



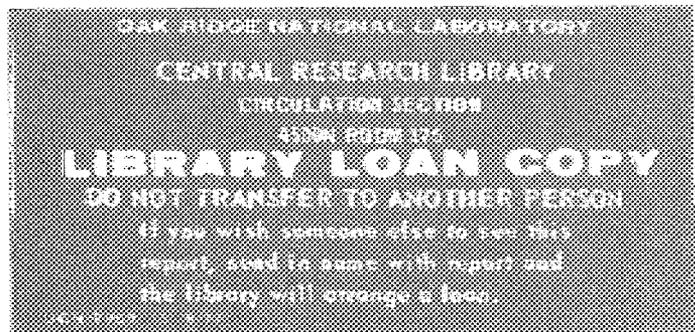
ORNL/TM-10845

**OAK RIDGE
NATIONAL
LABORATORY**

MARTIN MARIETTA

**Guidance Document for
Conducting Waste Management
Demonstration Projects**

Suman P. N. Singh
Richard K. Genung
Robert L. Jolley



OPERATED BY
MARTIN MARIETTA ENERGY SYSTEMS, INC.
FOR THE UNITED STATES
DEPARTMENT OF ENERGY

Printed in the United States of America. Available from
National Technical Information Service
U.S. Department of Commerce
5285 Port Royal Road, Springfield, Virginia 22161
NTIS price codes—Printed Copy: A04 Microfiche A01

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ORNL/TM-10845
Dist. Category UC-510

Chemical Technology Division
Waste Management Technology Center

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MANAGEMENT DEMONSTRATION PROJECTS

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Date of Issue — July 1988

Prepared for the
Office of Defense Waste and Transportation Management
Budget Activity No. GF 01 02 06 0

Prepared by the
OAK RIDGE NATIONAL LABORATORY
Oak Ridge, Tennessee 37831
operated by
MARTIN MARIETTA ENERGY SYSTEMS, INC.
for the
U.S. DEPARTMENT OF ENERGY
under contract DE-AC05-84OR21400



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ABSTRACT

This document presents the basic framework that has been developed for conducting waste management technology demonstrations at the U.S. Department of Energy/Oak Ridge Operations (DOE/ORO) sites. The guidance is based on experience gained by the Waste Management Technology Center (WMTC) in carrying out several innovative waste management technology demonstrations as part of its charter under the DOE/ORO's DOE Model program.

The step-by-step procedure described in this report should be used for all future technology demonstrations on DOE/ORO-managed sites. This procedure is designed to ensure that the demonstrations are conducted in compliance with applicable federal, state, and local regulations, as well as with DOE/ORO Orders and Martin Marietta Energy Systems, Inc., policies and procedures.

1. OBJECTIVES OF GUIDANCE DOCUMENT

This guidance document has been developed based on lessons learned from previous demonstrations to provide guidelines for conducting future technology demonstrations related to waste management and remediation activities. It identifies those issues which must be addressed to ensure a successful demonstration project. The procedure given here is intended to provide a basic framework for conducting technology demonstrations and for the continuing evolution of policy in this area. However, it is not intended to be rigidly applicable to all demonstrations. This will especially be true for those that are conducted off-site, for example. Therefore, interpretation of the intent of the guidelines will be appropriate, depending on the case at hand. The degree of adherence to the guidelines in any specific instance will be defined by a Demonstration Acceptance Committee (DAC), which will ascertain the appropriate controls and management practices to be followed in conducting the demonstration.

In particular, this guidance document has been developed to:

1. ensure that all the necessary steps are conducted in an appropriate sequence from project initiation to final wrap-up of the demonstration;
2. identify and recognize the many requirements that must be addressed in conducting a technology demonstration at a DOE/ORO site; and
3. facilitate completion of all necessary steps related to compliance regulations; contractual arrangements; quality assurance; setup of demonstration equipment; conduction of the demonstration; collection and analysis of data; compliance with all environmental, health, and safety considerations; and closeout of the demonstration.

2. INTRODUCTION AND BACKGROUND

Demonstrations of technology, particularly innovative or new technologies, are a principal means for bridging the gap between research and development (R&D) and full-scale utilization. Field demonstrations permit accurate assessment of capabilities and usefulness of developing technologies. Successful demonstrations often facilitate technology transfer between private and governmental sectors, thereby optimizing the national and private economies.

While demonstrations can be arranged and conducted by any of the waste management programs within Martin Marietta Energy Systems, Inc. (hereafter referred to as Energy Systems), the Waste Management

Technology Center (WMTC) has been established by Energy Systems as the focal point for conducting waste management technology demonstrations under DOE/ORO's Oak Ridge Model Program. Obviously, involvement of the private sector is the cornerstone of the overall demonstration program. Qualified vendors may be contracted to develop answers to problems and to demonstrate available waste management technology on specific waste streams. In some cases, technology developers may want to demonstrate innovative waste management technology before putting it into commercial practice and may need access to wastes and a suitable location for the demonstration. The demonstrations can provide important information regarding technical feasibility, cost, and regulatory acceptability. Close cooperation will be maintained with regulatory agencies to determine that the technology being evaluated is approved for the intended use.

Management of engineering-scale demonstrations of waste management technologies for hazardous, mixed, and/or radioactive wastes involves a complex array of dependent and independent operations. Successful management requires compliance with all applicable federal, state, and local laws; development and organization of team leadership for initiation, accomplishment, and completion of demonstration; application of scientific and engineering skills to ensure process accomplishment; development of high-quality engineering, economic, environmental, and industrial hygiene data; adherence to appropriate occupational and safety requirements as determined through established safety analysis procedures; use of thorough quality assurance (QA) procedures to ensure complete coverage of operational matters and collection of high-quality and statistically valid data; and appropriate follow-up to document and disseminate the information and conclusions from the demonstration for technology transfer.

In view of the complexities involved in conducting successful demonstrations, Energy Systems has made the following recommendations

(Reference: Letter, W. R. Gollither to J. W. Parks, October 29, 1987):

1. Management should identify a formal mechanism for the evaluation and acceptance of future demonstrations and establishment of goals/expectations for demonstration projects.
2. Management should identify a formal mechanism which provides a thorough technical review of projects (and related processes) and which also includes:
 - Consideration of potential negative impacts due to time constraints and/or deviation from project schedules.
 - Examination of the maturity of the process technology and demonstration equipment.
3. Management should work with DOE/ORO to identify adequately the roles and responsibilities for DOE/ORO, Martin Marietta Energy Systems, and all demonstration project personnel in order to:
 - Provide a structure for organizational interfaces.
 - Establish effective communication channels.
 - Ensure the appointment of personnel with central oversight responsibility (from Energy Systems and the primary contractor) for assessing the overall project and technical and safety considerations.

4. In future demonstrations, management should provide a contractual agreement more consistent with DOE/ORO's posture of maintaining complete responsibility for the site:
 - Provisions should be made to assure demonstration contractor compliance with DOE/ORO and Energy Systems policies and procedures.
 - A mechanism should be established for addressing demonstration contractor noncompliance with DOE/ORO and Energy Systems policies and procedures.
 - Provisions should be made for disclosure of agreements and contracts between a demonstration contractor and his subcontractors.
 - Provisions should be made to ensure temporary retention of equipment and obtaining needed information from contractor/subcontractor personnel in the event of personal injury, potential injury, property damage, or an environmental contamination incident.
5. Management should iterate the necessity for Energy Systems' having proprietary information agreements in place prior to the acceptance of contractor-supplied proprietary information.
6. Management should develop a mechanism that ensures the observance of existing procedures for project review by the appropriate disciplines. This should provide greater assurance that critical documents and other project

information are distributed properly and reasonable time is provided for input to the following areas and documentation:

- Safety and health reviews.
- Safety Assessment and, if necessary, Final Safety Analysis Report, and Operational Safety Requirements documentation.
- Configuration control with respect to quality assurance (QA) for changes to processes and safety systems (QA documentation).
- Action Description Memorandum.

This guidance document has been developed to:

1. address and incorporate the above recommendations,
2. provide guidelines for conducting future on-site waste management technology demonstrations, and
3. provide a framework for the continued evolution of policy as experience is accumulated.

It is intended to serve as a checklist of the necessary action items that, when sequentially completed, should ensure a successful demonstration project.

3. DEMONSTRATION GUIDELINES

The guidelines have been developed as a logic flow diagram that identifies all essential activities associated with a demonstration

project. To facilitate review and discussion of the diagram, it has been divided into the following major management activities:

1. Initiation of Demonstration Project;
2. Task Identification and Duties of Demonstration Project Manager (PM);
3. Task Implementation Activities;
4. Preparation of Schedule Network and Project Management Meetings;
5. Safety Analysis;
6. Environmental Permits, Action Description Memorandum, and Site Environmental, Health and Safety (EH&S) Approvals;
7. Site Preparation, Site EH&S Procedures Review, and Demonstration Operations Procedures Review;
8. Demonstration Site Security Considerations and Site Visits;
9. Demonstration Readiness Review;
10. Demonstration Performance;
11. Demonstration Site Closeout; and
12. Post-Demonstration Activities and Demonstration Evaluation

These steps are arranged in an approximately sequential fashion in Fig. 1. Each step, in turn, consists of several action items critical to the demonstration. Although arranged in a logic flow diagram, some of the steps will normally proceed in parallel. Sections 3.1-3.12 detail the individual steps.

3.1 INITIATION OF DEMONSTRATION PROJECT

Demonstration projects may be proposed externally (i.e., be unsolicited) by vendors of new and innovative waste management technologies or may arise as a result of internal needs and the solicitation of demonstration projects through the Request for Proposals (RFP) process. The logic flow chart for the step, Fig. 2, is designed to cover the elements important in assessing the value, importance, and related risks of the demonstration project to DOE/ORO facilities and to permit a decision to be made regarding whether to proceed with a demonstration project. The Statement of Work (SOW) for the demonstration project should include a Waste Management Plan that permits reduction of waste volumes during the demonstration process. The SOW should also address such concerns as contamination standards for equipment that is brought in from off-site or leaves Energy Systems sites.

A critical part of this demonstration initiation step is the use of a DAC to provide important input in the analysis of unsolicited demonstration proposals (see Sect. 5.1, Attachment 1). The responsibilities of the DAC are not limited to, but will include, consideration of such questions as the following:

1. Are the subcontractors agreeable to complying with the provisions of Energy System policies and work practices?
2. How will noncompliances be handled?

