Description of document:	Lawrence Livermore National Laboratory (LLNL) Laboratory Directed Research and Development Policies and Procedures Manual, 2016 and National Nuclear Security Administration (NNSA) Defense Programs Business Process System (DPBPS) (legacy Development and Production Manual), 2016
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National Nuclear Security Administration

Department of Energy
National Nuclear Security Administration
Office of the General Counsel
P. O. Box 5400
Albuquerque, NM 87185

FEB 10 2017

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

This letter is the final response to your January 4, 2017 Freedom of Information Act (FOIA) request. You requested the following records:

1) A digital/electronic copy of the LLNL's LDRD Policies and Procedures Manual. LDRD Stands for Laboratory Directed Research and Development. LLNL stands for Lawrence Livermore Nuclear Laboratory.
2) The NNSA Development and Production Manual.

We contacted the Livermore Field Office (LFO) which has oversight responsibility for the Lawrence Livermore National Laboratory (LLNL), about your request. LFO asked LLNL to search for responsive records. LLNL searched and located one (1) document entitled "LDRD_Policies_Procedures," which is releasable and provided in its entirety.

We also contacted the National Nuclear Security Administration's Office of Defense Programs, NA-10 about your request. NA-10 provided this office with an Excel Spreadsheet and the Defense Programs Business Process System (DPBPS), which is the current version of the Legacy D&P Manual. Both are releasable and provided in their entirety on the enclosed CD.

There are no fees chargeable to you for processing this request. If you have questions concerning the processing of this request, please email Ms. Delilah Perez at Delilah.Perez@nnsa.doe.gov or write to the address above. Please reference Control Number FOIA 17-00042-M in your communication.

Sincerely,

Jane Summerson
Authorizing & Denying Official

Enclosures

Lawrence Livermore National Laboratory

Laboratory Directed Research and Development

Policies and Procedures Manual

October 3, 2016

Lawrence Livermore National Laboratory

Laboratory Directed Research and Development Policies and Procedures Manual

October 3, 2016

Work performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Security, LLC under Contract DE-AC52-07NA27344.

LLNL-AR-718392

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Lawrence Livermore National Laboratory

Laboratory Directed Research and Development Policies and Procedures Manual

Introduction

This *Laboratory Directed Research and Development Policies and Procedures Manual* specifies administrative and compliance requirements associated with the Lawrence Livermore National Laboratory (LLNL or the Laboratory) Laboratory Directed Research and Development (LDRD) Program. This manual is designed to ensure that Laboratory management, administrative personnel, and principal investigators (PIs) understand and follow the LLNL processes and the Department of Energy (DOE) rules and regulations governing the LDRD Program. This document is based on DOE Order 413.2C, "Laboratory Directed Research and Development" (https://www.directives.doe.gov/directives-documents/400-series/0413.2-BOrder-C) and other formal and informal DOE headquarters and National Nuclear Security Administration (NNSA) field office guidance.

You are responsible for all aspects of project oversight and execution including technical, financial, administrative, safety, and security matters.

For the Laboratory to maintain an effective LDRD Program, it must comply with the DOE orders and guidelines. This manual, along with other important up-to-date information about the LDRD Program, is available at http://stportal.llnl.gov/ldrd/.

If you have additional questions regarding LDRD, please call the LDRD office at extension 3-1689.

Overview of the LDRD Program

Purpose

The LDRD Program is a critical source of funding for the NNSA laboratories to harness the ingenuity of their scientists and engineers for innovative research and development that addresses the country's most difficult scientific and technical challenges. The LDRD Program enables the laboratories to invest up to 6% of their operating budgets in research and development efforts at the forefront of science and technology, where high-risk research could lead to high payoff.

The LDRD Program activities are governed by DOE Order 413.2C and DOE headquarters and NNSA Livermore Field Office (LFO) guidance. As stated in DOE Order 413.2C, the main objectives of the LDRD Program are to "maintain the scientific and technical vitality of the laboratories; enhance the laboratories' ability to support future DOE/NNSA missions; foster creativity and stimulate exploration of forefront science and technology; serve as a proving ground for new research; and support potentially high-value research and development (R&D)."

According to the order, the Laboratory's LDRD Program supports the missions and objectives of the DOE/NNSA and the Laboratory's strategic direction and long-term vision, with particular emphasis on national security mission areas. The LDRD Program also supports the work-for-others (WFO) missions and emerging national needs.

LDRD Projects

As defined by the DOE order, "LDRD projects must be in the forefront areas of science and technology relevant to DOE/NNSA missions. Normally, LDRD projects will be relatively

small and will also include one or more of the following characteristics—

1. Advanced study of hypotheses, concepts, or innovative approaches to scientific or technical problems;
2. Experiments and analyses directed towards 'proof-of-principle' or early determination of the utility of new scientific ideas, technical concepts, or devices; and
3. Conception and preliminary technical analyses of experimental facilities or devices."

Project Duration

LDRD projects shall be limited to a maximum period of 36 months. Exceptions may be granted by the cognizant secretarial officer (CSO) or NNSA deputy administrator or authorized DOE designee.

Restrictions on LDRD Funding

LDRD funds will not be used to:

- Substitute for or increase funding for any tasks for which a specific limitation has been established by Congress or the DOE or for any specific tasks that are funded by DOE/NNSA or other users of the Laboratory
- Fund projects that will require the addition of non-LDRD funds to accomplish the technical goals of the LDRD project, except as provided by legislation
- Fund construction design beyond the preliminary phase (e.g., conceptual design, Title I design work, or any similar or more advanced design effort) or fund line-item construction projects, in whole or in part
- Fund general-purpose capital expenditures with the exception of acquisition of general-purpose equipment that is clearly required for the project and is not otherwise readily available from Laboratory inventory.

LDRD funds cannot be used to augment or co-fund programs.

Structure of the LDRD Program at LLNL

LDRD Categories

The LDRD Program at LLNL consists of four project categories:

1. Strategic Initiative (SI)
2. Exploratory Research (ER)
3. Laboratory-Wide Competition (LW)
4. Feasibility Study (FS)

Strategic Initiative

Projects funded in the SI category are strongly aligned with the Laboratory's strategic directions and long-term vision. An SI project should focus on innovative research and development activities that are likely to set new directions for existing programs, help develop new programmatic areas within the Laboratory's mission responsibilities, and/or enhance the Laboratory science and technology base.

The SI competition is open to all Laboratory scientific, engineering, and technical staff and must be aligned with at least one of the mission-driven science and technology focus areas or one or more of the core competencies in science, technology, and engineering, as described in the I*nvestment Strategy for Science, Technology, and Engineering* (LLNL-MI-620372) at http://stportal.llnl.gov/ddst/foundations/ste-strategy/investment-strategy/.

The SI projects are usually larger in scope and support multidisciplinary teams of scientists and engineers. While the LDRD office is responsible for the financial administration of all SI projects, it delegates the responsibility for technical management, environment, safety, and health (ES&H), Integrated Safety Management System (ISMS), and Integrated Safeguards and Security Management (ISSM) to the relevant principal associate director (PAD) or associate director (AD) of the organization that has the primary responsibility for executing the SI project.

Exploratory Research

Projects funded in the ER category are also aligned with the Laboratory's strategic directions and long-term vision. The strategic context for ER proposals is the *Investment Strategy for Science, Technology, and Engineering*. An ER project should focus on innovative research and development activities that are likely to lead to scientific

discoveries and technological breakthroughs that enhance the Laboratory's science, technology, and engineering core competencies or strategic focus areas.

The ER category is open to all Laboratory scientists, engineers, and technical staff. Each project has a PI and is conducted either by an individual or by a multidisciplinary team of investigators.

Projects should include high-leverage basic research, the development of new enabling technologies, or the investigation of concepts that will have a long-term impact on the Laboratory's mission. Multiple directorate collaborations are encouraged. To be funded, a proposal must demonstrate scientific and technical merit, as determined by peer review, and also be aligned with the strategic science and technology described in the *Investment Strategy for Science, Technology, and Engineering*.

The LDRD office delegates responsibility for technical management, financial management, ES&H, ISMS, and ISSM to the relevant PAD or AD of the organization that executes the ER project, except for financial approval of certain items (foreign travel, and transfers), which the LDRD office retains. Projects funded by multiple directorates are typically managed by a lead directorate.

Account management authority for ER projects is typically in the home payroll organization of the project PI. This means the PI's organization is responsible for:

- The safety and security of those projects
- Ensuring that work activities are in conformance with LLNL ES&H policies and procedures
- Providing resource management support
- Ensuring projects meet their milestones and technical goals within the allocated budgets

In the case of projects that are funded out of a strategic focus area with a PI in a discipline organization, the home organization and the funding organization have a joint interest in ensuring that projects meet their milestones and technical goals within their allocated budgets. On those projects, the organizations are expected to maintain appropriate processes to monitor and manage the technical progress of the projects without placing undue burden on the PIs. To maximize the efficiency of this oversight, the LDRD office will:

- Provide project and task numbers for each project funded through a strategic focus area to the appropriate organizations so that spending can be easily tracked
- Work with the discipline partner organizations to obtain concurrence to move funds as appropriate during the year within a focus area organization's portfolio
- Track the origin of the funding for each project; preserving and sharing that record with all organizations

In special cases—for example, projects that are dependent on a sensitive compartmented information facility or where technical guidance or project execution would more appropriately align with another organization—it may be decided on a case-by-case basis to assign full responsibility of a project to an organization outside of the PI's home organization to enable effective management of the technical work. In such cases, cognizant organizations should discuss the need for an exception and submit an email request to the LDRD director for final approval.

Laboratory-Wide Competition

The Laboratory-Wide category is open to all programmatic, scientific, engineering, and technical staff. Proposals in this category emphasize innovative research concepts and ideas from individual researchers with limited management filtering. Alignment with the Laboratory's investment strategy is not required, although all proposals must be relevant to the Laboratory's missions and approved by DOE. The LW projects are typically funded for two years. A third year of funding is possible following a successful competitive review.

The LW projects are selected with the advice and recommendation of an internal LDRD review committee and managed directly by the LDRD office. While the LDRD office is responsible for the financial administration of all LW projects, it delegates the responsibility for technical management, ES&H, ISMS, and ISSM to the PAD or AD of the organization that executes the project.

Feasibility Study

This special category of LDRD projects, FS, provides researchers with the flexibility to develop better definition of, and feasibility for, scientific and technical ideas. The length of a FS project cannot exceed 12 months. Funding for an individual FS project cannot exceed $175K. An FS project should not be used to jump-start a regular project or to circumvent the 36-month time limit. However, if an LDRD project results from a FS project, the FS period does not count against the 36-month time limit on LDRD projects.

While the LDRD office is responsible for the financial administration of all FS projects, it delegates the responsibility for technical management, ES&H, ISM, and ISSM to the PAD or AD of the organization that executes the project.

LDRD Proposal Process

Call for Proposals

During the first quarter of each calendar year, the Laboratory director issues a call for LDRD proposals for the four project categories to all Laboratory scientific and technical personnel.

Based on the detailed requirements established in DOE Order 413.2C and other requirements specified in this manual, the call for proposals describes the requirements for proposals in each category, the strategic context for LDRD proposals, the submittal process, the technical review and selection processes, and the deadlines for each step in the process. The Web-based electronic proposal-submittal form, the call for proposals memo, guidelines for specific categories, instructions for required content, and other helpful information are available on the LDRD internal Website at: http://stportal.llnl.gov/ldrd/.

Key information is needed to obtain DOE/NNSA concurrence on the appropriateness of your proposed work.

Review Process

The LDRD review and selection process for new proposals generally has two separate proposal evaluation processes, one for intellectual merit and the other for strategic alignment with the *Investment Strategy for Science, Technology, and Engineering*. Progress reviews are performed for LDRD projects that were started in a prior year and are eligible to continue.

Evaluation for intellectual merit is performed by peer review, using criteria that are consistent with those used across the scientific community. The LDRD office organizes these reviews.

Evaluation for strategic alignment is performed by designated leaders in the strategic focus areas and in the core competencies, and by the stakeholder PADs and ADs.

The intellectual merit evaluation comes together with the strategic alignment evaluation in the final process to prioritize proposals for funding. (Final approval is contingent upon DOE and NNSA approval.) The LDRD Program director is responsible for these processes. Funding decisions are reached in consultation with the Laboratory director, the deputy director for science and technology (DDST), and the Laboratory Science and Technology Council.

Strategic Initiative and Exploratory Research Proposal Process

White papers are solicited from prospective LDRD investigators from across the Laboratory for both SIs and ERs. The focus area leaders assess these white papers for prospective strategic impact upon the goals of the strategic focus research areas. Similarly, leaders in the scientific and engineering disciplines assess the white papers for prospective strategic impact upon the goals of the Laboratory's core competencies. After assessment and prioritization, the strategy focus and core

competency leaders recommend a set of white papers for endorsement by their respective principal associate director or associate director. Following guidance set by the LDRD office, the principal associate directors and associate directors are asked to limit their endorsement lists to approximately 150% of designated total investments for the focus areas and core competencies in their purview.

The LDRD office requests that the PIs of the "short list" of endorsed white papers prepare full proposals and submit them according to instructions on the LDRD office Website. These proposals are then assigned to the appropriate technical review committees and scheduled for technical review. This approach ensures intense competition, but puts a reasonable limit on the number of PIs asked to prepare and present full project proposals.

The LDRD office organizes technical peer reviews for all new ER and SI proposals endorsed by the principal associate directors and associate directors. In this process, subject-matter review committees are formed.

Each of these review committees consists of technical experts possessing extensive technical experience in the subject matter area. These reviewers typically have prior experience as a PI and/or reviewer in the LDRD Program. Each of these committees review new SI and ER (as well as FS) proposals for technical merit as well as eligible continuing ER proposals for technical progress.

At the discretion of the LDRD office, technical merit reviews may also include external expert reviewers. External reviewers provide technical evaluation either by attending the proposal defense in person or by sending written input based upon reading the written proposal and presentation material. These reviewers are selected from the broad scientific community, including universities and other national laboratories.

Laboratory-Wide Proposal Process

Projects in the LW category are chosen to emphasize innovative research concepts and ideas, with very limited management filtering to encourage the creativity of individual researchers. A LW project is typically funded for two years at up to $300K per year; a third year of funding can be proposed, but these proposals compete on an equal basis with new proposals. Proposals for the LW competition are submitted directly to the LDRD office by individual Laboratory employees. Second-year projects are required to report their accomplishments and update their plans for the coming year—if the LW committee chair determined that these projects were making progress as proposed, the PIs are not required to appear before the full committee. The new and third-year LW proposals are evaluated by the LW proposal review committee, which provides a rank-ordered listing to the LDRD office.

Strategic alignment with the Laboratory's investment strategy is not required for LW proposals, and these proposals do not require endorsement by the PI's management. However, to be funded, all LW proposals must be determined to be relevant to one or more missions of the DOE and NNSA, per DOE Order 413.2C.

Feasibility Study Proposal Process

This special project category, FS, provides researchers with the flexibility to propose relatively small, short-term projects to determine the feasibility of a particular technical approach for addressing a mission-relevant science and technology challenge. To increase its responsiveness to Laboratory scientists and engineers, the LDRD Program funds FS projects throughout the year. The FS proposals are reviewed by an ad hoc set of qualified reviewers selected by the LDRD director based on the topic of the proposed research, and are funded for up to 12 months.

Midyear Proposals

The LDRD office normally maintains a small LDRD reserve as a hedge against an unexpected decrease in the Laboratory's budget and to enable funding of innovative ideas throughout the year. If available, this reserve may be used to fund strategic and innovative projects that are proposed outside the normal funding cycle. The proposal and review processes are identical to those of the SI or ER proposal and review processes discussed above. The reserves are typically very limited, and midyear proposals must by strongly supported by Laboratory senior management prior to consideration.

LDRD Reviews and Reports

DOE/NNSA Reviews

The DOE/NNSA conducts annual reviews of the LDRD Program and site visits as needed. Financial and statistical data are required at year's end.

As part of reviews, PIs of selected projects may be requested to give oral or poster presentations. In addition, the LDRD office provides DOE with timely information on major accomplishments of LDRD-funded projects and statistical data on the accomplishments of the LDRD Program.

For the review of the next fiscal year's portfolio, the LDRD office submits a one-page summary datasheet for each proposal in the portfolio for DOE/NNSA concurrence prior to funding. Information for the datasheets comes from the proposal description section of the Web-based form.

Progress Reviews

Every funded SI, ER, LW, and FS project is assigned to a particular "lead organization" for oversight of safety, security, and execution. The lead organization, which may be a directorate or principal directorate, also monitors project spending. The lead organization is responsible for performing periodic progress reviews.

Annual Report

The LDRD annual report, required by DOE Order 413.2C, describes the accomplishments of the Laboratory's LDRD Program for the prior fiscal year.

To fulfill fiscal-year reporting requirements for their project, PIs must submit project information as instructed in an electronic form available on the LDRD Program internal Website. The electronic form has been designed to efficiently collect key information about project goals and accomplishments, including publications, records of invention, patents, and awards. This information is a key component of the success metrics for the LDRD Program, and it is important to capture it accurately and thoroughly.

All LDRD projects must be reviewed on an annual basis by the LDRD Program office.

The PIs are responsible for ensuring that the information that they submit to the annual report is unclassified and that it does not include sensitive unclassified information such as unclassified nuclear information (UCNI), official use only (OUO), and export-controlled information. If the topic of the report does not fall within a designated unclassified area (DUSA), it is the PI's responsibility to obtain a review by an authorized derivative classifier (ADC).

A call memo requesting input to the annual report is sent to each PI in October and must be completed by the time specified in the request, typically two to four weeks after the call. If the LDRD office does not receive a report by the due date, future LDRD funding for a continuing project may be at risk. No separate LDRD funds are available for preparing annual report input. The PIs should coordinate with their principal directorate and directorate resource managers to ensure the successful completion of this requirement.

End of Project (Final) Reports

Acknowledgment of LDRD funding, along with the project tracking number, should appear in all publications of LDRD project research results.

In accordance with DOE Order 413.2C, at the conclusion of a project, the PI must submit a final report that thoroughly describes the research results and accomplishments of the project. The content of the final report should be at a level of detail consistent with publications in the scientific and technical community relevant to the LDRD project.

The final report will also serve as the annual report input for the concluding year of a project, and the call for final reports is integrated with the call for annual report input. The PIs of projects that have been completed are asked to provide input for their final/annual report, via the LDRD Website, by the specified deadline.

No separate LDRD funds are available to the PI for this task. The PIs should coordinate with their principal directorate and directorate resource managers to ensure the successful completion of this requirement.

Retrospective Reviews

The LDRD office may call for a retrospective review after the completion of an LDRD project to assess the cumulative scientific and mission impact. Such reviews usually involve external reviewers and are usually focused on larger LDRD projects.

LDRD Program Roles and Responsibilities at LLNL

Principal Investigators

The PIs are the most important component of LDRD projects and the LDRD program as a whole. They are the scientific and technical leaders who envision challenging and significant science and technology goals and the approach to achieve them. They oversee the technical team and guide it to maximize the science and technology accomplishments and the potential impact on LLNL and the national security missions. In addition to being science and technology leaders, PIs are accountable for all technical, financial, administrative, safety, and security issues associated with their LDRD projects. The PIs on LDRD projects have the following responsibilities:

- Submit creative, innovative proposals with specific milestones, deliverables, and budgets
  - The scope, milestones, and deliverables for LDRD projects must be distinctly different from projects funded by the programs or by other means
  - LDRD proposals cannot depend upon other funding sources to achieve the goal of the proposal
- Identify as co-investigators all scientists and engineers participating on the project
  - Maintain a complete and accurate list of co-investigators with the directorate point of contact (POC) and LDRD office
- Manage LDRD funds responsibly
  - Ensure that LDRD funds are only used for research and development activities and costs associated with the LDRD project
  - Ensure that LDRD costs do not exceed the LDRD project funding allocation
  - Ensure that project co-investigators have the correct account number(s) and understand the differences between LDRD project activities and other funded activities that the team may be pursuing
- Perform all technical reviews as requested by the LDRD office
  - Submit documentation as requested, including the annual update to the Web-based form, the annual report, and the end of project (final) report
- Inform the LDRD office in a timely manner of significant accomplishments, publications, and invention disclosures
- Specify foreign national participation on the project team and obtain the required electronic signatures of approval
  - If a foreign national is listed on the proposal or added to the team during the fiscal year, it is the PI's responsibility to ensure that all required electronic signatures are acquired prior to any effort charges (refer to the "Foreign National Approval Process" section below)
- If the PI is a foreign national, identify a backup PI who is a U.S. citizen and LLNL employee

For a variety of reasons, it is occasionally necessary to change the PI for LDRD projects. Approval for this change is at the discretion of the LDRD office.

Principal Directorate and Directorate Resource Managers

The LDRD Program resource manager is responsible for providing an up-to-date list of LDRD-funded projects and their associated operating and capital equipment

allocations to the DOE/NNSA LFO. This listing shall be at LFO by the 15th of the first month of each quarter or as requested.

The LDRD resource manager is also responsible for providing to each PAD and AD on a monthly basis an up-to-date list of LDRD-funded projects that their respective organization is responsible to execute.

The directorate resource managers have the following responsibilities for LDRD projects within their organization:

- Interface with the technical staff to ensure that the required budget information is complete and correct for all proposals submitted to the LDRD office
- Monitor the project expenditures weekly and/or monthly to ensure that costs are in line with allocations
- Interface with the LDRD resource manager to ensure the financial integrity of the LDRD Program
- Monitor all purchases to ensure that unallowable items are not purchased. See "Costs Not Allowed with LDRD Funds" below
- Ensure that LDRD projects do not accrue costs before the project has been approved or after the project has ended
- Ensure that any effort or cost transfers between LDRD project accounts and other accounts are appropriate

Points of Contact

Each directorate has an assigned POC for LDRD. The POC serves as a liaison between the directorate, PI, and LDRD office. The POCs have the responsibility to:

- Oversee execution of LDRD projects that have been delegated to their directorate
- Ensure projects adhere to DOE, LLNL, and LDRD guidelines
- Work with LDRD office management to ensure timely and proper management of directorate projects, including periodic progress reviews and necessary adjustments of milestones and budgets, and providing information to the LDRD office as requested
- Ensure PI submission of annual and final reports required to meet DOE guidelines
- Inform the LDRD office of any change of project PI or co-PI; request of change must be emailed to the LDRD Program director for review and approval
- Follow guidelines outlined in this manual and ensure that co-PIs are aware of and implementing these policies and procedures—for example, foreign travel, procurements, and foreign national forms

Laboratory Directed Research and Development Office

The LDRD office ensures that rigorous processes are in place for evaluating, ranking, and recommending a portfolio of projects to the Laboratory director. The LDRD office provides oversight of all projects that have been selected for funding to ensure maximum benefit to DOE and Laboratory mission areas and compliance with all applicable orders and requirements. The LDRD office provides financial management for all SI, LW, and FS projects as well as certain components of ER projects.

In managing LDRD, the LDRD office complies with all applicable financial policies and procedures that are the responsibility of the Laboratory controller, the Finance Department, and the Budget Office, including LLNL's *Financial Policies and Procedures* (https://policiesprocedures.llnl.gov/portal/page/portal/MYLLNL/ITEMS/DOCUMENTS/BOOKSHELF/bfa.html)

On an ongoing basis, the LDRD office interfaces with the NNSA LFO for approval of all LDRD proposals. Moreover, the LDRD office works with the LFO and provides a draft LLNL LDRD Program plan prior to its submission to NNSA.

Principal Associate Directors and Associate Directors

For all LDRD-funded projects executed within their organizations, the Laboratory PADs and ADs have the responsibility to ensure:

- LDRD projects are managed separately from other funding sources, and are meeting their stated unique milestones and technical goals within the allocated budgets

- PIs within their directorates provide the LDRD office with all the information required by the DOE, as outlined in the section of this manual titled "LDRD Reviews and Reports"

- Safety and security requirements are addressed in planning and executing LDRD projects, including SI, ER, LW, and FS projects

Directorates are required to evaluate the quality of the science and technology in LDRD-funded projects as part of their annual, external peer-review process.

LLNL Deputy Director for Science and Technology

The DDST oversees management of the LDRD Program for the Laboratory director to ensure that LDRD funds are strategically invested in accordance with the Laboratory's strategic vision and plan. The LDRD Program is administered by the director of the LDRD Program in the office of the DDST.

Department of Energy/National Nuclear Security Administration

The DOE ensures that the LDRD Program achieves its objectives and provides effective oversight to ensure compliance with DOE Order 413.2C and other relevant orders and guidelines.

Effective March 1, 2000, the DOE developed an implementation plan to establish the NNSA (as provided by Title 32 of the National Defense Authorization Act for Fiscal Year 2000, Public Law 106-65), whose primary mission is national security.

The DOE operates under the administrator for the NNSA as well as the DOE secretary to oversee their energy, environmental, and science programs. The DOE/NNSA headquarters management structure relies on the field offices to oversee and manage operations at the national laboratories.

The DOE/NNSA manager for LFO has the responsibility for LDRD Program management oversight and approval of all the Laboratory LDRD proposed projects.

LDRD Guidelines and Restrictions

Financial Guidelines and Restrictions

The LDRD office disburses LDRD funds to PIs after the funding level has been approved by DOE and the LDRD funding allocations have been approved by the Laboratory director. It is the policy of the LDRD office to allow the PIs maximum flexibility to conduct their LDRD projects while ensuring that all pertinent DOE guidelines are followed. The LDRD office has established the following guidelines to aid PIs and directorates in managing their projects.

LDRD funds activities in the approved project only, and funds cannot be used to purchase items not required for successful completion of the project.

Financial Plans

The PIs are responsible for providing the operating and capital equipment budget data on their projects to the principal directorate or directorate resource manager. Financial plans, including both operating and capital equipment requests, for all LDRD-funded projects must be completed and updated by the responsible principal directorate or directorate resource manager. Financial plans (Lab Pricer) will be uploaded into the COBRA planning and controls system and actual costs will be measured against the plan. It is important to develop a good estimate for actual costs to be measured against. Variances between actual costs and the plan will need to be justified.

Increases in Project Funding

During the fiscal year, the LDRD Program may approve cumulative budget increases for selected projects up to 50% or $200K, whichever is less. Any budget increase that would cause the cumulative amount to exceed these limits requires LFO approval.

An amended datasheet must accompany the request for any increase requiring LFO approval.

Costs Not Allowed with LDRD Funds

While the following costs are not specifically unallowable, they are typically incurred for the benefit of more than one project. Therefore, they should not be incurred on LDRD projects. (Reference *Financial Policies and Procedures*, 20.6b—"Unallowable Costs," and 20.3a—"Consistent Charging of Direct and Indirect Costs.")

- Costs for new hires (such as advertising, interviewing, hiring bonuses, relocation)
- Change-of-station expenses and/or housing stipends
- Honoraria for project reviews
- Office furniture, equipment, or supplies
- Books that are not specific to the LDRD project
- Pagers
- Cell phones
- Extended travel expenses
- Visas for foreign travel
- Memberships (unless 100% relevant to the LDRD project)

Domestic and Foreign Travel

A Travel Authorization (TA) form must be submitted in ePay for all travel. The direct benefit of the travel to the LDRD including the LDRD tracking code must be included in the TA benefit statement. The POC for their area is to be included in the approval of all travel.

Only the PI and co-investigator(s) may go on foreign travel using LDRD project funds. A co-investigator cannot be added to the project for the sole purpose of foreign travel.

Foreign travel must be implemented in the Foreign Travel System (FTS). The FTS must be approved by the POC for their area. Again, the direct benefit to the LDRD must be described in detail in the benefit statement. The traveler must provide the LDRD tracking code in the budget and reporting code section of the travel request. The LDRD Program manager reviews all foreign travel in the FTS.

Procurements

The LDRD office encourages the practice of using a single purchase order to contract for LDRD-funded research and development. To ensure large procurements are in compliance with LDRD projects as approved by NNSA, the LDRD office requires pre-approval of all procurements $50k or greater.

Computer-Related Acquisitions

General-purpose computer hardware (Macs, PCs, PowerBooks, etc.) and software cannot be purchased with LDRD funds unless they are required for the successful completion of the LDRD project. Such requests should be included in the original proposal. A justification request for approval email form must be submitted to and approved by the project resource manager and then by the LDRD Program resource manager prior to the purchase of any computer hardware or software.

Accruals

All directorates are required to identify unrecorded obligations for their LDRD projects and to report their unrecorded costs in the period incurred within Project Costing Implementation (PCI).

There must be a bona fide business case why investigator travel is essential to the project.

Complete accruals are required for each monthly closing period to ensure accurate financial statement reporting. As a general rule, accruals should be made for costs greater than $100K; however for small projects, the threshold should be lower. Best judgment should be used. At fiscal year end, special care should be taken to ensure all costs have been recorded. Accruals should be recorded if:

- The item is received but the invoice has not been received by the end of the period
  - The automatic receipt accrual process should accrue for these items
- The item was shipped but not received before the end of the period and the contract covering the item ordered is a freight on board (FOB) shipping point (the Laboratory takes possession when the item is shipped)
- The service has been provided during the period but the Laboratory has not been billed by the end of the period
  - LLNL utilizes automated service accruals and are valued using a straight-line calculation for accrual amounts $10k or greater
  - Overrides to the calculated amount should be applied when the accrual value differs from the benefit received
- The vendor is custom building an item or a construction project—accrue for the percentage of the item or project that has been completed by the end of the period if progress billing has not been received

Cost Transfers

To transfer costs into or out of an LDRD project, resource managers must verify that the cost transfer has been properly completed, justified, authorized, and submitted using the PCI transfer application. Cost-transfer originators are responsible for maintaining complete, accurate, and auditable documentation to properly support each cost transfer. Any request to transfer cost and/or effort that exceed the amount of the prior month must be approved by the LDRD resource manager prior to submission. All cost transfers affecting an LDRD project will be reviewed and approved by the LDRD office through the PCI transfer application workflow.

Concurrence of the LDRD office is required for year-end cost transfers. During fiscal year-end closing, the LDRD resource manager, or designee, must receive written authorization prior to submission of cost transfers.

Year-End Closing

Directorate resource managers should ensure that all of their projects are within allocated budgets. Funding allocations cannot be carried over to the next fiscal year.

However, if there are travel costs or procurements that are appropriate for the current fiscal year but for which no invoice was received by year end, the PI should contact his/her resource manager for accrual options during fiscal year-end close.

Capital Equipment

DOE Order 413.2C includes a provision that allows a percentage of the Laboratory's capital equipment budget, as approved by DOE each year, to be allocated to LDRD projects. Capital equipment costs normally associated with research and development activities are specifically identified in DOE Order 413.2C as allowable costs for the acquisition of equipment clearly required for the LDRD project.

A list of the capital equipment needed and the justification for its purchase must be submitted as part of the LDRD proposal package.

All purchases must be in compliance with the Laboratory's policies and procedures for procurements as well as with those of LDRD. When using this guidance, the following definitions of capital equipment apply:

- Has an anticipated service life of at least two years
- Costs $500,000 or more
- Considered movable personal property, and substantially retains its original characteristics

To comply with DOE Order 413.2C, all LDRD capital equipment purchases should be initiated as soon as funding is allocated. The order states, "To preclude accumulation of funding under the LDRD Program, capital equipment funding not committed by the end of the fiscal year cannot be carried over to the next fiscal year."

General Guidelines and Restrictions

Integrity in Research

All LDRD-funded activity must comply with LLNL's policy to provide an environment that promotes integrity, to require the highest ethical standards from all individuals involved

in scientific research, and to inquire into and, if necessary, investigate and resolve all instances of alleged misconduct in scientific research. For more information, please refer to Section D, "Regulations on Employee Conduct," in LLNL's *Personnel Policies Manual* https://pppm-int.llnl.gov/.

Foreign National Approval Process

The foreign national approval process was revised on February 12, 2006, and is now completely automated. The PIs can complete all foreign national information within the Web-based proposal form. After the Web-based form has been released to the LDRD office and the proposal form is imported into the LDRD master database, the foreign national electronic signature approval process will begin.

All foreign nationals who charge to an LDRD project must be identified in the Web-based form associated with the proposal.

The PIs are then able to track the status of the electronic signature process via the new "eSignature Status" column when they log into the proposal Website. They will also be notified by automatic email when the foreign national has been approved to work on their project. The LDRD office no longer uses the hard copy of the Foreign National Form, and no copies of the foreign national paperwork are required (when the PI first submits his/her project Web-based form). It is the PI's responsibility to ensure that the proposed LDRD work to be performed by the foreign national is included in their visitor tracking system record.

To comply with NNSA requirements, PIs are required to inform the LDRD office whenever a foreign national participates in an LDRD-funded project as a PI, co-investigator, university collaborator, student, postdoctoral researcher, or in any other role. Electronic approval signatures must be obtained prior to any foreign national working on an LDRD project or charging an LDRD account. Separate electronic approval signatures must be obtained for each foreign national for each project year.

Electronic approval signatures must be included in all new and continuing proposals once the project has been reviewed and approved for funding. The LDRD office must receive the electronic approval signatures prior to any foreign national performing LDRD work or charging LDRD accounts.

If the PI is a foreign national, a project co-investigator that is a U.S. citizen and a full-time Laboratory employee (FTE) will be required to sign the electronic form. By signing the electronic foreign national form, the co-investigator ensures that he/she will be fully responsible for adherence to all Laboratory regulations concerning foreign nationals and the protection of LLNL classified and sensitive information including unclassified controlled information such as UCNI, OUO, and export-controlled information, as well as any relevant and applicable controls directed by Laboratory sponsors.

The PIs (or co-investigators if the PI is a foreign national) who sign the electronic foreign national approval form have the responsibility to ensure that any foreign national supporting university contractors follow Laboratory guidelines.

If a foreign national is added to the project after the proposal has been submitted or after the project has been funded, the PI must submit an email to the LDRD office (jackson2@llnl.gov) stating so and provide the foreign national's curriculum vitae and a brief paragraph describing the work to be done on the specific project by the foreign national. In addition, in such cases the original, hardcopy Foreign National Form (contact Barbara Jackson at 3-1689 or jackson2@llnl.gov to obtain this form) must be filled out—although no signatures are required—and submitted to the LDRD office at jackson2@llnl.gov.

When the LDRD office receives all required information, the foreign national will then be added to the project team, at which point the foreign national eSignature process will begin. All electronic approval signatures must be obtained

before the foreign national can perform any work or charge any LDRD account.

If a foreign national is deleted from an LDRD project, the LDRD office should be notified. Furthermore, all electronic foreign national approval signatures must be obtained for any foreign national who has access to LDRD technology, whether or not an LDRD account number is charged.

Inform the LDRD office in writing of any proposed change in the principal investigator or the overall budget, and of any significant change in project deliverables.

Industrial Collaborations

Funds allocated for LDRD projects may be identified as matching funds or "investment in kind" for Cooperative Research and Development Agreements (CRADAs) with the prior approval by both the LDRD office and DOE/LFO. Based on guidance received from NNSA, the following requirements must be met:

- The LDRD Program must have an existing project to prevent the Laboratory from initiating LDRD projects for the sole purpose of funding a CRADA.
- LDRD funds cannot replace the industrial partner's committed funds.
- LDRD funds cannot be used to supplement an existing CRADA that is losing its funding from elsewhere.
- The Industrial Partnerships Office (IPO) shall contact the LDRD office for approval of the collaboration that will involve LDRD funding.
- The LDRD office manager shall formally notify the LFO about the intended collaboration and that the LDRD office approves of this collaboration.

Proprietary Information and Patents

The PI should consult with the Laboratory's IPO before including information concerning inventions or business-sensitive information in proposals, presentations, or reports. The PIs are also asked to list records of invention and patents in their annual report input. LDRD funds may not be used solely to improve patent positions.

Project Modifications

The PI or relevant POC must inform the LDRD office in writing of any proposed change in the PI or the overall budget, and of any significant change in project deliverables. Approval by the LDRD office is required prior to the change.

Classified Information

All information submitted to LDRD via Web-based forms must be unclassified. The PIs have the responsibility to ensure that the information they submit has been reviewed by an ADC prior to submittal.

The written portion of the proposal and the final report may be classified. Classified written proposals and reports must be handled in compliance with Laboratory classified information-handling procedures. The PIs should consult with their directorate security POC or call Classified Matter Protection and Control at 3-7667.

Environment, Safety, and Health

For every funded LDRD project, a directorate or principal directorate is designated as the "lead organization" for project execution. This delegation includes ES&H oversight. In accepting this delegation, the lead organization agrees to serve as the authorizing organization and is responsible for performing the defined work activities in conformance with the applicable provisions of the *ES&H Manual* (https://esh.llnl.gov/html/toc.php), specifically Document 2.1 "General LLNL Worker ES&H Responsibilities," and Document 2.2, "LLNL Institution-Wide Work Planning and Control Process," as well as the directorate's internal plans and procedures. This responsibility includes determining that the budget is adequate for the scope of the project and is sufficient to meet ES&H responsibilities in full compliance with all applicable rules and regulations. During the execution of a project, any issue that arises related to the adequacy of the budget to meet these requirements requires the authorizing organization to notify the LDRD

office to renegotiate the budget or to re-scope the project.

Line management responsibility for safety runs through the management chain in which the work authorization resides. A line manager is designated by the authorizing organization as an authorizing individual responsible for a work activity's technical and ES&H objectives, and is authorized by the PAD (or his or her designee) to accept and manage the risks associated with the work on LLNL's behalf. This person authorizes the work to proceed once all controls have been verified to be in place.

The lead organization is also responsible for defining work closeout responsibilities (including legacy waste) in the project-planning phase and for defining any roles, responsibilities, authorities, and accountabilities that are further delegated. In addition to their usual process for reporting ES&H incidents (see *ES&H Manual* Document 4.5, "Incidents Notification, Analysis, and Reporting"), the authorizing organization is responsible for reporting to the LDRD office, in a timely fashion, any accidents that occur on projects funded by LDRD. The LDRD office will notify the LDRD managers in DOE/LFO.

Every LDRD project PI is responsible for obtaining work authorization from management of the authorizing organization before beginning work on the project and for complying with the Laboratory's ES&H requirements. Both the PI and management of the authorizing organization are responsible for following these requirements.

For certain projects, regulatory agency permits or environmental impact assessment reviews may be required. Projects involving fieldwork or making use of offsite facilities will require special consideration and coordination between LLNL and the host institution to meet both LLNL and local ES&H requirements. To avoid potential project delays, PIs are encouraged to read the appropriate sections of the *ES&H Manual* and to consult with appropriate ES&H subject-matter experts during the process of preparing their proposals. Compliance with ES&H requirements is considered in making LDRD funding decisions.

Safeguards and Security

The ISMS is a systematic approach for integrating safeguards and security into all facets of work planning and execution, including LDRD. For more information see https://wpc-int.llnl.gov/.

All Laboratory workers and organizations have the responsibility to perform work securely and in accordance with the Laboratory's security policies and procedures, as described by ISSM.

The designated lead organization for each LDRD project has the responsibility for safeguards and security for that LDRD project and for the full LDRD portfolio under their purview.

The PIs have the responsibility to understand their security obligations and the existing tools and techniques for working securely, to receive authorization from management of the lead directorate before beginning work on the project, and to comply with the Laboratory's security policies and procedures requirements as well as those specific to the lead directorate.

Protection of Human Research Subjects

Before receiving LDRD Program funding, a proposal involving human subjects must be reviewed by the Laboratory's Institutional Review Board (IRB) and must meet all its administrative requirements. A project selected for funding must receive final approval from the Laboratory IRB before beginning any parts of the project that involve human subjects.

The PIs who plan to involve any human subjects, including their bodily materials or data that can be linked to living human beings, in their project(s) must contact Kristen S. Kulp, IRB chair (kulp2@llnl.gov, ext. 2-6351, L-452) or Ann-Marie B. Dake, senior IRB administrator (dake1@llnl.gov, ext. 2-0260, L-003) to determine the requirements for IRB review, obtain a copy of the IRB information for PIs, or get assistance in completing the IRB proposal-review process. Further information for PIs is available at the Laboratory IRB Website at https://irb.llnl.gov/.

Protection of Animal Research Subjects

Before receiving LDRD Program funding, a proposal involving live vertebrate animals must be reviewed by the Livermore Institutional Animal Care and Use Committee (IACUC) and meet its administrative requirements. A project tentatively selected for funding must receive final approval from the Livermore IACUC before beginning any parts of the project that involve animal subjects.

The IACUC is chaired by George W. Anderson, Jr. Any PI who plans to involve live animal subjects in their project(s) must contact Char Paulo (paulo2@llnl.gov, ext. 3-3730) as soon as possible to obtain a copy of the IACUC information for PIs and obtain assistance in completing the IACUC proposal-review process. Further information for PIs is available from the Laboratory's IACU Website at https://iacuc.llnl.gov/index.php.

The continued existence of the LDRD Program rests on our collective ability to meet our responsibilities in an ethical and documented fashion.

Appendix A. LDRD Acronyms

Acronym	Definition
AD	Associate Director
ADC	Authorized Derivative Classifier
CRADA	Cooperative Research and Development Agreement
CSO	Cognizant Secretarial Officer
DDST	Deputy Director for Science and Technology
DOE	Department of Energy
DUSA	Designated Unclassified Subject Area
ER	Exploratory Research
ES&H	Environment, Safety, and Health
FOB	Freight on Board
FS	Feasibility Study
FTE	Full-Time Employee
FTS	Foreign Travel System
FY	Fiscal Year
IACUC	Institutional Animal Care and Use Committee
IM	Information Management
IPO	Industrial Partnerships Office (formerly IPAC)
IRB	Institutional Review Board
ISMS	Integrated Safety Management System
ISSM	Integrated Safeguards and Security Management
LDRD	Laboratory Directed Research and Development
LFO	Livermore Field Office (NNSA)
LLC	Limited Liability Company
LLNL	Lawrence Livermore National Laboratory
LW	Laboratory-Wide Competition
NNSA	National Nuclear Security Administration
OUO	Official Use Only
PAD	Principal Associate Director
PCI	Project Costing Implementation
POC	Point of Contact
PI	Principal Investigator
SI	Strategic Initiative
TA	Travel Authorization
UCNI	Unclassified Nuclear Information
WFO	Work for Others

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1	**Chapter**	**Currently Effective****	**Partially replaced by:**	**Cancelled and completely replaced by:**	**Date cancelled without replacement**	**Moved, deleted, or replaced by an SD**	**Notes**	**Determination**
2	**Appendix A**					Deleted (Rev. 1, Change 29) "Appendix A: Documents Referred to in the Development and Production Manual"		
3	**Intro**			R002^, T003, G001				UUR per SNL DC review (applies to documents in column D)
4	**Glossary, Acronym, Cross-Reference**	X						UUR per SNL DC review (applies to document in column A)
5	D&P 1.1	X	R019					UUR per SNL DC review (applies to documents in columns A and C)
6	D&P 1.2		R019, R020					UUR per SNL DC review (applies to documents in columns A and C)
7	D&P 1.3				2010-04			
8	D&P 1.4	X						UUR per SNL DC review (applies to document in column A)
9	D&P 1.5	X						UUR per SNL DC review (applies to document in column A)
10	D&P 1.6	X						UUR per SNL DC review (applies to document in column A)
11	D&P 1.7	X						UUR per SNL DC review (applies to document in column A)
12	D&P 1.8					Deleted (Rev. 1, Change 50) "Weapons Appraisal Process"		
13	D&P 2.1	X	R013*					UUR per SNL DC review (applies to document in column A)
14	D&P 2.2	X	R008, R017, T082					UUR per SNL DC review (applies to documents in columns A and C)
15	D&P 2.3			R003				UUR per SNL DC review (applies to document in column D)
16	D&P 2.4	X	R001, R006, R019				Sections 4.2.3 and 4.2.4 para 1 were superseded by R001, but not notated in the chapter	UUR per SNL DC review (applies to documents in columns A and C)
17	D&P 2.5	X						UUR per SNL DC review (applies to document in column A)
18	D&P 2.6					Deleted (Rev. 1, Change 26) "Producibility Assessment"		
19	D&P 2.7				2010-04			

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1	**Chapter**	**Currently Effective****	**Partially replaced by:**	**Cancelled and completely replaced by:**	**Date cancelled without replacement**	**Moved, deleted, or replaced by an SD**	**Notes**	**Determination**
20	D&P 2.8			R002^, G001				UUR per SNL DC review (applies to documents in column D)
21	D&P 3.1	X	R003, R019, R020, R013*					UUR per SNL DC review (applies to documents in columns A and C that are provided)
22	D&P 3.2		R001, R006, R016, R019		2015-09			UUR per SNL DC review (applies to documents in columns A and C)
23	D&P 3.3	X	R019, R020					UUR per SNL DC review (applies to documents in columns A and C)
24	D&P 3.4	X	T067				Section 5.1 was superseded by T067, Appendix A, but was not notated in the chapter	UUR per SNL DC review (applies to documents in columns A and C)
25	D&P 3.5					Moved into 3.3 (Rev. 1, Change 28) "Program Control Document"		
26	D&P 3.6	X	R013*, T088*					UUR per SNL DC review (applies to document in column A)
27	D&P 3.7	X	R001, R006				Section 5 .1 paragraph 4, bullet 2 was superseded by R001, but not notated in the chapter	UUR per SNL DC review (applies to documents in columns A and C)
28	D&P 4.1	X	R020, R013*, T088*					UUR per SNL DC review (applies to documents in columns A and C that are provided)
29	D&P 4.2					Merged into 4.1 "Inventory & Disposition of Nonnuclear Weapons Material and Special Tooling and Acceptance Equipment"		
30	D&P 4.3	X	R019, R020, R013*					UUR per SNL DC review (applies to documents in columns A and C that are provided)
31	D&P 4.4	X	R020, R013*, T088*					UUR per SNL DC review (applies to documents in columns A and C that are provided)
32	D&P 5.1	X	R013*, T088*					UUR per SNL DC review (applies to document in column A)
33	D&P 5.2	X	R013*, T088*					UUR per SNL DC review (applies to document in column A)

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1	**Chapter**	**Currently Effective****	**Partially replaced by:**	**Cancelled and completely replaced by:**	**Date cancelled without replacement**	**Moved, deleted, or replaced by an SD**	**Notes**	**Determination**
34	D&P 5.3					Deleted (Rev. 1, Change 23) "Premium Transportation"		
35	D&P 5.4					Deleted (Rev. 1, Change 19) "Bar Code Identification of Inter-plant Shipments"		
36	D&P 6.1	X	R013*, T088*					UUR per SNL DC review (applies to document in column A)
37	D&P 6.2	X	R019,R013*, T048*					UUR per SNL DC review (applies to documents in columns A and C that are provided)
38	D&P 6.3	X	R019, R013*, T048*					UUR per SNL DC review (applies to documents in columns A and C that are provided)
39	D&P 7.1	X	R019,R013*, T088*					UUR per SNL DC review (applies to documents in columns A and C that are provided)
40	D&P 7.2					Moved into 5.2 (Rev. 1, Change 23) "Limited Life Program"		
41	D&P 7.3	X	R019					UUR per SNL DC review (applies to documents in columns A and C)
42	D&P 7.4	X	R019, R013*,					UUR per SNL DC review (applies to documents in columns A and C that are provided)
43	D&P 7.5	X	R019, R013*			R021		UUR per SNL DC review (applies to documents in columns A and C that are provided)
44	D&P 7.6					Deleted (Rev. 1, Change 31) "Command Disable Schedule"		
45	D&P 8.1			R005, R017, R018, R019, R020, T108, T114, T115, T117, T125, T126, T138				UUR per SNL DC review (applies to documents in column D)
46	D&P 8.2	X						UUR per SNL DC review (applies to document in column A)

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1	**Chapter**	**Currently Effective****	**Partially replaced by:**	**Cancelled and completely replaced by:**	**Date cancelled without replacement**	**Moved, deleted, or replaced by an SD**	**Notes**	**Determination**
47	D&P 8.3					Moved to Section 13 (Revision 2) "Quality and Product Acceptance"		
48	D&P 8.4					Moved to Section 13 (Revision 2) "Standards and Calibration"		
49	D&P 8.5			R005, T110				UUR per SNL DC review (applies to documents in column D)
50	D&P 9.1	X	R013*					UUR per SNL DC review (applies to document in column A)
51	D&P 9.2	X	R013*					UUR per SNL DC review (applies to document in column A)
52	D&P 9.3	X	R019					UUR per SNL DC review (applies to document in column A and C)
53	D&P 9.4	X	R013*					UUR per SNL DC review (applies to document in column A)
54	D&P 10.1				2010-Apr			
55	D&P 10.2					Moved into 10.1 (Rev. 1, Change 25) "Computer Integrated Manufacturing"		
56	D&P 10.3	X						UUR per SNL DC review (applies to document in column A)
57	D&P 11.0					Deleted (Rev. 1, Change 44) "Section 11 Description & Definitions"		
58	D&P 11.1				2010-Apr			
59	D&P 11.2				2010-Apr			
60	D&P 11.3	X						UUR per SNL DC review (applies to document in column A)
61	D&P 11.4	X						UUR per SNL DC review (applies to document in column A)
62	D&P 11.5					Deleted (Rev. 1, Change 43) Target Level of Controls		
63	D&P 11.6	X						UUR per SNL DC review (applies to document in column A)
64	D&P 11.7				2010-Apr			

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1	**Chapter**	**Currently Effective****	**Partially replaced by:**	**Cancelled and completely replaced by:**	**Date cancelled without replacement**	**Moved, deleted, or replaced by an SD**	**Notes**	**Determination**
65	D&P 11.8					Deleted (56XB Rev 2, Change 8) Integration of Weapon Response into Authorization Bases at the Pantex Plant		
66	D&P 11.9					Deleted per NNSA Supplemental Directive NA SD 452.4 July 7, 2011 "Control of Nuclear Explosive Operations During Pantex Plant Operations"		
67	D&P 12.1	Reserved/no content	n/a					
68	D&P 12.2	Reserved/no content	n/a					
69	D&P 12.3		R001	R009				UUR per SNL DC review (applies to documents in columns C and D)
70	D&P 13.1	X	R019					UUR per SNL DC review (applies to documents in columns A and C)
71	D&P 13.2	X						UUR per SNL DC review (applies to document in column A)
72	* Document completed, but not yet approved or effective							
73	** Document in which content that has not yet been superseded is still effective							
74	^ Document that has been revised, but revision not yet approved or effective							

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F	Change 5, 12-06-05
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I	Change 8, 06-28-06
J	Change 9, 02-15-07
K	Change 10, 08-22-07
L	Change 11, 08-25-08
M	Change Notice 1, April 2010 – IER 20110980SA
N	Change Notices 2 and 5 dated 03-20-2012, FCO 20121822SA effective date 06-30-2012
P	Change Notice 4 dated 03-27-2013, FCO 20131906SA effective 07-01-2013
R	Change Notice 8 dated 08-26-2013 and Change Notice 9 dated 09-11-2013, FCO20140272SA effective 03-31-2014
S	Change Notice 10 dated 05-15-2015, Change Notice 11 dated 09-03-2015, and Change Notice 12 dated 09-03-2015, FCO 20152801SA effective 10-01-2015
T	Change Notice 13 dated 12-22-2015 and Change Notice 14 dated 09-03-2015, FCO 20155736SA effective 01-01-2016
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GLOSSARY, ACRONYM, & CROSS REFERENCE

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ISSUE	CHAPTER RELEASE/CHANGE NO.
A	Initial Release March 31, 2004
B	December 6, 2005

