

2-10-94

## CAPITAL ASSET MANAGEMENT PROCESS

1. PURPOSE. To establish policy and responsibilities for the management of Department of Energy (DOE) assets; for prioritization of asset resource requirements; for implementing the Condition Assessment Survey (CAS); and for preparing the Capital Asset Management Process (CAMP) Report.
2. CANCELLATION. DOE 4320. 2, CAPITAL ASSET MANAGEMENT PROGRAM, of 3-13-92.
3. SCOPE. This Order applies to assets DOE owns, leases, or controls for production, operation, research, development, or demonstration; except for the exclusions stated below or as otherwise provided by statute or by separate delegation of authority from the Secretary of Energy. The provisions of this Order apply to all Departmental Elements and to covered contractors to the extent implemented under a contract or other agreement. A covered contractor is a seller of supplies or services under a management and operating contract. All paragraphs of this Order are to be applied to covered contracts except paragraph 8.
4. EXCLUSIONS.
  - a. This Order does not apply to assets entirely controlled and maintained by the General Services Administration (GSA), and the Naval Petroleum Reserves in California.
  - b. Executive Order 12344, (Order), Title 10 Code of Federal Regulations (CFR) 445.1 *et seq.*, reprinted in Title 42 United States Code (U. S. C.) § 7158 note, establishes the responsibilities and authority of the Director, Naval Nuclear Propulsion Program, Office of Nuclear Energy, over all facilities and activities that comprise the joint Navy-DOE program. In view of the unique nature of Naval nuclear propulsion applications, the Director shall determine the appropriate maintenance and repair criteria applicable to this program's property and activities. Such determination shall include consideration of appropriate parts of the criteria set forth in this Order. Public Law (P. L.) 98-525, Title XVI, § 1634, directs that provisions of this Order pertaining to the Naval Nuclear Propulsion Program shall remain in force until changed by law.
  - c. In accordance with Section 302 of the Department of Energy Organization Act of 1977 (P. L. 95-91, 91 Stat. 578), the Secretary operates and maintains the Power Marketing Administrations (PMA) electric power transmission systems by

and through the PMA Administrator. The PMAs have maintenance management programs in place that are geared to the special needs of utility operations, responsive to coordinated multi-utility system requirements, and in conformance with prudent utility practices. Administrators shall determine the appropriate maintenance management program for their facilities including consideration of appropriate parts of the criteria set forth by this Order.

5. REFERENCES AND DEFINITIONS. See Attachment 1.
6. POLICY. Assets shall be managed in a manner demonstrating good stewardship, sufficient to ensure facility preservation and to ensure safe, secure, environmentally sound, and cost-effective operations. Assets shall be maintained in accordance with policies and practices that reflect Departmental standards and national priorities. In addition, prioritization of asset projects shall be objectively determined on the basis of sound, traceable engineering and industry practices, and management judgment.
7. OBJECTIVES.
  - a. Provide a credible, standardized and auditable process that is objectively and consistently applied DOE-wide to assess asset conditions, identify and prioritize corrective actions, allocate resources, and establish schedules. Implement this process in a cost-effective manner in full consultation with the appropriate Secretarial Officers and related parties.
  - b. Ensure responsibility, authority, and accountability for management of DOE assets are clearly defined and appropriately assigned.
  - c. Identify asset maintenance and technical support requirements.
  - d. Provide asset management tools such as CAS, Life Cycle Plans (LCPs), the Project Prioritization Process, and the Site CAMP Report. These tools serve to effectively and efficiently plan and budget projects consistent with anticipated missions.
  - e. Provide asset managers with a comprehensive look at the condition of their asset inventory and serve as a vehicle to effectively plan and prioritize projects.
  - f. Ensure assets needed to meet future and assigned missions are sustained in appropriate condition.
  - g. Provide a mechanism to develop Site CAMP Reports that document the results of the process described in this Order. The Site CAMP Reports support budget requests and are not budget documents in and of themselves.

8. RESPONSIBILITIES AND AUTHORITIES.

- a. The Secretary has overall responsibility and authority for CAMP and shall take necessary management actions, through the Associate Deputy Secretary for Field Management, to ensure that the Department's assets are effectively managed and maintained.
- b. The Associate Deputy Secretary for Field Management shall provide management direction and coordination in the development, implementation, and conduct of oversight of the comprehensive Departmental CAMP program, have the primary stewardship responsibility to implement CAMP policies and procedures in an effective manner, and shall:
  - (1) Advise the Office of the Secretary and Heads of Headquarters and Field Elements at least annually on the status of CAMP. In addition, provide recommendations as appropriate.
  - (2) Provide support to Departmental Elements on CAMP as required.
  - (3) Appoint the DOE CAMP Administrator to serve as the focal point for CAMP development and implementation, and direct the activities of the Planning and Analysis Group.
  - (4) Oversee a Planning and Analysis Group consisting of DOE and contractor representatives. The Planning and Analysis Group helps to ensure that the CAMP Order is consistently applied and observed throughout DOE. It also analyzes the results of the CAMP and provides feedback and recommends enhancements to improve CAMP, assists users with specific technical problems, and recommends changes to the CAMP Order. Additionally, the Planning and Analysis Group shall develop and maintain appropriate training and guidance materials (e.g., a CAMP Handbook) to assist users in applying the process and preparing the CAMP Report.
  - (5) Provide management direction and coordination to develop and implement training for the policies and procedures of this Order.
  - (6) Develop, promulgate, and maintain all policies, procedures, and guidance materials necessary to implement and sustain an effective CAMP within the Department.
  - (7) Serve as the Departmental oversight body to ensure that CAMP is effectively implemented by Headquarters line management through the Field Elements and the sites.
  - (8) Issue the annual CAMP Call.
  - (9) Develop and maintain the CAS manuals, a Quality Assurance program for CAS, and Condition Assessment Information System (CAIS).
  - (10) Support CAS teams as appropriate and necessary.
  - (11) Provide liaison with Headquarters Elements.
  - (12) Provide annual program direction and guidance to field elements according to the schedule provided in the annual CAMP Call. This guidance shall include workload and strategic planning assumptions necessary for the preparation of Site CAMP Reports.
  - (13) Ensure that their organizations have the necessary resources and organizational structure to effectively manage assets consistent

with this and other related Orders.

- (14) Review Site CAMP Reports for consistency and adequacy. Ensure that performance trends are detected and used to develop optimum CAMP strategies.
- (15) Ensure budget proposals for field elements provide sufficient resources to implement and operate CAMP.
- (16) In coordination with Heads of Headquarters Elements, assure consistency and integration of CAMP reporting requirements with other facilities related Orders, including, for example, DOE 4330.4B, MAINTENANCE MANAGEMENT PROGRAM, DOE 4320.1B, SITE DEVELOPMENT PLANNING, and DOE 5100.3, FIELD BUDGET PROCESS.
- (17) Coordinate implementation of CAMP at Multi-Contractor and Multi-Program Sites to ensure consistency and minimize reporting requirements.

c. Heads of Headquarters Elements

- (1) Provide the budget for the assets required to meet mission assignments. In addition, Heads of Headquarters Elements shall take all actions necessary to meet their statutory responsibilities to maintain their program's assets in the most reasonable and economical manner possible.
- (2) Designate an organizational element specifically responsible for the program element CAMP.
- (3) Provide annual CAMP data requirements and instructions to the DOE CAMP Administrator to develop and release the consolidated CAMP Call.

d. Heads of Field Elements shall:

- (1) Ensure assets under their purview are managed consistent with this and other related Orders.

- (2) Provide for the assets required to meet mission assignments. In addition, Heads of Field Elements shall take all actions necessary to meet their responsibilities to maintain assets in the most reasonable and economical manner possible.
  - (3) Provide guidance and direction to site operating contractors consistent with this and other related orders. Assure existing and proposed site management and operating contracts include provisions to implement this Order. Include in a procurement request package, the appropriate Department of Energy Acquisition Regulations (DEAR).
  - (4) Ensure that Site CAMP Reports are prepared and provided to the appropriate Heads of Headquarters Elements in accordance with this Order, Headquarters guidance, and the schedule provided in the annual CAMP Call.
  - (5) Designate an organizational unit specifically responsible for the CAMP.
  - (6) Advise the responsible Headquarters Element of CAMP-related problems that may have significant site or Department level impact.
  - (7) Review Site CAMP Reports for consistency and adequacy. Ensure that performance trends are detected and used to develop optimum CAMP strategies.
  - (8) Ensure budget proposals for assigned functions provide sufficient resources to meet requirements identified in the Site CAMP Report, to implement and operate CAMP, and to address recommendations from the responsible Headquarters Element in the formulation of budget requests.
  - (9) Ensure appropriate maintenance issues for assets are addressed in the Site CAMP Report.
  - (10) Assure consistency and integration of CAMP reporting requirements with other facilities-related Orders, including, for example, DOE 4330.4B, MAINTENANCE MANAGEMENT PROGRAM; DOE 4320.1B, SITE DEVELOPMENT PLANNING; and DOE 5100.3, FIELD BUDGET PROCESS.
9. ASSISTANCE. Questions concerning this Order should be directed to Greg Coleman, FM-22, 202-586-4543.

