

SUPPLEMENTAL DIRECTIVE

NNSA SD 452.3-2

Approved: 1-19-17

PHASE 6.X PROCESS



NATIONAL NUCLEAR SECURITY ADMINISTRATION Defense Programs

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**OFFICE OF PRIMARY INTEREST (OPI):
Office of Systems Engineering and Integration**

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1-19-17

PHASE 6.X PROCESS

1. **PURPOSE.** This supplemental directive (SD) establishes the policy for implementing the National Nuclear Security Administration’s (NNSA) roles and responsibilities pertaining to the Nuclear Weapons Council’s (NWC) *Procedural Guideline for the Phase 6.X Process* and describes the sequence of activities and interactions with the Department of Defense (DOD) during the Phase 6.X process. This SD augments Department of Energy (DOE) Order 452.3, *Management of the Department of Energy Nuclear Weapons Complex*.

It should also be noted that this SD addresses only the actions that need to be taken by NNSA organizations that directly report to the NNSA Administrator, such as the Office of Cost Estimating and Program Evaluation (CEPE), Office of Defense Programs (DP), Office of Safety, Infrastructure and Operations, and field office organizations responsible for refurbishing the nuclear weapons stockpile. Activities that are conducted by organizations within DP are documented by internal DP processes and not in this SD.

2. **CANCELLATION.** None

3. **APPLICABILITY.**

- a. **Federal.** This SD applies to all federal organizations responsible for maintaining and enhancing the safety, reliability, and performance of the United States nuclear weapons stockpile, including the ability to design, produce, and test, in order to meet national security requirements.

These requirements apply, but are not limited to, CEPE, DP, Office of Safety, Infrastructure and Operations, and field office organizations with the responsibility for executing refurbishments of the nuclear weapons stockpile.

- b. **Contractors.** The contractor requirements document (CRD), provided as Attachment 1, sets forth requirements of this directive that apply to contractors.

The CRD shall be included in contracts of national security enterprise Management and Operating (M&O) contractor sites performing work for NNSA, indicated in Figure 1.

M&O Site Name	Kansas City National Security Campus	Lawrence Livermore National Laboratory	Los Alamos National Laboratory	Nevada National Security Site	Pantex Plant	Sandia National Laboratories	Savannah River Site	Y-12 National Security Complex
M&O Site Designator	KCNSC	LLNL	LANL	NNSS	PX	SNL	SRS	Y-12

Figure 1: Participation by NSE Site

4. **SUMMARY OF CHANGES.** Not applicable.

5. BACKGROUND. A weapon's acquisition life cycle contains the eight phases as indicated below:

- Phase 1 – Weapon Conception
- Phase 2 – Program Feasibility Study
- Phase 2A – Design Definition and Cost Study
- Phase 3 – Development Engineering
- Phase 4 – Production Engineering
- Phase 5 – First Production
- Phase 6 – Quantity Production and Stockpile
- Phase 7 – Retirement and Storage

These traditional phases were established in various DOE and DOD Memoranda of Agreement and reflect the logical progression of activity for the development, production, deployment, and retirement of a new weapon. Since all stockpile weapons are currently in Phase 6, a new process is necessary for refurbishment.

This additional process is actually an expanded subset of the Quantity Production and Stockpile phase (Phase 6) of the traditional process and has, accordingly, been called the Phase 6.X process.

The Phase 6.X process provides a framework to conduct and manage refurbishment activities for existing weapons. It makes the maximum use of the established structure, flow, and practices from the traditional phase process.

Stockpile refurbishment activities are divided into sub-elements of Phase 6, denoted by Phase 6.X, as in 6.1, 6.2, 6.2A, etc. For purposes of the Phase 6.X process, the enduring stockpile phase is designated Phase 6.0 and is the beginning and end of the Phase 6.X process. The individual phases (6.1 through 6.6) follow the sequence of the traditional acquisition process. Each phase ends with a major project decision to go forward into the next phase, to remain in the present phase, or to return to an earlier phase (including a return to Phase 6.0, which is to not refurbish the weapon).