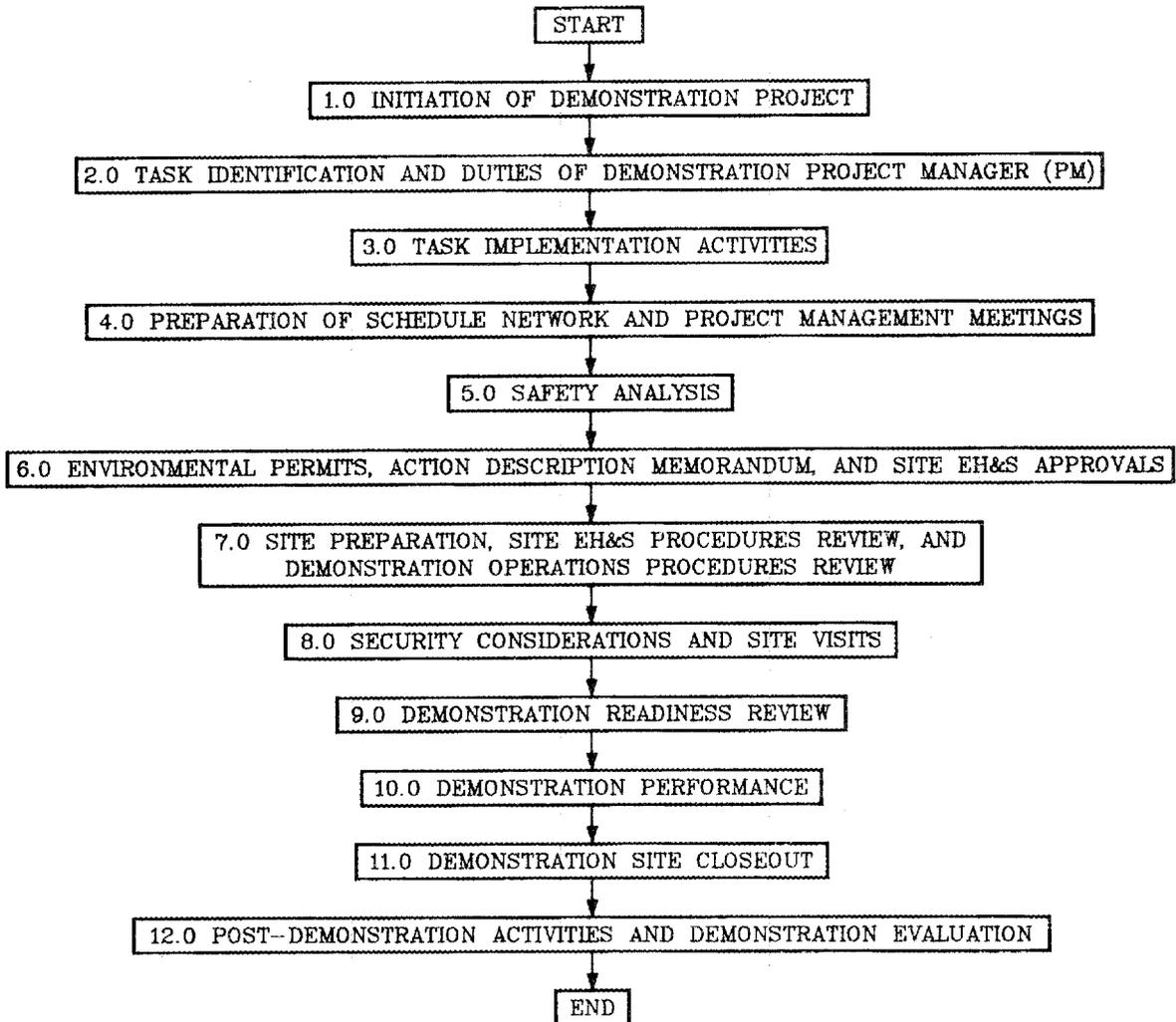


Fig. 1. Management steps for performance of demonstration projects.

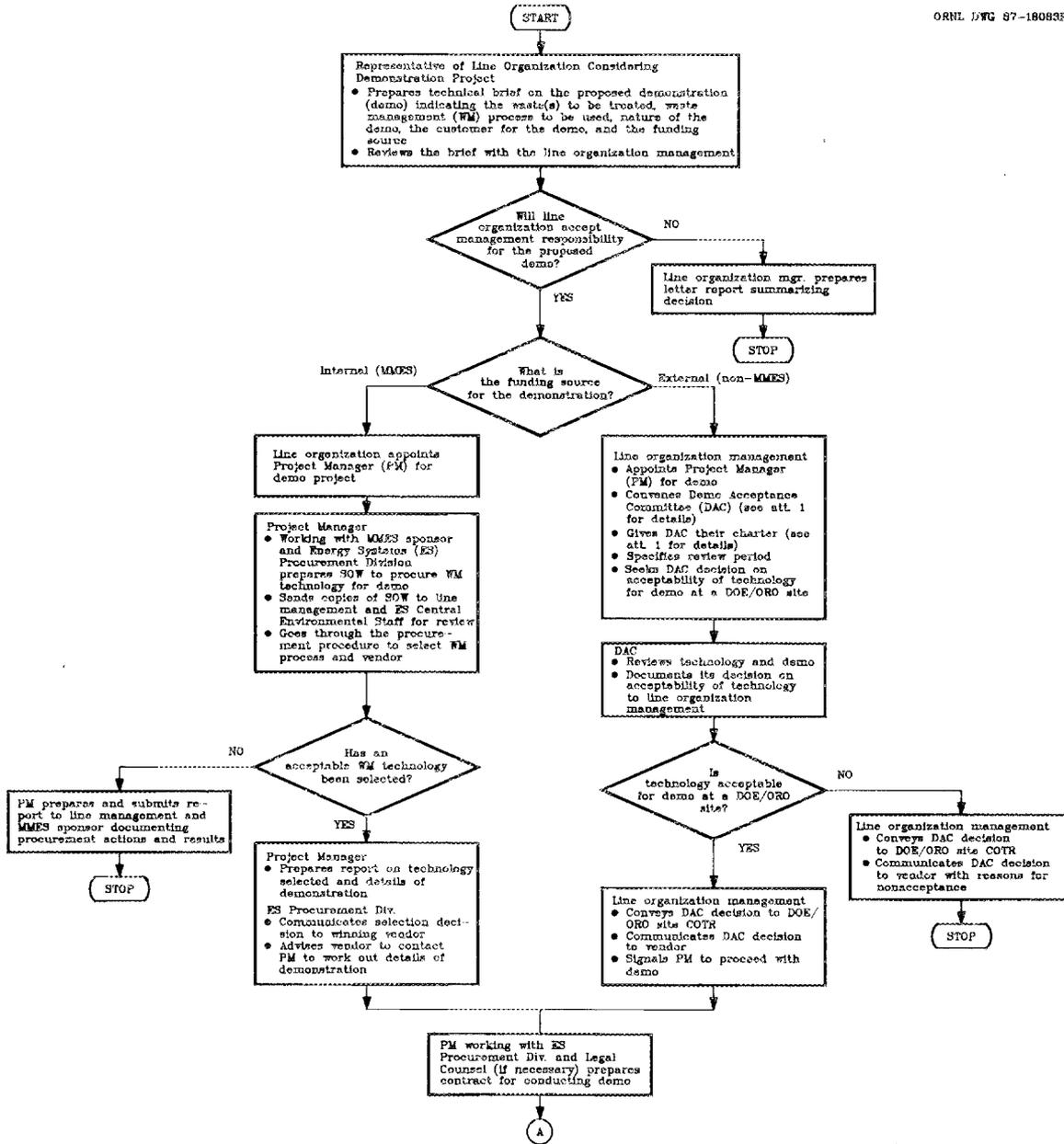


Fig. 2. Initiation of demonstration project.

3. Are the subcontractors agreeable to a contractual arrangement which allows Energy Systems to discharge safety, medical, industrial hygiene, etc., actions in a manner comparable to Energy Systems standards?
4. Would Energy Systems undertake the demonstration under the same general conditions that the subcontractor is proposing?
5. In the event of an incident involving EH&S, does the contract allow Energy Systems to obtain the necessary information to investigate the incident?
6. Is the subcontractor willing to make available technical information in a manner sufficient to permit Energy Systems to assess the areas of risk?
7. Is there undue pressure from external forces that may diminish the ability of Energy Systems to discharge its responsibilities and comply with established practices and policies?

3.2 TASK IDENTIFICATION AND DUTIES OF DEMONSTRATION PROJECT MANAGER

This management step identifies the essential tasks involved in successful accomplishment of demonstration projects:

1. obtain regulatory permits for compliance with federal, state, and local regulations;
2. obtain DOE/ORO (COTR) and Energy Systems approvals;

3. develop Execution and Management (E&M) teams to assist in the efficient management of complex demonstration projects, including the development of a schedule network identifying tasks and completion schedules; and
4. establish the major duties of the PM, including initiation of meetings of the E&M teams (Fig. 3).

Typical duties and responsibilities of the E&M teams are detailed in Sect. 5.2, Attachment 2. An example schedule network is presented in Sect. 5.3, Attachment 3.

3.3 TASK IMPLEMENTATION ACTIVITIES

This step (see Fig. 4) lists the specific activities required to implement the demonstration project, such as:

1. safety analysis (DOE Order 5481.1B),
2. Action Description Memorandum (DOE Order 5440.1C),
3. site preparation activities,
4. waste management planning and addressing demonstration decontamination and decommissioning issues,
5. scheduling of plant engineering and utility services,
6. development of EH&S plan,
7. acquisition of environmental permits,
8. development of a QA program,
9. review of legal issues, and
10. arranging for accounting services.

Demonstration projects should be conducted in accordance with QA procedures appropriate to the organization implementing the demonstration projects.

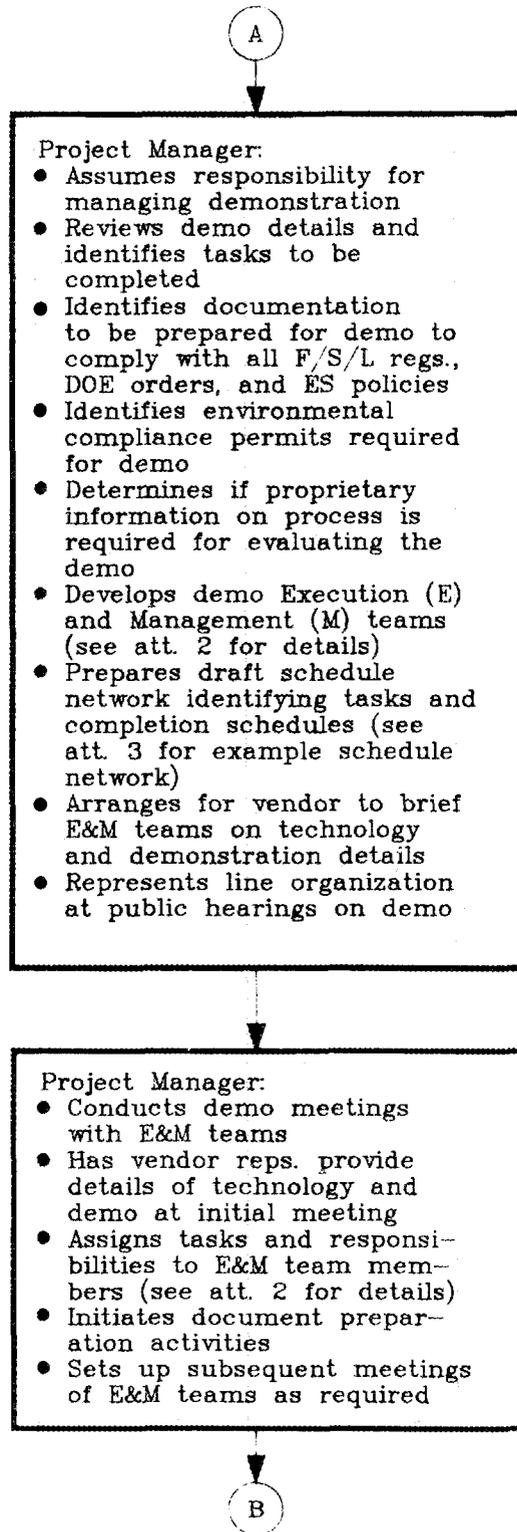


Fig. 3. Task identification and duties of demonstration project manager (PM).