#### REFERENCES

1. DOE 1300.2A, DEPARTMENT OF ENERGY STANDARDS PROGRAM, of 5-19-92, establishes general policy guidelines, authorities, and responsibilities for DOE standards programs and guidelines for participation in private sector standards organizations.
2. DOE 2200.6A, FINANCIAL ACCOUNTING, of 1-7-93, is the Accounting Handbook for the Department.
3. DOE 4320.1B, SITE DEVELOPMENT PLANNING, of 1-7-91, establishes policies and assigns responsibilities and authorities for the planning and development of DOE sites.
4. DOE 4300.1C, REAL PROPERTY MANAGEMENT, of 6-28-92, establishes Department wide policies and procedures for the acquisition, use, inventory, and disposal of real property or interests therein.
5. DOE 4330.2D IN-HOUSE ENERGY MANAGEMENT, of 5-18-92, prescribes policies and procedures, assigns responsibilities and authorities for the management of energy use in DOE facilities (owned and leased) and vehicles and equipment.
6. DOE 4330.4B, MAINTENANCE MANAGEMENT PROGRAM, of 2-10-94, establishes policy and objectives for the establishment of programs for the management and performance of cost-effective maintenance and repair of DOE property.
7. DOE 4700.1, PROJECT MANAGEMENT SYSTEM, of 3-6-87, Chapter III, "Configuration Management," is a project management tool designed to: (a) determine and control baselines; and (b) ensure and document that all components of a project interface both physically and functionally.
8. DOE 4700.3, GENERAL PLANT PROJECTS, of 9-16-91, establishes policies, responsibilities, and guidance for Headquarters offices and field elements for the budgeting, funding, and execution of general plant projects (GPP).
9. DOE 5000.1B, INSTITUTIONAL PLANNING BY MULTI PROGRAM LABORATORY, of 4-9-92, establishes policies regarding institutional planning, outlines general characteristics of a satisfactory planning process, defines Departmental responsibilities, and describes the relationship of the planning process to the oversight of laboratory exploratory research and development (R&D) and work for others.
10. DOE 5100.3, FIELD BUDGET PROCESS, of 8-23-84, provides requirements and procedures for the preparation and submission of field budget material required for preparation of the DOE budget.
11. DOE 5440.1E, NATIONAL ENVIRONMENTAL POLICY ACT COMPLIANCE PROGRAM, of 11-10-92, establishes internal responsibilities and procedures to implement the National Environmental Policy Act of 1969 (NEPA).

12. DOE 5480.1B, ENVIRONMENT, SAFETY, AND HEALTH PROGRAM FOR DEPARTMENT OF ENERGY OPERATIONS, of 9-23-86, establishes the Environment, Safety, and Health (ES&H) Program for DOE operations.
13. DOE 5480.19, CONDUCT OF OPERATIONS REQUIREMENTS FOR DOE FACILITIES, of 7-9-90, provides requirements and guidelines in developing directives, plans, and/or procedures relating to the conduct of operations at DOE facilities.
14. DOE 5483.1A, OCCUPATIONAL SAFETY AND HEALTH PROGRAM FOR DOE CONTRACTOR EMPLOYEES AT GOVERNMENT-OWNED CONTRACTOR-OPERATED FACILITIES, of 6-22-83, establishes requirements and procedures to ensure occupational safety and health standards pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, and DOE Organization Act of 1977, provide occupational safety and health protection for DOE contractor employees in Government-owned contractor-operated facilities. This protection is consistent with the protection afforded private industry employees by the occupational safety and health standards promulgated under the Occupational Safety & Health Act of 1970 (OSHA), P.L. 91-596, 84 Stat. 1590.
15. DOE 5632.6, PHYSICAL PROTECTION OF DOE PROPERTY AND UNCLASSIFIED FACILITIES, of 2-9-88, establishes DOE policies and procedures for the physical protection of DOE property and unclassified facilities, and establishes baseline physical protection requirements and standards for those interests.
16. DOE 5700.6C, QUALITY ASSURANCE, of 8-21-91, provides DOE policy, sets forth requirements, and assigns responsibilities for establishing, implementing, and maintaining plans and actions to assure quality achievement in DOE programs.
17. DOE 6430.1A, GENERAL DESIGN CRITERIA, of 4-6-89, provides general design criteria for use in the acquisition of the Department's facilities and establishes responsibilities and authorities for the development and maintenance of these criteria.

ABBREVIATIONS

ALARA - As Low As Reasonably Achievable

CAMP - Capital Asset Management Process

CAIS - Condition Assessment Information System

CAS - Condition Assessment Survey

CDR - Conceptual Design Report

CE - Capital Equipment

CFO - Chief Financial Officer

CFR - Code of Federal Regulations

D&D - Decontamination & Decommissioning

DOE - Department of Energy

ES&H - Environment, Safety & Health

FU - Functional Unit

FUBS - Functional Unit Breakdown Structure

FUDS - Functional Unit Data Sheet

GPP - General Plant Project

GSA - General Services Administration

IRB - Internal Review Budget

LCP - Life Cycle Plan

NEPA - National Environmental Policy Act of 1969

OMB - Office of Management & Budget

OSHA - Occupational Safety & Health Act of 1970

P. L. - Public Law

PMA - Power Marketing Administration

R&D - Research & Development

S&S - Safeguards & Security

SNM - Special Nuclear Material

TSA - Technical Safety Appraisal

U. S. C. - United States Code

### DEFINITIONS

1. ASSET. A tangible product of value, generally property or equipment, that has an anticipated service life of 2 years or more and a cost equal to or greater than \$5,000. (See DOE 2200.6A, FINANCIAL ACCOUNTING).
2. CAPITAL ASSET MANAGEMENT PROCESS. The standardized, auditable process for determining condition of DOE assets including forecasting life cycle events, and identifying, planning, and prioritizing activities necessary to meet the requirements.
3. CATEGORIES. The four major functional areas of consideration for project prioritization ranking. They are as follows:
  - a. health and safety
  - b. environment/waste management
  - c. safeguards and security
  - d. programmatic
4. CONDITION ASSESSMENT INFORMATION SYSTEM. The Condition Assessment Information System (CAIS) is an electronic database providing descriptive information on the material condition of a site's assets.
5. CONDITION ASSESSMENT SURVEY. A periodic systematic inspection process to determine asset conditions using universally accepted methods and standards. A CAS results in a determination of the current condition of assets, their estimated time to failure, and the estimated cost to correct the identified deficiencies. These methods and standards will be found in the CAS Manuals discussed in Chapter II. CAS assesses the condition of all assets including architectural, structural, mechanical, civil, geotechnical and electrical features; communications, safety, and security systems; exterior features and grounds; and equipment. CAS provides a consistent assessment of assets for planning purposes based on actual conditions.
6. CRITERIA. Standard benchmarks for each major category and its respective subcategories on which a decision can be made for rating a specific problem/project.
7. FUNCTIONAL UNIT. A functional unit (FU) is comprised of an assembly of similar assets. The FUs shall be capable of being audited in terms of mission requirements and performance standards.
8. FUNCTIONAL UNIT BREAKDOWN STRUCTURE: The Functional Unit Breakdown Structure (FUBS) provides a method for identifying a site's FUs and establishing a framework for reporting on the Department's assets by FU. The FUBS is a series of FUs that include all assets and provides a logical hierarchical structure for identifying, summarizing, and justifying asset needs.

