EM RECOVERY ACT PROGRAM

Portfolio Management Framework

Project Document No. RAPD-EM-09004
Revision 0
July 10, 2009

Creating Jobs through Environmental Cleanup, Nuclear Facility Decommissioning, and Radioactive Waste Disposal under the ***American Recovery & Reinvestment Act of 2009***

US Department of Energy
Office of Environmental Management
Washington, D.C.

Department of Energy
Washington, DC 20585

JUL 15 2009

MEMORANDUM FOR PAUL BOSCO
DIRECTOR
OFFICE OF ENGINEERING AND CONSTRUCTION MANAGEMENT

FROM: CYNTHIA V. ANDERSON
DEPUTY CHIEF OPERATIONS OFFICER FOR ENVIRONMENTAL MANAGEMENT

SUBJECT: Transmittal of Portfolio Management Framework Document for Office of Environmental Management (EM) Recovery Act Program

The purpose of this memorandum is to provide you the framework for managing the EM portfolio funded by the *American Recovery and Reinvestment Act of 2009* (Recovery Act). This new business model fully implements the requirements of DOE Order 413.3A Change 1, *Program and Project Management for the Acquisition of Capital Assets*. It was developed in close coordination with your staff, and incorporates several of the initiatives you are pursuing to improve project management across the Department.

As you know, EM is restructuring its portfolio of programs, projects, and activities in a manner that clearly differentiates capital asset projects from non-capital asset activities. As such, EM is transitioning away from designating an entire Project Baseline Summary (PBS) as a project. This new structure is being implemented on the EM Recovery Act Program (EMRAP), and will serve as the pilot for the balance of the EM program. I recognize that the framework will continue to evolve. As such, I welcome your feedback.

Mr. Rodrigo V. Rimando, Jr., EMRAP Federal Project Director, will continue to work with your staff as planning and execution continues on the EMRAP. If you have any questions, please contact me directly at 202-586-2083.

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Department of Energy
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JUL 15 2009

MEMORANDUM FOR DISTRIBUTION

FROM: CYNTHIA V. ANDERSON
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ENVIRONMENTAL MANAGEMENT

SUBJECT: Transmittal of Portfolio Management Framework Document for Office of Environmental Management (EM) Recovery Act Program

The purpose of this memorandum is to provide you the framework for managing our portfolio funded by the *American Recovery and Reinvestment Act of 2009* (Recovery Act). The attached document is provided so that you may immediately implement it on Recovery Act-funded work.

This new business model fully implements the requirements of DOE Order 413.3A Change 1, *Program and Project Management for the Acquisition of Capital Assets*. It was developed in close coordination with Office of Engineering and Construction Management and with input from your staff. It incorporates many of the Department's initiatives being undertaken to improve project management.

As you know, EM is restructuring its portfolio of programs, projects, and activities in a manner that clearly differentiates capital asset projects from non-capital asset activities. As such, EM is transitioning away from designating an entire Project Baseline Summary (PBS) as a project. This new structure is being immediately implemented on the EM Recovery Act Program (EMRAP), and serves as the pilot for the balance of the EM program. I recognize that the framework will continue to evolve. As such, I welcome your feedback.

Mr. Rodrigo (Rod) V. Rimando, Jr., EMRAP Federal Project Director, serves as the primary point of contact on this matter, and will continue to work with your staff as planning and execution continues on the EMRAP. He may be reached at 240-676-6470. Feel free to contact me directly at 202-586-2083.

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CHANGE SYNOPSIS

Revision	Effective Date	Summary of Change
0	July 10, 2009	Initial issue.

LIST OF ACRONYMS

ABB	analytical building block
AE	Acquisition Executive
ARRA	*American Recovery and Reinvestment Act of 2009*
B&R	budget and reporting
BCP	baseline change proposal
CD	critical decision
CERCLA	*Comprehensive Environmental Response, Compensation and Liability Act of 1980*
CFR	*U.S. Code of Federal Regulations*
CR	change request
CWBS	corporate work breakdown structure
DOD	[U.S.] Department of Defense
DOE	[U.S.] Department of Energy
ED&I	engineering, design, and inspection
EIR	external independent review
EM	Office of Environmental Management
EMRAP	Office of Environmental Management Recovery Act Program
EPA	[U.S.] Environmental Protection Agency
EVMS	earned value management system
FASAB	Federal Accounting Standards Advisory Board
FPD	Federal Project Director
GPP	general plant project
IAEA	International Atomic Energy Agency
IAP	integrated authorization process
IEEE	Institute of Electrical and Electronics Engineers
IFAM	Integrated Facility Aging Management [Program]
IGPP	institutional general plant project
IPABS-IS	Integrated Planning, Accountability, and Budgeting System - Information System
IPR	independent project review
INPO	Institute of Nuclear Power Operations
KPP	key performance parameter
M&O	management and operating [contract]
MIE	major item of equipment
MPR	Monthly Performance Review
NEI	Nuclear Energy Institute
NPL	National Priorities List
NTB	near-term baseline
NUREG	Nuclear Regulatory Commission guides
OECM	Office of Engineering and Construction Management
OMB	U.S. Office of Management and Budget
OPC	other project cost
OPER	out-year planning estimate range
PA&E	Office of Program Analysis and Evaluation
PARS	Project Assessment and Reporting System
PBS	Project Baseline Summary
PEP	project execution plan
PPA	programs, projects, and activities

PPE	plant, property and equipment
PRV	plant replacement value
R&D	research and development
RCRA	*Resource Conservation and Recovery Act of 1976*
SAE	Secretarial Acquisition Executive
SSC	safety structures, systems, and components
SFFAS	Statement of Federal Financial Accounting Standards
TEC	total estimated cost
TPC	total project cost
UMTRA	Uranium Mill Tailings Remedial Action
UMTRCA	*Uranium Mill Tailings Radiation Control Act of 1978*
US	United States [of America]
WBS	work breakdown structure

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1.0 INTRODUCTION

1.1 Reaffirmation of Mission Need

Pursuant to the *American Recovery and Reinvestment Act of 2009* (Recovery Act) and through execution of its core mission activities, the United States (US) Department of Energy's (DOE) Office of Environmental Management (EM) will save and create jobs in an effort to help rejuvenate and stabilize the US economy.

1.2 Purpose

This document describes the framework for applying the project management requirements in DOE Order (O) 413.3A, *Program and Project Management for the Acquisition of Capital Assets*, to the EM Recovery Act Program, or EMRAP. This framework includes strategies and methodologies for tailoring the requirements as allowed by the Order. Tailoring does not mean the omission of any DOE O 413.3A requirement or the re-sequencing of Critical Decisions[1]. Any required clarification on how to comply with DOE O 413.3A in a tailoring strategy must be coordinated with the Office of Engineering and Construction Management (OECM) through EM-Headquarters.

This document also describes a new framework for managing EM's portfolio of programs, projects and activities[2] (PPAs). This management construct differentiates capital asset projects from non-capital asset activities and programs, and is initially implemented for Recovery Act-funded PPAs. Over the course of the next 12 to 18 months, the balance of the EM PPAs that are funded annually by the *National Defense Authorization Act* (NDAA) will incrementally transition to this new business model.

1.3 Target Audience

The primary audience of this document is the Federal and contractor staff of DOE who are directly executing or supporting Recovery Act-funded EM work. This document is also intended to address a broader audience, including stakeholders, government officials, government oversight agencies, private entities, advocacy groups, and members of the public who may be interested in DOE's program and project management oversight activities.

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[1] CRITICAL DECISIONS are major milestones approved by the Secretarial Acquisition Executive or Acquisition Executive that establish the mission need, recommended alternative, Acquisition Strategy, the Performance Baseline, and other essential elements required to ensure that the project meets applicable mission, design, security, and safety requirements. Each marks an increase in commitment of resources by DOE and requires successful completion of the preceding phase or Critical Decision.

[2] PROGRAMS, PROJECTS, AND ACTIVITIES—As defined in DOE Manual 135.1-1A, refers to all program activities funded by Congress through the annual appropriation process. Typically, Congressionally-funded major programs and projects are delineated in the detailed tables within the conference reports accompanying enacted appropriations bills and constitute obligational control levels for execution.

1.4 References

The framework described herein incorporates the principles and mandatory requirements for capital asset management prescribed in the following documents:

- US Office of Management and Budget (OMB) Circular No. A–11, *Preparation, Submission, and Execution of the Budget*; Part 7, *Planning, Budgeting, Acquisition, and Management of Capital Assets* (June 2008);
- *Capital Programming Guide*, Supplement to OMB Circular No. A–11, Part 7 (V 2.0, June 2006);
- DOE Manual (M) 135.1-1A, *Department of Energy Budget Execution—Funds Distribution and Control Manual* (approved 1-9-06)
- DOE O 413.3A, Change 1, *Program and Project Management for the Acquisition of Capital Assets* (change issued 11-17-08); and
- DOE O 430.1B, Change 1, *Real Property Asset Management* (dated 2-8-08).
- DOE O 433.1A, *Maintenance Management Program for DOE Nuclear Facilities* (approved: 2-13-07)
- *Omnibus Appropriations Act of 2009* (H.R. 1105)

Note: Congress has increased the threshold for General Plant Projects[3] (GPPs) from $5 million to $10 million. Subsequently, DOE Office of Financial Policy (CF-50) issued a memorandum to Field Chief Financial Officers (March 24, 2009) providing notification and announcing the pending change to DOE O 430.1B. This threshold applies to Institutional GPPs[4] (IGPPs) as a class of GPPs. This new cost threshold will determine whether EMRAP work activities will be managed in accordance with DOE O 413.3A as capital asset projects.

This document also incorporates the non-mandatory requirements in DOE Guide (G) 413.3-8, *Environmental Management (EM) Cleanup Projects* (approved 9-24-08), which provides suggested approaches for implementing DOE O 413.3A on EM cleanup projects.

NOTE: This document supersedes DOE G 413.3-8 when conflicts or inconsistencies in approaches, methodologies or requirements occur.

[3] GENERAL PLANT PROJECT—As defined in DOE M 135.1-1A, a minor new program-specific or general construction project that has a TEC not exceeding the Congressional authorization of $5,000,000 [increased to $10,000,000 pursuant to H.R. 1105] per project. GPPs are necessary to construct or adapt facilities to new or improved production techniques; to affect economy of operations; and to reduce or eliminate health, fire, and security hazards.

[4] INSTITUTIONAL GENERAL PLANT PROJECT—As defined in DOE O 430.1B, miscellaneous minor (i.e., up to $5 million [increased to $10 million pursuant to H.R. 1105]) new construction of a general institutional nature benefiting multiple cost objectives and required for general purpose site-wide needs. IGPPs do not include projects whose benefit can directly be attributed to a specific or single program. Example IGPP projects are multi-programmatic/interdisciplinary scientific laboratories, institutional training facilities, maintenance facilities and utilities, new roads, multi-programmatic office space, multi-programmatic facilities required for "quality of life" improvements, and replacement or upgrade to a core utility, land, and facility that is no longer reliable.

2.0 BACKGROUND

2.1 *American Recovery and Reinvestment Act of 2009*

The Recovery Act is an unprecedented effort to jumpstart the United States economy, create and retain millions of jobs, and put a down payment on addressing long-neglected challenges to allow the country to thrive in the 21st century. The Recovery Act, which was passed by the 111th Congress on February 13 and signed into law by the President on February 17, is an extraordinary response to a crisis unlike any since the Great Depression, and includes measures to modernize the nation's infrastructure, enhance energy independence, expand educational opportunities, preserve and improve affordable health care, provide tax relief, and protect those in greatest need.

The purposes of the Recovery Act are the following:

- To preserve and create jobs and promote economic recovery;
- To assist those most impacted by the recession;
- To provide investments needed to increase economic efficiency by spurring technological advances in science and health;
- To invest in transportation, environmental protection, and other infrastructure that will provide long-term economic benefits; and
- To stabilize State and local government budgets, in order to minimize and avoid reductions in essential services and counterproductive state and local tax increases.

2.2 Office of Environmental Management Mission

The mission of EM is to complete the safe cleanup of the environmental legacy brought about from six decades of nuclear weapons development and management as well as government-sponsored nuclear science and energy research. In executing that mission, EM conducts its operations in a safe, secure and compliant manner and in accordance with cost and schedule commitments.

2.3 Office of Environmental Management Strategic Initiatives

Office of Environmental Management identified several opportunities to significantly reduce its cleanup program lifecycle costs by making upfront investments on its core mission activities as described in *Report to Congress: Status of Environmental Management Initiatives to Accelerate the Reduction of Environmental Risks and Challenges Posed by the Legacy of the Cold War* (January 2009). These upfront investments include:

- Near-Term Completion – Accelerating the completion of mission activities at EM's smaller sites and at DOE's national laboratories thereby reducing EM's remaining work to the larger sites;

- Footprint Reduction – Accelerating the completion of environmental (soil and groundwater) remediation and facility deactivation and decommissioning at the larger sites thereby reducing EM's remaining work to the areas of the site where long-term mission activities still need to be completed; and
- Solid Radioactive Waste Disposal – Accelerating the disposal of transuranic waste and low-level radioactive waste in an effort to maximize the use of readily available disposal facilities and capabilities.

Congress and the President have afforded EM the opportunity to execute these initiatives and realize a return on investment by providing funds through the Recovery Act. Title IV—Energy and Water Development, Department of Energy, Energy Programs, of the Recovery Act provides a total of $6,000,000,000 in the following appropriations:

- $483,000,000 for Non-Defense Environmental Cleanup,
- $390,000,000 for Uranium Enrichment Decontamination and Decommissioning Fund, of which $70,000,000 shall be available in accordance with Title X, Subtitle A of the *Energy Policy Act of 1992*, and
- $5,127,000,000 for Defense Environmental Cleanup.

These funds are in addition to those received through the annual appropriations of the NDAA for EM's base program.

Assistant Secretary for EM has determined the most effective approach to manage and execute the work funded by the Recovery Act is to establish a program composed of a portfolio of PPAs. As such, the EMRAP was chartered, and is an integral component of the EM program.

3.0 BASIS FOR RESTRUCTURING EM'S PORTFOLIO

In fiscal year 2003, EM "projectized" each Project Baseline Summary[5] (PBS) having core EM mission work by designating it as a single capital asset project in accordance with DOE O 413.3A. The result was a project having a mix of capital asset and non-capital asset activities. This meant that operations activities such as waste disposal operations and other program-type activities that were largely level-of-effort work were subjected to the same requirements and management processes as capital asset projects. This management approach served EM well in defining and controlling its technical scope, project and lifecycle costs, completion dates, and risks. The rigor, discipline, structure, and tooling of the project management system helped to improve EM's overall performance. Now that project management is the business norm, EM is taking the next evolutionary step in managing its portfolio of PPAs.

To execute Recovery Act-funded projects, EM no longer designates an entire EM PBS as a project. Instead, a new structure for categorizing EM PPAs is implemented. This change was made to more efficiently execute EM PPAs funded by the Recovery Act. Specifically, EM capital asset projects are differentiated from EM programs and operations activities. PBS projects no longer provide the "umbrella coverage" that allowed for capital asset projects (except line-item construction projects) to be budgeted, funded and executed as sub-projects. Facility and environmental operations, landlord activities, site services, and other EM programs are no longer designated as PBS projects.

In executing its capital asset projects, EM implements and complies with DOE O 413.3A. Due to the unique nature under which the EMRAP projects are funded and the Congressional mandate to immediately execute "shovel ready" projects, DOE requirements are implemented in a manner that allows for the immediate retention and hiring of workers. To that end, EM tailors project management requirements by utilizing the flexibility afforded by DOE O 413.3A. Tailoring does not imply the omission of essential elements in the acquisition process prescribed in DOE O 413.3A; instead, tailoring provides the Federal Project Director (FPD) the ability and authority to custom-fit those requirements in a manner that delivers project objectives, key performance parameters, and overall quality in manner that is safe, and within cost and schedule commitments.

3.1 Cost Determinants for Recovery Act-Funded EM PPAs

The determinant for GPPs and IGPPs is total estimated cost (TEC) as prescribed in OMB A-11, H.R. 1105, DOE M 135.1A, and DOE O 430.1B. However, DOE O 413.3A utilizes total project

[5] The PBS is the main source of summary EM project information needed to support planning, budgeting, execution, and evaluation. To support planning, the PBS provides a summary of the EM project life-cycle baseline, including project scope, technical approach, end point/end state, assumptions, interfaces with other projects, performance measures, schedule, and cost. For budgeting, the PBS contains the necessary information to support the Federal budget process and justify the budget, including planned accomplishments, funding requirements, and performance measures associated with the funding requirements. During each year of project execution, the PBS reports work scope, costs, and management commitments, which include the EM corporate performance measures and major milestones. Finally, to support project performance evaluation, the PBS documents milestone status, earned value, actual costs, performance progress, and variance information.

cost (TPC), which has two primary components—TEC and Other Project Cost (OPC). The mathematical sum of TEC and OPC is TPC (TEC + OPC = TPC).

A similar definition is provided in Chapter 6, "Project Functions and Activities Definitions for Total Project Cost," of DOE G 430.1-1 (approved 3-28-97). Total project cost means all costs specific to a project incurred through startup of a facility, but prior to the operation of the facility.