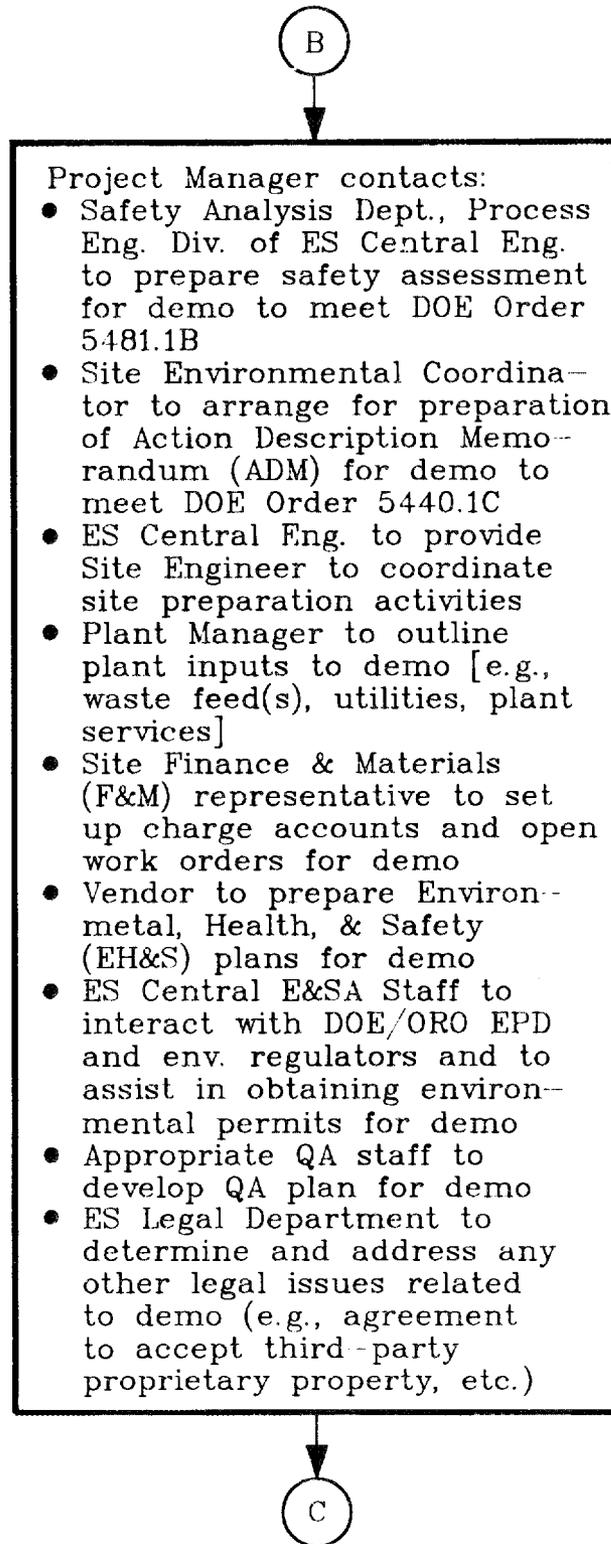


Fig. 4. Task implementation activities.

3.4 PREPARATION OF SCHEDULE NETWORK AND PROJECT MANAGEMENT MEETINGS

The use of E&M teams is an important element in the successful management of complex demonstration projects (Fig. 5). The tasks and responsibilities of the E&M team members are defined in this step and Attachment 2 (Sect. 5.2). An example schedule network for a demonstration project is shown in Attachment 3 (Sect. 5.3).

3.5 SAFETY ANALYSIS

Safety analysis (SA) is a critical element in the Facility Safety Program (Internal Correspondence, K. Jarmolow to D. J. Bostock et al., May 7, 1987). The Systems Analysis Department, Process Engineering Division of Energy Systems' Central Engineering Organization, is the group responsible for preparation of all safety analysis documents for Energy Systems-operated facilities (for FMPC, the Nuclear and System Safety Subsection of the Operations, Safety, and Health Department performs this function). The Safety Analysis management step defined in Fig. 6 places the responsibility for the preparation of the safety documentation for the demonstration on the Energy Systems' Central Engineering Organization and the technology vendor under the direction of the Energy Systems' Central Engineering Organization.

3.6 ENVIRONMENTAL PERMITS, ACTION DESCRIPTION MEMORANDUM, AND EH&S COUNCIL APPROVAL

This management step (Fig. 7) includes the following three distinct and separate action items and identifies the parties responsible for completing the tasks:

1. obtain environmental permits (vendor and Energy Systems E&SA rep. on E team). The E&SA representative, in conjunction with DOE/EPD

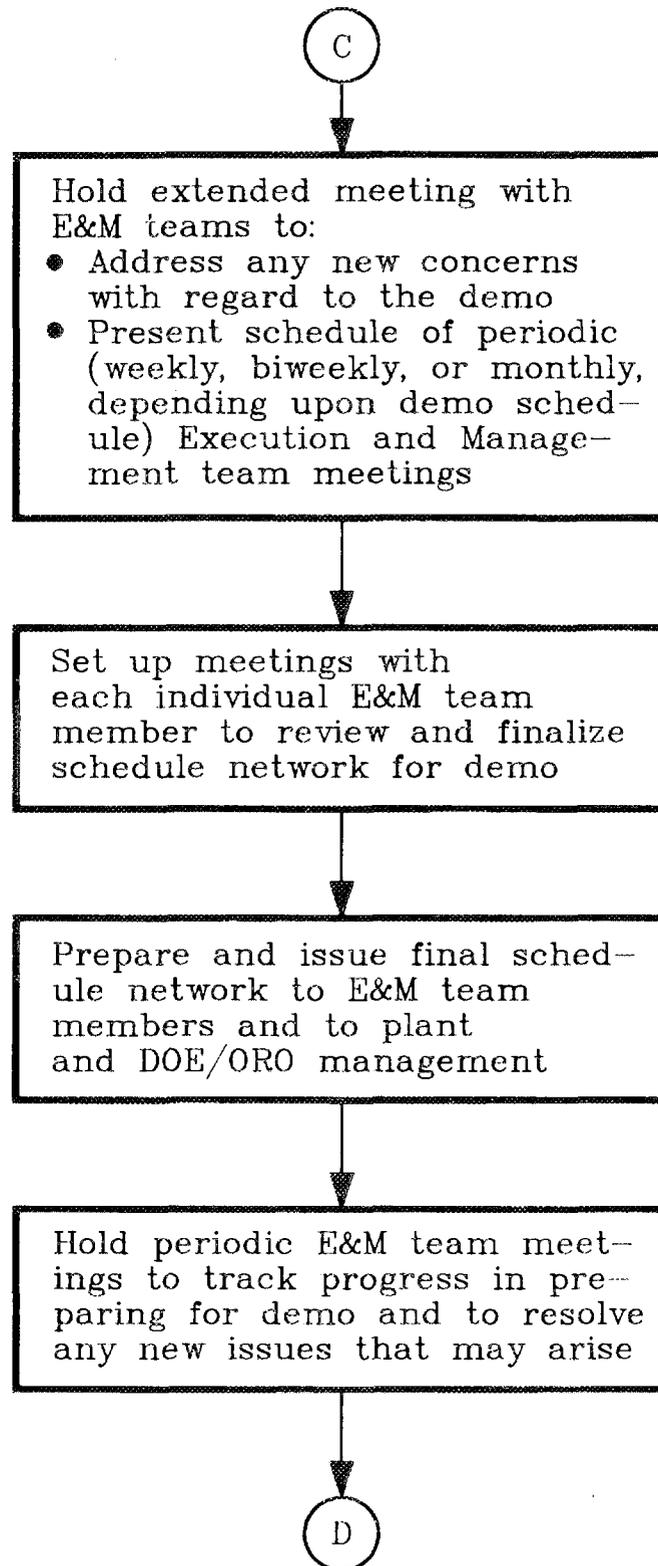


Fig. 5. Preparation of schedule network and project management meetings.