9. FUNCTIONAL UNIT DATA SHEET. The Functional Unit Data Sheet (FUDS) is a summary document containing the relevant data for a significant project in the life of a particular FU. (See Chapter 3, Attachment III-1)
10. HEADS OF HEADQUARTERS ELEMENTS. Senior program managers within a line organizational structure. For purposes of this Order, these positions include appropriate Secretarial Officers and Directors, and the Administrators of the Bonneville and Western Area Power Administrations.
11. LIFE-CYCLE PLAN. A Life-Cycle Plan (LCP) shows forecasted major activities in the life of an asset through final disposition.
12. LINE MANAGEMENT. The organizational chain of command responsible for carrying out Departmental policies and procedures. For purposes of this Order, line management flows from the Secretary through the Associate Deputy Secretary For Field Management to the Heads of Headquarters Elements, then to the Heads of Field Elements.
13. MAINTENANCE. Day-to-day work that is required to sustain property in a condition suitable for it to be used for its designated purpose and includes preventive, predictive, and corrective (repair) maintenance.
14. MAINTENANCE BACKLOG. The maintenance and repair work not accomplished that is still needed to sustain the assigned mission.
15. PROJECT. A project is the selected alternative listed and prioritized in the CAMP report for meeting an asset requirement. A project may involve a single asset or an entire functional unit. CAMP projects include significant maintenance; reduction of the site's existing maintenance backlog; CE; GPP; expense-funded line-item project development activities, such as conceptual design report (CDR) and NEPA activities, and construction activities; or line-item projects.
16. RANKING. Ordering of projects in terms of priority.
17. RATING. Estimate of the severity of a problem or assessment of a condition.
18. REMIEDIATION. Elimination of any problems remaining after decommissioning.
19. REPAIR. The restoration of failed or malfunctioning equipment, system, or facility to its intended function or design condition. Repair does not result in a significant extension of the expected useful life.
20. SECRETARIAL OFFICER. For purposes of this Order, a Secretarial Officer is a senior outlay program official and includes the following Assistant Secretaries: Defense Programs, Energy Efficiency and Renewable Energy, Environmental Restoration and Waste Management, and Fossil Energy, and the following Directors: Civilian Radioactive Waste Management, Energy Research, and Nuclear Energy.
21. SCORE. The numerical scale for the benchmark criteria in each category and subcategory.
22. SHALL. Denotes a requirement.
23. SHOULD. Denotes a recommendation.
24. SITE. Geographic entity consisting of land, buildings, structures and utilities that are or will be used to support one or more mission objective.

25. SITE CAMP REPORT. Combines the functional unit analysis of life-cycle plans (LCP) and supporting functional unit data sheet (FUDS) into a Site CAMP Report, that will be prepared annually and submitted in support of budget submittals to the appropriate Heads of Headquarters Elements and Field Management through the responsible Field Element. The Site CAMP report provides the narrative basis for evaluating and justifying funding requests for asset requirements.
26. SUBCATEGORIES. Functional characteristics/requirements for project prioritization ranking within the four major categories.

TABLE OF CONTENTS

	Page
CHAPTER I - ELEMENTS OF THE CAPITAL ASSET MANAGEMENT PROCESS	
1. INTRODUCTION . . . . .	I-1
2. PROCESS ELEMENTS . . . . .	I-1
a. Assign Capital Assets . . . . .	I-1
b. Receive Headquarter's Guidance . . . . .	I-1
c. Develop Life-Cycle Plans . . . . .	I-1
d. Identify Deficiencies/Requirements . . . . .	I-1
e. Evaluate Alternatives . . . . .	I-1
f. Identify Projects . . . . .	I-2
g. Prioritize Projects . . . . .	I-2
h. Prepare Site CAMP Report . . . . .	I-2
Attachment I-1. CAMP ANNUAL CYCLE OF EVENTS . . . . .	I-3
CHAPTER II - CONDITION ASSESSMENT SURVEY	
1. INTRODUCTION . . . . .	II-1
2. OBJECTIVE . . . . .	II-1
3. MAINTENANCE PROJECTIONS . . . . .	II-1
4. IMPLEMENTATION . . . . .	II-1
a. CAS Manuals . . . . .	II-2
b. Frequency of Inspections . . . . .	II-2
c. Use of CAIS. . . . .	II-2
d. Quality Assurance . . . . .	II-2
e. Inspector Training . . . . .	II-2
f. Formation of Specialized Inspection Teams . . . . .	II-2
g. Data From Other Inspection Systems . . . . .	II-3
h. Facility Information Centralization. . . . .	II-3
5. RESULTS . . . . .	II-3
a. Identification of deficiencies . . . . .	II-3
b. Identification of repairs . . . . .	II-3
c. Identification of technical or functional deficiencies . . . . .	II-3
d. Identification of technical or functional deficiencies . . . . .	II-3
CHAPTER III - SITE CAMP REPORT	
1. INTRODUCTION . . . . .	III-1
2. KEY ELEMENTS . . . . .	III-1
a. Basic Guidance . . . . .	III-1
b. Functional Units (FUs) . . . . .	III-2
Figure III-1 Summary Functional Unit Coding . . . . .	III-3
Figure III-2 Summary Functional Unit Breakdown Structure . . . . .	III-4
c. Life-Cycle Plans . . . . .	III-5
d. Functional Unit Level Analysis. . . . .	III-5
e. Identification of Projects . . . . .	III-6
f. Maintenance Plan . . . . .	III-7
g. Project Prioritization . . . . .	III-8
h. Functional Unit Data Sheet . . . . .	III-8
3. RESULTS. . . . .	III-8
a. The Site CAMP Report provides a site perspective summary . . . . .	III-8
b. The Site CAMP Report . . . . .	III-8
CHAPTER IV - CAPITAL ASSET MANAGEMENT PROCESS PRIORITIZATION	
1. INTRODUCTION . . . . .	IV-1
2. BACKGROUND . . . . .	IV-1
a. Development Basis . . . . .	IV-1
b. Universality . . . . .	IV-1

3.	APPROACH . . . . .	IV-1
a.	Steps . . . . .	IV-2
b.	Severity Rating Scale . . . . .	IV-2
c.	Benchmark Criteria . . . . .	IV-2
d.	Sample . . . . .	IV-2
e.	Initial Ranking . . . . .	IV-2
f.	Final Ranking . . . . .	IV-2
	Attachment IV-1 CATEGORY/SUBCATEGORY BENCHMARK CRITERIA . . . . .	IV-5
	Attachment IV-2 PROBABILITY AND FREQUENCY LANGUAGE . . . . .	IV-11
	Attachment IV-3 SAMPLE OF PROBLEM RATING, SCORING, AND RANKING . . . . .	IV-13
	INDEX . . . . .	i

