

U.S. Department of Energy
Washington, D.C.

ORDER

DOE O 430.1

Approved: 08-24-95
Review Date: 08-24-97

SUBJECT: LIFE CYCLE ASSET MANAGEMENT

Chg 1: 10-26-95

1. OBJECTIVES. The Department of Energy (DOE), in partnership with its contractors, shall plan, acquire, operate, maintain, and dispose of physical assets as valuable national resources. Stewardship of these physical assets shall be accomplished in a cost-effective manner to meet the DOE mission. This shall incorporate industry standards, a graded approach, and performance objective.
2. IMPLEMENTATION. This Order shall be implemented on a site-by-site basis through the establishment, by contract or financial assistance agreements, of site-specific performance criteria and a performance measurement system. The existing Orders listed below and already implemented in current contracts remain in effect until such incorporation takes place. Additionally, for specific facilities under the purview of the Defense Nuclear Facilities Safety Board, DOE 4330.46, MAINTENANCE MANAGEMENT PROGRAM, and DOE 6430.1A, GENERAL DESIGN CRITERIA, remain in effect until 10 CFR 830.340, MAINTENANCE MANAGEMENT, and DOE O 420, FACILITY SAFETY, for defense nuclear facilities are issued as finals by the Assistant Secretary for Environment, Safety, and Health. For sites not managed by a contractor, implementation shall occur when the responsible DOE organization has completed the development of appropriate performance measures.
3. CANCELLATION. The following directives are deleted or consolidated into this Order and shall be phased out as noted in paragraph 2:

DOE 1332.1A	UNIFORM REPORTING SYSTEM
DOE 4010.1A	VALUE ENGINEERING
DOE 4300.1C	REAL PROPERTY MANAGEMENT
DOE 4320.16	SITE DEVELOPMENT PLANNING
DOE 4320.2A	CAPITAL ASSET MANAGEMENT PROCESS
DOE 4330.4B	MAINTENANCE MANAGEMENT PROGRAM
DOE 4330.5	SURPLUS FACILITY TRANSFER
DOE 4540.1C	UTILITY ACQUISITION AND MANAGEMENT
DOE 4700.1	PROJECT MANAGEMENT SYSTEM
DOE 4700.3	GENERAL PLANT PROJECTS
DOE 4700.4	PROJECT MANAGER CERTIFICATION
DOE 5700.2D	COST ESTIMATING, ANALYSIS, AND STANDARDIZATION
DOE 6430.1A	GENERAL DESIGN CRITERIA

Vertical line denotes change.

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INITIATED BY:
Office of Field Management.

4. APPLICABILITY. This Order applies to all DOE elements except the Naval Reactors/Naval Nuclear Propulsion Program. This Order does not preclude issuance of program directions unrelated to asset management systems. While this Order applies to all the physical assets in DOE, there are additional requirements for special and nuclear facilities that are the responsibility of the Assistant Secretary for Environment, Safety, and Health to develop and maintain.
5. DEFINITIONS. See Attachment 1.
6. REQUIREMENTS.
 - a. DOE elements shall use a value-added, quality driven, graded approach to life-cycle asset management.
 - b. Every site shall be supported by a Headquarters program office that functions as the landlord. Landlords shall coordinate their facilities management activities to provide a consistent corporate approach to facilities management, especially at multi-program sites. At single program sites, the responsible program office shall perform the landlord responsibilities.
 - c. Assets management performance measures shall be based upon best industry practice and shall be commensurate with the value and importance of the asset using a graded approach.
 - d. Asset management performance measures shall ensure formal, comprehensive, integrated, documented planning, and control methods for the acquisition, use, maintenance, and disposal of physical assets, including real estate and energy and utilities. This shall address, but shall not be limited to, the following:
 - (1) A comprehensive land-use planning process with stakeholder involvement.
 - (2) The efficient and effective acquisition, management, and use of energy and utilities.
 - (3) The management of backlogs associated with maintenance, repair, and capital improvements.
 - (4) A method for the prioritization of infrastructure requirements.
 - (5) A method to declare assets surplus
 - e. The process for physical asset acquisition shall be an integrated, systematic approach that shall ensure, but shall not be limited to, the following:

- (1) Use of a comprehensive land-use process with stakeholder involvement.
- (2) Use of a process tool, such as value engineering, to improve efficiency and cost-effectiveness when analyzing physical asset acquisition.
- (3) Specification of the appropriate state, regional, or national building codes to which physical assets shall be designed and constructed.
- (4) Consideration of maintainability, operability, life-cycle costs, and configuration integrity in designs and acquisitions.
- (5) Consideration of current mission needs and an appropriate scope.
- (6) Use of a DOE-certified real estate specialist for the execution of real estate acquisitions.
- (7) A project management system based on effective management practices that is sufficiently flexible to allow for the size and complexity of the project. For line item projects, the following requirements are considered minimal:
 - (a) Prior to the commencement of conceptual design, include the following in project planning for approval:
 - 1 mission need,
 - 2 minimum technical functional requirements,
 - 3 proposed cost and schedule ranges,
 - 4 preliminary environmental strategy,
 - 5 identification of project technical and organizational interfaces, and
 - 6 integration with other projects and activities.
 - (b) Prior to the commencement of execution, include the following in project planning for approval:
 - 1 project objectives,
 - 2 scope, schedule, and cost baselines, including contingencies,
 - 3 life-cycle cost analysis,
 - 4 preliminary safety assessment,
 - 5 project controls, including baseline change control, change control thresholds, and statusing,
 - 6 completion of National Environmental Protection Act documentation prior to final commitment to an alternative,

- 7 verification of performance criteria through test and evaluation, and
 - 8 design alternatives.
- (c) Prior to operation, a plan for turnover of a facility shall be prepared; verification of performance criteria through test and evaluation shall be accomplished; and operational readiness shall be verified.
- f. The process for the operation and maintenance of physical assets shall ensure, as a minimum, the following:
 - (1) The identification, inventory, and periodic assessment of the condition of physical assets in the maintenance program.
 - (2) The establishment of requirements, budgets, and a work management system to maintain physical assets in a condition suitable for their intended use.
 - (3) The preventive, predictive, and corrective maintenance to ensure physical asset availability for planned use and/or proper disposition.
 - (4) A configuration management process to ensure the integrity of physical assets and system.
 - (5) The efficient and effective management and use of energy and utilities.
 - (6) A method for the prioritization of infrastructure requirements.
 - (7) The management of backlogs associated with maintenance, repair, and capital improvements.
- g. The process for the disposition of physical assets shall ensure, as a minimum, the following:
 - (1) The use of a signed agreement to document items and conditions when transferring assets between DOE program offices.
 - (2) The use of a DOE-certified real estate specialist to execute the disposal of real estate, including the disposal of DOE improvements without the underlying land.
 - (3) A method of timely identification and reporting of surplus assets.
 - (4) In addition, for nuclear facilities, as a minimum the following apply:
 - (a) The development of a decommissioning turnover plan.
 - (b) The development of a decontamination plan if appropriate for the facility.
 - (c) The completion of a deactivation readiness review.
- h. Utility services shall be acquired and disposed of through a DOE prime contract.
- i. The DOE corporate physical assets database shall be maintained as a complete, current inventory of the DOE physical assets. The

corporate database is Facilities Information Management System (FIMS).

- j. In the acquisition, operation, maintenance, and disposition of physical assets, DOE elements shall ensure that all applicable Federal, state, and local laws and regulations are followed.

7. RESPONSIBILITIES.

a. Secretary.

- (1) Authorizes actions to acquire title to or interest in real property by condemnation.
- (2) Accepts donations of physical assets from outside DOE.
- (3) Approves critical decisions on strategic systems.

b. Associate Deputy Secretary of Field Management.