Total estimated cost, as described in DOE O 413.3A, includes project costs incurred after CD-1 such as costs associated with the acquisition of land and land rights; engineering, design, and inspection; direct and indirect construction/fabrication; and the initial equipment necessary to place the plant or installation in operation. Total estimated cost may be funded either as an operating or as a capital expense.
Chapter 6 of DOE G 430.1-1 provides a similar definition: TEC is defined as all engineering design costs (after conceptual design), facility construction costs, and other costs specifically related to those construction efforts. These are typically capitalized. Total estimated cost will include, but not be limited to: project and construction management during Titles I[6], II[7], and III[8]; design and construction management and reporting during design construction; contingency and economic escalation for TEC-applied elements; engineering, design, and inspection during Titles I, II, and III; contractor support directly related to design and construction; and equipment and refurbishing equipment.

Other project cost, as defined in DOE O 413.3A, includes all project costs that are not identified as TEC. Generally, OPC includes costs incurred during the Initiation and Definition Phases for planning, conceptual design, research and development (pre-CD-1), and during the Execution Phase for startup and operation (pre-CD-4). Other project costs is funded as operating funds.

Other project cost is further described in DOE G 430.1-1 to include costs supporting research and development; pre-authorization costs prior to start of Title I design; and plant support costs during construction, activation, and startup. Other project cost will include, but not be limited to: research and development; environmental documentation; project data sheets; conceptual design report; short form project data sheets; surveying for siting; conceptual design plan; and evaluation of regulatory permit requirements.

Figure 1 illustrates the relationship of TPC, TEC and OPC to each other as well as to the project phases and associated critical decisions.

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[6] TITLE I (PRELIMINARY) DESIGN—Industry term that is the next progressive step from conceptual design. Title I design provides design criteria as a basis for project development.

[7] TITLE II (FINAL/DEFINITIVE) DESIGN—This continues the development of the project based on approved preliminary design (Title I). Definitive design includes any revisions required of the Title I effort; preparation of final working drawings, specifications, bidding documents, cost estimates, and coordination with all parties which might affect the project; development of firm construction and procurement schedules; and assistance in analyzing proposals or bids.

[8] TITLE III (CONSTRUCTION) SERVICES—Those activities required to assure that the project is constructed in accordance with the plans and specifications (e.g., inspection), and that the quality of materials and workmanship is consistent with the requirements of the project (e.g., materials testing).

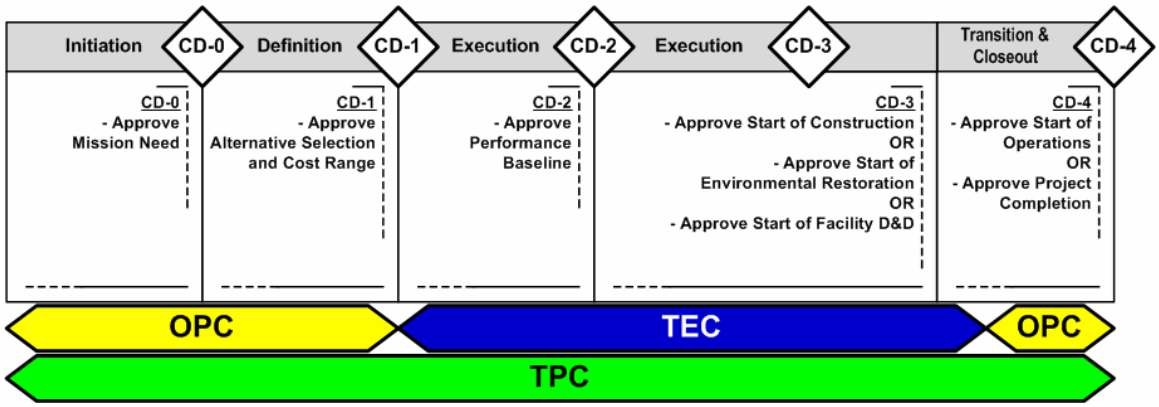

Figure 1. Relationship of Cost Types to Project Phases and Critical Decisions

For the purpose of EMRAP capital asset projects and beginning with initiation of Recovery Act-funded scope, TPC and the new threshold of $10 million is applied to determine whether a set of activities will be managed as a capital asset project in accordance with DOE O 413.3A.

3.2 Assets

As cited in OMB's *Accounting For Selected Assets And Liabilities: Statement of Federal Financial Accounting Standards* (SFFAS) No. 1 (issued 3-30-93), the Federal Accounting Standards Advisory Board (FASAB) defines assets as tangible or intangible items owned by the federal government, which would have probable economic benefits that can be obtained or controlled by a federal government entity[9]. This definition broadly identifies assets as any item of value that DOE owns.

3.2.1 Property Assets

DOE O 430.1B defines real property assets as any interest in land, together with the improvements, facilities, structures, and fixtures located thereon, including prefabricated movable structures and appurtenances thereto, under the control of DOE. DOE-owned, -used and -controlled land, land improvements, structures, utilities, installed equipment, and components are included. Real property and real estate means land and rights in land, ground improvements, utility distribution systems, and buildings and other structures. In short, these are fixed, attached, or installed items that EM controls.

[9] ENTITY—As defined in OMB SFFAS No. 1, a unit within the federal government, such as a department, agency, bureau, or program, for which a set of financial statements would be prepared. Entity also encompasses a group of related or unrelated commercial functions, revolving funds, trust funds, and/or other accounts for which financial statements will be prepared in accordance with OMB annual guidance on Form and Content of Financial Statements.

As described in DOE *Accounting Handbook*, real property includes land, improvements on the land, or both, and interests therein. The chief characteristics of real property (real estate) are immobility and tangibility. It comprises land and all things of a permanent and substantial nature affixed thereto, whether by nature or by human hand. By "nature" is meant trees, the products of land, and natural resources; by "human hand," those objects, buildings, fences, or bridges that people erect upon the land.

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 usually are held to be part of the real property. Real property may also include triple-wide trailers or modular units joined together so that the structure is not portable and cannot be relocated without being dismantled and thus losing its identity. Trailers double-wide or less, used as temporary or mobile facilities should be considered personal property when not acquired or intended for permanent use.

According to DOE *Accounting Handbook*, related personal property is any personal property that is an integral part of real property or is related to, designed for, or specially adapted to the functional or productive capacity of the real property, the removal of which would significantly diminish the economic value of the real property or the related personal property itself. Examples of related personal property are communication systems and telephone systems. Normally, common-use items, including but not limited to general-purpose furniture, utensils, office machines, office supplies, and general-purpose vehicles, are not considered related personal property.

According to DOE *Accounting Handbook*, personal property and capital equipment are generally capitalizable property [see discussion below for capitalization] that can be moved and that is not permanently affixed to and part of the real estate. Items remain personal property if they can be removed without seriously damaging or diminishing the functional value of either the real estate or the items themselves.

3.3 Capitalization of Assets: DOE Accounting Handbook

A further distinction is made for assets based on the duration of its intended use and its value. Assets with a planned use (or service life) of 2 years of more and with a monetary value of $50,000 or more are "capitalized," and are subjected to specific management and control requirements, including their budgeting, reporting, and accounting. This criterion, along with other characteristics, are described in DOE *Accounting Handbook*, and are included below.

§ 1.d Capitalization Criteria.

(1) Capitalize individual PP&E items that are purchased, constructed, or fabricated in-house, including major modifications or improvements to any of these items, if they have an anticipated service life of 2 years or more and if they cost $50,000 or more, regardless of funding sources. The only exceptions are items that are inherently experimental, used as special tools, or, by nature of their association with a particular scientific experiment, not expected to have an extended useful service life or an alternative future use. Notwithstanding the accounting threshold for physical accountability/control purposes, personal property records are

required for items of personal property with an acquisition cost of $5,000 or more.

(2) Capitalize automated data processing software (programs, routines, or subroutines) valued at $50,000 or more and with a useful life of at least 2 years. This criterion is only applicable to the operating system, or that software necessary for the computer to operate and process other applications software. Software for any operation in addition to the basic operation of the computer shall be expensed, even if purchased with the computer.

(3) Capitalize and group in a separate asset-type account related items that individually cost less than $50,000 but that collectively cost $50,000 or more, such as the initial complement of equipment (for example, office equipment) for a building, if current costs would be distorted in a given period by charging such items to expense accounts. The initial complement of equipment of insignificant value relative to total project cost is generally distributed over the cost of the property record units to which it is related.

(4) Capitalize property, including assets acquired through installment contracts and lease purchases, as described in Chapter 10 of DOE *Accounting Handbook*.

(5) Generally, DOE elements shall not capitalize interest during the acquisition of PP&E. However, certain DOE elements fund the acquisition, construction, or fabrication of PP&E through direct borrowing from the Department of the Treasury (Treasury) and pay interest directly to Treasury. In such cases, capitalize interest, if it is material, based on the interest rate charged by Treasury for the funds borrowed. The interest capitalization begins with the first expenditure for the qualifying asset and ends when the asset is substantially complete and ready for its intended use. Capitalize interest costs as long as the following general conditions are met:

(a) Expenditures for PP&E have been made, and

(b) Activities that are necessary to get PP&E ready for its intended use are in progress.

NOTE: For EMRAP, $50,000 (instead of $25,000) is the cost threshold for capitalization.

3.4 Definition of Capital Assets: OMB Circular No. A-11[10]

Part 7 of OMB Circular No. A-11 provides the federal definition of capital asset. The accompanying guidance document, *Capital Programming Guide*, provides guidance on the principles and techniques for effective capital programming.

[10] OMB A–11 serves as the basis for the definition provided in DOE O 413.3A. It is included, without edit or omission, as it provides additional insight on the characteristics of capital assets.

3.4.1 OMB Circular No. A-11, Part 7

According to OMB Circular No. A-11, Part 7, capital assets means land, structures, equipment, intellectual property (e.g., software), and information technology (including IT service contracts) used by the Federal Government and having an estimated useful life of two years or more. See Appendix 1 of the *Capital Programming Guide* for a more complete definition of capital assets.

Capital project (investment) means the acquisition of a capital asset and the management of that asset through its lifecycle after the initial acquisition. Capital projects (investments) may consist of several useful segments. A useful segment is an economically and programmatically separate component of a capital investment that provides a measurable performance outcome for which the benefits exceed the costs, even if no further funding is appropriated.

3.4.2 *Capital Programming Guide*, Supplement to OMB Circular No. A–11, Part 7

The *Capital Programming Guide*, which supplements Part 7 of OMB Circular No. A-11, provides guidance on the principles and techniques for effective capital programming.
Capital assets are land (including parklands), structures, equipment (including motor and aircraft fleets), and intellectual property (including software), which are used by the Federal Government and that have an estimated useful life of two years or more. Capital assets exclude items acquired for resale in the ordinary course of operations or held for the purpose of physical consumption such as operating materials and supplies. The cost of a capital asset is its full lifecycle costs, including all direct and indirect costs for planning, procurement (purchase price and all other costs incurred to bring it to a form and location suitable for its intended use), operations and maintenance (including service contracts), and disposal.

Capital assets may be acquired in different ways: through purchase, construction, or manufacture; through a lease-purchase or other capital lease, regardless of whether title has passed to the Federal Government; through an operating lease for an asset with an estimated useful life of two years or more; or through exchange. Capital assets include the environmental remediation of land to make it useful, leasehold improvements and land rights; assets owned by the Federal Government but located in a foreign country or held by others (such as federal contractors, state and local governments, or colleges and universities); and assets whose ownership is shared by the Federal Government with other entities. Capital assets include not only the assets as initially acquired but also additions, improvements, modifications, replacements, rearrangements and reinstallations, and major improvements (but not ordinary repairs and maintenance). Examples of capital assets include the following, but are not limited to them:

- Office buildings, hospitals, laboratories, schools, and prisons;
- Dams, power plants, and water resources projects;
- Motor vehicles, airplanes, and ships;
- Satellites and space exploration equipment;
- Information technology hardware, software and modifications;
- Department of Defense (DOD) weapons systems; and

- Environmental restoration (decontamination and decommissioning efforts).

Capital assets may or may not be capitalized (i.e., recorded on an entity's balance sheet) under Federal accounting standards. Examples of capital assets not capitalized are DOD [Department of Defense] weapons systems, heritage assets, stewardship land, certain assets acquired for environmental cleanup efforts, and some software.

Capital assets do not include grants for acquiring capital assets made to state and local governments or other entities (such as National Science Foundation grants to universities). Capital assets also do not include intangible assets such as the knowledge resulting from research and development (R&D) or the human capital resulting from education and training, although capital assets do include land, structures, equipment (including fleet), and intellectual property (including software) that the Federal Government uses in R&D and education and training. Agencies are encouraged to use the capital programming process or elements thereof, in planning for expenditures not covered by this definition, to the extent that they find it useful.

3.5 Definitions of Capital Assets: DOE

Within the DOE directives system, there are several definitions and descriptions of assets. All are based on OMB Circular No. A-11. The following section summarizes that information and, in many cases, simply restates the various definitions. Figure 2 shows the relationship of the key terms and concepts.

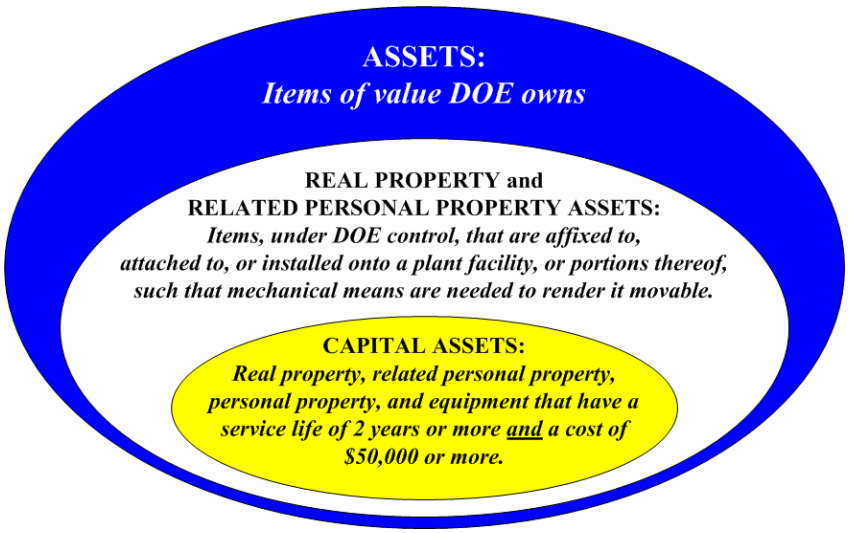

Figure 2. Relationship of Key Asset Types

3.5.1 Capital Assets (DOE O 413.3A)

Capital assets are land, structures, equipment, intellectual property (e.g., software), and Information Technology used by the Federal government and having an estimated useful life of two or more years. Capital assets include environmental restoration (decontamination and decommissioning) of land to make useful leasehold improvements and land rights, and assets whose ownership is shared by the Federal Government with other entities. Capital assets may be acquired in different ways: purchase, construction, or manufacture; a lease-purchase or other capital lease (regardless of whether title has passed to the Federal Government); or exchange.

DOE O 413.3A does not apply to land, structures, equipment, intellectual property (e.g., software), or Information Technology acquired by State and local governments or other entities through Financial Assistance (i.e., DOE grants and cooperative agreements), or to assets acquired under GPP for maintaining infrastructure at a site.

3.5.2 Plant, Property and Equipment (DOE O 430.1B)

DOE O 430.1B defines plant, property and equipment (PP&E) as tangible assets that meet the capitalization criteria, that are not intended for sale in the ordinary course of operations, and have been acquired or constructed with the intention of being used, or being available for use by the entity. Plant, property, and equipment includes site infrastructure.

3.5.3 Plant and Capital Equipment (DOE M 135-1.1A)

DOE M 135-1.1A offers a variation on the definition of capital assets, and defines plant and capital equipment as real and personal property owned by DOE and recorded in the completed plant accounts and meets monetary and service life criteria for capitalization (i.e., service life of 2 years or more and cost of $25,000[11] or more), regardless of the appropriation or fund charged. Group purchases of similar items that cost less per item than $25,000[7] but as a group constitute a significant investment, are considered capitalized property (e.g., automated information technology systems or components).

3.5.4 Plant, Property and Equipment (DOE *Accounting Handbook*)

While not specifically defined in Chapter 10[12] of DOE *Accounting Handbook*[13,14], plant, property and equipment is a general term used to describe and characterize assets. In the handbook, types of PP&E items are broadly categorized and expensed as described below.

[11] Chapter 10 of DOE *Accounting Handbook* specifies $50,000.

[12] Chapter 10 describes financial controls over the acquisition, use, and retirement of property and provides guidelines for distinguishing between charges to capital accounts and charges to expense accounts consistent with the Statement of Federal Financial Accounting Standards.

[13] The purpose of the DOE *Accounting Handbook* is to present the DOE's standards, procedures, and operational requirements in support of the accounting policies, principles, and applicable legal requirements contained in DOE O 534.1B, *Accounting* (Approved: 01-06-03). Chapter 10 addresses property, plant and equipment.

Plant includes, but is not limited to,

1. Land and land rights, depletable resources (minerals and timber), and improvements to land.
2. Buildings, including all structures, additions, or improvements to structures (but not normal maintenance).
3. Construction, including all elements associated with construction in progress.
4. Utilities, including water and sewage systems; heating, cooling, and power systems; communications systems; and fire prevention systems.

The following are examples of plant costs that are expensed.

1. Land—Expense normal maintenance and repair, such as periodic vegetation control, repairs to sections of sidewalks, and roads that are less than a retirement unit.
2. Buildings—Expense normal maintenance and repair, such as painting, cleaning, and small repair jobs not resulting in an addition, replacement of a retirement unit, or a betterment. Alterations are also expensed.
3. Construction—Expense demonstration plants that have limited service lives and that will not be used for actual production or operations.

Equipment includes, but is not limited to, items listed below.