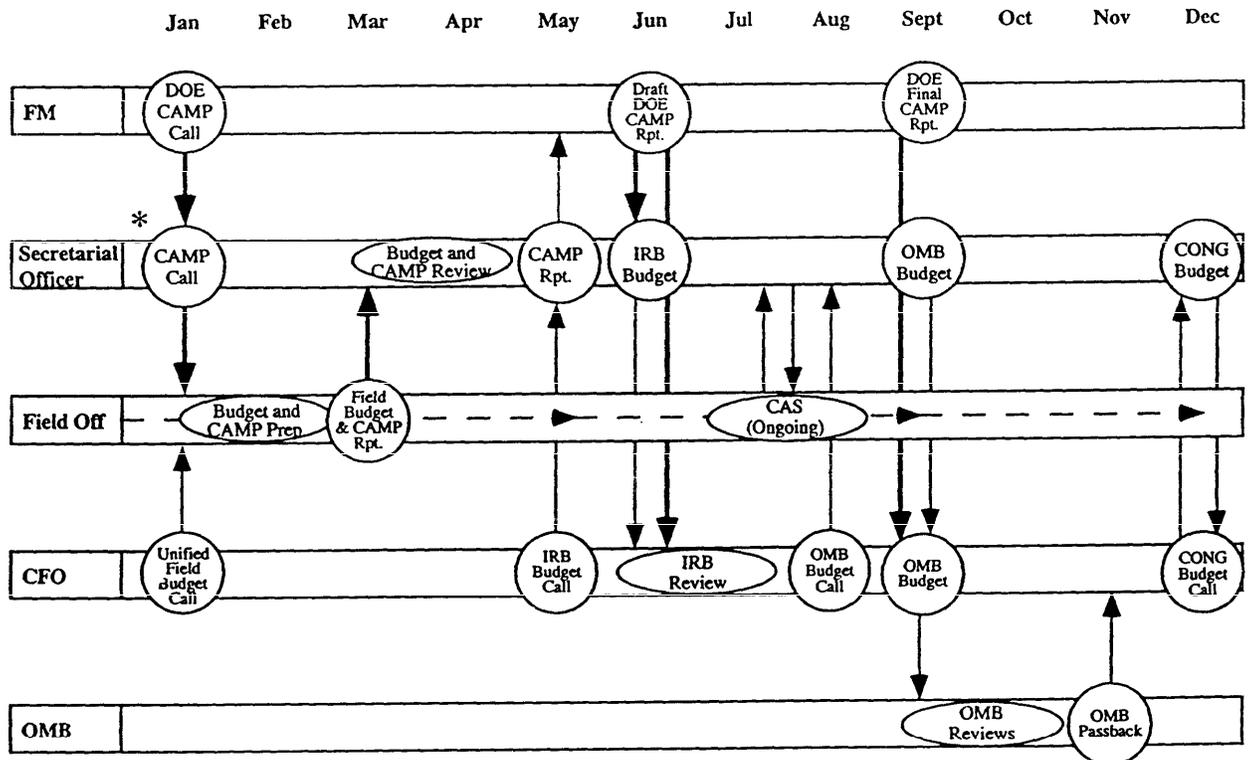
## CHAPTER I

### ELEMENTS OF THE CAPITAL ASSET MANAGEMENT PROCESS

1. INTRODUCTION. CAMP is a credible, consistent, auditable, and technically sound process for the Department to forecast, plan, and prioritize requirements for assets. CAMP provides an objective, rational basis for allocating budgeted resources for maintenance, repair, modification, reuse, and eventual replacement of assets required to meet site missions. CAMP is an effective and efficient mechanism that ensures compliance with applicable laws, regulations, and standards. The following paragraphs discuss each of the key elements of CAMP in a general, chronological order. A flow diagram illustrating the annual CAMP cycle is shown on Attachment I-1.
2. PROCESS ELEMENTS. CAMP is an integrated process and requires the performance of each of the following elements:
  - a. Assign Capital Assets. Assign each asset to an appropriate functional unit (FU). No asset may be assigned to more than one FU. The FU is the reporting level used by the Department in CAMP. This allows comparison of assets on a Departmentwide basis. Appropriate Secretarial Officers and sites may manage at levels other than FUs as desired. (See Chapter III.)
  - b. Receive Headquarter's Guidance. Heads of Headquarters Elements send multiyear strategic mission statements and program direction and guidance to the field at least annually. Additional guidance will also be provided in the annual CAMP Call. The CAMP Site Report shall incorporate this guidance. (See Chapter III.)
  - c. Develop Life-Cycle Plans. As appropriate, develop LCPs for assets based on life-cycle requirements to meet missions and prioritize projects to meet those requirements. These LCPs become part of the justification for the new projects. (See Chapter III.)
  - d. Identify Deficiencies/Requirements. The Condition Assessment Survey (CAS) identifies site asset deficiencies. CAS is also used as a tool to help meet the facilities inspection requirements of DOE 4330.4B, MAINTENANCE MANAGEMENT PROGRAM. The data captured from CAS is directly read into the Condition Assessment Information System (CAIS).
  - e. Evaluate Alternatives. Develop and evaluate alternatives for meeting the identified requirements. Alternatives may include, but are not limited to, maintenance, repair, modification, reuse, or replacement of existing assets, or construction of new assets. (See Chapter III.)

- f. Identify Projects. If the preferred alternative is identified as a project, develop rationale, scope, cost, and schedule.
- g. Prioritize Projects. Prioritize the projects by ranking scores to ensure the most cost-effective application of limited resources to meet the most critical needs. Sites shall validate, compare, and normalize initial project rating scores across the entire site without respect to the source or availability of funding. (See Chapter IV.)
- h. Prepare Site CAMP Report. Prepare the Site CAMP Report in accordance with the format and schedule provided in the CAMP Call. The Site CAMP Reports support budget requests but are not budget documents in and of themselves.

CAMP ANNUAL CYCLE OF EVENTS



\*NOTE: Secretarial Officers may issue internal CAMP calls on a different schedule.

CHAPTER 11  
CONDITION ASSESSMENT SURVEY

1. INTRODUCTION. The Condition Assessment Survey (CAS) is a systematic inspection process to determine asset conditions. This Chapter provides general information on CAS and the basic method for implementing CAS throughout the Department. The relationship to the Site CAMP Report is discussed in detail in Chapter III of this Order. Programmatic objectives of DOE 4330.4B, MAINTENANCE MANAGEMENT PROGRAM, call for facility condition inspections and Condition Assessment Surveys. CAS shall be performed within the context of this Chapter.
2. OBJECTIVE. The primary objective of CAS is to assist all DOE sites in assessing the condition of their assets. CAS is based on a set of consensus standards, methods, and technologies to conduct the surveys and to collect and disseminate the survey and inspection information. The information is assembled in a database (the Condition Assessment Information System (CAIS)) that provides basic information necessary for the maintenance and asset management programs. CAIS data is also used to compile the Site CAMP Report.
3. MAINTENANCE PROJECTIONS. Appropriate levels of maintenance can be projected for assets nearing the end of their useful lives. The identification of assets projected for disposal can trigger requests for planning support and design funding for replacement. Managers can use CAIS to project current deficiency data into the future. CAIS can assist in developing annual funding profiles for maintenance, repair, rehabilitation, or replacement of assets.
4. IMPLEMENTATION. The effective implementation of CAS depends on the following:
  - The systematic application of consistent standards for inspection,
  - Proper use of a graded approach agreed to by the specific site Operations Office and the appropriate Management and Operating (M&O) contractors,
  - The formation and training of inspection teams,
  - The application of quality assurance procedures,
  - The use of a flexible database, and
  - The exercise of consistent management oversight.

The following paragraphs outline DOE's approach to the implementation of CAS through the CAS Manuals:

- a. CAS Manuals. The CAS Manuals contain detailed information for field implementation of CAS. These Manuals provide a foundation for checklists and other information in CAIS to assist field inspectors in determining the condition of existing assets relative to industry standards. CAS manuals delineate standards and procedures for CAS inspection. They are designed to ensure that one site does not determine an asset as deficient when another site declares a like asset with similar problems as adequate. CAS standards and procedures shall be periodically updated in accordance with DOE 1300.2A, DEPARTMENT OF ENERGY STANDARDS PROGRAM. CAS Manuals may be augmented with such documents as DOE 6430.1A, GENERAL DESIGN CRITERIA, current OSHA and environmental regulations, specialized industry standards such as those defined by the Institute of Nuclear Power Operations, standards published by nationally recognized professional organizations, etc.
- b. Frequency of Inspections. The CAS Manuals recommend frequency of inspections by type of asset.
- c. Use of CAIS. The implementation of CAS requires the use of CAIS, database management software designed to store and manipulate basic levels of inspection data. The Associate Deputy Secretary for Field Management supports and maintains CAIS.
- d. Quality Assurance. CAS incorporates a quality assurance (QA) program to certify the credibility of the CAS process, and to ensure that routine inspections are performed by site personnel that reflect current standards and procedures. The Associate Deputy Secretary for Field Management shall maintain a QA program for CAS. The standards and procedures used shall be periodically evaluated against state-of-the-art engineering practice, procedures, and requirements to determine both the accuracy and applicability of the Department's CAS process.
- e. Inspector Training. The inspectors shall be trained in the use of DOE standards and procedures for developing consistent and accurate inspection results, and the use of special tools, equipment and software.
- f. Formation of Specialized Inspection Teams. Certain assets unique to DOE may require highly specialized techniques and equipment to perform periodic inspections. To minimize the cost of these anticipated frequent inspections, DOE may establish teams of specialists to inspect these assets at DOE sites. Variables that may affect the decision to use such teams include, but are not limited to, the following examples:
  - (1) Nuclear facility versus non-nuclear facility.
  - (2) The safety significance of nuclear facility systems.
  - (3) Active facility versus partially active or inactive facility.
  - (4) Short-term versus long-term facility mission.
  - (5) Modernization or Decontamination and Decommissioning plans.
  - (6) Lack of CAS standards.
- g. Data From Other Inspection Systems. CAIS should be used to incorporate the results of other specialized inspection programs that may contribute to the identification of asset related deficiencies. Some

examples are: OSHA inspections, preventive maintenance program findings, safety reviews, etc.

- h. Facility Information Centralization. CAIS is recommended as a central repository for facility information at the sites.
5. RESULTS. A systematically applied CAS assesses the condition of assets and their remaining useful life. CAS facilitates time-phased budgeting of maintenance, repair, rehabilitation, or replacement. CAS produces the following results:
- a. Identification of deficiencies found during the CAS inspection process that are classified as requiring recurring maintenance and that require the use of annually appropriated operating funds to correct.
  - b. Identification of repairs that require the use of operating or line item funds to correct.
  - c. Identification of technical or functional deficiencies for which maintenance or repair is not an acceptable solution, and therefore requiring modification, expansion, rehabilitation, improvement, etc., normally considered to be capital improvements to correct.
  - d. Identification of technical or functional deficiencies that require the complete replacement of the asset using General Plant Projects (GPP), Capital Equipment (CE), or Line Item (LI) funds, etc.