- (1) With General Counsel and participation of field elements, jointly represents DOE consumer interests by intervening, or otherwise participating in, hearings or proceedings before utility regulating bodies, when these proceedings affect DOE operations.
- (2) With General Counsel and the Office of Clearance and Support, jointly reviews and approves documents for the acquisition and sale of utility services.
- (3) With DOE elements, coordinates the possible reuse of facilities that field elements report as excess.
- (4) In coordination with program offices and program offices with landlord responsibilities, takes the lead in verifying that field elements have the asset management performance criteria and measures in place to effectively oversee the contractors.
- (5) Provides technical assistance to the program offices, landlords, and field elements.
- (6) Coordinates among program offices and field elements to support an efficient, economic approach to physical asset management.
- (7) Manages the certification program for DOE real estate specialists.
- (8) Supports the planning and budgeting process for physical assets.
- (9) Sponsors and coordinates the Life-Cycle Asset Management Planning and Analysis Group.
- (10) Acts as the DOE point-of-contact for external activities and issues relating to life-cycle asset management.
- (11) Supports the Secretary in the strategic systems critical decision process.
- (12) Supports the development of Departmental performance

objectives.

- (13) Facilitates the assignment of the landlord program office responsibility.
- (14) Conducts independent cost assessments on strategic systems (or on other projects, as requested) to verify a sound basis for critical decision making that commits large expenditures of DOE resources.

c. Program Office.

- (1) Leads in defining, planning, and budgeting for program needs, including operations, facilities, and projects.
- (2) Leads in verifying that program objectives are met and is accountable to the Secretary for program direction and execution through the field element.
- (3) Notifies field elements of plans to close program facilities.
- (4) Coordinates with the Office of Field Management and field elements to support an efficient, economic approach to physical asset management.
- (5) Develops, documents, and maintains a system to prioritize the acquisition of programmatic physical assets, including upgrades.
- (6) Participates in the Life-Cycle Asset Management Planning and Analysis Group.
- (7) Supports or, if delegated, leads the critical decision process for strategic systems funded by the program.
- (8) Conducts reviews of field element performance, including design, scope, and cost peer reviews for program elements under their programmatic authority.
- (9) Issues policy relative to its programmatic planning, budgeting, and execution activities.
- (10) Leads in establishing and clearly stating expected program performance objectives and program performance criteria and supports the contracting officer in implementation of performance criteria for stated objectives.
- (11) Supports the Office of Field Management to verify that field elements have the asset management performance criteria and measures in place to effectively oversee programmatic facilities.
- (12) Supports, including funding, the field elements in the management of inactive and surplus program facilities that have not been transferred to the Office of Environmental Management.
- (13) For single program sites, performs responsibilities of the landlord.
- (14) For multi-program sites, provides support, including resources,

to the program performing the responsibilities of the landlord.

- (15) Leads oversight of field elements to ensure that performance criteria and measures are in place to effectively achieve program and project objectives related to the program office's programmatic authority.
- (16) Assumes the responsibilities of the field element for project management and physical asset management not delegated to the field element.

d. Program Office Designated as Landlord.

- (1) Supports DOE field element's management of site infrastructure by prioritizing and budgeting for real property needs in a manner consistent with current and planned site mission activities. For multi-program sites these responsibilities include coordination of funding requirements with other program offices.
- (2) Issues policy relative to its infrastructure planning and budgeting activities.
- (3) Leads in establishing infrastructure performance objectives and supports the contracting officer in developing performance criteria for the site.
- (4) Supports the Office of Field Management in verifying that field elements have asset management performance criteria and measures in place to effectively oversee nonprogrammatic facilities.
- (5) Leads reviews of field elements infrastructure activities, in coordination with the program offices and the Office of Field Management.
- (6) Develops, documents, and maintains a system to prioritize the acquisition of nonprogrammatic physical assets.
- (7) Supports, including funding, field elements in the management of inactive and surplus landlord facilities that have not been transferred to the Office of Environmental Management.
- (8) Supports or, if delegated, leads the critical decision process for strategic systems funded by the landlord.
- (9) Leads issue resolution between program offices regarding possible conflicts in planned infrastructure uses at multi-program sites.
- (10) Supports field elements in site-wide and external facilities management and infrastructure issues requiring Headquarters involvement.
- (11) Coordinates landlord facilities management activities with other DOE landlord programs to provide a consistent approach to landlord facilities management.

e. Field Elements.