	REV	CHANGE	DATE	PAGE NO.
56XB	2	1	December 14 2004	1

A	Acronym	Definition	Reference
Accelerated Aging Unit	AAU	A retrofitted or stockpile returned weapon that is subjected to environmental conditions that are believed to simulate longer-term storage and handling	8.1
Acceptance		The NNSA activities that ensure weapon and weapon related material meets applicable design requirements, drawings, and known design intent. Product quality is assured through a combination of quality assurance assessments, contractor generated information, and participation in other projects.	
Acceptance Equipment		The equipment used by a DOE/NNSA Production Agency or the Quality Assurance Agency for acceptance of weapons material including associated test and handling equipment and joint test assemblies. Acceptance equipment includes gauges, product testers, cables, adapters, equipment that generates data, and related equipment such as environmental chambers, shock and vibration equipment, and required fixtures.	3.2; 4.2 (TP4-1)
Accepted Material		Weapon or weapon related material that has been determined by the NNSA (or when authorized, by the prime contractor quality organization) to meet applicable design requirements, drawings, and known design intent and NNSA acceptance stamps have been applied.	
Acceptance Stamping		The act of applying DOE/NNSA designated acceptance stamps on weapons product, shipping papers, and or shipping containers. Acceptance stamping certifies that a review has been conducted of all required quality evidence regarding an individual item (or lot) of product and that it has been determined the product meets all requirements.	13.1, WQOM
Accident		An unplanned sequence of events that results in undesirable consequences. [DOE-STD-3009-94]	11.4; 11.8
Accountable Nuclear Materials		Nuclear Materials to include special, source and other materials as defined in DOE M 474.1-1A, dated 11/22/00 and any other material which the DOE/NNSA determines to be accountable special nuclear material.	4.3
Accuracy		The quality of closeness of a measured or specified value to the true value; quantitatively expressed by uncertainty.	13.2
Active Nuclear Material		Material that is actively employed by a DOE/NNSA program	10.3

Activity Based Controls Document (ABCD)	ABCD	An ABCD documents the controls for nuclear explosive operations that DOE/NNSA relies on to prevent or mitigate accidents with consequences that meet or exceed the Nuclear Explosive Operations (NEO) Evaluation Guidelines. The goal of the ABCD for a nuclear explosive operation at the Pantex Plant is consistent with the goal for Technical Safety Requirements specified in DOE Order 5480.22.	11.4
ADAPT Steering Committee		A cross complex team consisting of representatives from each of the involved sites, which is responsible for ADAPT initiative planning. The committee consists of site managers who are responsible to DOE/NNSA for the execution of technical work at their sites.	10.1
Administrative Controls	AC	Provisions relating to organization and management, procedures, record keeping, assessment, and reporting necessary to ensure safe operations. [DOE-STD-3009-94]	11.4
Advance Planning Document	APD	This document contains current program information, such as the weapon description, production assignments, program plans, and preliminary production schedules. This document also contains formal, directive mission assignments. The Office of Weapon Programs Management publishes an APD for each weapon that is approved for Phase 6.3.	3.2
Advance Procurement Authority		Authority assigned to a production plant for procuring parts, materials, fabrication, and engineering services to support weapon and weapon component deliveries extending beyond the procurement period specified in the program control document.	5.1
Advanced Engineering Release	AER	For a weapon product, a release which issues part or all of the product definition, or authorizes specific action by a production agency to prepare for full production, such as fabrication of tooling, fixtures, production agency gauges or testers, procurement of long lead-time items, fabrication of units by the Pilot Production Program Definition, and limited production of directive schedule units. The AER must clearly state the actions being authorized.	3.2
Advanced Interim Change	AIC	A priority disseminated by electronic transmission to correct conditions affecting operational capability, safety, weapon reliability, required reporting, or pertinent security.	1.7

AL-R8 Container Projection and Special Nuclear Material, Reservoirs, Radioisotope Thermoelectric Generator Status Report	AL-R8	This report tracks several Pantex Plant activities. The AL-R8 container projection tracks the actual receipt of containers against scheduled quantities. The Special Nuclear Material, reservoirs, and Radioisotope Thermoelectric Generator portion of the report identifies the current quantities and category of items staged at the Pantex Plant and the quantity of items shipped during the last month, including a yearly cumulative quantity. Appendix C outlines the appropriate format for the AL-R8 container projection, while Appendix D outlines the appropriate format for the Special Nuclear Material, reservoirs, and Radioisotope Thermoelectric Generator status report.	4.4
ALT 9XX		Alterations that make a temporary change in operational capability of the major assembly by removal of one or more components, either in production or in the field. Such component removal may enhance safety and security during shipping and storage, or may conserve scarce resources.	5.2
Alteration	ALT	A material change to, or a prescribed inspection of, a nuclear weapon or major assembly that does not alter its operational capability yet is sufficiently important to the user, regarding assembly, maintenance, storage, or test operations, to require controlled application and identification.	3.2, 3.3; 9.3 (TP4-1)
Ancillary Equipment		A general term applied to those items provided for operational and maintenance support of weapons and weapons materiel. Ancillary equipment includes the following categories: S - Computer software used for field maintenance of testing. T - Equipment or accessories used for field-testing, maintenance or assembly of weapons materiel. H - Mechanical equipment used to handle weapons. CT - Cables, cable assemblies, plugs, connectors, etc., used with T category equipment. DE - Devices or equipment used in emergency disablement operations.	1.2; 1.5; 7.5 (TP4-1)
Approval Authority		The Department official responsible for review and approval of the authorization basis (AB) documentation (e.g. Hazards Analysis Report, Safety Analysis Report, etc.).	11.6

Attrition Material and Components		A prudent quantity of extra material (including fastening hardware), over and above firm programmatic requirements, needed as spares to compensate for unplanned losses or to support retirement activities.	4.1; 5.1; 7.3
Authorization Agreement	AA	The AA documents the DOE/NNSA and Contractor agreement to the conditions of operation and as a minimum will: Define the scope of operations, List the applicable Authorization Basis documents, List other documents that support the decision to authorize operations, such as Standards/Requirements Identification Documents (S/RID), applicable readiness review reports, Nuclear Explosive Safety review reports, National Environmental Policy Act documents, and certification that all nuclear explosive surety standards are met, and Define any other terms and conditions.	11.4; DOE O 452.1B
Authorization Authority		The Department official responsible for the startup/restart of a hazardous facility/activity as defined in DOE O 425.1B and SD 425.1B.	11.6
Authorization Basis	AB	For nuclear explosive operations, the AB is defined as the applicable Safety Evaluation Report, Safety Analysis Report (or equivalent interim document), Pantex Plant Technical Safety Requirements, Hazard Analysis Report, and Authorization Basis Control Document. These documents control the aspects of the operation relied upon by DOE/NNSA.	11.4
Authorized Period of Procurement		The authorized period of procurement for the Production Agency is stated in the Program Control Document and Master Nuclear Schedule, Volume III. Typically, this period extends from the current fiscal year through three additional fiscal years, for a total of four fiscal years.	3.3; 9.3
B	**Acronym**	**Definition**	**Reference**
Base Spares		Parts and components authorized in spare parts list published by Sandia National Laboratories, funded for, procured by, and owned by the DOE/NNSA, and furnished to the DoD for use in maintaining and repairing war-reserve nuclear weapons and their related DOE/NNSA-owned equipment supplied to the DoD with the war-reserve weapon. They remain the property of the DOE/NNSA regardless of their custody.	4.2; 6.3; 7.1 (TP4-1)

Base Spares Repair List	BSRL	A single document encompassing all weapon programs, which is published periodically by the Office of Weapon Programs Management. The base spares repair list identifies selected base spared items of high value or limited availability that, if found by the DoD to be defective and determined by Sandia National Laboratories to be beyond authorized DoD capability to repair, must be returned to the DOE/NNSA for repair.	7.1
Baseline Cost Report	BCR	This document formally updates the Weapon Design and Cost Report (WDCR) based on late development and pre-production activities.	3.2
Basis for Interim Operation Upgrade Program Plan	BIO	A plan supported by the individual Project Teams which describes in detail the scope of the project, the associated schedule and costs, and a work breakdown structure. The individual Project Plans, that support the overall Program Plan, define in greater detail, the expectations set forth by the Office of Amarillo Site Operations. It is a living document with configuration control applied to each document version.	11.1; 11.4
Burning Dispersal		A category of weapon response used in hazard analysis that includes the dispersal of fissile material as a result of a fire event.	11.8
Buy Item		A weapon material or component to be produced by an outside source, including a subcontractor or an affiliate, subsidiary, or division of the Production Agency.	9.2; DEAR 970.5215-2
C	**Acronym**	**Definition**	**Reference**
Capability Assurance Program		A DOE/NNSA program intended to protect minimum production, research, development, and testing capabilities essential to support future military nuclear weapon needs in the absence of DoD requirements for new weapons for the stockpile.	13.1, WQOM
Category 1 or 2 Tooling		See “Tooling and Acceptance Equipment”, Category 1 or Category 2.	4.2; 7.4; 7.5
Certificate of Inspection	COI	The official document for the production agency to identify and certify material submitted to the DOE/NNSA. It is also used in conjunction with the Quality Assurance Defect Report (QADR) for the DOE/NNSA to indicate inspection results and acceptance or rejection of submitted material. The COI is the document used to transfer custody of material from contractor to the DOE/NNSA.	13.1, WQOM
Certification		The process of performing a calibration and assigning a certification uncertainty and expiration criteria.	13.2

Certification Letter		A letter signed by the Directors of the appropriate Nuclear Design Agencies that serves as the formal certification of the refurbished weapon (6.x process). It will be published as a stand-alone document or with the final addendum to the Final Weapons Development Report	3.2
Certification Uncertainty		Uncertainty assigned to measurement standards or Measuring & Test Equipment consisting of the measurement uncertainty and any uncertainties due to use, environment, handling, or variation with time. A certification uncertainty is valid until the certified equipment's expiration criteria have been reached.	13.2
Circularization		The process of notifying the design agencies, the production complex, and the DoD that specific non-nuclear material is excess to programmatic requirements and may be obtained in "as is" condition.	4.1
Command Disable	CD	A feature that allows manual activation of the non-violent disablement of critical weapons components. The CD system may be internal or external to the weapon.	8.1 (TP4-1)
Commercial Calibration Laboratory	CCL	A commercial subcontractor whose primary business is to perform calibration services and who has been approved by either the Primary Standards Laboratory or the Contractor Standards Laboratory to perform calibrations on measurement standards and Measuring & Test Equipment of the DOE/NNSA nuclear weapon contractor or another subcontractor.	13.2
Commercial Equipment List	CEL	A list of commercial tools and equipment recommended for field use with a specific weapon system.	7.4 (TP4-1)
Commercial Items		Articles of supply readily available from established commercial distribution sources, which the DoD has designated to be obtained directly or indirectly from such sources.	7.4 (TP4-1)
Commercial Off-the-Shelf Parts or Materials	COTS	Parts or materials available and obtainable from commercial suppliers	4.1; 13.2
Common Material		Material that is common among the War Reserve, or Alteration or the Joint Test Assembly.	9.3
Compliant		Meets contract requirements including the Weapon Quality Operations Manual, Development & Production Manual, Technical Business Practices, and the organization's approved Quality Assurance Program addressing applicable QC-1requirements. A system, program, or process may be determined to be compliant even if an incidental finding is made.	

Complete Engineering Release	CER	For a weapon product, a release that issues product definition and authorizes fabrication of production quantities of parts, subassemblies, or assemblies to meet directive schedule requirements	3.2, TBP-404
Consensus Standard		Artifacts, instruments, systems of instruments, or processes that are used as de facto measurement standards.	13.2
Contractor Standards Laboratory	CSL	Portion of the DOE/NNSA nuclear weapon contractor's metrology organization that coordinates and oversees the implementation of the DOE/NNSA nuclear weapon contractor's standards and calibration program.	13.2
Cost		The actual dollars that are expended to accomplish tasks or expended to provide the infrastructure to support tasks.	3.4
Cross-Check		Comparison of a measurement standard and/or Measuring & Test Equipment with another of known accuracy. A crosscheck can be used to determine if the calibration has degraded due to use, handling, environment, time, or device deterioration.	13.2
D	**Acronym**	**Definition**	**Reference**
Daily Change Report	DCR	The official weapons complex source document for reporting to DOE/NNSA the disposition of nuclear weapons and weapon components, excluding nuclear components and Limited Life Components. It is the principal source document of the nuclear weapon stockpile inventory accounting system and provides for the reporting by Production Agencies any activities performed in the previous 24 hours in the areas of (1) DOE/NNSA acceptance of a new weapon or weapon component, (2) re-acceptance of a weapon or weapon component, (3) weapon or weapon component acceptance withdrawal, (4) receipts, (5) shipments, (6) deletions from inventory, (7) corrections, (8) status and project changes, and (9) narrative information applicable to the reported data.	4.3; 4.4
Defect		A noted departure from drawing or specification on a product characteristic, or inadequate quality evidence to verify that the requirements are met.	13.1, WQOM
Defense Acquisition Board	DAB	The DoD organization charged with reviewing weapon program status and controlling milestone determinations.	3.1
Defense-in-Depth (positive measures)		The combination of all possible engineered features and administrative controls (Technical Safety Requirement + important to safety controls + other) that provide a level of prevention or mitigation of hazardous events.	11.8

Demonstrate Ability		The actual performance of a task or activity in accordance with policies, procedures, guidelines, and/or accepted industry or NNSA practices.	WQOM
Demonstration Program		A program for the design, development, testing, and qualification of components or systems with small quantity production as defined by the program control document. Demonstration programs are conducted and documented such that, upon receipt of firm production requirements, the product can be produced in quantity without requiring redesign and with a minimum of requalification activities.	13.1, WQOM
Design Agency	DA	The organization responsible for the design of DOE/NNSA weapon material and the integrity of the design through stockpile life.	All
Design Review and Acceptance Group	DRAAG	A DoD group which conducts a comprehensive review of DOE/NNSA designs of nuclear weapons to ensure compliance with the military characteristics and with operational, logistical, and safety requirements of the using military service. The DRAAG is usually comprised of the Lead Project Officer from the lead military service plus one representative from each affected military service. The DRAAG findings are forwarded through the lead military service to the Nuclear Weapon System Safety Committee (NWCSSC) for consideration of continuing development into the next Phase.	3.2 (TP4-1)
Designated Calibration Source	DCS	A subcontractor whose primary business is to provide products or services and who has been approved by either the Primary Standards Laboratory or a Contractor Standards Laboratory to perform calibrations on its own measurement standards and Measuring & Test Equipment, those of the DOE/NNSA nuclear weapon contractor, or those of another subcontractor.	13.2
Development Engineering		The period (Phase 3 or Phase 6.3) when a development program, based upon required Military Characteristics, is undertaken.	9.3; 3.2

Development Engineering Release	DER	The DER is an optional Engineering Authorization (EA) that is most applicable during the early to middle part of the development step. It is used to release product definition, issue engineering information, and authorize specific production agency actions related to design, development, or fabrication of development hardware for Design Agency (DA) use. The release may authorize preparation of product definition (drawings and specifications) for DA review and sign-off. In this case, DOE/NNSA six-digit drawing numbers and part titles are assigned by the release.	13.1, WQOM, TBP-404
Development Joint Test Assembly	DJTA	A DJTA contains one or more parts clearly identified as DJTA Material.	13.1, WQOM
Development Joint Test Assembly (DJTA) Material		Material that meets design requirements but has not met the same level of qualification and evaluation that is required for WR or JTA applications (i.e., may not have a Complete Engineering Release or final Qualification Engineering Release).	13.1, WQOM
Directive Workload		Commitments defined in weapon system Program Control Documents or Master Nuclear Schedule, Volume III.	9.4
Disassembly and Inspection	D&I	An activity that occurs at the Pantex Plant upon receipt of a weapon from either new production or the field; typically a weapon destined for subsequent testing.	8.1
Distributed Computer Aided Design and Manufacturing Implementation Plan	DisCADM	A plan that provides definition for pilot projects under Enterprise Integration (EI) and Integrated Product and Process Design/Agile Manufacturing (IPPD/AM) programs.	10.1
DoD Priority Unsatisfactory Report:		A telephone, facsimile, or electronic notification by Defense Threat Reduction Agency to Sandia National Laboratories Military Liaison Engineering, regardless of format or individual form used, that indicates a deficiency in procedures or a defect in DOE/NNSA material, including DoD-furnished components identified by DOE/NNSA nomenclature, which (1) affects safety or security; (2) has a negative operational impact; (3) poses a potential work stoppage; (4) is hazardous to the environment; or (5) would degrade unit effectiveness evaluations	6.1

DoD Special Unsatisfactory Report		A special notification by Sandia National Laboratories, Military Liaison Engineering Department to DOE/NNSA that indicates a deficiency in procedures or a defect in DOE/NNSA material that (1) affects the operational capability of a weapon; (2) affects safety (nuclear, industrial, or personnel); (3) may have a significant impact on weapons systems (reliability, quality, or security); (4) affects Permissive Action Link; or (5) was caused by Production Agencies.	6.1
DoD Unsatisfactory Report (UR)	DoD UR	A routine notification by Defense Threat Reduction Agency (DTRA), regardless of format or individual form used, that indicates a deficiency in procedures or a defect in DOE/NNSA material, including DoD-furnished components identified by DOE/NNSA nomenclature and used in integrated major assemblies.	6.1
DOE/NNSA Acceptance Process		The DOE/NNSA activities that ensure product quality through a combination of verification inspections, surveys of contractor's quality assurance program for compliance with QC-1, and DOE/NNSA's examination of the contractor's QA activities, which includes their hands-on inspection, surveys, testing and qualification activities, etc.	13.1, WQOM
DOE/NNSA Accepted Material		Weapon or weapon related material that has been determined by the DOE/NNSA (or when authorized, by the prime contractor quality organization) to meet all applicable design requirements, drawings, and known design intent and DOE/NNSA acceptance stamps have been applied.	4.1, 13.1, WQOM
DOE/NNSA Nuclear Weapon Contractor		Organization contracted to the DOE/NNSA involved in research, design, development, pre-production, production, testing, stockpile evaluation, or retirement of nuclear weapons, as well as non-weapons and related general operations activities.	13.2
DOE/NNSA Spares Repair List	DSRL	A single document encompassing all weapon programs, which is published periodically by the Office of Weapon Programs Management. The DSRL identifies selected base and military spared items of high value or limited availability that, if found by the DoD to be defective and determined by Sandia National Laboratories to be beyond authorized DoD capability to repair, must be returned to DOE/NNSA for repair.	6.3

DOE/NNSA Unsatisfactory Report	DOE/NNSA UR	A routine notification to Defense Threat Reduction Agency from Sandia National Laboratories Military Liaison Engineering regardless of the form, that indicates a deficiency by the Services in the handling or the repairing of DOE/NNSA materials.	6.1
D-Test(s)		A test or tests designed to be destructive or degrading, on parts, components, subassemblies, assemblies, and units that render the item unsuitable for future War Reserve use.	8.1
E	**Acronym**	**Definition**	**Reference**
Emergency Capability Release	ECR	A special category in the Major Assembly Release system used when all of the prerequisites for a Major Assembly Release have not been satisfied, but the DoD has established an emergency capability requirement.	2.4 (TP4-1)
End-of-Project Report		This document serves as the final Joint Integrated Project Plan and reflects what actually occurred throughout the entire refurbishment (6.x) activity. It will also include an analysis of lessons learned.	3.2
Engineering Procedure(s)	EP(s)	Technical procedures and guidelines used by the Nuclear Weapons Council prior to the development and implementation of the Technical Business Practices.	2.8
Engineering/ Qualification Evaluation		An evaluation or re-evaluation of product and/or acceptance equipment as described in an Engineering Evaluation Release (EER).	2.4, TBP-404
English (Inch-Pound) System		A system of measurement units (inch, pound, degree Fahrenheit, and others) most commonly in use in the United States.	2.7
Enterprise Integration Steering Committee	EISC	A committee comprised of DOE/NNSA field, Production Agency and Design Agency representatives which provides oversight, coordination, and direction for the Enterprise Integration portion of ADAPT. The Enterprise Integration Steering Committee meets periodically to assess progress and to direct changes where necessary.	10.1
Examine		The act of reviewing documentation such as a laboratory test result or material certification	WQOM
Excess Material		Material that has been identified by the Office of Weapon Programs Management as being over and above all known programmatic requirements.	4.1
Excess Tooling and Acceptance Equipment		Surplus tooling and acceptance equipment that has been identified by the Office of Weapon Programs Management as not needed to meet programmatic requirements.	4.2

Expendable Material		Material consumed in service or use. It is identified in TP 35-51A ("Table of Expendable Materials")	7.1 (TP4-1)
Expert Level		A comprehensive, intensive knowledge of the subject or process sufficient to provide advice in the absence of procedural guidance	WQOM
F	**Acronym**	**Definition**	**Reference**
Familiarity Level		The basic knowledge of or exposure to the subject or process adequate to discuss the subject or process with individuals of greater knowledge	WQOM
Final Disposition		The last step required as part of the dismantlement program, which may consist of demilitarization and/or sanitization of components/hardware	4.1; 4.2
Final Weapon Development Report	FWDR	A report issued in late Phase 6.5 to provide warhead/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/bombs as a significant change to the MCs.	3.2
Finding		A condition that violates requirements in QC-1, in the product definition or other interagency agreements, or in the quality controls, systems and procedures internal to the facility which implement NNSA requirements	WQOM
First Production Unit Date	FPU Date	The month in which DOE/NNSA plans to build and accept the first production unit in preparation for delivery to the next user (e.g., Department of Defense (DoD), Production Agency, Design Agency)..	5.1 (TP4-1)
First-Order Shipment		A delivery made to Pantex for final assembly deliveries.	5.1
Flight Test Unit	FTU	A DOE/NNSA Field sponsored configuration based on DOE/NNSA & DoD requirements for a new design or a change to an existing weapon design. The FTU is similar to a Joint Test Assembly and is tested during development for the purpose of proving-out the proposed design.	4.4; 8.1
Forecasts		Projections of future nuclear materials requirements for existing and planned use projects.	10.3
Full Lead Time		Process time plus negotiated inventory time at the receiving plant.	1.3; 5.1
Functional Performance Area	FPA	A specific category representing a group of activities or functions (managerial, administrative, or operational) within a functional performance group in which a contractor is required to perform.	1.2

Functional Performance Element	FPE	A specific activity or function (management, administrative, or operational) that a contractor is required to perform. Several related functional performance elements generally define the scope of a functional performance area.	1.2
Functional Performance Group	FPG	A grouping, with an assigned weight, consisting of functional performance areas. Normally, each DOE/NNSA award-fee management and operating contract will consist of five or six very broad functional performance groups.	1.2
G	**Acronym**	**Definition**	**Reference**
General Operations		Activities associated with facilities, products, and operations that are performed in support of, but ancillary to, program/project activities. This includes, but is not limited to, such areas as environment, health and safety, maintenance of facilities, utilities, security systems and equipment, construction projects, waste management, and radiation protection and monitoring.	13.2
Group X Kit	GPX	A kit containing commercial and/or special design hardware items required on a 100 percent basis to support limited-life exchange on an individual weapon.	5.1; 5.2 (TP4-1)
H	**Acronym**	**Definition**	**Reference**
Hazard		A source of danger (i.e., material, energy source, or operation) with the potential to cause illness, injury, or death to personnel or damage to an operation or to the environment (without regard for the likelihood or credibility of accident scenarios or consequence mitigation).	11.4; DOE O 5480.23
Hazard Analysis		The determination of material, system, process, and plant characteristics that can produce undesirable consequences, followed by the assessment of hazardous situations associated with a process or activity. Largely qualitative techniques are used to pinpoint weaknesses in design or operation of the facility that could lead to accidents.	11.4; DOE-STD-3009-94
Hazard Analysis Report	HAR	A report that documents the systematic evaluation of hazards to workers, the public, and the environment for a specific nuclear explosive operation and its associated activities. The HAR constitutes a portion of the Authorization Basis for nuclear explosive operations performed at the Pantex Plant.	11.4; DOE O 452.1B
Hazardous Event		The combination of a single weapon configuration, an insult (mechanical, electrical, chemical, thermal) and a potentially unacceptable consequence. Hazardous events are expressed as single table entries in the hazard analysis.	11.8

High Explosive Burning Dispersal		Burning of High Explosive that exposes the pit to a severe thermal environment that leads to a dispersal of special nuclear material	11.8
High Explosive Deflagration / Detonation	HED/D	A category of weapon response used in hazard analysis that includes High Explosive Violent Reactions and High Explosive Burning Dispersal. *Note: A particular Hazard Analysis Report or Basis for Interim Operation could divide HED/D into High Explosive Violent Reaction and High Explosive Burning Dispersal consequences (HED/D = HEVR + HE Burning Dispersal) if desired. In many environments, HEVR is much less likely than HE Burning Dispersal, but it has a greater consequence. This flexibility allows the design agency to apply a lower HEVR conditional probability (as opposed to HED/D), and provides a less stringent guideline for HE Burning Dispersal (as opposed to HED/D).*	11.8; DOE O 452.1B
High Explosive Violent Reaction	HEVR	A category of weapon response used in hazard analysis that includes reactions ranging from a fast deflagration of the high explosive up to and including a detonation of the high explosive.	11.8
Highly Enriched Uranium	HEU	An item containing 20% or above U-235 is considered to be HEU.	10.3
High-Risk Property		Because of its peculiar nature, property that must be handled, controlled, cleared, and disposed of in other than the standard manner because of its potential impact on public health and safety, environment, security interests, or proliferation concerns.	4.1; 4.2
Hold Order		A Sandia National Laboratories (SNL) prepared and approved, NNSA/Office of Nuclear Weapons Stockpile (NA-122) concurred recommendation to prohibit operational use of specified major assemblies or Test (T) and Handling (H) designated ancillary equipment, when a high probability of malfunction or physical hazard is involved in the use of materiel. If such materiel can be used under certain conditions, no Hold Order will be issued. Instead, the Major Assembly Release will be revised to include the information under exceptions and limitations	2.4 (TP4-1)
I	**Acronym**	**Definition**	**Reference**
Important-to-Safety Controls		Engineered features and administrative controls credited in the hazard analysis to prevent or mitigate a hazardous event. Important to Safety controls are contained in the Hazard Analysis Report/Basis for Interim Operation but are not carried forward to the Authorization Basis Control Document/Technical Safety Requirement.	11.8

Inadvertent Nuclear Detonation	IND	An unintentional energy release through a nuclear process, during a period of time on the order of one microsecond, in an amount equivalent to the energy released by detonating four or more pounds of trinitrotoluene.	11.8
Incident Report	IR	A report by Sandia National Labs, Military Liaison Engineering of an unexpected event within DoD involving a nuclear weapon, facility, or component resulting in any of the following, but not constituting a nuclear accident: (1) an increase in the possibility of explosion or radioactive contamination; (2) errors committed during assembly, testing, loading, transportation, and/or the malfunctioning of equipment or material that could lead to an unintentional operation of all or part of the weapon arming and/or firing sequence or that could lead to a substantial change in yield or an increased dud probability; or (3) any act of God, unfavorable environment, or condition possibly resulting in damage to the weapon, facility, or component.	6.1
Incidental Defect		A defect that does not affect form, fit, or function of the product submitted. This might include cosmetic items or paperwork errors.	13.1, WQOM
Incidental Finding		A finding, which, in the judgment of the survey team, is an isolated incident, is not indicative of systemic problems, and can be easily corrected. (If an incidental finding is corrected during the survey, a corrective action response may not be required.)	13.1, WQOM
Incoming Material Report	IMR	A report prepared by the quality assurance agency at a receiving facility that notifies the quality assurance agency at a shipping facility of the receipt of nonconforming material.	13.1, WQOM
Independence		The group(s) responsible for performing surveillance activities at each of the three design agencies must be organizationally separated from groups having direct responsibility for engineering, scheduling, or production activities. The surveillance group must have an objective approach to its responsibilities so that independence will be obvious to a disinterested observer.	8.1
Information Engineering Release		A release that may be used to document general - information not normally documented in other engineering releases. The IER is used to formally release certain types of engineering documentation	3.1; 3.2; WQOM
Inspect		The actual performance of measuring, gauging, testing, and/or other operation to determine conformance to specifications	WQOM

Inspection		Physical examination, inspection, measurement, or tests used to determine the conformance of material to drawings and specifications	WQOM
Integrated Contractor		A DOE/NNSA contractor, usually a management and operating contractor, that is required by contract provisions to maintain a separate set of accounts and records for recording and reporting all business transactions under the contract in accordance with DOE/NNSA accounting practices and procedures and whose books of accounts are integrated with those of the DOE/NNSA through the use of reciprocal accounts.	9.4
Integrated Contractor Order	ICO	A formal requisition, with a value greater than $250k, placed by one integrated contractor with another for the delivery of material, equipment, or services in support of DOE/NNSA-sponsored and/or DOE/NNSA-authorized work.	9.4 (DOE O 534.1A)
Integrated Weapons Activities Plan	IWAP	An integrated plan that includes all nuclear weapons system activities that must be supported by the Pantex Plant and the Design Agencies. Items to be incorporated in the IWAP include weapon modifications and alterations, dismantlement, surveillance activities, and facility authorization basis upgrades/modifications that support weapon operations. Project Plans for each weapon system and facility authorization basis upgrade will contain the details of the work to be completed at the Pantex Plant (scope, cost & schedule).	11.2
Intercontractor Purchases		Any procurement action conducted between two DOE/NNSA contractors by means of an integrated contractor order.	9.4
Interface Control Document	ICD	A document between DOE/NNSA and the lead military service in which they exchange 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 DOE/NNSA components	3.2
Interim Change	IC	A printed instruction, to hand write changes, that requires accelerated publication to correct conditions affecting operational capability, safety, weapon reliability, required reporting, or pertinent security.	1.7
Interim Storage		Holding material temporarily, pending processing	10.3
International Atomic Energy Agency Material	IAEA	Plutonium and highly enriched uranium selected for IAEA safeguards.	10.3

Interoffice Work Order	IWO	A formal requisition, with a value greater than $250k, for materials, equipment, or services between two DOE/NNSA integrated contractors under the jurisdiction of different DOE/NNSA operations offices. IWOs are authorized between two affected DOE/NNSA Operations Offices prior to commencement of the supplying DOE/NNSA integrated contractor work activities.	9.4 (DOE O 534.1A)
Interproject Group	IPG	All of the material for one major assembly that is to be delivered from one production agency to another production agency in accordance with the master planning and scheduling documents.	3.3 (TP4-1)
Interproject Shipment		All of the material of one major assembly that is to be delivered from one production agency to another production agency.	1.3; 5.1
Inventory Time		The length of time in which material is held in stores at the receiving plant prior to further processing.	5.1
J	**Acronym**	**Definition**	**Reference**
Joint Flight Test Program	JFT	A DOE/NNSA - DoD flight test program intended to verify weapon system capability to function in a variety of stockpile-to-target environments and to demonstrate continuing compatibility between DOE/NNSA and DoD subsystems. The program consists of new material flight tests and stockpile flight tests.	4.2
Joint Integrated Project Plan	JIPP	A document created by the Project Officers Group that serves as the baseline control document for a refurbishment activity (6.x).	3.2
Joint Nuclear Weapons Publication System Publications	JNWPS	The JNWPS is a library of publications and supplemental videotapes that provides assembly, disassembly, maintenance, storage, safety, logistics, and related information for stockpiled nuclear weapons and associated equipment to the DOE/NNSA and the U.S. Navy and Air Force. These publications are the basis for all procedures performed by the military services on U.S. nuclear weapons. As referred to in this document, JNWPS publications include original documents, permanent and interim changes, and advanced interim changes.	1.7

Joint Test Assembly	JTA	A DOE/NNSA-developed configuration, based on DOE/NNSA-DoD requirements, for use in the flight test program. The physical appearance and characteristics of a JTA approximate a WR configuration to the extent practicable. It includes development and production JTAs derived from WR designs, modified to remove the nuclear explosive capability, and fitted with telemetry and instrumentation to the extent required by each test.	8.1; 9.3, 13.1, WQOM
Joint Test Assembly Design Directive	JTADD	The JTADD provides direction for the design and development of JTAs to optimize performance features necessary to adequately evaluate nuclear weapon components. The JTADD also addresses environmental issues associated with conducting joint flight tests with the DoD.	8.1
Justification for Continued Operations	JCO	A formal means for a Managing and Operating contractor to obtain DOE/NNSA approval of operations on a temporary or interim basis when the current authorization basis requirements cannot be fully met.	11.4
L	**Acronym**	**Definition**	**Reference**
Life of Production		The time period from Development Engineering (Phase 3 for New Weapon; Phase 6.3 for LEP) through completion of weapon or weapon component production (Phase 6 for New Weapon or Phase 6.6 for LEP) during which core stockpile management costs are incurred to support directive schedules.	9.2
Life-of-Type Provisioning		A process of determining requirements for procuring and distributing the final (closeout) increment of hardware. This process provides spares support for an end item for the balance of its anticipated life.	8.1
Limited Life Component	LLC	A component used in a nuclear weapon that decays with age and must be replaced on a periodic basis.	4.2; 5.1; 5.2
Limited Life Component Exchange	LLCE	The operation that replaces certain weapon components that deteriorates with time and must be replaced periodically during weapon stockpile life.	1.3
Lower-Order Shipment		A delivery made by a production agency to the next user facility prior to a first-order shipment (i.e., second-, third-, or fourth-order shipments).	5.1
M	**Acronym**	**Definition**	**Reference**

Major Assembly Release	MAR	Is a statement prepared and signed by Sandia National Laboratories and the appropriate Design Agency(ies) for concurrence by DOE/NNSA and transmission to the DoD. The MAR states that War Reserve weapon material is satisfactory for release on a designated effective date to the DoD for specified uses that are qualified by exceptions and limitations. The MAR or Emergency Capability Release (ECR) issued for a weapon also releases all major assemblies associated with that weapon and may be qualified by exceptions and limitations. Although MARs and ECRs do not release test, handling, and disablement equipment, the MAR or ECR includes limitations to the designated major assembly that result from or are related to such equipment.	2.4, 3.2
Major Cost Item		A weapon material or component for which the total estimated cost, through the life of production, exceeds one million dollars. Costs for multi-program materials or components shall be estimated on the basis of full production for all affected programs.	9.2
Major Impact Report	MIR	A report prepared and distributed by DOE/NNSA concurrent with the Phase 6.2 Report. This report identifies the aspects of the development, design, testing, and production process that may become determining functions in meeting project objectives.	3.2
Make Item		A weapon material or component to be produced by or performed by a Production Agency using its personnel and other resources at the DOE/NNSA facility or site.	9.2; DEAR 970.5215-2
Make-or-Buy Committee		A Production Agency contractor committee established for the purpose of developing make-or-buy recommendations on major cost items. This phrase is also referred to as the "Committee." The committee should include representatives from the engineering, manufacturing, quality, and purchasing department s of the Production Agency. Other organizations may be represented as appropriate.	9.2
Make-or-Buy Decision		A make-or-buy recommendation after it has been reviewed and approved by the Production Agency management.	9.2
Make-or-Buy Item		A weapon material or component that can be provided either by a Production Agency, supplier, or both. Supplier capabilities exist for these items, but there may be a need for some level of in-house production in order to maintain technical expertise or to maintain limited backup capability because of a weak supplier base.	9.2

Make-or-Buy Recommendation		A proposal developed by the Make-or-Buy Committee that documents the decision to make or buy a major cost item.	9.2
Manufacturing Development Activities		Normal manufacturing development activities for weapon programs in Development Engineering (Phases 3 and 6.3), which include process development, product engineering, tooling design, and development of acceptance and handling procedures, are authorized without requiring advance procurement authority.	9.3; 3.2
Mark Quality		Weapon material that has been certified to meet all applicable design requirements, drawings, and known design intent.	8.2, 13.1, WQOM
Master Nuclear Schedule	MNS	A series of three volumes for the management of nuclear materials and the scheduling of limited life components. Volume I—Contains definitions; descriptions of weapon systems and system components; the amounts of Special Nuclear Material and other nuclear materials in each weapon system; and identifies whether the weapon system is in the development, production or stockpile. Also contains the ranges of fill weights/volumes for Limited Life Components. The Nuclear Programs Division produces Volume I. Volume II—The DOE/NNSA Field management model that predicts nuclear material availability. The Nuclear Programs Division produces Volume II. Volume III—A directive document that authorizes and schedules the shipment of Limited Life Components, Group X Kits, and Alteration Kits to the DoD to support stockpile maintenance. Also provides production requirements for reservoirs and neutron generators but does not address components to support new weapon production. The Office of Weapon Programs Management produces Volume III.	5.1; 5.2; 8.1; 9.3
Measurement Uncertainty		Uncertainty assigned to measurement standards or Measuring & Test Equipment representing an appropriate combination of all significant sources of uncertainty associated with the calibration process including, but not limited to, uncertainty of all standards used within the process, uncertainty due to environmental factors, and uncertainty resulting from statistical data analysis.	13.2
Metrology Organization		Any organization whose primary functions involve performing and/or controlling calibration.	13.2

Milestone		A significant event in the project that is usually combined with a major deliverable. Milestones are usually the culmination of work on a task or a series of tasks.	3.4
Military Characteristics	MCs	A DoD document submitted to DOE/NNSA 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.	3.2
Military Spares		Parts and components authorized in spare parts lists published by Sandia National Laboratories, funded for, procured by, and owned by the DoD, and required for support of DOE/NNSA or DoD produced training weapons, and all cable test, disablement equipment, test, and handling equipment except those DOE/NNSA-owned items supplied to the DoD with the War Reserve weapon.	1.5; 4.2; 6.3; 7.1
Military Training Weapons		These include TYPE 3, 3A, 3B, or 3C weapons, and weapon cutaways. TYPE weapons are configured to provide realistic loading, handling, and maintenance of war-reserve weapons. Weapon cutaways are configured for general weapon orientation and training. See definitions for TYPE weapons under “T”.	1.5
Minimum Buy Requirements		The quantity requirement driven by the product definition or supplier driven requirement.	9.3
Minimum Lead Time		Process time with zero inventory time at the receiving plant.	1.3; 5.1
Mitigator (of a weapon insult)		A control that lessens the severity of the insult.	11.8
Modification	MOD	A change to a major assembly that alters nuclear weapon operational capabilities. This kind of change involves the user and requires positive control to ensure that operational capability is clearly defined. A change in operational capability results from a design change that affects delivery (employment or utilization), fusing, ballistics, or logistics.	3.2; 3.3; 8.1
Monthly Inventory Report		Report generated by the Office of Weapon Programs Management that documents, by weapon system, the quantity, status (accepted/unaccepted/retired), and location (DOE/NNSA or DoD) of all weapons in the nuclear weapons stockpile.	4.4
Must-Buy Item		A weapon material or component for which there is demonstrated and sufficient outside source capability and capacity to preclude the need for an in-house capability or for which it would not be economic to establish an in-house capability because of the large capital investments required.	9.2

Must-Make Item		A weapon material or component for which there is no other supplier, or which is not feasible to procure from outside industry for any of the following reasons: work mandated by public policy or law, work with special weapon safety or security considerations (safety and security factors may be decisive at levels of assembly above an individual item), work on items that cannot be provided by private industry with a reasonably high assurance of meeting schedule and quality requirements, or work to maintain efficient usage of technical base and facilities within the NNSA infrastructure work required for maintaining competency to appraise and evaluate outside sources	9.2
N	**Acronym**	**Definition**	**Reference**
New Material and Stockpile Evaluation Plan	NMSEP	A master test plan developed for each weapon system that defines testing required to provide timely detection of defects which may impact reliability, nuclear safety, or personnel safety. The NMSEP also defines testing required to verify continuing compatibility with the weapon's delivery system.	8.1
New Material and Stockpile Evaluation Schedule	NMSES	A schedule that tracks and initiates implementation of the NMSEP for all weapon systems with an active evaluation program. The NMSES includes such information as the weapon system, cycle number, sample quantities and serial numbers by cycle, required and actual return dates of sample weapons, required Joint Test Assembly delivery dates and locations, and flight test dates.	8.1
New Material Flight Test	NMFT	A joint DOE/NNSA - DoD flight test conducted during the production period on randomly selected, newly produced material.	8.1
New Material Laboratory Tests	NMLT	Laboratory tests conducted on DOE/NNSA weapon systems during production on randomly selected newly produced material.	8.1
Nonconforming Material		Material that does not meet specification requirements.	2.1 (TP4-1)
Non-Directive Workload		Workload that is not defined in weapons Program Control Document (PCD) or in Master Nuclear Schedule, Volume III, but supports DOE/NNSA-sponsored and authorized activities.	9.4

Non-nuclear Assurance Program	NNAP	A formal system of multiple independent methods of verification used in the flight test program to reflect a level of safety consistent with modern nuclear safety criteria. The NNAP ensures that Flight Test Unit or Joint Test Assembly is not inadvertently or intentionally assembled in a manner that would allow for a nuclear detonation, and that War Reserve weapons are not inadvertently substituted for Joint Test Assemblies or Flight Test Units. The program also verifies the presence of mock CHE/IHE, if applicable, and the absence of tritium.	8.1
Non-war Reserve Material		Weapon material that is not designated for the war reserve stockpile, but is to be used by the DOE/NNSA or delivered to the DoD for the purpose of training, testing, and evaluating ware reserve material.	13.1, WQOM
Nuclear Explosive Operations (NEO) Evaluation Guidelines		The objective of the NEO Evaluation Guidelines is to identify accidents with consequences to the worker, the public, or the environment, of a nature that are not normally accepted by the public. DOE/NNSA approved controls are required for accidents that could lead to consequences at or above the NEO Evaluation Guidelines. These guidelines are at least as conservative as those specified in DOE-STD-3009-94. The guidelines are defined as a list of accident types to focus effort on controlling these scenarios instead of analyzing whether they lead to dose levels above a defined limit at the site boundary. The NEO Evaluation Guidelines are: Inadvertent nuclear detonation, High explosive detonation/deflagration, Fire leading to plutonium dispersal, Uncontrolled release of radioactive material from the facility, and Death or serious worker injury resulting from non-standard industrial hazards	11.6
Nuclear Explosive Safety	NES	The application of positive measures to control or mitigate the possibility of unintended or unauthorized nuclear detonation, high-explosive detonation or deflagration, or fire in a nuclear explosive area.	11.4; 11.6; 11.7; DOE O 452.1B/2B
Nuclear Explosive Safety Study	NESS	A formal evaluation of the adequacy of positive measures to meet DOE/NNSA nuclear explosive Safety Standards	11.6; 11.7; DOE O 452.1B/2B
Nuclear Explosive Safety Study Group	NESSG	The team responsible for conducting a “Nuclear Explosive Safety Study.”	11.7
Nuclear Materials Management and Safeguards system	NMMSS	The national database and information support system for nuclear material controlled by the U.S. Government.	10.3

Nuclear Materials Management Program Review	NMM Program Review	A reviewed conducted by the Nuclear Programs Division to review the performance of contractors' NMM Programs.	10.3
Nuclear Ordinance Material		All items used on or with nuclear weapons, which must be specifically controlled because of design, security, or quality control requirements. These include DOE/NNSA special design items, DOE/NNSA-controlled commercial items, military service special design items, and military service-controlled commercial items.	7.4 (TP4-1)
Nuclear Weapon		A nuclear explosive configured for DoD use.	TP4-1; DOE O 452.1B/2B
Nuclear Weapon Council Standing Committee	NWCSSC	A joint DoD and DOE/NNSA senior executive or flag level committee established to conduct joint transactions between the DoD and DOE/NNSA that are appropriately handled at a lower level than the Nuclear Weapons Council (NWC).	3.1
Nuclear Weapon Stockpile Inventory & Accounting System		A computer data base, Weapons Information System (WIS), maintained by the DOE/NNSA Office of Nuclear Weapons Stockpile (NA-122) and the Security Programs Division that contains detailed records on nuclear weapons; accountable weapon components including quantities of accountable nuclear material (to include SNM, source, and other) in nuclear components installed in nuclear weapons, Limited Life Components installed in nuclear weapons or existing in the Limited Life Component Exchange system, other accountable weapon program devices, and costs on inventory items in DOE/NNSA or DoD custody. Also maintained, are Joint Test Assembly and other type units (both containing source and special material) shipped and received from Sandia National Laboratories, Los Alamos National Laboratories, Lawrence Livermore National Laboratories and Pantex to the DoD.	4.3
Nuclear Weapon Subsystem Test Plan	NWSSTP	A jointly coordinated DOE/NNSA-DoD comprehensive plan that identifies and describes the DOE/NNSA and military post-development test activities which support reliability assessments of each nuclear weapon subsystem throughout its stockpile life. The plan includes quantities, intervals, and types of tests to be conducted jointly between DOE/NNSA and DoD.	8.1
Nuclear Weapon System Safety Group	NWSSG	This group conducts the preliminary safety study, which identifies safety-related concerns and deficiencies so that corrections may be made in a timely and cost-efficient manner. They develop the DoD Safety Rules.	3.2

Nuclear Weapons Council	NWC	Membership consists of the Vice-Chairman, Joint Chiefs of Staff; the DoD Deputy Secretary for Acquisition; and the DOE/NNSA Deputy Administrator for Defense Programs.	3.1; 10.3
Nuclear Weapons Material		Comprises all material used in connection with nuclear weapons. This material consists of all nuclear ordnance items, commercial items, and standard service items.	10.3 (TP4-1)
O	**Acronym**	**Definition**	**Reference**
Observation		Positive or neutral conditions observed during the assessment, which demonstrate areas where appropriate controls are in place and achieve or exceed compliance.	
Observe		The action of visually confirming measurements, readings, recordings, methods, procedures, or processes.	
Obsolete Material		Material that is no longer suitable and/or no longer in use	4.1
Original Document		The source of original information in a Joint Nuclear Weapons Publication System publication, including the data extracted to create another document or publication.	1.7
Other Related Documents		Documentation and procedures resulting from Laboratory Task Groups, Joint Task Groups, Special Procedures, and Product Change Proposals.	1.7
P	**Acronym**	**Definition**	**Reference**
Part Number		A unique eight- or nine-digit number used to identify product and acceptance equipment. The first six digits of a part number are the same as the design agency drawing number that defines the part. The last two or three digits, which are known as the part number suffix, identify different versions or significant changes to the part.	2.3
Pegpoint		For weapons out of production, the number of weapons in existence at the end of the fiscal year. For weapons in production, the number of weapons in military custody plus those available for delivery to the military at the end of the fiscal year, not including weapons selected by the DOE/NNSA for new material sampling but not yet tested or rebuilt.	3.2; 3.3
Permanent Change		A published change that incorporates and replaces all current approved changes contained in Advanced Interim Changes or Interim Changes issued in an existing Technical Publication.	1.7

Permissive Action Link	PAL	A system or device included in or attached to a nuclear weapon or weapon system to preclude arming and/or launching until the insertion of a prescribed discrete code or combination. PAL systems are intended to deter deliberate unauthorized use and to assure authorized arming, detonation, or employment of nuclear weapons, regardless of the circumstances surrounding their possession. PAL systems can be mechanical, electronic, or electromechanical.	2.5
Phase		A DOE/NNSA and DoD designation accompanied by an Arabic numeral that is used to identify and authorize the various activities undertaken in a weapon project. There are eight phases (including 2A), occurring in chronological order; however, some phases may merge with another and, in some cases, by DOE/NNSA and DoD agreement, certain phases may be omitted or deferred.	3.1; 3.2
Phase 1 (Weapon Conception)		Phase 1 consists of exploration studies by the DOE/NNSA, DoD, and others that may result in the decision that a weapon concept warrants a formal program study.	3.1; DoDI 5030.55
Phase 2 (Program Feasibility Study)		If the results of a Phase 1 study indicate such is warranted, a joint DOE/NNSA & DoD Phase 2 feasibility study is conducted and chaired by the appropriate service. This phase includes the determination of the feasibility and desirability of undertaking a weapon program, the establishment of military characteristics, and the determination of respective responsibilities between the DOE/NNSA and DoD for various tasks involved in program execution.	3.1; DoDI 5030.55.
Phase 2A (Design Definition and Cost Study)		Phase 2A begins when a weapon program is deemed sufficiently feasible for DOE/NNSA to identify information on costs, production schedules, options, and tradeoffs, including those involving safety, security, survivability, and control features. The DoD develops the necessary plans in its area of responsibility, such as flight-testing, trainer and handling gear procurement, or new DoD components.	3.1; DoDI 5030.55
Phase 3 (Development Engineering)		Phase 3 includes those events beginning with the launching of DOE/NNSA development program based upon Military Characteristics and culminating in the design release by the appropriate Design Agency.	3.2; DoDI 5030.55

Phase 4 (Production Engineering)		Phase 4 covers the period when Production Agencies proceed with adapting a development design into a manufacturing system. This includes product engineering, process engineering, tooling, prototype procurement and inspection, and test and handling procedures. It culminates in the release of the design for production	3.2; DoDI 5030.55
Phase 5 (First Production)		Phase 5 is initiated with the completion of the first War Reserve weapon assembly and covers quality control and inspection procedures. This culminates in DoD's formal acceptance or approval for full-scale production.	3.2; DoDI 5030.55
Phase 6 (Quantity Production and Stockpile)		Phase 6 is full-scale production at the level required to meet stockpile needs. Various programs such as inspection and quality assurance are pursued to ensure adherence to specifications.	3.2; DoDI 5030.55
Phase 6.0 (Enduring Stockpile		Phase 6.0 covers the period after production when weapons are in the enduring stockpile and include routine maintenance, stockpile evaluation (surveillance) annual certification, and baselining (dual revalidation).	3.2; DoDI 5030.55
Phase 6.1 (Concept Assessment)		A study to examine current status of a given weapon system and to formulate a range of potential refurbishment options.	3.1
Phase 6.2 (Feasibility and Option Select):		A joint DoD and DOE/NNSA study to examine the range of refurbishment options generated in Phase 6.1 in greater detail, to down-select to a preferred option, and to identify specific issues associated with refurbishment.	3.1
Phase 6.2A (Design Definition, Planning and Cost Study)		A study phase to refine the baseline program plan and to provide a cost study for the option selected in Phase 6.2.	3.1
Phase 6.3 (Development Engineering)		The period when the development portion of the refurbishment program is undertaken.	3.1
Phase 6.4 (Production Engineering)		The period when production agencies proceed with adapting the development design for refurbishment into a manufacturing system. This includes product engineering, process engineering, tooling, prototype procurement and inspection, and test and handling procedures.	3.1
Phase 6.5 (First Refurbishment)		The period when refurbishment of the weapon according to product specifications is initiated, and quality control and inspection procedures are implemented. This culminates in an authorization that releases material for specified uses.	3.1

Phase 6.6 (Full Scale Refurbishment)		The period when production facilities will refurbish weapons at the level required to meet stockpile needs. Various programs such as inspection and quality assurance are pursued to ensure adherence to specifications. Once Phase 6.6 is complete, the weapon reverts back to Phase 6.0 until refurbishment is once again studied.	3.1
Phase 6.X (Stockpile Life Extension)		The period when fielded nuclear weapon systems undergo evaluation and implementation of refurbishment options to extend the stockpile life or to enhance system capabilities. The 6.X process consists of sub-phases, which basically correspond to phases 1 through 6.	3.2
Phase 7 (Dismantlement)		In this final phase, a program is initiated for the physical elimination of a nuclear weapon or major assembly from the stockpile. A weapon is considered dismantled when the pit is physically separated from the High Explosive.	3.1
Phase 7A (Retirement / Storage)		Initiated with retirement, the period when DOE/NNSA and DoD coordinate storage requirements, establish necessary weapon modifications for storage, and develop weapon return schedules.	3.1
Phase 7B (Disassembly/Disposal Engineering)		The period when the Design Agencies and Production Agencies develop disassembly and disposition program plans using Seamless Safety-21st Century (SS-21) as guidance; characterize components; address demilitarization and sanitization; develop and procure tooling; identify and obtain containers; identify and resolve environmental, safety, and health concerns; define disposition processes; and update the Retirement Disposition Instructions. The completion of Phase 7B occurs with the disassembly of the First Dismantlement Unit.	3.1
Phase 7C (Disassembly / Disposal)		The period when quantity disassembly, demilitarization and sanitization, and component disposition occur. During this period, the Design Agencies and Production Agencies address process effectiveness for component disposition. Disposal of a War Reserve weapon is complete when the unit has been test-fired in a stockpile confidence test or the unit has been disassembled and any one of the following has been accomplished: the high explosive has been removed from the nuclear assembly or DOE/NNSA formally allocates the nuclear explosive assembly for specific alternative uses.	3.1