CHAPTER III  
SITE CAMP REPORT

1. INTRODUCTION. This chapter provides information and direction for the preparation of Site CAMP Reports. The Site CAMP Report provides consistent asset planning information from a comprehensive assessment of the condition of the site's assets. In addition, the Report provides a comprehensive assessment of the functional unit analysis of life-cycle plans to support asset funding requirements. In general, the Site CAMP Report provides DOE with a contractor's best estimate for projects, functional unit analysis of life-cycle plans, and a summary of the maintenance plans. The Site CAMP Report also summarizes maintenance and maintenance backlog issues at each site and helps to ensure repairs, rehabilitation, and replacement needs are identified, planned, and coordinated with other DOE facility-related initiatives and processes. Finally, the Site CAMP Report summarizes and documents the categories for project prioritization rating, i.e., health and safety, environment/waste management, safeguards and security, and programmatic projects and activities. (See Chapter IV for more details.) The Site CAMP Report supports budget requests but is not a budget document in and of itself. The CAMP Call will contain additional guidance for the Site CAMP Report as necessary.
2. KEY ELEMENTS. Key elements in the preparation of the Site CAMP Report are described below. The specific format of the Site CAMP Report is delivered in the annual CAMP Call and is supported by additional guidance developed by the CAMP Planning and Analysis Group (i.e., the CAMP Handbook).
  - a. Basic Guidance. Program direction derived from Headquarters multiyear and strategic planning guidance will be updated and issued annually by Heads of Headquarters Elements in time for the preparation of the Site CAMP Report. Each site shall submit a single report covering all assets of the site. The following guidance shall be used when preparing a Site CAMP Report:
    - (1) Assume that funding will be provided for maintenance, preservation, and projects essential for worker and public health and safety, satisfy Environment, Safety and Health (ES&H) requirements, satisfy Safeguards & Security (S&S) requirements, and meet mission requirements. Funding for activities that enhance or improve capabilities, but which are not essential for mission performance, may be provided on an available basis.
    - (2) Assume that the expected useful life of assets will be realized through reduction of the maintenance backlog, the application of appropriate elements of the maintenance programs, and the repair, replacement, and rehabilitation of assets as required. An asset's remaining useful life should be evaluated at a time interval that precludes unanticipated failures that necessitate the wholesale replacement of an asset.
    - (3) Assume that all applicable laws, regulations, and Departmental requirements will be met as a precondition of operations.
    - (4) The Site CAMP Report shall be prepared in accordance with a CAMP Call issued annually and updated to reflect the Department's strategic planning guidance. The CAMP Call provides specific instruction and typically contains the following:  
  
Report format,

- Schedules for submission,
- Significant project reporting guidance,
- Prioritization guidance,
- FUDS format,
- Appropriate software,
- Life-cycle planning guidance,
- Program specific guidance, and
- Planning horizon.

(5) The Site CAMP Report shall contain sitewide strategies to address common asset needs such as office buildings, training centers, roads, and basic infrastructure requirements. Significant differences between the present submission and the previous submission shall be addressed.

(6) The CAMP Administrator provides additional guidance as needed.

b. Functional Units (FUs). The assembly of assets into FUs in the CAMP Report is required to provide comparability across all DOE sites. The 30 FU codes listed in Figure III-1 shall be used for the Site CAMP Report. While assembly, analysis, planning, and reporting by FU is required for the Site CAMP Report, other planning units may be used by the sites to manage their facilities. FU assignments shall be capable of being reviewed to assure consistency with DOE guidelines. The FU Breakdown Structure (FUBS) provides a method for identifying the site's FUs and establishing a framework for reporting on the Department's assets by FU. The flexibility of the FUBS allows several levels for reporting, depending on the complexity of the site and the management requirements. A more detailed FUBS (see Figure III-2) provides a method for identifying the site's FUs and establishes a framework for identifying the site's FUs in a hierarchical structure. The third level is the level at which CAMP reporting normally occurs. Site personnel shall define the site's FU levels based on their operational needs and their need to identify and track planning at a particular level of detail. The guidance concerning preparation and format of the FUBS is contained in the additional materials provided by the CAMP Administrator.

<u>REPORTING LEVEL (3)</u>	<u>LEVEL 3 CODE*</u>
<b>BUILDINGS</b>	
Administrative	Code 10
Housing	Code 11
Storage	Code 12
Production	Code 13
Service	Code 14
Research & Development	Code 15
Reactor and Accelerator	Code 16
Other	Code 29
<b>STRUCTURES/UTILITIES</b>	
Transportation Systems	Code 30
Other Known Assets	Code 31
Research & Development	Code 32

Storage	Code 33
Industrial/Production/Process	Code 34
Service Structures	Code 35
Communication Type Systems	Code 36
Distribution Systems	Code 37
Reactor and Accelerator	Code 38
EQUIPMENT	
Heavy Mobile Equipment	Code 50
Hospital & Medical Equipment	Code 51
Laboratory Equipment	Code 52
Motor Vehicles and Aircraft	Code 53
Office Furniture and Equipment	Code 54
Process Equipment	Code 55
Railroad Rolling Stock	Code 56
Reactors and Accelerators	Code 57
Security and Protection Equipment	Code 58
Shop Equipment	Code 59
Automatic Data Processing Equipment & Software	Code 60
Portable Communications Electronic Equipment	Code 61
Miscellaneous Equipment	Code 79

\* FUs may be at reporting level (3) or below.

Figure III-1  
Summary Functional Unit Coding

Level 1, Site	Site □ XXXXX (5-digit installation ZIP code)		
Level 2	Area 1 □ YYY (Program or Funding Category) (Optional)		Area 2 □ ZZZ
Level 3, Functional Unit	Buildings	Structures & Utilities	Equipment
	Administrative □10	Transportation Systems□30	Heavy Mobile Equipment□50
	Housing□11	Misc. □31	Hospital /Med. □51
	Storage□12	R&D□32	Laboratory□52
	Production□13	Storage□33	Vehicles & Aircraft□53
	Service□14	Industrial / Production/ Process□34	Office Furniture & Equipment□54
	R&D□15	Service□35	Process□55
	Reactor & Accelerator□16	Communication Type Systems□36	Railroad Rolling Stock□56
	Other□29	Distribution Systems□37	Reactors & Accelerators□57
	Notes: 1. List all assets in each FU. 2. No asset may be listed in more than 1 FU.	Reactor & Accelerator□38	Security□58
			Shop□59
		ADP□60	
		Portable Comm. □61	
		Misc. □79	
Level 4 - 6, Subordinate FUs	As Needed & Defined by the Site (Optional)		

Figure III-2  
Summary Functional Unit Breakdown Structure

- c. Life-Cycle Plans. The Site CAMP Report requires an FU Level Analysis of LCPs. LCPs show forecasted major activities throughout the life of an asset, its maintenance and associated projects (LI, CE, GPP). An alternatives analysis for facilities, major equipment, and infrastructure requirements is performed. The LCP provides an overview of a specific asset and an assessment of the activities and resources needed to sustain it over its mission or asset life. LCPs contain a summary of all relevant costs.
- d. Functional Unit Level Analysis. An FU level analysis contains the following elements:
- (1) Planning Basis. The planning basis is a discussion that justifies the need and describes the life-cycle mission for the FU and its importance to the overall DOE operation. The planning basis shall also include any information necessary to explain proposed upgrade and improvement projects, a short analysis of recommended maintenance actions, and an overall assessment of the FU's material condition and its suitability for service or any resulting operational limitations. The planning basis shall be prepared by experts outside the site organization to objectively analyze and understand the proposed maintenance and capital investment requirements for the FU. The planning basis for the FU must contain, as appropriate, a discussion of the following factors:
    - Mission.
    - Relationship to other FUs, organizational, site, legal, regulatory, or other changes.
    - Material condition and expected remaining useful life based on applicable CAIS information.
    - Key activities and upgrades to achieve useful life projections.
    - ES&H and S&S upgrades.
    - Standby, transition surveillance and maintenance, or decontamination and decommissioning (D&D) activities.
  - (2) Description of Activities. The description of activities is a concise, narrative discussion of each of the activities identified in the planning basis (see paragraph 2d(1), above). The narratives of the activities shall be provided in chronological order. Information contained in the narratives shall include explanations of factors listed in the planning basis that influence a given activity.

- (3) Maintenance Issues. This element consists of a summary of the maintenance issues specific to the FU. Pertinent issues to be considered include the following:
- Significant preventive, corrective, and emergency maintenance activities.
  - Maintenance backlog and any actions planned to reduce the maintenance backlog.
  - Special or unusual funding requirements.
  - Other maintenance program concerns.
- e. Identification of Projects. Asset managers shall develop and evaluate alternatives for meeting each FU's requirements defined in its respective LCP or Functional Unit Level Analysis (See paragraph 2d, above). When the preferred alternatives are identified as projects, they shall include adequate scope, cost, and schedule information to allow prioritization in accordance with Chapter IV of this Order. Note the broad definition of projects in Attachment 1 of this Order.
- (1) Cutoff Level for Reporting of Projects. All significant projects that can reasonably be forecast for the life of an FU shall be reported. For CAMP, the following parameters shall be considered in determining whether or not a project is significant:
- The magnitude of the cost of a project.
  - The cost of the project relative to the replacement plant value of the asset or FU involved.
  - The impact of the project on the function of the asset or FU. For example, a relatively low cost project that is critical to continued operation may need to be reported, particularly if it will require an outage to accomplish.
  - The priority of the project as determined by the method described in Chapter IV of this Order.
- (2) Project Constraints. Project packaging (i.e., electrical deficiencies in several buildings of the same FU) is a tool that may be used to manage the correction of large numbers of deficiencies. It is also important that project schedules be critically examined and coordinated to avoid large, unmanageable "mortgage" requirements or large year-to-year variances in out-year funding requirements, that projects be executed on the most economical schedule, and that costs be realistic. Projects that are presented as "buy-ins" (low first-year costs with disproportionate out-year costs) or that have artificially extended and, consequently, less than optimum schedules are unacceptable. Judgment of the responsible site personnel is the essential ingredient in assuring compliance with these project constraints. Appropriate Secretarial Officers shall exercise oversight of projects.
- f. Maintenance Plan. A highlight summary of the maintenance plans produced in compliance with DOE 4330.4B, MAINTENANCE MANAGEMENT PROGRAM.
- g. Project Prioritization. A prioritized listing as appropriate of the site's projects, derived from the method discussed in Chapter IV of

this Order. The CAMP prioritization system is the only authorized system for rating and ranking DOE assets.