1. Heavy equipment, including all vehicles, railroad stock, processing or manufacturing machinery, shop machinery, reactor or accelerator machinery, and reserve construction machinery.
2. Special and scientific equipment, including medical, laboratory, and security equipment.
3. Automated data processing equipment, including computers, printers, cathode ray tubes, operating system software, and interface peripherals.

NOTE: DOE M 135.1-1A defines major item of equipment (MIE) as capital equipment or automated information system components with a total estimated purchase value of $2,000,000 or more, including costs that are capitalized and not related to construction.

The following are examples of equipment costs that are expensed.

1. Equipment not meeting the capitalization criteria.
2. Conceptual design, fabrication, testing, and reworking of prototype equipment subject to redesign as fabrication and testing are performed. This usually applies only to the first unit if several similar units are to be acquired.
3. Testing and reworking of prototype equipment for which design has been established.

[14] Throughout DOE M 135.1-1A, reference is made to DOE *Accounting Handbook* for guidance and supplemental information. As such, DOE *Accounting Handbook* is referenced in this document as it provides insight on the programmatic basis for managing DOE assets.

3.5.5 Structures, Systems and Components (DOE O 420.1B)

Another term used to describe and characterize assets is based on their functional relationship to facility safety.

Code of Federal Regulations, Title 10: Energy, Part 830—Nuclear Safety Management (10 *CFR* 830) defines safety structures, systems, and components (SSCs) as both safety class SSCs and safety SSCs.

Safety class structures, systems, or components means the SSCs, including portions of process systems, whose preventive or mitigative function is necessary to limit radioactive hazardous material exposure to the public, as determined from safety analyses.

Safety significant structures, systems, and components means the SSCs, which are not designated as safety class SSCs, but whose preventive or mitigative function is a major contributor to defense in depth and/or worker safety as determined from safety analyses.

DOE O 420.1B, *Facility Safety* (reviewed 12-22-07), implements, in part, 10 *CFR* 830, and establishes facility and programmatic safety requirements for nuclear and explosives safety design, fire protection, criticality safety, natural phenomena hazards mitigation, and the System Engineer Program.

DOE G 433.1-1, *Nuclear Facility Maintenance Management Program Guide for Use with DOE O 433.1*[15] (approved 9-5-01), defines SSCs as physical items designed, built, or installed to support the operation of the facility. A structure is an element or a collection of elements to provide support or enclosure such as a building, freestanding tank, basin, dike, or stack. A system is a collection of components assembled to perform a function such as piping; cable trays; conduits; or heating, ventilation, and air conditioning. A component is an item of equipment such as a pump, valve, or relay or an element of a larger array such as a length of pipe, elbow, or reducer.

3.5.6 Related Definitions (DOE G 433.1-1)

According to DOE G 433.1-1, equipment means the systems and devices used throughout DOE and commonly referred to as equipment are divided into three categories for the purpose of this Order. It is the intent of this definition to separately identify the installed equipment that can logically be considered as an integral part of a real property improvement from other types of equipment. The purpose of such a determination is to provide a uniform basis for analysis of various maintenance and repair costs.

1. Installed Equipment. This category includes the mechanical and electrical systems that are installed as part of basic building construction and are essential to the normal functioning of the facility and its intended use. Examples are

[15] DOE O 433.1A, *Maintenance Management Program for DOE Nuclear Facilities* (approved 2-13-07), defines the safety management program required by 10 CFR 830.204(b)(5) for maintenance and the reliable performance of SSCs that are part of the safety basis required by 10 CFR 830.202.1 at hazard category 1, 2 and 3 DOE nuclear facilities.

heating, ventilating, and air-conditioning systems; elevators; and communications systems.

2. Programmatic Equipment. Equipment (both real and personal) dedicated for a specific programmatic use. Examples are accelerators, microscopes, radiation detection equipment, glove boxes, and hotcells.

3. Other Equipment. Some examples in this category are office machines, vehicles and mobile equipment, helicopters, airplanes, and computers and other automated data-processing equipment.

According to DOE G 433.1-1, facility means 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. A building, utility, structure, or other land improvement associated with an operation or service and dedicated to a common function.

According to DOE G 433.1-1, utility means 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.

3.6 Lifecycle of Capital Assets

Capital Programming Guide, which supplements OMB No. A-11, Part 7, prescribes a series of progressive phases in the capital asset lifecycle. This cradle-to-grave approach starts with planning and budgeting and ends with disposition. Figure 3 provides a structural illustration of those activities to help describe their lifecycle and hierarchical relationship.

The Planning and Budgeting Phase includes strategic and program performance linkage, enterprise architecture, functional requirements, alternatives to capital assets, choosing the best capital asset, the agency capital plan, and agency submission for funding in the budget year.

The Acquisition Phase begins after the agency has received funding from Congress for a segment, module, or the entire asset; it ends when the asset is delivered and fully operational.

The Management-In-Use Phase involves the actual use of the asset to accomplish mission goals and objectives. This is generally the longest phase of the investment or asset lifecycle. Ownership costs, such as operations, maintenance (including service contracts), energy use and disposition, can often consume more than 80 percent of the total lifecycle costs.

The Disposition Phase is the culmination of previous planning, budgeting and acquisition efforts. Planning for disposition must be initiated when real property assets are identified as no longer required for current or future programs. Disposition includes stabilizing, preparing for reuse, deactivating, decommissioning, decontaminating, dismantling, demolishing, and/or disposing of real property assets. Environment remediation is performed during this phase because the work targets the end of the assets' original usefulness. Long-term stewardship includes the physical controls, institutions, information, and other mechanisms needed to ensure protection of people and the environment where DOE has completed, or plans to complete, disposition.

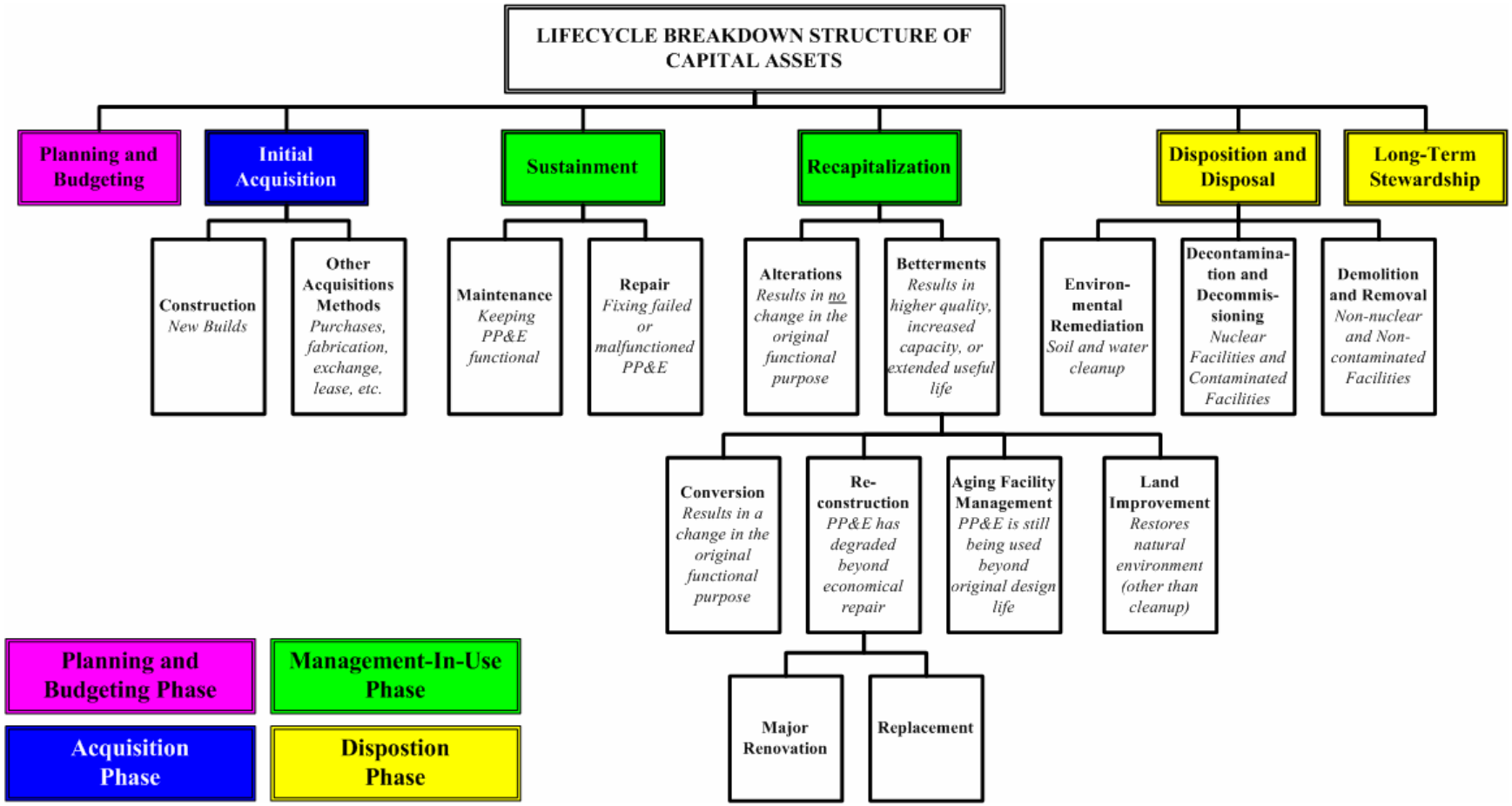

Figure 3. Typical Lifecycle Breakdown Structure of Capital Assets

As further described in DOE O 430.1B, construction includes: the installation of equipment in and made part of the facility and related site preparation; excavation, filling and landscaping, or other land improvements; and design of the facility. Examples of improvements to an existing facility include the following types of work.

- Replacing standard walls with fireproof walls.
- Installing a fire sprinkler system in a previously unprotected space.
- Replacing utility system components with a significantly larger capacity components (e.g., replacing a 200-ton chiller with a 300-ton chiller) and converting the functional purpose of a room (e.g., converting an office into a computer room).

According to DOE *Accounting Handbook*, construction and fabrication activities generally include the design and engineering for a specific project or for the components of a project after the ideas or conceptual design are crystallized; the procurement, fabrication, erection, and installation of all materials and equipment constituting the project; models built for size and spacing in connection with preliminary (Title I) and final (Title II) design work; the preparation of operating manuals; and the preoperational testing of the project components. The cost of components that are constructed for a project but that fail to perform as expected and are abandoned, as well as post-crystallization-of-design engineering work, shall be included in the cost of construction or fabrication activities. The cost of construction work performed by DOE and integrated contractors shall include an appropriate share of indirect or overhead costs.

Acquisition of capital asset projects are executed as line item construction projects[16] or as smaller, operating expense-funded[17] construction projects. DOE M 135.1-1A and DOE O 430.1B define general plant projects (GPPs) similarly as miscellaneous minor new program-specific construction projects, the TEC of which may not exceed $5 million.

Institutional General Plant Projects (IGPPs) are a class of GPPs that are of a general institutional nature whose benefit cannot be directly attributed to a specific or single program and are required for a general site-wide need. Further, IGPPs may be used at the discretion of the Lead Program Secretarial Office, Cognizant Secretarial Office or the Program Secretarial Office.

NOTE: For EMRAP GPPs and IGPPs, TPC (instead of TEC) is the cost determinant and $10 million (instead of $5 million) is the cost threshold for determining a capital asset project.

[16] LINE ITEM PROJECT—As defined in DOE O 430.1B, those separately identified project activities that are submitted for funding and are specifically reviewed and approved by Congress.

[17] OPERATING EXPENSE FUNDING—As defined in DOE M 135.1-1A, a funding category applied to operations and maintenance activities and equipment purchases. Operating expenses include general plant projects, accelerator improvement projects, and capital equipment (not related to construction). Operating expense does not include line-item construction projects.

DOE M 135.1-1A, DOE O 430.1B and DOE *Accounting Handbook* state that GPPs and IGPPs are necessary to adapt facilities to new or improved production techniques; to affect economies of operation; and to reduce or eliminate health, fire, and safety problems. These projects provide for design and/or construction and additions and improvements to land, buildings, and utility systems, and they may include the construction of small new buildings, replacements or additions to roads, and general area improvements.

DOE O 430.1B requires the acquisition of real property assets of $5 million ($10 million for EMRAP) or more must be in accordance with DOE O 413.3A. While not required by DOE O 4301.1B, project management techniques in DOE O 413.3A may be tailored for GPPs and IGPPs based on the nature and complexity of the individual project.

3.6.1 Sustainment

As described in DOE M 135.1-1A, sustainment consists of maintenance and repair activities necessary to keep the inventory of facilities in good working order. Sustainment includes regularly scheduled maintenance and anticipated major repairs or replacement of components that occur periodically over the expected service life of the facilities.

3.6.1.1 Maintenance

DOE O 430.1B defines maintenance as day to day work that is required to sustain property in a condition suitable for it to be used for its designated purposes.

DOE *Accounting Handbook* explains that maintenance differs from repair (discussed below) in that it is normally worked to correct wear and tear before major repair is required, and it is usually less involved than repair work. Maintenance work is typically also charged to an operating expense account.

As defined in DOE G 433.1-1, planned maintenance means preventive or seasonal maintenance activities performed before SSC failure that may be initiated by predictive or periodic maintenance results, through vendor recommendations, or by experience/lessons learned. These include actions such as scheduled cold weather protection, valve repacking, replacement of bearings as indicated from vibration analysis, major or minor overhauls based on experience factors or vendor recommendations, and replacement of known life-span components. For example, repacking a valve because of packing leakage would be corrective maintenance, but scheduled repacking before leakage would be planned maintenance.

DOE G 433.1-1 defines periodic maintenance as preventive[18,19,20,21], predictive[22,23,24] or seasonal[25] maintenance activities performed on a routine basis (typically based on operating hours or calendar time) that may include any combination of external inspections, alignments or calibrations, internal inspections, overhauls, and SSC replacements.

3.6.1.2 Repair

Repair, as defined in DOE O 430.1B, means 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. Corrective[26,27] maintenance is a form of repair.

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[18] PREVENTIVE MAINTENANCE—As defined in DOE O 430.1B, those periodic and planned actions taken to maintain a piece of equipment within design operating conditions and extend its life and performed before equipment failure or to prevent equipment failure.

[19] PREVENTIVE MAINTENANCE—As defined in DOE G 433.1-1, those planned, systematic, periodic, and seasonal maintenance actions taken to prevent SSC or facility failures, to maintain designed-in operating conditions, and to extend operating life.

[20] RELIABILITY CENTERED MAINTENANCE—As defined in DOE G 433.1-1, a proactive systematic decision logic tree approach to identify or revise preventive maintenance tasks or plans to preserve or promptly restore operability, reliability and availability of facility SSCs; or to prevent failures and reduce risk through types of maintenance action and frequency selection to ensure high performance. Reliability centered maintenance is the performance of scheduled maintenance for complex equipment, quantified by the relationship of preventive maintenance to reliability and the benefits of reliability to safety and cost reduction through the optimization of maintenance task/frequency intervals.

[21] PERFORMANCE-BASED MAINTENANCE—As defined in DOE G 433.1-1, means tailoring the preservation or maintenance of SSCs important to safety in terms of results as approved in a DOE Safety Management System that is implemented under 48 CFR 970.5204.2. The use of measurable (i.e., in terms of quality, timeliness and quantity) performance standards and objectives where appropriate (i.e., use of a "graded approach").

[22] PREDICTIVE MAINTENANCE—As defined in DOE O 430.1B, those activities involving continuous or periodic monitoring and diagnosis to forecast component degradation so that "as needed" maintenance can be scheduled.

[23] PREDICTIVE MAINTENANCE—As defined in DOE G 433.1-1, the actions necessary to monitor; find trends; and analyze parameters, properties, and performance characteristics or signatures associated with SSCs, facilities, or pieces of equipment to discern whether a state or condition may be approaching that is indicative of deteriorating performance or impending failure, where the intended function of the SSCs, facilities, or pieces of equipment may be compromised. Predictive maintenance activities involve continuous or periodic monitoring and diagnosis to forecast component degradation so that "as-needed" planned maintenance can be initiated before failure

[24] RISK-INFORMED MAINTENANCE—As defined in DOE G 433.1-1, a term used in the commercial nuclear industry which is regulated by the U.S. Nuclear Regulatory Commission that relies on insights obtained from Level III probabilistic risk assessments to identify, rank and prioritize nuclear facility SSCs important to safety and their need to be preserved or maintained in order to prevent accidents or to mitigate the consequences of accident with optimization of resources.

[25] While not specifically defined, seasonal maintenance refers to maintenance activities performed because of the change in weather conditions or patterns. This includes maintenance driven by inclement weather.

[26] CORRECTIVE MAINTENANCE—As defined in DOE O 430.1B, the repair or restoration of failed or malfunctioning equipment, systems, or facilities to their intended functions or design conditions. It does not result in a significant extension of the expected useful life.

According to DOE *Accounting Handbook*, repair means the restoration or replacement of a deteriorated item of PP&E, such that it may be utilized for its designated purpose. The cost of repair, which is normally charged to an operating expense account and includes amounts for labor and associated supervision and materials, as well as indirect and other costs incurred in such repairs, may include the costs to replace items of PP&E designated as retirement units.

3.6.2 Recapitalization

Real property assets will be maintained in a manner that promotes operational safety, worker health, environmental protection and compliance, property preservation, and cost-effectiveness while meeting the program missions. This requires a balanced approach that not only sustains the assets but also provides for their recapitalization.

