.

The following types of site appraisals are conducted by the TAC:

- o In-process surveillance: The in-process surveillance is conducted to ensure that a specific site activity is proceeding according to the specifications in the approved RAP and final design and that the RAC's site QA program is operating per the approved site remedial action inspection plan.
- o Radiological surveillance: The radiological surveillance is conducted to ensure that the radiological measurements performed by the RAC are in accordance with the approved site radiological survey plan to provide confirming data that the remedial actions meet the EPA standards and that the site is eligible for certification by the DOE. This is done by auditing the performance of the radiological surveys (i.e., excavation control and verification type) while they are in progress and by performing independent measurements.
- o Health and safety audits: The health and safety audits are conducted to assess the safety of a construction site and to determine that health and safety procedures are implemented. Observations and findings from the site visits compare the health and safety programs implemented in the field with the requirements of the "UMTRA Project Environmental, Health, and Safety Plan" and the RAC's approved EH&S program.

These audits include an evaluation of the RAC health and safety organization; worker training programs; documentation and reporting of related data and incidents; RAC internal audits; implementation of health physics

procedures such as maintenance of controlled access areas, personnel dosimetry, contamination monitoring, and work area monitoring; respiratory protection programs; emergency response and notification plans; environmental monitoring; and the Occupational Safety and Health Administration (OSHA) construction industry health and safety standards in 29 CFR 1910 and 1926.

11.3 RAC ACTIVITIES

Site-related QA and health and safety activities performed by the RAC and monitored by the Project Office include:

- o Preparing and implementing a remedial action inspection plan for each site. This plan details the procedures to be followed at the site in the performance of construction inspections and radiological monitoring of remedial action by the RAC's inspectors. The plan is approved by the Project Office and concurred in by the NRC.
- o Preparing and implementing a radiological survey plan for each site. This plan specifies how the surveys are to be conducted for excavation control or verification at a site. The general classifications of the instrument types to be used for making measurements are specified as well as how the instruments are to be used. This plan is approved by the Project Office.
- o Preparing and implementing a generic health physics monitoring plan (appended with procedures and site-specific plans) and the EH&S management program document. These documents detail the health physics and construction safety program organization and procedures to be followed at each site. Figure 11.1 depicts the site EH&S program.
- o Conducting, coordinating, and documenting all construction progress and final completion inspections. The RAC inspects the remedial action construction including workmanship, materials, and equipment to assure compliance with 1) the design drawings and specifications; 2) the UMTRA Project QA and EH&S programs; and 3) the EPA standards. The RAC provides the labor and equipment necessary to inspect the sites and conducts field laboratory tests of the construction workmanship, materials, and equipment.
- o Furnishing and maintaining the governing lines and benchmarks to provide horizontal and vertical survey controls.
- o Preparing and maintaining construction logs, furnishing the DOE with all necessary revisions and field changes to the drawings and specifications, and providing technical support as required during remedial action. All revisions and field changes are implemented in accordance with 1) approved procurement procedures; 2) the RAC management plan; and 3) the QA and EH&S programs.