- (1) Serve as contracting officers for site contracts and all other contracts and financial assistance agreements executed by field elements.
- (2) Prepare initial budget requests and planning for physical assets.
- (3) Obtain necessary approvals for projects from the sponsoring program offices including mission need and project baselines, as appropriate.
- (4) Oversee projects delegated to them and oversee those projects executed by contractors to verify requirements are met.
- (5) Notify the Office of Field Management of excess real property that has a significant remaining useful life.
- (6) Verify adequate management of inactive and surplus facilities until a reuse is found or the real property is disposed of.
- (7) Lead the verification of an efficient, economic approach to physical asset management in coordination with program offices and the Office of Field Management.
- (8) Participate in the DOE certification program for real estate specialists.
- (9) Participate in the Life-Cycle Asset Management Planning and Analysis Group.
- (10) Support the strategic systems critical decision process.
- (11) Support the program offices in development of performance criteria for program performance objectives and lead in implementing program criteria.
- (12) Lead in negotiating the performance criteria and measures with the contractor to meet the defined performance objectives.
- (13) Lead in evaluating the performance of the contractor against the performance measures in the contract.
- (14) Are accountable to the program offices and the Landlord program office for contractor performance.
- (15) Coordinate all review and external oversight activities of the contractors.
- (16) With General Counsel and the Office of Field Management, participate in the DOE's utility intervention process.
- (17) When project size and complexity warrants, conduct independent design, scope, and cost reviews.

8. ASSISTANCE. For answers to questions, contact the Office of Field Management at (202) 586-2850.

DEFINITIONS

1. Assets. See Physical Assets.
2. Asset Management Systems. Processes and/or procedures that are employed for non-programmatic management of a facility or physical asset.
3. Baseline. A quantitative expression of projected costs, schedule, and technical requirements; the established plan against which the status of resources and the progress of a project can be measured.
4. Certified Realty Specialist. A DOE employee that is certified in one or more of the four specialty realty areas: acquisition, non-GSA leasing, GSA leasing, and land management and disposal. Employees so certified may authorize or contract for real estate actions within certified specialty area(s).
5. Commencement of Execution. The beginning of the project phase that accomplishes development and remedial action/construction. This project phase advances the project from conceptual design to turnover to operations, through the execution of the design, construction/building-/remediation and acceptance of the project. During this project phase, preliminary design, detailed design and construction/remedial design and remedial actions take place.
6. Conceptual Design. The activities required to evaluate project design alternatives and to develop sufficient detail to baseline the scope, cost and schedule for project authorization.
7. Corporate Facilities. See DOE Facilities.
8. Corrective Maintenance. See Repair.
9. Critical Decision. A formal determination at a specific point in a project that allows the project to proceed. Critical decisions occur in the course of a project, for example: prior to commencement of conceptual design, commencement of execution and prior to turnover.
10. Disposal. Permanent or temporary transfer of DOE control and custody of real property to a third party who thereby acquires rights to control, use, or relinquish the property.
11. Disposition. Those activities that follow completion of program mission, including, but not limited to, stabilization, deactivation, decontamination, decommissioning, dismantlement, and/or reuse of physical assets.
12. DOE Elements. First tier organizations at Headquarters and in the field. Field elements include all operations offices, field offices, energy technology centers, and power marketing administrations.
13. DOE Facilities. Any of the DOE-owned, -leased, or -controlled facilities.
14. Excess. Physical assets that are not required for DOE needs and the discharge of its responsibilities.
15. Facilities. Land, buildings, and other structures, their functional

systems and equipment, and other fixed systems and equipment installed therein, including site development features outside the plant, such as landscaping, roads, walks, and parking areas; outside lighting and communication systems; central utility plants; utilities supply and distribution systems; and other physical plant features.