- h. Functional Unit Data Sheet. The Functional Unit Data Sheet (FUDS) is a summary document containing the relevant data for a significant project in the life of a particular FU.

3. RESULTS.

- a. The Site CAMP Report provides a site perspective summary of the condition of existing assets as related to the mission of the site.
- b. The Site CAMP Report, submitted to the Heads of Field Elements, represents the contractor's notification to DOE of the requirements for assets.

## CHAPTER IV

### CAPITAL ASSET MANAGEMENT PROCESS PRIORITIZATION

1. INTRODUCTION. Consistency throughout the Department in the prioritization, preparation, and submission of asset management resource requirements is a key element of the Capital Asset Management Process (CAMP). To achieve the desired consistency, all sites shall adopt the CAMP prioritization process discussed in this Chapter. The prioritization process is designed to rate and rank each project. The priority lists shall be updated annually. This process shall be used as a tool to help prioritize projects on a site wide, Field, and Headquarters (HQ) level.
2. BACKGROUND. The CAMP prioritization process is a systematic, structured, and consistent method for determining the preferred order for allocating limited resources to solve problems. This process prioritizes the problems (events, conditions, situations, requirements, etc.) that projects are intended to address. Other methods and techniques are used to assess the appropriateness or readiness of a project; examples are: value engineering, justification reviews, and project validations. For the purposes of this chapter, problems and projects can be thought of as interchangeable in the prioritization process.
  - a. Development Basis. The CAMP prioritization process was developed on the basis of risk management and reflects the values and culture of the Department. The prioritization criteria consist of the two elements of risk--consequence and probability. They are combined in the criteria statements and are influenced by the terminology and expressions commonly used by the people who work with the various rating criteria categories. The scores represent the risk-consequence and probability of occurrence based on the descriptions under each rating criteria. The rating criteria were developed and positioned based on Departmental intentions and public expectations, appropriate standard industrial practices, and represent the desired level of operational conduct (see Attachment IV-1).
  - b. Universality. The CAMP prioritization process is universal, encompassing four major categories: (1) health and safety; (2) environment/waste management; (3) safeguards and security; and (4) programmatic. The process provides for expansion, change, and improvements. Further, it can easily accommodate ratings derived from other prioritization systems, as long as the ratings reflect the same values and culture. The rating criteria and scoring process are contained in the Attachments to this Chapter and shall be maintained by HQ. Any changes to the prioritization process will be transmitted with the annual CAMP Call.
3. APPROACH. The problem-rating criteria within each of the four major categories and their subcategories are aligned along a scoring scale so that they represent the same severity or priority. Therefore, any rating score in one category or subcategory represents the same problem severity as the same numerical rating score in any other category. This alignment of criteria is crucial to achieve an equivalent, integrated ranking between dissimilar problems or projects.
  - a. Steps. The CAMP prioritization process consists of four steps: (1) rating; (2) scoring; (3) initial ranking; and (4) final ranking. It is vital that bias be minimized. To this end, ratings are normalized in each step of the consolidation review process (i.e., from facility, to site, to Operations Office, to HQ Program Office). This ensures consistency, equitable application of ratings, and fair and

accurate comparisons and rankings. The process for developing a total score for each problem/project gives greatest emphasis to the most severe rating, but also recognizes that some problems have multiple dimensions. The process therefore should duly reflect their contributions.

- b. Severity Rating Scale. The problem severity ratings span a scale from 20 to 80. The scale could have been infinite, but the two ends were collapsed for ease of use.
- c. Benchmark Criteria. To assist in assigning major category ratings, benchmark criteria are given for a number of subcategories under each major category. Subcategory benchmark criteria are shown in Attachment IV-1. The subcategories enable project sponsors to rate problems with reference to specific technical and managerial benchmarks, as a guide to accurate rating. The probability and frequency languages used in the benchmark rating criteria for all four major categories and their respective subcategories are outlined in Attachment IV-2.
- d. Sample. A sample of an application of the rating and ranking process is presented in Attachment IV-3.
- e. Initial Ranking. Rank initially in descending order according to total rating score. The highest rating score, therefore, is the highest ranked priority. (Note: As previously stated, the benchmarks are defined so that a numeric rating on any scale denotes problem severity equal to the severity of the same numeric rating on any other scale.) For instance, a problem rating of 52 in the Programmatic Category is as important as a problem rating of 52 on the Health & Safety Category, by design. However, where two or more problems have identical overall problem ratings, their initial rankings shall be determined through a tie breaker by giving priority to each major category in the following order: Health & Safety; Environment/Waste Management; Safeguards and Security; and Programmatic.
- f. Final Ranking.
  - (1) Projects proposed to address the prioritized problems for out-years are seldom thoroughly defined at the time the 5-year plan is prepared and are best ranked according to the severity ratings of the problems they are to address. Once CDRs are completed, project cost, scope, and results are better defined. Nevertheless, projects should continue to be ranked primarily according to problem severity throughout the planning period. Management review of the initial ranking is important to ensure all considerations are reflected in the final ranking. Techniques such as pair-wise comparisons are useful. Supplemental information to adjust rankings may include cost, problem improvement or severity reduction (rating reduction effected by the project), scope, readiness of a project, etc. Whether and how supplemental information modifies an installation's initial ranking is left to local discretion.
  - (2) Rankings may be done for all the problems/projects in the 5-year planning period and then organized into individual fiscal year rankings or ranked initially by year. Because of budget formulation considerations (e.g., funding limitations, project readiness, consolidation of like projects, etc.), actual project budget submissions could result in modifying the order of the yearly rankings.

CATEGORY/SUBCATEGORY BENCHMARK CRITERIA

Major Category Rating Criteria				
Score	I. Health & Safety	II. Environment	III. Safeguards & Security	IV. Programmatic
10	Acceptable risk; minor incidents unlikely	In compliance; working towards ALARA	Minor problems unlikely	Minor problems unlikely
20	Minor incidents slightly likely	Consistently in compliance; violations extremely unlikely	Routinely secure with acceptable risk	Adequate with acceptable risk
30	Minor incidents moderately likely; serious incidents unlikely	Routinely in compliance; low-impact violations are the exception; no offsite concern	Routinely secure with some minor problems	Adequate with some minor problems
40	Minor incidents moderately likely; serious incidents slightly likely	Occasional violations of moderate consequence	Modest threat to classified information, technology, and parts (moderately likely)	Adequacy in question with many minor problems
50	Minor incidents likely; serious incidents moderately likely	Frequent problems of moderate consequence; occasional serious problems; moderate offsite concern	Serious threat to classified information, technology, property, and parts (moderately likely)	Mission accomplishment at moderate risk
60	Serious incidents likely; fatalities unlikely	Consistently have problems of moderate consequence; frequent serious problems	Serious threat to SNM/tritium or personnel (moderately likely)	Mission accomplishment at high risk
70	Serious incidents highly likely; fatalities moderately likely	Highly likely large and uncontrolled contamination/release to offsite areas with lasting serious environmental impact	Extreme threat to SNM or personnel (moderately likely); extreme threat to classified information, technology, property, and parts (highly likely)	Critical/strategic mission accomplishment severely impacted or shut down
80	Highly likely life-threatening situation		Extreme threat to SNM or personnel (highly likely)	

CATEGORY/SUBCATEGORY BENCHMARK CRITERIA  
(cont.)