For each refurbishment activity, a Project Officer Group (POG) is authorized by the NWC to coordinate joint efforts in NNSA-DOD nuclear weapons programs. NNSA provides one or more members to the POG and supports its coordination efforts.

Historically, all responsibilities for refurbishment activities were carried out within Defense Programs. With the establishment of the CEPE, responsibilities have been established per Title 50 United States Code (U.S.C.) sections 2411 and 2537. Also, with

the establishment of the Office of Safety, Infrastructure and Operations, some responsibilities transitioned from DP to that office. Revised responsibilities relevant to the scope of this Supplemental Directive are included in following sections.

6. REQUIREMENTS.

- a. NNSA organizations participating on programs following the 6.X acquisition framework must support the implementation of this Supplemental Directive. At a minimum, the participating organizations must identify roles and responsibilities, organizational interfaces (internal and external stakeholders), deliverables, reporting, conflict resolution and governance structures.
- b. NNSA organizations must comply with the Phase 6.X process detailed in Appendix 2. If a perceived or actual discrepancy between this SD and SD 452.3-1A *Defense Programs Business Process System* exists, this SD, 452.3-2, takes precedence.

7. RESPONSIBILITIES.

- a. The Administrator is the NNSA member of the NWC.
- b. The Deputy Administrator for Defense Programs (NA-10):
 - (1) Is the senior NNSA member of the Nuclear Weapons Council Standing and Safety Committee (NWCSSC);
 - (2) Ensures overall execution NNSA's responsibilities as outlined in the NWC's *Procedural Guidelines for the Phase 6.X Process*; and
 - (3) Requests threat assessment support from the DOE Office of Intelligence and Counterintelligence.
- c. The Associate Administrator for Safety, Infrastructure and Operations (NA-50) ensures that NNSA infrastructure is maintained, operated, and modernized to support the Phase 6.X process and provides support for preparation of applicable Phase 6X documents.
- d. The Director for Cost Estimating and Program Evaluation (NA-1.3), in accordance with paragraphs 8.a. and 8.b.:
 - (1) Provides an Independent Cost Estimate (ICE) of each nuclear weapon system undergoing a major alteration;
 - (2) Provides an Independent Cost Review (ICR) of each nuclear weapon design option undergoing life extension at the completion of Phase 6.2, relating to study of feasibility and down-select;

- (3) Provides ICEs of each nuclear weapon system undergoing life extension at the completion of Phase 6.2A and before initiation of Phase 6.4 (unless otherwise directed by the Administrator) and Phase 6.5;
 - (4) Provides other ICRs and estimates as directed by the Administrator; and
 - (5) Develops and manages the input of the selected acquisition reports on nuclear weapons systems undergoing major life extension.
- e. Field Office Contracting Officers incorporate SD 452.3-2 into the “List of Applicable Directives” identified in the Laws, Regulations, and DOE Directives clause of the M&O contracts for the listed nuclear security enterprise sites (see Figure 1).

8. REFERENCES.

- a. 50 U.S.C. Section 2411, *Director for Cost Estimating and Program Evaluation* (describes the roles and responsibilities of the NNSA Director for Cost Estimating and Program Evaluation).
- b. 50 U.S.C. Section 2537, *Selected Acquisition Reports and independent cost estimates and reviews of certain programs and facilities* (describes the requirements for providing Selected Acquisition Reports, independent cost reviews, and independent cost estimates).
- c. *An Agreement between the Atomic Energy Commission (AEC) and the Department of Defense (DOD) for the Development, Production, and Standardization of Atomic Weapons*, March 21, 1953, (provides the basic document that establishes the interrelationships between the two agencies to cooperate in the development, production, and maintenance of nuclear weapons).
- d. Supplement to the *1953 Agreement for the Development, Production, and Standardization of Atomic Weapons between the Department of Energy and the Department of Defense*, dated September 5, 1984, (delineates the functions of the two agencies during joint feasibility studies for nuclear weapons (Phase 2), design definition and cost studies (Phase 2A), and development engineering (Phase 3)).
- e. Department of Defense and Department of Energy Nuclear Weapons Council *Procedural Guideline for the Phase 6.X Process*, dated December 16, 2015, (describes the roles and functions of the NWC, NWCSSC, DOD, and NNSA for the Phase 6.X nuclear weapon refurbishment activities).
- f. NAP-24A, *Weapon Quality Policy*, dated 11-24-2015; NAP-24A Attachment 4, *Nuclear Enterprise Assurance*; DOE Order 452.1E, *Nuclear Explosive and Weapon Surety Program*, dated 1-26-15; DOE Order 452.4C, *Security and Use Control of Nuclear Explosives and Nuclear Weapons*, dated 8-28-16 (describe the