16. Facilities Management. A documented process by which facilities are operated and maintained.
17. Facility. The buildings, utilities, structures, and other land improvements associated with an operation or service and dedicated to a common function.
18. Graded Approach. The depth of detail required and the magnitude of resources expended for a particular management element to be tailored to be commensurate with the element's relative importance to safety, environmental compliance, safeguards and security, programmatic importance, magnitude of the hazard, financial impact, and/or other facility-specific requirements.
19. Infrastructure. All real property and installed equipment and personal property that is not solely supporting a single program mission.
20. Landlord Program Office. (Landlord) The Headquarters program office responsible for the support, planning, acquisition, operation, maintenance, and disposition of physical assets related to infrastructure.
21. Life-Cycle. The life of an asset from planning through acquisition, maintenance, operation, and disposition.
22. Line Item Project. Those separately identified project activities that are submitted for funding and are specifically reviewed and approved by Congress.
23. Maintenance. Day-to-day work, including preventive and predictive maintenance, that is required to maintain and preserve plant and capital equipment in a condition suitable for it to be used for its designated purpose.
24. Maintenance Backlog. The amount of maintenance and repair work not accomplished at the end of the fiscal year that is needed or planned to sustain the assigned mission.
25. Partnership. A process in which individual stakeholders create a team approach to achieve mutual goals and objectives or to resolve problems.
26. Performance Criteria. A condition or set of conditions that, when satisfied, indicate successful completion of the performance objective.
27. Performance Measures. Any evaluation, comparison, or judgement toward meeting the performance objective.
28. Performance Objective. A statement of wants, needs, and expectations of customers that sets the direction for all contract effort.
29. Personal Property. See Physical Assets.
30. Physical Assets. All DOE-owned or DOE-used and -controlled land, land

improvements, structures, utilities, motor vehicles, equipment, and components are included.

- a. Real Property or Real Estate. Real property includes land, improvements on the land, or both, including interests therein. All equipment or fixtures (such as plumbing, electrical, heating, built-in cabinets, and elevators) that are installed in a building in a more or less permanent manner or that are essential to its primary purpose are usually held to be part of real property.
 - b. Related Personal Property. Related personal property means any personal property that, once installed, becomes an integral part of the real property in which it is installed or is related to, designed for, or specially adapted to the functional or productive capacity of the real property. The removal of related personal property will significantly diminish the economic value of the real property or the related personal property. Examples of related personal property are communications and telephone systems.
 - c. Personal Property. Generally, capitalizable property that can be moved, or that is not permanently affixed to and part of real estate. Generally, items remain personal property if they can be removed without seriously damaging or diminishing the functional value of either the capitalizable property or the real estate. Examples of personal property are shop equipment and automated data processing and peripheral equipment.
31. Programmatic Management. Functions that include planning and developing the overall program; establishing broad priorities; providing program technical direction; preparing and defending the program budget; controlling milestones; integrating all components of the program; providing public and private sector policy liaison; expediting interface activities and follow-up actions; and retaining overall accountability for program success.
 32. Project. In general, a unique effort that supports a program mission with defined start and end points, undertaken to create a product, facility, or system with interdependent activities planned to meet a common objective/mission. Projects include planning and execution of construction/renovation/modification/environmental restoration or decontamination and decommissioning efforts, and large capital equipment or technology development activities. Tasks that do not include the above elements, such as basic research, grants, and operations and maintenance of facilities, are not considered projects.
 33. Property. See Physical Assets.
 34. Related Personal Property. See Physical Assets.
 35. 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.
 36. Site. A geographic entity comprising leased or owned land, buildings, and other structures required to perform program activities.
 37. Strategic System. (formerly Major Systems Acquisition) A special type of line item project(s) that is a single, stand-alone effort within a program mission area that is a primary means to advance the Department's

strategic goals. Designation of a strategic system is determined by the Secretary based on cost, risk factors, international implications, stakeholder interest, and/or national security.

38. Strategic System Critical Decision Process. See Critical Decision.
39. Surplus. Any facility that the responsible program office declares available for other use.
40. Utility. A system, or any of its components, that generates and/or distributes (via pipelines, wires, buses, or electromagnetic waves) a commodity or service to itself and/or to other facilities.
41. Utility Service. A service, such as the furnishing of electricity, natural gas, steam, water, and sewer service and the furnishing of appurtenant facilities and systems. Telecommunication services or the removal and disposal of garbage, rubbish, and trash are not included.

CANCELLED

42. Value-added. A decision-making process that leads to an improvement in an operation or process, based on effectiveness, efficiency, cost-effectiveness, safety, etc.
43. Value Engineering. An organized effort, directed by a person trained in value engineering (VE) techniques, to analyze the functions of systems, equipment, facilities, services, and supplies to achieve the essential functions at the lowest life-cycle cost that is consistent with required performance, reliability, availability, quality, and safety. (Terms such as value analysis, value control, value improvement, value management, and functional analysis are synonymous).

CANCELED