1. HEALTH & SAFETY RATING CRITERIA - SUBCATEGORIES									
Score	Regulatory Compliance	Best Management Practice	Special Action/Team Findings	Technological Base (R&D)	Industrial Hygiene	Industrial Safety	Fire Protection	Health Physics	Criticality
10	Always in compliance with high margin	No concerns			Extremely effective program to limit exposure ALARA	No concerns, with rare minor incidents	Very low probability of worker injury	No exposure to public or employees	Event essentially impossible
20	In compliance, but upcoming problems slightly likely	No intervention at present, but upcoming action possible	TSA Priority 3; Tiger Team Priority 4	Develop new technology in support of mission and national objectives; long-term probability of success and/or high risk	Very effective program to limit exposure below standards	Few concerns, with occasional minor incidents	Property loss extremely unlikely or of trivial value		Deviation - minor change from approved conditions or procedures (Category 1)
30	Consistently in compliance with occasional minor deviation	Some minor concerns/recommendations		Develop new approaches, techniques, and methods to improve operations	Routine acceptable performance in maintaining exposure at/below standards	Meeting established internal objectives	Standards, procedures, protection, with acceptable risk; property losses expected	Moderate exposure to the public; 1-5 REM/yr; exposure to workers up to 1 REM/yr; moderately likely	Infraction - significant change from approved conditions or procedures, but no realistic way to cause a criticality (Category 2)
40	Frequent minor violations	Many minor concerns/recommendations	Tiger Team Priority 3	Develop new methods to improve/enhance health & safety capability and efficiency; intermediate probability of success and/or low risk	Prevent against violation of exposure standards only through administrative controls	Minor injuries exceed goals	Events with minor injury likely		Event with probability approximately 10 <sup>-3</sup>
50	Frequently in compliance, but serious violations occasionally occur	Some significant concerns/recommendations; violation of internal standards;	Tiger Team Priority 2	Develop new methods to improve/enhance health & safety capabilities and efficiency; short-term probability of success and/or low risk	Frequent violation of exposure standards - no controls available	Minor injuries frequent, or occasional serious injuries	Serious injury moderately likely; Standard Industrial protection; occasional	Continuous low-level exposure to the public likely (1-10 REM/yr); high exposure to workers	
60	Violations frequent, or some continuing minor deviations, shutdown possible	Mandated fixes and schedules due to significant problems; likely suspension of operations pending action	TSA Priority 2	Develop necessary methods, processes and techniques in support of critical health & safety objectives; short-term probability of success and/or low risk	Potential substantial danger to site personnel through exposure; near-term action required	Serious injuries frequent	Serious injury likely; significant property losses routine	exposure to the public likely (5-200 REM/yr); worker exposure above regulatory limits likely (5-10 REM/yr)	continuation of activity would significantly increase probability of criticality (Category 3)
70	Serious, life-threatening violations (on site personnel); shutdown assured		TSA Priority 1 Tiger Team Priority 1		Substantial danger to personnel; fatalities possible	Fatalities possible	Fatalities possible	Moderate exposure to public likely (1-5 REM/yr); worker fatality slightly likely	with possible possibility 10 <sup>-6</sup>
80	Highly likely life-threatening situation.				Highly likely life-threatening situation	Highly likely life-threatening situation	Highly likely life-threatening situation	Highly likely life-threatening situation	Criticality or near criticality (Categories 4 and 5)

CATEGORY/SUBCATEGORY BENCHMARK CRITERIA  
(cont.)

**II. ENVIRONMENT/WASTE MANAGEMENT RATING CRITERIA SUBCATEGORIES**

Score	Regulatory Compliance	Best Management Practice	Special Action/Team Findings	Technological Base (R&D)	Liquid Waste (Waste Management)	Solid Waste (Waste Management)	Airborne Pollutants (Waste Management)	Waste Minimization	Environmental Restoration	Corrective Activities
10	No violations	No concerns			No concerns	No concerns	No concerns	Process generates minimum waste using best engineering practice		
20	Consistently in compliance, but upcoming problems possible	No intervention at present, but upcoming action possible	Tiger Team Priority 4	Develop new technology in support of mission and national objectives; long-term probability of success and/or high	Effective transport/storage; treatment discharge meets requirements	Consistently meets requirements	Consistently meets requirements	Process generates relatively little waste	Decontamination and decommissioning (D&D) at sites with no present imperatives	
30	Consistently in compliance, with occasional minor deviations	Some minor concerns/recommendations		Develop new approaches, techniques and methodologies to improve operations	Occasional discharge exceeding material goals		missions currently within permitted levels, but hard to maintain	Process generates more waste than an efficient process	Remedial actions/D&D needed to reduce risk, promote compliance, or maintain mission continuity	
40	Frequent minor violations	Many minor concerns/recommendations; some significant concerns/recommendations	Tiger Team Priority 3	Develop new methodologies to improve/enhance health & safety capabilities and efficiencies; intermediate probability of success and/or medium risk	Occasional violation of discharge permit	Occasional inadequacy of permitted storage/handling/transport/packaging/disposal capacity	missions occasionally exceed permitted levels by a small amount			
50	Frequently in compliance, but serious violations occasionally occur	Violation of contractor standards; suspension of operations likely	Tiger Team Priority 2	Develop new methodologies to improve/enhance health & safety capabilities and efficiencies; short-term probability of success and/or low risk	Many or immediate violations	system capacity frequently inadequate	Emissions frequently exceed permitted levels, by a large amount	Process generates excessive waste	Remedial actions/D&D required by in-force agreements	Out-of-compliance with requirements, but no signed agreement
60	Serious violations frequent	Mandated fixes and schedules due to significant problems; likely suspension of operations pending action		Develop necessary methodologies, processes and techniques in support of critical environmental objectives; short-term probability of success and/or low risk	Lack of adequate storage/treatment/handling/transport/packaging facilities			Process generates waste that exceeds regulatory limits	Actions required as part of a signed interagency agreement	Actions required as part of a signed interagency agreement
70	Violation of law with potential serious civil or criminal problems		Tiger Team Priority 1				Emissions extremely high on occasion (not life-threatening)	Process generates excessive waste such that severe environmental impact is inevitable	Remedial actions/D&D required to protect from near-term risks	Actions needed within 1 year to prevent significant risks
80							Emissions dangerously high (life-threatening)			



CATEGORY/SUBCATEGORY BENCHMARK CRITERIA  
(cont.)

IV. PROGRAMMATIC RATING CRITERIA

Score	Compliance with Orders, Initiatives, and Directives	Best Management Practice	Technological Base (R&D)	Capability	Capacity	Quality	Physical Condition
10	Exceeds requirements	No concerns		State of the art to meet known future requirements	Exceeds requirements to support mission	Able to meet requirements; minor improvements possible	Like-new condition
20	In compliance, but upcoming problems slightly likely	no intervention at present, but upcoming action possible; IROR $\geq$ 20%	Develop new technology in support of mission and national objective; long-term probability of success and/or high risk	Process adequate to meet program mission requirements, but improvements warranted	viable for mission	Able to meet requirements; minor improvements possible	Good - performs to original specs with routine preventive maintenance; downtime does not affect operation/mission
30	Consistently in compliance, with occasional minor deviations	Some minor concerns/recommendations; IROR $\geq$ 50%	Develop new approaches, techniques, and methodologies to improve operations			Able to meet requirements; some significant improvements required	Adequate - meets mission, but cannot perform to all original specs, some corrective maintenance necessary
40		IROR $\geq$ 75%; Sane significant concerns/recommendations	Develop new methodologies to improve/enhance mission capability and efficiency; intermediate probability of success and/or medium risk	Can meet mission with problems likely	Viable for mission on schedule with overtime; problems moderately likely	Able to meet requirements; many significant improvements required	Fair - occasional substandard operation; repetitive corrective maintenance; can meet mission with minor problems
50	Frequently in compliance, but serious violations occasionally occur	Violation of internal standards; suspension of operations daily; IROR $\geq$ 100%	Develop new methodologies to improve/enhance mission capability and efficiency; short-term probability of success and/or low risk	Can meet mission with difficulty	On schedule with significant overtime	Unable to meet some requirements	Poor - consistent substandard performance; operations/mission threatened
60	Serious violations frequent, or many continuing minor deviations; shutdown possible	Mandated fixes and schedules due to significant problems; likely suspension of operations pending action	Develop necessary methodologies, processes, and techniques in support of critical programmatic objectives; short-term probability of success and/or low risk	Cannot meet mission; or unique capability in jeopardy	Inadequate capacity to support minimum requirements of mission	Unable to meet most requirements	Severely deteriorated; mission assignment at high risk
70				Critical/strategic mission capability does not exist			Critical/strategic facilities inoperable
80							

PROBABILITY AND FREQUENCY LANGUAGE

The probability and frequency languages used in the benchmark rating criteria for all four major categories and their respective subcategories have many different terms. The definitions of these terms are subject to different interpretations among the various potential users. To minimize misinterpretation, the probability and frequency languages, along with the respective algorithms, have been standardized. Those standards and their corresponding ranges are shown in the figures below.