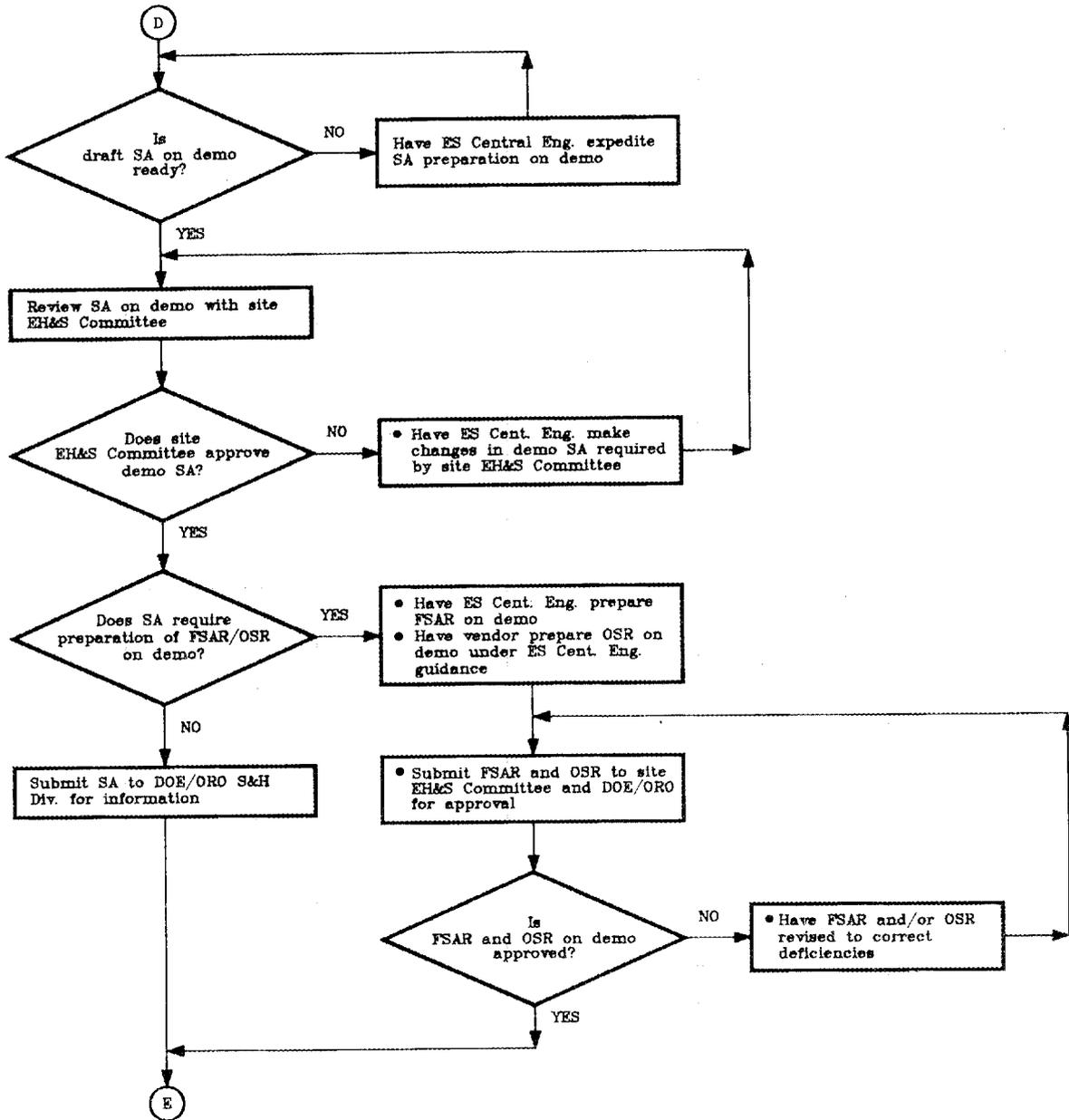


Fig. 6. Safety analysis.

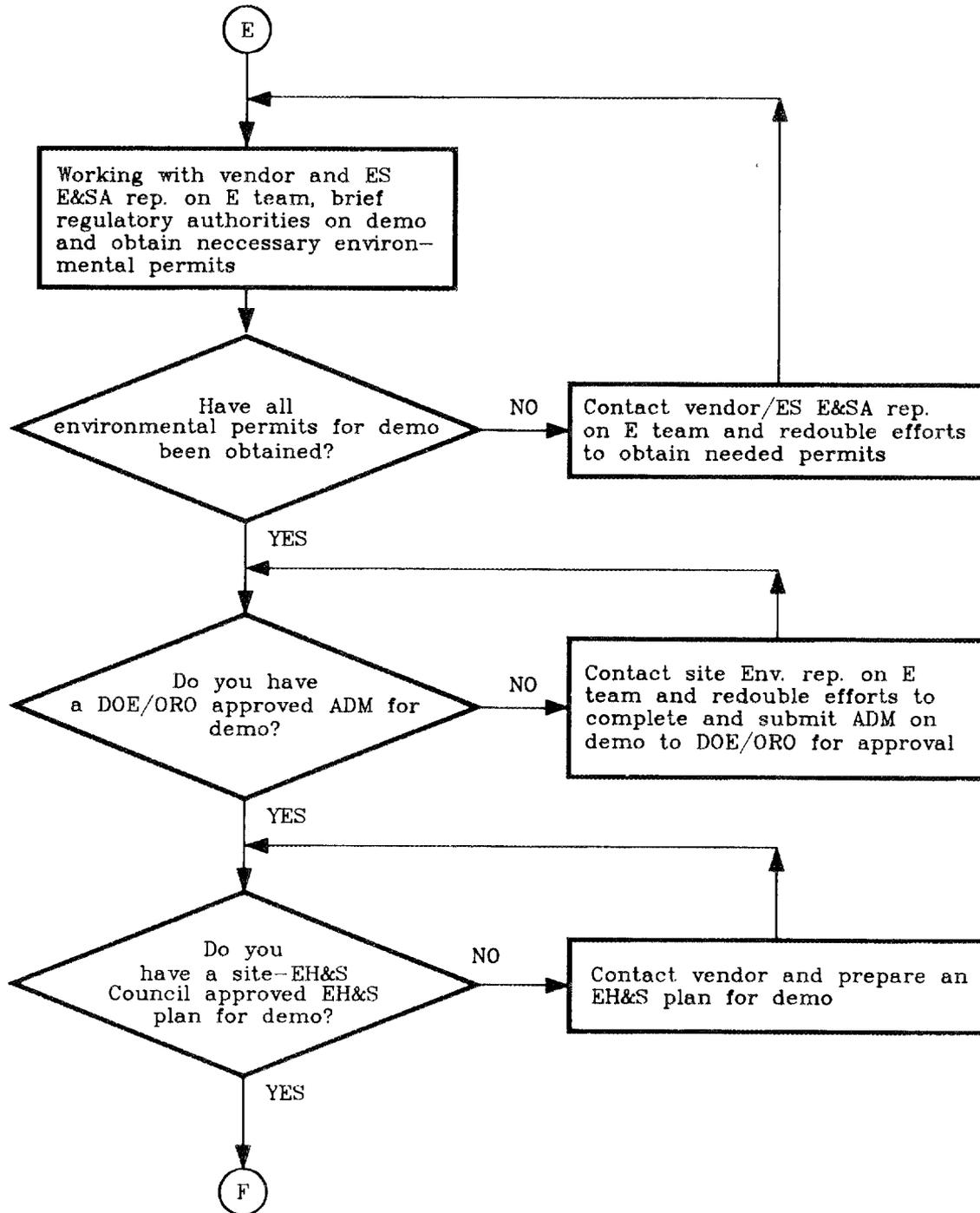


Fig. 7. Environmental permits, Action Description Memorandum, and EH&S council approval.

staff, will work with the vendor and the PM to brief appropriate regulatory authorities on the demonstration and obtain the necessary environmental permits;

2. prepare Action Description Memorandum (Site Environmental Rep. on E team);
3. prepare EH&S plan and obtain approval of site EH&S Council [(in the case of ORGDP) or its corresponding group at other sites (see below)] for the demonstration (vendor and PM).

At ORNL: Office of Operational Safety

Y-12: Safety Analysis Review Committee

PGDP: Health and Safety Review Committee

PoGDP: Independent Safety Review Committee

FMPC: Independent Safety Review Committee

3.7 SITE PREPARATION, SITE EH&S PROCEDURE REVIEW, AND DEMONSTRATION OPERATION PROCEDURE REVIEW

Activities (Fig. 8) to prepare the site for the demonstration will likely commence early in the demonstration preparation step, shortly after the tasks have been identified by the Project Manager. These activities could include, for example:

1. erecting structures needed by the demonstration,
2. providing the needed utilities (e.g., power, water, sewage, telephone services), and
3. erecting any needed security barriers for the demonstration.

Site preparation will normally be undertaken by the site construction and maintenance staff and will be coordinated by the Demonstration Site Engineer, who will be assigned to the project by Energy Systems' Central Engineering Organization.

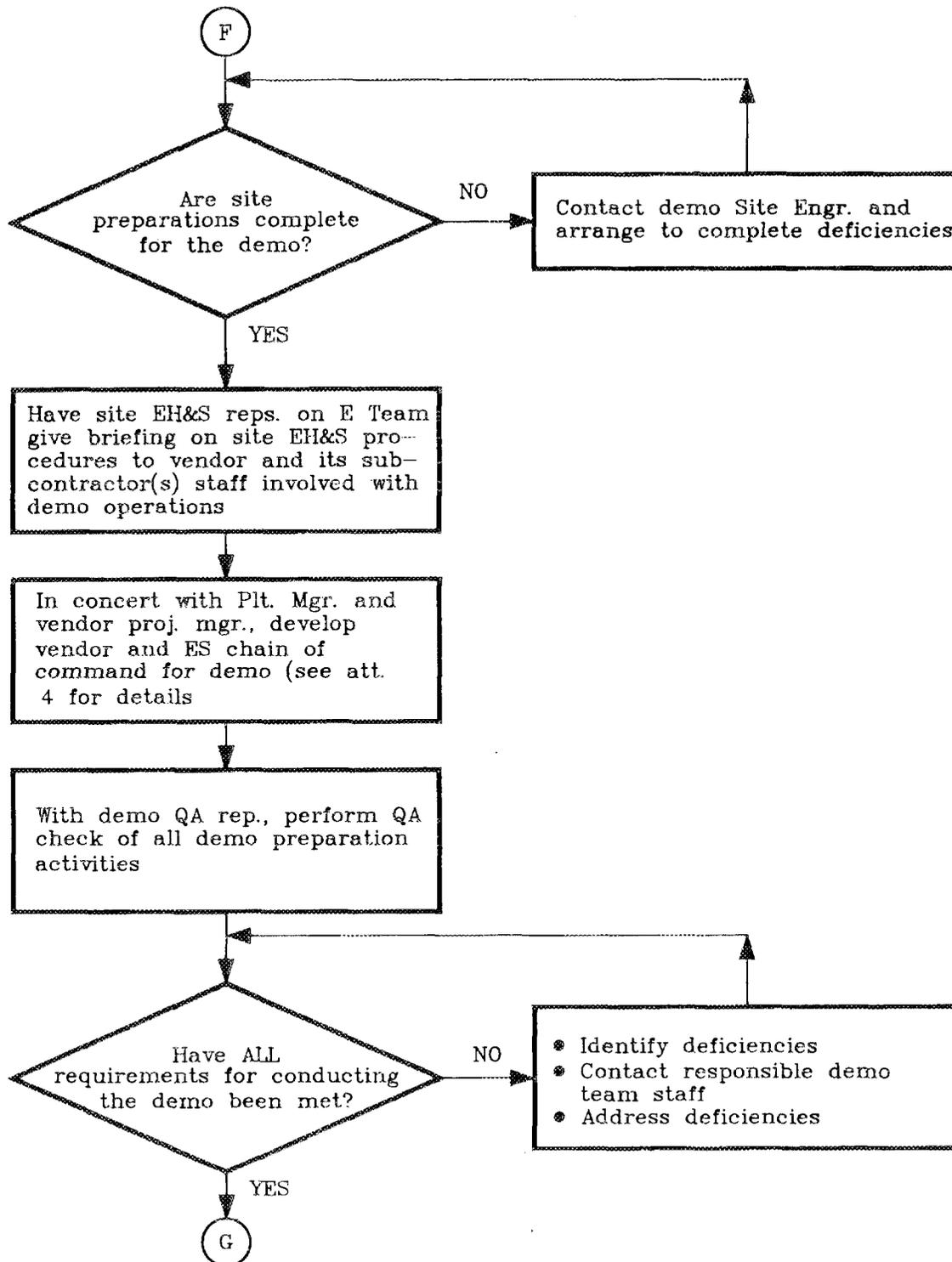


Fig. 8. Site preparation and demonstration requirements.