Pilot Production		A production agency phase before the first production unit that is designed to check out procedures, facilities, and readiness for manufacture of a war-reserve product.	3.2; 8.2
Planning Information Document	PID	A document that describes the baseline design and design alternatives and is used for budgeting purposes.	3.2
Plant/Lab Capability		Having the appropriate resources (e.g. staff, equipment, etc.) required for performance or accomplishment of a particular activity.	3.4
Plant/Lab Capacity		Having adequate quantity of the appropriate resources to accomplish the required number of activities in the allotted amount of time.	3.4
Preliminary Safety Study		A document initiated by the lead military service that examines design features, hardware, procedures, and aspects of the concept of operation that will affect the safety of the weapon system. The study, conducted by the Nuclear Weapons Safety Study Group, focuses principally on the procedural aspects of handling, transporting, and storing nuclear weapons.	3.2
Pre-Operational Safety Study		A document initiated by the lead military services and conducted by the Nuclear Weapons Safety Study Group that focuses principally on the procedural aspects of handling nuclear weapons.	3.2
Preproduction		Those Phase 3 and 4, Development and Production Engineering, activities that prepare processes for components, subsystems, or systems expected to proceed into production.	3.1, 3.2, 13.1; WQOM
Preventor (for a weapon insult)		A control that eliminates or lessens the frequency of the insult.	11.8
Primary Standards		Basic measurement standards within the Standards and Calibration program established and/or maintained by the Primary Standards Laboratory.	13.2
Primary Standards Laboratory	PSL	The highest level metrology organization for the Standards and Calibration Program, which coordinates and oversees its implementation throughout the Nuclear Weapons Complex.	13.2
Primary Standards Laboratory Memorandum	PSLM	A memorandum, which clarifies and/or amplifies provisions of this chapter, related to general technical requirements and standards of good practice.	13.2
Process Development Implementation Plan	PDIP	An annual plan prepared by each Process Development Program steering team, which provided focus area direction and identifies individual projects.	10.1

Process Development Program Steering Team		A team consisting of representatives from each involved site, which provides oversight and direction for each of the nuclear weapon focus areas within the Process Development Program .	10.1
Process Prove-In	PPI	A component of pilot production in which production agency activity is principally aimed at evaluating newly installed equipment and related operational factors.	3.2
Process Time		The length of time, specified by the production agencies, required to process material into a finished interproject or ultimate user product.	5.1
Procurement Authority		The authority routinely assigned to a Production Agency to procure parts and materials needed to support completed weapon or weapon component deliveries to the ultimate user within the procurement period specified in the program control document.	5.1
Procurement Classes		A system to delineate the pedigree of weapon material. Procurement Classes are subdivided into Class A and Class B. Class A: Weapon material that may be fabricated by a Production Agency or procured from any competent supplier selected by the Production Agency. Class B: Weapon material that a Production Agency procures only from sources specified by the Design Agency.	9.1
Product Change Proposal	PCP	A formal recommendation for changes of the following types: (1) all proposed retroactive changes to War Reserve, operational suitability test, and training weapons and associated test and handling equipment; (2) all in-process changes requiring Modification or Alteration identification of War Reserve, operational suitability test, and training weapons material; and (3) all in-process changes to field test and handling equipment resulting in alphabetical suffix identification or complete re-designation.	3.2
Production Agency	PA	The organization responsible for the procurement or production of DOE/NNSA weapon material. The term production applies to processing new and/or reused material as well as repair, modification, surveillance, test, disassembly, and re-assembly operations.	1.2; 13.1
Production and Planning Directive	P&PD	DOE/NNSA Headquarters' guidance issued for the production, retirement, and subsequent dismantlement of nuclear weapons as required in the implementation of the Nuclear Weapon Stockpile Memorandum.	4.4
Production Capability		The ability to produce high quality, high reliability nuclear weapon components to meet directed production schedules.	10.1

Production Engineering		The period when production agencies proceed with adapting a development design into a manufacturing system. This includes product engineering, process engineering, tooling, prototype production and inspection, and test and handling procedures.	9.3
Production Inspection Agency		That organization of the production agency that is responsible for final inspection of material and submittal to the DOE/NNSA quality assurance agency.	13.1, WQOM
Production Mission Assignment		The formal assignment by NNSA of the responsibility for manufacturing process development, production, and/or procurement of specified products, materials, product or material family and for management of the related technology bases.	1.6
Production Program Definition	PPD	The production program definition implements the mission assignments and is published as six separate documents: A, B, C, D, E, and the limited life component support definition (PPD-AB-LLC). This document and the program control document constitute the program management document.	3.3; 5.1; 5.2
Production Waiver		A Design Agency recommendation and DOE/NNSA Field-approved authorization covering the use of material that departs from product specifications in a manner that affect function, reliability, interchangeability, assembly operations, storage life, completeness of assembly, etc., and imposes a limitation or caution upon the use or storage of the major assembly or ancillary equipment incorporating the material.	2.1
Product Verification Assessment		Conducted on designated manufacturing and/or inspection operations through observation of Contractor compliance with written procedures and design specifications (e.g., intended to spot check 'up-stream' activities). It may also focus on how Contractors conduct internal product acceptance. If the focus is monitoring Contractor product inspection/stamping/marking activities, NNSA may include examination of records and/or verification inspections of specified products (e.g., intended to spot check 'last-line-of-defense' activities). Product Verification Assessments may include hands-on verification inspections, examinations, or tests that determine the conformance of material to applicable drawings and specifications.	WQOM

Proficiency Testing		Methods of checking laboratory testing performance by means of interlaboratory tests	13.2
Program Control Document	PCD	The program control document, prepared by Office of Weapon Programs Management, implements the current production and retirement directives from Defense Programs. Provides production, retirement, surveillance and maintenance schedules for the weapons production complex as directed by Defense Programs. It consists of the planning schedule, authorization schedule, and directive schedule.	3.3; 5.1; 9.3
Program Management Documents	PMD	A formal document issued by Defense Programs that provides the weapons production complex with a single, controlled source of programming information required to procure, produce, and deliver material for Interproject and ultimate use commitments to support production, retirement, surveillance and maintenance schedules. It consists of the Program Control Document and the Production Program Definition .	3.3; 4.2
Program Manager's Group		An Interagency team led by a DOE/NNSA employee tasked with overseeing a specific program.	11.4
Programmatic Requirements		Material needed to satisfy production and test requirements contained in program management documents, including attrition material.	4.1
Project Officers Group	POG	A group of DoD and DOE/NNSA personnel assigned to coordinate the development and compatibility assurance of a designated nuclear weapon system and its associated interfaces	3.2
Project Team	PT	The PT is an interagency team composed of personnel representing the Production Agency, DOE/NNSA, Office of Amarillo Site Operations, Design Agencies, and the cognizant physics laboratory. The purpose of the PT is to provide leadership for the planning and execution of the Integrated Weapons Activity Plan weapon program projects performed at Pantex.	11.1; 11.2; 11.3
Q	**Acronym**	**Definition**	**Reference**
Qualification Engineering Release	QER	An engineering release that assigns the qualification status of a product, process, software, acceptance equipment, or system test equipment, and (if the evaluation results are satisfactory) authorizes the listed items for an intended use.	3.2, 13.1, TBP-404
Qualification Sample	QS	A component or series of components, representative of production material, evaluated by Design Agencies to determine suitability of the components for use in weapons.	2.4

Quality		The condition achieved when an item, service, or process meets or exceeds the user's requirements and expectations.	13.1 (DOE O 414.1A)
Quality & Reliability Engineering		The discipline that defines and improves processes (design, development, manufacturing, etc.) through appropriate application of quality techniques and reliability tools such as Statistical Process Control, Quality Function Deployment, Design of Experiments, process capability studies, and software quality engineering and reliability tools.	13.1
Quality Assurance	QA	All those actions necessary that provide confidence that quality is achieved.	13.1 (DOE O 414.1A)
Quality Assurance Agency	QAA	The DOE/NNSA organization responsible for ensuring the weapon quality assurance program is implemented at a given production and design agency.	13.1, WQOM
Quality Assurance Defect Report	QADR	A report that details defects observed during verification inspection of submitted material.	13.1, WQOM
Quality Assurance Inspection Procedure	QAIP	A document that specifies the specific verification inspection requirements for a particular product or family of similar products.	13.1, WQOM
Quality Assurance Production Plan	QAPP	A plan issued by Pantex providing schedules of stockpile evaluation activities performed by Pantex. It includes schedules for New Material Flight Test, New Material Laboratory Test, Stockpile Flight Test, and Stockpile Laboratory Test Disassembly and Inspection; test bed assembly; Joint Test Assembly production; and post-test Joint Test Assembly disassembly for each weapon system.	8.1
Quality Assurance Survey	QAS	Planned and documented activity performed in accordance with procedures intended to communicate and affect improvement(s) where needed and maintain cognizance of contractor or subcontractor performance. The various surveys (QAS 1.0, 2.0, 3.0, 4.0) provides basis of government acceptance of material and/or verifies contractor performance.	13.2, WQOM
Quality Criteria	QC-1	The NNSA document prescribing basic quality principles and requirements for nuclear weapons research, design, development, test, production, dismantlement, maintenance, stockpile evaluation, and disassembly/disposal.	13.1

Quality Evaluation Tracking System	QET	A system for monitoring the status of shipping, testing, and reporting on selected components from all weapon systems with an active evaluation program. The QET includes such information as the weapon system, cycle number, sample serial numbers, Disassembly and Inspection completion dates, component and subcomponent identification and serial numbers, ship date from Pantex and receipt date at receiving site, and test and report completion dates.	8.1
Quality Instruction List		A document that lists products required to be submitted for verification inspection and their associated Quality Assurance Inspection Procedures with current issue.	WQOM
R	**Acronym**	**Definition**	**Reference**
Recommendation		Specific course of action that would ameliorate a condition that caused the quality issue and prevent recurrence	
Refurbishment		The activities associated with all nuclear weapon alterations and modifications to include life extension, modernization, and revised military requirements. Refurbishments are assigned a new alternation or modification number for stockpile management purposes.	3.2
Regular Production		The manufacturing of new weapon materials including Limited Life Component Exchange (LLCE) support, the reprocessing of used material, the conducting of surveillance and modification activities, and the retirement of weapon materials as defined in Operations DOE/NNSA Program Management Documents and Volume III of the Master Nuclear Schedule.	1.2; 1.3
Remarks		Conditions which, in the judgment of the assessment team, are neither findings nor observations, but which may be brought to the attention of site management. A remark may cover a compliant or noncompliant condition that is outside the scope of weapons quality issues (for example, safety). Remarks that identify a noncompliant condition require responses.	WQOM
Reportable Data		Data that are used either to establish design specifications, material properties, test results, research results, product specifications or to determine product acceptance.	13.2
Reprocess		A generic term that encompasses repair, rework, and/or re-acceptance of weapon material.	6.3

Reserve Inventory		Material that the Production Agency has identified as surplus but has been directed by Office of Weapon Programs Management to be placed on a hold status for a potential future use.	4.1
Restricted Use Material		Plutonium, highly enriched uranium and uranium-233 to which peaceful use restriction, resulting from treaty obligations, legislation or policy decisions, have been applied. These nuclear materials can be used only for non-weapon programs and are identified by a special project number.	10.3
Retirement Disposal/Program Control Document	RD/PCD	A program management document for disposal of retired weapons that identifies Production Agency responsibilities for the weapon disposal activities for each weapon program. The RD/PCD also provides a monthly schedule for return of War Reserve retirement units, which are shipped to the Pantex Plant on an interagency-negotiated lead. The RD/PCD also provides the minimum monthly directive schedule for disposal of War Reserve and quality assurance units. Yearly retirement schedules are provided in the RD/PCD for planning purposes. Pantex Plant is authorized to dispose of weapons up to the yearly retirement quantity after proper coordination with the Office of Weapon Programs Management.	4.4
Retirement Disposition Instructions	RDI	Disposition plan for all of the material of a weapon, (D document).	4.1
Retrofit		The function of updating a weapon or other item by incorporating improved engineering features.	7.3
Retrofit Evaluation System Test	REST	A test program conducted during retrofit of a weapon system on randomly selected newly retrofitted weapons to determine the effect of the retrofit on weapon system reliability and to verify that the purpose of the retrofit is fully achieved. The program may consist of flight-testing and/or laboratory testing.	8.1
Retrofit Kit		Two or more items combined into kit form and issued for use in Modification or Alteration of nuclear weapons, test and handling equipment, or associated spare parts.	7.3
Routine Repair		Evaluation, repair, and re-acceptance achieved by application of existing disassembly, rebuild, and re-acceptance procedures.	6.2
S	**Acronym**	**Definition**	**Reference**
Safety Analysis Report	SAR	A report that documents the results of a safety analysis to ensure that a facility can be constructed, operated, maintained, shut down, and decommissioned safely and in compliance with applicable laws and regulations.	11.4; DOE O 452.1B/2B

Safety Basis	SB	The SB consists of the Authorization Basis and all information serving as the foundation for the Authorization Basis, such as the Weapon Safety Specification, design information, engineering analysis, fire hazard analysis, contractor safety program documentation, and technical background information for both the facility and the weapon.	11.4
Safety Basis Review Team	SBRT	The SBRT, comprised of DOE/NNSA employees and consultants, will review the Authorization Basis for the proposed nuclear explosive operation as directed by the DOE/NNSA approval authority for those documents. The SBRT provides an independent opinion of the technical adequacy of the Authorization Basis via the Safety Evaluation Report.	11.4
Safety Evaluation Report:	SER	The SER, for a given facility or operation, documents that an appropriate review of the Authorization Basis documents was conducted. The SER also documents the bases for approving the documents and specifies any conditions of approval. [DOE-STD-1104-96]	11.4; DOE O 452.2B
Schedule		Series of things to be done in sequence of events within a given period; a timetable.	3.4
Scope		The work that must be done to deliver a product with specified features and functions.	3.4
Scrap Nuclear Material		Unirradiated nuclear material, not usable in its existing form, that is mixed with other material and that requires chemical treatment to render it useful.	10.3
Secondary Shipment Status Report		A report that tracks the quantity of secondaries that are disassembled, backlogged, and available for shipment at the Pantex Plant. The report also shows the actual quantity of secondaries that have been shipped to the Y-12 Plant and projects the quantity that will be shipped during the next two months. Appendix B outlines the appropriate format for this report.	4.4
Shelf Life/Surveillance Material		A category of war-reserve components and assemblies that are utilized in long-term quality assurance evaluation.	3.3
Shelf-Life Material		A category of War Reserve or War Reserve-like components and assemblies stored for extended periods of time in a defined environment and evaluated on a scheduled or "as needed" basis. This category consists of long-term storage material including samples from New Material Flight Test, New Material Laboratory Test, Stockpile Flight Test, or Stockpile Laboratory Test activities held for evaluation more than 6 months; aging studies' material; production representative sample material; and raw high explosives.	8.1; 9.3

Shelf-Life Program	SLP	A comprehensive quality assurance program defined by the Design Agencies, comprised of surveillance activities accomplished at either a Production Agency or Design Agency to evaluate the long-term functionality of weapon components. The SLP validates material quality and provides data that is integral to the calculation of component life for system safety and reliability.	8.1
Ship Entity		The component level (major component) of weapons material for Interproject shipment in support of directive schedule requirements.	1.3; 4.1; 5.1
SI (Metric) System	SI	The International System of Units (SI) as established by the General Conference of Weights and Measures in 1960 and as interpreted or modified for the United States by the Secretary of Commerce.	2.7
Significant Finding Investigation	SFI	A formal investigation by a committee, chaired by the appropriate Design Agency, to determine the cause and impact of a reported anomaly, and to recommend corrective actions as appropriate. An SFI is promptly initiated whenever the evaluation group within any of the Design Agencies has reason to believe that a reported anomaly or failure could have an impact on the safety or reliability of stockpiled weapons. An SFI Report is issued providing formal notification that a detected weapon anomaly warrants further study.	8.1
Significant Finding Notification	SFN	The communication channel used by a Production Agency to advise the appropriate Design Agency of weapon anomalies.	8.1
Source Acceptance		Acceptance activities at a contractor or vendor facility	WQOM
Source Material		Depleted uranium, normal uranium, and thorium.	4.1
Spare Parts Lists	SPL	Documents, prepared and published by Sandia National Laboratories for each weapon, military weapon trainer, and item of special equipment that identify the base spares and military spares parts that the DoD is authorized to order from the DOE/NNSA. The spare parts lists identify each part-by-part number, national stock number, nomenclature, unit of issue, and manufacturer. The spare parts lists also identify how many of that part are used on each assembly; provide notes that explain the part's usage or provide restrictions on that usage by the DoD; flag parts that may be hazardous to handle; and indicate the shelf life (if any) of each item. Sandia National Laboratories maintain spare parts lists current throughout the stockpile life of the related weapon program.	7.1

Special Design Nonnuclear Weapon Material		Those parts or assemblies specially designed for use in nuclear weapons or nuclear weapons trainers that are not available commercially and not made in whole or in part from source or special nuclear material.	4.1
Special Design Tooling		Non-standard manufacturing tools, acceptance and in-process test equipment, and gauges used in the manufacture and acceptance of a product.	4.2
Special Equipment		DOE/NNSA-designed and manufactured Cable Test, Disablement Equipment, Test, Handling, and Use Control equipment, funded for and procured and owned by the DoD, and required by Special Equipment Lists for field use to provide operational and maintenance support for War Reserve and/or training weapon systems.	1.5; 3.2; 7.4 (TP4-1)
Special Equipment List	SEL	A list of DOE/NNSA special design equipment required for field use with a specific weapon system.	7.4
Special Limitation		Limitation to a calibrated measurement standard or to Measuring & Test Equipment normally not expected by the user (e.g., not calibrated for full range; not calibrated on all ranges or for all functions; calibrated to uncertainties less than manufacturer's specification; some instruments of the calibrated system are not calibrated, etc.).	13.2
Special Nuclear Material	SNM	Plutonium, enriched uranium in the isotopes U-233 or U-235, and any other material, which the DOE/NNSA determines to be special nuclear material, but does not include source material.	4.1; 4.3; 10.3
Special Production		The processing of all weapon materials and ancillary equipment not defined by the Program Management Documents or Volume III of the Master Nuclear Schedule.	1.2
Special Repair		Evaluation, repair, or re-acceptance requiring special instructions or special procedures from Sandia National Laboratory, Los Alamos National Laboratory, or Lawrence Livermore National Laboratory, as applicable.	6.2
Specification Exception Release	SXR	An engineering release authorizing the use of a specific quantity of a product that does not completely meet its specification, i.e., its product definition. An SXR is issued after an engineering evaluation determines the product is suitable for use and Design Agencies are authorized to control that use.	2.1; 3.6
Stage QAIP		A product configuration that is desirable to inspect because specific features cannot be inspected at the next/final assembly	WQOM

Standing Management Team	SMT	The SMT provides advice to DOE/NNSA line managers and institutional commitments on behalf of the weapon Design Agencies and the Pantex operating contractor.	11.1
Stockpile Evaluation Plan	SEP	A master test plan for each weapon system, which defines the testing required to provide timely detection of defects that may impact reliability, nuclear safety, or personnel safety. Additionally, the SEP also defines testing required to verify continuing compatibility with the weapon's delivery system.	3.2
Stockpile Flight Tests	SFT	Joint DOE/NNSA and DoD flight tests conducted periodically on weapon systems randomly selected from stockpile.	8.1
Stockpile Laboratory Test	SLT	Laboratory tests conducted on DOE/NNSA weapon systems randomly selected from stockpile.	8.1
Stockpile-to-Target Sequence	STS	The order of events involved in removing a nuclear weapon from storage and assembling, testing, transporting, and delivering it on the target. 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.	3.2
Stop Production Notice		A Design Agency communication to an affected Production Agency, approved at the appropriate DOE/NNSA Field and Design Agency management level, which explains the reason for the stoppage, describes corrective engineering action being considered, and provides a time estimate for resumption of production and delivery.	2.2
Strike Impact Assessment		A report submitted by the production agencies to the DOE/NNSA that assesses the probable impact (in four-week increments) of potential and actual labor strikes on weapons production.	1.4
Subcontractor		A manufacturer or supplier who supplies goods or services, direct or indirect, to a DOE/NNSA nuclear weapon contractor or another subcontractor.	13.2
Submittal		Material certified by the contractor and presented to the NNSA for acceptance	WQOM
Summary Log		The inspection history of submitted material	WQOM

Surplus Material		Material identified by a Production Agency as being over and above all known programmatic requirements and not yet approved by Office of Weapon Programs Management as excess or reserve material.	4.1
Surplus Tooling and Acceptance Equipment		Tooling and acceptance equipment identified by a Production Agency as being over and above all known programmatic requirements and not yet approved by Office of Weapon Programs Management as excess or reserve tooling and acceptance equipment.	4.2
Surveillance Material		A category of War Reserve components and assemblies periodically evaluated or that has the potential to be evaluated. This category consists of special studies' material; Significant Finding Investigation material; other material held for evaluation such as New Material Flight Test, New Material Laboratory Test, Stockpile Flight Test, or Stockpile Laboratory Test samples; material awaiting test fire (including core samples); and other evaluation material.	8.1
System Test Equipment	STE	An array of equipment used in measuring performance characteristics of certain weapon subassemblies.	8.1
T	**Acronym**	**Definition**	**Reference**
Table of Life		A document issued by the Office of Weapon Programs Management that provides life and reclamation information for all limited life components in the stockpile.	5.2
Technical Business Practice System	TBP	A system providing uniform procedures and guidelines governing activities related to development, production, acceptance, stockpile surveillance, and dismantlement of components and weapons at Nuclear Weapons Council (NWC) agencies or suppliers. Among the specific functions covered by TBPs are: design and production drawing and specification release control, including change control; assurance that production processes are adequately reviewed before they are released for production; a system for product realization that will encourage planning and teamwork, facilitate the use of modern quality tools, and reduce cycle times. TBPs will be structured according to an approved hierarchy relating higher-level program requirements to process specific) TBPs.	2.8

Technical Safety Requirements	TSR	Those requirements that define the conditions, the safe boundaries, and the management or administrative controls necessary to ensure safe operations for nuclear explosives, and nuclear facilities. TSR for nuclear explosive operations are those controls that provide the greatest qualitative contribution to protection of the public and facility workers by reducing the risk of meeting or exceeding the Nuclear Explosive Operations Evaluation Guidelines.	11.4
Technical Survey		Evaluation of a metrology organization by qualified metrology personnel to determine the organization's ability to perform required operations; evaluation also confirms adequate technical and administrative requirements have been implemented.	13.2
Technology Bases		The combination of people, equipment, and facilities required to give a site the capability to support, produce, and/or procure a given category of products or materials.	1.6
Test Material and Components		That quantity of material required and planned for use in destructive qualification tests.	5.1
Test System Investigation	TSI	A TSI is initiated upon notification of a problem or defective condition associated with Sandia National Laboratories test systems or procedures.	8.1
Test Unit	TEST	Test assembly of non-WR configuration, which is designed and produced for use in development testing, compatibility testing, certification and evaluation activities. It does not include items covered under JTA or Trainer categories	3.6; 4.3
Threshold		A threshold is the point at which there is a substantial certainty (> 75%) that a certain event will occur (e.g. cost, schedule or scope variance) that triggers the need to take action.	3.4

Tooling & Acceptance Equipment		Defined in two categories: Category 1--Durable tooling and acceptance equipment that: can be procured in a time frame comparable to the time required to obtain the production material; is relatively inexpensive, for example, blank dies, form dies, machine fixtures; could be replaced by a machine setup or other temporary expedient means; is required for a high production rate but are not necessary for a subsequent low production rate; is non-permanent (for example, wood patterns, stands); or is not economical to store. Category 2--Durable tooling and unique acceptance equipment that: cannot be replaced without a long procurement time; is very expensive and permanent, for example, large draw dies and stretch dies; without it would be practically impossible to reproduce an interchangeable product for War Reserve nuclear weapons; or includes control tooling, for example, tooling masters, interchangeable tooling, master gauges, master contour templates, and special-design acceptance equipment.	4.2; 7.4; 7.5
Trainer	TRN	A TYPE weapon that is a non-war reserve, non-nuclear configuration designed and produced by DOE/NNSA. It is used by DOE/NNSA design and production agencies for training or engineering evaluation, and used by the DoD services for training. Cutaways are categorized as Trainers.	3.6; 4.3
Transfer Standards		The measurement standards used to transfer standard values from one laboratory or location to another.	13.2
TYPE 2 Weapons		A nonnuclear, flight-test vehicle; it is designed to yield data on weapon and component performance during delivery to a designated target; it differs from the War Reserve weapon only as defined by the configuration conference; and it is similar in purpose to a Joint Test Assembly but funded partially or wholly by the DoD. Variations include passive or active instrumentation systems and may or may not include live high explosive.	3.6

TYPE 3 Weapons		A trainer configured to provide loading, handling, and limited maintenance training to DoD operational personnel; it is configured by the Joint Configuration Working Group and funded by the Defense Threat Reduction Agency purchase order. DoD TYPE 3 trainers are supported by military spares (see Chapter 7.1). DOE/NNSA provides the Sandia National Laboratories, Military Liaison Engineering Department, with TYPE 3 trainers. TYPE 3 trainers are typically delivered three months before weapon Phase 5. Variations include units configured for Explosive Ordnance Disposal training.	3.6
TYPE 4 Weapons		A nonnuclear, vulnerability test unit configured by the Design Agencies to test vulnerability to abnormal or hostile stockpile-to-target environments in a laboratory; it is funded by the Design Agency. Variations include units configured to test the vulnerability effects of specific abnormal or hostile environments.	3.6
TYPE 5 Weapons		An inert, nonnuclear trainer used to satisfy design, quality assurance, training, or production engineering evaluation requirements during weapon Phases 5 and 6. Variations are built for specific users (i.e., Pantex or Sandia National Laboratories, Military Liaison Engineering, or uses (i.e., Joint Test Assembly evaluation) and may or may not have hazardous explosive components included.	3.6
TYPE 6 Weapons		Special test units configured by the design agencies for extended evaluation. TYPE 6 units are not telemetered. Variations include units configured to yield data after being exposed to specific normal stockpile-to-target environments.	3.6
TYPE Disposal		For TYPE units, disposal is complete when the unit has been disassembled and the removed critical components have been rendered unusable or have been allocated for alternative uses.	4.4
TYPE Early Weapons	ET	Early versions of TYPE 5 trainers; not always defined in PPD-B-XX or scheduled in the weapon Program Control Document; they are used for developing assembly procedures, tooling, personnel training, etc. ET5B or 5C trainers are required by Pantex 12 months before Phase 5. ET5D trainers are required nine months before first Joint Test Assembly builds. ET5 trainers are typically salvaged and replaced with TYPE 5 trainers before the weapon program enters Phase 5.	3.6

TYPE Weapons		TYPE weapons are non war-reserve, nonnuclear configurations that are designed and produced for the DOE/NNSA and for the DoD, for testing, training, and evaluation. Unless otherwise stated, TYPE weapons are funded by the DOE/NNSA, defined in PPD-B-XX, and scheduled for production in the weapon Program Control Document. If DoD components are required to build a TYPE weapon for a DOE/NNSA user, the cost of those DoD components to DOE/NNSA will be negotiated by the DOE/NNSA and DoD program managers. The TYPE weapons defined herein are major types. Each TYPE has variations that may be used on specific weapon programs (i.e., TYPE 2A, 2B, etc.).	3.6, 13.1; WQOM
U	**Acronym**	**Definition**	**Reference**
Ultimate User	UU	The outside (non-DOE/NNSA) customer to whom weapon material is shipped. Most commonly used to describe the military.	9.3, 13.1
Ultimate User Delivery		(For the purpose of determining interproject shipment schedules) the last day of the month scheduled in the program control document. For limited life component exchange deliveries, this is directed by the Office of Transportation Safeguards for those going directly to the military and is negotiated on a contractor-by-contractor basis for all others.	5.1; 5.2
Unique JTA Material		Material that is only required for Joint Test Assembly builds.	9.3
Unique Quality Problems		Any problem related to purchased components, materials, and services that violate contractual requirements, other than random out-of-tolerance conditions or component failures. Examples include deficiencies in supplier product processing, falsified certifications, counterfeit parts, and the use of incorrect materials.	13.1, WQOM
Unsatisfactory Finding		A Finding (or grouping of Findings) which is (1) serious enough to potentially affect the form, fit, or function of products which are (or have been) shipped, or the adequacy of supporting documentation and quality evidence for those products; and/or (2) indicative of serious, systematic deficiencies in the NNSA contractor or Site Office quality management system. Upon review, NA-121.3 or the Site Office management may suspend acceptance for products affected by the Unsatisfactory Finding(s) until the Finding(s) is (are) resolved.	WQOM

Unsatisfactory Report	UR	A routine notification by Defense Threat Reduction Agency (DTRA), regardless of format or individual form used, that indicates a deficiency in procedures or a defect in DOE/NNSA material, including DoD-furnished components identified by DOE/NNSA nomenclature and used in integrated major assemblies. (See DOE/NNSA UR and DOD UR)	6.1
V	**Acronym**	**Definition**	**Reference**
Verification Inspection		The examinations or tests that determine the conformance of material to applicable drawings and specifications. Verification inspection refers specifically to DOE/NNSA quality assurance inspection.	13.1, WQOM
Verify		A Site Office action to perform a Quality Assurance Inspection Procedure by observation, inspection, or a combination of both.	WQOM
W	**Acronym**	**Definition**	**Reference**
War Reserve	WR	Nuclear weapons and nuclear weapons' material intended for use in the event of war.	8.1, 13.1, WQOM
Weapon Cutaway		Weapon cutaways are training aids and are not TYPE weapons. They are not supported with source data, manuals, or spares. They are not defined in PPD-B-XX. They are produced using model-shop methods and are not subject to DOE/NNSA acceptance or inspection. Cutaways sold to the DoD are defined by Design Agency (Design Agency) drawings, are funded by Defense Threat Reduction Agency (DTRA) purchase order, and are usually scheduled for production in the weapon program control document. They generally do not show special use control information and are not modified to reflect weapon retrofits. Cutaways that are required by a Design Agency are purchased by the Design Agency from the responsible Production Agency . They are not scheduled in the weapon Program Control Document (PCD). If DoD components are required to build a weapon cutaway for a DOE/NNSA user, the DOE/NNSA and DoD program managers will negotiate the cost of DoD components.	3.6
Weapon Design and Cost Report	WDCR	A document that provides a description of the option and decision cost estimates. It also reports the results of analyses of trade-offs in system requirements, surety enhancements, DOE/NNSA production costs, and material capabilities.	3.2

Weapon Disposal		For a War Reserve weapon, disposal is complete when the unit has been test-fired in a stockpile confidence test or the unit has been disassembled and any one of the following has been accomplished: the high explosive has been removed from the nuclear assembly and disposition of the high explosive has been made; or DOE/NNSA formally allocates the nuclear explosive assembly for specific alternative uses.	4.4
Weapon Insult		An abnormal environment to which the weapon is exposed as a result of a hazardous event (environment).	11.8
Weapon Material		DOE/NNSA nuclear weapons, assemblies, components, piece parts, and associated test and handling equipment (including software).	1.2; 13.1
Weapon Protected Period		The period of time after weapon production ends during which parts must be available to support the rebuild of stockpile samples and weapons must be available to replace D-tested units. The weapon-protected period is identified in the weapon Program Control Document.	3.3
Weapon Quality Operations Manual	WQOM	Provides specific instructions for Quality Assurance operations and acceptance of material within the nuclear weapons complex.	13.1, WQOM
Weapon Related Material		Any material, including associated software and test and handling equipment, being developed and produced for the DOE/NNSA and intended for use in conjunction with, or in any way related to weapon development, engineering, production, surveillance, or dismantlement.	13.1, WQOM
Weapon Retirement		Weapons are placed in retirement status in accordance with the Nuclear Weapon Stockpile Memorandum, which is approved annually by the President. Weapons can be placed in retirement status only after they are disassociated from the delivery vehicle and are located in the continental United States. Retired weapons are not considered part of the nuclear weapons stockpile.	4.4
Weapon Returns		Return of War Reserve weapons and quality assurance units slated for disposal activities is scheduled in the Retirement Disposal/Program Control Document to allow for the units to be shipped to the Pantex Plant on an interagency-negotiated lead prior to disposal activities.	4.4
Weapons/Special Nuclear Material Staging Report (Zone 4 Report)		A report that tracks weapon and component staging capacity at the Pantex Plant. Appendix E outlines the appropriate information required in the report.	4.4

Weekly Disposal Report		A report that reflects, by weapon system, the disposal and weapon receipt activities that occurs through Sunday of each week. The report contains a weekly summary for all weapon systems, as well as a yearly disposal summary. Appendix A shows the format of the report.	4.4
Working Level		The knowledge required to monitor and assess operations/activities, to apply standards of acceptable performance, and to reference appropriate materials and/or expert advice as required to ensure product requirements are met.	WQOM
Working Standards		The measurement standards used to calibrate Measuring & Test Equipment or other working standards.	13.2

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 1.1: AGENCY FUNCTIONS WITHIN THE NUCLEAR WEAPONS COMPLEX

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	IER_____
B	**Change Notice 10 dated 05-15-2015** **FCO20152801SA effective 10-01-2015**

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1.0 OBJECTIVE

Provide a brief discussion of Department of Energy (DOE)/National Nuclear Security Administration (NNSA) and Department of Defense (DoD) interrelationships to aid reader understanding of subsequent chapters in the Development and Production Manual (D&P Manual).

2.0 BACKGROUND

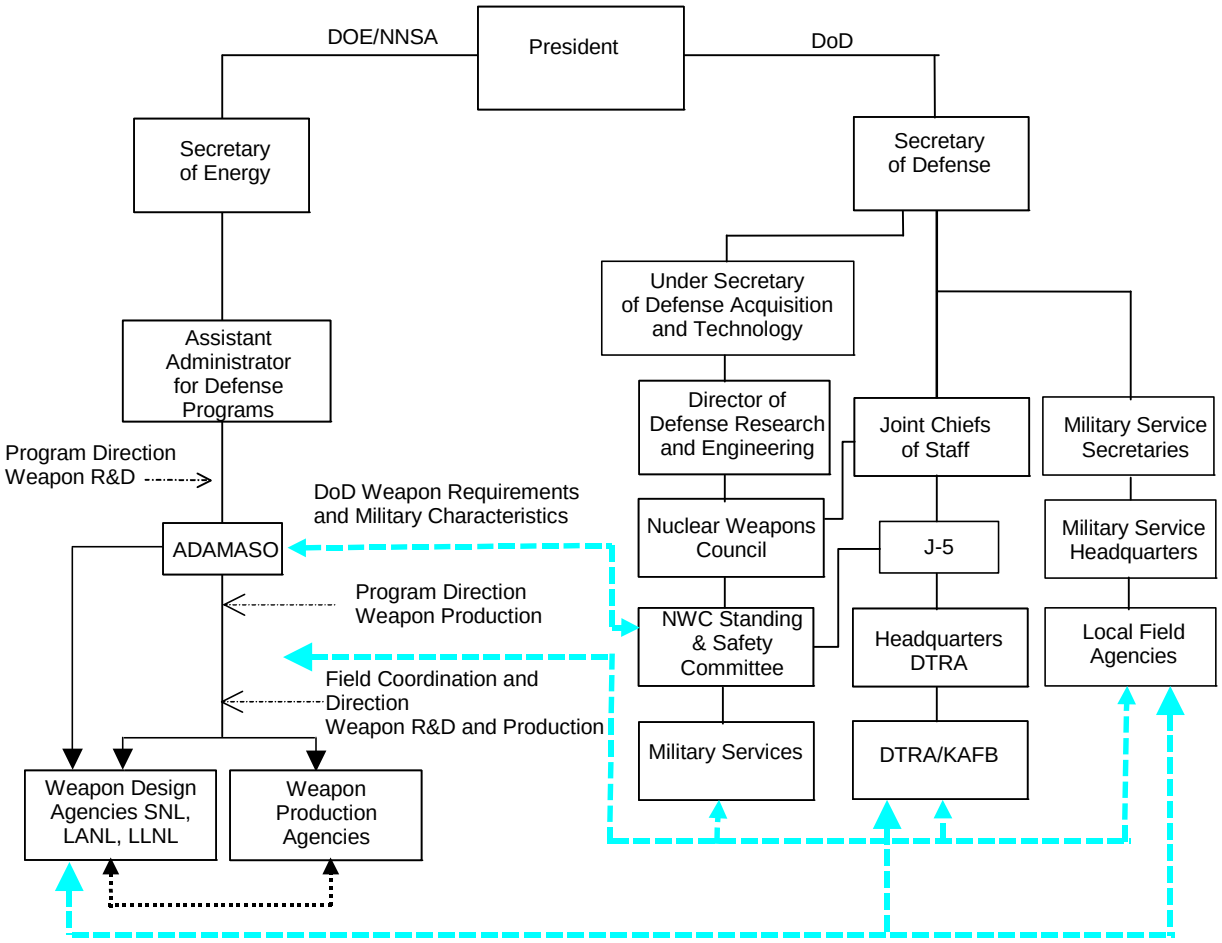
NNSA receives its authority for the responsibility for all weapon and weapon-related functions from 50 USC 2402, Chapter 41.

DOE/NNSA and DoD cooperate in the development, production, and maintenance of nuclear weapons. Figure 1.1-1 illustrates DOE/NNSA/DoD organizational interrelationships. The basic document that establishes the interrelationships between the two agencies is "An Agreement Between the AEC and the DoD for the Development, Production, and Standardization of Atomic Weapons," dated March 21, 1953.[1] This is commonly referred to as the "1953 Agreement." It was updated on September 5, 1984, by the "Supplement to the 1953 Agreement for the Development, Production, and Standardization of Atomic Weapons Between the Department of Energy and the Department of Defense."[2] The supplement delineates the functions of DOE/NNSA and DoD during joint feasibility studies for nuclear weapons (Phase 2), design definition and cost studies (Phase 2A), and development engineering (Phase 3). The 1953 Agreement was updated again in 1990 and supersedes the 1953 version.

Numerous Memoranda of Understanding (MOU), Memoranda of Agreement (MOA), and supplements provide additional guidance to agencies involved in the weapon development programs. Most of these are identified in a document titled "An Overview of DOE/DoD Memorandums of Understanding (MOU) and Memorandums of Agreement (MOA) Relating to Nuclear Weapons Development, Production, and Stockpile."[3]

In general, DOE/NNSA is responsible for designing, developing, producing, updating, and dismantling nuclear warheads, nuclear weapon trainers, and ancillary equipment, while DoD is responsible for designing, developing, and producing, and dismantling the weapon delivery system.

Figure 1.1-1. Organizational Interrelationships Between the Department of Energy/National Nuclear Security Administration and the Department of Defense



LEGEND	
.....	Coordination within DOE/NNSA
- - - -	Coordination between DOE/NNSA and DoD

KEY	
ADAMASO	Deputy Assistant Administrator for Military Application & Stockpile Operations
DTRA	Defense Threat Reduction Agency
LANL	Los Alamos National Laboratory
LLNL	Lawrence Livermore National Laboratory
NWC	Nuclear Weapons Council
SNL	Sandia National Laboratories

3.0 APPLICABILITY

These requirements apply to the DOE/NNSA Office of Defense Programs, NA- 10 Organizations, Site Offices, Service Center, and DOE/NNSA contractor organizations with the responsibility for executing any phase of the nuclear weapons program.

4.0 DEFINITIONS

See the Glossary, Acronym, & Cross Reference (GAC) Section.

5.0 REQUIREMENTS and RESPONSIBILITIES

5.1. The DOE/NNSA Nuclear Weapons Complex

5.1.1. Defense Programs (DP) (superseded by R019 per Change Notice 10 and IER 20150059SA)

- Coordinates weapon requirements with DoD.
- Assigns the workload for nuclear weapon Design Agencies (DAs) and Production Agencies (PAs).
- ~~Interfaces with Congress on budget issues.~~
- Directs DOE/NNSA's nuclear weapon programs and issues the Production and Planning Directive (P&PD). The P&PD authorizes the production and retirement of nuclear warheads and components.

5.1.2. Office of Military Applications and Stockpile Operations (NA-12)

- Manages the nuclear weapons production complex and develops build level planning, coordination, and direction for the management of all nuclear weapon programs from early development through retirement.
- Represents DOE/NNSA in the negotiation and administration of MOUs and other agreements with DoD and other government agencies.
- Coordinates the three weapon DAs (Lawrence Livermore National Laboratory, Los Alamos National Laboratory, and Sandia National Laboratories); six Production Agencies (PAs); (Kansas City Plant, Pantex Plant, Savannah River Site; and, Y-12 Plant. Coordinates special component production at Los Alamos National Laboratory, and Sandia National Laboratories, and many commercial suppliers of weapon components. Table 1.1-1 summarizes the particular functions of design and production agencies in the nuclear weapons complex.
- Interfaces with the DAs and PAs to determine weapon producibility, plant and equipment requirements, weapon costs, production assignments, and requirements for weapon safety, maintenance, reliability, surveillance, and quality.

Table 1.1-1. Functions of DOE/NNSA Design and Production Agencies

AGENCY	FUNCTIONS
Kansas City Plant	Produces and procures non-nuclear electrical, electronic, electromechanical, mechanical, plastic, and non-fissionable metal components for nuclear weapons. Procures forgings and manufactures reservoirs. Procures, fabricates, and assembles the SafeGuard Transporter.
Lawrence Livermore National Laboratory	Designs nuclear assemblies (nuclear physics packages). LLNL researching fusion, biomedical and environmental issues, and laser isotope separation. Conducts nuclear fusion and high explosive experiments at the National Ignition Facility and Contained Firing Facility. Conducts surveillance activities on applicable nuclear weapon systems.
Los Alamos National Laboratory	Designs nuclear assemblies. Conducts research in fusion, laser isotope separation, and nuclear, environmental, and energy issues. Manufactures such components as high power detonators and explosive devices. Produces nuclear components from plutonium, uranium, beryllium, and stainless steel, and loads neutron tube targets. Recovers and reprocesses plutonium.
Pantex Plant	Manufactures high-explosive components, assembles nuclear weapons, and dismantles retired weapons. Performs disassembly and inspection and surveillance activities.
Sandia National Laboratories (New Mexico and California)	Designs components, which combined with nuclear assemblies developed by the nuclear design laboratories, create a usable weapon, warhead or bomb, that is compatible with a DoD delivery system. Researches energy issues. Manufactures neutron generators, specialty capacitors, switches, and thermal batteries. Procures energetic and electronic components.
Savannah River Site	Loads and unloads reservoirs, recovers and recycles tritium and applicable reservoirs, performs reservoir surveillance, maintains the tritium inventory for the nuclear weapon complex, and constructs and operates facilities supporting future production of tritium.
Y-12 Plant	Produces nuclear weapon components and subassemblies. Processes source and special nuclear materials. Recovers and recycles uranium, lithium, and deuterium-bearing scrap.

5.1.3. Office of Nuclear Weapons Stockpile (NA-122)

- Manages NNSA's nuclear weapons programs to meet requirements as defined in the Production & Planning Directive (P&PD). This includes planning for development, production, modification, repair, stockpile support, retirement and dismantlement of weapons.
- Manages the implementation of process improvements for weapon operations at the Pantex Plant and works in conjunction with the Pantex Site Office, to conduct a thorough evaluation of hazards associated with specific weapon operations.
- Manages weapon inventories within the nuclear weapons complex and fulfilling any DoD requests for base and military spares.
- Controls and directs activities associated with the United Kingdom Mutual Defense Agreements and Safe, Secure Dismantlement agreement with the Republics of the Former Soviet Union.
- Manages a rigorous evaluation program to monitor and predict the safety and reliability of the enduring stockpile. This program is designed to ensure the continued quality of weapons and their readiness for military use. Based on program results, a quarterly reliability assessment for each nuclear weapon system in the stockpile is distributed.

5.1.4. Office of Nuclear Weapon Surety and Quality (NA-121)

- Establishes quality programs for the nuclear weapons complex and ensures effective implementation by NNSA contractors. This applies to all NA-12 operations directly related to nuclear weapons, including acquisition of research and technology data, development, design, engineering, testing, production, assembly, stockpile evaluation, dismantlement and retirement.
- Furnishes nuclear weapons material quality criteria (QC-1) and provides the framework for government acceptance of material used in nuclear weapons processes.

5.1.5. Office of Secure Transportation (OST)

- Manages and operates the DOE/NNSA Transportation Safeguards System for the safe, secure movement of all government-owned special nuclear material from an office located in Albuquerque. This office is responsible for the planning, coordinating, and scheduling of weapon and weapon component movements throughout the continental United States. Both air and ground transport are used to move weapons and weapon components through the NNSA Air Service Contract and through convoys of Safe Secure Trailers (SSTs) and SafeGuard Transporters (SGTs).
- Provides oversight of special agent operations to include three geographically separated Courier Sections. A Special Agent Training Program provides accreditation for all convoy personnel.

- Develops and maintains the DOE/NNSA nationwide high frequency security communications (SECOM) network.

5.1.6. NNSA Service Center

- Provides the resources to manage emergency response, the Nuclear Explosive and Weapon Surety (NEWS) Program, and required authorizations and certifications for the Transportation Safeguards System.
- Assures the readiness of the Accident Response Group, composed of DOE/NNSA, DA, and contractor personnel, to respond to accidents involving U.S. nuclear weapons.
- Maintains the Joint Nuclear Accident Coordinating Center (JNACC) in Albuquerque, New Mexico. The JNACC can activate a DOE/NNSA Accident Response Group that is on continuous alert.
- Ensures the NEWS Program provides for nuclear safety assurance throughout all phases of nuclear explosive and weapon life cycle.
- Provides a DOE/NNSA member to the Nuclear Weapon System Safety Group (NWSSG) and acts as chairperson on all Nuclear Explosive Safety Studies (NESSs).
- Provides Over the Road Authorizations (OTA) and Over the Road Certifications (OTC) for shipments of special nuclear materials and weapon nuclear explosive like assemblies (NELA) for transportation in the Transportation Safeguards System.

6.0 REFERENCES

1. AEC (U.S. Atomic Energy Commission), "An Agreement Between the AEC and the DoD for the Development, Production, and Standardization of Atomic Weapons," U.S. Atomic Energy Commission, Washington, DC, March 21, 1953.
2. DOE (U.S. Department of Energy), "Supplement to the 1953 Agreement for the Development, Production, and Standardization of Atomic Weapons Between the Department of Energy and the Department of Defense," U. S. Department of Energy, Washington, DC, September 5, 1984.
3. DOE (U.S. Department of Energy), "An Overview of DOE/DoD Memorandums of Understanding (MOU) and Memorandums of Agreement (MOA) Relating to Nuclear Weapons Development, Production, and Stockpile," U. S. Department of Energy, Washington, DC, April 1987.

7.0 POINT OF CONTACT

Director, Office of Nuclear Weapons Stockpile, Stockpile Systems Division, NA 122.1, 301-903-2984 is responsible for this chapter.

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 1.2: DEVELOPMENT AND PRODUCTION FUNCTIONS

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	IER_____
B	Change Notice 10 dated 05-15-2015 FCO20152801SA effective 10-01-2015
C	**Change Notice 14 dated 09-03-2015** **FCO20155736SA effective 01-01-2016**

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1.0 OBJECTIVE

Establish the Department of Energy/National Nuclear Security Administration (DOE/NNSA) functional areas and elements associated with weapon development and production that will be used when evaluating Production Agency (PA) performance.

2.0 BACKGROUND

This chapter was established to ensure that the Production Agencies understood DOE/NNSA expectations with regard to their performance when developing and producing nuclear weapons and nuclear weapon components for the complex and convey that the primary goal for the PA's is to produce and deliver high-quality products on time and at a reasonable cost.

3.0 APPLICABILITY

These requirements apply to the DOE/NNSA Office of Defense Programs, NA- 10 Organizations, Site Offices, Service Center, and DOE/NNSA contractor organizations with the responsibility for executing any phase of the nuclear weapons program.

4.0 DEFINITIONS

See the Glossary, Acronym, & Cross Reference (GAC) Section.

5.0 REQUIREMENTS

5.1. General Functions

The production and support functions covered are significant identifiable segments of work and mission workloads.

The definitions of functions are standardized. It is recognized that various contractors may assign responsibilities to different organizational units and all functions may not be necessary for every contractor. In general, the elements listed are considered to be fundamental to the satisfactory performance of production management.

An effective and efficient production program will, in general, make substantial use of computerized systems for design, manufacturing, and overall factory management. This chapter encompasses the utilization of computerized systems as they relate to weapons production and associated support functions.

5.2. Weapon Program Performance Function

5.2.1. Regular Production (Bullet 2 superseded by R019 per Change Notice 10 and IER 20150059SA; Bullet 3 superseded by R020 per Change Notice 14 and IER20154199SA)

Support the delivery of weapon materials to the using agencies by meeting monthly Interproject (IP) and Ultimate User (UU) schedules, as specified, and achieving peg-point quantities, as planned.

- New Build: Deliver all new weapon materials including LLCE support, for either IP or UU schedules, beginning with shipments in support of the First Production Unit (FPU) in Phase 5 (Development Engineering) of a weapon program.
- ~~Disassembly and Rebuild: Deliver weapon materials, on which disassembly and rebuild activities have been performed for surveillance, retrofit, factory modification, or repair.~~
- ~~Retirement/Dismantlement: Complete dismantlement operations on weapons specified for retirement in accordance with the Retirement Dismantlement/Program Control Documents (RD/PCDs).~~

5.2.2. Special Production

Support the delivery of weapons material and ancillary equipment to the using agencies by meeting need dates for orders not defined by NNSA Program Management Documents (PMD).

- Design Agency Support: Deliver weapon materials to the Design Agencies (DAs) of adequate quality to support end-use requirements.
- Stockpile Support: Meet delivery requirements contained in the Equipment Requirement Schedule (ERS) and Reimbursable Equipment Schedule (RES) PCDs for ancillary equipment; and in DOE/NNSA-approved, Defense Threat Reduction Agency (DTRA) purchase orders for base and military spares, weapon trainers, and miscellaneous items.
- Other Support: Deliver weapon materials to other PAs or DoD in support of development, testing, or training activities.
- Repair Activities: Promptly return to DoD repaired weapons, base spare repair list items, and ancillary equipment.

5.2.3. Program Control

- Support regular and special production by negotiating with receiving and supplying agencies to establish delivery requirements and by publishing delivery schedules in accordance with existing directives.

- Manage production priorities, resolve problems, and coordinate attrition by liaison with DOE/NNSA, other PAs, DAs, and internal operating departments.
- Keep DOE/NNSA and other agencies advised of program support by reporting delivery status, problem areas, and recovery plans. Keep management and other departments advised of delivery performance against commitments, schedule changes, and potential problems.
- Coordinate with management and other departments regarding availability of resources, manpower levels, budget and workload, and response to queries and proposals for schedule revisions.