quality, surety and assurance, requirements applicable to NNSA nuclear weapons activities).

- g. NAP-28A, *Responsibilities for Independent Cost Estimates*.
 - h. BOP-06.08, *Cost Analysis Requirement Description (CARD)*.
9. DEFINITIONS. See Appendix 1.
10. CONTACT. Assistant Deputy Administrator for Systems Engineering and Integration (NA-18), (505) 845-6088.

BY ORDER OF THE ADMINISTRATOR:



Frank G. Klotz
Administrator

Attachment 1. Contractor Requirement Document

Appendix 1. Definitions

Appendix 2. Phase 6.X Process

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**ATTACHMENT 1: CONTRACTOR REQUIREMENT DOCUMENT (CRD)
NNSA SD 452.3-2, PHASE 6.X PROCESS**

The contractor is responsible for complying with the requirements of this CRD. The contractor is responsible for flowing down the requirements of this CRD to subcontractors at any tier to the extent necessary to ensure the contractor's compliance with the requirements.

This Management and Operating (M&O) CRD establishes the requirements for National Nuclear Security Administration (NNSA) M&O contractors within the Defense Programs Enterprise for the management of NNSA sites or facilities that are involved in, interact with the management of the nuclear weapons stockpile, or develop or produce weapon product or weapon-related product.

1. M&O contractors shall work in concert with NNSA and other M&O contractors to achieve successful execution of the Phase 6.X process and deliverables as defined in this SD, including input needed for Nuclear Enterprise Assurance (NEA) activities at every phase and managing individual site plans for 6.X activities. If a perceived or actual discrepancy between this SD and SD 452.3-1A, *Defense Programs Business Process System* exists, this SD, 452.3-2, takes precedence.
2. M&O contractors shall support NNSA in meeting Phase 6.1 (Concept Assessment) requirements, providing input needed for NNSA to support:
 - a. Initial NEA activities, including both weapon trust assurance (WTA) and supply chain risk management (SCRM);
 - b. Identification of initial system vulnerabilities, threats, and potential mitigations needed;
 - c. Proposed potential changes to military characteristics (MC), stockpile-to-target sequence (STS), and any NNSA driver of requirements; and
 - d. Initial identification of requirements for facilities and infrastructure.
3. M&O contractors shall support NNSA in meeting Phase 6.2 (Feasibility Study and Design Options) requirements, providing input needed for NNSA to:
 - a. Develop design options and execute an analysis of down-select options;
 - b. Develop a joint integrated Phase 6.2 study plan;
 - c. Down-select design options to be costed in Phase 6.2A;
 - d. Update existing MCs (or draft new MCs) and existing interface control documents (ICDs), as required;