When the site preparation activities are nearing completion, the Project Manager will have the representatives from the site EH&S Division on the E team brief the vendor [and its subcontractor's(s')] staff involved with the demonstration on the site EH&S policy and procedures.

In addition, at this stage, a chain of command will be established that is to be followed during the conduct of the demonstration operations (see Attachment 4 for details).

3.8 SECURITY CONSIDERATIONS AND SITE VISITS

Security is an important concern for DOE plant sites and requires that both the vendor and the demonstration operations staff be briefed regarding security rules and regulations. In addition, proper and efficient handling of necessary site visits for Energy Systems, DOE, regulators, vendor management, and other involved personnel is important. These two distinct and separate management considerations are spelled out in Fig. 9.

3.9 DEMONSTRATION READINESS REVIEW

The demonstration readiness review (see Fig. 10) is conducted after all preparation activities have been completed. It assures the senior management of the plant site, DOE/ORO, Energy Systems' Central ES&A, and the organization performing the demonstration that all requirements for conducting the demonstration have been fulfilled and that the operation may proceed. This review is important to ensure the adequacy of operational, regulatory, and administrative provisions for the demonstration. It must be satisfactorily completed before any waste is processed at the demonstration site.

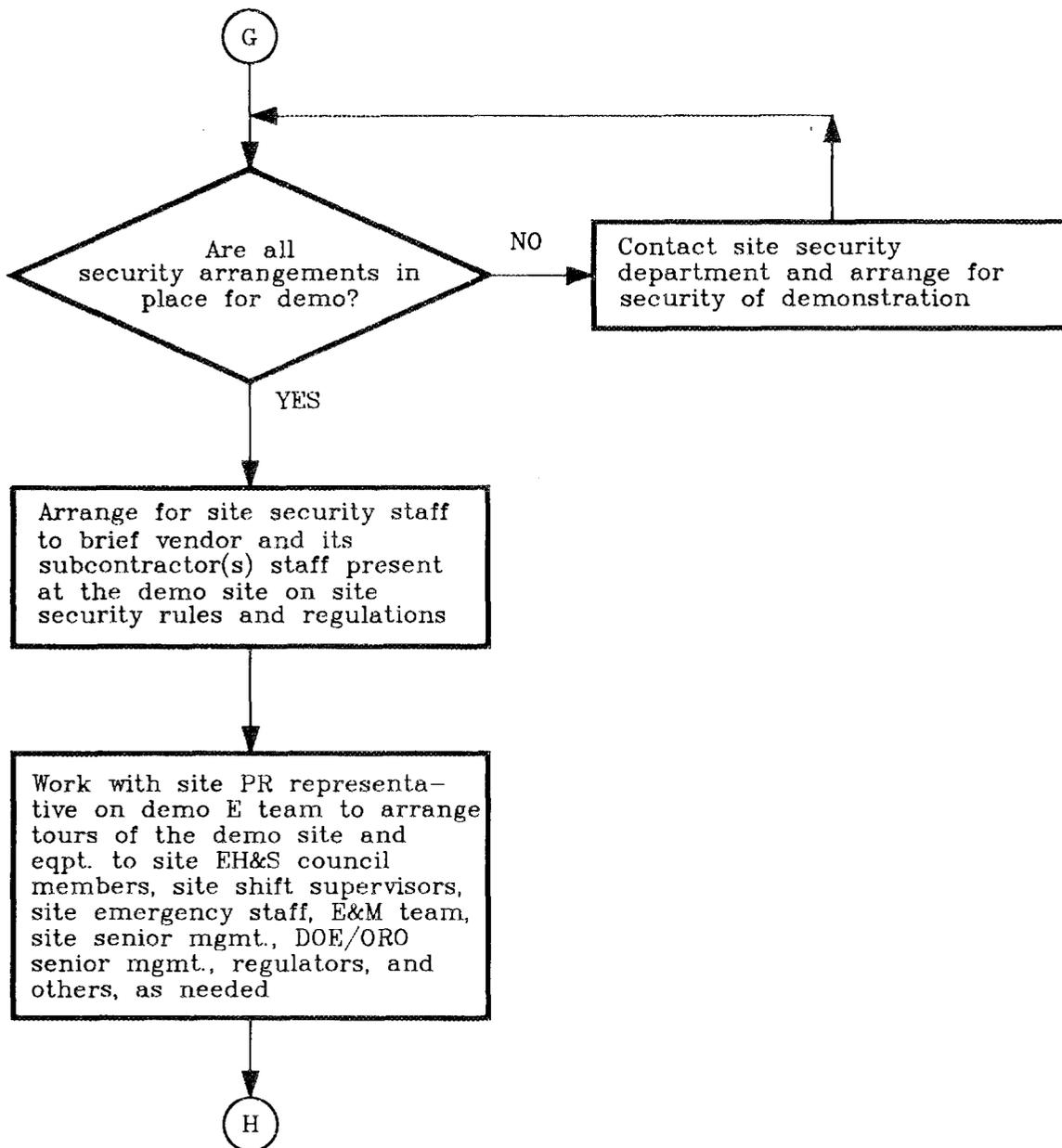


Fig. 9. Security considerations and site visits.

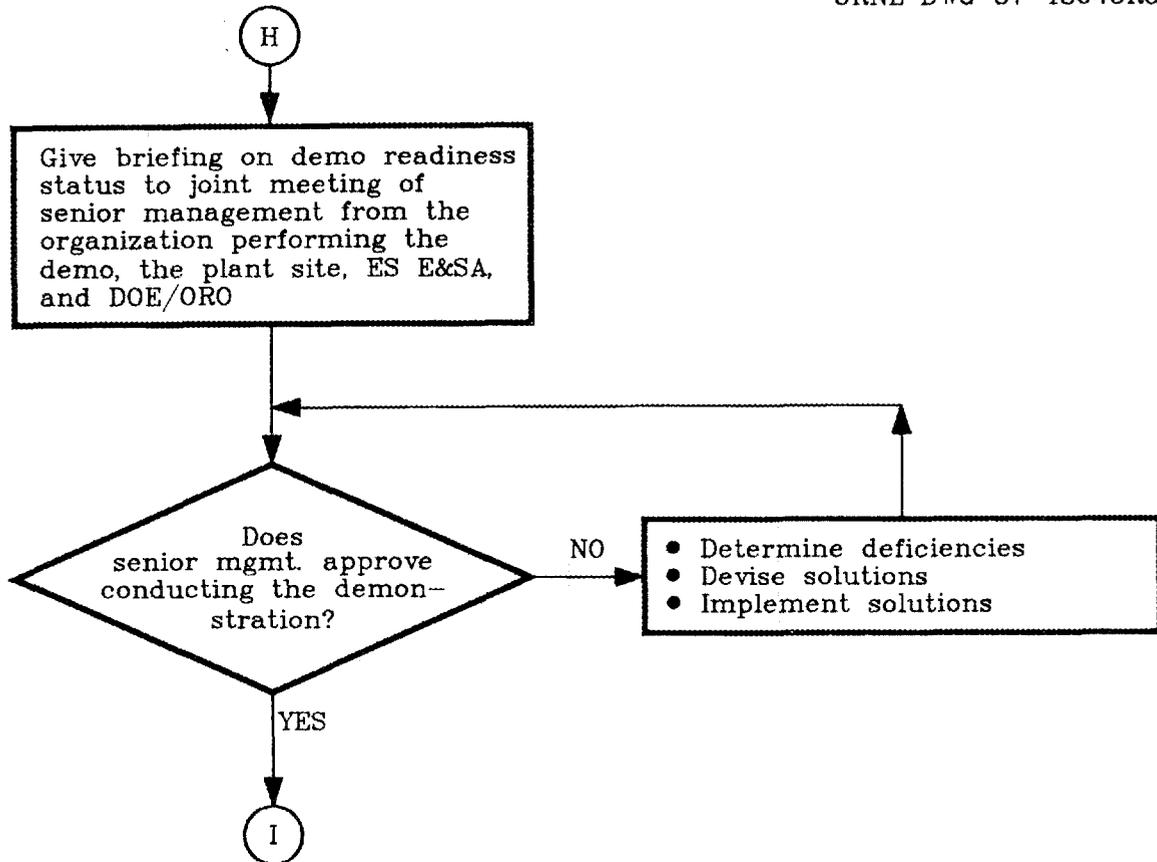


Fig. 10. Demonstration readiness review.

3.10 DEMONSTRATION PERFORMANCE

The logic flow diagram in Fig. 11 represents major considerations in the successful accomplishment of the demonstration.

3.11 DEMONSTRATION SITE CLOSEOUT

Site closeout (Fig. 12) is an important step in the overall conduct of the technology demonstration. This includes activities such as:

1. safe removal, from the site, of the process equipment brought by the vendor (and its subcontractors, if any) for the demonstration;
2. management of the by-products and wastes produced during the demonstration in compliance with all applicable regulations and permits in accordance with the approved Waste Management Plan for the demonstration;
3. shutoff of the utilities (power, water, telecommunications, etc.) provided by the installation for the demonstration; and
4. general cleanup and return of the demonstration site to its original condition before the demonstration.

3.12 POST-DEMONSTRATION ACTIVITIES AND DEMONSTRATION EVALUATION

This concluding management step (Fig. 13) involves a multiplicity of activities:

1. financial settlements;
2. determination of effective and safe disposition of wastes, materials, etc.;
3. legal disengagements of involved groups;