5.2.4. Development Support

- Support the development of impact studies during Phase 2 (Program Feasibility Study).
- Support the development of cost estimates required for weapon design and cost studies including cost/performance tradeoffs during Phase 2A (Design Definition and Cost Study). The Office of Nuclear Weapons Stockpile (NA-122) initiates the Weapon Design Cost Report (WDCR) following the design definition and cost study prepared by the Project Officers Group (POG).
- Meet requirements as defined in the Pilot Production Program Definition (PPPD).

5.3. Production Operations Function

5.3.1. Production Control (Revised by R019 per Change Notice 10 and IER 20150059SA)

- Support delivery requirements by effectively and efficiently managing the movement of goods through the entire production cycle from the requisitioning of raw materials to the delivery of finished product.
- Plan, schedule, and control activities to minimize process time and optimize inventory levels.
- Develop, implement, and operate modern computerized systems for major functions as follows:

1) Master Production Scheduling:

   a) Develop and maintain up-to-date build and procurement schedules for all required PA activities.

2) Material Requirements Planning:

a) Utilize bills of material, inventory and open-order data, and master production scheduling information in order to calculate detailed time-phased requirements for all raw materials and components.

b) Issue material orders to the shops and to vendors in accordance with calculated requirements. Reschedule open orders when due dates and need dates are not in phase.

~~c) Control production stores inventory of weapons materials to support schedules and minimize costs, issue material to the shop and monitor its movement, and produce timely and accurate records of inventories and transactions.~~

3) Capacity Requirements Planning:

a) Determine the amount of labor and machine resources that are required to accomplish the task of production.

b) Utilize the planned and released material orders, process plans, standard times by operation, yield rates, labor efficiencies, product priorities, and available capacities to generate schedules for each work center according to priority.

c) Issue directions to the work centers as required to execute the plan. Keep the plan up-to-date in accordance with revised material orders and work center results.

4) Shop Floor Control:

a) Control work in process by collecting and maintaining status data and providing timely reports comparing status to schedules for all operations.

b) Collect data and generate timely reports on the status of labor utilization, material, first submission efficiencies, deviations, scrap, and rework.

5.3.2. Manufacturing

- Support build schedules by the efficient fabrication of a satisfactory product that is in compliance with internal schedules and shop orders, engineering information, and management directives.
- Optimize direct labor utilization by maximizing labor efficiency and realization, minimizing nonproductive time, and using overtime judiciously.
- Maintain a competent manufacturing work force by coordinating with management and other departments to plan and forecast requirements, ensuring availability of manpower, and providing adequate training.

- Improve the effectiveness of manufacturing operations through the use of modern technologies such as robotics, distributed numerical control, and computerized numerical control, and promote improvements in productivity.
- Provide equipment and procedures for the timely and safe movement of production materials and parts in the plant and for keeping appropriate records.
- Promote improvements in productivity through the use of modern technologies such as robotics.

5.3.3. Tool, Gauge, and Tester Management

- Support plant production and delivery schedules, and contribute to the economical manufacture of satisfactory parts, by designing effective tools, gauges, and test equipment as required.
- Produce and/or procure adequate tools, gauges, and test equipment in compliance with designs, cost estimates, and plant schedules.
- Manage in-house design and fabrication resources effectively and utilize offsite services as appropriate.
- Ensure the availability of tools, gauges, and test equipment to support production by maintaining accurate inventory records and controlling locations, moves, recycles, and retirement or replacement as necessary.
- Promote improvements in productivity through the use of modern technologies such as interactive graphics systems, group technology, and computer-aided process planning.

5.3.4. Product Engineering

- Ensure conformance to design intent by translating DA information into manufacturing and procurement definitions, provide and maintain drawings and specifications for all regular and special production items, and ensure the availability of current information and product configuration definitions at all levels of production.
- Prescribe effective manufacturing procedures by provision of detailed operation processes, complete bills of material and parts lists defining design equivalency as appropriate, and monitoring conformance.
- Ensure complete understanding of engineering information, availability of tooling, prompt resolution of technical problems, and the availability of future capabilities and technologies, as needed, by conducting effective liaison with the operating departments, plant management, and DAs.
- Improve design criteria, producibility, economy of manufacture, and the satisfaction of special production requirements by conducting early and continuing liaison with DAs as part of a product realization process.
- Promote improvements in productivity through the use of modern technologies such as interactive graphics systems, group technology, and computer-aided process planning.

5.3.5. Industrial Engineering

- Develop layouts of production areas and process flows in order to ensure the effective utilization of space, equipment, and personnel.
- Conduct methods improvement studies and/or other special studies to improve productivity as required.
- Advance plant operating efficiency and cost control by creating and maintaining realistic standards for direct labor time and material costs by utilizing time-study data, standard data, or work sampling, as appropriate.
- Participate in the utilization and maintenance of a labor reporting system to compare actual performance to what should occur under existing conditions, identify variances with specific operations and parts, and coordinate the timely analysis of variances.
- Provide and maintain accurate time estimates for special production inquiries and orders, budget preparation, future production plans, and alternate designs and methods as appropriate.
- Develop, maintain, and analyze data on machine utilization and prepare appropriate reports.

5.3.6. Process Development

- Maintain an advanced development program in accordance with DA guidance and NNSA guidance and priorities.
- Support weapon programs in Phases 3-7 in accordance with DA guidance, NA-122-approved weapon system plans and budgets, and NNSA schedules, guidance, and priorities.
- Maintain a manufacturing development program in accordance with production plant cost/benefit analyses and NNSA guidance and priorities.
- Complete development activities in accordance with weapon schedules and process development program plans and budgets.
- Maintain an accurate reporting system, document results of development activities, and publish accomplishments in accordance with NNSA guidance.
- Transfer technologies and processes effectively from development to production.
- Maintain the corporate memory of technologies and processes in accordance with DA guidance and NNSA direction.

5.3.7. Vendor Support

- Select effective production vendors and employ backup sources as appropriate.
- Identify potential problems and develop new production vendors as required.
- Provide effective technical and administrative assistance to vendors.
- Manage activities related to Class B material as required by Chapter 9.1, "Procurement Classes of Weapon Material."

5.3.8. Make-or-Buy Decisions

Manage make-or-buy decisions for weapon materials and components as required by Chapter 9.2, "Make-or-Buy Decisions."

5.4. Weapons Evaluation Function

5.4.1. Disassembly and Inspection

Complete disassembly and inspection activities in accordance with a schedule negotiated at the beginning of the fiscal year based on PCD schedules.

5.4.2. Test Bed Build

Complete test bed build activities in accordance with a schedule negotiated at the beginning of the fiscal year.

5.4.3. Quality Evaluation Tracking System

Deliver required components and complete component testing in accordance with the Quality Evaluation Tracking system (QET) schedule, which is agreed to at the annual QET review.

5.5. Nuclear Materials Management Function

5.5.1. Nuclear Material Transactions

Maintain production control and inventory control systems from which accurate nuclear material transaction data may be derived to support a nuclear-materials management activity.

5.5.2. Forecasts of Special Nuclear Materials Requirements

Develop appropriate nuclear material requirements to support the activities of research and development, weapons test, process development, process engineering, surveillance, and any other approved weapon support activities.

5.5.3. Nuclear Material Allotment Control

Maintain production control systems that adequately reflect the status of allocated available material against nuclear material inventory requirements.

5.5.4. Inventory Justification and Utilization of Nuclear Material

Develop and maintain systems to allow timely utilization of nuclear material inventories and timely identification of scrap and excess nuclear materials.

5.5.5. Disposition of Scrap and Excess Nuclear Material

- Develop plans and processes to convert scrap nuclear materials to necessary priority levels in support of approved delivery schedules.
- Maintain current economic-discard-level calculations for determination of nuclear materials that are uneconomical to process in support of weapon activities.
- Maintain systems to dispose of nuclear materials not required to support program activities.

5.6. Weapons Quality Function

PAs will implement elements of a quality program that satisfy the requirements of the ~~DOE/NNSA Quality Management~~ Weapon Quality Policy (~~QC-1~~NAP-24A) document. These elements include but are not limited to the following.

5.6.1. Quality Control Engineering

- Implement and utilize statistical control techniques to minimize product defects and variability.
- Improve the product quality by collecting data and generating status reports, including descriptions of corrective actions on product loss, rework, yield, first submission efficiency, and product deviation.
- Provide for formal, on-the-job, and continuing training activities and certification programs for operators to provide for a work force trained in quality control based on developing and maintaining an in-process quality control system.

5.6.2. Quality Control Operations

Maintain a quality-conscious work force by actively involving operators in the quality control operation improvement program and providing them with regularly scheduled feedback on progress.

5.6.3. Metrology (Standards and Calibration)

- Develop and maintain an equipment calibration program, including provision for timely recalibration of equipment and corrective action reporting for items found to be out of limits during recalibration.

- Develop and maintain an effective call-back program and configuration control process that provides for the identification, isolation, and tracking of parts that are successfully inspected or tested, and then go on to become part of equipment found to be suspect.

5.6.4. Product Inspection

Develop and maintain an in-process quality control system that produces few, if any, defective items rather than relying on inspection to sort defective from non-defective parts.

5.6.5. Loss Due to Non-conforming Material

- Develop, maintain, and analyze historical data on non-conformances to identify patterns, locate trouble spots, and provide for corrective action and timely feedback to operators.
- Develop and maintain a system, by month and product area, to objectively measure the cost of nonconformance and provide timely impact analyses as required.

6.0 RESPONSIBILITIES

Site Offices are responsible to see appropriate language is placed in the contracts and the Performance Evaluation Plans to cover the above elements.

7.0 POINT OF CONTACT FOR ADMINISTRATION

D&P Administrator, Office of Nuclear Weapons Stockpile, Stockpile Systems Division, NA 122.1, 505-845-4823 is responsible for this chapter.

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 1.4: INTERRUPTION OF WORK IMPACT ASSESSMENT

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	IER_____

	REV.	CHANGE	DATE	PAGE NO.
56XB	**2**		**February 27, 2004**	**1**

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1.0 OBJECTIVE

- Describe the Department of Energy (DOE)/National Nuclear Security Administration (NNSA) procedures for reporting the probable effects of potential and actual labor strikes, security, weather or other interruptions on weapons production and the responsibilities for assessing those effects.
- Require each of its weapon Production Agencies (PAs) to minimize the impact on weapons production as the result of work interruption. To accomplish this, each PA must provide to NNSA an assessment of the impact on the weapons program for an interruption that could impact production significantly.

2.0 APPLICABILITY

These requirements apply to the DOE/NNSA Office of Defense Programs, NA-10 Organizations, Site Offices, Service Center, and DOE/NNSA contractor organizations with the responsibility for executing any phase of the nuclear weapons program.

3.0 DEFINITIONS

See the Glossary, Acronym, & Cross Reference (GAC) Section.

4.0 REQUIREMENTS

4.1 Initial Report

The initial report addresses anticipated work stoppages expected to last 4 and 8 weeks. PAs submit this report to their local Site Office in time to be submitted to the Office of Nuclear Weapon Stockpile Management (NA-122) at least three weeks before a labor contract expires, or as requested by the Site Office Manager .

4.2 Follow-Up Reports

If an actual work stoppage extends beyond a time that is 3 weeks fewer than the current estimated period (that is, 5 weeks for an 8-week period, 9 weeks for a 12-week period, etc.), PAs provide a follow-up report to their local Site Office. The follow-up report must be provided in time for submittal to NA-122 at least 2 weeks before the current assessment period ends or as requested by the Site Office Manager.

Follow-up reports address a work stoppage that is 4 weeks longer than that in the previous report. That is, if the initial report is for an 8-week period, the first

follow-up report will bring the assessment up to 12 weeks, the second up to 16 weeks, etc.

4.3 Post-interruption Report

If an actual work stoppage occurs, PAs provide their local Site Offices with a report that can be transmitted to NA-122 within 2 weeks after the end of the work stoppage.

4.4 Contents of Interruption Impact Reports

The reports should address the following topics, as appropriate.

- Summarize the major issue(s) causing the work stoppage, list the assumptions used in making the assessment, and provide a qualitative prediction of the probability of work stoppage (low, medium, high, very high). The prediction is required only in the initial report.
- Describe potential effects on operations and production.
- Include a discussion of each program's projected status at the time of the interruption.
- Include discussions of the probable impact on pre-production status as well as the impact on the scheduled dates for first production unit and initial operating capability. The initial and follow-up reports should also address the development status, including any impact on the support for test devices and probable delays for reimbursable orders.

The post-interruption report should include:

- the actual length of the stoppage,
- the date production activities will resume or have resumed,
- the actual status by program (as listed above),
- the actual pre-production status by production process (as listed above),
- the actual status of development (as listed above),
- recovery assumptions, and
- a summary of recovery activities and milestones.

5.0 RESPONSIBILITIES

5.1 Production Agencies

When a work stoppage is anticipated or has already occurred, PAs must submit the following reports.

Table 1.4-1. Reports Required to Estimate Interruption Impacts on Weapons Production

Report Type	Estimated Interruption Period	Submitted to Site Office Manager and NA-122
Initial	Both 4 and 8 weeks	3 weeks before contract expires or is reopened or as directed by the Site Office Manager
Follow-Up*	12 weeks	2 weeks before 8-week assessment period ends (or 6 weeks from start)
Additional Follow-Ups	As Required, in 4-week increments	2 weeks before previous assessment period ends
Post-interruption	Actual period of work stoppage	2 weeks after work stoppage ends

***** Follow-up reports are issued if a work stoppage extends to a time period that is 3 weeks fewer than the current estimated period, i.e., 5 weeks for an 8-week period, 9 weeks for a 12-week period, etc.

5.2 Site Offices

- Monitor the PAs labor relations activities with regard to contract renegotiations or reopening of contracts.
- Ensure PAs initiate required work stoppage reports in a timely manner. The Site Office also reviews the PA's input to ensure adequacy and forwards the required information along with the Site Office's assessment to NA-122. (See Table 1.4-1 for scheduling of report submittals.)
- Determine if work stoppage impacts the contractor annual Performance Evaluation Plan.

5.3 Office of Nuclear Weapon Stockpile (NA-122)

- Use the information from the Site Offices to prepare an Interruption Impact Assessment for the Assistant Deputy Administrator for Military Application and Stockpile Operations.
- Provides updates to the Interruption Impact Assessment, as necessary.
- Develop and implement post-interruption recovery strategies with the assistance of other appropriate NNSA organizations.

6.0 POINT OF CONTACT FOR ADMINISTRATION

Program Analyst, Office of Nuclear Weapons Stockpile, Stockpile Systems Division, NA-122.1, 301-903-1739, is responsible for this chapter.

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 1.5: REIMBURSABLE WORK FOR DOD

CHANGE HISTORY

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1.0 OBJECTIVE

Describe the way the U.S. Department of Energy/National Nuclear Security Agency (DOE/NNSA) does reimbursable work, directly related to nuclear weapons, for the Department of Defense (DoD).

2.0 BACKGROUND

Reimbursable work falls into two basic areas. These are (1) stockpile support, which includes the production and repair of military spares, TYPE weapons, and special equipment, and (2) other DoD orders, which include orders for weapon components, weapon-related components, and services.

3.0 APPLICABILITY

These requirements apply to the DOE/NNSA Office of Defense Programs, NA-10 Organizations, Site Office, Service Center, and DOE/NNSA contractor organizations with the responsibility for executing any phase of the nuclear weapons program.

4.0 DEFINITIONS

See the 56XB Glossary, Acronym, & Cross Reference (GAC) Section of the D&P Manual.

5.0 REQUIREMENTS

The Office of Nuclear Weapons Stockpile (NA-122) requires that all reimbursable work for the DoD be in compliance with all applicable regulations, specifically DOE Orders O 481.1. Designated NA-122 staff will be qualified and warranted to perform necessary contracting officer functions in accordance with the Federal Acquisition Regulation.

5.1 Stockpile Support

It is NNSA policy there shall be no direct communication between the DoD and DOE/NNSA plant or local Site Offices or design agencies (DAs) or production agencies (PAs) regarding any aspects of the status or cost of reimbursable work being done for the DoD. Any such inquiries are to be referred to NA-122.

No stockpile support material described in this chapter shall be shipped to the DoD without NA-122 authorization as evidenced by a signed purchase order accepted by NA-122, a line order in a NA-122 program control document

(PCD), or a requisition ordered via the Base and Military Spares Server (BMSS).

5.2 Other DoD Orders

Communication between the DoD and DOE/NNSA plant or local Site Offices, DAs, or PAs regarding weapon-specific reimbursable work will be mutually agreed upon between the DoD and NA-122.

6.0 RESPONSIBILITIES

Because of the unique capabilities of the nuclear weapons complex, the DOE/NNSA reimbursable sale, transfer, and delivery to the DoD of material and repair services described in this chapter is conducted under the authority of the Economy Act of 1932 and is described in various memoranda of understanding (MOU) between the DOE/NNSA and the DoD. For stockpile support, generic MOUs include DE-GMO4-84AL-30536 for ancillary equipment and DE-GMO4-89AL-53649 (Navy) and DE-GM04-2001AL77146 (Air Force) for special equipment, TYPE weapons, military spares, and repairs. For other DoD reimbursables, individual weapon MOUs or MOUs covering specific situations contain agreements regarding the sale of specific weapon-related hardware or services to the DoD.

Source and special (SS) nuclear materials, which may be an integral part of the material or equipment described in the following paragraphs, are not to be sold to the DoD, but will be loaned for the intended use with the title to all SS material remaining with the DOE/NNSA.

6.1 Stockpile Support

6.1.1 Sandia National Laboratories

TYPE weapon design requirements are established in joint DOE/NNSA/DoD configuration working group conferences hosted by SNL Military Liaison Department (MLD) (see Chapter 3.6). The DOE/NNSA ensures TYPE weapons and weapon cutaways represent the current War Reserve (WR) configuration to the extent necessary to support the requirements of the user.

Nominally two years before Phase 5 in a weapon program, SNL MLD publishes a Special Equipment List (SEL) for that weapon program. The SEL identifies all of the special equipment the DoD will need to provide operations and maintenance support for that WR weapon and its related TYPE weapons. For each SEL item, identification includes the part number, nomenclature, a statement of how the item is used, and (in the case of new items) a need date and an estimated time from receipt of the order to first delivery.

Nominally two years before Phase 5 in a weapon program, SNL ML hosts a DOE/NNSA/DoD initial provisioning meeting to identify and discuss the spare parts SNL believes the DoD should purchase to support its TYPE 3, 3A, 3B, and 3C TYPE weapons. Spare Parts Lists (SPL) are published after the initial provisioning meeting. The SPLs identify the parts agreed to at the meeting. SNL MLD also recommends to the Defense Threat Reduction Agency (DTRA) the quantities of each part that should be purchased to support the TYPE weapons over the life of the weapon program.

SNL distributes copies of SELs and SPLs to DTRA, NA-122, and appropriate PAs.

6.1.2 Defense Threat Reduction Agency (DTRA)

DTRA distributes the SNL-prepared SELs and SPLs to the appropriate using military services and DTRA offices.

DTRA obtains and consolidates requirements for nuclear ordnance material from the using military services and obtains funding.

DTRA submits reimbursable purchase orders to the NA-122 for special equipment, military spares and TYPE weapons required by the using military services. Each purchase order contains information on the quantity of the item ordered, funds authorized, shipping destination, and desired delivery date.

DTRA submits individual reimbursable purchase orders for funding of repairs of special equipment, TYPE weapons, and military spares.

DTRA issues the following different categories of purchase orders, and NA-122 approves and accepts them for the DOE/NNSA.

Purchase Order No.	Category	Reimbursable	Nonreimbursable
HD1029-XXXX-4XXX	Navy Base Spare Repair		X
HD1029-XXXX-5XXX	Navy Base Spares		X
HD1029-XXXX-6XXX	Military Spares	X	
HD1029-XXXX-77XX	Equipment Requirements Schedule (ERS) Equipment	X	
HD1029-XXXX-77XX	Military Training Weapons /Kits	X	
HD1029-XXXX-79XX	Excess Material		X
HD1029-XXXX-95XX	Off-Schedule Items	X	
HD1029-XXXX-96XX	Repair	X	
HD1029-XXXX-98XX	Loans		X

All reimbursable purchase orders are accepted under the provisions of the Economy Act of 1932, as amended. Nonreimbursable base spares and base spare repair purchase orders are funded by the DOE/NNSA out of the PAs Directed Stockpile Work (DSW) budgets. Loans are recorded by purchase

order even though there are typically no associated reimbursable or DSW costs. The Air Force orders base spares via the BMSS.

6.1.3 Budget and Resources Management Department (BRMD)

The BRMD performs the Budget Office functions of Chapter 13 of the DOE Accounting Handbook.

6.1.4 Financial Services Department (FSD)

The FSD maintains long term accounting information.

NNSA uses the DOE/NNSA full cost recovery pricing policy for sales of new materials, equipment and services to DTRA and DoD agencies from the NNSA weapons program operations.

6.1.5 Office of Nuclear Weapons Stockpile (NA-122)

NA-122 obtains cost and leadtime information for nuclear ordnance material and TYPE weapons.

NA-122 accepts reimbursable purchase orders for SEL items for the DOE/NNSA and schedules production of the ordered items in the ERS PCD. NA-122 forwards a copy of each reimbursable purchase order to the appropriate local DOE/NNSA Site Office for compliance.

NA-122 accepts reimbursable purchase orders for TYPE weapons for the DOE/NNSA, and the appropriate program management group schedules the production of the TYPE weapons in the appropriate weapon PCD. NA-122 forwards a copy of each reimbursable purchase order to the appropriate local DOE/NNSA Site Office for compliance.

NA-122 accepts reimbursable purchase orders for military spares for the DOE/NNSA and forwards a copy of each reimbursable purchase order to the appropriate local DOE/NNSA Site Office for compliance.

For each reimbursable purchase order received, NA-122 will complete the checklist shown in the Appendix to this chapter. Upon successful completion of the checklist, NA-122 will accept the reimbursable purchase order and will schedule the work to be accomplished at the performing agency.

6.1.6 Production Agencies (PA)

Each PA provides NA-122 with a monthly report of the delivery status of each open order.

Chapter 7.4 discusses special equipment in detail. Chapter 7.1 is a detailed discussion of military spares, and Chapter 7.5 discusses ancillary equipment.

6.2 Other DoD Orders

6.2.1 Office of Nuclear Weapons Stockpile (NA-122)

NA-122 ensures a statement of work has been agreed upon (either by MOU or reimbursable proposal) between the DOE/NNSA and DoD for the work to be performed.

Following the release of design drawings by SNL, NA-122 provides the procuring military service with an estimated unit price for ancillary equipment being purchased. The procuring service furnishes NA-122 with a MIPR that states the service's requirements (See 4.1.5). NA-122 accepts the MIPR and schedules production of ancillary equipment in the Reimbursable Equipment Schedule (RES) PCD.

The DOE/NNSA provides a reimbursable repair service to the DoD for all categories of reimbursable items the DoD buys from the DOE/NNSA.

For each MIPR received, NA-122 will complete the checklist shown in the appendix to this chapter. Upon successful completion of the checklist, NA-122 will accept the MIPR and will schedule the work to be accomplished at the performing agency.

6.2.2 Budget and Resources Management Department (BRMD)

The BRMD performs the Budget Office functions of Chapter 13 of the DOE Accounting Handbook.

6.2.3 Financial Services Department (FSD)

The FSD maintains long term accounting information.

NNSA uses the DOE/NNSA full cost recovery pricing policy for sales of new materials, equipment and services to DTRA and DoD agencies from the NNSA weapons program operations.

6.2.4 Military Services

Military service requirements for ancillary equipment evolve from DOE/NNSA/DoD interface at meetings of aircraft and/or aircraft monitor and control project officer groups.

The DOE/NNSA examines each request from the military services for the DOE/NNSA to design and manufacture a new item of ancillary equipment to determine if the item has some unique requirement that would make it less suitable for design and manufacture by a commercial source.

The using military service funds for production of ancillary equipment by providing NA-122 with a Military Interdepartmental Purchase Request (MIPR). Each MIPR contains information on the quantity of the item ordered, funds authorized, shipping destination, and desired delivery date.

The individual military services originate MIPRs for funding of repairs of ancillary equipment.

The using military service originates MIPRs for funding of individual tasks covered by an MOU or reimbursable proposal.

6.2.5 Production Agencies (PA) and Design Agencies (DA)

Each PA or DA provides a task status when requested by NA-122.

7.0 REFERENCES

1. DOE Accounting Handbook Chapter 13
2. DOE (U.S. Department of Energy), "Non-Department of Energy Funded Work," DOE Order O 481.1, Washington, DC, December 19, 1986.

8.0 POINT OF CONTACT FOR ADMINISTRATION

R. Gergan, Office of Nuclear Weapons Stockpile, Stockpile Systems Division, NA 122.1, 505-845-5192 is responsible for this chapter.

9.0 APPENDIX

NNSA Determinations and Certification Form for DoD Reimbursable Work.

APPENDIX
NNSA DETERMINATIONS AND CERTIFICATION FORM FOR DOD REIMBURSABLE WORK

A. General Information

MOU or Proposal No.: _____

Sponsor: _____

Order No.: _____

Brief Description: _____

B. Compliance with Laws, Orders, and Regulations:	YES	NO
1. Consistent with or complementary to DOE/NNSA's missions and the missions of the facility to which the work is to be assigned		
2. Acceptance of work would not adversely impact execution of assigned programs of the facility		
3. Acceptance of work would not place the facility in direct competition with the domestic private sector		
4. Acceptance of work would not create a detrimental future burden on DOE/NNSA resources		
5. Sponsor's statement of compliance with		
a. Federal Acquisition Regulation (FAR) 6.002		
b. Economy Act of 1932, as amended,		
c. Statement of noncompetition with the domestic private sector		
6. Classification guidance has been provided by the sponsor. If classified, special security interest (if applicable) have been registered through approval of DOE F 5600.2 “Facility Data and Approval Record (FDAR)” per DOE Order 470.1		
7. Incremental funding required. If yes, complies with Chapter 13 - Doe Accounting Handbook		

C. Comments (reference item number)

Based on completion of my review of the above work, I conclude that appropriate determinations have been made as required by DOE O 481.1, and hereby recommend certification of determinations and DOE/NNSA acceptance.

_____ _____

OWPM Staff Member Date

_____ _____

OWPM Program Manager Date

I hereby certify that the work to be performed complies with DOE/NNSA policy as stated in DOE O 481.1.

_____ _____

Contracting Officer Date

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 1.6: PRODUCTION MISSION ASSIGNMENT

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1.0 OBJECTIVE

- Describe the National Nuclear Security Administration (NNSA) process for issuing production mission assignments to the nuclear weapons production complex that includes assignments at both Production Agencies and Design Agencies.
- Assign production missions in a manner that will maximize overall effectiveness and efficiency in the Nuclear Weapons Complex (NWC) considering factors that include: cost, maintaining unique production capabilities and procurement responsibilities and the related technological bases at each production site, opportunities to co-locate design and manufacturing activities at the same site, minimizing the total number of interplant shipments and the number of sites through which each product must flow, schedule of when capability/capacity will be available, present and future workload, compatibility with present assignments, environmental considerations, safety, etc.

2.0 BACKGROUND

This is a new chapter to the Development and Production Manual established to formally document the process for assigning and changing NWC mission assignments.

3.0 APPLICABILITY

These requirements apply to the DOE/NNSA Office of Defense Programs, NA-10 Organizations, Site Offices, Service Center, and DOE/NNSA contractor organizations with the responsibility for executing any phase of the nuclear weapons program.

4.0 DEFINITIONS

See the Glossary, Acronym, & Cross Reference (GAC) Section.

5.0 REQUIREMENTS & RESPONSIBILITIES

5.1 Office of Strategic Planning and Analysis (NA-131)

The Office of Strategic Planning and Analysis (NA-131) is the NNSA lead organization for production mission assignments and production mission assignment activities. All proposed new or revised production mission assignments or clarifications to mission assignments and related activities will be coordinated through NA-131. The NA-131 will maintain and periodically update the Production Mission Assignment Document. Upon learning of the

potential for a new production mission assignment, the NA-131 will make a determination whether or not a mission assignment study must be made before a new production mission assignment is made. If the decision is made that a mission assignment study will be needed, the NA-131 will determine the depth of the mission assignment study. Additionally, NA-131 will initiate and lead the study. The NA-131 will document the new or proposed production mission assignment change, the study charter, study results, and any recommendation(s) made with regard to production mission assignments.

A production mission assignment study will look at the scope, cost, and schedule for establishing a new mission at one or more site(s). In addition, impact of the new assignment on effectiveness and efficiency in intraplant and interplant production operations, and the effect on interplant product flow will be evaluated. While cost will play a part in any mission assignment, other factors such as: present and future site workload, compatibility with present assignments, environmental and safety considerations, etc., will also be considered and may contribute to the basis in any recommendation with regard to production mission assignments.

The NA-131 will ensure that adequate consideration has been given to buying materials and/or components from private industry before new in-house capabilities are initiated for such items.

The NA-131 recommends new production mission assignments for approval by the NNSA Deputy Administrator for Defense Programs. Production mission assignments that have been approved by the NNSA Deputy Administrator for Defense Programs are issued by memorandum or by revision to the Production Mission Assignment Document.

In order to address the necessity to keep activities moving where there is a pressing need, especially for development work on a new material, product, or process, NA-131 can issue an interim mission assignment. This interim assignment is only temporary until the completion of the formal study and formal mission assignment. The issuance of an interim assignment to a site does not mean that the formal assignment will necessarily go to the same site.

If NA-131 determines a clarification or change is necessary but in their evaluation it is minor in nature and does not require a formal mission assignment study, the NA-131 will issue a interim change to the Production Mission Assignment Document and the clarification or change will be made permanent at the next update to the document.

In those cases where the NA-131 determines that the potential new production mission assignment is already covered in the existing Production Mission Assignment Document, it will issue that determination and will, if necessary, make clarification to the document at the next update.

In all of the above three cases, the NA-131 will document its evaluation and conclusions as part of the backup file material for production mission assignments.

5.2 Design Agencies

The design agencies (DAs), cognizant of each production site's generic mission, shall place development orders accordingly. If the DAs require work of a site in a new technology that is expected to be put into war reserve and for which no production mission assignment exists, the DAs shall request that a mission assignment determination be made before issuance of reimbursable orders. The objective is that development activities be done at the same site where production is logically expected to follow, and that questions concerning the appropriateness of assigning the mission to that site be directed to NA-131 before committing reimbursable funds. In cases where necessary, NA-131 can issue an interim production mission assignment.

In those cases where the DA is being considered for a new or revised production mission assignment, their participation in any study is mandatory. For other mission assignment studies, the DAs will participate as requested by NA-131.

If a DA identifies what it thinks is a potential new production mission assignment or a change to an existing production mission assignment, it will notify NA-131.

5.3 Office of Military Application and Stockpile Operations (NA-12)

The Assistant Deputy Administrator for Military Application and Stockpile Operations must concur on new production mission assignments or revisions to existing assignments prior to going to the Deputy Administrator for Defense Programs for approval.

In the case of the offices (NA-121, NA-122, NA-123, and NA-124) under NA-12, they shall review their programs and/or campaigns for any proposed specific weapon system production or evaluation assignments or changes to existing assignments to determine if the potential exists for a new production mission assignment. If the potential exists for a new production mission assignment or a change to an existing production mission assignment, NA-131 will be notified.

In the case of a new production mission assignment or revision to an existing assignment, the cognizant office (NA-121/122 for surveillance, NA-122 for production, and NA-124 for strategic material) will be requested to concur prior

to the mission assignment going forward to senior management in Defense Programs.

For a new or revised production mission assignment that comes out of a campaign under NA-123, both NA-123 and the cognizant office affected by the mission assignment will be requested to concur prior to the mission assignment going forward to senior management in Defense Programs.

Personnel in the NA-12 organizations will participate in production mission assignment studies as requested by NA-131.

5.4 NNSA Site Offices

NNSA Site Offices monitor reimbursable orders sent to production sites to identify potential new production missions or changes to existing assignments. When potential new missions or change to an existing assignment are identified, the local office will notify the NA-131.

Site Office personnel will participate in production mission assignment studies that have an impact on their site's production mission assignments, (either a new mission assignment or revision to an existing mission assignment) and will participate in other mission assignment studies as requested by NA-131.

5.5 Production Agencies

In those cases where a production agency (PA) is being considered for a new or revised production mission assignment, their participation in any study is mandatory. For other mission assignment studies, the PAs will participate as requested by NA-131. All requests for PA participation will be coordinated through their local NNSA site office.

If a PA identifies what it thinks is a potential new production mission assignment or a change to an existing production mission assignment, it will notify NA-131 prior to expending funds for research or development of such capability or mission assignment. Note: this is not intended to suppress Plant Directed Research and Development (PDRD) projects or Laboratory Directed Research and Development (LDRD) projects.

5.6 NNSA Deputy Administrator for Defense Programs

The NNSA Deputy Administrator for Defense Programs is responsible for approving all production mission assignments. The NNSA Deputy Administrator for Defense Programs' signature on either a memorandum of mission assignment change/revision or on the issuance of a revised Production Mission Assignment Document signifies Defense Program's approval.

Figure 1.6-1 illustrates the process of making new or revised production mission assignments.

6.0 REFERENCES

1. Current version of the classified Production Mission Assignment Document

7.0 POINT OF CONTACT FOR ADMINISTRATION

Director, Office of Strategic Planning and Analysis, NA-131, (505) 845-5194

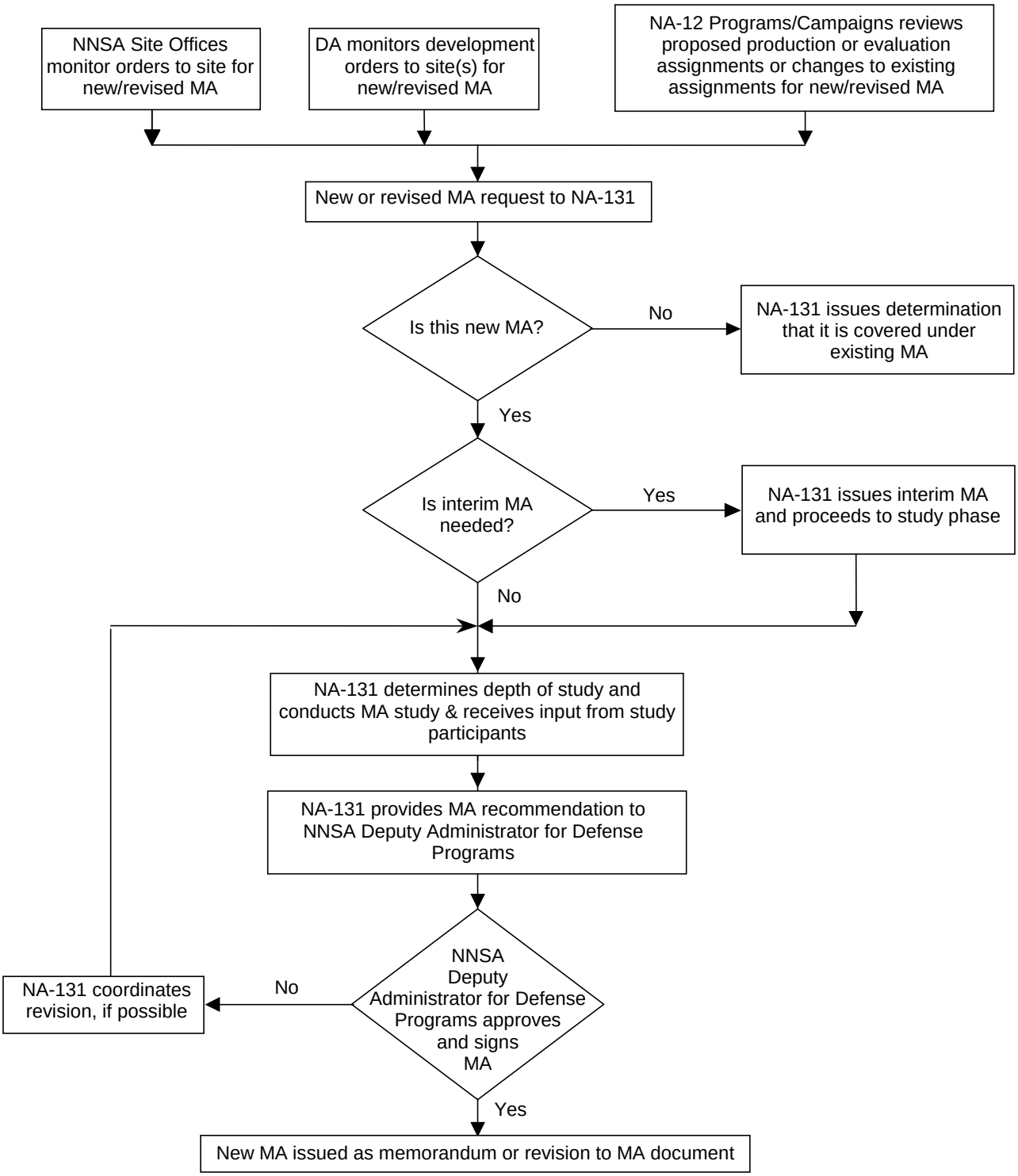

Figure 1.6-1. Flow Diagram Production Mission Assignment Process

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 1.7: JOINT NUCLEAR WEAPONS PUBLICATION SYSTEM

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1.0 OBJECTIVE

Describe the participation and responsibilities of the Department of Energy/National Nuclear Security Administration (DOE/NNSA) in the creation and maintenance of the documents published as part of the Joint Nuclear Weapons Publication System (JNWPS).

2.0 BACKGROUND

The JNWPS is detailed in the referenced DOE-Department of Defense (DoD) Memorandum of Understanding[1] (MOU) and in Technical Publication (TP) 1-1.[2]

3.0 APPLICABILITY

These requirements apply to the DOE/NNSA Office of Defense Programs, NA-10 Organizations, Site Offices, Service Center, and DOE/NNSA contractor organizations with the responsibility for executing any phase of the nuclear weapons program.

4.0 DEFINITIONS

See the Glossary, Acronym, & Cross Reference (GAC) Section.

5.0 REQUIREMENTS and RESPONSIBILITIES

5.1 Defense Threat Reduction Agency (DTRA)

- Provides a centralized point of contact for DOE/NNSA, Sandia National Laboratories (SNL), and the military services for day-to-day JNWPS activities. Activities include all administrative aspects such as publication format and structure, information organization, writing, editing, review and coordination, distribution, changes, updates, compromises, Freedom of Information Act requests, releases to foreign countries, and rescissions.
- Maintains JNWPS publications and activities for DOE/NNSA and the military services, and chairs a council to oversee JNWPS activities among DTRA, DOE/NNSA, DoD and, when required, secures concurrence from DOE/NNSA and the military services.
- Hosts a monthly JNWPS council meeting to address and resolve issues related to JNWPS publications and hosts TP working group meetings to review proposed publication revisions.

5.2 Deputy Administrator for Defense Programs (NA-10)

NA-10 is the principal DOE/NNSA administrator of JNWPS.

5.3 Office of Nuclear Weapons Stockpile (NA-122)

NA-10 has assigned NA-122 the day-to-day responsibility of complying with the referenced MOU.

- Provides the NNSA JNWPS point of contact for SNL and DTRA.
- Represents DOE/NNSA on the JNWPS council and at TP working group meetings.
- Reviews draft copies of proposed JNWPS publications.
- Develops DOE/NNSA policy statements for inclusion in JNWPS publications and, when required, prepares, coordinates, and transmits written replies on policy issues to DTRA.
- Develops criteria for determining the responsiveness of DOE/NNSA and SNL in fulfilling DoD expectations, and periodically conducts joint reviews with DTRA of the status and quality of JNWPS publications. Such reviews are conducted at least annually and may be combined with the joint DTRA and military services' meeting on JNWPS.
- Develops performance measurement criteria to determine the overall effectiveness of JNWPS activities to meet customers' expectations.
- Identifies and documents JNWPS issues, develops required corrective actions, and ensures their implementation.
- Receives four copies of draft JNWPS publications. These copies are distributed to the weapon system program engineer, the Office of Nuclear Weapons Surety and Quality (NA-121), and the National Security Department (NSD) for comments. As required, NA-122 will distribute copies to other affected organizations.
- Provides SNL Military Liaison Engineering (MLE) Department written coordinated comments on draft JNWPS publications.
- Ensures all comments have been addressed in final JNWPS publications before NA-122 authorizes SNL to release DTRA Form 127 to DTRA.
- Maintains a log system for receipt of draft JNWPS publications and transmittal of comments to SNL.
- Participates in TP working group meetings and, as required, secures participation by other NNSA organizations in those working groups.
- Ensures a copy of all permanent TPs is maintained.
- Ensures the appropriate stockpile program personnel within NA-122 review draft TPs and provide any comments in writing to ensure: (1) technical completeness of information and instructions for DOE/NNSA-supplied materials and (2) appropriate classification markings have been applied.

5.4 Office of Nuclear Weapons Surety and Quality (NA-121)

NA-121 reviews and concurs with procedures, processes, and instructions contained in JNWPS publications. To ensure the quality assurance of DOE/NNSA-fielded material, NA-121 participates in Laboratory Task Groups (LTGs) and Joint Task Groups (JTGs), when appropriate, and concurs in the issuance of Special Procedures (SPs) and Product Change Proposals (PCPs).

5.5 National Security Department (NSD) (NNSA Service Center)

- Reviews procedures, processes, and instructions contained in JNWPS publications that involve nuclear explosive safety issues and, when requested, provides comments to NA-122.
- Provides written comments to NA-122 on draft copies of proposed JNWPS publications.

5.6 Sandia National Laboratories, Military Liaison Departments (MLDs)

MLDs – Military Liaison Engineers (MLE) and Military Liaison Technical Publications (TLTP).

- Act as single-point agents for DOE/NNSA and the nuclear weapons complex concerning coordination of JNWPS publications and related activities with DTRA.
- Maintain organizational elements and operating processes that fulfill DOE's requirements contained in TP 1-1.
- Develop a formal document, for NA-122 concurrence, that delineates how SNL will carry out its JNWPS agent responsibilities for DOE/NNSA.
- Provide NA-122 (three copies) and NA-121 (one copy) of prepared LTGs, JTGs, SPs, and PCPs.
- Act as the DOE/NNSA point-of-contact for DTRA on day-to-day JNWPS activities. MLDs are responsible for coordinating with appropriate NNSA offices, other SNL organizations (as required), nuclear design agencies (DAs), and Production Agencies (PAs) in preparing, validating, verifying, publishing, and maintaining the TPs' source data covering hardware and information under DOE/NNSA cognizance.
- Provide four draft copies of all TP and source data manuals, including all proposed changes to them, to NA-122.
- Sign DTRA Form 127 for authorization to print after receiving NA-122 concurrence.
- Perform routine working and administrative functions to accomplish their responsibilities as agents and single points of contact. All unresolved policy and routine matters are coordinated with NA-122 for DOE/NNSA resolution as provided in the MOU.[1]

- Provide NA-122 a written reply when comments are not incorporated in TP or source data manuals.

6.0 REFERENCES

1. U.S. Department of Energy and U.S. Department of Defense (DOE-DoD), Memorandum of Understanding, "The Preparation, Publication, and Maintenance of Technical Publications in the Joint Nuclear Weapons Publication System," AT(29-2)-3230, March 17, 1992.
2. U.S. Department Energy-Defense Nuclear Agency (DOE-DNA), Technical Publication TP 1-1, "Joint Nuclear Weapons Publication System Operating Procedures, Specifications, and Standards" (current version)

7.0 POINT OF CONTACT FOR ADMINISTRATION

Program Analyst, Office of Nuclear Weapons Stockpile, Stockpile Systems Division, NA-122.1, 301-903-3441, is responsible for this chapter.

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 2.1: USE OF A PRODUCT THAT DOES NOT MEET SPECIFICATIONS

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1.0 OBJECTIVE

1. Describe agency responsibilities for authorizing use of a weapon product that departs from specified requirements.
2. Minimize the use of product that does not meet defined specifications. Exceptions to this policy will be based upon the following two circumstances:

   a. A weapon product that departs from specifications may be used in an unrestricted or a restricted application upon issuance of a Specification Exception Release (SXR).
   b. Material that does not qualify for an SXR but whose specified requirements have been waived (usually referred to as waived weapon material) may be authorized for use by a production waiver. Production waivers are granted only if there is no affect on weapon safety and when there is an urgent need for the material to meet an Ultimate User (UU) requirement and when both the Office of Nuclear Weapons Stockpile (NA-122) and the UU agree, the material should be delivered.

2.0 APPLICABILITY

These requirements apply to the DOE/NNSA Office of Defense Programs, NA-10 organizations, Site Offices, NNSA Service Center, and DOE/NNSA contractor organizations with the responsibility for executing any phase of the nuclear weapons program.

3.0 DEFINITIONS

See Glossary, Acronym, & Cross Reference Section.

4.0 REQUIREMENTS AND RESPONSIBILITIES

4.1 Specification Exception Release (SXR) Decisions and Processing

4.1.1 Design Agencies (DAs)

DAs are responsible for providing guidance on the use of a product that does not meet the product specifications. For discrepant, DOE/NNSA-supplied material, the DA must contact the Department of Defense (DoD) contractor to negotiate technical details concerning the material and must contact NA-122 to determine administrative requirements for resolving the discrepancy.

DAs may delegate to Production Agencies (PAs) the authority to issue designated types of SXRs provided the following conditions are met.

- The scope of the authority is clearly defined.
- Concerned NNSA officials receive notice of the delegation of authority.
- Procedures are established to ensure the concerned local DOE/NNSA Site Office and DA are advised of all PA actions.
- The DA promptly reviews PA actions and rejects any unsatisfactory actions.

4.1.2 Production Agencies

PAs are responsible for requesting use of a product or of DoD-supplied material that does not completely meet specifications and for submitting that request to the DA.

If the PA is authorized to approve and issue an SXR, the PA promptly notifies the DA when these SXRs are issued.

4.2 Production Waiver Decisions and Processing

4.2.1 Production Agencies

PAs notify appropriate DAs that a material does not meet product definition specifications and does not qualify for an SXR but may be needed to meet an urgent requirement and, therefore, should be considered for a production waiver.

The PA attaches a copy of the production waiver to each major assembly containing waived material.

4.2.2 Design Agencies

DAs evaluate the non-conforming material for use as waived material when it is urgently needed to meet UU requirements. If a production waiver is considered technically feasible, the DA contacts NA-122.

If NA-122 determines a production waiver will be used, the DA creates and submits the proposed production waiver to NA-122 for approval and for coordination with Defense Threat Reduction Agency (DTRA). The DA and NA-122 determine the process and schedule for replacement of the material and/or for changes in the material status.

The DA sends an advance copy of the approved production waiver to the PA that has responsibility for delivery of the assembly. This copy authorizes inter-project shipment of the components that do not meet specifications.

If DAs conclude the material is not urgently needed as to require a production waiver, or a production waiver is not technically feasible, the DAs may ask the PAs to rework the material or not use it.

4.2.3 Office of Nuclear Weapons Stockpile (NA-122)

If NA-122 determines a production waiver will be used, NA-122 notifies the DA.

If NA-122 determines a production waiver will not be used, NA-122 requests the DA instruct the PA to rework or replace the material. If rework or replacement cannot support the production schedule, NA-122 notifies DoD.

NA-122 approves the production waiver and coordinates production waiver processing. If NA-122 does not approve the waiver, NA-122 will provide the objectionable issues to the DA for consideration. Resubmittals will be processed in the same manner.

NA-122 forwards a copy of the approved production waiver to DTRA for distribution within DoD.

NA-122 sends the official copy of the production waiver to the DA for completion, reproduction, and distribution.
Figure 2.1-1 illustrates the decision making and processing for production waivers.

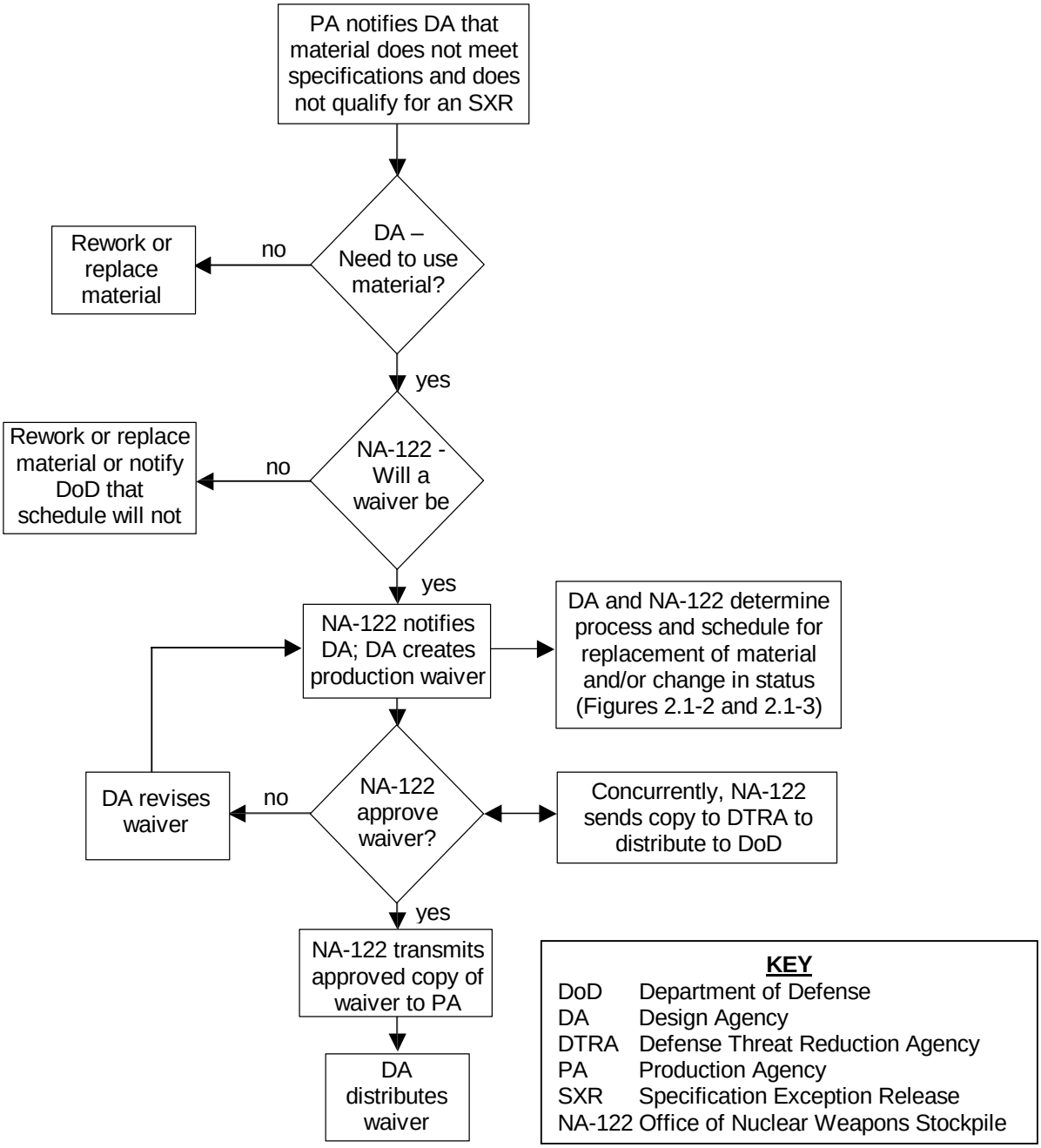

Figure 2.1-1. Production Waiver Decisions and Processing

4.3 Replacement of Waived Material

Figure 2.1-2 illustrates the process to replace waived material.