- e. Deliver a final Phase 6.2 study report for the Nuclear Weapons Council Standing and Safety Committee (NWCSSC) including a major impact report (MIR) on the down-selected options as an appendix;
 - f. Analyze updated or new MCs to assess the ability to produce, qualify, and certify the product per the design options provided by the Design Agency and, if required, control ICD updates with the appropriate Service; and
 - g. Begin coordination of agreements for facilities and infrastructure interface requirements, which incorporates the support for the program from other organizations.
4. M&O contractors shall support NNSA in meeting Phase 6.2A (Design Definition and Cost Study) requirements, providing input needed for NNSA to:
 - a. Create the joint integrated project plan (JIPP) to implement the proposed down-selected set of options; and
 - b. Develop the weapon design and cost report (WDCR).
 5. M&O contractors shall support NNSA in meeting Phase 6.3 (Development Engineering) requirements, providing input needed for NNSA to:
 - a. Update the JIPP, MCs, and STS documents;
 - b. Submit the initial selected acquisition report (SAR) to Congress;
 - c. Update the WDCR and reissue it as the baseline cost report (BCR); and
 - d. Prepare, in coordination with the Defense Threat Reduction Agency (DTRA), a product change proposal (PCP).
 6. The M&O contractors at NNSA national laboratories shall complete the Phase 6.3 (Development Engineering) requirements to:
 - a. Prepare a draft addendum to the final weapon development report (FWDR) or create a new FWDR draft, in support of the preliminary Design Review and Acceptance Group (DRAAG) report; and
 - b. Conduct a baseline design review.
 7. M&O contractors shall support NNSA in meeting Phase 6.4 (Production Engineering) requirements, providing input needed for NNSA to update the JIPP and BCR.

8. M&O contractors shall support NNSA in meeting Phase 6.5 (First Production) requirements, providing input needed for NNSA to:
 - a. Update the JIPP; and
 - b. Issue the major assembly release (MAR).
9. The M&O contractors at NNSA national laboratories shall complete the Phase 6.5 (First Production) requirement to finalize and release the addendum to the FWDR including documentation of nuclear system certification.
10. M&O contractors shall support NNSA in meeting Phase 6.6 (Full-Scale Production) requirements, providing input needed for NNSA to:
 - a. Support preparation of the final JIPP and end-of project report;
 - b. Provide a full-scale production plan briefing to the NWCSSC; and
 - c. Deliver and release into Department of Defense (DOD) custody refurbished weapons on a schedule agreeable to both DOD and NNSA.

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APPENDIX 1: DEFINITIONS

Definitions are also contained in the DPBPS Glossary on the DPBPS (dpbps.sandia.gov).

- a. Alteration (ALT) – Any change or changes that typically affect the assembly, testing, maintenance, or storage of weapons. An ALT may address identified defects and component obsolescence, but does not change a weapon’s operational capabilities.
- b. Baseline Cost Report (BCR) – This document formally updates the weapon design and cost report (WDCR) based on late development and pre-production activities.
- c. Certification Letter – A letter signed by the Directors of the appropriate nuclear weapon laboratories that serves as the formal certification of a refurbished weapon. It may be published as a stand-alone document or attached to the final addendum to the final weapon development report (FWDR).
- d. Cost Analysis Requirements Description (CARD) – A description of the relevant features of the acquisition program or project and of the system itself. It is the common description of the technical and programmatic features of the program that is used by the teams when preparing the ICE or program office cost estimates. It is intended to define the program to a sufficient level of detail such that no confusion exists between the many parties who may be concerned with estimating the program’s cost.
- e. Design Review and Acceptance Group (DRAAG) – A DOD group, usually consisting of a Chair appointed by the lead Service component and one representative from each affected military Service and the Defense Threat Reduction Agency, responsible for providing an independent review of the down-selected weapon design to determine the compliance of the design with requirements specified by the military characteristics and stockpile-to-target sequence. DRAAG findings and recommendations are forwarded through the Service to the NWC for consideration.
- f. End-of-Project Report – This document will serve as the final joint integrated project plan (JIPP) and reflect what actually occurred throughout the entire refurbishment activity. It will also include an analysis of lessons learned.
- g. Final Weapon Development Report (FWDR) – A report issued in late Phase 6.5 to provide warhead and bomb design objectives, description, test program results, ancillary equipment, and programming as of the time of the first production for stockpile. A supplemental FWDR can be issued in case of follow-on applications of existing warhead and bombs as a significant change to the Military Characteristics (MCs).