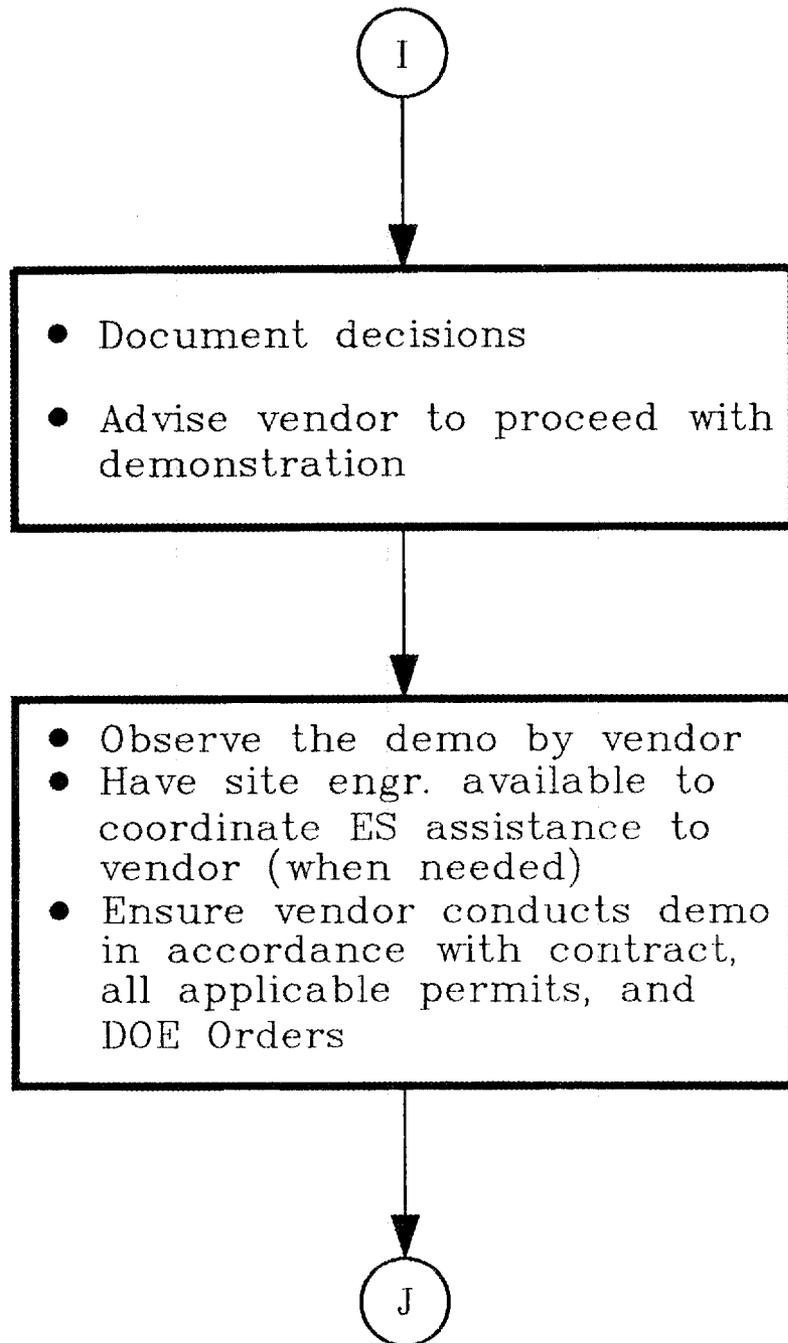


Fig. 11. Demonstration performance.

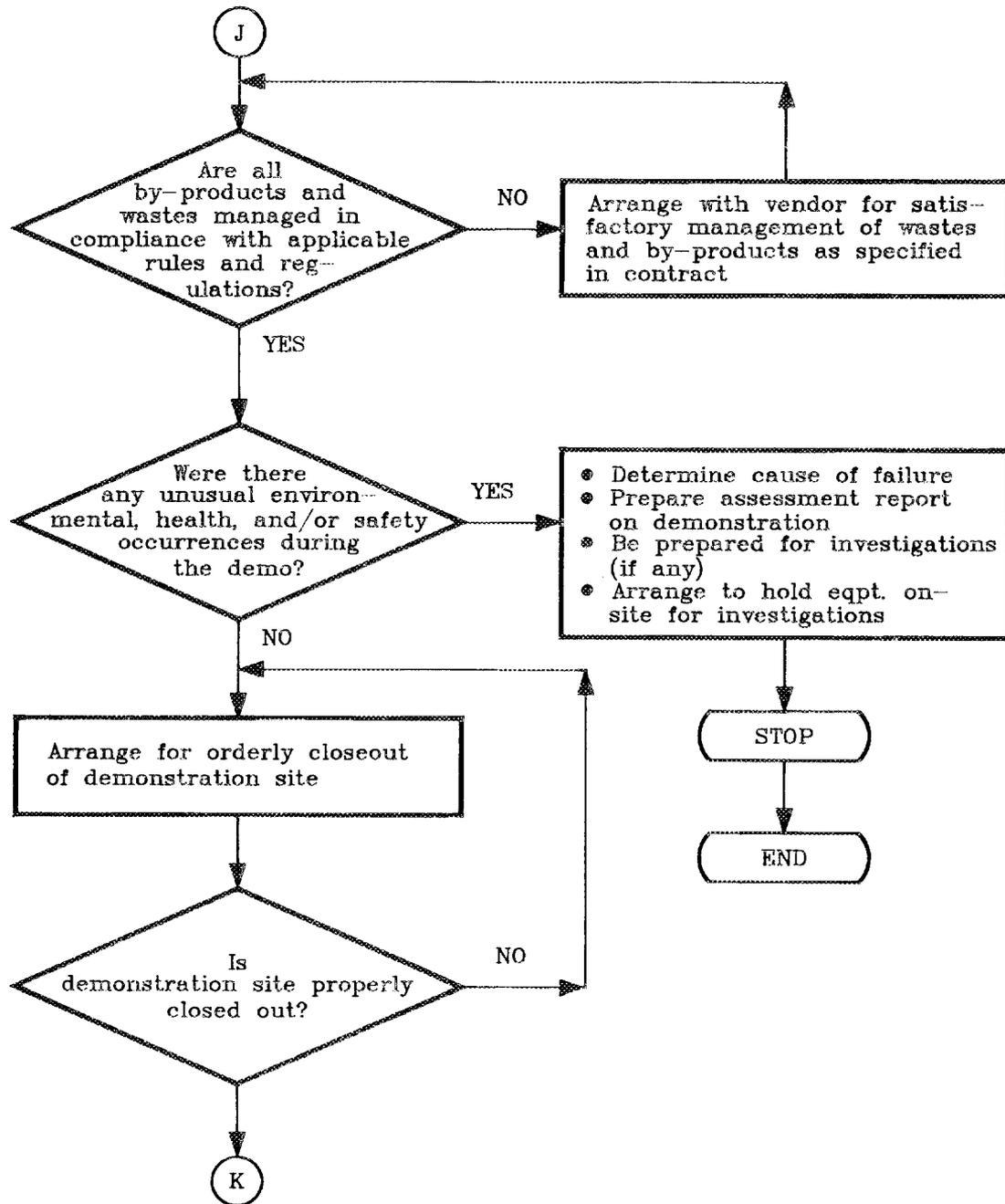


Fig. 12. Demonstration site closeout.

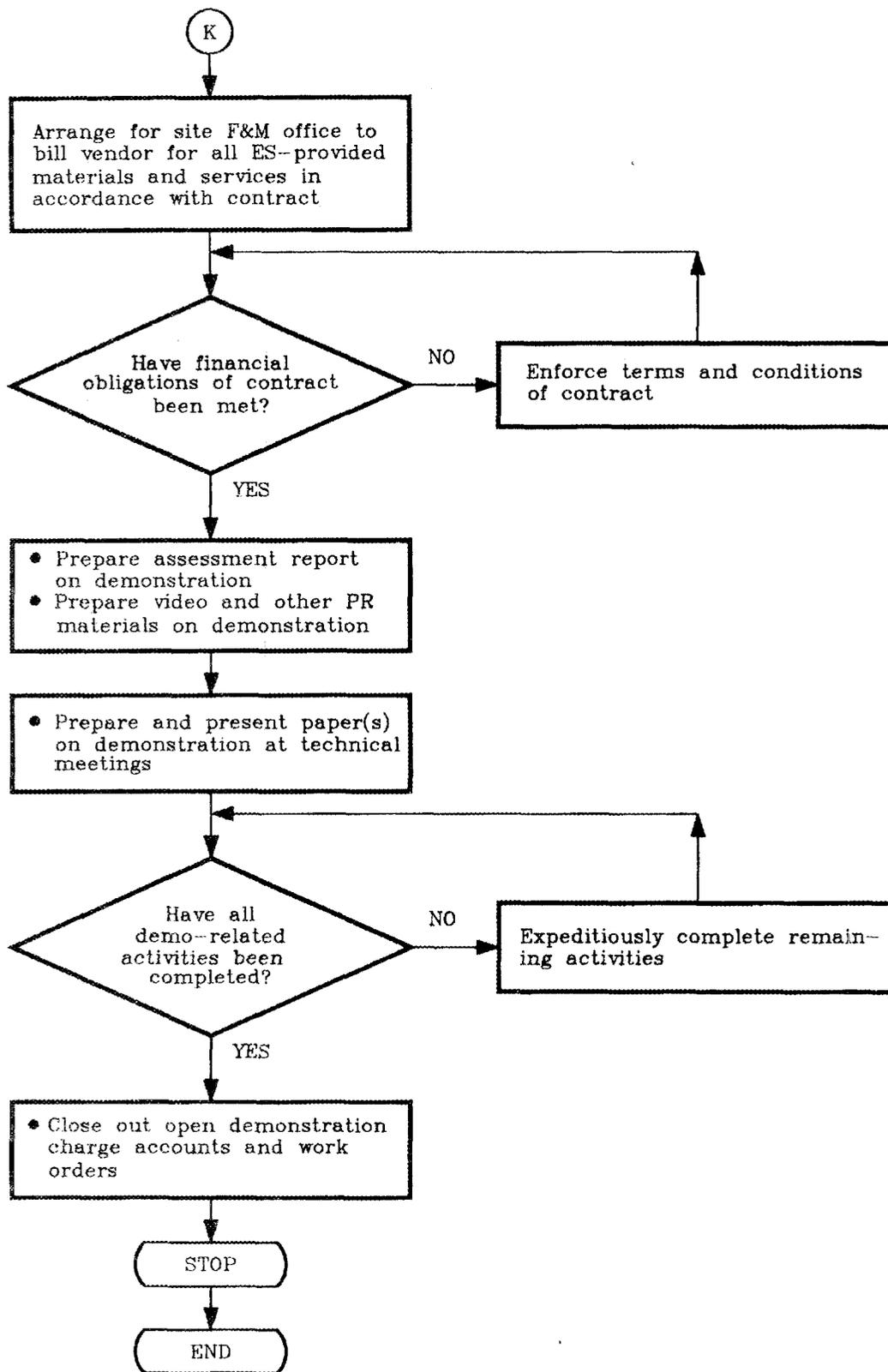


Fig. 13. Post-demonstration activities and demonstration evaluation.

4. demonstration evaluation and final reports preparation; and
5. dissemination of information obtained from the demonstration to Energy Systems, DOE, other organizations, and to the scientific community as appropriate.

4. MANAGEMENT CONTROL FLEXIBILITY

This document is intended to provide guidelines for ensuring adequate and thorough coverage of all regulatory, administrative, and other matters of importance in conducting demonstration projects that are managed through a line organization. As stated earlier, every demonstration may not require such a thorough stepwise checklist-type management. Each demonstration must be evaluated individually; however, each will involve many of the same or similar regulatory, administrative, and safety concerns. Effective management of small demonstrations may, for example, be accomplished by single individuals instead of large committees (e.g., E&M teams), but the use of the E&M team concept is strongly recommended for the conduct of complex demonstrations. It should at least be considered as a basis for project QA plans and activities.