Standardized Terms	Range (Events/Year)
Essentially Impossible	(<10 <sup>-8</sup> )
Extremely Unlikely	(10 <sup>-8</sup> -10 <sup>-6</sup> )
Unlikely	(10 <sup>-6</sup> -10 <sup>-3</sup> )
Slightly Likely	(0.001-0.01)
Possible	(0.01-0.1)
Moderately Likely	(0.1-0.4)
Likely	(0.4-0.7)
Highly Likely	(0.7-1.0)

Figure IV-1  
Probability Language

Standardized Terms & Synonyms	Frequency Range (Context Dependent)
Consistent(ly), continuous, almost always	>98% of the time
Routine(ly), generally	>90% of the time
Frequent(ly), often, common	12 to 120 per year
Many, numerous	10 to 100 per year
Some, several	5 to 50 per year
Occasional (ly), few	1 to 10 per year

Figure IV-2  
Frequency Language

SAMPLE OF PROBLEM RATING, SCORING, AND RANKING

1. PROBLEM. A nitrate recovery system is badly deteriorated, unreliable, less efficient than new technology, and incapable of meeting expected new liquid waste discharge regulations.
2. PROCEDURE. The highest single category rating score is identified. For each of the remaining three major categories, up to 3 points may be added. How many points are added depends on the nearness of the category rating to the highest category rating. Category ratings at or below 20 on the rating scale, or categories not rated, do not contribute to increasing the overall problem score. Category ratings higher than 20 add more points the closer they are to the highest category rating. The default level of 20 represents a satisfactory or adequate rating.

a. Rating.

- (1) First, assign a problem rating for each subcategory determined to be applicable and defensible in any or all of the major categories. This should be based on the projected condition of the problem at the time of correction. For a single subcategory, do this by finding a benchmark on the scale that most nearly describes the problem, then select its corresponding numerical rating score. Interpolations along the scoring scale between rating criteria benchmarks is appropriate.
- (2) Second, assign a rating for each major category that is defined as the highest single subcategory rating under that major category. Use a default rating of 20 for each major category for which no subcategory rating was initially assigned.

EXAMPLE:

<u>MAJOR CATEGORY</u>	<u>SUBCATEGORY</u>	<u>RATING</u>
Environmental /Waste Mgmt.	Regulatory Compliance	65
Environmental /Waste Mgmt.	Liquid Waste	62
Environmental /Waste Mgmt.	Waste Minimization	57
Programmatic	Physical Condition	53
Programmatic	Best Mgmt. Practice	35

b. Assign category ratings.

- (1) Health and Safety: 20 (default value for unrated categories);
- (2) Environmental /Waste Management: 65 (highest subcategory rating);
- (3) Safeguards and Security: 20 (default value for unrated categories);
- (4) Programmatic: 53 (highest subcategory rating).

3. SCORING. Compute the overall rating score.

EXAMPLE:

<u>MAJOR CATEGORY RATING</u>	<u>CALCULATION</u>	<u>POINTS</u>
Environmental /Waste Mgmt. (65)	65	= 65
Programmatic (53)	$3 \times (53-20)/(65-20) =$	2.2
Health and Safety (20)	$3 \times (20-20)/(65-20) =$	0*
Safeguards & Security (20)	$3 \times (20-20)/(65-20) =$	<u>0*</u>
	TOTAL	= 67.2

\*Shortcut Note: Unrated categories will always yield "0" points.

4. RANKING

- a. Rank initially according to problem rating. Suppose other proposed projects and their ratings are B (54), C (64), and D (68). The initial ranking is D (first priority), A (second priority), C (third priority), and B (last priority).
- b. Establish final ranking. The final ranking is derived from the initial ranking following management review that considers all possible factors, including problem improvement, problem scope, project cost, and project readiness.

INDEX

addition	2-5, III-1
asset	1-6, i, ii, I-1, II-1, II-2, II-3, III-1, III-2, III-4, III-5, III-6, IV-1
assets	1-5, 4, i, I-1, II-1, II-2, II-3, III-1, III-2, III-3, III-4, III-7
backlog	5, III-1, III-6
budget	2, 4, 5, 1, 3, 6, I-2, III-1, IV-3
CALS	3, 4, i, I-1, II-1, II-2, II-3, III-5
CAMP	1-5, 3, 5, 6, i, ii, I-1, I-2, I-3, II-1, III-1, III-2, III-3, III-5, III-6, III-7, IV-1, IV-2
CAMP call	3-5, I-1, I-2, III-1, III-2, IV-1
capital asset	1, 3, 4, i, ii, I-1, IV-1
capital asset management process	1, 3, 4, i, ii, I-1, IV-1
capital equipment	3, II-3
CAS	1-4, i, I-1, II-1, II-2, II-3
CDR	3, 5
CE	3, 5, II-3, III-5
CFO	3
CFR	1, 3
condition assessment information system	3, 4, I-1, II-1
condition assessment survey	1, 3, 4, i, I-1, II-1
construction	5, I-1
contractor	1, 3, 4, 2, III-1, III-7
contractors	1, 5, II-1
D&D	3, III-5
database	4, II-1, II-2
decommissioning	3, 5, II-3, III-5
deficiencies	4, i, I-1, II-3, III-6
ES&H	2, 3, III-1, III-5
exclusions	1
expansion	II-3, IV-1
extension	5
facility	2, 5, i, II-1, II-2, II-3, III-1, IV-2
Field Management	3, 5, 6, III-2
FU	3-5, I-1, III-2, III-4, III-5, III-6, III-7
FUBS	3, 4, III-2, III-3, 3
FUDS	3, 5, 6, III-2, III-7
functional unit	3-6, i, I-1, III-1, III-3, III-4, III-5, III-6, III-7
functional unit breakdown structure	3, 4, III-4
functional unit data sheet	3, 5, 6, i, III-7
FUs	4, i, I-1, III-2, III-3, III-4, III-5
general plant projects	1, II-3
GPP	1, 3, 5, II-3, III-5
improve	3, III-1
improvement	II-3, III-5, IV-3, IV-14
improvements	II-3, IV-1
inspection	4, i, I-1, II-1, II-2, II-3
inspections	i, II-1, II-2, II-3
inspectors	II-2
laboratory	1, 5, III-3, III-4
LCP	3, 5, 6, III-5, III-6
LCPs	2, I-1, III-5
LI	III-3, III-5
life cycle plan	3
life-cycle	5, 6, i, I-1, III-1, III-5
line item	II-3
maintenance	1, 2, 4, 5, 1, 2, 5, i, I-1, II-1, II-3, III-1, III-5, III-6, III-7
maintenance management	2, 4, 5, 1, I-1, II-1, III-7
mission	4, 5, 4-6, I-1, II-3, III-1, III-5, III-7, IV-5
modification	I-1, II-3
National Environmental Policy Act	1, 3
NEPA	1, 3, 5
prioritization	1, 2, 4, 6, i, ii, III-1, III-2, III-6, III-7, IV-1, IV-2
prioritize	2, i, I-1, I-2, IV-1
project	2, 1, 3-6, i, I-2, II-1, III-1, III-2, III-6, III-7, IV-1, IV-2, IV-3,

projects . . . 2, 1, 5, i, I-1, I-2, II-3, III-1, III-5, III-6, III-7, IV-1, IV-2, IV-14  
 IV-3, IV-14  
 property . . . . . 1, 2, 4, 5, IV-5  
 QA . . . . . II-2  
 quality assurance . . . . . 3, 2, i, II-1, II-2  
 ranking . . . . . 4-6, ii, I-2, III-7, IV-2, IV-3, IV-13, IV-14  
 rating . . . . . 4, 5, ii, I-2, III-1, III-7, IV-1, IV-2, IV-3, IV-5, IV-11, IV-13, IV-14  
 real property . . . . . 1  
 repair . . . . . 1, 5, I-1, II-1, II-3, III-1  
 replacement . . . . . I-1, II-1, II-3, III-1, III-6  
 reuse . . . . . I-1  
 S&S . . . . . 3, III-1, III-5  
 safeguards and security . . . . . 4, III-1, IV-1, IV-2, IV-13  
 schedule . . . . . 4, 5, I-2, III-6  
 Secretarial Officer . . . . . 5  
 shall . . . . . 1-5, 4, 6, I-1, I-2, II-1, II-2, III-1, III-2, III-5, III-6, III-7, IV-1, IV-2  
 should . . . . . 5, 6, II-3, III-1, IV-2, IV-3, IV-13  
 site 2, 4, 5, 1, 4-6, i, ii, I-1, I-2, II-1, II-2, III-1, III-2, III-4, III-5, III-6, III-7, IV-2  
 Site CAMP Report . . . . . 2, 5, 6, i, ii, I-2, II-1, III-1, III-2, III-5, III-7  
 Site CAMP Reports . . . . . 2, 4, 5, I-2, III-1  
 standards . . . . . 2, 1, 2, 4, I-1, II-1, II-2, II-3, IV-11  
 training . . . . . 3, i, II-1, II-2, III-2  
 upgrade . . . . . III-5