- h. Independent Cost Estimate (ICE) – A cost estimate prepared by an organization independent from the government line manager’s authority and the contractor organization responsible for the project or program, using the same detailed technical and procurement information to develop the program or project estimate in accordance with GAO best practices.
- i. Independent Cost Review (ICR) – An evaluation of a program’s or project’s cost estimate that examines the reasonableness of the estimate quality, assumptions, and risks, also prepared by an organization independent from the government line manager’s authority and the contractor organization responsible for the project or program.
- j. Interface Control Document (ICD) – A document between NNSA and the Service that exchanges warhead and delivery vehicle information, including changes in new production, to resolve interface design problems and to ensure adequate interface control between the delivery system and NNSA components.
- k. Joint Integrated Project Plan (JIPP) – This document serves as the baseline control document for the refurbishment activity. It should discuss, as applicable:
 - Refurbishment scope;
 - Design definition;
 - Project schedule (including joint DOD and NNSA milestones, planned management briefings and reviews, and certification schedules);
 - Independent cost estimate or validated cost analysis (by the participating parties); costs shall include applicable Service-related costs;
 - Configuration management;
 - Qualification and certification plans;
 - Threat Assessments;
 - Supply chain protection program plan;
 - Service test and evaluation plans;
 - MCs, Stockpile-to-Target Sequences (STS), and ICD changes;
 - System memorandums of understanding between DOD and NNSA;
 - Stockpile evaluation planning;
 - Operational safety implications (integrated safety process);

- Proposed changes to technical publications;
 - Trainers and type weapon requirements;
 - Spares, handling gear, use-control equipment, tools, gauges, and field testers;
 - Development testing and modeling support requirements;
 - Process development and product qualification;
 - Archiving and lessons learned;
 - Component and Material characterization for disposition;
 - Product delivery (components and documents);
 - Risk management; and
 - Classification and classification management review.
- l. Major Assembly Release (MAR) – A MAR is an SNL-prepared, NNSA-approved statement that war reserve (WR) weapons material is satisfactory for release on a designated effective date to the DOD for specified uses which are qualified by exceptions and limitations.
- m. Major Impact Report (MIR) – A report published by the DOE, as a part of the Phase 2 (Feasibility Study) for any nuclear weapon program, which identifies those aspects of the program which could be significant factors (including nuclear physics design, testing, production processes, for resource availability) affecting the schedule or technical risk of the development or production of the nuclear weapon.
- n. Military Characteristics (MCs) for Nuclear Weapons – A document submitted to the DOE that specifies performance requirements and physical characteristics for a nuclear warhead, bomb, or basic assembly to be compatible with a specific weapon system or systems. NWC or NWCSSC-approved MCs are forwarded to the Defense Threat Reduction Agency (DTRA) for publication and distribution.
- o. Modification (Mod) – Any alteration of a permanent nature made after production to an end item, component, or assemblage of materiel which results in a change to the MCs that impacts weapon employment, fuzing, ballistics, or logistics.
- p. Product Change Proposal (PCP) – A formal recommendation for changes of the following types: (1) all proposed retroactive changes to WR and training weapons, and associated test and handling equipment; (2) all in-process changes requiring modification or alteration identification of WR and training weapons materiel; and (3) all in-process changes to field test and handling equipment resulting in alphabetical suffix identification, or complete redesign.

- q. Project Officers Group (POG) – A group of DOE-DOD personnel assigned to coordinate the development of compatibility assurance of a designated nuclear weapon system and its associated interfaces. POGs are chaired by the cognizant Service.
- r. Refurbishment – Refurbishment refers to all nuclear weapon modifications to address life extension, and other warhead modernization activities due to revised military requirements at the system, subsystem, or component level. It encompasses current policy to utilize warhead remanufacturing, component reuse, and component replacement. These refurbishments will be assigned a new alteration or modification number for stockpile management purposes.
- s. Stockpile-to-Target Sequence (STS) – (1) The order of events involved in removing a nuclear weapon from storage, and assembling, testing, transporting, and delivering it to the target; and (2) a document that defines the logistical and employment concepts and related physical environments involved in the delivery of a nuclear weapon from the stockpile to the target. It may also define the logistical flow involved in moving nuclear weapons to and from the stockpile for quality assurance testing, modification and retrofit, and the recycling of limited life components.
- t. Weapon – The *Atomic Energy Act* of 1954 defines an “atomic weapon” as being any device utilizing atomic energy, exclusive of the means for transporting or propelling the device (where such means is a separable and divisible part of the device), the principal purpose of which is for use as, or for development of, a weapon, a weapon prototype, or a weapon test device.
- u. Weapon Design and Cost Report (WDCR) – The WDCR provides a description of the option and preliminary cost estimates for design, qualification, production, and life-cycle activities.