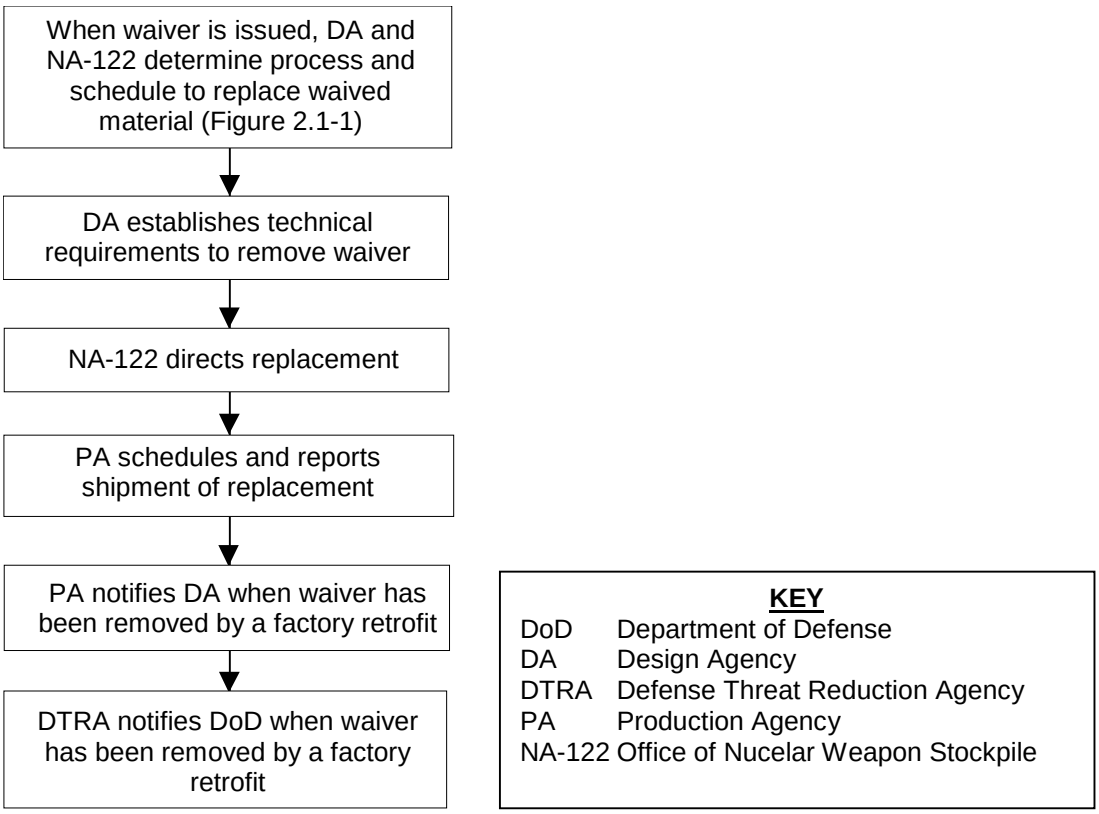

Figure 2.1-2. Replacement of Waived Material

4.3.1 Design Agencies

When the production waiver is issued, the DA and NA-122 determine the process and schedule for replacing waived material (Figure 2.1-2).

DAs establish technical requirements for removal of production waivers.

4.3.2 Production Agencies

PAs schedule replacements and report shipment(s) of waived material replacements as directed by NA-122. The PA notifies the DA when the waiver has been removed by a factory retrofit.

4.3.3 Defense Threat Reduction Agency

DTRA reports via the military reporting system to DoD agencies when a waiver has been removed by a field retrofit.

4.4 Change in Status of Waived Material

Figure 2.1-3 illustrates the necessary steps to revise a production waiver.

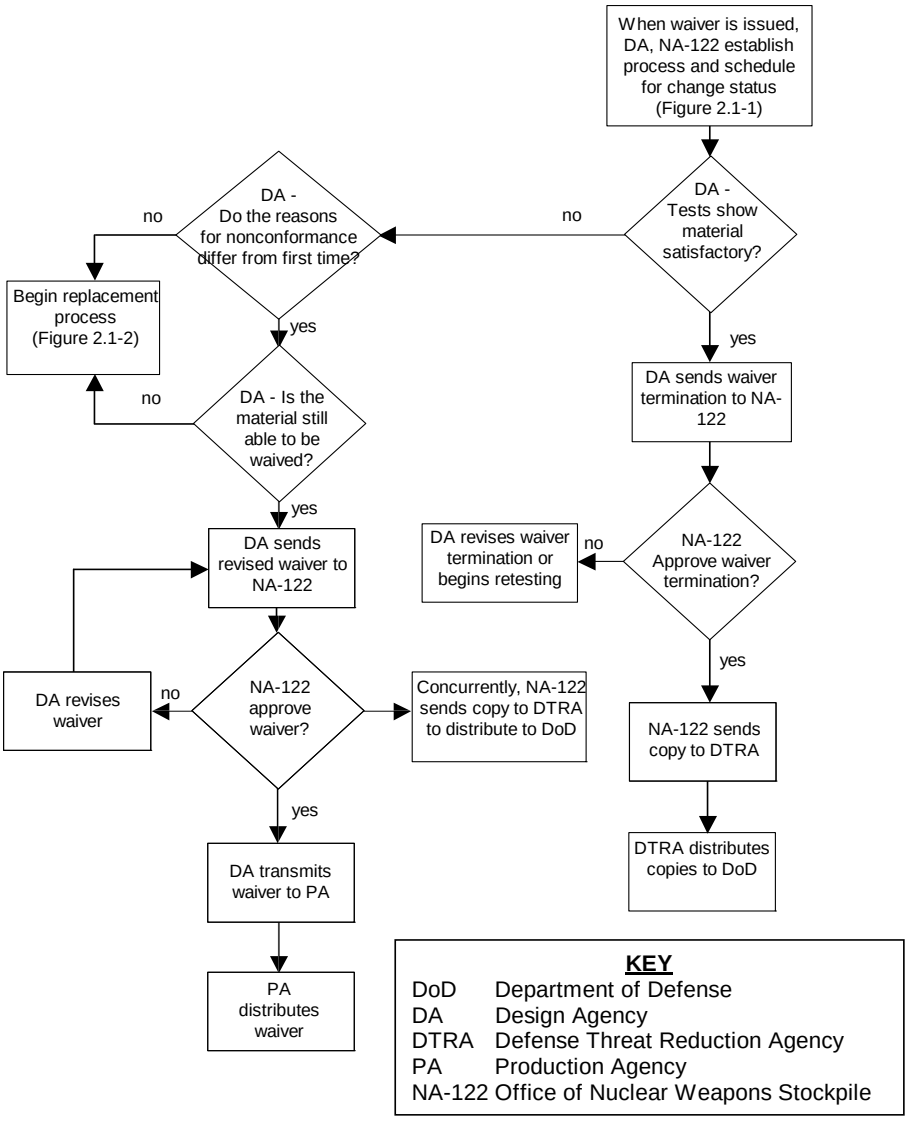

Figure 2.1-3. Change of Status of Waived Material

4.4.1 Design Agencies

When a waiver is issued, the DA and NA-122 establish a process and schedule for changes in status (Figure 2.1-3).

When tests indicate previously waived material is not satisfactory for reasons other than those stated in the original waiver, the DA may issue a revised waiver or recall the material. Revised waivers are coordinated and approved in the same manner as the original waiver (see b).

When tests indicate waived material is satisfactory and no longer requires a waiver, the DA issues a waiver termination notice. This notice requires NA-122 approval and is sent by the DA to all recipients of the waiver.

4.4.2 Office of Nuclear Weapons Stockpile (NA-122)

NA-122 transmits a copy of the waiver termination notice to DTRA.

4.4.3 Defense Threat Reduction Agency

DTRA distributes the waiver termination notice to DoD agencies.

5.0 POINT OF CONTACT

J, Gazda, Director, Office of Nuclear Weapons Stockpile, Stockpile Systems Division, NA-122.1, 301-903-2984, is responsible for this chapter.

6.0 APPENDICES

Appendix A: Discrepant DoD-supplied Material
Appendix B: Identification Procedures

APPENDIX A
DISCREPANT DoD-SUPPLIED MATERIAL

Discrepant DoD-supplied material falls into one of the following categories:

(1) New DoD material with discrepancies present upon receipt at a DOE/NNSA production agency,

(2) New DoD material damaged during DOE/NNSA processing,

(3) DoD material contained in weapons returned from the field for repair or factory retrofit, or

(4) Material involved in operations for new material and stockpile laboratory tests (if the material has been released or disposition provided by Sandia National Laboratories Quality Assessment Department).

APPENDIX B
IDENTIFICATION PROCEDURES

Production agencies identify waived material with the use of a tag, stencil, stamp, or other marking. The identification remains with the waived material until it is replaced by permanent marking on the waived material and/or its higher assembly.

All markings for waived material shall contain code numbers as follows:

--letter "W" to denote waived material,
--waiver serial number,
--DOE/NNSA symbol denoting the production agency,
--last two digits of the current calendar year, and
--DOE/NNSA symbol for the originating design agency.

An example of waived material code numbers follows.

W7PX98LA= **W Production waiver**
7--waiver serial number
PX--production agency symbol (e.g., Pantex)
98--1998
LA--design agency symbol (Los Alamos National Laboratory)

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 2.2: STOP WORK

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	Original Release 02-27-2004
B	Change 9, 02-15-2007
C	Change Notice 4 dated 03-27-2013, FCO20131906SA effective 07-01-2013
D	**Change Notice 13 dated 12-22-2015, FCO20155736SA effective 01-01-2016**

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1.0 OBJECTIVE (Revised by R008/T082 per Change Notice 4 and reference IER 20130058SA)

The objective of this chapter is to:

- ~~define a "Code Blue" situation and the expected level of response and associated action,~~
- describe the applicability, requirements, and authorities for issuing and rescinding a Stop Work notice, and
- describe the joint responsibilities regarding Stop Work situations and the issuance/rescission of Stop Work notices between the National Nuclear Security Administration (NNSA), national laboratories, and production site management.

2.0 APPLICABILITY (Superseded by R017 per Change Notice 13 reference IER 20156016SA)

Requirements herein apply to:

- Department of Energy (DOE)/NNSA Defense Programs organizations,
- National laboratories (Sandia National Laboratories (SNL), Lawrence Livermore National Laboratory (LLNL), Los Alamos National Laboratory (LANL), and
- production sites responsible for executing any phase of the nuclear weapons program including life extension programs, surveillance, maintenance, and dismantlement.

The scope of issues resulting in a Stop Work Notice includes:

- ~~emerging safety information related to nuclear or nuclear explosive operations, and~~
- Quality assurance issues relating to ultimate user deliveries to the field.

3.0 DEFINITIONS

See Glossary, Acronym, & Cross Reference Section.

4.0 REQUIREMENTS

4.1. Code Blue Declarations (Superseded by R008/T082 per Change Notice 4 and reference IER 20130058SA)

4.2. Stop Notices

4.2.1. When Stop Production Notices May Be Issued (Revised by R008/T082 per Change Notice 4 and reference IER 20130058SA)

~~In some cases, the severity and complexity of the Code Blue situation may result in the formality and documentation delineated in a Stop Notice~~. Stop Notices are issued when the design agency and production agency responsible for a specific nuclear or nuclear explosive operation activity such as Seamless Safety for the 21st Century or weapon component production determines that associated ongoing work must cease until resolution occurs. Stop work notices are issued regardless of delays to ongoing activities, operations, or hardware production.

4.2.2. Types of Stop Notices (Superseded by R017 per Change Notice 13 reference IER 20156016SA)

Stop Notices are issued:

- ~~to stop nuclear or nuclear explosive operations or related activities due to an identified emergent safety or security issue;~~
- to stop production or acquisition of hardware or material due to a quality-related issue; and
- ~~to prevent shipment of material deemed unsatisfactory for delivery to next assembly or the Department of Defense.~~

NOTE: The authority to stop ongoing work due to an imminent safety concern still exists and is not affected by the guidance in this chapter.

4.2.3. Stop Notice Contents

The notification shall include:

- the name and title of the Stop Notice approving authority within NA-12 and the appropriate design agency manager;
- an explanation of the problem resulting in the work to be stopped;
- a brief description of the resolution and engineering change being evaluated to alleviate or mitigate the problem;
- an estimated duration of the time that operations, activities, or production will be stopped and a proposed recovery plan and actions for resumption.

- an estimate of the effect the stoppage will have on acceptance schedules for final assembly weapons; and
- a reference to a peer reviewed justification for stopping nuclear explosive operations.

4.3. Rescission Notices

Once it has been determined that there is no longer a need to continue the Stop Notice, a Rescission Notice shall be issued.

4.3.1. Rescission Notice Contents

The notification shall include:

- the name and title of the rescission approving authority within NA-12 and the appropriate design agency manager and site manager;
- an explanation of the how the problem was solved so that the operation; activity, production, or delivery can resume;
- the actual amount of time of the stop; and
- subsequent corrective actions to prevent additional stops related to the same issue.

5.0 RESPONSIBILITIES

5.1. Assistant Deputy Administrator for Military Application and Stockpile Operations (NA-12)

The NA-12 jointly approves stop production notices and their rescission with the appropriate authority at the affected design and production agencies.

5.2. Design Agencies

Design agencies transmit stop production notices to all affected agencies, including the Office of Nuclear Weapons Stockpile and the local DOE/NNSA site office of the affected production agency.

5.3. Sandia National Laboratories (SNL)

The SNL vice president of weapon programs approves stop production notices and their rescission if the notice affects SNL.

5.4. Lawrence Livermore National Laboratory (LLNL)

The LLNL weapons division leader approves stop production notices and their rescission if the notice affects LLNL.

5.5. Los Alamos National Laboratory (LANL)

The LANL associate laboratory director for nuclear weapons approves stop production notices and their rescission if the notice affects LANL.

5.6. Production Site

When related to emergent safety and security issues, appropriate NNSA site manager and M&O contractor General Manager concur with stop production notices and approve their rescission.

6.0 POINT OF CONTACT FOR ADMINISTRATION

J. Gazda, Director, Stockpile Systems Division, Office of Nuclear Weapons Stockpile, 301-903-2984, is responsible for this chapter.

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Chapter 2.4: MAJOR ASSEMBLY RELEASE AND HOLD ORDER

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	Original Release 02-27-2004
B	Change Notice 8 dated 08-26-2013, FCO20140272SA effective 03-31-2014
C	**Change Notice 10 dated 05-15-2015, FCO20152801SA effective 10-01-2015**

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1.0 OBJECTIVE (ECR references superseded by R019 per Change Notice 10 and IER 20150059SA)

- Establish the Department of Energy (DOE)/National Nuclear Security Administration (NNSA) responsibilities for preparing, approving, and releasing the Major Assembly Release (MAR) ~~and the Emergency Capability Release (ECR).~~
- Establish responsibilities for preparing, approving, releasing, and terminating hold orders.

2.0 APPLICABILITY

These requirements apply to the DOE/NNSA Office of Defense Programs, NA- 10 organizations, Site Offices, NNSA Service Center, and DOE/NNSA contractor organizations with the responsibility for executing any phase of the nuclear weapons program.

3.0 DEFINITIONS

See the Glossary, Acronym, & Cross Reference (GAC) Section.

4.0 REQUIREMENTS and RESPONSIBILITIES

4.1. General (ECR references superseded by R019 per Change Notice 10 and IER 20150059SA)

- MARs will be issued for all War Reserve (WR) major assemblies for which DOE/NNSA has design, development, and production responsibility.
- ~~ECRs will be issued when all MAR prerequisites have not been satisfied, but the Department of Defense (DoD) has established an emergency capability requirement.~~
- Hold orders will be issued when necessary to prohibit the operational use of major assemblies previously released by a MAR or ECR.

4.2. Major Assembly Release ~~and Emergency Capability Release~~ (ECR references superseded by R019 per Change Notice 10 and IER 20150059SA)

4.2.1. Sandia National Laboratories

SNL must meet the following requirements before releasing the initial MAR ~~or ECR~~.

- The weapon major assembly must be adequately defined by design drawings and specifications.
- Engineering/Qualification Evaluations must be completed for qualification samples that indicate acceptance or conditional acceptance of components, subassemblies, and the assembly to be released. The appropriate DA must review conditionally accepted material and its disposition determined.
- SNL must complete reports indicating acceptance of all SNL-designed test, handling, and disablement equipment.
- SNL must evaluate the compatibility of the product with each delivery vehicle(s) designated by Military Characteristics (MCs) before including these delivery vehicles on the release.

SNL prepares the initial MAR ~~and ECR,~~ and all reissues, in coordination with the cognizant nuclear DA. Subsequent to NNSA review and concurrence, SNL issues these documents to the Defense Threat Reduction Agency (DTRA) for distribution to the military services before initial delivery of material to DoD. Initially, a MAR is issued concurrently with NNSA acceptance of the first WR major assembly (First Production Unit).

No partial deletions are made until SNL sends a MAR/Aircraft Compatibility Control Document (ACCD); complete deletions require final approval from SNL Surety Assessment Center.

At a minimum, the MAR ~~or ECR~~ contains the following information:

- all limitations and exceptions that restrict storage, military planning, and use.
- DOE/NNSA-DoD production nomenclature for the released weapon major assemblies;
- effective release date [as assigned by NNSA/Office of Nuclear Weapons Stockpile (NA-122)], release number, and the date and number of the superseded release, if applicable;
- references to pertinent military requirements and development data (MCs, Stockpile-to-Target Sequence, etc.) that specify dates and amendments;
- statement on yield to include fission yield, fusion yield and total yield;
- LLCE interval;
- brief statement of the reasons for issue or reissue;
- system compatibility control drawings;
- recommendation and approval signatures; and
- distribution.

~~SNL reissues an MAR or ECR when:~~

- ~~modification number changes,~~
- ~~capability or uses of the major assembly change, or~~

- ~~limitations and exceptions of the major assembly change. SNL notifies DTRA when a weapon system is to be partially or completely deleted from technical publication (TP) 50-7.[1]~~

4.2.2. Department of Energy/NNSA and Defense Threat Reduction Agency

Before initial preparation of the MAR ~~or ECR~~, DOE/NNSA and DTRA publish and distribute to the military services a complete file of specific weapon manuals or TPs that provide for proper handling, storage, maintenance, and employment of the product by DoD. This file includes the availability of required source data for incorporation into military service publications.

4.2.3. Sandia National Laboratories, Los Alamos National Laboratory (LANL), and Lawrence Livermore National Laboratory (LLNL) (Superseded by R006 per Change Notice 8 and reference IER20132739SA)

4.2.4. NNSA/Office of Nuclear Weapons Stockpile (NA-122) (Revised by R006 per Change Notice 8 and reference IER20132739SA)

~~The appropriate NA-122 Program Manager concurs with the approval of the MAR or ECR. After concurrence, the NA-122 Program Manager will advise SNL to issue these documents. Concurrence of a MAR or ECR by NNSA/NA-122 should be completed in six weeks or less.~~

When a partial or complete deletion of a weapon system from TP 50-7, “Major Assembly Releases for War Reserve Munitions”, must be made, the appropriate NA-122 Program Manager notifies the NNSA Office of Nuclear Weapons Surety and Quality (NA-121), SNL Surety Assessment Center, and the writers of MARs and ACCDs.

4.3. Hold Orders

4.3.1. Design Agencies

The appropriate DA initiates and approves hold orders and submits them for concurrence by the appropriate NA-122 Program Manager. The request for concurrence should identify the effective date, major assembly or material affected by the order, reason for issuing the order, and the corrective action to be taken. Initiation and approval of Hold Orders by the responsible DA should be completed in six weeks or less. Concurrence of Hold Orders by NA-122 should be completed in six weeks or less.

After NA-122 Program Manager concurrence, SNL releases the hold order to DTRA.

After corrective action on the material has been completed, SNL initiates correspondence to terminate the hold order. The termination letter should contain a description of the corrective action taken and be submitted to the appropriate NA-122 Program Manager for concurrence.

4.3.2. NNSA/NA-122 Program Manager

The appropriate NA-122 Program Manager concurs with both the issuance and termination of hold orders. The NA-122 Program Manager confirms in writing any oral concurrence of issuance or termination.

5.0 REFERENCES

1. DOE-DNA (U.S. Department of Energy-Defense Nuclear Agency), "Major Assembly Releases for War Reserve Weapons" (U), DNA Technical Publication 50-7 (Secret) (current version).

2. Production and Planning Directive 2004-0, and subsequent revisions.

6.0 POINT OF CONTACT FOR ADMINISTRATION (Revised by R006 per Change Notice 8 and reference IER20132739SA)

~~J. Gazda, Director, Office of Nuclear Weapons Stockpile, Stockpile Systems Division, NA-122.1, 301-903-2984, is responsible for this chapter.~~ The Office of Nuclear Weapon Stockpile (NA-122) is responsible for this content.

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 2.5: PRODUCTION AGENCY REQUIREMENTS FOR PAL-EQUIPPED UNITS

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	IER_____

	REV.	CHANGE	DATE	PAGE NO.
56XB	**2**		**February 27, 2004**	**1**

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1.0 OBJECTIVE

Describe the Department of Energy/National Nuclear Security Administration (DOE/NNSA) responsibilities for Permissive Action Link (PAL) operations on War Reserve (WR) and Joint Test Assembly (JTA) weapons equipped with PAL.

2.0 BACKGROUND

All PAL code and key materials, internal or external to the weapon, are protected consistent with Department of Defense (DoD) Nuclear Command and Control (NC2) material protection requirements (e.g., Technical Publication (TP) 50-2[1], CJCSI 3260.01[2]).

DOE/NNSA requirements for PAL operations at a Production Agency (PA) are defined in SB709698 (formerly SB399290), Supplemental Requirements, Production Agency PAL Operational Requirements[3].

3.0 APPLICABILITY

The requirements in this chapter apply to the DOE/NNSA Office of Defense Programs, NA-10 Organizations, Site Offices, NNSA Service Center, and DOE/NNSA contractor organizations with the responsibility for executing any phase of the nuclear weapons program.

4.0 DEFINITIONS

See the Glossary, Acronym, & Cross Reference (GAC) Section.

5.0 REQUIREMENTS and RESPONSIBILITIES

5.1 General

All fully assembled WR and JTA weapons equipped with PAL will, while in DOE/NNSA custody, have PAL locked except when (1) PAL must be unlocked to accomplish specifically authorized operations or (2) upon weapon return, if the Design Agency (DA), through the cognizant NA-122 Weapon Program Manager, has directed PAL to be left in the "as received" state.

The PA is required to receive TEMPEST Actions from DOE/HQ Sharon Shank.

5.2 Office of Nuclear Weapons Stockpile (NA-122)

The NA-122 is responsible for coordinating and documenting agreements with DoD on the conduct of PAL operations at the Production Agencies (PAs). This includes the execution, handling, and storage of PAL code and key materials, whether DoD- or DOE/NNSA-owned, and the execution of appropriate PAL operations for WR and JTA weapons to be transferred to or from DoD. This responsibility rests with the cognizant NA-122 Weapon Program Manager (PM).

NA-122 (delegated to its Bomb Division (NA-122.5)), shares joint responsibility with the appropriate Site Office for approving requirements, or changes to requirements, and enforcing the implementation of requirements at the specific DOE/NNSA production facilities designated for PAL operations. Joint responsibility exists to prevent a single authority from directing or controlling a PA that is required to maintain constant Two-Person Control (TPC) over a facility and its operations (see SB709698).

NA-122.5 (as delegated), in coordination with the appropriate Site Office, is responsible for approving and coordinating non-resident (someone not resident at that site) access to PAL Operations Facilities at specific PAs. This responsibility may be delegated by NA-122.5 to the Site Office. NA-122.5 and the Site Office may delegate this responsibility to the PA.

The responsible NA-122 PM coordinates exceptions or special handling requirements for PAL-equipped units returned from DoD that fall outside the scope of the requirements in SB709698. This includes defective or operationally coded PAL systems.

NA-122.5 (as delegated) is responsible for negotiating exceptions and changes to SB709698 requirements, to include coordinating appropriate approvals and obtaining consensus from the appropriate Site Office.

NA-122.5 (as delegated) is responsible for conducting the required evaluations concerning actual or suspected PAL material or equipment compromises. Further, NA-122.5 is responsible for notifying the Controlling Authority (i.e., Defense Threat Reduction Agency (DTRA)) in the event of a PAL material compromise at a PA PAL facility.

5.3 Site Offices

The Site Office Contracting Officer's Representative (COR) shares joint responsibility with NA-122.5 for approving requirements, or changes to requirements, and assuring requirements implementation at specific PA facilities designated for PAL operations.

The Site Office COR is responsible for conducting security audits and notifying the Director, NA-122.5 through formal documentation of results of the audits. Audits must be conducted within the bounds of the security requirements for the PA PAL facility.

The Site Office COR, in coordination with NA-122.5, is responsible for approving and coordinating non-resident access to specific PA facilities designated for PAL operations. NA-122.5 and the Site Office may delegate this responsibility to the PA. The Site Office is responsible for resolution, in coordination with NA-122.5, of PA PAL facility access disputes arising from PA facility owners refusing access.

The Site Office COR will participate along with the Pas in investigations at their associated PA facility concerning actual or suspected PAL material or equipment compromises.

5.4 Production Agency (PA)

The PA is responsible for meeting DOE/NNSA's requirements for conducting PAL operations on PAL-equipped WR and JTA weapons at the PA facilities.

The PA will develop and implement the procedures necessary to completely satisfy the DOE/NNSA's requirements for conducting PAL operations on PAL-equipped WR and JTA weapons at the PA facilities.

The PA is responsible to NA-122.5 and their respective Site Office for notifying and coordinating all requests for non-resident access to PAL operating facilities at a specific PA facility designated for PAL operations, unless this authority has been delegated to them.

The PA will notify NA-122.5 and their associated Site Office in the event of an actual or suspected PAL material equipment compromises.

Pantex is responsible for archiving PAL material.

5.5 Design Agency (DA)

The DA is responsible for generating requirements that assure the DOE/NNSA and its PAs are in compliance with national policy for the use of PAL material on PAL-equipped WR and JTA weapons. As defined in paragraphs and 5.2, DOE/NNSA is responsible for approval of these requirements.

The DA will provide guidance for PAL operations conducted at the PAs including the generation of source materials necessary for PA operational procedures development on PAL-equipped WR and JTA weapons at PA facilities, as well as PAL ancillary equipment. It also includes technical

support, as requested from the PA, during exceptions to normal WR and JTA PAL operations.

The DA will provide technical security guidance in support of PA PAL operations for NA-122 to the PAs.

The DA, with NA-122.5 concurrence, will coordinate PAL material management with DTRA, the National Security Agency, and other DoD agencies for DOE/NNSA PAL operations.

The DA will participate in investigations concerning actual or suspected PAL material or equipment compromises as requested by NA-122.5 or the Site Office.

The DA Use Control Systems organization will coordinate appropriate code and key requirements with respective DA weapon system organizations to ensure compliance with national policy governing the use of PAL material on PAL-equipped and JTA weapons at PA facilities.

6.0 REFERENCES

1. DOE-DNA (U.S. Department of Energy-Defense Nuclear Agency), "Procedures for the Use and Control of Logistics and Depot Storage Codes for Permissive Action Link (PAL) Equipped Weapons" (U), TP 50-2 (Confidential) (current version).
2. CJCSI 3260.01A, “Joint Policy Governing Positive Control Material and Devices (U),” (current version).
3. SB709698, Supplemental Requirements, Production Agency PAL Operational Requirements (current version).

7.0 POINT OF CONTACT FOR ADMINISTRATION

T. Driscoll, Office of Nuclear Weapons Stockpile, Nuclear Bombs Division, NA 122.5, 505-845-6944 is responsible for this chapter,

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Chapter 3.1: PHASES 1-7

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	IER_____
B	Change Notice 10 dated 05-15-2015 FCO20152801SA effective 10-01-2015
C	**Change Notice 14 dated 09-03-15** **FCO20155736SA effective 01-01-2016**

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1.0 OBJECTIVE

- Describe the sequence of activities in Phases 1 through 7 in the nuclear weapon development process.
- Ensure that Phases 1-7 consist of cooperative formal or informal studies by the agencies involved in weapon development and will ultimately lead to formalization and documentation of study results and recommendations.

2.0 BACKGROUND

The National Nuclear Security Administration (NNSA) receives its authority for the responsibility for all weapon and weapon-related functions from 50 USC 2402, Chapter 41.

The NNSA and DoD cooperate in the development, production, and maintenance of nuclear weapons. The basic document that establishes the interrelationship between the two agencies is "An Agreement Between the AEC and the DoD for the Development, Production, and Standardization of Atomic Weapons," dated March 21, 1953. This is commonly referred to as the "1953 Agreement." It was updated on September 5, 1984, by the "Supplement to the 1953 Agreement for the Development, Production, and Standardization of Atomic Weapons Between the Department of Energy and the Department of Defense." The 1953 Agreement was updated again in 1990 and supersedes the 1953 version.

Numerous Memoranda of Understanding (MOU), Memoranda of Agreement (MOA), and supplements provide additional guidance to agencies involved in the weapon development programs. Most of these are identified in a document titled "An Overview of DOE/DoD Memorandums of Understanding (MOU) and Memorandums of Agreement (MOA) Relating to Nuclear Weapons Development, Production, and Stockpile."

In general, NNSA is responsible for designing, developing, producing, updating, and dismantling nuclear warheads, nuclear weapon trainers, and ancillary equipment, while DoD is responsible for designing, developing, and producing, and dismantling the weapon delivery system.

3.0 APPLICABILITY

These requirements apply to the NNSA Office of Defense Programs, NA-10 Organization, Site Offices, NNSA Service Center, and NNSA contractor organizations with the responsibility for executing any phase of the nuclear weapons program.

4.0 DEFINITIONS

See Glossary, Acronym, & Cross Reference Section.

5.0 REQUIREMENTS and RESPONSIBILITIES

5.1. Phase 1 (Weapon Conception)

Phase 1 is the weapon conception phase of a weapon program. This phase consists of studies conducted by DoD and DOE/NNSA, either jointly or independently, to decide whether a weapon concept warrants a formal program study.

Either NNSA or DoD may originate a Phase 1 study. Phase 1 studies initiated by NNSA usually result from application of a new technology by the Design Agencies (DAs) to a perceived DoD need for a weapon.

There is no prescribed procedure for the conduct of a Phase 1 study, which may be either formal or informal. Throughout the study there is a free exchange of information among the participants who include personnel from Defense Programs (DP), the DAs, one or more of the military liaison groups, the military system's developer, the military's ultimate user, and, if applicable, DoD's prime contractor.

5.1.1. Department of Defense

As part of its normal operations, DoD maintains a continuing search for new mission needs and for new weapon systems to satisfy these needs.

When DoD originates a Phase 1 study, it must submit a justification of major system new start (JMSNS) statement. After the JMSNS statement is approved, DoD asks DOE/NNSA to join the study and to propose warhead design concepts to satisfy the operational requirements.

DoD consults with DOE/NNSA on the practicality of nuclear designs and requests assistance from DOE/NNSA in conducting the Phase 1 study.

DoD periodically refines its weapon performance requirements, determines transportation and delivery costs, and consults with DOE/NNSA to analyze performance requirements versus design decision costs.

If DoD wants to pursue an idea that would involve modification or development of a nuclear system, DoD will ask DOE/NNSA to examine the practicality of that idea.

Representatives of DoD, together with DA and NNSA representatives, draft desired Military Characteristics (MCs) and the proposed Stockpile-to-Target Sequence (STS) statements.

DoD publishes the results of the Phase 1 study in a report or data package. Although there is no designated format for this report, it usually includes the draft MCs, proposed STS statements, and recommendations for the future of the study.

DoD forwards the Phase 1 report to the involved military department for review.

5.1.2. Secretary of Defense

Following the issue of a JMSNS statement, the Secretary of Defense inaugurates a Phase 1 study by issuing a program decision memorandum.

5.1.3. National Nuclear Security Administration (NNSA)

In Phase 1, if NNSA wants to pursue an idea that would require development of a new delivery system or handling equipment, NNSA will ask DoD to examine the practicality of the idea.

NNSA coordinates comments on military requirements for new weapon systems.

NNSA drafts the Planning Information Document (PID). The PID describes a baseline design and design alternatives, and is used in Phase 2 for budgeting purposes. Once finalized, it is updated annually.

5.1.4. Design Agencies (DAs)

DAs conduct discussions with the military services to analyze and validate requirements and investigate possible design characteristics. At an appropriate time, DAs select the most feasible design options and refine their design definition.

5.2. Phase 2/2A (Program Feasibility, Design Definition & Cost Study)

Phase 2/2A is the stage of a weapon program in which the feasibility of the proposed weapon program is determined. During this period the MCs and the STS are refined, and NNSA and DoD define the warhead-to-carrier interfaces.

Phase 2A begins when a weapon program is deemed sufficiently feasible to merit complete definition of the design and thorough cost analysis.

5.2.1. Department of Defense (DoD)

DoD submits the Phase 1 results and a request for NNSA participation in Phase 2 to NNSA through the Nuclear Weapons Council (NWC). The request usually includes major weapon and warhead parameters, desired Initial Operational Capability (IOC) dates, schedule, total quantity of warheads, and milestones.

The DoD Defense Acquisition Board (DAB) evaluates the cost effectiveness of each weapon program and determines the most effective ways to distribute agency responsibilities.

After reviewing the integrated Phase 2 report at the end of Phase 2, DoD and NNSA decide either to terminate the program or to go on to Phase 2A.

DoD distributes the integrated Phase 2/2A report.

The Secretary of Defense reviews the integrated Phase 2/2A report upon receipt from the POG. DoD submits the Phase 3 request to the NWC.

DoD approves the IOC definition quantities and dates, the warhead delivery schedule, drafts of MCs and the STS, and the draft agreement for division of responsibilities

5.2.2. National Nuclear Security Administration (NNSA)

The decision to move a program from Phase 1 to Phase 2 is made when NNSA formally accepts the NWC request for Phase 2.

The NNSA Administrator signs and sends a copy of the integrated Phase 2/2A report to the NWC.

The NNSA Administrator accepts the Phase 3 program request and the MCs. The MCs become design requirements.

NNSA reviews weapon interface and warhead design proposals to identify and estimate the impact of each proposal on production complex facilities and production planning.

NNSA prepares the Major Impact Report (MIR). The MIR identifies those aspects of the development, design, testing, and production processes perceived as being probable determining factors in meeting program objectives. The MIR includes appropriate discussion of early-year funding requirements, budget process limitations, and nuclear materials availability. The MIR is released concurrently with the Phase 2 study report, and becomes part of the Phase 2 integrated report.

NNSA sets the target date for agreement on a baseline design definition and arranges for the design presentation on that date.

NNSA initiates the Weapon Design and Cost Report (WDCR) to follow the design definition and cost study prepared by the POG. The WDCR provides descriptions of the design and decision cost estimates. It also reports the results of analyses of tradeoffs in system requirements, NNSA production costs and capabilities, and nuclear and non-nuclear material costs and availability.

NNSA negotiates the terms of agreement for NNSA/DoD interagency division of responsibilities for a new nuclear weapon.

NNSA prepares the single, complete WDCR, which is sent to the National Nuclear Security Administrator, who signs it and sends it as a part of the integrated Phase 2/2A report to the NWC.

NNSA issues the directive for the development of Phase 3 and sends it to the DAs.

NNSA sanctions a competitive design effort by a dual team that consists of either Los Alamos National Laboratory (LANL) and Sandia National Laboratories (SNL), or Lawrence Livermore National Laboratory (LLNL) and SNL.

At the end of Phase 2, NA-10 appoints the laboratory design team and stipulates required tradeoffs, milestones, and other items the team should consider. At the same time, NA-10 selects the design that will be considered in Phase 2A.

5.2.3. National Nuclear Security Administration (NNSA) and Department of Defense (DoD)

The combined NNSA/DoD/DA study group, called the Project Officers Group (POG), is established.

After the NNSA Administrator accepts the Phase 3 program, DoD and NNSA sign an agreement on the division of responsibilities.

5.2.4. Project Officers Group (POG)

The POG drafts statements for MCs and the STS.

Before its first Phase 2 meeting, the POG assembles preliminary drafts of MCs, the STS, and copies of the reports and weapon system descriptions from Phase 1.

At the first Project Officer's Meeting (POM), the Lead Project Officer (LPO) distributes the draft MCs and STS, which the POG revises during the course of the study. The POG updates the draft MCs and STS to ensure they are current. The POG also determines milestones, requirements, and strategies for conducting the Phase 2A study. During this meeting, the POG prepares a briefing for the NWC.

Beginning in Phase 2, the POG coordinates the nuclear warhead or bomb development program and maintains the warhead/delivery system interface between NNSA and DoD.

The POG issues meeting minutes to aid interagency communication.

The POG and its subgroups determine the weapon feasibility, major impacts, resource requirements, and conduct trade-off studies.

The LPO, representing DoD, accumulates the information from the preceding steps and prepares and publishes the integrated Phase 2 report, which, upon revision in Phase 2A, will become the Phase 2/2A report. The report contains assessments of weapon feasibility and major impacts and any available estimates of resource needs. The report should support assessments of cost/benefit tradeoffs and decisions on the continuation of Phase 2.

The POG signs the integrated Phase 2 report.

At the first meeting in Phase 2A, the POG establishes the scope and schedule for the Phase 2A study. The LPO distributes the draft MCs and STS.

The POG reviews and revises the MCs and the STS and refines design definitions and system resource requirements. The POG also conducts cost/benefit tradeoff studies to best balance requirements and resources and establishes tentative development and production schedules and division of responsibilities. These items, when combined with the results of Phases 1 and 2 (the integrated Phase 2 report), become the Phase 2/2A report. The POG signs the Phase 2/2A report.

5.2.5. Nuclear Weapons Council Standing and Safety Committee (NWCSSC)

The NWCSSC receives annual briefings from the POG on the progress of the Phase 2 activity.

5.2.6. Design Agencies (DAs)

DAs analyze new weapon technologies and/or modifications of existing designs and weapons already in the stockpile. The analyses may lead to several possible designs. These designs must satisfy the design restrictions and the desired characteristics of the weapon.

DAs submit selected designs to the production complex for estimates of production costs.

5.3. Phase 3 (Development Engineering)

Phase 3 is the period for defining a tested, manufacturable nuclear weapon design, including training and testing weapons, special equipment, and acceptance equipment.

5.3.1. Office of Defense Programs (NA-10)

Specifically authorizes all Phase 3 activities before DOE/NNSA weapon Design Agencies (DAs) undertake those activities to any appreciable extent.

5.3.2. Project Officer's Group (POG)

The POG continues to coordinate weapon development activities.

5.3.3. Sandia National Laboratories (SNL)

When the Phase 3 basic design definition is available, SNL formulates detailed schedule plans and other program control methods. SNL reflects the key development and production dates, developed jointly by the DAs and Production Agencies (PAs), as milestones.

SNL drafts the Preliminary Weapon Development Report (PWDR) after the DAs and PAs review the key dates. [All development reports may be reviewed by the Design Review and Acceptance Group (DRAAG) for the Nuclear Weapons Council (NWC).]

5.3.4. Design Agencies (DAs)

After receipt of Phase 3 authorization from NA-122 and review of the desired MCs, the DAs proceed to finalize design for usable weapon from the selected design/option.

Before SNL issues the PWDR, a team consisting of DA and NA-122 representatives briefs NA-10 management, and the NWCSSC. The team must also be prepared to brief congressional committees, if requested. The briefings include:

- a review of the weapon design with particular attention to any critical components that might affect time scales,
- a discussion of production schedules and implications with an explanation of the recommended date for the First Production Unit (FPU) of WR, and
- total system costs and analysis of program stockpile support budget requirements.

5.3.5. Office of Nuclear Weapons Stockpile (NA-122)

- After specific instruction from NA-10, the Director of the Office of Nuclear Weapons Stockpile (NA-122) issues a development authorization to initiate Phase 3.
- After Phase 3 has been authorized for a specific program and before the start of Phase 4, NA-122 approves the Pilot Production Program Definition (PPPD). This document defines the quantities of each item to be manufactured in support of pilot production.
- After the issuance of the Phase 3 development authorization, NA-122 assumes direction of the program.
- Concurrent with the DA's creation of a usable weapon from the design, NA- 122 issues an Advance Planning Document (APD) to the production system. This document contains current program information, such as the weapon description, production assignments, program plans, and preliminary production schedules. This document also contains formal, directive mission assignments. NA-122 publishes an APD for each new weapon approved for Phase 3. APDs are updated as needed until they are replaced by issuance of a baseline cost call and/or the Program Control Document (PCD) and the Production Program Definition (PPD)
- NA-122 makes production assignments on the basis of the Mission Assignment Document for those capabilities that exist in the production complex. For new capabilities not yet established, NA-10 makes the assignments by mutual agreement with the concerned DA and PA.
- Approximately six months before the start of Phase 4, NA-122 formally updates the Weapon Design and Cost Report. The updated report, now called a baseline cost report, reflects the late development and preproduction current design.
- NA-122 prepares a pre-production report for NA-10, which incorporates information from the DAs and the PAs. The report contains information on program status, design and development problems, and details on manufacturing concerns that may impact schedules or costs.
- During Phases 3 and 4, NA-122, working with SNL Military Liaison Engineering (MLE) Department and Defense Threat Reduction Agency (DTRA), defines the base spare parts the military services will need to maintain and repair fielded

weapons; defines the military spare parts the services will need to maintain their training weapons; defines the special and ancillary equipment the services will need to handle, maintain, test and operate fielded weapons and weapon trainers; processes orders for the production of that material; and ensures its delivery before Phase 5.

5.3.6. National Nuclear Security Administration (NNSA)

Early in Phase 3, NNSA notifies DoD of the acceptability of MCs, which become design requirements after NNSA acceptance and NWC approval. NNSA also provides comments on the draft Stockpile-to-Target Sequence (STS).

NNSA addresses the warhead development status, significant changes to the WDCR, and other issues that may affect the achievement of major program objectives or have an adverse effect on other nuclear weapon development and production requirements. NNSA highlights specific DoD requirements that may cause significantly greater resource expenditures or development effort than were estimated at the beginning of Phase 3.

Early in Phase 3, NNSA begins to formulate a quality and reliability program to ensure the product is consistent with applicable specifications and system performance goals.

5.3.7. Nuclear Weapons Council Standing and Safety Committee (NWCSSC)

The NWCSSC reviews each weapon program at least twice during Phase 3 to consider the impact of the MCs and the STS on the design effort and the resources needed to meet the various design requirements and goals. The reviews are held during the last half of the first year of Phase 3 and again near the end of Phase 3.

5.3.8. Department of Defense (DoD)

During Phase 3, DoD addresses weapon system requirements in terms of warhead characteristics and required warhead delivery schedules.

DoD activates the DRAAG to periodically review the evolving NNSA design for its acceptability to DoD by reviewing the development report.

5.3.9. Design Agencies, Production Agencies, and National Nuclear Security Administration

During Phase 3 and up to Phase 6 (including 6x), the DAs, PAs, and NNSA conduct the product realization process on all new products or components to engineer production readiness into the product before the PAs are committed to production. Make/Buy analyses should be conducted in accordance with D&P Manual Chapter 9.2.

5.3.10. Joint Test Working Group (JTWG)

During Phase 3, a JTWG is established. It is comprised of representatives from DoD, SNL, and NNSA. The group provides technical guidance for post-development testing.

5.4. Phase 4 (Production Engineering)

Phase 4 is an internal NNSA phase initiated by NA-122 at an appropriate time to support production of a new warhead nuclear weapon. In Phase 4, the acquisition of capital is completed, tooling and gauges are procured, Process Prove-In (PPI) is accomplished, materials are purchased, processes are validated through pilot production efforts, and training components are fabricated. This phase defines the methodology for production of the weapon and its components.

5.4.1. Office of Nuclear Weapons Stockpile (NA-122)

- Issues the Production and Planning Directive (P&PD) to direct the production of weapons according to guidance and procurement authorization contained in that document.
- Establishes Phase 4 when sufficient engineering information warrants placement of program within the authorization schedule of the P&PD.
- Originates the RDIs to specify the disposition of nuclear weapon components, associated ancillary equipment, and appropriate drawings.
- Issues the authorization schedule that places a program in Phase 4. This document establishes firm WR production schedules and other related activities.
- Issues the various documents included in the Program Management Documents (PMD).

5.4.2. Production Agencies (PAs)

PAs conduct product engineering, process engineering, equipment development, and preparation of inspection and test procedures. These activities culminate in PPI. PAs support Qualification Evaluation (QE) sample, and Engineering Evaluation (EE) activities to determine the extent to which:

- the product conforms to the product definition;
- the facilities, tools, processes, controls, acceptance methods, and acceptance equipment can furnish products of the required quality and quantity; and
- the product performs its intended functions.

DAs qualify equipment to determine whether acceptance equipment will conform to the equipment definition and whether the equipment will perform its function with the required accuracy.

The DAs issue a Qualification Evaluation Release (QER) to reflect the results after the above activities. If the evaluation was satisfactory, the QER authorizes delivery or use of the product by the PA in support of directive schedules.

5.4.3. Pantex Plant (PX)

Approximately nine months before Phase 5, the Pantex Plant builds an Early Training Unit (ETU) for the development of assembly processes, tooling verification, personnel training, nuclear safety studies, and other uses.

5.4.4. Design Agencies (superseded by R003 per Change Notice 9 and IER20132934SA)

5.4.5. Department of Defense (DoD) & Office of Nuclear Weapon Stockpile (NA- 122)

DoD and NA-122 form a Nuclear Weapon Subsystem Test Plan (NWSSTP) group to prepare a test plan that describes testing of the Nuclear Weapon Subsystem (NWSS) throughout its life cycle and that identifies DoD and NNSA responsibilities for integrating, coordinating, and implementing such testing.

DoD and NA-122 approve the NWSSTP before Phase 5 begins and forward it to the chairman of the NWC and to NA for review and final coordination.

The lead DoD agency publishes and distributes the NWSSTP.

DoD and NA-122 jointly review the NWSSTP at least annually until the NWSS is retired.

5.5. Phase 5 (First Production)

Phase 5 is initiated by NA-122 and entails the manufacture of weapons to the product specifications. Quality control and inspection procedures are implemented in this phase.

5.5.1. Design Agencies (DAs)

DAs prepare and submit to the DRAAG a Final Weapon Development Report (FWDR) to update any preliminary or interim reports.

5.5.2. Sandia National Laboratories (SNL)

- Prepares a semiannual weapon reliability report, which provides a current assessment for each weapon system in stockpile.
- Implements the New Material and Stockpile Evaluation Plan (NMSEP), which consists of a laboratory test program and a joint flight-test program. Chapter 8.1 discusses the NMSEP in greater detail.
- Issues a Significant Finding Investigation (SFI) report if significant conditions that could affect reliability, safety, or field operations are detected in a WR weapon.

5.5.3. Production Agencies (PAs)

During Phase 5, PAs build a quantity of weapons to WR specifications and submit them to NNSA for acceptance as WR. These weapons are not transferred to DoD until a Major Assembly Release (MAR) is issued by NNSA at the time of the Phase 6 FPU.

5.5.4. Design Review and Acceptance Group (DRAGG)

The DRAAG conducts a final review before Phase 6, which results in acceptance of the product as either a "limited" or "standard" stockpile item.

5.5.5. Office of Nuclear Weapons Stockpile (NA-122)

As information becomes available before Phase 6, NA-122 schedules, for each weapon program, a to review the compatibility of established delivery schedules with the status of known DoD activities. NA-122 maintains minutes of this review.

If the review indicates substantially increased efforts are necessary to meet established schedules, NA-122 coordinates with DoD to determine the importance of meeting schedules and whether the need to meet them is important enough to justify increased efforts.

Operates automated data management systems to collect, arrange, and summarize the performance data.

Ensures continuous accountability for all weapon parts and assemblies through the use of a Record of Assembly (ROA) and a Record of Disassembly (ROD).

5.6. Phase 6 (Quantity Production)

Approval of the MAR, NNSA acceptance of WR material, and DRAAG acceptance and delivery of the product to DoD result in the formal start of Phase 6. In Phase 6, program progress is closely monitored, problems identified and addressed, and necessary actions taken to meet delivery commitments.

5.6.1. Production Agencies (PAs) (superseded by R019 per Change Notice 10 and FCO 20150059SA)

- ~~Produce weapons according to schedules specified in the PMDs. Pas continually evaluate weapons during production to assess conformance to specifications and reliability requirements.~~
- Report on the status of new material toNA-122.
- Each PA implements a quality control program to achieve a product quality that conforms to DA specifications and to the intent of NNSA's quality control policy.

5.6.2. Sandia National Laboratories (SNL) & Defense Threat Reduction Agency (DTRA)

SNL and DTRA may request product changes through the PCP process. After DA initiation of a proposal to retrofit a weapon, SNL MLE prepares the draft of the PCP in cooperation with DTRA and NA-122. After approvals by the DAs, NA-122, and the using military service, SNL MLE issues the PCP.

5.6.3. Design Agencies (DAs)

DAs approve the MAR. The MAR states that WR weapon material is satisfactory for release to DoD for specific uses.

5.6.4. National Nuclear Security Administration (NNSA)

NNSA accepts products based upon verification inspection, Quality Assurance Surveys (QAS), quality review of technical instructions, and/or quality evidence or certification furnished by the contractor.

5.6.5. Office of Nuclear Weapons Stockpile (NA-122)

- Ensures the DAs, PAs, and various NA organizations are committing adequate resources in the day-to-day resolution of design and production problems.
- NA-122 continues throughout Phase 6 its operation of such automated data management systems as the ROA and the ROD.
- Negotiates any changes in schedules or weapon performance with the using military service.

5.7. Phase 7 (Dismantlement) (Superseded by R020 per Change Notice 14 and IER20154199SA)

6.0 REFERENCES

1. DOE (U.S. Department of Energy), "The Development and Production of Nuclear Weapons," September 1984.

2. DOE (U.S. Department of Energy), "Supplement to the 1953 Agreement for the Development, Production, and Standardization of Atomic Weapons Between the Department of Energy and the Department of Defense," September 1984.

3. Department of Defense Instruction 5030.55 “DoD Procedures for joint DoD-DOE Nuclear Weapons Life-Cycle,” January 25, 2001

7.0 POINT OF CONTACT FOR ADMINISTRATION

Director, Office of Nuclear Weapons Stockpile, Stockpile Systems Division, NA-122.1, 301-903-2984, is responsible for this chapter.

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 3.2: PHASE 6.X PROCESS

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	Original Release 03-31-2004
B	Change Notice 8 dated 08-26-2013, FCO20140272SA effective 03-31-2014
C	Change Notice 10 dated 09-03-2015, FCO20152805SA effective 10-01-2015

This Chapter of the D&P Manual has been inactivated and is no longer used in support of Defense Programs activities. The Defense Programs Business Process System (DPBPS) contains the current processes and requirements. See R001 “Product Realization,” R006 “6.X Process” and R019 “Produce and Maintain.”

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 3.3: PROGRAM MANAGEMENT DOCUMENT - PROGRAM CONTROL DOCUMENT (PCD) AND PRODUCTION PROGRAM DEFINITION (PPD)

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	Original Release 02-27-2004
B	Change 7, 06-09-06
C	Change Notice 10 dated 05-15-2015 FCO20152801SA effective 10-01-2015
D	**Change Notice 14 dated 09-03-2015** **FCO20155736SA effective 01-01-2016**

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1.0 OBJECTIVE

The objective of this chapter is to describe the Program Management Documents (PMD), including the Program Control Document (PCD) and the Production Program Definition (PPD) and to define the responsibilities and procedures for preparing, issuing, and maintaining the PCD and six PPD's. Figure 3.3-1 illustrates the components of the PMD.