Capital assets include not only the assets as initially acquired but also additions, improvements, modifications, replacements, rearrangements and reinstallations, and major improvements (but not ordinary repairs and maintenance)

According to DOE O 430.1B, recapitalization means major renovations or reconstruction activities, including facility replacements, needed to keep existing facilities modern and relevant in an environment of changing standards and missions. This includes the restoration and modernization of existing facilities but not the acquisition of new facilities or the demolition of old ones, unless the demolition is carried out as part of a renovation project or in conjunction with construction of replacement footprint elsewhere.

Also, as described in DOE M 135.1-1A, facilities eventually wear out or become outdated and incapable of supporting mission needs. These facilities will be replaced, recapitalized, or disposed of if excess to needs. Recapitalization extends the service life of facilities or restores lost service life and consists of alterations and betterments needed to keep existing facilities modern and relevant in an environment of changing standards and missions. Recapitalization investments do not sustain facilities and will, therefore, be complemented by an effective sustainment program to protect the facility.

A recapitalization whose TPC is $10 million or more is managed in accordance with DOE O 413.3A as a capital asset project.

3.6.2.1 Alterations

According to DOE O 430.1B, an alteration means an adjustment to interior arrangements or other physical characteristics of an existing facility so that it may be more effectively adapted to or used for its designated purpose. Alterations do not result in betterment to a facility. Examples of alterations are as follows.

- Removal or installation of interior walls for purposes of rearranging the layout of an office building, and incidental heating and ventilation ducting system.
- Modifications that do not significantly extend the capacity of the system.

[27] CORRECTIVE (REPAIR) MAINTENANCE—As defined in DOE G 433.1-1, the repair of failed or malfunctioning equipment, system, or facilities to restore the intended function or design condition. This maintenance does not result in a significant extension of the expected useful life.

- Construction of a door or passage through an interior structural wall.
- Installation of new lighting fixtures that do not significantly increase the lumens emitted but may result in energy or maintenance savings.

An alternation whose TPC is $10 million or more is managed in accordance with DOE O 413.3A as a capital asset project.

3.6.2.2 Betterment

According to DOE O 430.1B, betterments are defined as capitalized improvements to facilities that result in better quality work, increased capacity, and/or extended useful life as required to accommodate regulatory and other changes to requirements. Listed below are the various terms that are commonly used to describe various categories of betterments.

- Construction (as previously defined).
- Conversion means a major structural revision of a facility that changes the functional purpose for which the facility was originally designed or used.
- Major renovation and replacement both mean the complete reconstruction of a facility that has deteriorated or has been damaged beyond the point where its individual parts can be economically repaired. If the item replaced is a retirement unit, its original costs (including installation cost) are removed from the plant and capital equipment accounts, and the cost of the newly installed item (including installation cost) is added to the plant and capital equipment accounts.

A betterment whose TPC is $10 million or more is managed in accordance with DOE O 413.3A as a capital asset project.

3.6.2.2.1 Aging Facility Management

A form of betterment that is not specifically addressed in the DOE directives are the activities taken on a nuclear facility to keep it operating in a safe and reliable manner when the facility has passed its original design life. The DOE has not established requirements or minimum expectations for specifically addressing sustainment or recapitalization of aging facilities. However, site-specific and facility-specific asset management programs exist to address the effects of aging on the functionality of structures and components during the period of extended operation and extended service life[28].

[28] SERVICE LIFE is a general manufacturing term that refers to a product's service life or its accepted period of use in service. It is the time that any manufactured item can be expected to be "serviceable" or supported by its originating manufacturer. A product's service life is different from its predicted life or its mean time to failure/mean time between failures. Predicted life is typically related to a manufacturer's warranty claim.

At the Savannah River Site, for example, an Integrated Facility Aging Management (IFAM) Program[29] was established to address the aging effects on H-Canyon (originally built in the 1950s), HB-Line, L-Area, K-Area, F/H-Lab, some portions of Savannah River National Laboratory facilities, which are all key assets needed to operate through 2019 to support the Enriched Uranium Disposition Project.

The commercial nuclear power industry has been addressing this matter for the past decade, especially in the context of how existing plant programs and activities should be credited for license renewal by the US Nuclear Regulatory Commission. The SRS IFAM Program is, in part, the result of exhaustive industry benchmarking; it adopts concepts and methodologies from several sources of commercial nuclear information. These guides provide basis of the IFAM Program that identifies, screens and evaluates SSCs most important to facility safety and reliability. These sources include, but are limited to, Institute of Electrical and Electronics Engineers (IEEE) standard on cable aging management, International Atomic Energy Agency (IAEA) technical reports, Institute of Nuclear Power Operations (INPO) reports, Nuclear Energy Institute (NEI) documents for utility applications, and Nuclear Regulatory Commission guides (NUREG). The following documents contain information on commercial nuclear facility aging management practices and guidelines. They are listed for reference as the provide insight on the types of work associated needed to address aging facilities.

1. IEEE, Standard 1205-2000 (R2007), *Guide for Assessing, Monitoring, and Mitigating Aging Effects on Class 1E Equipment Used in Nuclear Power Generating Stations*
2. INPO, AP-913, *Equipment Reliability Process Description*, Revision 1 (November 2001)
3. IAEA, Safety Reports Series, No. 15, *Implementation and Review of a Nuclear Power Plant Aging Management Program* (1999)
4. IAEA, Technical Reports Series, No. 338, *Methodology for the Management of Aging of Nuclear Power Plant Components Important to Safety* (1992)
5. NEI, NEI 95-10, *Industry Guidelines for Implementing the Requirements of 10CFR Part 54 – The License Renewal Rule*, Revision 6 (June 2005)
6. NUREG-1800, *Standard Review Plan for Review of License Renewal, Applications for Nuclear Power Plants*, Revision 1 (September 2005)
7. NUREG-1801, *Generic Aging Lessons Learned (GALL) Report*, Revision 1, Volumes 1 and 2 (September 2005)

As greater demands are being placed on continuing to operate its aging nuclear facilities, EM is placing greater emphasis on aging facility management. Aging facility management and other forms of facility life extension work costing $10 million or more are managed as a capital asset projects in accordance with DOE O 413.3A.

[29] Savannah River Nuclear Solutions, LLC, *Program Plan for Savannah River Site Integrated Facility Aging Management (IFAM)*, SRNS-E1000-2008-00004 (October 2008)

3.6.2.3 Land Improvement: Environmental and Ecological Restoration

A form of recapitalization can be environmental restoration[30,31,32] or ecological restoration that results in overall land improvement. These actions are typically taken to return the contaminated or degraded natural environment as closely as possible to its original, undisturbed state—that is, they are taken to *restore* the natural environment from the adverse impacts of human activity. These may include:

- Re-planting trees, shrubs and groundcover;
- Removing invasive plants, including the lay-down of mulch to exclude weed seed and rhizomes;
- Removing abandoned temporary access roads;
- Re-grading land areas to pre-existing contours and restoring original topographic features;
- Installing artificial habitats in an effort to attract and re-establish populations of indigenous species;
- Removing culverts and other man-made devices designed to restrict or redirect natural water flow;
- Restoring stream channels and stabilizing banks of water ways;
- Installing erosion control devices;
- Reconstructing in-stream habitats by, for example, installing log and rock formations; and
- Reestablishing water impoundments in designated wetland areas.

A land improvement whose TPC is $10 million or more is managed in accordance with DOE O 413.3A a capital asset project.

[30] Environmental remediation deals with the removal of contamination or pollution from environmental media such as soil, sediment, groundwater, or surface water. Environmental remediation is often used interchangeably with environmental restoration and ecological restoration. However, environmental restoration and ecological restoration are sometimes differentiated from environmental remediation in that restoration actions take place after the contamination or pollution has been remedied. This distinction is addressed in this document to identify and provide clarification on the various uses of this term. FPDs and contract project managers must be explicit when describing environmental restoration activities in project documentation.

[31] In this context of land improvement, “environmental restoration” does not mean decontamination and decommissioning as noted in *Capital Programming Guide* (supplement to OMB Circular A-11, Part 7).

[32] In this context of land improvement, “environmental restoration” does not mean cleanup and restoration of sites contaminated with hazardous substances during past production or disposal activities as defined in DOE G 430.1-1.

4.0 STRUCTURE OF THE EMRAP PORTFOLIO

The EM PPAs are grouped in two general categories: (1) EM capital asset projects and (2) EM operations activities and programs. Capital asset projects are then further categorized based on the nature of the work and the associated cost. Similarly, environmental (facility) operations activities and EM programs are categorized into two groupings of work activities. Refer to Figure 4.

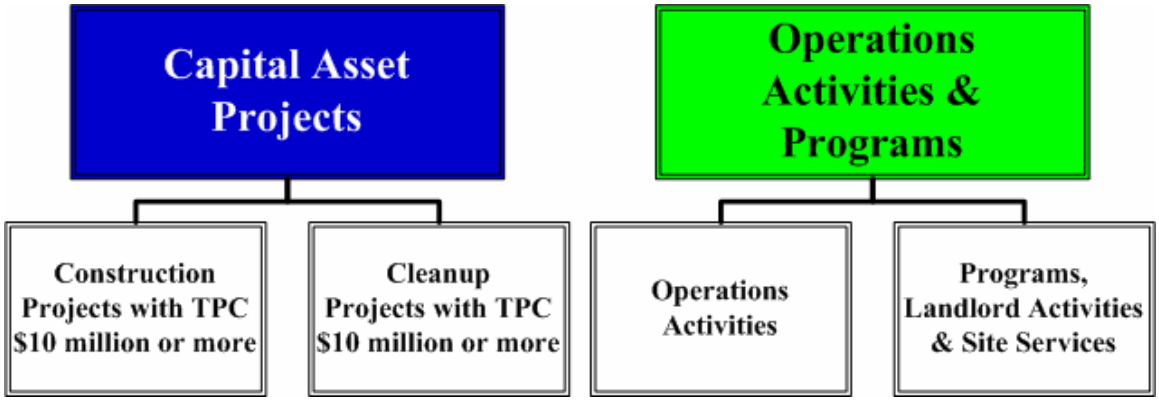

Figure 4. Types of Recovery Act-Funded EM Programs, Projects, and Activities

Figure 5 on the next page is a comparison of typical capital asset project and operations activities and programs.

4.1 Capital Asset Construction Projects

This category includes capital asset projects that are executed as line item construction projects[33] and as miscellaneous minor new program-specific or general construction projects whose TPC is $10 million or more. These projects are managed in accordance with DOE O 413.3A.

[33] LINE ITEM PROJECT—As defined in DOE O 430.1B, those separately identified project activities that are submitted for funding and are specifically reviewed and approved by Congress.

CAPITAL ASSET PROJECTS

Construction Projects

- Line item construction projects
- Minor new construction projects* with total project cost (TPC**) of $10 million*** or more.

* Refer to DOE Order 430.1B, Change 1, *Real Property Asset Management*, for definitions of alterations and betterment.

** DOE Manual 135.1-1A, Change 1, *Department of Energy Budget Execution-Funds Distribution and Control Manual,* specifies total estimated cost (TEC). EM will utilize TPC as the cost determinant.

*** Congress raised the cost threshold for General Plant Projects (GPP) and Institutional GPP from $5 million to $10 million in *Omnibus Appropriations Act of 2009* (H.R. 1105).

Cleanup Projects with TPC of $10 million or more

- Surface and subsurface soil remediation such as construction of caps and engineered cover systems; excavation of contaminated soils and waste materials; and *in situ* grouting
- Surface water and groundwater remediation such as construction of treatment units; installation of sampling, monitoring and sentry wells; installation of barrier systems; and construction of phyto-remediation systems
- Retrieval of transuranic or other solid waste from **earthen-covered storage below grade**
- Removal or closure of radioactive liquid waste or high level waste tanks following waste retrieval operations
- Nuclear facility decommissioning
- Non-nuclear facility demolition and removal

OPERATIONS ACTIVITIES & PROGRAMS

Operations Activities

- Stabilization, packaging, storage, transportation, and disposition of: (1) solid waste, including transuranic waste; (2) liquid waste, including high level waste and radioactive tank waste; and (3) nuclear materials, including special nuclear materials and spent nuclear fuel
- Retrieval of transuranic or other solid waste from **earthen-covered storage above grade**
- Operation of facilities for receipt and retrieval of high-level waste
- Operation of waste processing facilities
- Surveillances, non-destructive and destructive inspections, and other stewardship activities of nuclear materials
- Emergency removal actions
- Cleanup activities with TPC less than $10 million
- Site/facility investigation, characterization, sampling and analysis, alternatives evaluation, and other activities leading up to the final approved cleanup decision document
- Operation of environmental remediation systems such as groundwater treatment systems
- Post-construction and post-closure care of remediated land burial sites
- Long-term environmental stewardship including environmental monitoring and institutional controls
- Facility shutdown and deactivation activities in preparation for final decommissioning

Programs

- General Plant Projects and Institutional General Plant Projects
- Alterations and Betterments
- Maintenance and Repair
- Landlord activities and site services
- Safeguards and security
- Emergency management
- Land management
- Fleet management
- Technology research, development, demonstration and deployment
- Community-support grants
- Public outreach and regulator oversight grants
- Preservation of cultural resources
- Program management

Figure 5. Comparison of Typical Capital Asset Project and Operations Activities and Programs

4.2 Capital Asset Cleanup Projects

This category is composed of cleanup projects whose TPC is $10 million or more, and includes: the construction phase of environmental remediation (i.e., soil and water remediation); the decommissioning[34,35,36,37] of nuclear facilities[38], radiological facilities[39], and contaminated facilities[40]; and, the demolition of non-nuclear facilities and non-contaminated facilities.

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[34] DECOMMISSIONING—As defined in DOE O 430.1B, the process of closing and securing a nuclear facility or nuclear materials storage facility to provide adequate protection from radiation exposure and to isolate radioactive contamination from the human environment. It takes place after deactivation and includes surveillance, maintenance, decontamination, and/or dismantlement. These actions are taken at the end of the life of a facility to retire it from service with adequate regard for the health and safety of workers and the public and protection of the environment. The ultimate goal of decommissioning is unrestricted release or restricted use of the site.

[35] DECOMMISSIONING—As defined in *Policy on Decommissioning Department of Energy Facilities Under Comprehensive Environmental Response, Compensation, and Liability Act* (May 22, 1995), decommissioning includes those activities that take place after a facility has been deactivated and placed in an ongoing surveillance and maintenance program. Decommissioning can include decontamination and dismantlement. Decontamination encompasses the removal or reduction of radioactive or hazardous contamination from facilities. Dismantlement involves the disassembly or demolition, and removal, of any structure, system, or component and the interim or long-term disposal of waste materials in compliance with applicable requirements. This policy establishes the approach agreed upon by the Environmental Protection Agency (EPA) and the DOE for decommissioning surplus DOE facilities to be performed as non-time critical removal actions. This definition is consistent with DOE 0 430.1B.

[36] DECOMMISSIONING—As defined in US Nuclear Regulatory Commission's *Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities*, NUREG-0586 (August 1988), to remove a nuclear facility safely from service and to reduce residual radioactivity to a level that permits release of the property for unrestricted used and termination of the license. Decommissioning activities do not include the removal of spent nuclear fuel, which is consider to be an operations activity or the removal and disposal of nonradioactive structures and materials beyond that necessary for license termination.

[37] DECOMMISSIONING—As defined in *Code of Federal Regulations*, Title 10: Energy, Chapter I--Nuclear Regulatory Commission, Part 20--Standards For Protection Against Radiation, means to remove a facility or site safely from service and reduce residual radioactivity to a level that permits (1) release of the property for unrestricted use and termination of the license; or (2) release of the property under restricted conditions and the termination of the license.

[38] NUCLEAR FACILITY—As defined in *Code of Federal Regulations*, Title 10: Energy, Chapter III--Department Of Energy, Part 830--Nuclear Safety Management, means a reactor or a nonreactor nuclear facility where an activity is conducted for or on behalf of DOE and includes any related area, structure, facility, or activity to the extent necessary to ensure proper implementation of the requirements established by this Part.

[39] RADIOLOGICAL FACILITY—As recorded in *Federal Register*, Vol. 66, No. 7, Wednesday, January 10, 2001, Rules and Regulations, that included the final version of the 10 CFR 830 Rule, a "'below hazard category 3" nuclear facility is a DOE facility or activity that meets the definition of a nuclear facility but does not meet the threshold in DOE-STD-1027 for a hazard category 3 nuclear facility. These facilities are sometimes referred to as "'radiological facilities."

[40] CONTAMINATED FACILITIES—As defined in DOE O 430.1B, DOE facilities that have structural components and/or systems contaminated with hazardous chemical and/or radioactive substances. This definition excludes facilities that contain no residual hazardous substances other than those present in building materials and components, such as asbestos-containing material, lead-based paint, or equipment containing PCBs. This definition excludes facilities in which bulk or containerized hazardous substances,

4.2.1 Environmental Remediation

Environmental remediation is a form of asset disposition whereby actions and activities are taken on a land or aquifer asset to permanently close it or make it useful. In many cases, the items themselves acquired to remediate a land or aquifer become capitalized. For example, many groundwater treatment units and its associated network of wells are capitalized because the system will operate for decades to achieve allowable maximum contaminate levels and the cost of construction is much higher than the $50,000-dollar threshold. In other cases where contamination or pollutants are stabilized and left in place without final removal, the land property (including vadose zone) may not be a reusable asset but other assets acquired to ensure its safety and security are. For example, an engineering rainwater infiltration cover system (cap) installed over a shallow land burial trench is a functioning asset with the purpose of preventing rainwater from coming in contact with the buried waste and with the purpose of protecting the buried waste from inadvertent intrusion. The cap itself may become an integral component of the burial site and become capitalized.