APPENDIX 2: PHASE 6.X PROCESS

Note: Applies to Federal organizations only. Office with primary responsibility is indicated in parentheses after each item.

1. Phase 6.1 – Concept Assessment
 - a. Organizations shall support the Project Officers Group (POG) to provide a summary of study results to the Nuclear Weapons Council Standing and Safety Committee (NWCSSC) to include:
 - (1) Initial nuclear enterprise assurance (NEA) activities to include both weapon trust assurance (WTA) and supply chain risk management to include, but not limited to, the following:
 - (a) Initial assessment of supply chain protection considerations (NA-10); and
 - (b) Safety and security considerations (NA-10).
 - (2) Identification of initial system vulnerabilities, threats, and potential mitigations needed (NA-10):

Request threat assessments support from DOE Office of Intelligence and Counterintelligence.
 - (3) Proposed potential changes to military characteristics (MC), stockpile-to-target sequence (STS), and any National Nuclear Security Administration (NNSA) driver of requirements (NA-10).
 - b. Organizations shall:
 - (1) Provide preliminary cost and technological risk estimates to the POG (NA- 10);
 - (2) Conduct technology readiness assessments of Management and Operating (M&O)-proposed technology down-selects to ensure that they are meeting levels of confidence associated with appropriate overall system performance (NA-10);
 - (3) Perform reviews of technology readiness assessments conducted by NA-10 (NA-1.3);
 - (4) Provide initial facilities and infrastructure requirements to NA-50 (NA-10); and

- (5) Begin coordination to address initial facilities and infrastructure requirements provided by NA-10 (NA-50).

2. Phase 6.2 – Feasibility Study and Design Options

a. Organizations shall support the POG to:

- (1) Develop design options and execute an analysis of down-select options (NA-10); Note: An analysis of down-select options is like an alternatives analysis and is focused more on component and technology design options and includes design trade studies and cost and benefit analyses. A classical analysis of alternatives (AoA) is not required at this phase because a material solution has already been determined before Phase 6.1. Any formal AoAs dealing with major weapon down-selects would be led by the Department of Defense (DOD).
- (2) Develop a joint integrated Phase 6.2 study plan (NA-10);
- (3) Down-select design options to be costed in Phase 6.2A (NA-10);
- (4) Update existing MCs (or draft new MCs), to reflect DOD requirements, and existing interface control documents (ICDs) (NA-10); and
- (5) Deliver a final Phase 6.2 study report to the NWCSSC (NA-10).

b. Organizations shall:

- (1) Analyze updated or new MCs to assess the ability to produce, qualify, and certify the design options and, if required, control ICD updates with the appropriate Service (NA-10);
- (2) Prepare a major impact report (MIR) on the down-selected options as an appendix to the final Phase 6.2 study report. The MIR reflects that building and facility (infrastructure) support and requirements are necessary and sufficient for each specific program going through the Phase 6.X process (NA-10);
- (3) Support the preparation of the MIR (NA-50);
- (4) Develop cost analysis requirements description (CARD) of the potential design options (NA-10) and also update CARD, in accordance with BOP-06.08, *Cost Analysis Requirement Description (CARD)*;
- (5) Develop cost estimates of down-selected design options (NA-10);
- (6) Provide an independent cost review (ICR) of the potential design options at the completion of Phase 6.2 (NA-1.3);