2.0 APPLICABILITY

These requirements apply to the DOE/NNSA Office of Defense Programs, NA-10 organizations, Site Offices, NNSA Service Center, and DOE/NNSA contractor organizations with the responsibility for executing any phase of the nuclear weapons program.

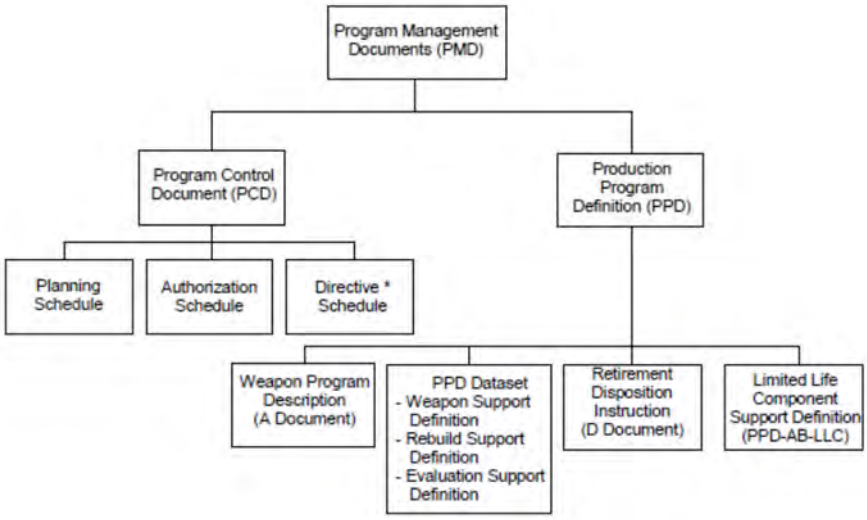
3.0 DEFINITIONS

See the Glossary, Acronym, & Cross Reference (GAC) Section.

4.0 REQUIREMENTS

4.1. Program Management Document

A PMD shall be issued for each weapon program that is in Phase 3 through 7.



* The Master Nuclear Schedule, Volume III is another directive schedule

Figure 3.3-1. Components of the Program Management Documents

4.2. Program Control Document

The PCD is comprised of the planning schedule, the authorization schedule, or the directive schedule. Table 3.3-1 describes the PCD.

Table 3.3-1. Program Control Document (PCD)

Document Name	Purpose	Notes
PCD Includes:	Implements current production and retirement directives from Defense Programs and provides programming and administrative guidance for weapons production and retirement.	Issued as three documents as production program progresses through phase 3 through 7.
Planning Schedule	Contains preliminary information about Phases 3, 4, 5, and 6 and estimated dates for release of product for procurement, production, and delivery. States planned total quantities and monthly delivery rates currently anticipated.	During Phase 3, issued yearly to provide planning information to the Production Agencies (PAs) and Design Agencies (DAs).
Authorization Schedule	Places program in Phase 4. Authorizes tooling, material procurement, and fabrication of components necessary to support requirements for authorized procurement period.	Issued to DAs and PAs when sufficient engineering information warrants placing program in phase 4. Cancels and supersedes planning schedule.
Directive Schedule[1]	Establishes firm first-production delivery dates. Confirms or extends authorized procurement period. Defines weapon-protected period. Schedules all factory retrofits. Schedules as line orders retirement and disposal of war-reserve and stockpile reportable components.	Issued six months before first production unit of war reserve. Cancels and supersedes authorization schedule. Completed orders are retained as part of this schedule.

[1]The Master Nuclear Schedule, Volume III schedules limited life component deliveries and is similar to a directive schedule PCD. See Chapter 5.2 for more information.

4.2.1. Planning Schedule

The planning schedule is issued on an annual basis during Engineering Development.

4.2.2. Authorization Schedule

1. When sufficient engineering information has been released to the production system to warrant placing a weapon program in Production Engineering an authorization schedule is prepared and released to PAs and DAs.

2. The authorization schedule authorizes tooling, gauging, test equipment, limited procurement, and production to support the requirements shown in the schedule.

3. The authorization schedule cancels and supersedes the planning schedule, until it is replaced by the directive schedule.

4.2.3. Directive Schedule (Bullet 6 has been superseded by R020 per Change Notice 14 and IER20154199SA))

1. Is issued at least six months before the First Production Unit (FPU) of War Reserve (WR).

2. It cancels and supersedes the authorization schedule.

3. It establishes firm first-production delivery dates; defines the authorized procurement period; and implements the weapon-protected period.

4. It is based on the fiscal year and Ultimate User (UU) schedules are shown at a monthly level.

5. All factory retrofits are scheduled in the directive schedule and completed orders are retained as part of the schedule.

~~6. All weapon retirement and dismantlement line orders are listed in the individual Weapon PCD.~~

4.3. Production Program Definition

Preparation of the definitions and documents provided in Table 3.3-2 requires source information be sent directly to the Kansas City National Security Campus (KCNSC)~~KCP~~. This information includes weapon system drawings, flow charts, material lists, change orders, and engineering releases.

Table 3.3-2. Documents Included in the Production Program Definition (Row 5 superseded by R020 per Change Notice 14 and IER20154199SA))

Definition and Document Name	Purpose	Notes
Weapon Program Description ("A" Document)	Describes weapon program in prose, illustrations, flow charts, and interproject (IP) group summaries for new production and retrofit.	Initial issue at the beginning of Phase 4.
PPD Dataset Weapon Support Definition (formerly known as the “PPD-B-Doc”)	Describes IP group definitions that are directive for new production, and factory retrofit or field retrofit kits when required.	Initial issue at the beginning of Phase 4.
Rebuild Support Definition (formerly known as the “PPD-C-Doc”)	Describes IP group definitions required to rebuild weapons to WR status after surveillance testing.	Initial issue finalized at rebuild support conference scheduled 12 months prior to FPU.
Evaluation Support Definition (formerly known as the “PPD-E-Doc”)	Describes unique products and special test hardware to conduct laboratory testing of weapons.	Only specially designed items included. Submitted to the Office of Nuclear Weapon Surety and Quality (NA-121) at least 12 months before FPU.
~~Retirement Disposition Instruction ("D" Document)~~	~~A disposition plan for all of the material of a weapon.~~	~~Released before FPU~~.
Limited Life Component Support Definition (PPD-AB-LLC)	Describes limited life components (LLC), Kit definitions (LLC, ALT, and GPX), and PA roles in the manufacturing and shipment of components.	Updated annually.

4.3.1. Weapon Program Description ("A" Document)

1. The A document shall contain a description of the weapon, its subsystems, and its components.

2. The document shall consist of narrative portion to include, but is not limited to:

   a) general description of the weapon system, its applications, and its capabilities;

   b) statement giving the designed stockpile life of the weapon and the length of the weapon protected period;

   c) description of major components and their functions;

   d) description of the weapon system's safety considerations, features, and components;

   e) explanation of the fuzing and firing system and operational sequence;

   f) maintenance and limited life exchange concepts; and

   g) description of the Joint Test Assembly (JTA) and TYPE weapons.

3. The document shall consist of an illustration portion to include but is not limited to:

   a) cutaway illustration detailing the major internal and external components of the weapon; however, cutaway details of the physics package and the active protective system are not revealed;

   b) configuration table indicating the major components of the WR, TYPE, and JTA weapons;

   c) flow charts for the above-mentioned weapons to indicate production and assembly responsibility for the major components.

4. The A document shall also include a statement delineating the weapon system development and production responsibilities of both the DOE/NNSA and the DoD and statements establishing divisions of responsibility between the DAs for design and development of the weapon and its components.

4.3.2. Production Program Definition (PPD) Dataset

4.3.2.1. Weapon Support Definition (within the PPD Dataset)

1. The Weapon Support Definition shall be distributed at the beginning of Phase 4 and shall be maintained as a current document throughout the stockpile life of the weapon.

2. This document shall contain complete and current definitions of the WR, TYPE, and JTA weapons and identifies the components for building those configurations.

3. The weapon support definition shall be presented at the ship entity level for each PA Interproject Group (IPG).

4. This format includes a separate IPG for each production-to-using-agency group.

5. IPG listings are in drawing number or part number sequence and include nomenclature, the responsible DA, and the quantity required for each assembly.

6. IPGs are included for DoD-manufactured parts delivered to a DOE/NNSA plant for assembly with DOE/NNSA materials.

7. The end item for the UU is listed in a Pantex-to-UU IPG.

4.3.2.2. Rebuild Support Definition (within the PPD Dataset)

4.3.2.2.1. General Requirements

1. The initial rebuild support definition shall be finalized at a rebuild support conference called by NA-122 and the KCNSC~~KCP~~ one year before the FPU.

2. The definition shall be revised as required thereafter.

3. The Rebuild Support Definition shall define the interproject part relationships for rebuild support requirements during the stockpile-protected period of the weapon. The definition includes:

   a) nonnuclear and nuclear rebuild material,

   b) reprocessable material, and

   c) PCD issue number and date which is the reference for definition preparation.

4. The PCD rebuild schedule determines the fiscal year used for defining rebuild support requirements.

5. Reprocessable returned material is a projection based on historical data and, therefore, should be provisioned accordingly.

4.3.2.2.2. Specific Requirements

1. The delivering PA shall be fiscally responsible for the production of scheduled material.

2. PAs shall produce all material scheduled for use after the end of the WR weapon new build period by following the normal course of WR production. The actual timing of such production is left to the discretion of the PA. Such material is generally not held in inventory by the PA but is completed and shipped to a contractor for the next higher assembly and finally to Pantex for storage and inventory control.

3. Shelf life material listed in the Rebuild Support Definition is exempt from the provisions of the previous paragraph. Pantex and the first-order PA for limited life material must coordinate closely to ensure shipping dates occur as close to rebuild dates as practical.

4. PAs do not normally produce for spares those components made of fissionable material. However, if stockpile protection and a significant cost savings can be achieved by producing and storing these components for use as rebuild material, approval is requested from NA-122 to prebuild these components.

4.3.2.3. Evaluation Support Definition (within the PPD Dataset)

1. The Evaluation Support Definition is submitted to NA-122 at least one year prior to FPU.

2. The Evaluation Support Definition reflects all evaluation support material required during the stockpile life of the weapon. The definition includes:

   a) a test configuration and description table, as necessary

   b) IPG items required for each test, and

   c) PCD issue and date, which is the reference for the definition preparation.

4.3.3. Retirement Disposition Instruction (\D\ Document) (Superseded by R020 per Change Notice 14 and IER20154199SA)

4.3.4. Limited Life Component Support Definition (PPD-AB-LLC)

1. The PPD-AB-LLC is updated annually.

2. The PPD-AB-LLC shall consist of three sections.

   a) Section 1 contains a summary table of stockpiled weapon configurations and related LLC and Group X kits, kit-packaging specifications, limited life components contained in the kits, and the projected life of the components.

   b) Section 2 contains five categories of limited life component exchange information for each weapon program: (1) a brief summary of the weapon program and applicable limited life component exchange comments, (2) a summary table of the weapon program (same as Section 1), (3) a part listing for each LLC kit showing PA responsibility, (4) Group X kit part configurations, and (5) LLC photographs and specifications.

   c) Section 3 contains a listing of IP group definitions for each PA involved in supporting the LLC exchange program, showing the LLC kit part manufacturing and shipping responsibility.

5.0 RESPONSIBILITIES

5.1. Program Control Document Responsibilities

5.1.1. Office of Nuclear Weapons Stockpile

The Office of Nuclear Weapons Stockpile (NA-122) prepares, issues, and maintains the PCD.

- The planning schedule is issued minimally on an annual basis.
- The authorization schedule is issued when sufficient engineering information has been released to the production system to warrant placing a weapon program into Production Engineering.
- The directive schedule is issued at least six months prior to first production unit (FPU) of a war reserve (WR). Subsequently, it is issued on an annual basis, at a minimum, in conjunction with the Production and Planning Directive (P&PD).

5.1.2. Production Agencies (superseded by R019 per Change Notice 10 and IER 20150059SA)

- If the PA cannot support the planned or scheduled deliveries, each affected PA shall provide a formal response to the planning, authorization, and initial directive schedules. The response must occur within six weeks after the issue date of the document.
- Responses indicating full support for the planned or scheduled deliveries are not required.
- ~~When a PA is assigned production responsibility, the PA becomes responsible for budgeting and obligating funds necessary to accomplish the corresponding delivery. This includes responsibility for procurement, tooling, manufacture, assembly, and inspection of assigned items necessary to accomplish the deliveries according to the appropriate PCD.~~

5.2. Production Program Definition Document Responsibilities

5.2.1. Office of Nuclear Weapons Stockpile Responsibilities (revised by R019 per Change Notice 10 and IER 20150059SA)

Prior to issuance by the National Security Campus (KCNSC) ~~Kansas City Plant~~, the Office of Nuclear Weapons Stockpile (NA-122) approves the following PPD Documents:

- Weapon Program Description (“A” document).
- Production Program Definition (PPD) Dataset - consisting of the Weapon Support Definition (formerly known as the B document), Rebuild Support Definition (formerly known as the C document), and Evaluation Support Definition (formerly known as the E document),
- Retirement Disposition Instruction (D document) along with distribution list
    - NA-122 creates the Retirement Disposition Instruction distribution list
    - NA-122 attends the Retirement Disposition Instruction Provisioning Meeting
- Limited Life Component Support Definition (PPD-AB-LLC) along with distribution list.
    - NA-122 provides a draft copy of the PPD-AB-LLC to the KCNSC~~KCP~~. NA-122 issues revisions as required.

Attendees at the RDI/provisioning meeting include representatives of NA-122, the DAs, the PAs, and Defense Threat Reduction Agency (DTRA). A proposed RDI draft is reviewed and updated as agreed upon by the attendees.

5.2.2. Defense Threat Reduction Agency

DTRA initiates spare orders or changes to these orders that are agreed upon at the Retirement Disposition Instruction Provisioning Meeting

5.2.3. Production Agency Responsibilities

5.2.3.1. National Security Campus ~~Kansas City Plant~~ (revised by R019 per Change Notice 10 and IER 20150059SA)

KCNSC ~~Kansas City Plant (KCP)~~ prepares, issues, and maintains the following documents including any timely revisions:

- Weapon Program Description (A document), at the beginning of Phase 4
- Production Program Definition (PPD) Dataset - consisting of the Weapon Support Definition (formerly known as the B document), Rebuild Support Definition (formerly known as the C document), and Evaluation Support Definition (formerly known as the E document),
- Retirement Disposition Instruction (D document), and
- Limited Life Component Support Definition (PPD-AB-LLC).

Table 3.3-2 describes all six (6) definition types. Appendix A shows the control symbols for the PPD.

5.2.3.2. Other Production Agencies (revised by R019 per Change Notice 10 and IER 20150059SA)

- PAs shall place the KCNSC~~KCP~~ on distribution for all change orders, engineering releases, and drawing changes for weapon product drawings under their maintenance responsibility.
- PAs shall attend all Retirement Disposition Instruction Provisioning Meetings

5.2.4. Design Agencies

- Sandia National Laboratories, Lawrence Livermore National Laboratory and Los Alamos National Laboratory shall make available to the KCNSC~~KCP~~ product drawings, engineering releases, drawing change orders, and flow charts for product definitions under their respective control.
- DAs shall attend all Retirement Disposition Instruction Provisioning Meetings Groups within the national laboratories responsible for LLC and Group X design are responsible for providing input for the PPD-AB-LLC document.

6.0 POINT OF CONTACT FOR ADMINISTRATION

S. Northrop, Program Engineer, Office of Nuclear Weapons Stockpile, Stockpile Systems Division, NA 122.1, 505-845-5566 is responsible for this chapter.

7.0 APPENDIX

Appendix A: Control Symbols for the Production Program Definition.

APPENDIX A

CONTROL SYMBOLS FOR THE PRODUCTION PROGRAM DEFINITION

Examples of the control symbols for the A-Document, A-B Document, and the D-Document are PPD-A-99, PPD-AB-LLC and PPD-D-99. These symbols represent the following.

- The first three letters are an alphabetical designator for the document.
- The single letter indicates the specific document that is part of the PPD. For example, A is for the weapon program description and D is for the retirement disposition instruction.
- The last two digits are the weapon program number.
- 99/0,1Numbers after the slash designates modifications to the weapon system with the 0 designating a Mod 0 and the 1 designating a Mod 1.
- PPD-AB-LLC describes Limited Life Components for all weapon programs.

The Integrated Programmatic Scheduling System (IPPS) is the classified, centralized application and database from which the PPD Dataset is prepared and issued.

The PPD Dataset consolidates Weapon Support Definition, Rebuild Support Definition, and Evaluation Support Definition. Examples of control symbols for a PPD Dataset are “Version 2005-A-PUB” and “Version 2005-B-PUB”.

Each revision is version controlled by fiscal year and alpha character. “PUB” represents a formally published/authorized definition.

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Chapter 3.4: LIFE EXTENSION PROGRAM CHANGE CONTROL PROCESS

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	IER_____

	REV	CHANGE	DATE	PAGE NO.
56XB	**2**		**February 27, 2004**	**1**

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1.0 OBJECTIVE

- Provide a uniform and formal decision-making process that will allow the consideration of changes to the scope, cost, or schedule into the Life Extension Program (LEP) Program/Project Plan, and to properly document the changes throughout the 6.x process.
- Ensure LEP Baselines are accurately maintained and ensure any changes are considered and a decision made on a timely basis.
- Ensure the appropriate management level evaluates and approves changes to the LEP Baseline in accordance with this guidance.
- Ensure integration of this process for all sites that are actively involved in LEP activities.

Refer to Figure 3-4-1: LEP Change Control Process Flow

2.0 BACKGROUND

It is U.S. Department of Energy (DOE), National Nuclear Security Administration (NNSA) policy that program/project plans for the acquisition of nuclear weapons be developed, implemented, and maintained under formal change control.

This chapter was written to provide a Change Control Process (CCP) that defines the minimum actions the LEP Program Manager, Site Offices, Production Agencies (PAs), and Design Agencies (DAs) must perform to manage changes against the approved LEP Baseline.

The LEP Baseline occurs at the end of 6.2a and upon receipt of 6.3 authorization in accordance with the 6.x process. It is important to identify, document, and communicate changes to the work scope, cost, and schedule authorized in the LEP Baseline.

3.0 APPLICABILITY

These requirements apply to the DOE/NNSA Office of Defense Programs, NA-10 Organizations, Site Offices, Service Center, and DOE/NNSA contractor organizations with the responsibility for executing any phase of the nuclear weapons program.

4.0 DEFINITIONS

See the Glossary, Acronym, & Cross Reference (GAC) Section.

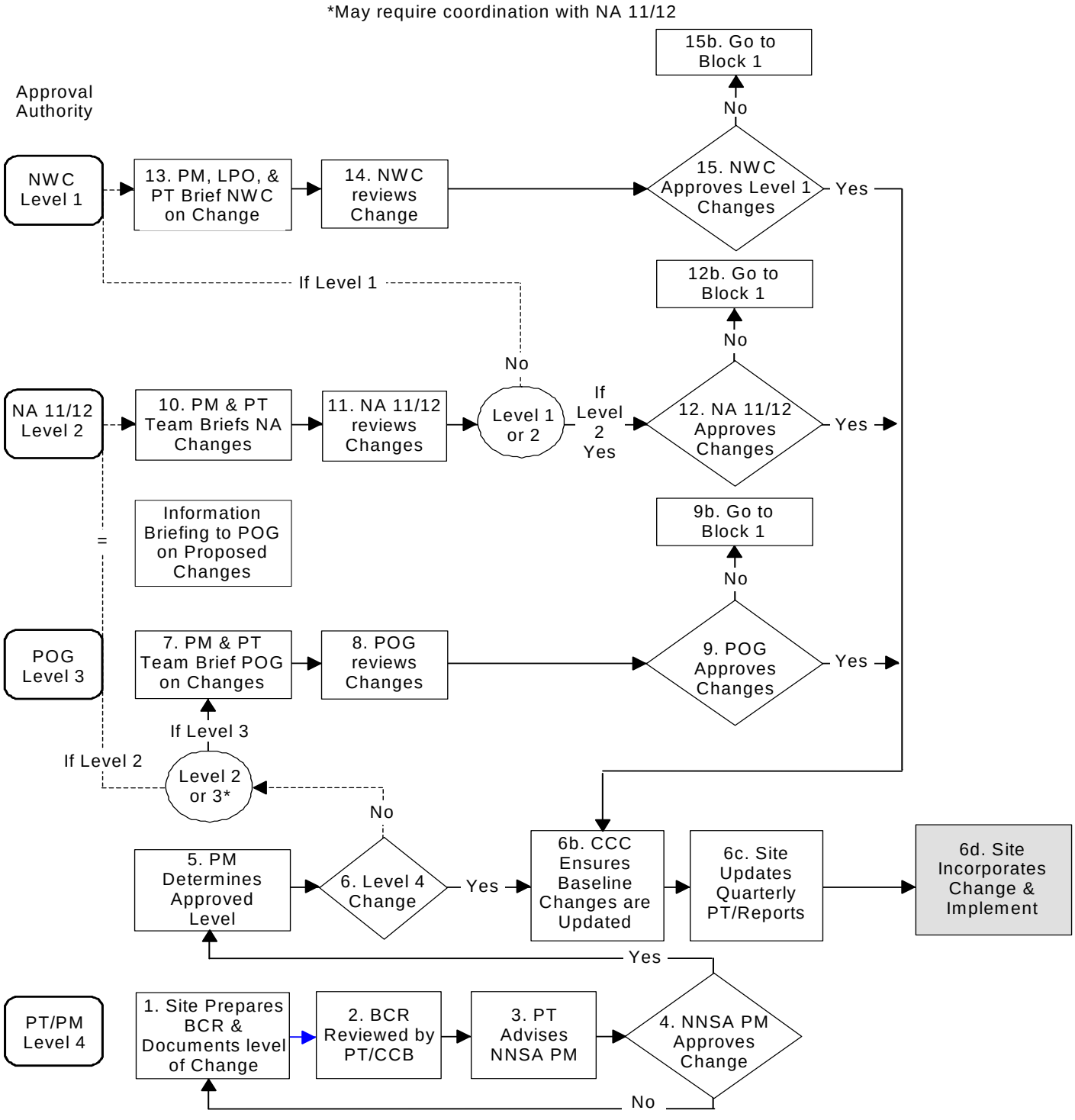

Figure 3-4-1: LEP Change Control Process Flow

5.0 RESPONSIBILITIES

5.1 Thresholds

The following thresholds indicate the approval/authority level and when a Baseline Change Request (BCR) is required to change the LEP baseline. The Change Control Authority may grant conditional approval dependent upon the complexity of the change and as deemed necessary to ensure continued operations.

Table 3.4-1. LEP Change Control Authority Table

Approval/Authority Level	Cost	Scope	Schedule
Level 1--Nuclear Weapons Council	Greater (>) than 10% total LEP program cost	Change in NWC approved scope or change in Military Characteristics or STS that affect mission need and requirements	Cumulative change in NWC milestones that will affect FPU and result in a significant impact to mission need and requirements. ALL changes to NWC-approved Phase 6.x dates must be reviewed and approved.
Level 2--NA-11/12	Greater (>) than 20% change to site, annual, LEP program cost or Greater (>) than10% total LEP program cost, or reprogramming actions	Change to scope that may impact operation functions (e.g. new plant capability or significant change in capacity requiring additional facilities including changes that are caused by overlaps of multiple LEPs) but does not affect mission need and requirements	Cumulative change in NA milestones that may affect FPU or result in a significant impact to mission need and requirements
Level 3--Project Officer's Group	Changes in reimbursable funding authority	Change in MC or STS or ICD that may affect mission need and requirements	Cumulative change in POG milestone reflected in the joint integrated project plan that may affect FPU or result in a significant impact to mission need and requirements.
Level 4--LEP Program Manager	Greater (>) than10% change to site, annual, LEP program cost or Greater (>) than 5% total LEP program cost	Change in scope defined in the LEP program/project plan	Cumulative change in PM approved milestones or deliverables, or reduction in the standard lead times which result in increased risk in meeting UU deliverables

5.2 Nuclear Weapons Council (NWC)

1. Provides Directed Changes documentation and rationale.
2. Reviews and dispositions Level 1 changes or serves as the change control authority for Level 1 changes.
3. Coordinates and communicates, acceptance or non-acceptance of Level 1 changes to the DOE/NNSA Deputy Administrator for Defense Programs (NA-10).

5.3 Assistant Deputy Administrator for Military Application and Stockpile Operations (ADAMASO), NA-12 and Assistant Deputy Administrator for Research, Development and Simulation (ADARDS), NA-11

1. Provides Directed Changes documentation and rationale.
2. Reviews and dispositions Level 2 changes or serves as the change control authority for Level 2 changes.
3. Coordinates, communicates, and recommends acceptance or non-acceptance of Level 1 changes to NNSA senior management prior to presentation to the NWC.

5.4 Project Officer's Group

1. Reviews and dispositions Level 3 changes or serves as the change control authority for Level 3 changes.

5.5 LEP Program Manager

1. Directs the development and implementation of specific weapon LEP change control processes.
2. Coordinates, communicates and recommends acceptance or non-acceptance of Level 1, 2, and 3 changes to appropriate management level.
3. Reviews and dispositions Level 4 changes or serves as the change control authority for Level 4 changes.
4. Requests Directed Change BCRs (with defined impacts) from each site.
5. Appoints a LEP Change Control Coordinator (CCC).

5.6 Project Team

1. Consists of representatives from each site that has a stake in the LEP.
2. Functions as the LEP Change Control Board (CCB).
3. Reviews Levels 1, 2, 3, and 4 BCRs and makes recommendations to the Change Control Authority for disposition.

4. Each member of the CCB has an obligation to make an effective case for their preferred course of action before recommendation(s) are made to the Change Control Authority.
5. Endorses Levels 1, 2, 3, and 4 BCRs.
6. Supports the development and implementation of the specific weapon LEP Change Control Processes that fall within this chapter.
7. Provides assistance to the LEP Program Manager in coordinating and communicating Level 1, 2, and 3 changes to the appropriate management level.

5.7 Site Representatives (includes production plants and design agencies)

1. Executes the LEP Change Control Process at their site.
2. Manages and controls Site(s) Initiated and Site Level 4 changes.
3. Initiates BCRs for all change levels and provides impact BCRs for Directed Changes.
4. Updates site documentation (scope, cost, schedule) as necessary to incorporate approved changes.
5. Ensures integration of the LEP change control process with site systems for scope, cost, schedule, and change control.
6. Periodically submits a summary of accumulated approved changes and their impact as a whole upon the total LEP effort.

5.8 LEP Change Control Coordinator

1. Coordinates the LEP CCB and processes BCRs through the appropriate review and approval levels.
2. Follows-up on BCRs awaiting disposition.
3. Ensures results of BCR acceptance and non-acceptance are documented.
4. Updates the LEP Program Plans to reflect approved changes.
5. Notifies all involved parties of the change approval/disapproval. (ex. POG, NA-11/12, PIO, Site Offices, PAs, DAs, etc.)

6.0 REQUIREMENTS

6.1 Pre-Baseline Change Notification

During the 6.1, 6.2 and 6.2a phases of an LEP, a formal baseline for the work scope, cost and schedule will not be established due to the developmental nature of the work. There will however, be published plans and schedules that will be monitored by each level of management as described in section 5.2 through 5.8 of this procedure. While change control approval is not necessary or appropriate during the developmental phases of the LEP, change notification certainly is. Therefore, change notification will be initiated based

on the threshold described in section 5.1. These notifications will use the normal management communication channels within individual organizations specific to the LEP.

6.2 Baseline Change Control

6.2.1 LEP Baseline Establishment

The baseline for change control purposes, is established upon the completion of Phase 6.2/2a of the LEP for a specific weapon system. The LEP is documented in a Weapon Specific Program Plan released and approved by NA-11/12 after the 6.3 authorization is received from the NWC. The Plan incorporates the program performance goals and objectives based on the best planning assumptions at the time of its' preparation. These planning assumptions may change as the program progresses or various external factors alter the original goals and objectives, which will require adjustments to the program/project plan. The program/project plan becomes a dynamic management tool and must be maintained in order to adequately support the LEP. LEP changes are either DOE/NNSA directed or Site(s) initiated.

6.2.2 Baseline Change Requests

Changes to the Program shall be initiated through a BCR as provided in Appendix A. The BCR form is used to describe the proposed changes to the LEP for submittal to the Change Control Authority. The format summarizes general information for a specific BCR. Each BCR must provide a complete record of the requested change and impacts to the program if approved or disapproved. It should be accompanied by changes to the program/project plan describing the proposed cost, schedule, or scope changes.

6.2.3 Directed Change

A directed change is a compulsory change imposed on a project by authority or command, with direction to implement. Such authority may be in the form of (but not limited to) congressional appropriations, DOE/NNSA Headquarter (HQ) approved funding changes, etc. A BCR must be prepared and submitted to the LEP Program Manager defining the impacts to cost, schedule, and technical parameters for subsequent reporting to HQ and dispositioned according to the appropriate thresholds (see LEP Change Control Authority Table). Directed changes are not used to correct cost or schedule variances.

6.2.4 Site(s) Initiated Change

Most changes are initiated at the project level. Changes to baseline schedule, cost, or technical work scope below Level 4 must be evaluated and acted on by the Site(s).

Once the LEP Baseline has been approved, the Site(s) must monitor performance regularly in order to determine if changing events require adjustments to the baseline. However, the following rules of change control management must be observed:

1. Proposed changes must be submitted to the LEP Program Manager for disposition in advance of implementing the approved changes.
2. Approved Changes must not be implemented without verification of the availability of sufficient funding.
3. Prior to implementation, proposed changes must be reviewed and approved by the Change Control Authority.
4. Issues can be combined into a single BCR. However, the change control authority level lies with the single highest threshold.

6.2.5 Notification of Decision (Change Processing Time Designation)

The Change Control Authority ***will*** disposition a BCR as follows:

- Emergency = 1 working day of receipt of a BCR.
- Priority = 10 working days of receipt of a BCR.
- Routine = 20 working days of receipt of a BCR.

Within three working day(s) of a change decision, the CCC will provide a copy of the final notification documenting the decision to all LEP Stakeholders.

Within five working days, the CCC will update the change control log and file a complete copy of the BCR and supplemental documentation in the file.

Each Site(s) will log the status of all BCRs on the Site(s) change control log for submittal with supporting documents to the LEP Program Manager.

6.2.6 Incorporation of Approved BCRs

Upon disposition, the Site(s) must implement the BCR changes and submit the appropriate LEP program/project plan sections to the CCC for incorporation into the Baseline LEP program/project plan before the close of the next accounting month and include the change in the next report. If a Site(s) is unable to submit the appropriate LEP program/project plan sections prior to the next reporting deadline, the Site(s) must notify the CCC and LEP Program Manager prior to the report's submittal.

7.0 REFERENCES

1. 90 Day Study NNSA Program Plan by LEP delivered in 2001

8.0 POINT OF CONTACT FOR ADMINISTRATION

S. Schwartz, Program Analyst, Office of Nuclear Weapons Stockpile, Stockpile Systems Division, NA-122.1 (505) 845-4823 is responsible for this chapter.

9.0 APPENDIX

Appendix A: Baseline Change Control Request

APPENDIX A—BASELINE CHANGE CONTROL REQUEST

The following are instructions for completing a BCR. A sample BCR form is provided following these instructions.

1. **Site(s) Name:** Enter name of the Production/Design Agency submitting the BCR at the top of the form.

2. **BCR Number:** Enter a unique identifier for each BCR. It is a sequential number assigned by the Site(s) and includes the LEP program name, current fiscal year (FY) and up to a three-digit number. E.g., the first BCR in FY for a Site(s) could be identified by "B61-357-02-001."

3. **Change Request Title:** Enter the title of the BCR.

4. **Date Prepared:** Enter the date that the BCR is forwarded.

5. **WBS Number:** Enter the Work Breakdown Structure number applicable to BCR.

6. **WBS Subproject Title:** Enter the Work Breakdown Structure Title applicable to BCR.

7. **Decision Need Date:** Date in which a decision needs to be made.

8. **Originator/Point of Contact:** Enter the name, phone and FAX numbers, and organization of the site weapon program manager.

9. **Type:** Indicates the type of change and processing time designation (i.e., Directed or Project Initiated, see explanation in section 6.2.3, 6.2.4, and 6.2.5).

10. **General Description:** Enter a brief narrative explaining the BCR. This narrative should reference the Summary Deliverable(s) impacted by the BCR. References to attachments should be made if necessary to enhance the reviewer's understanding.

11. **Justification For Change:** Enter a description of the reason(s) for the change. In some cases, this will be a change in scope resulting from regulatory requirements.

12. **Impact Assessment:** Enter a description and analysis of the significant technical, cost, and schedule impacts associated with the BCR. Use of attachments to highlight the impact of the changes is required. Typically a draft program/project plans with the associated changes highlighted is used to indicate the affect of the change. The Impact Assessment should

also include resulting impacts if a decision is not made by the "Decision Need Date" and any alternatives/options that need to be considered. The following describes the types of attachments and/or references that should be included in a BCR, depending on the type of change:

- **Schedule Impact:** Significant schedule changes must be addressed. Describe the impact, if any, to milestones, the project end date, changes to deliverables, etc. An attachment showing the Before and After condition of the schedule in question MUST be included if there is a schedule impact as a result of the BCR. This schedule should show the data at the Deliverable Level.

- **Cost Impact:** The total cost impact of the change should be stated. In addition, reference to an attachment detailing the Before and After time phasing of the costs MUST be included. A Cost Plan format may be used, but is not necessarily a required format.

- **Scope Impact:** Include information that will assist to further define or determine the technical merits of the change.

- **Risk Impact:** Include information that will assist to further define or determine the potential risk factors (i.e. factors affecting program, safety, or reliability) with this change.

- **Impact of Non-Approval:** List any impacts to the Program if this BCR is not approved.

13. **CCB Project Team Recommendation:** Document the Project Team's recommendation to the NNSA Program Manager.

14. **Dates Reviewed and Recommendations for Approval:** List review dates and recommendations.

15. **Approval Signature:** Signature by the appropriate approval authority based upon threshold levels.

16. **Reason for Conditional Approval:** Should Conditional Approval be deemed necessary by the Change Control Authority in order to ensure continued operations, the reason is provided.

Life Extension Program
BASELINE CHANGE REQUEST (BCR) FORM

1. SITE NAME:		
2. BCR NO:	3. CHANGE REQUEST TITLE:	4. DATE PREPARED:
5. WBS N0:	6. WBS SUBPROJECT TITLE:	7. DECISION NEED DATE:

8. ORIGINATOR/POINT OF CONTACT: Name: Phone: FAX: Organization:	9. TYPE OF CHANGE: DIRECTED CHANGE: ( ) LEVEL 1, 2, 3, OR 4 CHANGE: ( ) indicate Level # PROCESSING TIME DESIGNATION: ( ) Emergency = 1 working day ( ) Priority = 10 working days ( ) Routine = 20 working days

10. GENERAL DESCRIPTION:

11. JUSTIFICATION FOR CHANGE:

12. IMPACT ASSESSMENT
- IMPACT ON SCHEDULE (include impact if decision is not timely):
- IMPACT ON COST (include impact if decision is not timely):
- IMPACT ON SCOPE: (include impact if decision is not timely):
- IMPACT ON RISK (attach risk assessment):
- IMPACT OF NONAPPROVAL:

13. CCB/PROJECT TEAM RECOMMENDATION:

14. DATE REVIEWED BY CCB/PROJECT TEAM: _____ LEP PROGRAM MANAGER :_____ RECOMMENDS APPROVAL (initials) ( ) RECOMMENDS NON-APPROVAL (initials) ( ) RECOMMENDS CONDITIONAL APPROVAL (initials) ( )	15. SIGNATURE: _____ Change Approval Authority (Based on CAA Table) DATE: _____ ☐Approved ☐Disapproved ☐Conditional Approval NOTIFICATION ISSUED BY: _____ _____ DATE

16. Reason(s) for Conditional Approval:

DEVELOPMENT AND PRODUCTION MANUAL

D&P Order	REV	DATE
56XB	**2**	**February 27, 2004**

Chapter 3.6: CONFIGURATION OF TYPE WEAPONS

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	Original Release 02-27-2004_____

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LIST OF TABLES

1.0 OBJECTIVE

- Define TYPE weapons and weapon cutaways and explain how they are configured, funded, manufactured, and supported.
- Ensure TYPE weapons and weapon cutaways represent the current War Reserve (WR) configuration to the extent necessary to support the requirements of the user.

2.0 APPLICABILITY

These requirements apply to the U.S. Department of Energy (DOE)/National Nuclear Security Administration (NNSA) Office of Defense Programs, NA-10 organizations, Site Offices, NNSA Service Center, and DOE/NNSA contractor organizations with the responsibility for executing any phase of the nuclear weapons program.

3.0 DEFINITIONS

See the 56XB Glossary, Acronym, & Cross Reference (GAC) Section.

4.0 REQUIREMENTS and RESPONSIBILITIES

4.1 Joint Configuration Working Group

The configuration of all TYPE weapons is established by the Joint Configuration Working Group (JCWG). JCWG participants include SNL Military Liaison Department (MLD), appropriate DAs, PAs, NA-122, and, for TYPE 2 and TYPE 3 weapons only, DTRA, and the using military service. Table 3.6-1 summarizes the configuration events. The schedule in the table is for guidance only. Specific dates to support the TYPE weapons are established as a part of the joint configuration process. Figure 3.6.1 is a simplified flow chart of that process.

At its meetings, the JCWG examines the requirements for TYPE weapons and defines the minimum number of types needed to satisfy all DOE/NNSA and DoD requirements. The JCWG does not define Early Type (ET) units produced by the military. Military ET units do not receive DOE support and are not TYPE weapons.

The configuration of cutaway weapons produced by the DOE/NNSA for the DoD is based on agreement reached at the JCWG meeting. The DOE/NNSA does not support weapon cutaways after production.

Table 3.6-1. Summary of Configuration Events*

Months after Phase 3/6.3 or design changes and Military Characteristics Determination Exact dates are mutually agreed to by participants	Event	Purpose	Participants
Approximately 4	DOE/NNSA timetable briefings for DAs and NA-122.**	Present technical data on program, including mechanical, electrical, and logistics, as known at this time, propose WR time scales.	SNL; LANL or LLNL; NA-122
4	Key Date Planning Conference.***	Establish dates of events listed below and establish preliminary plan for type FPU.	SNL; NA-122L
5	Pre-Joint-Configuration-Working-Group briefing.***	Present mechanical and electrical design description, maintenance and logistic concepts, and explosive ordnance render-safe and disposal concepts. SNL MLD presents briefing on key dates.	Pantex; DoD; LANL or LLNL; DTRA;NA-122; SNL
6	DOE/NNSA publishes key dates document.	Give formal notification of key dates.	NA-122
7	DoD states requirements to SNL and NA-122	A prerequisite for the JCWG meeting	DTRA; NA-122; SNL
8	JCWG meeting to define TYPE weapons required by DoD.***	Translate the DoD requirements for type weapons and weapon cutaways into preliminary design specification.	SNL; NA-122; LANL or LLNL; DTRA; DoD; PA
8	JCWG meeting to define TYPE weapons required by SNL and Pantex.***	Translate the SNL and Pantex requirements into design specification.	SNL; NA-122; LANL or LLNL; Pantex
10	Preliminary design layout drawings review with DoD.**	Review requirements and design.	SNL; NA-122; LANL or LLNL; Pantex
10	Preliminary design layout drawing review with PAs.	Review requirements and design prior to transmitting drawings to PAs.	SNL; NA-122; LANL or LLNL; PA
11	Drawings sent to PAs.	Assist PAs in making cost estimates.	SNL
12-13	PA cost estimates provided to NA-122 for DoD requirements.	Review and approval of cost estimates by NA-122. (Copies to SNL MLD and DA.)	SNL

Table 3.6-1. Summary of Configuration Events* (Concluded)

Months after Phase 3/6.3 or design changes and Military Characteristics Determination Exact dates are mutually agreed to by participants	Event	Purpose	Participants
13-14	NA-122 sends cost estimates to DTRA.	DOE/NNSA advises DTRA of cost estimates for planning and budget purposes. (Copies to SNL MLD and DA.)	SNL; NA-122; PA
14-15	SNL, Pantex, and DoD TYPE requirements sent to NA-122 prior to Phase 4 production authorization.	Requisitioning of material based on cost information.	SNL; NA-122; DTRA
15-16	Confirmation of TYPE FPU plan.	Confirmation to NA-122.	SNL; NA-122

*ABBREVIATIONS:

NA-122 Office of Nuclear Weapons Stockpile
SNL Sandia National Laboratories
LANL Los Alamos National Laboratory
LLNL Lawrence Livermore National Laboratory
DTRA Defense Threat Reduction Agency
JCWG Joint Configuration Working Group
MLE (SNL) Military Liaison Engineering
FPU First Production Unit
WR War Reserve

** Not a configuration event but a scheduled briefing that provides a convenient starting point for configuration activities.
*** SNL MLD is responsible for convening.

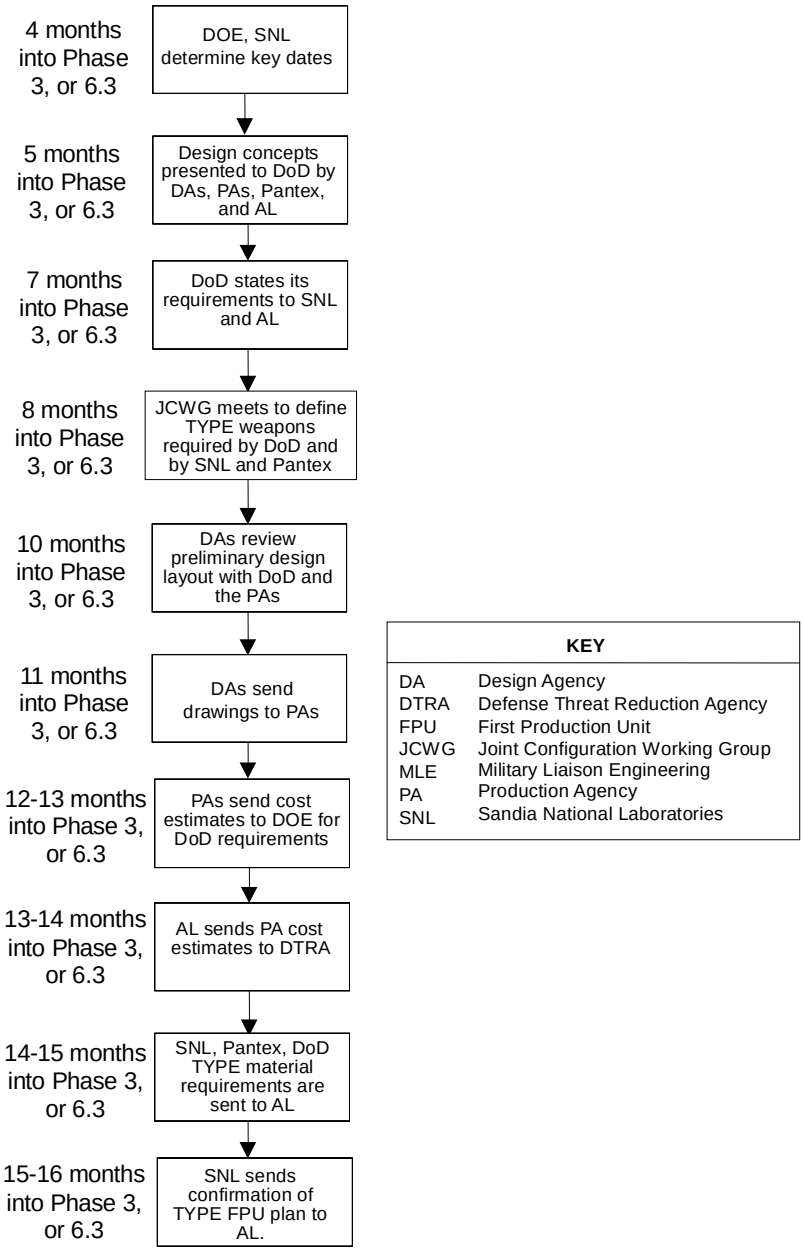

Figure 3.6-1. TYPE Weapon Configuration Process

4.2 Sandia National Laboratories, Military Liaison Department

SNL MLD convenes pre-JCWG and JCWG meetings for significant TYPE weapon modifications (MODs), alterations (ALTs) and Stockpile Life Extension Program (SLEP) (see Chapter 3.2 for the 6.X process).

4.3 Design Agencies

At the pre-JCWG meeting, DAs brief the DoD on the electrical and mechanical design of the WR weapon and on its maintenance, logistic, and Explosive Ordinance Disposal (EOD) concepts. DOE/NNSA key dates for the weapon program are also presented. The DAs present this information a second time at the JCWG meeting.

After the JCWG meeting, the DA conducts a preliminary design layout review with NA-122, SNL MLD, and DoD personnel to review TYPE weapon and cutaway designs. The DA creates a drawing set for control of TYPE weapons, and maintains it throughout the life of the weapon program.

DAs and PAs (including Pantex) establish a system to ensure the upgrading of ET5 weapons as long as they are being used.

SNL MLD receives either a TYPE 3A or 3C weapon and uses it to evaluate Engineering Evaluation (EE) samples of test, handling, and disablement equipment and to evaluate training and retrofit activities throughout the stockpile life of the weapon system. This unit is identical to the TYPE 3A or 3C units sold to the DoD for operational and maintenance training, but is paid for by the DOE/NNSA.

DAs and the PAs audit the drawing set compatibility between WR and TYPE weapons. DAs continually assess the adequacy of military spares authorized to support TYPE 3 weapon trainers (see Chapter 7.1).

The DAs and SNL MLD review changes in WR definitions throughout the life of the weapon program for impact on TYPE weapons. TYPE weapon design must reflect the most current WR weapon design at all times.

DAs may authorize PAs to use a component that does not meet specification in a TYPE weapon or cutaway by issuing a Specification Exception Release (SXR). Major specification departures that affect the user's requirements, such as the substitution of less than WR components for WR components, must be coordinated with the user. Components for ET5 weapons are exempt from SXRs.

DAs will determine if an in-process change to WR weapons or JTA is applicable to TYPE weapons. If so, the TYPE weapon definition will be changed, and the drawing set updated. New material requirements will be coordinated with NA-122.

DAs will jointly develop with Pantex the contents of the ET5 Weapon Assembly Book (WAB).

4.4 Department of Defense

DTRA and the using military service participate in the pre-JCWG, JCWG, and design review meetings on TYPE 2 and TYPE 3 weapons with NA-122, SNL MLD, and the DAs.

At or before the JCWG meeting, the DoD notifies NA-122 of the DoD's tentative TYPE weapon requirements, including definition, use, quantities, and requested delivery schedules. Firm DoD requirements for TYPE 2 and 3 weapons, supported by reimbursable purchase orders from DTRA, are presented to the DOE/NNSA after the TYPE weapons have been configured, the designs have been approved, and the DOE has provided the DoD with cost estimates. TYPE weapons are built for and billed to the DoD on a full-cost-recovery basis.

DTRA issues reimbursable purchase orders NA-122 to fund for repairs and retrofits to TYPE 2 and TYPE 3 weapons the DoD purchases from the DOE/NNSA.

DoD shares a joint responsibility with DOE/NNSA to assess the fidelity impacts to TYPE 2 and TYPE 3 units during weapon retrofits (i.e., ALTs, MODs, SLEP changes).

4.5 Office of Nuclear Weapons Stockpile (NA-122)

Nominally three to four months after the JCWG meeting, NA-122 meets with DA, SNL MLD, and DoD personnel to review DA TYPE weapon and cutaway designs.

The DOE/NNSA builds cutaway weapons for the DoD and DOE/NNSA users. Cutaways receive no DOE/NNSA inspection or acceptance

NA-122 obtains cost and lead-time information for TYPE weapons and cutaways from the responsible PA.

Cutaways for the DoD are funded by reimbursable purchase order from DTRA. NA-122 accepts all reimbursable purchase orders under the provisions of the Economy Act of 1932, as amended. (See Chapter 7.1).

DAs purchase cutaways directly from the responsible PA.

NA-122 schedules the production of all TYPE weapons in the weapon Program Control Document (PCD).

For weapon programs in Phase 6, for which there are no TYPE 5D trainers, NA-122 and Pantex are responsible for convening the configuration meetings.

If a retroactive change to a WR weapon is determined to be applicable to TYPE weapons, the NA-122 program manager will direct the support contractor to change the DOE/NNSA TYPE weapon definition in PPD-B-XX and will schedule TYPE weapon retrofit kits in the weapon PCD. Retrofit kits for DoD TYPE 2 or TYPE 3 weapons will be funded by reimbursable purchase order from DTRA.

DOE/NNSA shares a joint responsibility with DoD to assess fidelity impacts to TYPE 2 and TYPE 3 units during weapon retrofits (i.e., ALTs, MODs, SLEP changes).

4.6 Production Agencies

PAs furnish weapon material to the DOE/NNSA model shop on a reimbursable basis to support weapon cutaway fabrication.

For ET5 and TYPE 5 fabrication scheduled in the weapon PCD, PAs furnish weapon material to Pantex on a budgetary basis. For ET5s not scheduled in the weapon PCD, PAs and DAs will provide weapon components from development and/or EE hardware.

PAs (including Pantex) and DAs establish a system to ensure upgrading of ET5 weapons as long as they are being used. ET5 and TYPE 5 material quality criteria are determined jointly by the user, the PA, and the DA.

4.7 Pantex Plant

Pantex produces an ET5D JTA trainer before the first JTA. The ET5D is replaced with a TYPE 5D before the first-production JTA is built.

Pantex and NA-122 are responsible for convening the configuration meetings for weapon programs in Phase 6 that have no TYPE 5D defined.

The quality and source of material for ET5 and TYPE 5 is jointly determined by the user, the PAs, the DAs, and AL.

Pantex procures maintenance material for all DOE/NNSA TYPE weapons and the SNL MLD TYPE 3A and TYPE 3C by use of attrition orders.

Pantex prepares and maintains a WAB for each ET5 assembled. Pantex will coordinate the contents of each WAB with the DA, and will archive the WAB when conversion to TYPE 5B is accomplished. Record of Assembly (ROA) information is not required by the DA on ET5s.

All TYPE weapon material support for Pantex from other PAs and for SNL TYPE weapons from Pantex will be provided at no cost to the receiving agency.

5.0 REFERENCES

1. For stockpile support, generic MOUs include DE-GMO4-84AL-30536 for ancillary equipment and DE-GMO4-89AL-53649 (Navy) and DE-GM04-2001AL77146 (Air Force) (if applicable)

6.0 POINT OF CONTACT FOR ADMINISTRATION

R. Gergen, Office of Nuclear Weapons Stockpile, Stockpile Systems Division, NA 122.1, 505-845-5192 is responsible for this chapter.

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Chapter 3.7: INTERLABORATORY PEER REVIEW PROCESS

CHAPTER CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	Original Release 08-25-2008
B	Change Notice 8 dated 08-26-2013, FCO20140272SA effective 03-31-2014

TABLE OF CONTENTS

1.0 OBJECTIVE

This chapter provides the framework for the conduct of Interlaboratory Peer Review (IPR) within the nuclear weapons complex.