5. ATTACHMENTS

5.1. Attachment 1. DEMONSTRATION ACCEPTANCE COMMITTEE
(DAC) COMPOSITION, CHARTER, AND GUIDELINES FOR ACCEPTING
A WASTE MANAGEMENT DEMONSTRATION

5.1. DEMONSTRATION ACCEPTANCE COMMITTEE (DAC) COMPOSITION, CHARTER,
AND GUIDELINES FOR ACCEPTING A WASTE MANAGEMENT DEMONSTRATION

5.1.1 Composition of Demonstration Acceptance Committee (DAC)

The DAC will consist of the following Energy Systems (ES) and DOE/ORO staff:

1. a representative of line organization management (Committee Coordinator);
2. the Project Manager;
3. the Plant Manager of the DOE/ORO site where the demonstration is to be conducted or his/her appointed representative;
4. a DOE/ORO Waste Management Branch staff member;
5. an Energy Systems' Central Environmental and Safety Activities Division staff member;
6. a member of the Contracting Officer's Technical Representative (COTR) Office responsible for the site;
7. a representative from the plant's Health, Safety, and Environmental Affairs (equivalent of ORGDP's HS&EA) Committee; and
8. a representative from DOE/ORO's Environmental, Safety, and Health (ES&H).

5.1.2 DAC Charter

The objective of the DAC is to conduct a scoping-type evaluation of the proposed waste management technology and the demonstration and to rule on its acceptability for demonstration at a DOE/ORO site.

5.1.3 Guidance for DAC Evaluation

In its deliberations, the DAC should consider the following in addition to other factors the committee may deem relevant:

1. process details of the proposed waste management technology;
2. development status and maturity level of the technology;
3. vendor's qualifications and experience with the technology;
4. broad details of the proposed demonstration, including proposed use of subcontractors by vendor (if any) and working interrelationships between the vendor and its subcontractors;
5. secondary wastes produced in the demonstration and their proposed management;
6. materials and services to be provided by Energy Systems for the demonstration;
7. financial arrangements for the demonstration;
8. the benefits/risks of conducting the demonstration at a DOE/ORO site; and
9. any other special circumstances surrounding the demonstration such as schedules for completion, permitting requirements, and national need for conducting the demonstration.

5.1.4 General Guidance

The technology vendor is expected to provide the information requested by the DAC so that it can render a decision in a timely manner. The DAC, in turn, should conduct its evaluation expeditiously and document its decision.

This is a scoping-type evaluation, and the DAC should conduct its review in an appropriate manner. It should not concern itself with

evaluating the minute details of the technology demonstration but should focus on the overall acceptability of conducting the demonstration at a DOE/ORO site.

Under normal circumstances, this review should be completed within 4 weeks. The line organization with responsibilities for the demonstration project should not proceed to make commitments or incur obligations to the potential vendor for conducting the demonstration during the DAC deliberation period.

5.2. Attachment 2. TYPICAL ORGANIZATIONAL STRUCTURE
AND TASK DISTRIBUTIONS FOR CONDUCTING WASTE
MANAGEMENT TECHNOLOGY DEMONSTRATIONS

5.2. TYPICAL ORGANIZATIONAL STRUCTURE AND TASK DISTRIBUTIONS FOR CONDUCTING WASTE MANAGEMENT TECHNOLOGY DEMONSTRATIONS

The organizational structure for a typical technology demonstration is shown in Fig. 14. A project management organization consisting of two teams, Execution and Management, is recommended because of the large number of diverse tasks to be completed in conducting such a demonstration. The Project Manager serves as the coordinator for each team. Typical compositions of the two teams are given in Tables 1 and 2, and the distribution of the task responsibilities is shown in Figs. 15 and 16, respectively.

The Project Manager assigns the task responsibilities to the team members and initiates the activities to complete the various tasks. He monitors the demonstration preparation activities by holding periodic (e.g., weekly, biweekly, or monthly, depending on the project schedule) meetings with each of the two teams to gauge progress, provide direction (if needed), and resolve issues that may arise in the course of preparing for the demonstration.

Table 1. Composition of the Execution Team
for a typical technology demonstration

The Execution Team will typically consist of designated staff members from the following Energy Systems operations:

Line Organization Managing the Demonstration Project

1. Demonstration Project Manager (Team Coordinator)
2. Quality Assurance Representative^a

Plant Site

1. Analytical Services
2. Environmental
3. Finance and Materials
4. Industrial Hygiene
5. Maintenance
6. Process Support
7. Public Relations
8. Quality Assurance^a
9. Safety
10. Security
11. Utilities

Energy Systems Central Staff

Engineering

1. Project Engineering (Demonstration Site Engineer)
2. Process Engineering (Safety Assessment Representative)

Environment and Safety Activities

1. Permits Specialist (Permitting Support)

Legal

1. General Counsel Representative

Procurement

1. Contracts Management
2. Procurement Services

Waste Management Technology Vendor

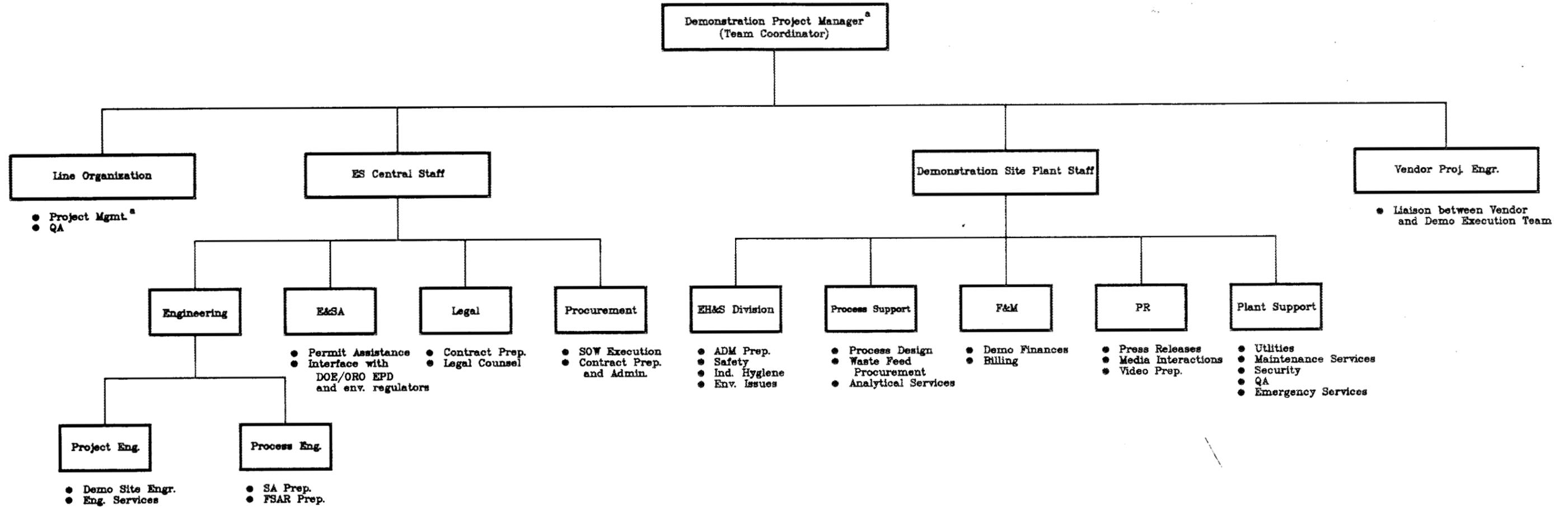
1. Demonstration Project Engineer
-

^aThe quality assurance (QA) activities for the demonstration may be conducted by the line organization performing the demonstration project and/or the plant QA representative.

Table 2. Composition of the Management Team for a typical technology demonstration

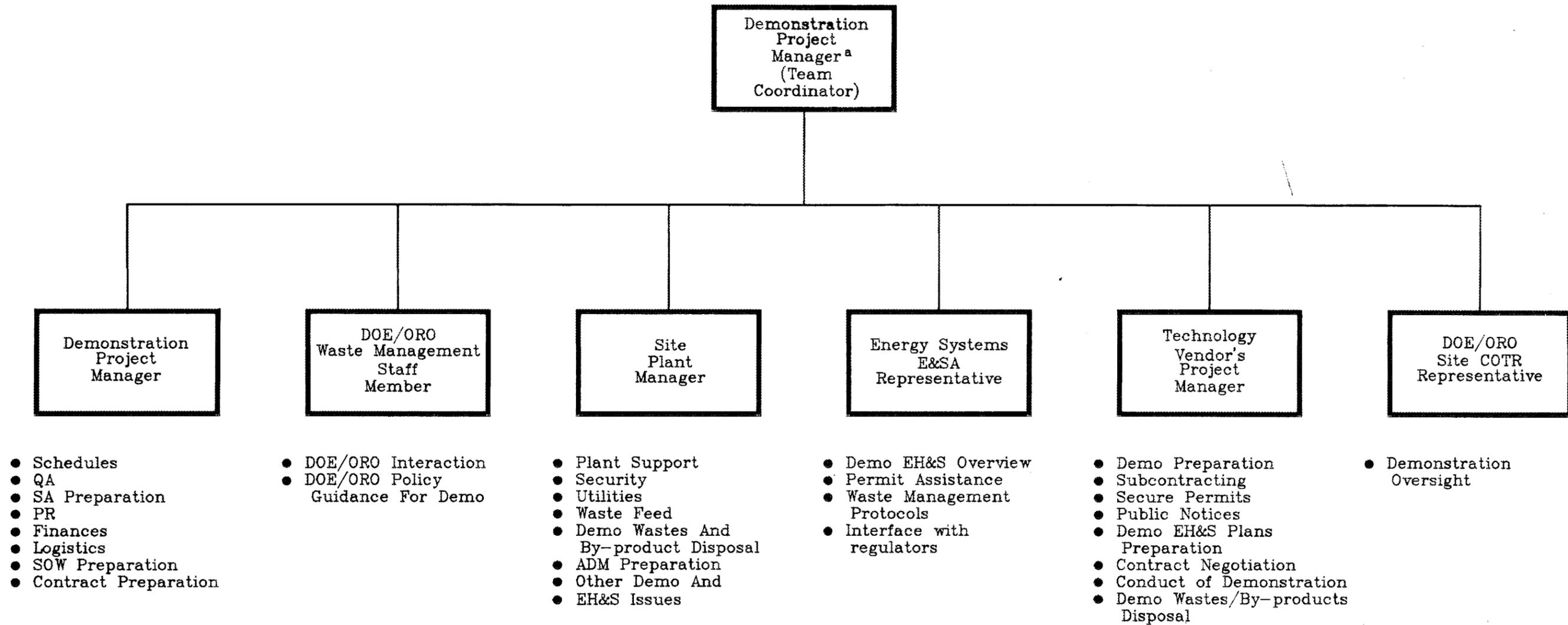
The Management Team will typically be composed of the following:

1. Project Manager (Team Coordinator)
 2. Plant Manager (or a designated representative) of the DOE/ORO Plant Site
 3. DOE/ORO Waste Management Branch Staff Member
 4. Energy Systems' Central E&SA Environmental Manager
 5. Plant COTR or his designated representative
 6. Vendor's Demonstration Project Manager
-



^aDual Capacity.

Fig. 15. Organization chart showing composition and responsibilities of Demonstration Execution Team.