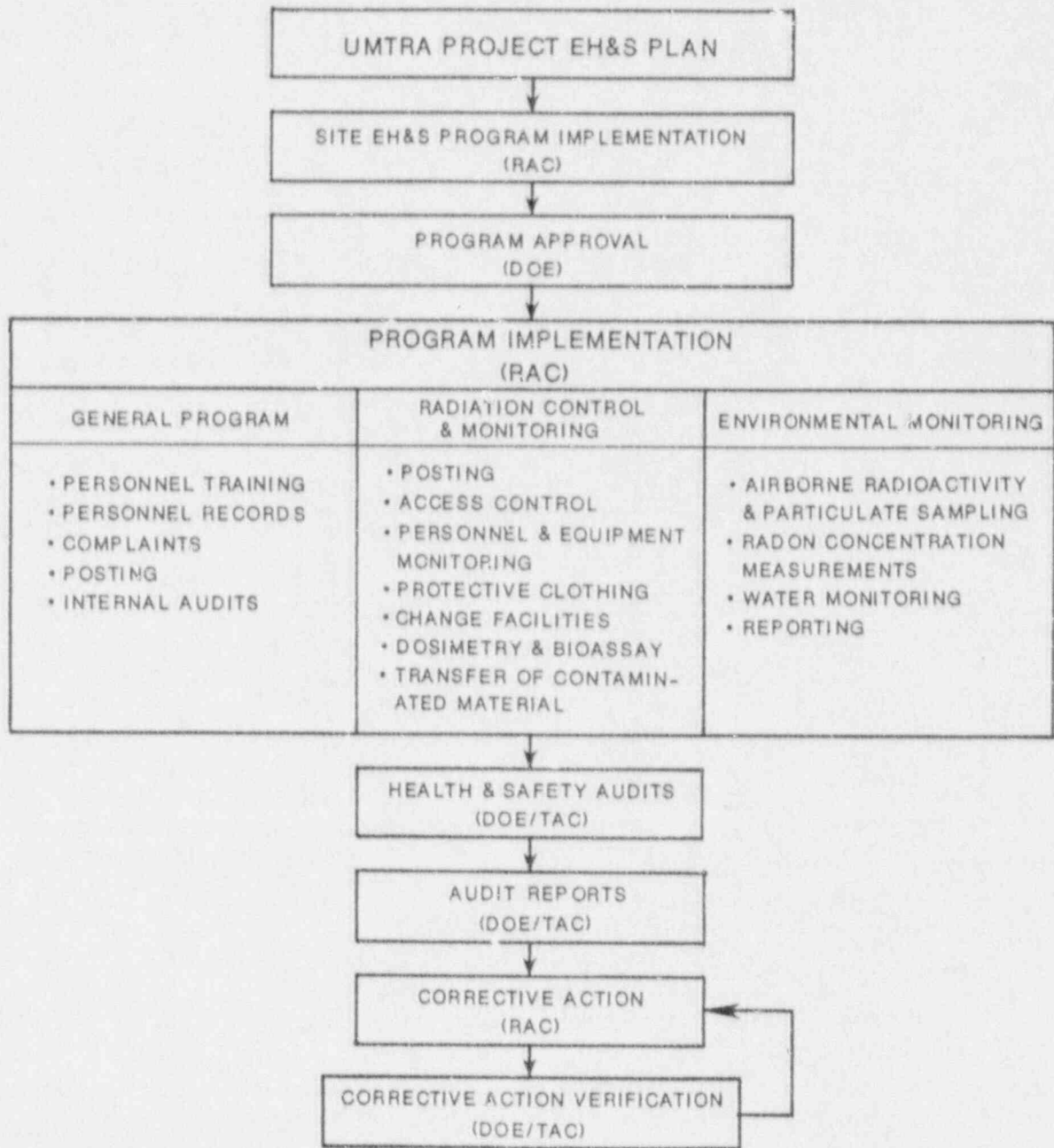


FIGURE 11.1 UMTRA PROJECT SITE EH&S PROGRAM

- o Assisting the DOE and TAC in conducting a post-remedial action evaluation to determine the effectiveness of remedial action for site certification purposes.

LIST OF ACRONYMS

AL	Albuquerque Operations Office
AMB	UMTRA Project site at Ambrosia Lake, New Mexico
ASSP	Alternate Site Selection Process
BLM	Bureau of Land Management
CADSAR	Comparative Analysis of Disposal Site Alternatives Report
CCB	Change Control Board
COE	U.S. Army Corps of Engineers
CSCSC	Cost and Schedule Control System Criteria
DOE	U.S. Department of Energy
DOI	U.S. Department of Interior
DOJ	U.S. Department of Justice
EA	Environmental Assessment
EADR	Environmental Analysis and Data Report
EH	Office of Environment, Safety and Health
EH&S	Environmental, Health, and Safety
EIS	Environmental Impact Statement
EM	Office of Environmental Restoration and Waste Management
EPA	U.S. Environmental Protection Agency
FONSI	Finding of No Significant Impact
FWS	U.S. Fish and Wildlife Service
HQ	Headquarters (DOE)
IPMS	Integrated Project Management System
LTSP	Long-Term Surveillance Plan
MSA	Major System Acquisition
NEPA	National Environmental Policy Act
NRC	U.S. Nuclear Regulatory Commission
OSHA	Occupational Safety and Health Administration
OGC	Office of General Counsel
OIEA	Office of Intergovernmental and External Affairs
PDCS	Project Document Control System
PIPP	Public Information and Participation Program
PMPR	Project Manager's Progress Report
PQAP	Project Quality Assurance Plan
PSCE	Project Schedule and Cost Estimate
PWBS	Project Work Breakdown Structure
QA	Quality Assurance
QC	Quality Control
RAC	Remedial Action Contractor
RAP	Remedial Action Plan
RAPIC	Remedial Action Program Information Center
RAS	Remedial Action Selection Report
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
SHPO	State Historic Preservation Officer
SIP	Stabilization in place
SOS	Stabilization on site
SOW	Scope of Work
SPK	UMTRA Project site at Spook, Wyoming
TAC	Technical Assistance Contractor
TAD	Technical Approach Document
TIC	Technical Information Center

LIST OF ACRONYMS (Concluded)

UMTRA	Uranium Mill Tailings Remedial Action (Project)
UMTRCA	Uranium Mill Tailings Radiation Control Act
VE	Value Engineering
VPMIM	Vicinity Properties Management and Implementation Manual