2.0 BACKGROUND

IPRs have been used for many decades to conduct independent assessments of nuclear warhead designs and other technical issues. In the modern era, there are four principal reasons to conduct IPRs:

(1) To provide independent assessment of a technical issue pertaining to the surety, reliability or performance of a stockpile system ;
(2) To enhance the technical credibility of the qualification of nuclear warhead components/processes and the certification of nuclear warheads for organizations and agencies external to the NNSA/DP;
(3) To provide a process to identify and resolve technical issues to improve the quality of the product being reviewed; and
(4) To support program management decisions by National Nuclear Security Administration/Defense Programs (NNSA/DP) personnel.

For as long as the current moratorium on nuclear testing continues, IPR will be an integrative pathway by which new and modified warhead designs can be technically challenged and validated. The confidence-building function formerly provided by explosive nuclear tests will be assumed by the technical evidence to be reviewed by the IPR process. This document promulgates a more formal and rigorous architecture for the conduct of IPRs to meet this expectation.

3.0 APPLICABILITY (Revised by R006 per Change Notice 8 and reference IER20132739SA)

~~This chapter supersedes *Development and Production (D&P) Manual*, Chapter 3.2, Appendix F, dated 31 March 2004, and the *Procedural Guidelines for Interlaboratory Peer Review*, dated 01 September 2000.~~

These requirements apply to the U.S. Department of Energy (DOE)/NNSA Office of Defense Programs (NA-10) organizations, Site Offices, the NNSA Service Center, Los Alamos National Laboratory (LANL), Lawrence Livermore National Laboratory (LLNL) and Sandia National Laboratories (SNL) for work associated with nuclear weapons.

4.0 DEFINITIONS

See Glossary, Acronym, & Cross Reference Section provided at prp.sandia.gov/Glossary.

5.0 REQUIREMENTS

5.1 General (Revised by R006 per Change Notice 8 and reference IER20132739SA)

The NNSA/DP organization is responsible for establishing requirements for and providing Federal oversight of the IPR process.

The Director (or designated Associate Director/Vice President) of the Laboratory with Design Agency responsibility for the warhead, component or technical issue subject to review is responsible for the initiation, tasking, scope definition and scheduling of the IPR and the technical quality of the Design Agency products and resolving IPR findings.

The Director (or designated Associate Director/Vice President) of the Laboratory conducting the IPR is responsible for the membership of the IPR team, the execution of the IPR and the technical quality of the IPR team products.

An IPR is required under the following circumstances:

- Prior to the conclusion of Phase 2A, Phase 3 and Phase 4 of a new or replacement warhead development project being managed by the Phase 1-7 process and associated gates;
- ~~Prior to the conclusion of Phase 6.2A, Phase 6.3 and Phase 6.4 of a warhead refurbishment (life extension, modification or alteration) or a component replacement project being managed by the Phase 6.x process.~~

An IPR is discretionary under the following circumstances:

- As part of a component replacement project that is not being managed by the Phase 6.x process;
- Prior to the closure of a Significant Finding Investigation (SFI);
- As part of the resolution of significant technical issues, such as those that might arise as a result of qualification, certification or assessment activities, that could affect warhead surety, reliability or performance as

defined by the Military Characteristics (MCs) and the Stockpile-to-Target Sequence (STS);

- Because Phase 2/6.2 activities are competitive in nature, IPRs as part of the Phase 2/6.2 process are inappropriate. However, if considered necessary and requested by the Deputy Administrator (NNSA/NA-10) and accepted by the Directors (or designated Associate Directors/Vice Presidents) of the Laboratories submitting designs, Phase 2/6.2 IPRs may be conducted;
- Following the completion of Phase 4/6.4 (Production Engineering), if there are technical issues that have not been resolved previously; or
- To support NNSA decisions involving significant costs, if requested by the Assistant Deputy Administrator for Science, Engineering and Production Programs (NNSA/NA-12) and accepted by the Director (or designated Associate Director/Vice President) of the Laboratory responsible for the warhead, component or technical issue subject to review.

To ensure transparency in the review process, NNSA may commission an independent examination to assess the effectiveness of the IPR process. This will be done in coordination with the appropriate Laboratory Directors.

5.2 Planning

5.2.1 Funding

Funding for required IPRs will be provided by the NNSA as part of the project plan and will be commensurate with defined scope.

Funding for discretionary IPRs will be negotiated among the NNSA, the Director (or designated Associate Director/Vice President) of the Laboratory requesting the IPR, and the organizations providing members to the IPR.

5.2.2 Initiation

Federal Program Managers will ensure that Phase 1-7/Phase 6.x project plans reflect required IPRs. Discretionary IPRs will be reflected in project plans or implementation plans, if they are used.

Required and discretionary IPRs will be initiated by a letter from the Director (or designated Associate Director/Vice President) of the Laboratory requesting the IPR to the Director (or designated Associate Director/Vice President) of the Laboratory being asked to conduct the IPR.

5.2.3 Tasking

The Director (or designated Associate Director/Vice President) of the Laboratory requesting the IPR will approve and issue a formal tasking document that includes the following elements:

- Purpose;
- Scope;
- Funding;
- Schedule;
- Members; and
- Documentation and reporting requirements.

For simple IPRs, the tasking document can function as an integrated project plan. For more complex IPRs, the tasking document can be used as a basis for developing an integrated project plan or implementation plan. The Laboratories requesting and conducting the IPR will collaborate with the NNSA in the generation of IPR tasking documents, integrated project plans and implementation plans, as applicable. A draft version of the applicable document should be provided to participating organizations and the NNSA/DP for review and comment prior to approval and issuance.

Changes in scope or funding as the IPR proceeds may require that the tasking document be revised and reissued.

5.2.4 Scope

The Director (or designated Associate Director/Vice President) of the Laboratory requesting the IPR shall consider the following items when developing the Scope section of the tasking document:

- Whether or not the requirements, including (but not limited to) the MCs, the STS, Interface Control Documents (ICDs), and other requirements, such as use control and fuzing, are adequately defined, validated, and documented;
- Whether or not the design adequately meets the surety, reliability, and performance requirements, including an assessment of safety and performance margins and uncertainties;
- An assessment of the adequacy of the component/process qualification plan and the warhead certification plan, including an evaluation of the metrics used in their development and the methods employed to qualify/certify;
- An assessment of the reasonableness of design alternatives considered;
- An assessment of risk and mitigation strategies;

- Independent calculations, analyses, modeling and simulation of critical design elements, and/or technical judgment as achievable under the constraints of the IPR schedule and budget;
- Identification of production, warhead support, surveillance plans and stockpile life cycle management issues; and
- Whether or not environmental, safety and health (ES&H), security and quality issues are properly addressed.

The list above is not limiting and the requesting Laboratory may consider additional topics in the development of the scope of the IPR. Specifically, the Director (or designated Associate Director/Vice President) of the Laboratory conducting the IPR may request certain formal tests of an experimental or computational nature to support the independent assessment of surety, reliability, or performance.

The scope of the IPR shall not include an assessment of the need for or the cost of the warhead, component or technical issue under review.

By definition, an IPR must extend beyond a mere review of technical reports, briefings, and test results.

5.2.5 Schedule

The IPR schedule must be based on the schedule for the delivery of the products described in the Documentation and Reporting Requirements subsection below. The activities required to achieve the scope of the IPR, such as data transfer and analysis, experimental work, computer simulations and document preparation and review, should be developed and specified backwards in time from product delivery time, taking into account the specified scope and the amount of time required to accomplish intermediate steps of the IPR.

5.2.6 Members

The Director (or designated Associate Director/Vice President) of the Laboratory requesting the IPR is responsible for the Design Agency Team that owns the warhead, component, or technical issue subject to review and for the resolution of IPR results.

The Director (or designated Associate Director/Vice President) of the Laboratory conducting the IPR will designate IPR Team (IPRT) members and the IPRT Leader. These personnel will be specified in a written response to the tasking document.

For IPRs requested by LANL or LLNL, respectively, the IPRT Leader will be from LLNL or LANL, respectively. Members will be principally from LLNL or LANL, respectively. If appropriate, participation by technically qualified personnel from SNL, the Atomic Weapons Establishment (AWE), and other agencies is allowed.

For IPRs requested by SNL, the Director (or designated Vice President) of SNL will designate a suitably independent, knowledgeable IPRT. Membership will include at least one technically qualified individual from LANL or LLNL if appropriate for the subject being reviewed. If appropriate, participation by technically qualified personnel from the AWE and other agencies is also allowed.

For those IPRs that include production issues, participation by technically qualified personnel from applicable production plants is appropriate.

5.2.7 Preparing for, conducting and closing out the IPR

The Laboratory requesting the IPR will provide the IPRT with material in time for it to prepare for the review, assure access to all required Design Agency Team members during the review, and provide a plan for closing out the findings.

The IPRT will perform applicable reviews, interviews, tests, and calculations prior to reviews. The IPRT will have copies of required materials and hardware on hand for the review. The IPRT will conduct the review, document comments, observations, opinions, recommendations, findings and actions during the review, and review the findings and actions with the Design Agency Team at the end of the review.

5.2.8 Documentation and Reporting Requirements

5.2.8.1 IPRT Report

The IPRT will create a written report (the IPRT Report) that is approved by the IPRT Leader and forwarded to the Design Agency Team at the Laboratory requesting the IPR. The report will include the following elements:

- A copy of the tasking document;
- A summary of the work conducted by the IPRT; and
- IPRT comments, observations, opinions, recommendations and findings, as appropriate.

The written report may include a minority report section that dissents from the majority report.

IPRT comments, observations, opinions, and recommendations are for information only. Acceptance of and/or implementation of corrective actions for items in these categories are at the discretion of the Laboratory requesting the IPR.

IPRT findings are defined as issues that affect warhead surety, reliability, or performance, and must be formally resolved.

5.2.8.2 Resolution Report

The Design Agency Team will create a written report (the Resolution Report) that formally resolves all findings. It is desirable, but not required, that the Design Agency Team and the IPRT concur with the resolution of each finding. It is required that the Design Agency Team obtain and document the Design Agency Director's concurrence with the resolution of each finding.

The Resolution Report will address, at the discretion of the Design Agency Team, IPRT comments, observations, opinions, and recommendations.

5.2.8.3 Summary Report

If the scope of the work and the associated IPR are sufficiently complex, the IPRT Leader and the Design Agency Team may, at their discretion, create a separate summary report (the Summary Report) that describes the major issues and the resolution of those major issues.

5.2.8.4 Generation of Final Reports

The sequence of report generations described in sub-sections 5.2.8.1, 5.2.8.2 and 5.2.8.3 above may be repeated iteratively to refine draft versions of the IPRT Report, the Resolution Report, and the Summary Report (if written). The concurrence of the Design Agency Director on the resolution of each finding is required to complete this iterative process.

At the conclusion of the iterative process described above, the Design Agency Team will present the IPRT Report, the Resolution Report, and the Summary Report (if written), to the IPRT Leader and the Director (or designated Associate Director/Vice President) of the Laboratory requesting the IPR.

5.2.8.5 Joint Briefing

The IPRT Leader and the Design Agency Team will jointly develop a briefing that summarizes the results of the IPRT Report and the Resolution Report.

The IPRT and Design Agency Team will present the final IPRT Report, the final Resolution Report, any final Summary Report, and the briefing to appropriate NNSA/DP personnel. For IPRs required to support the Phase 1-7/Phase 6.x processes, this briefing and associated Reports provide the information needed to support a decision to proceed to the next Phase.

5.2.8.6 Information Management

No written or verbal reports of IPR activities, whether in draft or final format, will be provided to external agencies or organizations, without the concurrence of the NNSA and both the Director (or designated Associate Director/Vice President) of the Laboratory requesting the IPR and the Director (or designated Associate Director/Vice President) of the Laboratory conducting the IPR.

5.3 IPR Implementation

The actual content of the IPR is dependent on the weapon phase being reviewed, consistent with Phase 1-7/6.x and associated gates. Each IPR after Phase 1 will assess warhead/component surety, reliability and performance. Each weapon phase beyond Phase 1 addresses a specific set of criteria.

5.3.1 Phase 2/Phase 6.2 – Feasibility Study

Because the Phase 2/6.2 process is competitive in nature, Phase 2/6.2 IPRs are not appropriate. However, as noted in Section 5.1, discretionary Phase 2/6.2 IPRs may be conducted if considered necessary and requested by NNSA (NA-10) and accepted by the Directors (or designated Associate Directors/Vice Presidents) of the Laboratories submitting designs.

A Phase 2/6.2 IPR (if authorized) would

- Validate the requirements and that they have been appropriately addressed;
- Verify the feasibility of candidate design(s);
- Evaluate the draft component/process qualification plan and/or warhead certification plan for adequacy and completeness;

- Evaluate the rationale for and technical risks of replacing/not replacing components; and
- Assess warhead/component surety, reliability and performance.

5.3.2 Phase 2A/Phase 6.2A – Design Definition and Cost Study

A Phase 2A/Phase 6.2A IPR would

- Evaluate the adequacy of the proposed design(s);
- Evaluate the component/process qualification plan and/or warhead certification plan for adequacy and completeness;
- Assess warhead/component surety, reliability, and performance;
- Assess manufacturability;
- Assess surveillance plans; and
- Assess life cycle plans, including dismantlement.

Phase 2A/Phase 6.2A IPRs shall not be reviews of cost estimates.

5.3.3 Phase 3/Phase 6.3 – Development Engineering

A Phase 3/Phase 6.3 IPR would

- Evaluate whether or not the project has any high risk aspects that would prevent a successful transition to Phase 4/Phase 6.4;
- Evaluate the status of executing the component/process qualification plan and/or warhead certification plan;
- Evaluate the status of issuing engineering release documents;
- Evaluate the status of engineering design drawings; and
- Assess warhead/component surety, reliability, and performance.

5.3.4 Phase 4/Phase 6.4 – Production Engineering

A Phase 4/Phase 6.4 IPR would

- Evaluate the readiness of the design for first production unit authorization decision (Phase 6.5);
- Evaluate the status of executing the component/process qualification plan and/or warhead certification plan;
- Evaluate the status of issuing engineering release documents;
- Evaluate the status of engineering design drawings; and
- Assess warhead/component surety, reliability, and performance.

5.3.5 Discretionary IPRs

The scope and objectives of discretionary IPRs will depend on the specific circumstances of each situation and will be developed on a case-by-case basis. Rationale for not conducting an IPR on a component replacement project will be documented appropriately.

6.0 RESPONSIBILITIES

6.1 Deputy Administrator for Defense Programs, NNSA (NA-10)

- Requests Phase 2/6.2 IPRs (if considered necessary)
- Makes programmatic decisions and authorizes project execution.
- Provides Federal guidance and oversight at the program level.

6.2 Assistant Deputy Administrator for NA-12

- Approves changes to this chapter.
- Requests discretionary IPRs.
- Requests independent reviews of the effectiveness of IPRs (if deemed necessary).

6.3 Director of Stockpile Research, Development and Engineering Division (NA-121.3) and Director of Nuclear Weapons Stockpile Division (NA-122.2)

- Coordinate changes to this chapter.

6.4 Federal Program Managers

- Provides Federal guidance and oversight at the warhead project level.
- Incorporates required IPRs into Phase 1-7/Phase 6.X project plans.
- Provides funding for the conduct of IPRs, when required.
- Reviews and comments on IPR tasking documents.

6.5 Laboratory Directors (or designated Associate Director/Vice President)

- Requests discretionary IPRs.
- Initiates IPRs.
- Issues IPR tasking documents.
- Designates IPR team leader and members.

- Provides oversight and guidance as required to execute the IPR.

6.6 Laboratory Director requesting the IPR

- Concurs in the resolution of IPR findings.

6.7 IPR Team

- Conducts the peer review per the tasking letter.
- Informs the NNSA Program Manager of the IPR schedule.
- Informs the NNSA Program Manager of formal meetings involving multiple sites.
- Documents the review results.

6.8 Design Agency Team

- Prepares the Resolution Report.

7.0 REFERENCES (Revised by R006 per Change Notice 8 and reference IER20132739SA)

1. John Warner National Defense Authorization Act for Fiscal Year 2007 (Public Law 109-364)
2. *Joint DOD/DOE Procedural Guidelines for the Phase 6.X Process*, dated 31 October 2000.
3. DoD Instruction Number 5030.55, *DoD Procedures for Joint NNSA-DoD Nuclear Weapon Life-Cycle Activities*, dated 25 January 2001
4. ~~D&P Manual Chapter 3.2, *Phase 6.X Process*, dated 31 March 2004~~ R006, 6.X Process
5. Reliable Replacement Warhead, Executive Summary, JSR-07-336E, September 7, 2007, JASON, The MITRE Corporation
6. Complex 2030 -- An Infrastructure Planning Scenario, DOE/NA-0013, Oct 2006, Strategies, Strategy 3, pg 15

8.0 POINT OF CONTACT FOR ADMINISTRATION

This chapter is owned by the Director of Stockpile Research, Development and Engineering Division (NNSA/NA-121.3).

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 4.1: INVENTORY & DISPOSITION OF NONNUCLEAR WEAPONS MATERIAL AND SPECIAL TOOLING & ACCEPTANCE EQUIPMENT

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	Original Release 02-27-2004
B	Change 10, 08-22-2007 (combines 4.1 & 4.2)
C	**Change Notice 14 dated 09-03-2015 and FCO20155736SA effective 01-01-2016**

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1.0 OBJECTIVE

Provide the process for the inventory and disposition of non-nuclear weapons materials and special design tooling and acceptance equipment on behalf of the Department of Energy/National Nuclear Security Administration (DOE/NNSA).

2.0 BACKGROUND

Production Agencies (PAs) have the responsibility to--

- maintain the minimum quantities (including quantities to support attrition rates, yields, etc.) of War Reserve (WR) non-nuclear material for supporting authorized and planned requirements identified in the Weapon Program Control Document (Weapon PCD) or other formal planning/guidance documents.
- maintain an inventory of tooling and acceptance equipment for supporting authorized and planned requirements identified in the Weapon PCD or other formal planning/guidance documents.

Identification of Excess or Disposition

- Non-nuclear Material--If sufficient ship- or lower-level assemblies exist to support the requirements, then sub-assemblies and sub-assembly components can be considered excess. Once non-nuclear material is identified as excess to requirements, it will be made available for other uses. If no other uses are identified, the material will be dispositioned in accordance with approved procedures.
- Special Tooling & Acceptance Equipment-- Once tooling and acceptance equipment is identified as excess to requirements it will be made available for other uses. If no other uses are identified, the tooling will be dispositioned in accordance with approved procedures. Authority to make a decision to identify tooling and acceptance equipment for final disposition depends on the nature of the equipment and its funding source.

3.0 APPLICABILITY

These requirements apply to the DOE/NNSA Office of Defense Programs, NA-10 organizations, ~~Site Office~~ Field Offices, and DOE/NNSA contractor organizations with the responsibility for executing any phase of the nuclear weapons program.

4.0 DEFINITIONS

See the Glossary, Acronym, & Cross Reference (GAC) Section.

5.0 REQUIREMENTS

5.1 Surplus Material

5.1.1 General Instruction

The Production Agencies (PAs) shall retain the non-nuclear material and special tooling and acceptance equipment identified to NA-122 as surplus to programmatic requirements in a surplus category and in a WR quality protected status pending disposition instructions from their local DOE/NNSA ~~Site Office~~ Field Office.

PAs shall retain the special tooling necessary to perform weapon disassembly and disposal of weapons components, base and military spares, and weapon trainers.

5.1.2 List of Surplus Non-nuclear Weapon Material and Special Tooling & Acceptance Equipment-Retired (Superseded by R020 per Change Notice 14 and IER 20154199SA)

5.1.3 List of Surplus H-Gear Inventory

The Pantex Plant and the Kansas City National Security Campus (KCNSC) ~~Plant~~ shall provide a List of Handling (H) Gear Inventory (weapons shipping and storage containers and bomb dollies) for each weapon program by March of each year.

The List of H-Gear Inventory shall be provided to NA-122 through their local DOE/NNSA ~~Site Office~~ Field Office. The H-Gear Inventory List shall include the following information:

- associated weapon program,
- part number,
- H-gear number,
- quantity on hand,
- plant requirement,
- available quantity for release,
- Retirement Disposition Instructions (RDI),
- number of Department of Defense (DoD) open orders with quantity due, and
- any comments.

5.1.4 Processing the Surplus Lists

5.1.4.1 Surplus Non-Nuclear Material and H-Gear

NA-122 shall review the List of Surplus Non-nuclear Weapon Material and Special Tooling & Acceptance Equipment-Retired and the List of H-Gear Inventory to determine whether the surplus non-nuclear materials or H-Gear are needed for base spares or other support. If NA-122 determines the surplus non-nuclear material or H-Gear are excess, an Excess List will be generated by the appropriate PA and transmitted for review in accordance with section 5.3 “Excess Lists” below.

5.1.4.2 Surplus Special Tooling & Acceptance Equipment

NA-122 shall convene a joint DOE/NNSA, Design Agency, and PA meeting to review the surplus special tooling & acceptance equipment from the List of Non-nuclear Material and Special Tooling & Acceptance Equipment-Retired as identified for the retired or cancelled weapon program in order to obtain a joint disposition agreement for both Category 1 and Category 2 items.

- Category 1 Tooling & Acceptance Equipment—Upon agreement, NA-122 shall authorize the PA through the local DOE/NNSA ~~Site Office~~ Field Office to identify the special tooling & acceptance equipment for final disposition according to the appropriate weapon program RDI or other instruction. NA-122 shall process a request to hold reserve inventory in accordance with Section 5.2.1 or process for excess in accordance with Section 5.3 “Excess Lists” of this chapter.
- Category 2 Tooling & Acceptance Equipment—Upon agreement, NA-122 shall authorize the PA through the local DOE/NNSA ~~Site Office~~ Field Office to identify the special tooling & acceptance equipment for final disposition according to the appropriate weapon program RDI or other instruction.

5.2 Reserve Inventory

The PA shall submit Annual Reserve Inventory List of Non-nuclear Material and Special Tooling & Acceptance Equipment on or about July 1 of each year. The Annual Reserve Inventory List is the list of non-nuclear material and special tooling & acceptance equipment that has previously been placed on a reserve status.

5.2.1 Request to Hold Reserve Inventory

An organization that wishes a PA to hold non-nuclear material or special tooling & acceptance equipment in reserve inventory shall submit a written request to NA-122 that specifies the items to be held in a reserve inventory status at the PA.

The Request to Hold Reserve Inventory shall contain the following information:

- part number,
- nomenclature,
- quantity to be held,
- its planned use,
- justification or rationale for retaining these items in reserve inventory at the PAs, and
- an estimate of the time it is to be held in reserve inventory.

Depending on the justification to hold the non-nuclear material or special tooling & acceptance equipment in reserve, the requesting organizations may be required to—

1. become the custodian of the items at their site to include final disposition or
2. provide funding for storage and management of the items at the PA.

Note: Non-DOE/NNSA-funded special tooling and acceptance equipment excess to requirements is not normally stored at DOE/NNSA facilities.

Occasionally, the urgency to place non-nuclear material or special tooling & acceptance equipment in reserve inventory may justify an oral request to the PA through NA-122 and the local DOE/NNSA ~~Site Office~~ Field Office. The individual making the oral request will initiate a formal written request within 30 days from the oral request as described above.

5.2.2 Coordination, Review, Approval of Annual Reserve Inventory Lists

Upon receipt of the Annual Reserve Inventory List of Non-nuclear Material and Special Tooling & Acceptance Equipment, NA-122 shall review the list and determine if the non-nuclear material or special tooling & acceptance equipment will continue in reserve status (held), be placed on excess lists, or if it can be dispositioned.

Upon completion of the coordination and review of the Annual Reserve Inventory List of Non-nuclear Material and Special Tooling & Acceptance Equipment, written direction will be provided within 90 days to the PA through the local DOE/NNSA ~~Site Office~~ Field Office, whether the non-nuclear material

will continue in reserve status (held), be placed on Excess List, or be dispositioned according to the appropriate weapon program RDI or other instruction.

5.3 Excess Lists

NA-122 creates an Excess List transmittal letter and circulates copies of the Excess List to the Nuclear Weapons Complex (NWC) and DoD for a 90-Day review.

The Excess List transmittal letter specifies the procedures to be used for ordering non-nuclear material or special tooling & acceptance equipment from the excess lists and establishes a deadline for ordering (normally 90 days after the review). A copy of the Excess List transmittal letter is provided to the local DOE/NNSA ~~Site Office~~ Field Office of the PA that originated the surplus lists.

After the specified 90-day review, NA-122 shall send a transmittal letter to advise the PA of any order requests for excess non-nuclear material or special tooling & acceptance equipment, and provide authorization to identify the unobligated balance for final disposition.

Within the NWC, the PA advertising the excess items shall pay for packaging, handling, and transporting the excess items to the requesting agency. The requesting agency shall be responsible for ultimate disposition of excess items.

Within the DoD, the requester shall cite funds for packaging, handling, and transportation. Ultimate disposition within the DoD shall be in accordance with the DOE/NNSA disposition policy for nuclear weapon TYPE units, base and military spares, and ancillary and special equipment.

5.4 Disposition of Non-nuclear Material and Special Tooling & Acceptance Equipment (Superseded by R020 per Change Notice 14 and IER 20154199SA.)

5.5 Non-DOE/NNSA Funded Non-nuclear Material and Special Tooling & Acceptance Equipment

The PA shall notify NA-122 when it determines that the non-nuclear material or special tooling & equipment funded by other than DOE/NNSA sources (e.g. United Kingdom or the DoD) is no longer required for production or rebuild requirements.

Final disposition of the non-DOE/NNSA funded non-nuclear material and special tooling & acceptance equipment requires authorization from the funding source through NA-122.

If approval for final disposition is not granted and if it is the intent of the funding source to retain the items, NA-122 obtains and provides to the PA an address to which the items may be shipped.

Non-DOE/NNSA-funded special tooling and acceptance equipment excess to requirements is not normally stored at DOE/NNSA facilities.

5.6 Responsibilities

5.6.1 Office of Nuclear Weapons Stockpile (NA-122)

- Coordinates and reviews the Annual Reserve Inventory List of Non-nuclear Material and Special Tooling & Acceptance Equipment-Retired
- Authorizes the retention of non-nuclear material and special tooling & acceptance equipment in a reserve status
- Authorizes placement of non-nuclear material special tooling & acceptance equipment on Excess Lists
- Authorizes disposition of non-nuclear material and H-Gear
- Authorizes the results of the joint disposition agreement for special tooling & acceptance equipment
- Coordinates requests for non-DOE/NNSA-funded material
- Provides shipping address(es) for non-DOE/NNSA funded material

5.6.2 Production Agencies

- Generates the List of Surplus Non-nuclear Weapon Material and Special Tooling & Acceptance Equipment—Retired
- Generates the List of H-Gear Inventory for each Weapon System
- Generates the Annual Reserve Inventory List of Non-nuclear Material
- Retains surplus non-nuclear weapon material and special tooling & acceptance equipment until dispositioned
- Pays for packaging, handling, and transporting the excess list items to the designated agency.

5.6.3 Local DOE/NNSA ~~Site Office~~ Field Offices

- Continually monitors the PAs adherence to the provisions of this chapter.

5.6.4 Design Agencies

- Provides recommendations on surplus/obsolete non-nuclear material as requested.
- Reviews the Annual Reserve Inventory List of Non-nuclear Material as requested by NA-122.
- Reviews the surplus special tooling & acceptance equipment that is identified by the PA through NA-122 as surplus to program requirements.
- Provides NA-122 the rationale and length of time to retain the surplus special tooling & acceptance equipment.
- Recommends transfer of the surplus special tooling & acceptance equipment to another PA for use in another application or transfer to the DA for the DA's use.
- Provides instructions for disposition of the special tooling & acceptance equipment within 30 days after notification by NA-122 unless a later date is specified.

6.0 REFERENCES

1. ~~"Quality Assurance Procedures Manual," (current version) located at http://prp.lanl.gov .~~ NAP-24A, “Weapon Quality Policy.”
2. NNSA Service Center, Office of Business Services, "Property Management Instructions for Management of Personal Property" (current version).
3. Defense Programs “Guidance on Demilitarization and Sanitization for Disposition of Nuclear Weapon Components and Related Materials”, dated June 30, 1998.

7.0 POINT OF CONTACT FOR ADMINISTRATION

C. Chavez, Office of Nuclear Weapons Stockpile, Stockpile Systems Division, NA 122.1, 505-845-5134 is responsible for this chapter.

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 4.3: REPORTING AND ACCOUNTING FOR THE NUCLEAR WEAPON STOCKPILE INVENTORY

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	Original Release 02-27-04
B	Change 7, 06-09-06
C	Change Notice 10 dated 05-15-2015 FCO20152801SA effective 10-01-2015
D	**Change Notice 14 dated 09-03-2015** **FCO20155736SA effective 01-01-2016**

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1.0 OBJECTIVE

The objective of this chapter is to describe the inventory accounting system for the nuclear weapon stockpile; the agency accounting and reporting requirements and responsibilities; and, the stockpile data exchange and reconciliation agreement between Department of Energy (DOE)/National Nuclear Security Administration (NNSA) and the Department of Defense (DoD) required to maintain a controlled and accurate accounting of the nuclear weapon stockpile inventory.

2.0 BACKGROUND

The 1967 stockpile agreement[1] and the 1979 memorandum of understanding[2] between DOE/NNSA and DoD (as amended) established a system of monthly records reconciliation between DOE/NNSA and Defense Threat Reduction Agency (DTRA) to provide a joint DOE/NNSA and DoD weapons inventory report based upon the reconciliation of the separate data bases maintained by DTRA and DOE/NNSA.

Nuclear Weapons Complex (NWC) agencies perform major roles in maintaining the data bases by reporting on and accounting for weapons, Non- WR Major assemblies, accountable components, accountable nuclear material, LLCs, and costs.

3.0 APPLICABILITY

These requirements apply to the DOE/NNSA Office of Defense Programs, NA- 10 organizations, Site Offices, NNSA Service Center, and DOE/NNSA contractor organizations with the responsibility for executing any phase of the nuclear weapons program.

4.0 DEFINITIONS

See the Glossary, Acronym, & Cross Reference (GAC) Section.

5.0 REQUIREMENTS

5.1. Current Reporting Requirements (superseded by R019 per Change Notice 10 and IER 20150059SA)

5.2. New Reporting Requirements

The following reporting requirements for all NNSA sites will go into effect on August 1, 2006. The items defined below will be tracked in Weapon Information System (WIS) and will require an annual hands-on confirmation of inventory.

5.2.1. Non-WR Major Assemblies

In response to heightened security and safety awareness, it has been determined that additional items shall be tracked in an environment that enables accountability and permits monthly reconciliation of accountable items between the NNSA and DoD. These items shall be called Non-WR Major Assemblies; and categorized as a Joint Test Assembly, Trainer, or Test Unit. Examples of Non-WR Major Assemblies that are affected by WIS reporting are:

- Non-WR Units that have the physical appearance of full-up WR weapons
- Non-WR physics packages
- Non-WR subassemblies that contain a non-WR physics package

A general categorization for reporting a Non-WR Major Assembly is when it is manufactured in an NNSA facility and meets one or more of the following criteria.

1. Is a JTA.

2. Is scheduled in an NNSA PCD.

3. Contains reportable nuclear material, as defined in DOE M 470.4-6 and its final shipment destination is DoD.

4. Reveals critical nuclear weapon design information

    a. For a trainer, remains on site or is shipped offsite

    b. For a test unit, is shipped offsite with a final destination of DoD.

5. Has external size, shape or appearance of its WR full-up weapon counterpart

    a. For a trainer, remains on site or is shipped offsite

    b. For a test unit, is shipped offsite with a final destination of DoD.

5.2.2. Weapons Inventory System (WIS) Reportable Non-WR Items

The following criteria define when an item is WIS reportable and includes the reporting cycle life for these items. This section will be moved to the new WIS TBP.

5.2.2.1. JTAs

1. All JTAs are reportable (includes Type 2, JTA Types X-X, Development JTAs)

2. Reported from build or when identified during hands-on inventory, through dismantlement (including post-mortem disassembly) or expended in test.

5.2.2.2. Trainers (includes Cutaways)

All DOE/NNSA built Trainers that fall into one or more of the following categories are reportable.

1. Type 3 and Type 5 Trainers.

2. Classified Trainers that reveal nuclear weapon design information (includes NELAs, pit trainers and cutaways).

3. Trainers that contain reportable nuclear material as defined in DOE M 470.4-6 or TP100-4 (DoD defines as source and special).

4. System-level Trainers that have the external size, shape or appearance of their WR counterparts (classified or unclassified).

5. All DoD built Trainers that reveal nuclear weapon design information.

6. Reported from build or identified during hands-on inventory through dismantlement.

5.2.2.3. Test Units

All Test Units that fall into one or more of the following categories are reportable.

1. Test Units identified in an NNSA Program Control Document (PCD).

2. Test Units shipped outside of the originating NNSA facility with a final destination of DoD.

Some Test Unit Examples		
Type 4		
Type 6		
Test Beds		
Development Units (not limited to)		
FTU	SCT	GTQU
CTU	VFA	ASU
ETU	FTQU	EMMS
SEU	VSTU	SETU
LTU	LCTU	IDU

Test Unit reporting criteria is as follows:

1. Identified in a PCD – report from build through dismantlement (including post-mortem disassembly) or expended in test.

2. Not identified in a PCD – report when identified during hands-on inventory at DoD or when unit leaves the originating NNSA facility with a final destination of DoD, through return to the originating NNSA facility property or expended in test.

[For example, PX builds TEST item “X”, ships it to SNL, SNL adds test equipment, ships “X” to DoD for test, DoD tests and returns “X” to PX. WIS reporting would be PX ships to SNL (WIS automatically adds), SNL receipts, SNL ships to DoD, DoD receipts, DoD ships to PX, and PX receipts. WIS will automatically process a delete along with the PX receipt.]

5.2.3. H1616 Container

H1616 Containers will be tracked in WIS and NUMIS because of their limited certification time.

Required elements can be found in the Standard Data Exchange Design Document. The following define the required elements.

Container (Item ID) elements include Noun, Type, Condition (serviceable/unserviceable), ContentID (none or kit number), Part number and suffix, Serial number, Date (certification)

Condition and ContentID must be reported for Add, Ship, Receive, and Change (If changing) Transactions. They can only be shipped in a serviceable Container.

ContentID Context must be 'None' when shipping an unserviceable container. Containers must be received with the same contents as shipped.

When SR reports receipt of a Container, it will automatically be deleted from WIS.

6.0 RESPONSIBILITIES

1. Technical Security Department (TSD) shall--

- Develop, maintain, and operate the nuclear weapon stockpile accountability system inventory by accomplishing day-to-day accounting and balancing of figures for nuclear materials in the stockpile inventory and stockpile costs.
- Maintain in WIS the Nuclear Material Loan Account information consisting of Non-WR Major Assemblies containing reportable nuclear material. TSD is responsible for policy and requirement documentation associated with the Loan Account. [7]
- Maintain memorandum inventory accounts on WIS for all transfers of nuclear material to the Department of Defense under 42 U.S.C. 2112(b) and (c).
- Maintain a memorandum inventory account for the NASA Kennedy Space Center.
- Generate nuclear material and stockpile transaction and inventory financial information.
- Develop policy for and define the accounting requirements for nuclear material transferred from Production Agencies (PAs), Design Agencies (DAs), and other facilities to DoD custody.
- Develop policy and requirement definitions for transmitting data on nuclear materials.[3,4]
- Coordinate reporting of nuclear material transfers that are reported on DOE/NRC Form 741 and AL-131 transfer documents.

2. Office of Nuclear Weapons Stockpile (NA-122) shall

- Develops, maintains and updates the nuclear weapons stockpile accounting system inventory by accomplishing day-to-day accounting and balancing of figures for nuclear weapons, weapon components and LLCs.
- Develops policy for and defines the stockpile accounting requirements for new weapon programs, for retrofits in existing weapon programs, and for Non-WR Major Assemblies.
- Defines changes in weapon and weapon component stockpile accounting to comply with schedule changes and stockpile reporting requirements.
- Develops policy for and defines the stockpile accounting requirements for reporting nuclear weapon updates, weapon components, Non-WR Major Assemblies and LLCs.

- Maintains G/NGR procedures and coordinates reporting activities.
- Coordinates DCR and Supplemental ROA/ROD procedures, changes, and reporting.
- Maintains and coordinates the DOE/NNSA and DoD memorandum of understanding for data exchange and reconciliation.
- Coordinates DOE/NNSA and DoD stockpile records inventory reconciliation, data exchange reporting with DTRA and the NNSA sites, and records inventory reconciliation between WIS inventory and NNSA sites.
- Produces special stockpile reports on request.

3. DOE Office of Financial Policy (ME-11) shall--

- Develop policy for and defines the accounting requirements for costing of stockpile weapons, weapon components, and nuclear material.

4. Pantex Plant shall--(Superseded by R020 per Change Notice 14 and IER 20154199SA)

5. Savannah River shall--(Superseded by R020 per Change Notice 14 and IER 20154199SA)

6. Sandia National Laboratories shall--(Superseded by R020 per Change Notice 14 and IER 20154199SA)

7. Production Agencies, Design Agencies, and Other Facilities shall--(Superseded by R019 per Change Notice 10 and IER 20150059SA and R020 per Change Notice 14 and IER 20154199SA)

7.0 REFERENCES

1. AEC/DoD (U.S. Atomic Energy Commission and U.S. Department of Defense), "Stockpile Agreement Between United States Atomic Energy Commission and Department of Defense," AT(29-2)-1222, April 12, 1967.
2. "DOE/DoD (U.S. Department of Energy and U.S. Department of Defense) "Joint DOE/DoD Weapon Inventory Records Reconciliation and Report," memorandum of understanding, Contract DE-ADO-79AL10729, dated March 16, 1979.
3. DOE, “Manual Nuclear Material Control and Accountability”, DOE M 470.4-6 08/26/2005
4. DOE, “Control and Accountability of Nuclear Materials,” DOE O 474.1A 11/22/00
5. BWXT Pantex and DOE/NNSA, "Daily Change Report and Quarterly Report of Unit Status," prepared by NA-122 and Pantex Plant, January 2002.

6. SNL (Sandia National Laboratories), "Supplemental Record of Assembly Disassembly," Sandia DWG DF197090, April 2, 1976 (Secret) (current version).
7. DOE-DNA (U.S. Department of Energy-Defense Nuclear Agency), "Custody, Accountability, and Control of Nuclear Weapons and Nuclear Materiel," TP 100-4, December 1, 1993 (IC2-5, October 15, 1996).

8.0 POINTS OF CONTACT FOR ADMINISTRATION

J. Claycomb, Office of Nuclear Weapons Stockpile, Stockpile Systems Division, NA 122.1, 505-845-5053 and A. Sandoval, Albuquerque Service Center, TSD, 505-845-4008 are jointly responsible for this chapter.

TABLE 4.3-1. DOCUMENTS SUPPORTING REPORTING AND ACCOUNTING FOR THE NUCLEAR WEAPON STOCKPILE INVENTORY

Document	Purpose	Contents	Distribution
DOE/NRC Form 741	Documents transfer of custody of nuclear material from one facility to another having different Reporting Identification Symbols.	Identifies facilities involved in custody transfer, document number, and date of transfer. Identifies accountable NM information being transferred at NM summary level.	Varies, depending on facilities involved in transfer. Transfer from a DOE/NNSA facility to DoD or receipt of material by a DOE/NNSA facility from DoD requires DOE/NNSA facility to submit copy of 741 form in AL-131 format to SPD for processing.
AL-131	Detailed computer-generated form of DOE/NRC Form 741 that is used within the weapons complex to report custody transfer of nuclear materials and components from one facility to another and to the DoD.	Identifies facilities involved in custody transfer; document number; date of transfer; weapons, by type and serial number; nuclear components, by type and serial number, that are installed in the weapon; component parts, by type and serial number; material type; and quantity of material in each part, as appropriate for material being transferred.	Same as DOE/NRC Form 741, except electronic form with reservoir shipments/receipts should be submitted to NA-122 for processing.
Neutron/Gas Generator Report	A stockpile activity report used to report shipments and receipts of neutron/gas generators. Reporting facilities are SNL and Pantex. Pantex is the official owner of gas generators and SNL of neutron generators.	Identifies type and activity being reported; facilities involved; document number; date of action; and each generator by type, part number, suffix number, serial number, and manufacturing date.	NA-122, 1 electronic submission; DTRA, 1 copy.

Document	Purpose	Contents	Distribution
Daily Change Report	Daily weapons activity report.	Contains weapon activity performed by PAs for previous 24 hours for (1) DOE/NNSA acceptance of new weapons, (2) DOE/NNSA re-acceptance of weapons, (3) weapon acceptance withdrawals, (4) receipts, (5) shipments, (6) deletions from inventory, (7) corrections, (8) status and project changes.	NA-122, 1 copy; DTRA, 1 electronic copy
Supplemental Record of Assembly/Disassembly (ROA/ROD) Report	A Pantex weapons activity report.	Identifies LLCs, by type and serial number, which have been either installed or removed from a specific weapon.	NA-122, 1 electronic copy; DTRA, 1 electronic copy.

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 4.4: DISPOSAL OF RETIRED WEAPONS

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	Original Release 02-27-04
B	Change 02, 11-18-04
C	**Change Notice 14 dated 09-03-2015** **FCO20155736SA effective 01-01-2016**

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1.0 OBJECTIVE

- Describe the U.S. Department of Energy (DOE)/National Nuclear Security Administration (NNSA) disposal responsibilities, as well as the documentation and reporting requirements for disposal of War Reserve (WR) weapons, associated Joint Test Assemblies (JTAs), and TYPE weapons.
- Support the timely disposal of retired nuclear weapon inventories in accordance with national security proliferation concern, environmental, public safety and health regulations, and federal law.

2.0 BACKGROUND (Revised by R020 per Change Notice 14 and IER 20154199SA)

~~DOE/NNSA-produced trainers (TYPES 2, 3, 5, 6, etc.) are disposed at no cost if the trainers are returned to the Pantex Plant while WR disposal operations are in progress.~~

DOE/NNSA may charge the Department of Defense (DoD) for disposal of trainers that are returned after completion of WR weapon disposal activities.

3.0 APPLICABILITY

These requirements apply to the DOE/NNSA Office of Defense Programs, NA-10 organizations, Site Offices, NNSA Service Center, and DOE/NNSA contractor organizations with the responsibility for executing any phase of the nuclear weapons program.

4.0 DEFINITIONS

See the Glossary, Acronym, & Cross Reference (GAC) Section.

5.0 REQUIREMENTS and RESPONSIBILITIES

5.1 Office of Nuclear Weapons Stockpile (NA-122) (Superseded by R020 per Change Notice 14 and IER 20154199SA)

5.2 Office of Secure Transportation (NA-15) (Superseded by R020 per Change Notice 14 and IER 20154199SA)

5.3 Production Agencies (Revised by R020 per Change Notice 14 and IER 20154199SA)

~~The Weapon/PCD identifies the PA responsible for weapon disposal activities for each weapon program. The Retirement Disposition Instructions (RDIs) for each program delineate the disposition of components and name the PA responsible for disposing of components generated from the weapon disposal activities for that program.~~

The Weekly Disposal Report is generated by the PA responsible for disposal activities and is due to NA-122 by close of business on the first working day of the week following the reporting period. Appendix A shows the format of the report.

Pantex Plant prepares the Zone 4 Report and submits it through the Pantex Site Office (PXSO) to NA-122 by the close of business on the fifth working day of each month. Appendix E outlines the appropriate information required in the report

Pantex Plant prepares the Secondary Shipment Status Report and submits it monthly through the PXSO to NA-122 by the close of business on the fifth working day of each month. Appendix B outlines the appropriate format for the report.

Pantex Plant reports weapon disposal activities via the Daily Change Report.

~~PAs provide the necessary tooling, training, and procedures to safely perform weapon or weapon component disposal as assigned in the RDI.~~

~~PAs that request components from disposal activities must submit their requests to NA-122 for coordination and approval except for those components authorized for disposal by the RDI. Those components may be ordered directly from the PA responsible for disposal.~~

~~PAs initiate weapon-related record disposition in accordance with DOE Order 200.1[1] when the weapon system disposal completion notification is received from NA-122.~~

5.4 Design Agencies (Superseded by R020 per Change Notice 14 and IER 20154199SA)

5.5 Defense Threat Reduction Agency (Superseded by R020 per Change Notice 14 and IER 20154199SA)

6.0 REFERENCES

1. DOE O 200.1, Information Management Program
2. DOE Defense Programs (DP) Guidance on Demilitarization and Sanitization for Disposition of Nuclear Weapon Components and Related Materials, dated June 30, 1998

7.0 POINT OF CONTACT

J. Lawrence Barela, Office of Nuclear Weapon Stockpile, ICBM Division, NA-122.4, 505-845-6232 is responsible for this chapter.

8.0 APPENDICES

Appendix A: Weekly Disposal Report.
Appendix B: Secondary Shipment Status at the Pantex Plant.
Appendix C: AL-R8 Container Projection.
Appendix D: Special Nuclear Materials/Reservoirs/RTGs Status Report.
Appendix E: Weapons/SNM Staging Report (Zone 4).

APPENDIX A
WEEKLY DISPOSAL REPORT
WEEK ENDING xx/xx/xx

Wxx	PRIOR CARRY-OVERS	AUTH RTMT FYxx	AUTH DISP FYxx	SCHED THRU xx/xx	ACTUAL THRU xx/xx	REMAIN-ING FYxx	ON HAND AS OF xx/xx	FUTURE CARRY-OVERS
FYxx	2	2	2	2	1	1	1	0
FYxx	50	50	50	40	40	10	5	0
FYxx	0	200	150	70	59	80	30	50
TOTAL	52	252	202	112	100	91	36	50

PLANNING FOR WEEK ENDING xx/xx/xx:

CELLS PLANNED: 1 SHIFTS/CELL: 1 DISPOSAL/DAY: 1.5

DAYS PLANNED: 6 DISPOSALS PLANNED: 9

COMMENTS:

Byy	PRIOR CARRY-OVERS	AUTH RTMT FYxx	AUTH DISP FYxx	SCHED THRU xx/xx	ACTUAL THRU xx/xx	REMAIN-ING FYxx	ON HAND AS OF xx/xx	FUTURE CARRY-OVERS
FYxx	200	200	200	150	130	70	40	0
FYxx	0	315	150	120	70	80	30	165
TOTAL	200	515	350	270	200	150	70	165

PLANNING FOR WEEK ENDING xx/xx/xx:

CELLS PLANNED: 1 SHIFTS/CELL: 2 DISPOSAL/DAY: 4

DAYS PLANNED: 6 DISPOSALS PLANNED: 24

COMMENTS:

TOTAL	PRIOR CARRY-OVERS	AUTH RTMT FYxx	AUTH DISP FYxx	SCHED THRU xx/xx	ACTUAL THRU xx/xx	REMAIN-ING FYxx	ON HAND AS OF xx/xx	FUTURE CARRY-OVERS
FYxx	2	2	2	2	1	1	1	0
FYxx	250	250	250	190	170	80	45	0
FYxx	0	515	300	190	129	160	60	215
TOTAL	252	767	552	382	300	241	106	215

PLANNING FOR WEEK ENDING xx/xx/xx:

CELLS PLANNED: 2 SHIFTS/CELL: 2 DISPOSAL/DAY: 5.5

DAYS PLANNED: 6 DISPOSALS PLANNED: 33

COMMENTS:

FYxx DISPOSAL SUMMARY
(current date)

PROGRAM	OCT	NOV	DEC	JAN	FEB	MAR	APR	(current month) xx	xx	xx	xx	xx	TOTAL
WXX	0	5	10	12	15	20	25	3	5	5			100
WYY	3	10	20	30	30	40	40	7	10	10			200
WZZ	0	0	0	10	12	15	15	3	3	3			61
BXX	20	18	15	20	18	20	20	5	5	5			146
BYY	0	0	0	0	30	40	40	10	10	10			140
BZZ	2	0	1	2	0	0	0	0	0	0			5
TOTAL	25	33	46	74	105	135	140	28	33	33			652

APPENDIX B
SECONDARY SHIPMENT STATUS AT THE PANTEX PLANT
MONTH ENDING xx/xx/xx

				JUNE		JULY		AUGUST	
PRGM	TYPE COMP	CURRENTLY DISASSEMBLED	AVAILABLE TO SHIP	SCHEDULE INCR/CUM	ACTUAL INCR/CUM	SCHEDULE INCR/CUM	PLANNED INCR/CUM	SCHEDULE INCR/CUM	PLANNED INCR/CUM
BXX	XX	190	40	70/130	59/119	19/149	30/149	37/186	37/186
BXY	XX	300	0	0/0	0/0	0/0	0/0	0/0	0/0
WXX	XX	215	50	61/126	31/96	30/156	44/140	29/185	45/185

COMMENTS:

APPENDIX C
AL-R8 CONTAINER PROJECTION

PARTIAL PANTEX DISPOSAL PLAN FOR FYxx
AS OF (current date)

		MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR
SCHEDULED	INC:												
	CUM:												
ACTUAL	INC:												
	CUM:												

AL-R8 CONTAINER STATUS

		MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR
PX REQUIRED	INC:												
	CUM:												
RF SCHEDULED	INC:												
	CUM:												
RF/PX ACTUAL	INC:												
	CUM:												
REQ/ACT DELTA													

APPENDIX D
SPECIAL NUCLEAR MATERIALS/RESERVOIRS/RTGs STATUS REPORT

SHIPMENTS DURING (current month) AND FYxx TO DATE

PITS

	INCREMENTAL	CUMULATIVE
PITS SHIP TO LANL:		
PITS SHIP TO LLNL:		
TOTAL		

RESERVOIRS

RESERVOIRS SHIP TO SRS:		
TOTAL		

SECONDARIES

SECONDARIES SHIP TO Y-12:		
SECONDARIES SHIP TO LABS:		
TOTAL		

RETIREMENT/EVALUATION PITS STAGED
AS OF (current date)

PROGRAM	QTY	TYPE	COMMENT
BXX		XXXX	
BXY		XXXY	
WXX		YYYY	
WXY		YYYX	
TOTAL:	____		

RETROFIT PITS BEING STAGED

PROGRAM	QTY	TYPE	COMMENT
BXX		XXXX	
WYY		YYYY	
TOTAL:	____		

OVER-BUILD PITS BEING STAGED

PROGRAM	QTY	TYPE	COMMENT
BXX		XXXX	
WYY		YYYY	
TOTAL:	____		

NEW AND/OR DISASSEMBLED PITS
IN SUPPORT OF NEW PRODUCTION AND/OR REBUILDS BEING STAGED

PROGRAM	QTY	TYPE
BXX		XXXX
BXY		XXXY
WZZ		XXXZ
WTT		XXXT
TOTAL:	____	

TOTAL PITS STAGED ALL CATEGORIES: ____

SECONDARIES STAGED AS OF (current date)

PROGRAM	QTY	TYPE	COMMENT
BXX		XXXX	
BXY		XXXY	
WZZ		XXXZ	
WTT		XXXT	
TOTAL:	____		

REBUILD/RETROFIT SECONDARIES BEING STAGED

PROGRAM	QTY	TYPE	COMMENT
BXX	XXX	XXXX	
WYY	YYY	YYYY	
TOTAL:	____		

OVER-BUILD SECONDARIES BEING STAGED

PROGRAM	QTY	TYPE	COMMENT
BXX		XXXX	
WYY		YYYY	
TOTAL:	____		

NEW AND/OR DISASSEMBLED SECONDARIES
IN SUPPORT OF NEW PRODUCTION AND/OR REBUILDS BEING STAGED

PROGRAM	QTY	TYPE	COMMENT
BXX		XXXX	
WYY		XXXY	
TOTAL:	____		

TOTAL SECONDARIES STAGED ALL CATEGORIES: ____

RESERVOIRS STAGED FOR SHIPMENT AS OF (current date)

PROGRAM	QTY	TYPE	DISASSEMBLED PAST MONTH	SHIPPED PAST MONTH
BXX		XXXX	XX	XX
WYY		YYYY	YY	YY
TOTAL:	____			

RESERVOIRS STAGED FOR NEW PRODUCTION OR REUSE

PROGRAM	QTY	TYPE	BUILT PAST MONTH	RECEIVED PAST MONTH
BXX		XXXX	XX	XX
WYY	XXX	YYYY	YY	YY
TOTAL:	____			

TOTAL RESERVOIRS STAGED ALL CATEGORIES: _____

RTGs STAGED AS OF (current date)

UNASSOCIATED RTGs

PROGRAM	QTY	TYPE	COMMENT
BXX		XXXX	
WYY		YYYY	
TOTAL:	____		

OBSOLETE RTGs

PROGRAM	QTY	TYPE	COMMENT
BXX		XXXX	
WYY		YYYY	
TOTAL:	____		

SUMMARY
AS OF (current date)

TOTAL PITS STAGED: _____

TOTAL CANNED SUBASSEMBLIES (SECONDARIES) STAGED: _____

TOTAL RESERVOIRS STAGED: _____

TOTAL RTGs STAGED: _____

APPENDIX E
WEAPONS/SNM STAGING REPORT (ZONE 4)

SECTION 1 - EXECUTIVE SUMMARY

This section contains overview information regarding pit staging, secondary staging, weapons staging, TYPE and WR units, and equivalent magazine space. Included in the summary for pit, secondary, and weapon staging, charts (bar, pie) should be provided to outline percentage utilization and equivalent space available. Equivalent magazine space for sandbagged and open magazines should be reported in kilograms and equivalent magazines. Equivalent magazine space for divided (A/B) magazines should be reported in pit quantities and equivalent magazines.

