

BUSINESS OPERATING PROCEDURE

BOP_-
~~413.506.07~~

Approved: 1-17-17

**PROGRAM MANAGEMENT POLICY FOR
WEAPONS AND STRATEGIC
MATERIALS PROGRAMS**



**NATIONAL NUCLEAR SECURITY ADMINISTRATION
Defense Programs**

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Office of System Engineering and Integration

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1-17-17

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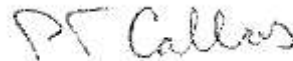
1. PURPOSE. This Business Operating Procedure (BOP) establishes the roles and responsibilities of Federal Program Managers for: 1. Life Extension Programs (LEP); 2. Major Alteration (ALT) programs; and 3. strategic materials across the nuclear security enterprise.
2. CANCELLATION. None.
3. APPLICABILITY.
 - a. Federal. This applies to all National Nuclear Security Administration (NNSA) elements.
 - b. Contractors. Does not apply to contractors.
 - c. Equivalency. In accordance with the responsibilities and authorities assigned by Executive Order 12344, codified at 50 United States Code sections 2406 and 2511, and to ensure consistency through the joint Navy/DOE Naval Nuclear Propulsion Program, the Deputy Administrator for Naval Reactors (Director) will implement and oversee requirements and practices pertaining to this Directive for activities under the Director's cognizance, as deemed appropriate.
4. BACKGROUND. The Nation's stockpile is annually assessed for sustainability. As weapons systems age, or when issues arise through significant finding investigations or other assessments, sustainment activities may warrant LEPs or ALTs to address aging or performance issues, enhance safety features, or improve security. The Phase 6.X process guides weapons development through a series of six phases with key deliverables and milestones at the junction of each stage. The Federal Program Manager helps assure that the program meets program milestones on time and within budget. Major weapons programs such as LEPs or major ALTs may require several billions of dollars, selected acquisition reports to Congress, and over a decade to complete.¹ NNSA tracks the life cycle of each LEP and major ALT through the 6.X Process.

Strategic materials are generally not available, or are restricted from commercial suppliers, because of their specific properties and use in nuclear weapons, or for national security purposes. NNSA established Strategic Material Managers (SMMs) in 2014 to integrate, oversee, plan, and execute material strategies. SMMs have been designated for tritium, uranium, plutonium, and domestic uranium enrichment (DUE) capabilities.
5. REQUIREMENTS.
 - a. Major LEP and ALT weapons programs managers must follow Appendix 1.

¹ Definitions of LEPs and ALTs are contained in the NNSA *Fiscal Year 2017 Stockpile Stewardship and Management Plan (SSMP)*

- b. Strategic materials managers must follow Appendix 2.
 - c. Program direction to contractors must be through the designated Contracting Officer's Representative.
6. RESPONSIBILITIES. Specific roles and responsibilities for major LEP and ALT weapons programs and strategic materials programs are in Appendixes 1 and 2, respectively.
 7. REFERENCES. See references contained in Appendixes 1 and 2.
 8. DEFINITIONS/ACRONYMS. None.
 9. CONTACT. Office of Systems Engineering & Integration (NA-10/18), 505-845-4001.

BY ORDER OF THE ADMINISTRATOR:



Philip T. Calbos
Acting Deputy Administrator
for Defense Programs

APPENDIXES.

1. Roles and Responsibilities for Federal Program Managers for Weapons LEP and major ALT Programs
2. Roles and Responsibilities for Federal Program1 Managers for Strategic Materials

APPENDIX 1: ROLES AND RESPONSIBILITIES FOR FEDERAL PROGRAM MANAGERS FOR WEAPONS LEP AND MAJOR ALT PROGRAMS

Introduction

This document applies to Defense Programs and all other NNSA elements with functions that support Defense Programs in managing the weapons LEP and Major ALT programs.

References

This policy derives from a DOE Order, and a set of NNSA and Defense Programs program execution guides/instructions.

- a. DOE Order 452.3A, *Management of the DOE Nuclear Weapons Complex*, dated 6-06-16.
- b. NNSA Supplemental Directive 452.3-1, *Defense Programs Business Process System (DPBPS)*, dated 2-25-16.
- c. Defense Programs, *Procedural Guideline for the Phase 6.X Process*, December 2015.
- d. Defense Programs, Execution Instruction: *NA-10 Program Management Tools and Processes*, Revision 1, 1-14-16.
- e. Defense Programs, Development and Production Manual R001: *Product Realization*, 4-04-16.
- f. Defense Programs, Development and Production Manual R006: *6.X Process*, 4-05-16.