Environmental remediation projects are typically executed as response actions performed under *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA) (as amended by the *Superfund Amendments and Reauthorization Act of 1986*) or as corrective actions or facility closures performed under *Resource Conservation and Recovery Act of 1976* (RCRA). Examples include the construction of soil remediation systems, vadose zone remediation systems, engineered covers placed over burial sites, surface water and sediment remediation systems, and groundwater remediation systems; excavation of disposed[41] waste and waste stored below grade; and the installation of monitoring systems. In general, these projects are executed to address radioactive, chemical and hazardous contamination or pollutants in an effort to reduce the overall risk to human health and natural environment.

Other regulatory frameworks such as voluntary cleanup programs exist but generally mimic those of CERCLA and/or RCRA.

After the activities of construction, installation, and commissioning are completed, the remediation systems become operational and transition into a phase of long-term environmental operations, safety and security.

4.2.1.1 Cleanup under CERCLA

Cleanup projects include response actions taken under CERCLA either as:

(1) Short-term removals, where actions may be taken to address releases or threatened releases requiring prompt response or

(2) Long-term remedial response actions, that permanently and significantly reduce the dangers associated with releases or threats of releases of hazardous substances

including radionuclides, have been used or managed if no contaminants remain in or on the structural components and/or systems.

[41] DISPOSAL—As defined in DOE M 435.1-1, *Radioactive Waste Management Manual*, emplacement of waste in a manner that ensures protection of the public, workers, and the environment with no intent of retrieval and that requires deliberate action to regain access to the waste.

that are serious, but not immediately life threatening. Long-term response actions are only conducted at sites listed on the National Priorities List.

NOTE: Because emergency removals are undertaken when the danger of a release or a substantial threat of a release[42] is so great that there is no time to undertake a planning process, they are executed as operations activities.

4.2.1.2 Cleanup under RCRA

Cleanup projects include corrective actions taken under RCRA. The RCRA Corrective Action program (part of Subtitle C) addresses when action is needed to clean up contamination at a facility. RCRA corrective action usually takes place at facilities that treat, store, or dispose of hazardous waste. Corrective action may be prompted through the enforcement mechanisms found in RCRA, through a RCRA permit, or through voluntary agreements. Corrective action can take place while a facility continues operating.

A cleanup project is also a RCRA facility closure. A facility may either be completely decontaminated or treated so that exposure to the remaining contamination is minimized. There are two ways to approach the closure of a contaminated site—closure by removal (clean closure)[43] and closure-in-place (dirty closure)[44]. Waste retrieval operations, however, are operations activities.

RCRA corrective action and closure are similar in that both are concerned with protecting human health and the environment from damage caused by releases from hazardous waste management facilities. They are different in that corrective action is designed to address *releases that have already occurred*, while closure is designed to *prevent releases* after the facility has stopped receiving waste.

4.2.2 Facility Disposition

The final lifecycle phase of a facility asset includes its disposition[45] and, if authorized, its disposal[46]. For facilities, there are generally two management approaches taken to

[42] Under CERCLA, the terms "release" and "substantial threat of a release" are defined broadly to include almost any situation where a hazardous substance escapes into the environment from its normal container. A release thus occurs whenever there is "any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing any hazardous substance or pollutant or contaminant)..." (CERCLA § 101(22)).

[43] CLEAN CLOSURE occurs when all hazardous wastes and any associated contamination at the facility are removed to the extent that laboratory analysis shows the contaminants remaining are either below the detection limits of the analytical method or below background levels. A facility may also be considered clean closed if it can be determined that any contamination remaining in place at the site is of no danger to human health or the environment through the use of drinking water standards and health-based levels.

[44] DIRTY CLOSURE occurs when hazardous wastes or associated contamination remain in place at the site either in the soil or groundwater or both.

[45] DISPOSITION—As defined in DOE O 430.1B, those activities that follow completion of program missions, including, but not limited to, preparation for reuse, surveillance, maintenance, deactivation, decommissioning, and long-term stewardship.

disposition/dispose of them: (1) decontamination and decommissioning and (2) demolition and removal. Facilities whose structures, systems and components have become contaminated with radioactivity or hazardous substances due to facility operations and inadvertent releases will undergo a disposition process (i.e., decontamination and decommissioning) that typically is regulatory-based, and includes a formal decision-making process. Facilities having residual hazardous substances other than those present in building materials and components will undergo traditional construction-type demolition and removal.

4.3 Operations Activities

For the purpose of EMRAP work, "operations activities" is a general term that includes all work occurring at a plant or facility that is directly associated with the execution of the EM mission such as: chemically dissolving excess nuclear materials; processing waste at a treatment, storage and disposal facility; retrieving radioactive liquid waste from tanks; and operating groundwater treatment systems. These types of activities are referred as cleanup activities, and are discussed further in a later section.

Also included in the grouping of EM operations activities are minor construction (GPP and IGPP) and sustainment activities (maintenance and repair) taken on a plant or facility in order to preserve its viability, reliability, and safety. This distinction is made to separate these types of work from those being managed as capital asset projects in accordance with DOE O 413.3A.

The separation and distinction of capital asset projects from operations activities and programs does not fundamentally change the manner by which Recovery Act-funded work is conducted. As applied to projects, the management approach applied to operations activities and programs continues to maintain the rigor, utility and value of: Federal leadership and accountability by assignment of a well-qualified staff including FPDs as appropriate; positive configuration control over credible performance baselines; smart risk management and uncertainty awareness; sound projects controls, including earned value management; and contract management and oversight that keeps the interest of the government foremost. For planning, budgeting, executing, monitoring, and reporting on operations activities and programs, baselines will continue to be developed, validated, and used to monitor and report performance. Each baseline will continue to be composed of a:

(1) Technical baseline based on clearly identified work shown in a work breakdown structure (WBS) and defined in a WBS dictionary, key performance parameters, performance metrics, and analytical building blocks;

(2) Cost baseline with a defensible basis of estimate and a lifecycle profile;

(3) Schedule baseline with a critical path, logic ties, interdependencies, major milestones, and appropriately loaded resources; and

(4) Risk management approach that includes a risk and opportunity register whose postulated events are supported by quantitative analyses, and whose calculated impacts are represented in a cost value and schedule duration.

[46] DISPOSAL—As defined in DOE O 430.1B, permanent or temporary transfer of DOE control and custody of real property assets to a third party who thereby acquires rights to control, use, or relinquish the property.

While reviews will still be conducted by the EM Acquisition Advisory Board, Critical Decisions will not be sought for operations activities and programs.

4.3.1 Cleanup Operations Activities

This category includes EM operations activities such as:

- Stabilization, packaging, storage, transportation, and disposition of solid waste (including radioactive and transuranic waste), liquid waste (including high level waste and radioactive tank waste), and nuclear materials (special nuclear materials and spent nuclear fuel);
- Post-construction and post-closure care of remediated land burial sites;
- Retrieval of transuranic waste from above grade[47] earthen-covered storage [48];
- Activities leading up to the approved cleanup decision document (discussed further);
- Operation of remediation systems such as groundwater treatment systems; and
- Long-term stewardship[49], including environmental monitoring and institutional controls[50].

4.3.1.1 Activities Leading up to the Final Cleanup Decision

Common to most regulatory frameworks, the lifecycle of a cleanup effort is typically composed of five general groups of activities as listed below.

(1) Collecting information needed to understand and bound the cleanup problem – preliminary assessments, site/facility assessments, site/facility inspections,

[47] GRADE means the construction ground level at which the ground meets a building or other intended man-made structure such as a slab that required minimal or incidental digging of soil for its construction.

[48] RETRIEVABLE EARTHEN-COVERED STORAGE—DOE M 435.1-1 requires plans for the removal of transuranic (TRU) radioactive waste from retrievable earthen-covered storage facilities be established and maintained. This method of interim storage was implemented DOE-wide pending the operation of a Federal geologic disposal facility for TRU waste generated as by-products from DOE's nuclear weapons production. The Waste Isolation Pilot Plant now serves as that repository, and began transuranic waste disposal operations in 1999. Since then, EM began transuranic waste retrieval operations.

[49] LONG-TERM STEWARDSHIP—As defined in DOE O 430.1B, the physical controls, institutions, information and other mechanisms needed to ensure protection of people and the environment at sites where DOE has completed or plans to complete cleanup (e.g., landfill closures, remedial actions, removal actions, and facility stabilization). This concept includes land-use controls, monitoring, maintenance, and information management.

[50] INSTITUTIONAL CONTROLS—As defined in DOE O 430.1B, non-engineering measures intended to affect human activities in such a way as to prevent or reduce exposure to hazardous substances. Institutional controls are usually used in conjunction with, or as a supplement to, other measures such as waste treatment or containment. There are four categories of institutional controls: governmental controls; proprietary controls; enforcement and permit tools with institutional controls components; and information devices. For this Order, institutional controls are those governmental controls such as deed notifications, easements, use restrictions, leases and other property interests that are inventoried as records and notes in records in the Facilities Information Management System.

site/facility characterization, sampling and analysis, remedial investigations, baseline risk assessments

(2) Using the information to develop and evaluate possible solutions to the cleanup problem – treatability studies, feasibility studies and corrective measures studies, engineering evaluation and cost analysis, and selection criteria

(3) Selecting the solution to the cleanup problem – developing proposed plans and associated responsiveness summaries, developing the statement of basis, issuing the final decision documents (e.g., corrective action document, record of decision, action memorandum, etc.)

(4) Taking action to solve the cleanup problem – remedial design and remedial action, corrective measures implementation plan

(5) Operating and maintaining the cleanup solution and verifying it works – long-term response actions, operation and maintenance, environmental monitoring, periodic remedy reviews and permit modifications

Final approval of the cleanup decision document by DOE and the regulatory agencies marks the start of the capital asset cleanup project. All actions leading up to final approval of the cleanup decision are managed as operations activities.

Approval of the final cleanup decision document by the Department and the regulatory agencies marks the start of the capital asset cleanup project and provides the basis, in part, for approval of CD-0 and CD-1. The AE can give concurrent approval of CD-0 and CD-1.

Completion of design and approval of implementation plans provide the basis, in part, for approval of CD-2 and CD-3. The AE can give concurrent approval of CD-2 and CD-3.

Upon successful completion of the construction/installation and verification that it is operational and functional, the capital asset cleanup project then proceeds to closeout following AE approval of CD-4. Post-construction activities such as long-term operation of groundwater treatment units and post-closure care of burial grounds are operations activities and not subjected to DOE O 413.3A.

These concepts are summarized and illustrated in Figure 6.

Typical Lifecycle of Environmental Remediation (Cleanup Action)

Understanding and Bounding the Problem	Evaluating Possible Solutions	Selecting the Solution	Performing Cleanup	Long-Term Operation and Maintenance
CERCLA Response Activities • Site Discovery • Preliminary Assessment/ Site Inspection Completion • Remedial Investigation • Sampling and Analysis • Baseline Risk Assessment	CERCLA Response Activities • Feasibility Study • Engineering Evaluation/ Cost Analysis • Interim Remedial Action/ Early Action • Treatability Study	CERCLA Response Activities • Proposed Plan • Responsiveness Summary • Record of Decision • Action Memorandum	CERCLA Response Activities • Remedial Design • Remedial Action • Remedial Action Completion of Validation of Operational and Functional	CERCLA Response Activities • Operation & Maintenance • Post-Closure Care • Environmental Monitoring • Institutional Controls • Periodic Remedy Reviews
RCRA Corrective Action Activities • Facility Assessment • Facility Investigation	RCRA Corrective Action Activities • Corrective Measures Study • Interim/Stabilization Measures	RCRA Corrective Action Activities • Corrective Action Plan • Statement of Basis • Corrective Action Decision • Permit/Modification Issuance	RCRA Corrective Action Activities • Corrective Measures Implementation Plan • Certification of Remedy Completion or Construction Complete	RCRA Corrective Action Activities • Operation & Maintenance • Post-Closure Care • Environmental Monitoring • Institutional Controls • Permit Renewals
RCRA Closure Activities • Part A/Part B Permit Notification	RCRA Closure Activities • Closure Plan and Post-Closure Permit Application	RCRA Closure Activities • Closure Plan Approval and Post Closure Permit/ Modification Issuance	RCRA Closure Activities • Closure Plan Implementation • Groundwater Cleanup • Closure Certification	RCRA Closure Activities • Operation & Maintenance • Post-Closure Care • Environmental Monitoring • Institutional Controls • Permit Renewals
Operations Activities			Capital Asset Activities	Operations Activities

Figure 6. Typical Phases and Activities of Environmental Remediation

4.3.1.2 Facility Deactivation

Operations activities also include facility shutdown and deactivation[51,52] activities designed to place the inactive structures, systems and components in a safe and stable configuration pending final decommissioning. The disposition lifecycle of a facility is described in DOE O 430.1B, which distinguishes the deactivation phase, whose focus is on achieving a safe, low-cost configuration, from the decommissioning phase, whose focus is on achieving the end state.

Activities performed during deactivation are part of facility operations because they involve process-related work. During deactivation, an end-point is defined to establish the final configuration of a facility's particular structure, system or component. Collectively, these end-points define the end-configuration of the facility and when deactivation is complete. A common goal in deactivation is to reduce the nuclear hazard categorization of a facility to below Hazard Category 3 (radiological facility).

Deactivation does not include all decontamination necessary for the dismantlement and demolition phase of decommissioning (e.g., removal of contamination remaining in the fixed structures and equipment after deactivation).

Limited dismantlement may need to be performed to accomplish certain deactivation activities. For example, sections of deck grating and other structural interferences may need to be removed in order to access piping low-points or bends in order to drain a liquid system.

Figure 7 summarizes the disposition lifecycle, and lists typical operations activities that take place during deactivation and the typical capital asset activities that take place during decommissioning.

[51] DEACTIVATION—As defined in DOE O 430.1B, placing a facility in a stable and known condition including the removal of hazardous and radioactive materials to ensure adequate protection of workers, public health and safety, and the environment, thereby limiting the long-term cost of surveillance and maintenance. Actions include the removal of fuel, draining and/or de-energizing nonessential systems, removal of stored radioactive and hazardous materials, and related actions. Deactivation does not include all decontamination necessary for the dismantlement and demolition phase of decommissioning (e.g., removal of contamination remaining in the fixed structures and equipment after deactivation).

[52] DEACTIVATION—As defined in *Decommissioning Policy*, the process of placing a facility in a safe and stable condition that is protective of workers, the public, and the environment until decommissioning is completed. As the bridge between operations and decommissioning, deactivation can accomplish operations-like activities such as final process runs, and also decontamination activities aimed at placing the facility in a safe aid stable condition. This definition of deactivation is consistent with DOE O 430.1B.

Typical Post-Operational Lifecycle of a Nuclear Facility

Transition Phase	Deactivation Phase	Interim S&M Phase	Decommissioning Phase
Surveillance and Maintenance			
Transition activities occur between the operations and disposition phases in a facility's life cycle. Transition begins once a facility has been declared or forecast to be excess to current and future DOE needs. It includes placing the facility in stable and known conditions, identifying hazards, eliminating or mitigating hazards, and transferring programmatic and financial responsibilities from the operating program to the disposition program.	Placing a facility in a stable and known condition including the removal of hazardous and radioactive materials to ensure adequate protection of workers, public health and safety, and the environment, thereby limiting the long-term cost of surveillance and maintenance. **Deactivation places the facility in a low-risk state with minimum S&M requirements.** Typical activities: • Remove nuclear fuel, spent nuclear fuel, special nuclear materials and other process-related radioactive materials • Remove process-related chemicals • Drain and isolate non-essential liquid systems • De-energize and de-pressurize non-essential systems • Remove radioactive check sources • Remove hazardous materials and including flammables • Remove combustible materials Deactivation does not include all decontamination necessary for the dismantlement and demolition phase of decommissioning (e.g., removal of contamination remaining in the fixed structures and equipment after deactivation). **FOCUS IS ON ACHIEVING A SAFE, LOW-COST CONFIGURATION**	During interim periods of dormancy that typically occur between deactivation and final decommissioning, an S&M program is established. **S&M activities are conducted throughout the facility life cycle**, including when a facility is not operating and is not expected to operate again. S&M program is adequate to maintain the facility safety envelope during the final stages of operations through a seamless transition to the final disposition of the facility. S&M activities include periodic inspections and maintenance of structures, systems, and equipment to ensure that, at a minimum, any contamination is adequately contained and that the potential hazards to workers, the public, and the environment are eliminated or mitigated and controlled.	The final facility disposition activity is typically decommissioning, during which **the facility is taken to its ultimate end state through decontamination and/or dismantlement.** Decommissioning is the process of closing and securing a nuclear facility or nuclear materials storage facility to provide adequate protection from radiation exposure and to isolate radioactive contamination from the human environment. Decommissioning takes place after deactivation, and includes decontamination and/or dismantlement. After decommissioning is complete, the facility or surrounding area may require DOE control for protection of the public and the environment or for environmental remediation. **FOCUS IS ON ACHIEVING THE FINAL END-STATE**
Operations Activities			**Capital Asset Activities**

Figure 7. Comparison of Deactivation Phase Activities with Decommissioning Phase Activities

4.4 Program Activities

EM activities in this category include landlord activities and site services such as PP&E sustainment, safeguards and security; emergency management; land and forestry management; fleet (vehicle transportation) management; technology research, development, demonstration and deployment; community-support grants; public outreach, regulator oversight grants; preservation of cultural resources, and program management.

Other activities executed as part of the EM mission are summarized below.