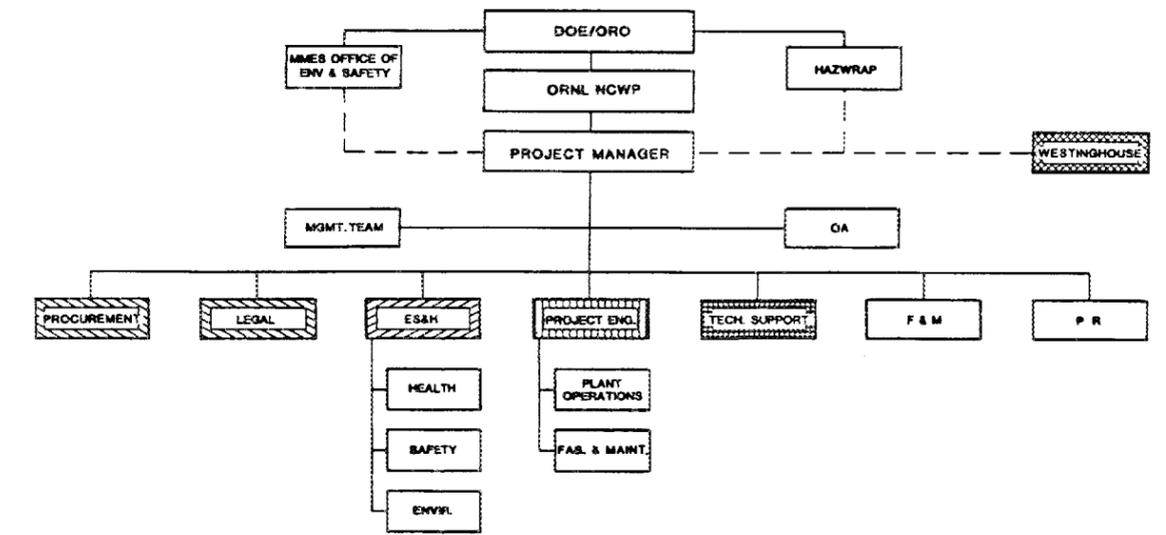
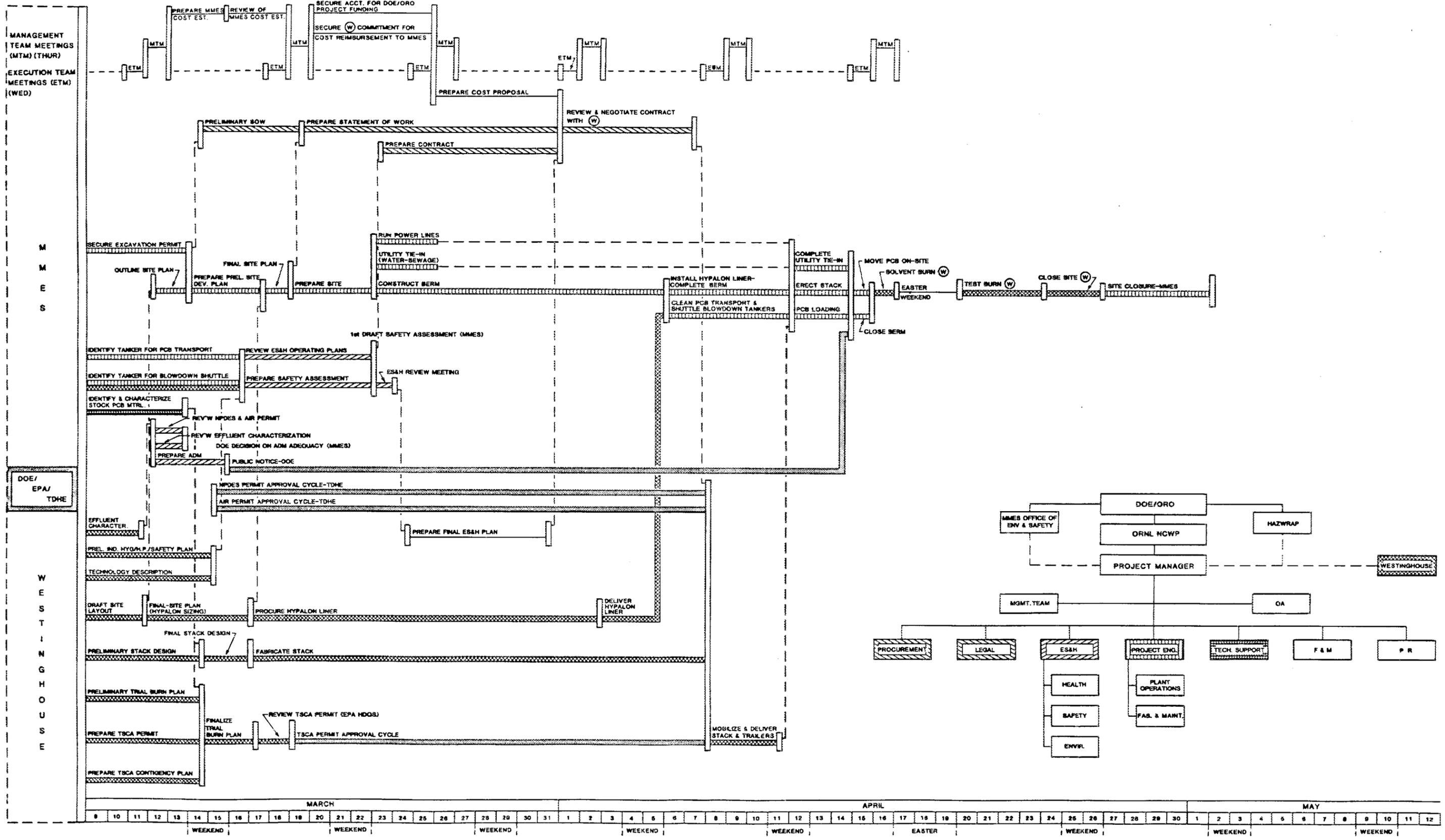


^aDual capacity.

Fig. 16. Organization chart showing composition and responsibilities of Demonstration Management Team.

5.3. Attachment 3. EXAMPLE OF SCHEDULE NETWORK
FOR WASTE MANAGEMENT DEMONSTRATION PROJECT

ATTACHMENT 3. SCHEDULE NETWORK
WESTINGHOUSE PLASMA SYSTEMS PYROPLASMA DEMONSTRATION PROJECT



5.4. Attachment 4. ENERGY SYSTEMS' CHAIN OF COMMAND
FOR THE OPERATION OF AN ON-SITE WASTE MANAGEMENT
TECHNOLOGY DEMONSTRATION PROJECT

5.4. ENERGY SYSTEMS' CHAIN OF COMMAND FOR THE OPERATION OF AN ON-SITE TECHNOLOGY DEMONSTRATION

The Project Manager should consult with the Plant Manager and develop a chain of command for the operation of the process demonstration at the plant site. This chain of command must be established and clearly understood by all parties connected with the demonstration because:

1. The plant manager has the ultimate responsibility for activities conducted on the plant site.
2. It identifies a chain of authority and responsibility for ensuring that the demonstration is conducted in a safe manner and in accordance with applicable regulations, DOE Orders, and Energy Systems policies.
3. In the event of upset operations, it delineates a chain of authority that can order a shutdown of the demonstration operation (if necessary) and implement the needed corrective measures.

A suggested chain of command in descending order of authority is as follows:

1. Plant Manager,
2. Site Shift Superintendent(s),
3. Site Safety Officer(s) assigned to the demonstration,
4. Project Manager, and
5. Demonstration Site Engineer.

The Project Manager should ensure that the vendor and its subcontractor(s) also develop and document similar chains of command for their activities related to the operation of the demonstration. The individual command structures developed above should be integrated to yield a single chain of command, with the Plant Manager having the ultimate responsibility and authority for the demonstration operation at the plant site. The Project Manager must ensure that all parties connected with the demonstration agree to abide by directions provided by the chain of command for the demonstration.

Implicit in the Energy Systems' chain of command given above is DOE/ORO's authority for conducting the demonstration. Normally, DOE/ORO's decisions on conducting the demonstration will be conveyed through the Site Plant Manager. DOE/ORO's chain of command for shut-down decisions will be as follows (in descending order of authority): COTR for the site, DOE/ES&H, Waste Management, followed by other DOE/ORO divisions as designated by the COTR for the site.

5.5. Attachment 5. LIST OF ACRONYMS AND ABBREVIATIONS

LIST OF ACRONYMS AND ABBREVIATIONS

Acct.	account
ADM	Action Description Memorandum
att.	attachment
Cent.	Central
Character.	characterization
COTR	Contracting Officer's Technical Representative
DAC	Demonstration Acceptance Committee
demo	demonstration
Demo Proj. Mgr.	Demonstration Project Manager
Demos. Mgr.	Demonstrations Manager
Dev.	Development
Div.	Division
DOE	U.S. Department of Energy
DOE/ORO	Department of Energy/Oak Ridge Operations
E	Demonstration Execution Team
EH&S	Environmental, Health, and Safety
Energy Systems	Martin Marietta Energy Systems, Inc.
Eng.	Engineering
Engr.	Engineer
eqpt.	equipment
ES	Energy Systems (see above)
E&SA	Environmental and Safety Activities
env.	environmental
Env. Coord.	Environmental Coordinator

Environ.	Environmental
EPA	U.S. Environmental Protection Agency
EPD	Environmental Protection Division
ES&H	Environmental, Safety, and Health
Est.	Estimate
Exec. Team	Execution Team
Fab. & Maint.	Fabrication and Maintenance
F&M	Finance and Materials
FMPC	Feed Materials Production Center
F/S/L	Federal/State/Local
FSAR	Final Safety Analysis Report
Hdqs.	Headquarters
H.P.	Health Physics
Hyg.	Hygiene
Ind.	Industrial
M	Demonstration Management Team
Mgmt. Team	Management Team
mgr.	manager
MMES	Martin Marietta Energy Systems, Inc.
mtrl.	material
NCWP	Nuclear and Chemical Waste Program
NPDES	National Pollutant Discharge Elimination System
ORGDP	Oak Ridge Gaseous Diffusion Plant
ORNL	Oak Ridge National Laboratory
OSR	Operational Safety Requirements

PCB	Polychlorinated biphenyl
PGDP	Paducah Gaseous Diffusion Plant
Plt. Mgr.	Plant Manager
PM	Project Manager
PoGDP	Portsmouth Gaseous Diffusion Plant
PR	Public Relations
Prel.	Preliminary
Prep.	Preparation
QA	Quality Assurance
R&D	Research and Development
RCRA	Resource Conservation and Recovery Act
RD&D	Research, Development, and Demonstration
regs.	regulations
rep.	representative
Rev'w.	review
RFP	Request for Proposals
SA	Safety Assessment
S&H	Safety and Health
SOW	Statement of Work
TDHE	Tennessee Department of Health and Environment
tech.	technology
TSCA	Toxic Substances Control Act
W	Westinghouse Plasma Systems
WM	Waste Management
WMTC	Waste Management Technology Center

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