Roles and Responsibilities of LEP/ALT Federal Program Managers

Defense Programs oversees a portfolio of nuclear weapons LEP and major ALT programs. A single FPM, appointed in writing by the Deputy Administrator for Defense Programs, manages each program. The FPM is accountable for providing weapons program deliverables on schedule and within budget.

As managers of nuclear weapons LEP and major ALT programs, FPMs are responsible for the scope that will be accomplished at the national laboratories and production plants within the nuclear security enterprise. Therefore, FPMs are expected to fill a variety of roles and responsibilities. These roles and responsibilities fall within three broad categories:

- a. Collaborating with the Department of Defense (DOD) to determine program scope and ensure integration with the existing stockpile weapons system.
- b. Determining, baselining, and managing program scope, schedule, and budget.
- c. Directing a program office team of federal employees, military officers, and contractors.

Program Management

The primary responsibility of an FPM is to manage a weapon LEP or major ALT program through the Phase 6.X process on schedule and within allocated resources. To achieve this goal, the FPM must perform many functions:

- a. Direct the development of options, assumptions, analyses of trade studies, and risk mitigation strategies associated with long-range planning for all program efforts.
- b. Establish, document, and manage requirements and schedules.
- c. Manage the integration and coordination with the stockpile programs.
- d. Manage the work authorization and funding process for program activities at NNSA participating sites.
- e. Serve as a member of the Defense Programs management team and member of the Project Officer's Group (POG) management team.
- f. Establish product realization teams, direct feasibility studies, and oversee cost analyses to produce a well-informed cost profile and integrated schedule that is used to monitor performance and progress.
- g. Participate in design and production agency site reviews.
- h. Manage, direct, and coordinate within Defense Programs to ensure completion of the necessary development, qualification, production, and logistical activities.
- i. Ensure test and qualification capabilities and facilities are available to support the program.
- j. Provide evaluations of contractor performance against established performance measures for the assigned scope of work.
- k. Implement project controls (such as a requirements management system, an integrated master schedule, and earned value management protocols) to track costs and synchronize execution of program scope across the nuclear security enterprise and with DOD.
- l. Submit periodic performance reports to NNSA senior leaders, including formal quarterly program reviews.

Coordinating with DOD

FPMs are responsible for coordinating with their DOD Lead Project Officer (LPO) counterparts to obtain requirements and integrate them into either the existing weapons delivery system, or the new weapons delivery system acquisition program, through the responsible POG.

The POG coordinates and approves activities associated with maintaining nuclear weapons in accordance with established Memoranda of Understanding, DOD Directives and Instructions, and DOE Orders. The POG is responsible for the weapons system requirements relevant to weapon characteristics and required delivery schedules. The POG generates and provides the documentation for the modernization and life extension program requirements and submits them to the Nuclear Weapons Council Standing and Safety Committee (NWCSSC) and to the Nuclear Weapons Council for formal approval. Upon approval of requirements, the POG is responsible for ensuring that the products delivered meet the needs and requirements of all stakeholders. The FPM serves as an NNSA member on the applicable POG. The FPM informs the POG of the program status, issues, and risks in POG meetings and joint DOD and NNSA management meetings. The FPM informs senior NNSA leadership of program execution status and options to mitigate risks through the conduct of quarterly program reviews and other requested meetings.

Staff Management

The FPM oversees the implementation of systems engineering processes that develop, document, and manage the appropriate programmatic and technical information including the program plan, requirements and engineering management plan, systems engineering plan, program protection plan, weapons design and cost report, baseline cost report, baseline change control procedures, risk management plan, and other documents as necessary.

The FPM also fills the role of supervisor for assigned federal staff. The FPM coordinates the activities of a diverse staff of federal employees, contractors, and military officers. In this role, the FPM plans and manages all program office activities and provides direction regarding the recruitment, selection, utilization, development, and retention of assigned personnel. As the rating official for federal subordinates, the FPM provides guidance, establishes performance standards, and evaluates employee performance. The FPM identifies initial, developmental, and emerging training needs of federal employees, and coordinates opportunities and resources to integrate individual development goals consistent with organizational requirements.