4.4.1 GPP and IGPP (Minor Construction)

Betterments, alternations, recapitalizations, and other minor construction activities whose TPCs are less than $10 million are executed as program activities.

By their nature, GPPs [and IGPPs] are difficult to detail in advance and are subject to changing priorities and requirements, emergencies, and contingencies arising after the budget submission that may force changes in scope, schedule, and the order in which these projects are undertaken.[53]

GPP [and IGPPs] funds are not intended to be used in incremental segments to construct larger facilities. Care should be exercised to ensure that each specific project is a discrete, stand-alone entity. Each project is to result in the delivery of a complete and usable facility including the initial complement of equipment required for the facility to meet its intended purpose. In this regard, only GPP [and IGPPs] funds can be used to make the facility complete and usable.

When design is funded in one fiscal year and construction is funded in the next fiscal year, every effort shall be made to complete the construction as early as possible. The cognizant field element must maintain controls to ensure compliance with the congressional established limit [now $10 million] and incremental funding prohibitions.

4.4.2 Minor Cleanup Activities

Environmental remediation activities whose TPCs are less than $10 million are executed as program activities.

5.0 ESTABLISHING EMRAP PROJECTS

EM is restructuring its portfolio based on making the distinction between capital asset projects and operations activities. Implementation of the new project restructuring will begin immediately for EMRAP projects, and is in development for the balance of the EM program. To support the Recovery Act projects, changes were made in the Integrated Planning, Accountability, and Budgeting System-Information System (IPABS-IS) PBS structure to allow clearer traceability of Recovery Act funding and project costs to the overall EM lifecycle, and to preserve the pedigree of existing formal project Critical Decisions. Recovery Act work scope is executed under the

[53] Paragraph excerpt from DOE *Accounting Handbook*, Chapter 10.

existing Base Program PBS as a sub-PBS. Accordingly, a sub-PBS was created for each of the OMB Recovery Act apportionments and the corresponding Project Operating Plans developed for DOE's Chief Financial Officer. In some instances, Recovery Act PBSs have been further broken down into sub-sub PBSs to facilitate their management as sub-projects consistent with the new approach on executing capital asset cleanup projects. Refer to Figure 8 for a conceptual illustration of the revised PBS structure.

Overlaying the revised PBS structure shown in Figure 8 is the EM Corporate Work Breakdown Structure (CWBS), which defines the organization and the work scope of the entire EM Program. The CWBS provides the framework for planning, organizing, execution, and performance monitoring and measurement in the EM Program. The CWBS comprises four hierarchal levels—Level 1, at the highest level, is the EM Program and is followed by, in decreasing subordinate order, Level 2 as site/field level, Level 3 as the project level; and Level 4 as the sub-project level at which analytical building blocks (ABBs) are established. As illustrated on Figure 8, a project can be composed of one or more ABB. However, a single ABB cannot be established for more than one project.

5.1 Project Management Implementation Factors

The project management implementation approach to execute EM Recovery Act projects are based on the factors and considerations summarized below.

5.1.1 Proven Performance of EM Cleanup Projects

The nature of the work funded by the Recovery Act is relatively low risk when compared to other EM mission activities including the disposition of high-level waste, nuclear materials and spent nuclear fuel. The EM work funded by the Recovery Act does not involve the construction of large, complex nuclear facilities. Instead, the staples of the EM program—environmental remediation, facility decommissioning and demolition, and solid waste disposal—comprise the Recovery Act projects. These projects are conducted under well-established regulatory processes, utilize off-the-shelf technologies, implement well-established integrated safety management systems, employ a ready-trained and qualified workforce, and have historical performance and benchmarks against which EM derives credible cost estimates. As such, the early authorizations outlined in the Integrated Authorization Process (discussed later) present an overall risk to the government that is comparably low because the risks associated with the work are comparably low.

5.1.2 Historical Structure of EM Lifecycle Baselines

The lifecycle baseline of an EM cleanup program has been composed of three, time-phased components: completed work, the near-term baseline (NTB) performance baseline, and the out-year planning estimate range (OPER). This structure, as illustrated in Figure 9, was further refined in Departmental memorandum, "Protocol for Environmental Management Cleanup Projects," of April 24, 2007 jointly issued by J. Rispoli, Assistant Secretary for Environmental Management, and P. Bosco, Director, Office of Engineering and Construction Management.

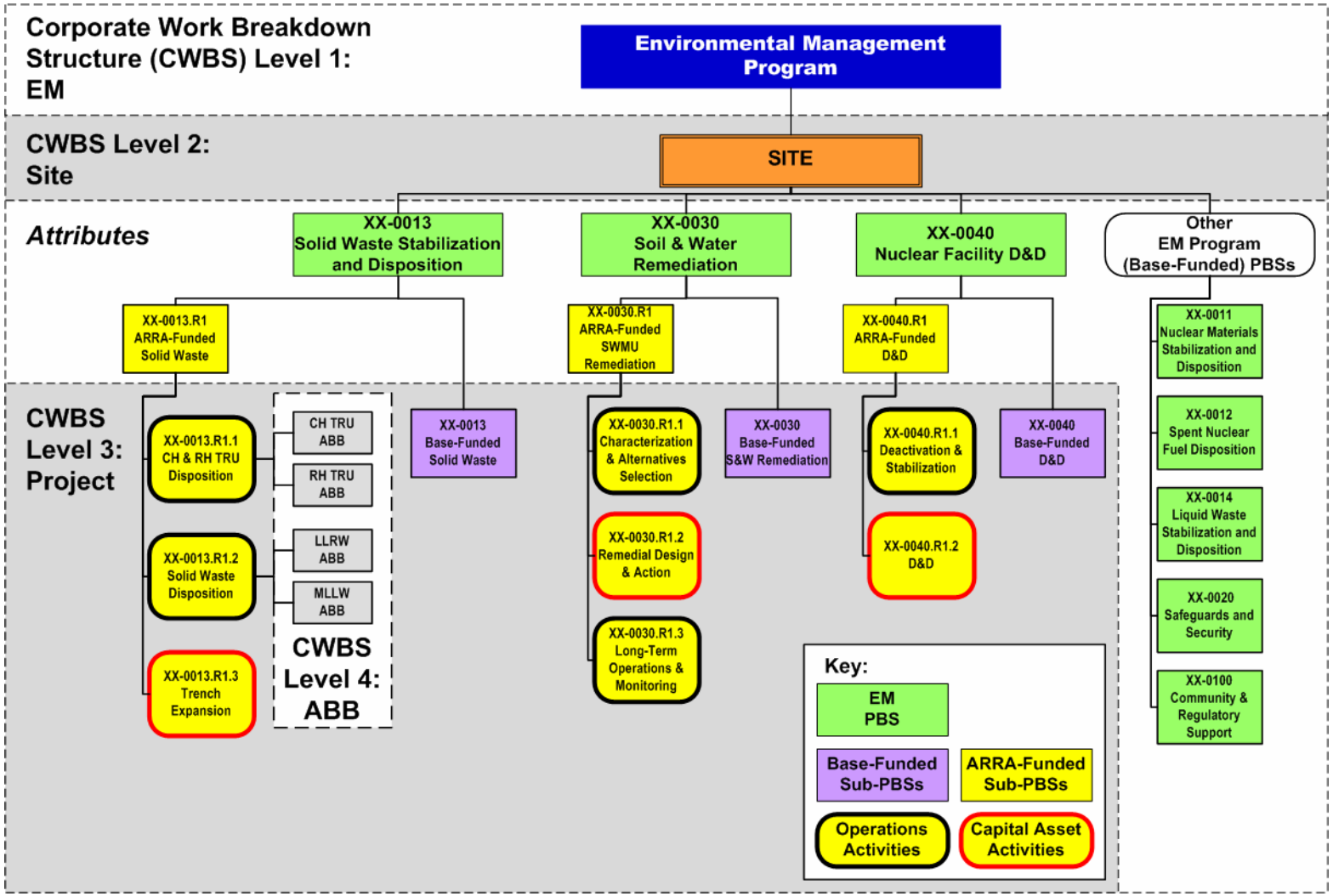

Figure 8. PBS Structure Revised to Include Recovery Act-Funded Programs, Projects, and Activities

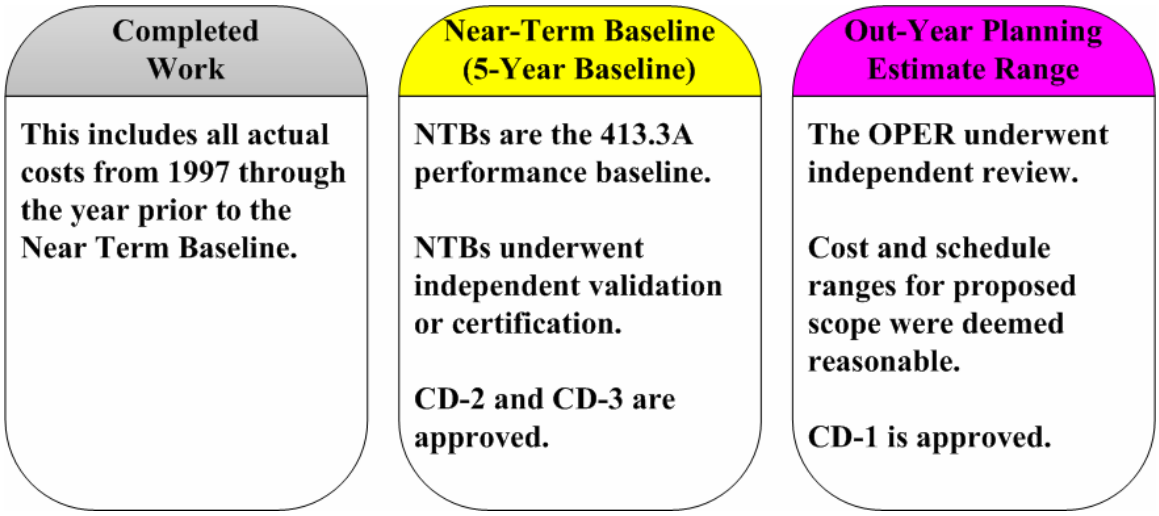

Figure 9. Components of the Lifecycle Baseline for EM Cleanup Projects

Completed Work (The Prior Year Actual Costs). EM established 1997 as the starting point for all cleanup programs. No costs before 1997 are included in this number. The ending year was the year before the near-term baseline begins. The timeframe of the completed work would increase each time the next near-term baseline or phase (five or more years) of the cleanup project lifecycle is established and validated.

The Near-Term Performance Baseline (e.g., Near-Term Baseline). The NTB for Cleanup Programs is established for a minimum of five years or for the period of performance for the current contract if it exceeded five years. In all cases except possibly the tail end of the project lifecycle, the NTB started at the beginning of a fiscal year and completed at the end of a fiscal year. An external independent review (EIR) was conducted on the near-term baseline if its cost was $250 million or more, otherwise an independent project review (IPR) was conducted. As such, the performance baseline associated with the NTB was independently validated. Upon approval of Critical Decision (CD) 2, "Approve Performance Baseline," by the Acquisition Executive (AE), the NTB was approved. Critical Decision 3, "Approve Start of Construction (Cleanup Operations)," was also noted as approved at this point because NTB activities were already execution.

The Out-Year Planning Estimate Range. The OPER was defined as the first fiscal year following the last fiscal year of the current NTB through project completion and was considered a CD-1 quality cost and schedule range estimate. Therefore, CD-1, "Approve Selected Alternative and Cost Range," is considered approved for the OPER. Verifying the reasonableness of the OPER was part of the EIR (or IPR) performed on the NTB. The AE approved the reasonableness of the OPER, and is responsible for managing and documenting via change control the scope and cost and schedule ranges for the lifecycle program plan. The OPER is expected to change with evolving project and regulatory conditions, as new knowledge regarding project scope is gained, and as existing project risks are mitigated or new project risks identified.

6.0 EXECUTING EMRAP PROJECTS

6.1 Integrated Authorization Process

To meet one of the underlining objectives of the Recovery Act for immediate job retention and creation, EM developed and implemented an acquisition framework that fully integrates funds management, contract management, project management, performance measurement, and work authorization. This Integrated Authorization Process (IAP) outlines the workflow through which initial authorization is given to the contractor to begin work, which includes the hiring of workers, while the contract scope and price are definitized and the contractor performance measurement baseline is developed. This process follows the work authorization approach taken for newly awarded contracts wherein, during a transitional period, the contractor executes work while finalizing plans for the entire period of performance.

The IAP institutes checks and balances that facilitate cost control and performance monitoring. Work controls include execution of a contractor-prepared 180-day work plan to cover the period of definitization, performance measurement and monitoring by the contractor against the 180-day work plan, and monthly reporting by the contractor against the 180-day work plan.

Funds control measures include authorizing initial allotments to the allottee (field office/project office/service center) at 80% of the apportionment. In addition, a threshold for incurred costs was set at 30% of that allotment (24% of the apportionment). In order to be considered for additional increments of obligation and cost authority, field managers must complete the second checklist of certifications and the authorization. When cumulative costs are within 5% of the threshold established on the funds authorization, managers must submit the notification to EM-Headquarters.

The independent government cost estimates that are developed, the independent reviews and validations of cost estimates that are performed, the cost audits performed by Defense Contracting Audit Agency and Office of Inspector General, and other pricing activities that occur during contract definitization will be leveraged and married with cost estimation activities that occur as the performance baseline is developed. Cost integration is a key component of the IAPs.

Figure 15 is the IAP for executing Recovery Act work utilizing existing management and operating (M&O) contracts where the work is within the current statement of work. Similarly, Figure 16 is the IAP for executing work utilizing existing non-M&O contracts where the work is within the current statement of work. IAPs will be developed for other contract types.

Collectively, these measures were implemented to minimize the overall risk to the government during execution of Recovery Act-funded work.

6.2 Project Scenarios Based on Recovery Act Funding

The funding provided by the Recovery Act to EM Cleanup Projects has different affects on the projects. In consideration of these impacts and the current structure of their lifecycle baselines, the following scenarios serve to describe the EMRAP projects. These scenarios are illustrated in Figure 10.

Scenario 1: NTB Work is Accelerated. In this scenario, the addition of Recovery Act funds allows EM to simply accelerate NTB work. In Figure 10, work packages, as part of the NTB, are accelerated.

Scenario 2: NTB Work Funds are Restored. For some projects, available funding or the project budget was not sufficient to fully execute the NTB. As a result, work had to be delayed and rescheduled to a later period, either in the NTB or the OPER. In this scenario, the Recovery Act restored the funding or budget shortfalls, and allows EM to resume execution against the NTB. In Figure 10, work packages are restored.

Scenario 3: OPER Work is Accelerated. This scenario reflects projects whose work in the OPER can be accelerated for near-term execution with the utilization of Recovery Act funds. This scenario also includes work that is new to EM, and has an AE-approved CD-1. As shown in Figure 10, planning packages, which provide the basis for the OPER, are accelerated. They do not become part of the NTB but are baselined, executed, and reported as separate, discrete projects. However, where the activities are alike and or complementary, the existing NTB and new project activities may be executed and managed in an integrated manner, but baselined and reported separately.

Scenario 3A: OPER Work is Accelerated and Early Field Work Will Start. This special case of Scenario 3 exists because, in order to retain workers (avert projected involuntary reductions in the work force) and/or hire new workers, there is a more immediate need to execute OPER work. In this case, a robust performance baseline for the entire work scope is estimated at the top end of the cost range and is approved by the AE along with CD-3A for the limited initial work scope. Following definitization of the full work scope, a revised performance baseline may be approved along with CD-3 for execution of the entire work scope.

Scenario 4: New Work. Excess facilities were recently transferred to EM from other Program Secretarial Offices for dispositioning. However, EM has yet to budget for this new scope and is not yet executing any of that work. With Recovery Act funds, some of this new work will now be performed. This scenario reflects new work that is now funded, and EM is going to execute it as a Recovery Act project. As shown in Figure 10, technical scope is identified and planned accordingly. When CD-1 is already approved, planning packages are accelerated, and are executed as separate, discrete projects.

6.3 Tailoring Project Phases (DOE O 413.3A, Requirement 5.c)

If tailoring of project phases are needed, project-specific tailoring will be identified in a tailoring strategy plan that is vetted through OECM and approved by the AE in advance of the tailored phase or CD approval request. OECM will verify that the tailoring proposal maintains compliance with DOE O 413.3A. For projects involving scope that is new to EM, project initiation, definition and execution will be combined and accelerated. While the scope is new, the nature of the work (i.e., environmental remediation, facility dispositioning, and waste dispositioning) is not.

6.4 Tailoring Critical Decisions (DOE O 413.3A, Requirement 5.d)

The next series of pages (Figures 11 – 14) provide the framework for the Critical Decisions and other AE approvals and actions for each of the project scenarios previously described.

In each project scenario, a Change Request is initiated by the FPD within IPABS-IS to transfer technical scope, risks, metrics, planned value, and milestones that are now funded by the Recovery Act into a newly created sub-PBS(s) in a manner that draws separation and delineation from the baseline elements that are funded by NDAA. For NTB activities, this allows for separable cost control for ARRA reporting, but project performance must still be reported in PARS on the aggregate NTB.

Project documentation and those supporting the CDs may be streamlined provided information and authorizations are clearly identifiable and traceable to Recovery Act-funded work. As OPER and NEW work is baselined and established as discrete projects, existing documents such as Acquisition Strategies, Project Execution Plans, Tailoring Strategies, and Integrated Project Team Charters should be amended as needed. Attaching Recovery Act-specific appendices to project documents is an acceptable method of documentation. Tailoring for Scenario 3A, where initiation of construction/cleanup work must be initiated early, requires establishment of a bounding performance baseline as described further below.