- (7) Begin coordination of facilities interface requirements agreements which incorporates the support for the program from other organizations (NA-10); and
 - (8) Support the coordination of facilities interface requirements agreements (NA-50).
3. Phase 6.2A – Design Definition and Cost Study
 - a. Organizations shall support the POG to:
 - (1) Create the joint integrated project plan (JIPP) to implement the proposed potential design options (NA-10); and
 - (2) Present a summary of the Phase 6.2A study report to the NWCSSC (NA-10).
 - b. Organizations shall:
 - (1) Develop the weapon design and cost report (WDCR). The WDCR is a preliminary cost estimate and not a cost performance baseline and contain elements similar to a CARD (NA-10);
 - (2) Develop an independent cost estimate (ICE) for design, qualification, production, and life-cycle activities and at completion submit the ICE report to the Administrator, prior to Nuclear Weapons Council (NWC) Phase 6.3 authorization, and then to Congressional Committees and the NWC (NA-1.3); and
 - (3) Review the Phase 6.2A report and WDCR with the Administrator and participating organizations, prior to the NWC Phase 6.3 authorization (NA-10).
4. Phase 6.3 – Development Engineering
 - a. Organizations shall support the POG to update the JIPP, MCs, and STS documents (NA-10).
 - b. Organizations shall:
 - (1) Submit initial selected acquisition reports (SARs) to Congress and continue to submit SARs until the end of Phase 6.6. As SARs are required to be submitted before the performance baseline has been established, they are subject to change after the performance baseline is established (NA-1);
 - (2) Update the WDCR in coordination with NA-50 and reissue it as the baseline cost report (BCR) (NA-10);

- (3) Update the ICE (unless otherwise directed by the Administrator) and at completion submit ICE report to the Administrator, prior to Phase 6.4 authorization, and then to Congressional Committees and the NWC (NA-1.3);
 - (4) Prepare, in coordination with the Defense Threat Reduction Agency (DTRA), a product change proposal (PCP) identifying refurbishment scope, schedule, and specific NNSA and DOD roles and responsibilities (NA-10);
 - (5) Support the preparation of the PCP (NA-50);
 - (6) Direct the NNSA national laboratories to prepare a draft addendum to the final weapon development report (FWDR) or create a new FWDR draft, in support of the preliminary Design Review and Acceptance Group (DRAAG) report, and to conduct a baseline design review (BDR) (NA-10); and
 - (7) Determine whether to authorize the NNSA national laboratories and production agencies to enter into Phase 6.4. The transition from Phase 6.3 to Phase 6.4 is an internal NNSA decision and does not occur on a specific date. As Phase 6.3 activities are completed, Phase 6.4 activities begin, so the transition occurs over time (NA-10).
5. Phase 6.4 – Production Engineering
- a. Organizations shall support the POG to update the JIPP and provide it to the NWCSSC (NA-10).
 - b. Organizations shall:
 - (1) Update the BCR (NA-10);
 - (2) Update the ICE and at completion submit ICE report to the Administrator, prior to Phase 6.5 authorization, and then to Congressional Committees and the NWC (NA-1.3);
 - (3) Determine whether to authorize the NNSA national laboratories and production agencies to enter into Phase 6.5. The transition from Phase 6.4 to Phase 6.5 is an internal NNSA decision (NA-10).
6. Phase 6.5 – First Production
- a. Organizations shall support the POG to:
 - (1) Update the JIPP (NA-10); and
 - (2) Request approval from the NWC to proceed into Phase 6.6 (NA-10).

- b. Organizations shall:
 - (1) Direct the NNSA national laboratories to finalize and release the addendum to the FWDR and attach a nuclear system certification letter (NA-10); and
 - (2) Issue the major assembly release (MAR) (NA-10).
7. Phase 6.6 – Full-Scale Production
- a. Organizations shall support the POG to prepare the final JIPP and end-of project report (NA-10).
 - b. Organizations shall:
 - (1) Provide a full-scale production plan briefing to the NWCSSC (NA-10); and
 - (2) Deliver and release into DOD custody refurbished weapons on a schedule agreeable to both DOD and NNSA (NA-10).