An FPM for a weapon LEP or major ALT program manages a highly complex and costly portfolio of work. Many design and production requirements for these programs intersect with the mission scope of offices across the NNSA and DOD. These interfaces can increase the chance of scope change and funding gaps. Under these conditions, an FPM can often mitigate the risk but not eliminate it. Program risks beyond the control of the FPM should be elevated to the Program Executive Officer and senior Defense Programs leadership if necessary for resolution.

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APPENDIX 2: ROLES AND RESPONSIBILITIES FOR FEDERAL PROGRAM MANAGERS FOR STRATEGIC MATERIALS

Introduction

This document applies to Defense Programs and all other NNSA elements with functions that support Defense Programs in managing strategic materials.

Purpose

The appendix outlines roles, responsibilities, authorities, and accountabilities common to strategic materials management. Topics include managing requirements and risk, forming sustainment strategies, budgeting, and planning for future technology maturation.

Scope

This policy focuses on roles, responsibilities, authorities, and accountabilities for Strategic Material Managers (SMMs). However, some authorities assigned by the Administrator to an SMM may extend beyond Defense Programs. The authorities outlined in this document recognize the broader scope of the SMMs to all NNSA programs. SMMs capitalize on the Defense Programs ownership of strategic capabilities to provide services to Defense Nuclear Nonproliferation, Naval Reactors, and other organizations. SMMs report through Defense Programs to the Administrator, and Defense Programs retains overall responsibility for strategic material management.

References

This policy derives from a DOE Order, and a set of NNSA and Defense Programs program execution guides/instructions.

- a. DOE O 413.3B, *Program and Project Management for the Acquisition of Capital Assets*, dated 5-12-16.
- b. Memorandum for the Secretary: *Approve the Path Forward for Domestic Enrichment Activities*, dated 5-1-14.
- c. NNSA Administrator Memorandum for Distribution: *Roles and Responsibilities for the Uranium Program Manager*, dated 7-9-14.
- d. NNSA Administrator Memorandum for Distribution: *NNSA Roles and Responsibilities for the Domestic Uranium Enrichment Manager*, dated 10-21-14.
- e. BOP ~~-413.206.02~~, *Program Requirements Document for Construction Projects*, dated 3-20-14.
- f. Defense Programs, Execution Instruction: *NA-10 Program Management Tools and Processes*, Revision 1, dated 1-14-16.

- g. Defense Programs, Development and Production Manual R008: *Portfolio-Program-Project Management*, dated 3-27-13.

Defining a Strategic Material

“The three mission pillars are: the Nuclear Weapons Stockpile, Nuclear Threat Reduction, and Naval Reactors.”

— NNSA Enterprise Strategic Vision, 2015

The NNSA Administrator designates which stockpile materials are strategic. Strategic materials are vital to one or more of the mission pillars of the NNSA and possess one or more of the following traits:

- a. The strategic material is critical to nuclear weapon or national security applications.
- b. The handling operations for the strategic material are extremely complex and require specialized procedures for safety and security reasons.
- c. The capabilities to produce or process the strategic material is unique to DOE with little crossover between the Department of Defense (DOD), other agencies, or commercial industry.
- d. The processing operations for the strategic material drive significant capital construction, infrastructure investment, technology development, or other modernization costs.
- e. The continued availability of the strategic material, or components made from that material, into the future is uncertain and requires significant planning and investment to recycle, replenish, or replace supplies.

Roles and Responsibilities of Strategic Material Managers

The SMM is the executive accountable to the Administrator for ensuring the mission-related capabilities and capacities are available to customers. An empowered executive, the SMM holds authority and responsibility across a specified mission area. Since the primary purpose of strategic materials is to support the weapons program, the SMM positions are organizationally located in Defense Programs. Responsibilities include:

- a. Having a situational awareness of the end-to-end process for delivery of product to the customer.
- b. Interpreting, validating, defending, challenging, and approving material-specific program requirements.
- c. Managing programmatic risk through balancing budget allocations between priorities.
- d. Creating long-term strategies to maintain the capability to process or create strategic materials.

The following sections define the unique authorities and documentation required for SMMs to successfully fulfill these roles and responsibilities.

Establishing Authority

SMMs have authority to:

- a. Develop and approve a strategy consistent with stakeholders' needs.
- b. Manage execution of the approved strategy consistent with stakeholders' needs.
- c. Develop a budget (including resources for all support offices) to execute the core scope of work.
- d. Set priorities for the approved strategy. Manage funding and negotiate commitments across a portfolio of investments to deploy resources consistent with established priorities.