6.5 Critical Decision Approvals and Thresholds (DOE O 413.3A, Requirement 5.e)

All EMRAP projects are Non-Major System Projects having a TPC less than $1 billion. Assistant Secretary for Environmental Management, as the designated Acquisition Executive, must approve all Non-Major System CDs. If a transfer of Landlord responsibilities crosses Under Secretary organizational lines, the AE will be the Deputy Secretary for CD-0 and CD-4, where applicable.

Assistant Secretary for EM may delegate specifically defined AE authorities to EM Headquarters or Field Element Managers who are members of the Senior Executive Service for CD-1, CD-2, CD-3, and CD-4 for projects with a TPC less than $100 million.

6.6 Reviews (DOE O 413.3A, Requirement 5.h)

6.6.1 Reviews Supporting CD-0

There are no Mission Validation Independent Project Reviews that will be performed because none of the individual EMRAP projects are Major Systems and separate mission need justification for EMRAP projects is not required because environmental cleanup, facility D&D, and waste disposition are core mission activities of EM.

There are no Mission Need Statement reviews that will be performed beyond those that were already performed by the Office of Program Analysis and Evaluation (PA&E) on EM's two-page stimulus proposals.

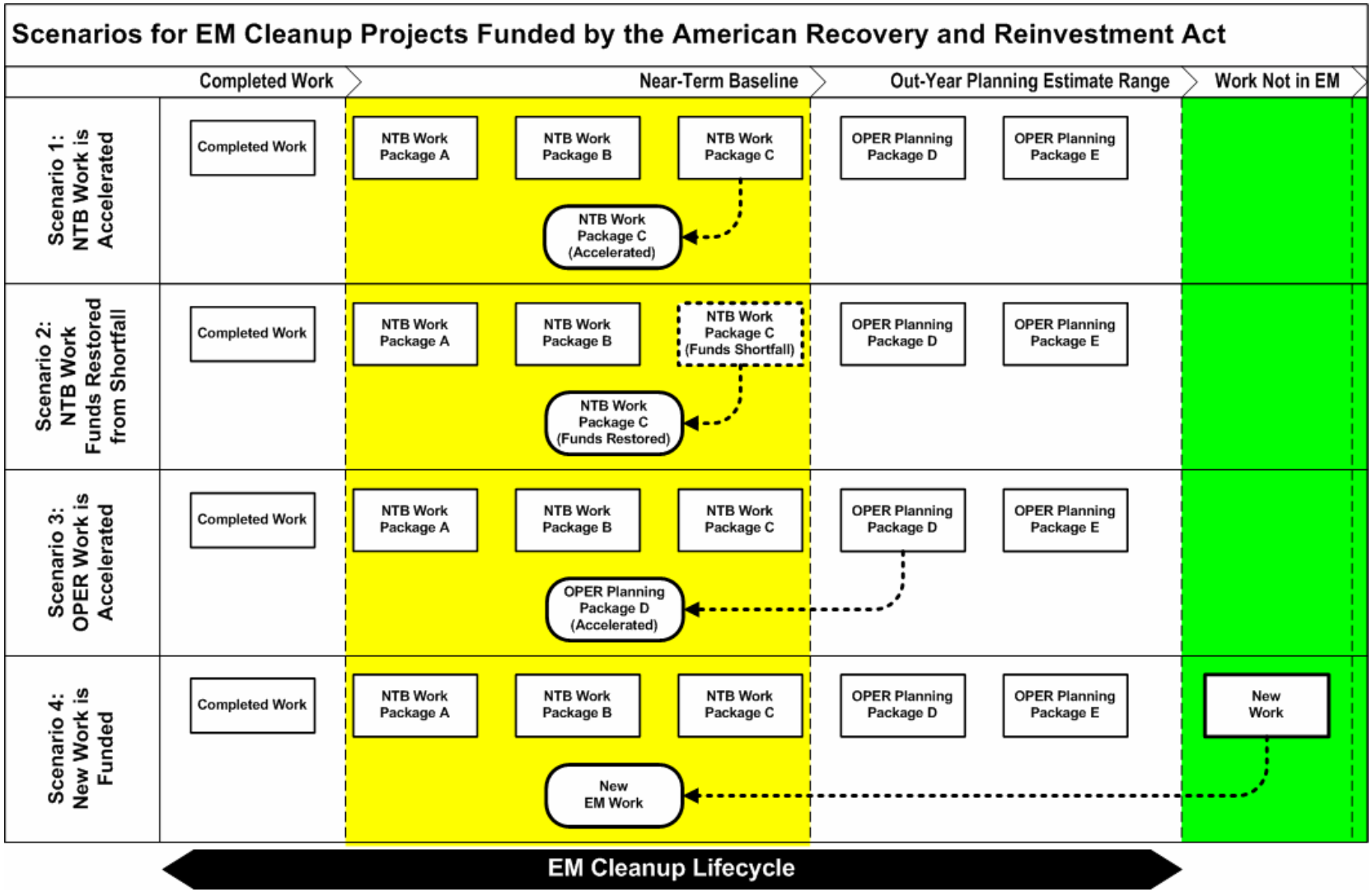

Figure 10. Project Scenarios with Recovery Act Funding

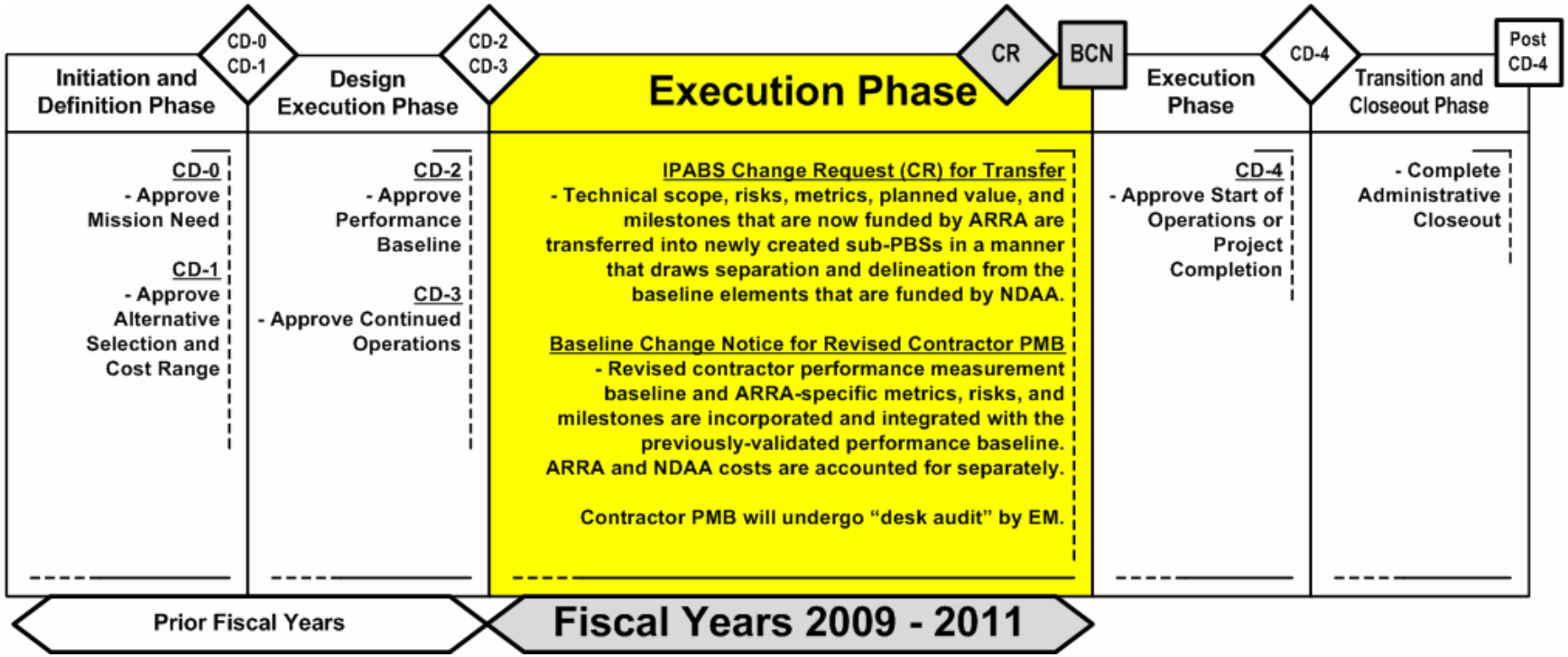

Figure 11. Approvals Supporting Project Scenario 1 and Scenario 2

This scenario represents work funded by the Recovery Act that is already captured within an AE-approved NTB. In this scenario, the addition of Recovery Act funding: (1) it allows the acceleration of work activities (Scenario 1) or (2) restores funding shortfalls thereby allowing the FPD to resume execution of the work against the performance baselines (Scenario 2). In either case, a CR is initiated. Minor changes to the performance measurement baseline are executed through field-level change control process, and the FPD submits a baseline change notice (BCN). No further AE authorizations are needed.

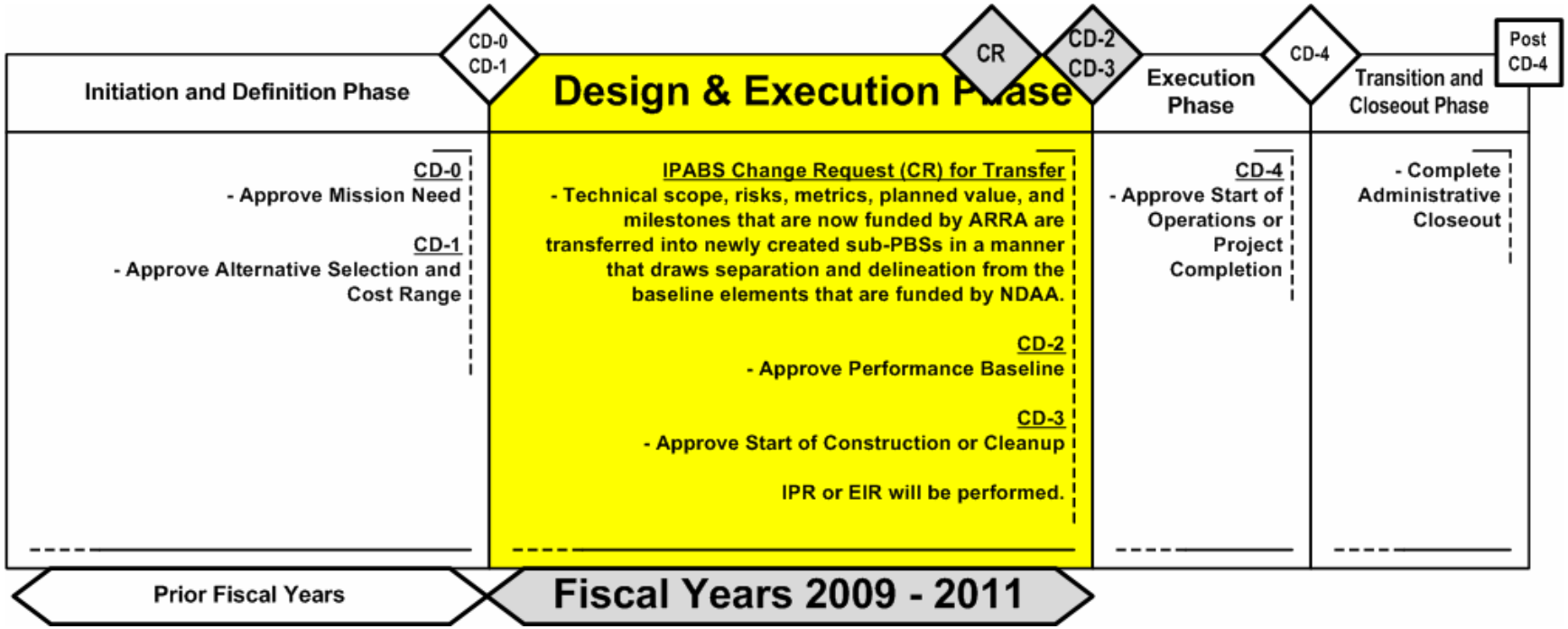

Figure 12. Approvals Supporting Project Scenario 3

This scenario represents OPER work that is now funded by the Recovery Act, and is accelerated. Because CD-1 is approved, CD-2 approval is needed to establish the performance baseline and CD-3 approval is needed to authorize the start of fieldwork.

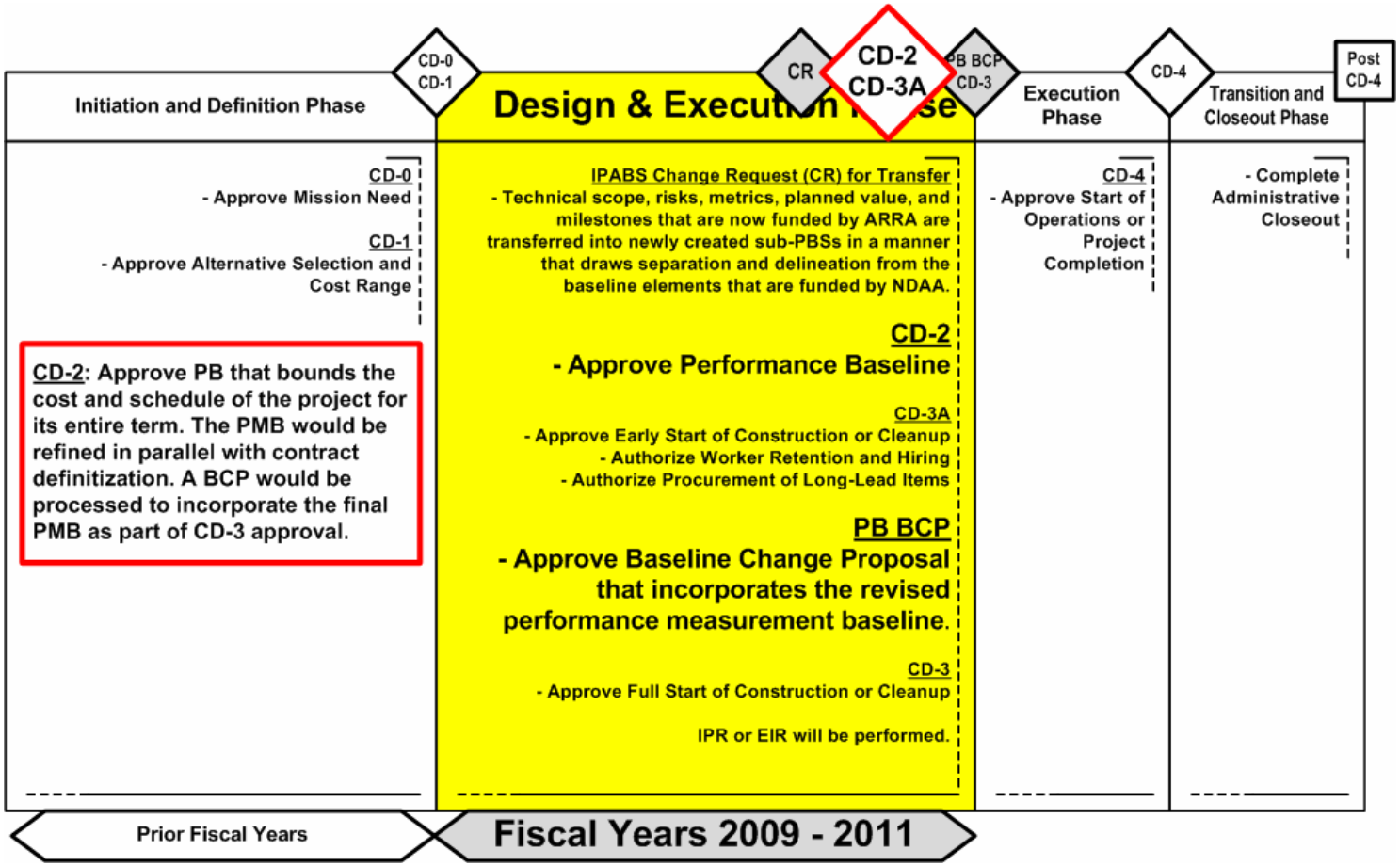

Figure 13. Approvals Supporting Project Scenario 3A

These approvals support OPER work that is accelerated, and fieldwork will begin early. The FPD will submit a memo to the AE requesting approval of CD-2/3A. The basis for CD-2 approval will be a PB that bounds the cost and schedule at the upper range for 80% of the work. CD-3A will authorize the early start of fieldwork. A BCP will be processed upon contract definitization and approval of the refined performance baseline consistent with the timeframe (e.g., 120 to 180 days) outlined in the IAP. CD-3 will authorize the execution of the balance of work.