If capital asset acquisition is required, the SMM should seek delegation of Program Secretarial Officer (PSO) authority from Defense Programs in accordance with DOE Order 413.3B. Delegated authority to Strategic Material Managers only applies to capital asset decisions below \$100 million.

Developing Program Documentation

Strategic Material Management programs are defined by the following program documents:

- a. **Mission Strategy:** A strategic material strategy must outline the broad goals of how to sustain a material or capability. The strategy cuts across program and organizational elements as necessary, providing consistent purpose and communication of that purpose. It is a plan that unifies the mission pillars of the NNSA Strategic Plan behind a single material. Approved by the Strategic Material Manager, the document should delineate actions required to be successful, along with enterprise-level challenges. Challenges to the strategic material mission must be correlated to key risks and mitigation strategies.
- b. **Mission Requirements:** The mission requirements document must contain specific details on what strategic materials are required and when to deliver them to meet customer demands. Approved by the Strategic Material Manager with concurrence from stakeholders, the document must formalize the flow-down from the end-user needs to the strategic material requirements, including facility and infrastructure capabilities needed over the expected program life cycle. This document must be updated as necessary to reflect changes to the mission or requirements.
- c. **Technology Development Plan:** If the strategic materials capability requires insertion of new technologies, the Strategic Material Manager must develop a comprehensive technology development plan. Approved by the Strategic Material Manager with concurrence from the respective site, the plan must establish a timeline for maturation and deployment of each technology, and identify annual resources required for timely

execution. If the plan requires technology insertion as part of a line item construction project, the plan must follow requirements established by DOE Order 413.3B.

Managing Material Requirements

The foundation of a strategic material sustainment strategy rests on the requirements of that material made by the customer. Often these material requirements derive from weapons system needs, but can come from different mission scope, such as plutonium to power spacecraft. The customer sets requirements at the system level and the SMM must extrapolate to the component level and, eventually, to the required material level needed to support those components. To plan accordingly often requires a broad awareness of the material production or processing capabilities and limitations of the nuclear security enterprise. To manage these material requirements, an SMM must:

- a. Establish a Strategic Material Mission Working Group. This group helps validate baseline requirements and often includes Management and Operating (M&O) site representatives. Working group representatives must be designated based on their detailed understanding of the equipment and facilities required to maintain the material capability.
- b. Avoid disproportionately costly requirements. As a best practice, defining both threshold and objective requirements can help a material manager and the Mission Working Group to validate, adjust, or eliminate discrete requirements.² The goal should not be to drive all programs to threshold levels, but to find programmatic inflection points where any additional increase of scope would disproportionately raise cost due to increasing the equipment set or adding additional safety, security, or hazard controls.
- c. Guard against mission creep in execution of requirements. During the implementation and mission execution phase, the material manager should diligently review the interpretation and flow-down of the top-level program requirements by the M&O contractor. Aspects of the program requirements can become lost in interpretation, and the resulting flow-down to the project level or systems level may misrepresent the original intent.

Managing Risk

The SMM must either accept, mitigate, or reduce risks at a strategic level by balancing available resources against a prioritized set of program requirements. As the level of risk acceptance for the program is established, the SMM must:

- a. Filter and refine requirements. This is the single most important step to establish the program's risk tolerance.
- b. Prioritize efforts to maximize program risk reduction and document risk acceptance in support of the various programs that require the material. The SMM's limited resources

²The difference between threshold, objective, and discrete requirements is defined in NNSA BOP_-413.206.02. See References.

in time, energy, and funding must focus on reducing major program risks or addressing cost-saving opportunities through risk acceptance. Not every risk requires an immediate solution—prioritization is necessary.

- c. Eliminate excessive margin in risk tolerance to provide for the programs that require the material. Review conservative decisions (or assumptions) where there is excessive margin in one form or another. The manager should re-baseline these levels of margin to match the program's risk tolerance.

Enterprise-level risks may be beyond the sole discretion of the material manager to accept, mitigate, or reduce. These risks may include safety, security, regulatory issues, or legal issues, and the M&O or the Government may carry them. In these scenarios, the SMM must communicate to senior leadership and stakeholders the rationale and justification for accepting a specific risk, e.g., the estimated costs of the requirements or the realized savings from not completing them.