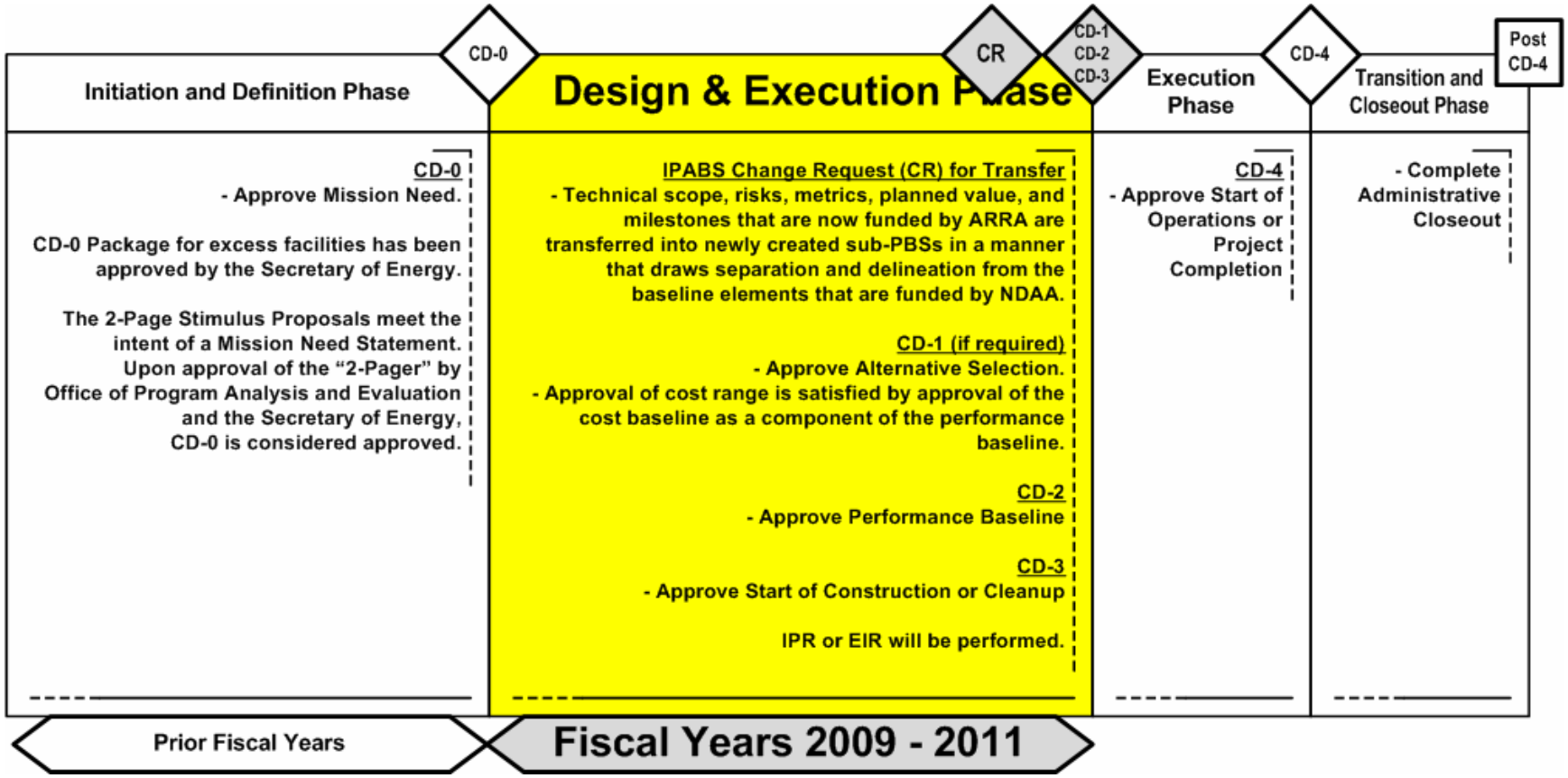

Figure 14. Approvals Supporting Project Scenario 4

These approvals support NEW work that is accepted into the EM program and funded by Recovery Act for immediate execution. CD-1, -2 and -3 will be combined. Most elements of CD-1 will be replaced by more developed documentation to support CD-2 and CD-3. For example, the cost range associated with CD-1 will be replaced with a cost baseline.

6.6.2 Reviews Supporting CD-1

There are no Acquisition Strategy reviews that will be performed because: (1) none of the individual EMRAP projects are Major Systems and (2) a separate mission need justification for any EMRAP projects is not required because environmental cleanup, facility deactivation and decommissioning, and waste disposition are core mission activities of EM.

Technical Independent Project Reviews and Design Reviews will be conducted for individual EMRAP projects as appropriate.

6.6.3 Reviews Supporting CD-2

An EIR will be conducted on the performance baseline (NTB) for Recovery Act Projects if its cost is $100 million or more. An IPR will be conducted for projects having a TPC of $20 million or more and less than up to $100 million. In certain cases, consistent with the EIR threshold defined in the April 27, 2007 EM/OECM protocol, OECM may accept the performance of an IPR on cleanup projects up to $250 million.

For capital assets project having a cost of $10 million or more and less than $20 million, an EM program review will be performed.

6.6.4 Reviews Supporting CD-3

No Construction Reviews or External Independent Readiness Reviews will be performed because none of the individual EMRAP projects are Major Systems. However, execution readiness reviews will be performed prior to the release of additional Recovery Act funds in support of CD-3 approval.

6.6.5 Reviews Supporting CD-4

As appropriate, an Operation Readiness Review or Readiness Assessment will be conducted prior to approving CD-4. An Independent Closeout Review will be performed to support closeout of EMRAP projects.

6.7 Implementing Baseline Change Control (DOE O 413.3A, Requirement 5.i)

The performance baseline, once validated and approved, establishes the framework within which the project will be executed and against which performance will be monitored and assessed. Deviations must be closely monitored and tightly controlled. In addition to existing thresholds and approval levels established in DOE O 413.3A (to include any Deputy Secretary-approved policy change/authority delegation memos) or in project-specific PEPs, Table 1 provides programmatic change control thresholds and approvals.

Table 1. Additional Programmatic Change Control Thresholds and Approval Levels

Baseline Parameter	Description of Key Changes and Threshold Descriptions	Approval Level	
		1	2
		SAE[54]	AE
Programmatic	A change that causes the premature reduction in workforce levels		X
	A change that causes the project not to meet the original projections for jobs retained or jobs created		X
	A change that causes a metric for footprint or acreage reduction to decrease by more than 25% of the original estimate		X

6.8 Project Reporting (DOE O 413.3A, Requirement 5.j)

Monthly EM PPA status and performance will be reported in EM's web-based IPABS-IS, which is structured to follow the general EM step-wise and sequential business process flow: planning, budgeting, execution, evaluation. In order to facilitate effective management of its mission objectives and the DOE's regulatory obligations to protect human health and the environment, EM established PBSs for individual environmental management responsibilities. Each PBS represents a distinct scope of work with corresponding budgets, milestones, and performance metrics at a particular site. Through IPABS-IS, EM implements program responsibilities established in DOE Order 430.1B and DOE O 413.3A.

EM established sub-PBSs for the various EMRAP projects. The cost, schedule milestones, and performance metrics specific to the Recovery Act were separated from the original EM Base Program PBS and pulled into the newly created EMRAP sub-PBS.

All capital asset projects with a TPC of $5 million or more if initiated prior to fiscal year 2009 or $10 million if initiated in fiscal year 2009 or later, must be included and reported on in the Department's Project Assessment and Reporting System (PARS). Reporting must include EVMS data for projects with a TPC of $20 million or more. PARS is the DOE project reporting system used for monitoring its projects and provides the basis for reporting by OECM to the Deputy Secretary, other senior DOE managers, and key program stakeholders.

US Office of Management and Budget and DOE Chief Financial Officer have established other reporting requirements specific to the Recovery Act.

6.9 Progress Reviews (DOE O 413.3A, Requirement 5.j)

Monthly Performance Reviews (MPRs) are conducted with EM Deputy Chief Operations Officer and/or the cognizant EMRAP Federal Project Director on behalf of the AE. The MPRs are coordinated with EM Office of Project Management Oversight (EM-53). MPRs provide a formal

[54] The Deputy Secretary serves as the Secretarial Acquisition Executive (SAE) for the Department and promulgates Department-wide policy and direction.

communication forum among the Recovery Act project FPD, the AE, OECM, key leadership, and Headquarters support organizations.

Other programmatic reviews will be conducted throughout the lifecycle of the project. Reviews communicate information on a project's current status, progress, completeness, correctness, or work completion. As such, these reviews serve as important tools for the FPD in assessing the health of the project and in identifying potential risks and opportunities. Other types of project reviews may be performed such as reviews in areas of special concern, event-driven reviews, unscheduled reviews, status reviews, and design reviews.

6.10 Earned Value Management System (DOE O 413.3A, Requirement 5.k(3))

Contractors must have an Earned Value Management System (EVMS) that is compliant with *GEIA Standard: Earned Value Management Systems*, ANSI/EIA-748-B-2007 for capital asset projects with a TPC of $20 million or more.

Projects having a TPC between $20 million and $50 million must have, at a minimum, an EVMS that is self-certified by the contractor as complaint with ANSI/EIA-748-B-2007. The Federal Project Director with support from the Integrated Project Team must establish and formalize an EVMS surveillance process and perform routine quality assurance surveillances to ensure contractors are implementing a complaint EVMS. EM's Office of Project Management Oversight (EM-53) must also perform periodic independent EVMS surveillances.

Projects having a TPC of $50 million or more require an ANSI/EIA-748-B-2007 compliant system certified by the Office of Engineering and Construction Management. For projects not required to utilize an EVMS (e.g., DOE direct firm fixed-price contracts), an alternative performance management system must be described in the Project Execution Plan and detailed in an EVMS system description document.

Because of the short duration of EMRAP projects, contractors with a relative short period of performance (e.g., less than 24 months), the Federal Project Director and Contracting Officer may, in cooperation with EM's Office of Project Management Oversight (EM-53), propose to OECM an alternative methodology for assessing and maintaining compliance with ANSI/EIA-748. This proposal must demonstrate at a minimum that:

(1) The contractor will comply with the requirements of ANSI/EIA-748-B-2007 including robust internal and independent surveillance programs;

(2) The Federal Project Director will establish and formalize an EVMS surveillance process and perform routine quality assurance surveillances to ensure sound cost accounting and performance measurement practices; and

(3) The alternative process does not add significant overall risk to the government of cost and schedule overruns or failure to deliver the project scope within cost and schedule commitments.

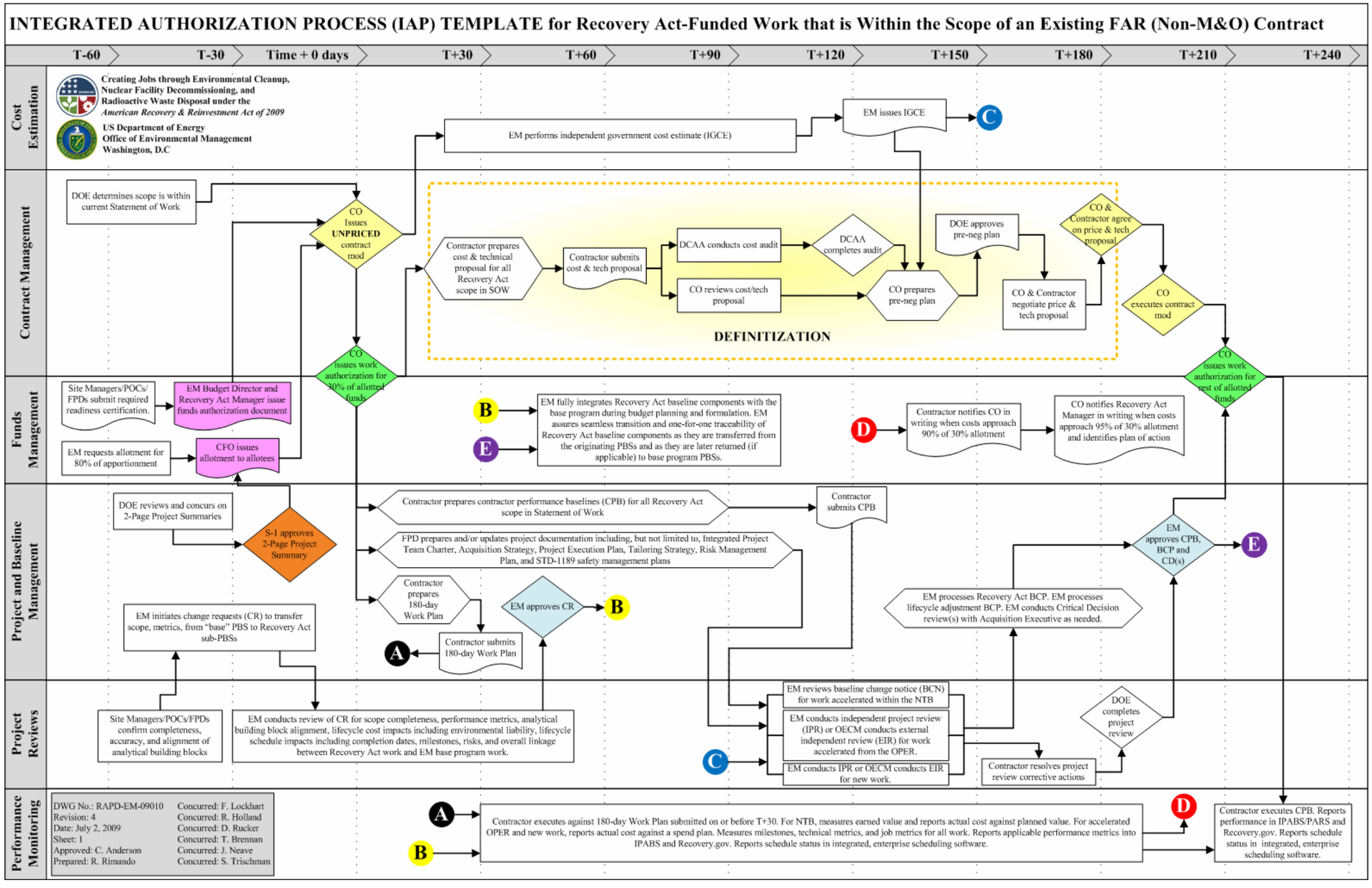

Figure 15. Integrated Authorization Process Template for Recovery Act-Funded Work that is Within the Scope of an Existing FAR (Non-M&O) Contract

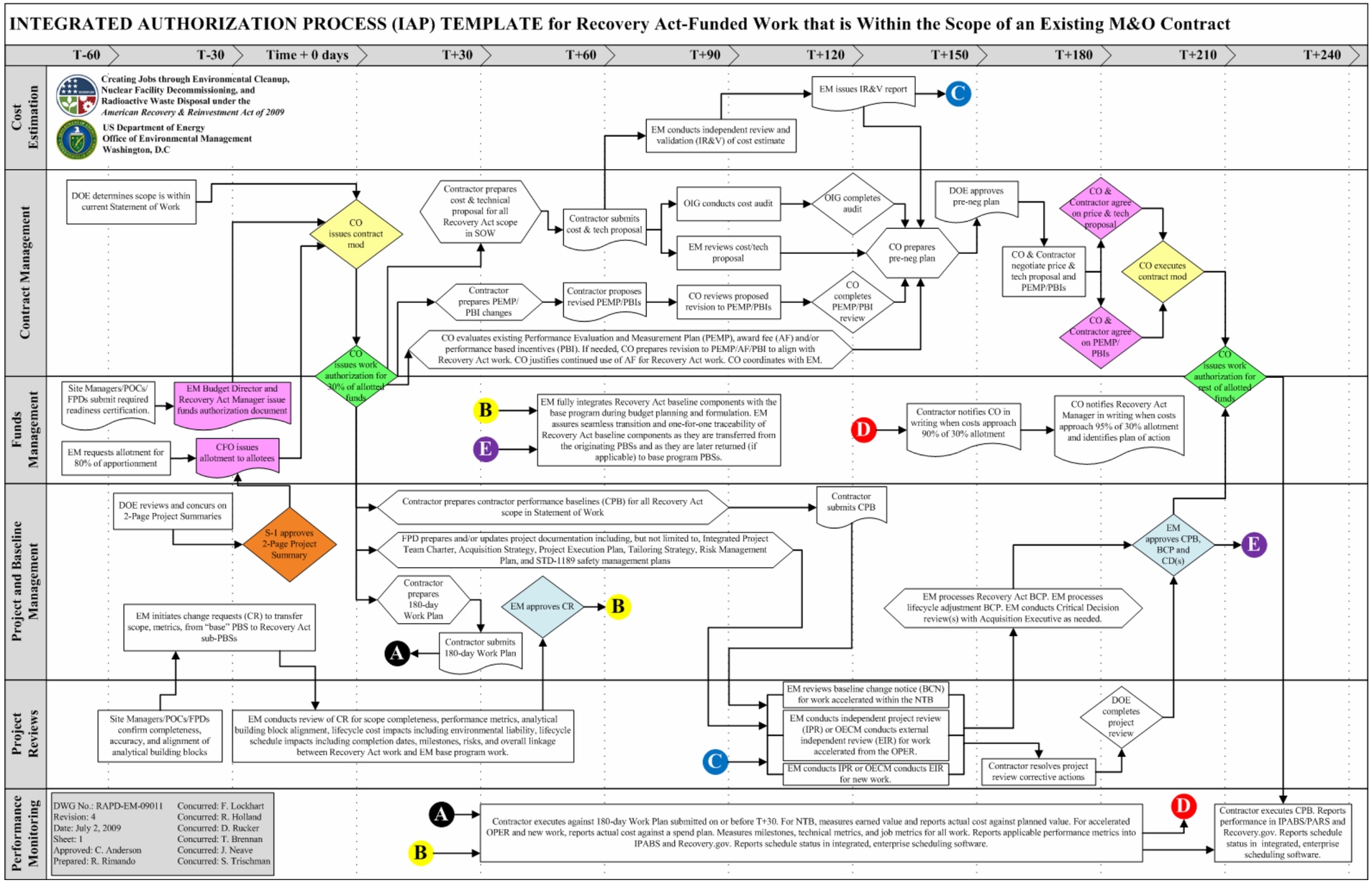

Figure 16. Integrated Authorization Process Template for Recovery Act-Funded Work that is Within the Scope of an Existing M&O Contract