SECTION 2 - NUCLEAR EXPLOSIVES INVENTORY

The format for this section is:

NUCLEAR EXPLOSIVES INVENTORY
WEAPON STAGING AREA (current date)
QUANTITY

PROGRAM	UNACCEPTED	ACCEPTED	NP	PARTIAL
BB				
WW				

SECTION 3 - SNM COMPONENT STAGING

The format for this section is:

	OR				PITS			
Program	12-64	12-58	Zone 4	Total	12-26U	12-44C8	Zone 4	Total
BB								
WW								

	SRS			RTGs		
Program	12-64	SU	Total	12-64	NU	Total
BB						
WW						

SECTION 4 - JTA/TYPE INVENTORY

The format for this section is:

JTA/TYPE INVENTORY
WEAPON STAGING AREA (current date)

PROGRAM	QUANTITY	CATEGORY
BB		JTX-X
WW		JTY-Y

SECTION 5 - OVERFLOW FROM ZONE 4 STAGING

The format for this section is:

OVERFLOW FROM ZONE 4 STAGING

BLDG.	PROG.	ITEMS	ACCEPTANCE	PURPOSE	AVAIL. SPACE
XX	BB		DATE		KILOGRAMS or BAYS

SECTION 6 - MAGAZINE STAGING AREA

The format for this section is:

MAGAZINE STAGING AREA

MAGAZINE	PROG.	ITEMS	ACCEPTANCE	PURPOSE	AVAIL. SPACE
TTT	WW		DATE		KILOGRAMS or BAYS

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 5.1: INTERPROJECT SCHEDULING

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	IER_____

	REV	CHANGE	DATE	PAGE NO.
56XB	**2**		**February 27, 2004**	**1**

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LIST OF FIGURES

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1.0 OBJECTIVE

- Describe the planning and scheduling of interproject (IP) shipments between production agencies (PA) of fabricated or procured ship entities and attrition material used to support ultimate user (UU) deliveries, laboratory tests, and joint flight test programs, as defined in the program management documents.
- Ensure that IP schedules are developed by the PAs to support stockpile requirements while simultaneously allowing for a high degree of efficiency in production operations.

2.0 BACKGROUND

PAs are expected to make shipments on schedule while maintaining acceptable levels of product inventory and to identify, budget for, and provide support for new build, rebuild, production test requirements, laboratory tests, stockpile tests, and attrition material for each weapon program.

3.0 APPLICABILITY

These policies apply to the DOE/NNSA Office of Defense Programs, NA-10 organizations, Site Offices, NNSA Service Center, and DOE/NNSA contractor organizations with the responsibility for executing any phase of the nuclear weapons program.

4.0 DEFINITIONS

See the Glossary, Acronym, & Cross Reference (GAC) Section.

5.0 REQUIREMENTS and RESPONSIBILITIES

5.1 Lead Time Guidance and Scheduling of Interproject (IP) Shipments

5.1.1 Production Agencies

Table 5.1-1 provides lead-time guidance for PA scheduling of IP shipments. If not specifically defined general guidance applies (i.e. lower order shipments).

Table 5.1-1. Interproject (IP) Shipment Lead-Time Guidance

Shipment Type	Time Required (months)*			Notes
	Inventory	Process	Full Lead	
General	2	Set by PA	Inventory plus process time.	___
First-Order to Pantex	1	Set by PA	Inventory plus process time.	___
KCP to SR	2	1	3	For support of Group X Kits and miscellaneous hardware.
KCP to SR	2	3	5	For reservoir deliveries.
Limited Life Components in Kits Shipped to DoD	___	___	___	Delivered as specified in Volume III of the Master Nuclear Schedule. Responsible production agencies coordinate schedule.
Commercial Hardware, Including Attrition Quantities	___	___	As mutually acceptable.	Bulk quantities furnished in 6-month increments to support requirements.
Nuclear Components to Support Laboratory Tests, Joint Flight Tests, and Repair Activities	___	___	___	With concurrence of NA-122 and NA-121, Pantex coordinates the shipping and receiving schedules directly with the design and production agencies.

*See definitions in GAC.

After receipt of the authorized directive schedules, the PAs develop the IP schedules to reflect program phasing and delivery requirements. Figure 5.1-1 shows the sequence of scheduling IP shipments. These schedules are based on all available information about weapon configurations, assigned responsibilities, the product definition, attrition quantities, process time, and receiving plants.

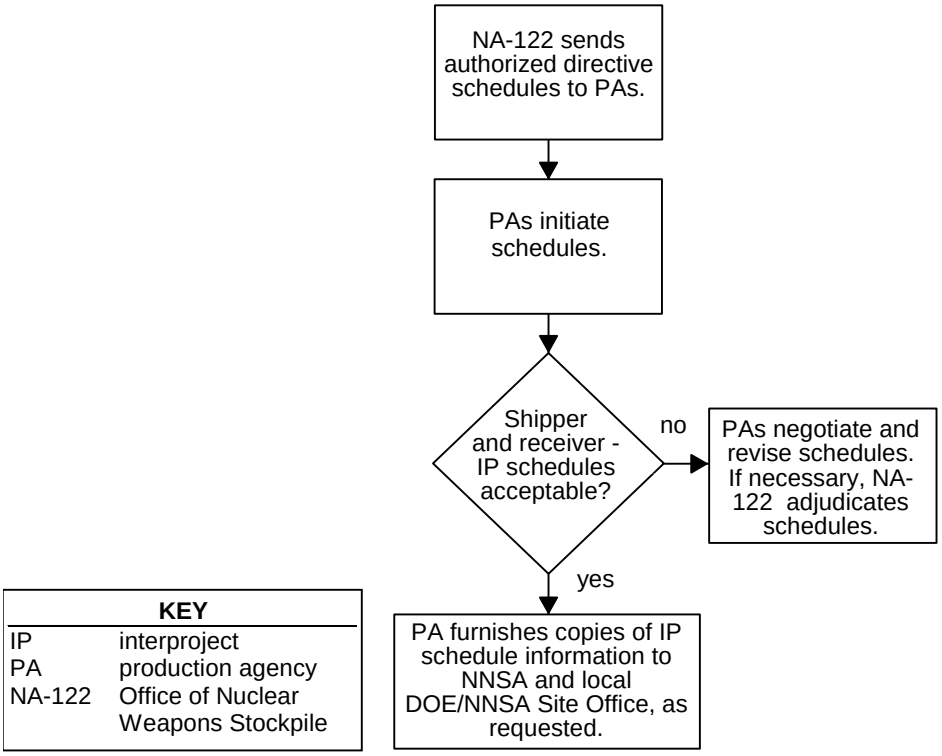

Figure 5.1-1. Scheduling of Interproject (IP) Shipments

All IP schedules must be acceptable to both shipping and receiving agencies. These agencies must agree the published schedules provide complete and timely support for higher-order shipment requirements. Lead times can be lower than the guidance provided in Table 5.1-1 as long as both shipping and receiving agencies agree and there is no impact to UU deliveries.

If there will be an impact to UU deliveries, the shipping agency must notify the local DOE/NNSA Site Office and forecast schedule recovery. The recovery forecasts supplements, but does not supersede, an IP schedule and should reflect the best possible prediction for regaining the IP schedule as soon as possible. The local DOE/NNSA Site Office will provide the recovery schedule to NA-122 for approval.

The shipper schedules IP support items as line items and may negotiate packaging of these line items with the receiving agency to reduce packaging and shipping costs and to facilitate receipt and storage.

5.2 Forecasting Schedule Recovery

Figure 5.1-2 shows the sequence of forecasting schedule recovery.

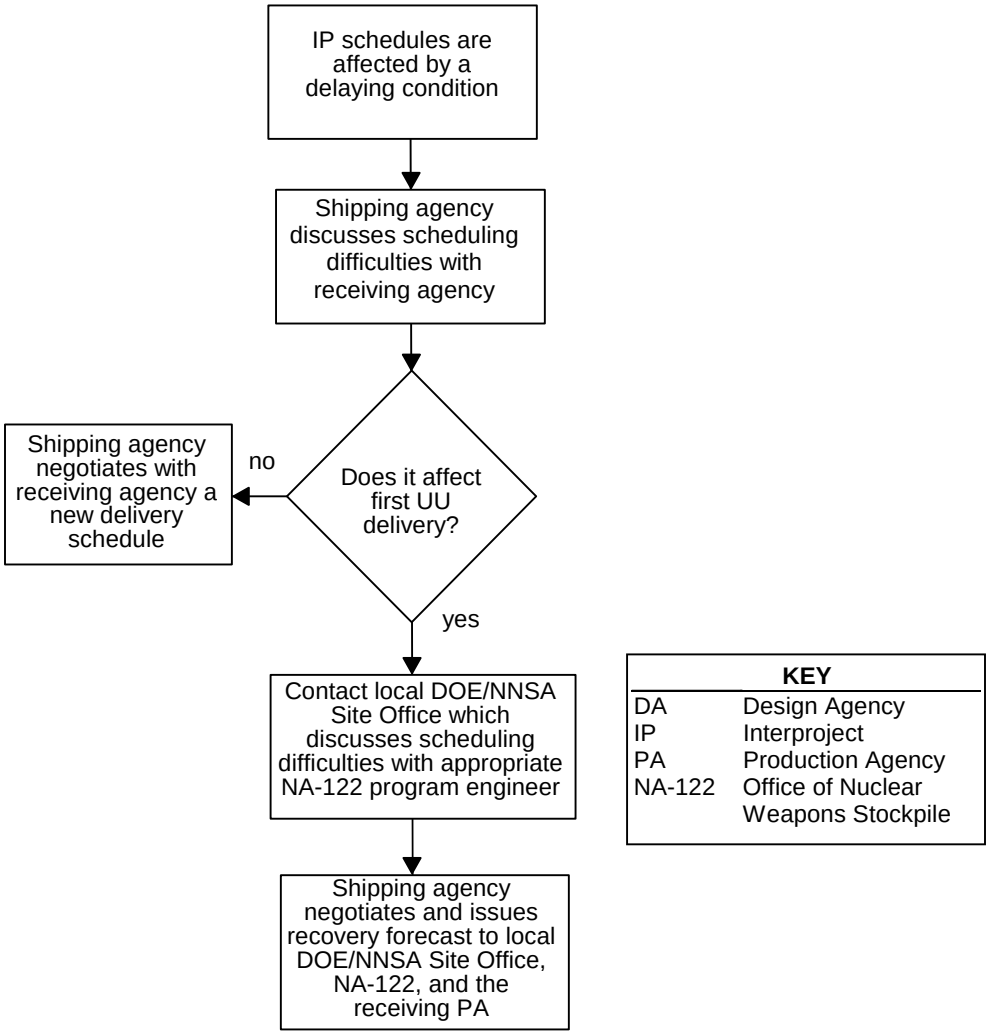

Figure 5.1-2. Forecasting Schedule Recovery

5.2.1 Lower Order Shipments

PAs negotiate IP schedules whenever schedules are affected by a delaying condition such as:

- a design agency's engineering changes,
- process changes,
- a large lot failure, or
- conditions beyond the PA's control that cause any other PA to fall from full lead-time.

The shipping agency discusses scheduling difficulties with receiving agency. If the UU is not affected, the shipping agency negotiates with receiving agency a new delivery schedule. If the UU is affected, the PA contacts the local DOE/NNSA Site Office. The local DOE/NNSA Site Office contacts the appropriate NNSA organization. The PA negotiates and issues a recovery forecast to the local DOE/NNSA Site Office and receiving PA. The local DOE/NNSA Site Office coordinates the recovery forecast with NA-122 for approval.

The recovery forecast should reflect the best possible predictions for regaining the schedule as soon as possible.

5.2.2 First Order Shipments

When affected by a PA's recovery forecast, PA discusses the situation with its local DOE/NNSA Site Office which, in turn, contacts the appropriate NNSA organization and develops a build schedule that reflects the best possible predictions for regaining the schedule for UU delivery.

5.3 Provisioning Meetings

5.3.1 Office of Nuclear Weapons Stockpile

Weapon provisioning meetings should be scheduled as required by the Logistics and Manufacturing Center (LMC), located at the Kansas City Plant, with the concurrence of NA-122, for all weapon programs. Special meetings may be convened at the request of the contractor.

5.4 Attrition Material Procurement

The involved PAs identify attrition items and determine the quantities of the items required by determining an attrition rate for those items or materials subject to attrition throughout the program.

PAs budget and fund for attrition items or material in the same way they budget and fund for war-reserve production assignments.

5.4.1 Receiving Agency

After a weapon program is authorized and attrition items are defined, each receiving PA that has IP responsibilities prepares an attrition list showing all assemblies, subassemblies, piece parts, and hardware items for that program that are subject to attrition. This attrition list at this stage is the receiving PA's best estimate based on experience with similar components. For some classes of material, attrition is defined for an individual item and is

incorporated in total requirements for that item rather than being defined by program.

The attrition item list is in the form of a letter or provisioning parts list and contains the following information:

- part number,
- description of the item, and
- usage per unit total specified by schedule, attrition estimate, and total (as required).

The receiving agency distributes the attrition list to the responsible shipping agency for the shipping agency's review, changes, and concurrence. The receiving agency notifies the shipper by letter of any part that has been added to the original attrition list.

Receiving agencies should promptly report attrition experience to increase or decrease attrition quantities. These actions are necessary to ensure a steady flow of material, particularly material with long lead times. Receiving agencies should pay particular attention to attrition needs when the shipper is preparing to take final procurement action. The receiver negotiates and authorizes changes to original attrition requirements on a continuing basis for increases and decreases in attrition quantities.

The receiving agency should allow procurement lead times for reorders of at least six months for standard hardware and one year for special-design items or as mutually agreed between the shipper and receiver. The receiver automatically adjusts attrition items ordered on a percentage basis and reissues the attrition schedule whenever there is an increase or a decrease in program authorization.

5.4.2 Shipping Agency

The shipper analyzes delivery schedules for the attrition items ordered and schedules delivery of the items as follows.

- Low-cost hardware is supplied in a single month before or concurrent with the first IP shipments.
- Critical items and major components are scheduled over several months to comply with requirements of both shipping and receiving contractors.

The shipper sends delivery schedules to the receiving agency for approval; unacceptable schedules are negotiated with the supplier.

6.0 POINT OF CONTACT FOR ADMINISTRATION

J. Claycomb, LLC Program Manager, Office of Nuclear Weapons Stockpile, Stockpile Support Division, NA-122.1, 505-845-5053 is responsible for this chapter.

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 5.2: MASTER NUCLEAR SCHEDULE AND LIMITED LIFE COMPONENTS

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	IER_____

	REV	CHANGE	DATE	PAGE NO.
56XB	**2**		**February 27, 2004**	**1**

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1.0 OBJECTIVE

- Describe the Department of Energy/National Nuclear Security Administration (DOE/NNSA) Master Nuclear Schedule (MNS) and discuss its use within the nuclear weapons complex.
- Describe the responsibilities for authorizing, scheduling, producing and delivering limited life components (LLC) and Group X kits.
- Ensure that the MNS is applicable to all weapon programs listed in the Production and Planning Directive (P&PD).

2.0 BACKGROUND

P&PD directs the development and publication of MNS, Volumes II and III. The MNS provides direction for plant and laboratory activities to ensure the availability of nuclear materials necessary to produce nuclear components for production, and for component and hardware deliveries to support limited life component exchange for nuclear weapons.

3.0 APPLICABILITY

These requirements apply to the DOE/NNSA Office of Defense Programs, NA-10 organizations, Site Offices, NNSA Service Center, and DOE/NNSA contractor organizations with the responsibility for executing any phase of the nuclear weapons program.

4.0 DEFINITIONS

See the Glossary, Acronym, & Cross Reference (GAC) Section.

5.0 REQUIREMENTS and RESPONSIBILITIES

5.1 Volume I: Descriptor

5.1.1 Office of Nuclear Weapons Stockpile (NA-122)

NA-122 periodically publishes Volume I of the MNS with updates as required.

Volume I contains definitions; descriptions of weapon systems and system components; the amounts of Special Nuclear Material (SNM) and other nuclear materials in each weapon system; and identifies whether that system is in development, production, or the stockpile. Volume I also contains the ranges of fill weights/volumes for LLCs.

Volume I augments the P&PD by providing information on quantities of nuclear materials per weapon type. It is used as a source document for material quantities to evaluate the draft and directive stockpile memoranda distributed by DOE/NNSA. It is also the source of unit material quantities for Volume II calculations.

NA-122 obtains source data for Volume I from planning information documents, advanced planning documents, preliminary and/or final weapon design reports, weapon drawings and schematics, input from individual contractors as appropriate and the Weapons Information System.

5.2 Volume II: Nuclear Material Balance

5.2.1 Office of Nuclear Weapons Stockpile (NA-122)

NA-122 is responsible for publishing Volume II of the MNS. Generally, this document is updated annually or sometimes on a schedule driven by the issuance of P&PDs.

Volume II is the NNSA management model that predicts nuclear material availability. The model calculates the quantities of each SNM (plutonium and enriched uranium) and other materials (tritium) necessary to support production schedule needs of the nuclear weapons complex. These quantities are referred to as material demands and are site-specific for Production Agencies (PAs).

The information in Volume II is used in the following ways in the weapons complex.

- NNSA uses the demand data in conjunction with new material production estimates to determine the status of specification material availability. The status is reflected in comparison of demands and supplies, which are called working reserves. Negative working reserves depict shortages of specification materials that require management actions to resolve.
- Savannah River (SR) uses Volume II to determine the requirement for, and the forecasted return of tritium quantities so that a timeframe for a new tritium source can be determined.
- Y-12 uses Volume II to determine retirements to be received and processed and to determine the status of material availability.

Volume II covers a 10-year period that coincides with Annex A of the P&PD. In addition, the P&PD 10-year period is divided into approved stockpile years (5 years) and the planning period years (5 years), as defined in the Nuclear Weapons Stockpile Memorandum (NWSM). Essentially, the approved stockpile sections provide Defense Programs (DP) with the necessary authority to procure and produce items to support stockpile requirements. The

planning period supports DoD research, development, and testing, and operational planning activities. The planning projection period supports DOE/NNSA efforts to plan long-lead-time activities in support of materials production or facility acquisition.

NA-122 provides input for Volume II as follows.

- Publishes Volume III of the MNS, which provides LLC/tritium data to Volume II.
- Issue Program Control Documents (PCDs) to support the production and/or refurbishment of weapons as described in Chapter 3.3.
- Issues the Weapon/PCD for the disposal of retirements by the Pantex Plant.

NA-122 prepares and distributes the P&PD, which provides the new build and retirement data necessary for the generation of Volume II of the MNS.

5.2.2 Design Agencies and Production Agencies

The weapons complex provides input for Volume II as follows.

- Y-12 provides beginning nuclear material inventory information, weapon stacking factors, research and development support, stockpile testing and evaluation requirements, pre-cast and wet-chemistry requirements, and any other inventory and processing requirements.
- Based on the Weapon/PCD from NA-122, Pantex develops shipping schedules for materials to be returned to the PAs for retirement/disposal.
- SR provides their site's total inventory, the amount of pipeline material required for processing, and individual facility inventories
- Los Alamos National Laboratory (LANL) and Livermore National Laboratory (LLNL) provide for their lab research and development material requirements and the returns of excess material through material forecasts.

5.3 Volume III: Limited Life Component Shipping Schedules

5.3.1 Office of Nuclear Weapons Stockpile (NA-122)

NA-122 is responsible for publishing Volume III of the MNS. Generally, a new document is published once a year to reflect the current P&PD, with necessary updates as required.

Volume III is a directive document that authorizes and schedules the shipment of LLCs, Group X (GPX) kits, and ALT kits to the DoD to support stockpile maintenance. It also provides production requirements for reservoirs and neutron generators. In some instances Volume III also schedules components to support new weapon production.

The use of Volume III varies as follows.

- NA-122 uses it to authorize, direct, and schedule the production and shipment of LLC, GPX kits, and ALT kits to and from the DoD; and as data input for tritium requirements in Volume II.
- SR uses Volume III to schedule the filling, packaging, and shipping of reservoirs, the shipment of GPX kits and ALT kits necessary to support stockpile LLCE operations.
- Sandia National Laboratories (SNL) uses Volume III to schedule production, packaging, and shipment of neutron generators, lithium batteries and ALT Kits to support stockpile LLCE operations.
- Pantex Plant uses Volume III to schedule packaging and shipment of gas generators to support stockpile LLCE operations.
- The Kansas City Plant uses Volume III to schedule production and shipment of reservoirs, to schedule procurement, production, and packaging of GPX kits, and some ALT hardware kits for shipment to SR or DoD.

The P&PD provides information for Volume III on stockpile levels for active, inactive and retired weapons.

5.3.2 Office of Secure Transportation (NA-15)

NA-15 has responsibility to ship LLCs, Group X kits, and ALT kits to the CONUS (continental United States) military first destination. Typically deliveries to the DoD are made mid-month. NA-15 is also responsible for moving LLC's between PA's as required.

5.4 Support Documents

5.4.1 Office of Nuclear Weapons Stockpile (NA-122)

NA-122 issues the Table of Life with necessary updates. The Table of Life provides LLC life cycle and reclamation information for all weapon systems. It is used by the production agencies and DoD to determine LLC association information and expiration dates.

NA-122 is responsible for developing and approving the PPD-AB-LLC, LLC Support Definition. This document provides reference information pertaining to LLC kit definitions and production plant IP delivery requirements to support LLC shipments to the DoD (see Chapter 3.3).

5.4.2 Design Agencies

SNL is responsible for publishing and updating CD 357643 Matching Provisions, Weapon Components Document. This CD provides: 1) procedures for matching LLC's in new weapon production, replacement and

retrofit kits, and weapon reacceptance; and 2) procedures for making LLC entries on the Inspection Record Card. SNL provides source data for all the support documents, including LLC life cycles, kit definitions and packaging specifications for all SNL systems.

LANL provides source data for the support documents, including LLC life cycles, kit definitions and packaging specification for all LANL systems.

5.4.3 Logistics Manufacturing Center, Kansas City Plant

Publishes the PPD-AB-LLC.

6.0 POINT OF CONTACT FOR ADMINISTRATION

J. Claycomb, LLC Program Manager, Office of Nuclear Weapons Stockpile, Stockpile Systems Division, NA-122.1, 505-845-5053 is responsible for this chapter.

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 6.1: REPORTING, SPECIAL PROCEDURES, AND DISPOSITION OF DEFECTIVE WEAPON ASSEMBLIES

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	Original Release 02-27-2004
B	Change 9, 02-15-2007

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1.0 OBJECTIVE

Outline the responsibilities of the Department of Energy/National Nuclear Security Administration (DOE/NNSA) and the Department of Defense (DoD) agencies for evaluating and making decisions on the operational status of weapon assemblies that have been reported as defective and on nuclear weapons maintenance manuals.

Provide a mechanism for the military services to: (1) report potential or actual defects in NNSA-supplied weapons, components, or equipment; (2) report potential or actual deficiencies in joint maintenance manuals or repair instructions; and (3) request from NNSA, through the Defense Threat Reduction Agency (DTRA), a determination of appropriate resolution.

Provide a mechanism for NNSA to report potential or actual deficiencies in the handling or repair of NNSA materials by the military services.

Require reporting, disposition, repair, and handling of defective assemblies according to Joint Nuclear Weapon Publication System Technical Publication (TP) 5-1[1] or through an incident report.

2.0 APPLICABILITY

These requirements apply to the DOE/NNSA Defense Programs organizations, site offices, NNSA Service Center, and DOE/NNSA contractor organizations with the responsibility for executing any phase of the nuclear weapons program.

3.0 DEFINITIONS

See Glossary, Acronym, & Cross Reference Section.

4.0 REQUIREMENTS and RESPONSIBILITIES

4.1 Reporting Procedure

4.1.1 DoD and NNSA

Emergency radiological assistance may be obtained by calling the 24-hour hotline at (505) 845-4667.

4.1.2 DoD

The DoD notifies DTRA, through the appropriate military service's unsatisfactory report (UR) offices, of potential or actual defects in DOE/NNSA-supplied nuclear weapons, components, or equipment and potential or actual deficiencies in maintenance manuals or repair instructions in accordance with TP 5-1.

4.1.3 DTRA

The DTRA receives routine and priority URs from the military services. As determined to be appropriate by TP 5-1, DTRA sends these to the Sandia National Laboratories (SNL) Military Liaison Engineering (MLE) by using DTRA Form 146 or the UR database within 5 working days after receipt of a routine UR and within 24 hours after receipt of a priority UR. Notification may be oral followed by a normal distribution of the UR correspondence or an update to the UR database.

The DTRA determines when an action taken by the service can be internally authorized and replies to the service with an information copy to SNL MLE.

The DTRA determines when a proposed action requires evaluation by other DoD agencies, provides a report to SNL MLE, and requests evaluation and comment while providing the service information.

4.1.4 SNL MLE

The SNL MLE acts as the single-point agent for the nuclear weapons complex (NWC) in matters involving coordination of the UR Program with DoD

The SNL MLE maintains organizational elements and operating processes that fulfill the requirements of TP 5-1.

The SNL MLE develops a formal document with the Office of Nuclear Weapons Stockpile (NA-122) concurrence that delineates how SNL will perform its UR agent responsibilities for NNSA.

When a UR is received from DTRA, SNL MLE determines whether it is a special UR and notifies NA-122 within 2 hours of receipt by SNL.

The SNL MLE maintains the UR database for NNSA and DTRA, performs trend analyses, and provides electronic access to other organizations as required.

The SNL MLE notifies DTRA of deficiencies concerning the handling or repair of DOE/NNSA material returned by the services. The SNL MLE determines when DTRA is notified via DOE/NNSA UR.

The SNL MLE notifies NA-122 and SNL Systems that a major assembly must be returned to a DOE/NNSA facility.

4.1.5 Production Agencies (PA)

Identified deficiencies in the authorized handling or repair of DOE/NNSA material by the military services are to be reported to SNL MLE within 5 working days.

4.1.6 Office of Nuclear Weapons Stockpile (NA-122)

The NA-122 notifies the Environment, Safety and Health Branch (NA-152.21) that defective weapon assembly issue/s has been resolved and that it is prepared to be shipped including any special handling instructions.

4.2 Evaluation Requirements

4.2.1 Office of Nuclear Weapons Stockpile (NA-122)

The NA-122 administers the UR process for NNSA and provides a centralized point-of-contact to SNL and DTRA for administration and management of the UR Program.

The NA-122 receives DoD special URs from SNL and notifies the appropriate NNSA organizations.

The NA-122 receives draft replies on DoD special URs from SNL and notifies the appropriate NNSA organizations for final review and concurrence. After appropriate review(s), NA-122 provides concurrence on the draft replies to SNL.

The NA-122 receives a copy of all final UR replies from SNL to DTRA and distributes information copies to appropriate NNSA organizations.

The NA-122 in coordination with SNL MLE and with DTRA concurrence and participation periodically conducts field reviews of each military service's UR service center and their selected base maintenance units to ascertain the satisfaction of the customer (military services). These field reviews are conducted semiannually or when significant issues require such reviews.

The NA-122 in coordination with SNL MLE develops performance measurement criteria for determining successful performance of the UR program in meeting the customer's expectations.

The NA-122 in coordination with SNL MLE also identifies and documents UR program problems, develops corrective actions, and ensures their implementation.

The NA-122 in coordination with SNL MLE reviews URs it receives for trends in defective materials procured or manufactured by the PAs and other NNSA suppliers.

The NA-122 in coordination with NA-152.21, design agency (DA), and PA determines that the weapon is safe to ship and be received at a DOE/NNSA facility including any special handling instructions. The Office of Nuclear Weapon Surety and Counterterrorism (NA-121) is engaged as necessary. The NA-122 notifies SNL MLE of determination.

The NA-122 provides technical weapon program guidance and disposition instructions for weapon assemblies to SNL MLE.

The NA-122 determines the reporting requirements on closed and outstanding URs. Currently, a quarterly status meeting is required on the last Wednesday of April, July, October, and January unless the requirement is changed by mutual agreement.

4.2.2 Office of Nuclear Weapon Surety and Counterterrorism (NA-121)

The NA-121, in coordination with NA-122, develops and coordinates NNSA policy statements for inclusion in UR replies. When required, NA-121 prepares, coordinates, and transmits the NNSA written replies to SNL on policy issues.

The NA-121 reviews URs that involve nuclear explosive safety issues and, when appropriate, provides comments to NA-122.

4.2.3 SNL MLE

The SNL MLE obtains a coordinated evaluation of the defect as reported in the UR from all involved DAs and, when required, from NNSA.

The SNL MLE coordinates the determination of when a major assembly is acceptable as is or can be repaired using existing field procedures.

The SNL MLE coordinates the determination of when a major assembly can be repaired in the field with the use of special instructions; prepares a Special Procedure (SP) in accordance with SNL published procedures; and forwards the SP to NA-122 (with a copy to NA-121) for coordination within NNSA. After NA-122 and NA-121 concur, SNL signs the SP and issues it to DTRA. Either DA or military service personnel may perform the SP, as negotiated with DTRA.

The SNL MLE coordinates the determination of when a major assembly cannot be repaired in the field. After NA-122 concurs with the determination, SNL notifies DTRA in writing that the major assembly must be returned to a DOE/NNSA facility for repair including any special handling.

The SNL MLE provides disposition instructions for defective parts, components, handling gear, test gear, and use-control equipment excluding major assemblies (see 4.2.4).

The SNL MLE coordinates the determination of when proposed changes to TPs are necessary and notifies DTRA that such changes are required.

4.2.4 Department of Defense

As negotiated by SNL MLE and DTRA, DoD personnel may perform the SP.

4.3 Return Of Weapon Assemblies To The Appropriate PA Or DA

4.3.1 Defense Threat Reduction Agency (DTRA)

The DTRA is responsible for the return of weapon assemblies to the PAs and DAs and ensures that:

- the service agency moving the assembly to the plant advises the PA or DA about the shipment itinerary and any subsequent changes to it;
- specific defect data accompany the unit according to the provisions of TP 35-7[2] and all other TP provisions are followed;
- all component parts, tools, special hardware, and containers that compose the weapon assembly are returned with the unit; and
- retrofit kits are delivered to the PA or DA when retrofits are to be performed as part of the routine repair of weapons.

Figure 6.1-1 illustrates the reporting sequence and return of defective weapon assemblies to the PA or DA.

REFERENCES

1. DOE-DNA (U.S. Department of Energy-Defense Nuclear Agency), "Unsatisfactory Reports," TP 5-1 (current version).
2. DOE-DNA (U.S. Department of Energy-Defense Nuclear Agency), "Inspection Records," TP 35-7 (current version).
3. Joint Weapon Programs Division and Weapons Quality Division memorandum to Sandia National Laboratories Organization 5510, "Unsatisfactory Reports," dated January 13, 1992.

5.0 POINT OF CONTACT FOR ADMINISTRATION

J. Gazda, Director, Stockpile Systems Division, Office of Nuclear Weapons Stockpile, 301-903-2984, is responsible for this chapter.

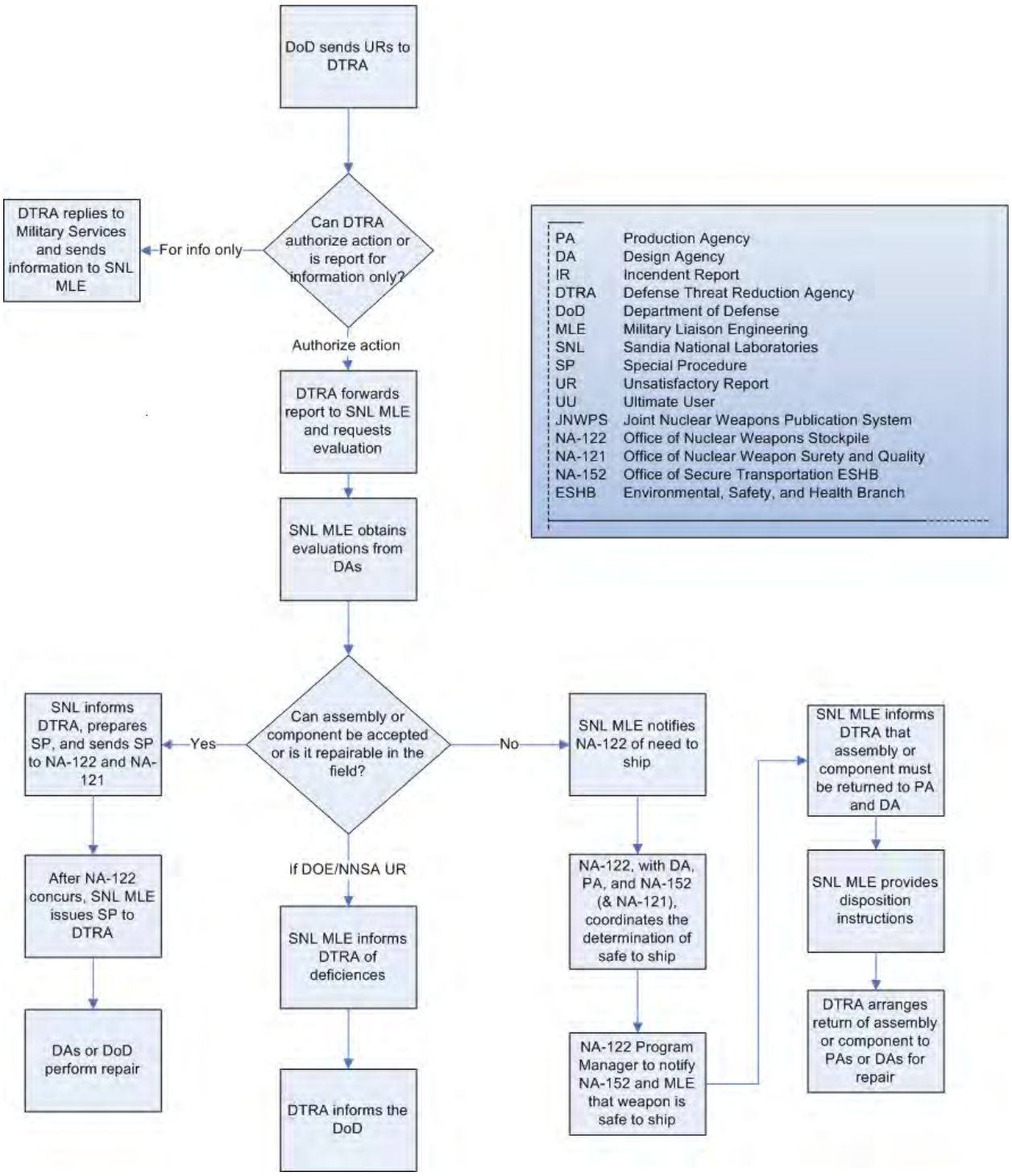

Figure 6.1-1. Reporting and Return of Defective Weapon Assemblies

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 6.2: EXAMINATION AND REPAIR OF WEAPON ASSEMBLIES AT PANTEX

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	IER_____
B	**Change Notice 10 dated 05-15-2015, FCO20152801SA effective 10-01-2015**

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LIST OF FIGURES

1.0 OBJECTIVE

- Describe the Department of Energy/National Nuclear Security Administration (DOE/NNSA) responsibilities for returning a defective weapon that is beyond authorized Department of Defense (DoD) repair capability from the stockpile to the Pantex Plant.
- Provide for the return to the Pantex Plant, for either routine or special repair, those weapons designated as defective or damaged and beyond authorized DoD repair capability.

2.0 APPLICABILITY

These requirements apply to the DOE/NNSA Office of Defense Programs, NA- 10 organizations, Site Offices, NNSA Service Center and DOE/NNSA contractor organizations with the responsibility for executing any phase of the nuclear weapons program.

3.0 DEFINITIONS

See Glossary, Acronym, & Cross Reference Section.

4.0 REQUIREMENTS and RESPONSIBILITIES

4.1. Office of Nuclear Weapons Stockpile (NA-122)

NA-122 coordinates with the Defense Threat Reduction Agency (DTRA) and the Pantex Plant for return of weapon assemblies to the Pantex Plant.

4.2. Office of Nuclear Weapon Surety and Quality (NA-121) (superseded by R019 per Change Notice 10 and FCO 20150059SA)

4.3. Defense Threat Reduction Agency (DTRA)

DTRA issues a material transfer order to effect transfer of the weapon assembly.

4.4. Design Agencies (DAs) (superseded by R019 per Change Notice 10 and FCO 20150059SA)

4.5. Production Agencies (PAs)

PAs coordinate operations with design engineers, especially in cases of unusual defects, questionable trends, or when additional reprocessing definition is required.

4.6. Pantex Site Office (PSO)

PSO's quality assurance organization reviews, and concurs if appropriate, with the Pantex Plant recommendations for NNSA acceptance.

4.7. Pantex Plant

The Pantex Plant notifies SNL, LLNL or LANL weapon design and quality assurance engineers of the scheduled date for weapon examination and forwards all known defect information. Notification is sent at least five working days before the examination date.

The Pantex Plant issues recommendations for NNSA acceptance and obtains approval of the recommendations from PSO.

The Pantex Plant notifies NA-121 of any condition that changes a routine repair to a special repair and requests a determination of the need for a nuclear explosive safety study.

Figure 6.2-1 illustrates the examination and repair process.

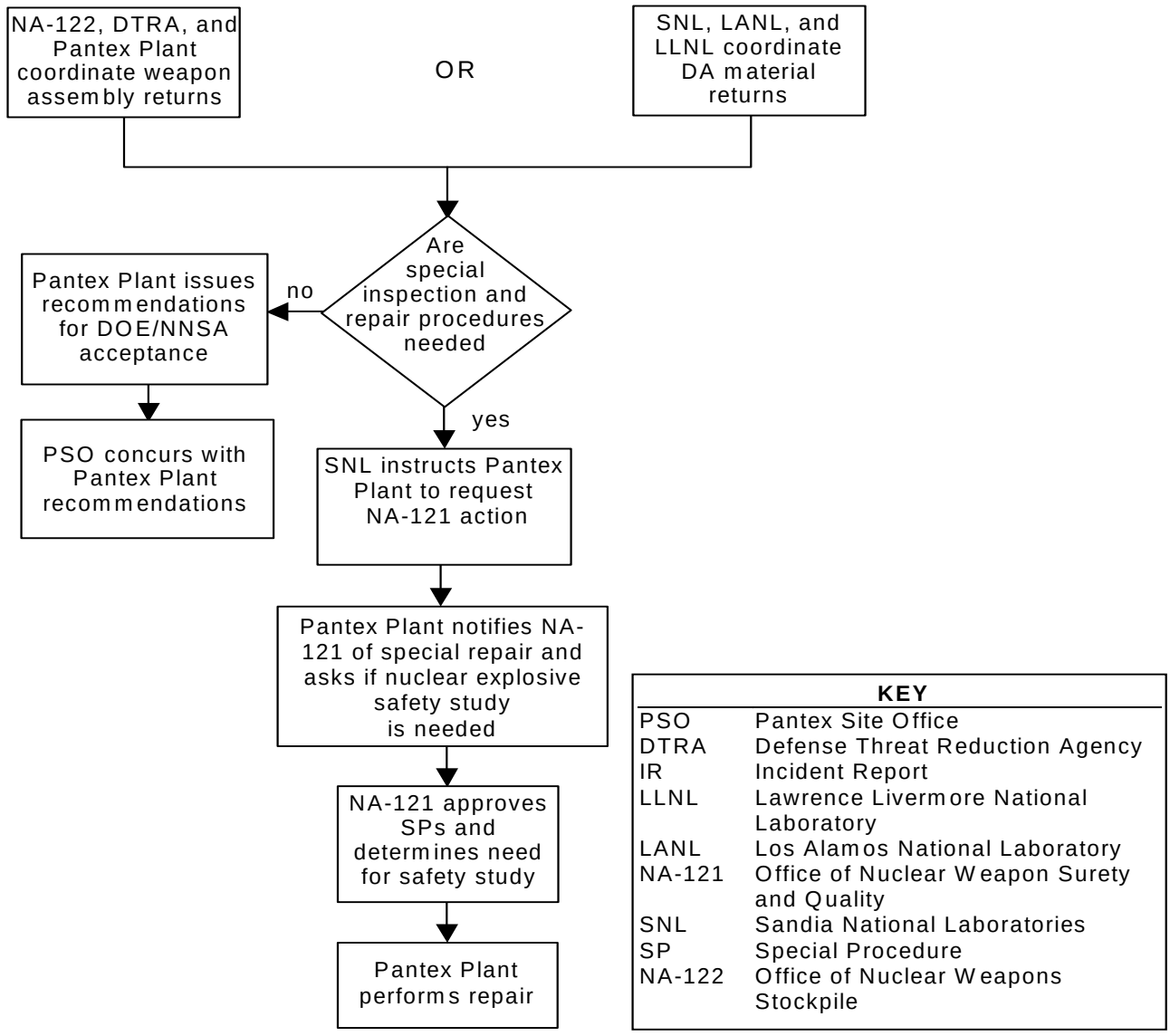

Figure 6.2-1. Examination and Repair of Weapon Assemblies

5.0 POINT OF CONTACT FOR ADMINISTRATION

J. Gazda, Director, Office of Nuclear Weapons Stockpile, Stockpile Systems Division, NA-122.1, 301-903-2984, is responsible for this chapter.

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 6.3: REPROCESSING OF WEAPON MATERIALS

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	IER_____
B	**Change Notice 10 dated 05-15-2015, FCO20152801SA effective 10-01-2015**

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1.0 OBJECTIVE

- Describe the Department of Energy/National Nuclear Security Agency (DOE/NNSA) responsibilities for reprocessing of weapon material.
- Require Production Agencies (PAs) to establish and maintain adequate internal controls and procedures to economically and efficiently inspect and reprocess returned weapon material to the required standards of quality and reliability. Weapon material may be returned to a PA for reprocessing caused by: (1) rejection during assembly, (2) damage, (3) a need to incorporate an engineering change, (4) field rejection, (5) laboratory or flight tests, (6) weapon retirement, or (7) retrofit activities.

2.0 APPLICABILITY

These requirements apply to the DOE/NNSA Office of Defense Programs, NA- 10 organizations, Site Offices, NNSA Service Center and DOE/NNSA contractor organizations with the responsibility for executing any phase of the nuclear weapons program.

3.0 DEFINITIONS

See the Glossary, Acronym, & Cross Reference (GAC) Section.

4.0 REQUIREMENTS and RESPONSIBILITIES

4.1. Design Agencies (DAs)

1. DAs determine which material may be reprocessed and establish the reprocessing definition.

2. The appropriate DA may examine returned items under their cognizance that show evidence of unusual defects or trends that could degrade performance. The examination may be performed at the PA or at the responsible DA's location. When requesting shipment of material to the DA for examination, the responsible DA states the reason for the request and sends copies to the Office of Nuclear Weapons Stockpile (NA-122) and the Office of Nuclear Weapon Surety and Quality (NA-121).

4.2. Production Agencies (PAs) (superseded by R019 per Change Notice 10 and FCO 20150059SA)

PAs reprocess material per DA definition or reprocessing specification.

1. Upon request for shipment of the material to the appropriate DA, the PA delays the shipment for five working days to permit NA-122 to determine if sufficient quantities of the material are on hand to permit shipment of the item to the DA for examination and possible destruction. Unless advised to the contrary, the PA ships the material on the sixth working day after receipt of the request.

2. PAs examine material to determine the extent of defect or damage and the feasibility and economy of repair. Before disposing of such an item, the DA and PA review the stock status of the item with NA-122.

~~3. PAs may pre-build shelf stock material to repair items for the stockpile life of a weapon if the quantity involved or the frequency of repair indicates a need for repair stocks.~~

~~4. PAs procure all support material needed to reprocess DOE Spares Repair List (DSRL) and laboratory or flight test material.~~

5. PAs coordinate operations with DA design engineers, especially in cases of unusual defects, questionable trends, or when additional reprocessing definition is required.

~~6. The Pantex Plant funds transportation costs for material returned to another PA from the Pantex Plant on Inter-project (IP) schedules.~~

4.3. Office of Nuclear Weapons Stockpile (NA-122)

1. NA-122 will determine if material requested by SNL for examination is needed at its current location. If it is needed, NA-122 will advise the PA not to ship the material.

2. NA-122 will direct the ultimate disposition of tested material.

4.4. Department of Defense (DoD)

1. DoD funds transportation and reprocessing costs for military spares; DoD special equipment; and DoD TYPE weapons material.

5.0 REFERENCES

For stockpile support, generic MOUs include DE-GMO4-84AL-30536 for ancillary equipment and DE-GMO4-89AL-53649 (Navy) and DE-GM04- 2001AL77146 (Air Force)

6.0 POINT OF CONTACT FOR ADMINISTRATION

R. Gergen, Office of Nuclear Weapons Stockpile, Stockpile Systems Division, NA-122.1, 505-845-5192 is responsible for this chapter.

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 7.1: BASE SPARES AND MILITARY SPARES

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	IER_____
B	**Change Notice 10 dated 05-15-2015** **FCO20152801SA effective 10-01-2015**

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1.0 OBJECTIVE

Describe Department of Energy/National Nuclear Security Administration (DOE/NNSA) responsibilities for supplying base spares and military spares to support the War Reserve (WR) weapon, its related shipping and storage container or bomb hand truck, its TYPE weapon and NNSA and military service DOE Special Equipment.

2.0 BACKGROUND

- Base spare parts, with the exception of TP 35-51A[1] expendable material, shall never be used to support TYPE weapons unless specifically authorized by NNSA;
- Military spare parts shall never be used to support WR weapons or their related shipping containers or bomb hand trucks
- No base spare parts will be shipped to the Department of Defense (DoD) without NNSA authorization; and
- No military spare parts will be shipped to the DoD without an authorized purchase order or authorization via the Base and Military Spares Server (BMSS).

3.0 APPLICABILITY

These requirements apply to the DOE/NNSA Office of Defense Programs, NA- 10 organizations, Site Offices, NNSA Service Center, and DOE/NNSA contractor organizations with the responsibility for executing any phase of the nuclear weapons program.

4.0 DEFINITIONS

See the Glossary, Acronym, & Cross Reference (GAC) Section.

5.0 REQUIREMENTS and RESPONSIBILITIES

5.1. Sandia National Laboratories (SNL)

SNL is responsible for recommending those items that should be identified as base and military spares; for recommending the quantities of base and military spares that should be purchased by the DOE/NNSA and the DoD to support the WR weapon, TYPE weapons and associated DOE Special Equipment throughout the stockpile life of the weapon program; and for recommending those base spares that should appear in the DOE Spares Repair List (DSRL).

Nominally 24 months before Phase 5, SNL prepares and distributes draft copies of base spares and military spares Spare Parts Lists (SPLs). Distribution is made to the Office of Nuclear Weapons Stockpile (NA-122) and to the DTRA for subsequent distribution to the using military service(s). Nominally one month after distribution, SNL Military Liaison Department (MLD) hosts an initial provisioning conference to discuss the draft SPLs and to make recommendations regarding the quantities of base and military spares to be procured.

Attendees should always include representatives from SNL, NA-122, Defense Threat Reduction Agency (DTRA), and the using military service(s). At the meeting SNL explains the design of the weapon, describes the field maintenance and repair operations the DoD will be required or authorized to perform. SNL then explains the recommendations for base and military spares, including quantities suggested to support the WR weapon, TYPE weapons and authorized DOE Special Equipment throughout their stockpile life. Items are added to or deleted from the draft SPLs by joint consensus of the attendees. Certain high-value base and military spares may be identified for subsequent inclusion in the DSRL. SNL publishes the original issue of the SPLs and a letter summarizing recommended procurement actions nominally two weeks after the initial provisioning meeting.

SNL is responsible for maintaining the SPLs current throughout the weapon's stockpile life. If the need arises to add items to the SPLs, SNL will discuss that need with NA-122 and, following NA-122 approval, will identify that need to NA-122.1 by a letter, directing procurement of required base spares and by a letter to DTRA recommending procurement of required military spares and by changing the appropriate SPLs to authorize the procurement action.

5.2. Office of Nuclear Weapons Stockpile (NA-122)

NA-122 is responsible for transmitting draft SPLs to the Production Agency (PA) before the SNL-hosted initial provisioning meeting; for obtaining estimated unit price information from the PAs for parts listed in the SPLs; for providing unit price information to DTRA before the initial provisioning meeting.

NA-122 is responsible for evaluating and approving the SNL recommendations regarding base and military spares before they are published in approved SPLs; for accepting all DTRA purchase orders for Navy base spare procurements and accepting all reimbursable purchase orders for military spare procurements or repairs under the provisions of the Economy Act of 1932, as amended; for ordering Air Force base spares via the BMSS; for acting as the interface between DTRA and the PAs on all matters pertaining to open orders; for ensuring the timely completion of all open orders; and for publishing the DSRL.

Nominally two years before a weapon program goes out of production, the NA- 122 hosts a final provisioning meeting. Attendees include SNL MLD, DTRA, NA-122 program engineers and the design agencies (DA), and representatives from the appropriate PAs. Attendees review past and current consumption data of base spares on the program, estimate total base spares requirements for the remainder of the program life, and review the retirement disposition instruction (RDI) (PPD-D-XX, see Chapter 3.5). Following the meeting, NA-122 orders Air Force base spares via the BMSS, directs DTRA to initiate purchase orders for required Navy base spares and directs the Kansas City Plant (KCP) to make required changes in the RDI. Base and military spares purchase orders placed at this time will benefit from being filled while weapon component production lines are still operating. Later orders will be filled, but potentially at a higher unit cost.

NA-122 is responsible for hosting ad hoc provisioning meetings throughout the remainder of the weapon program life to review base spares consumption and the RDI.

NA-122 authorizes the recall of base spares from DoD custody to the PAs to support programmatic requirements and authorizes the final disposition of base spares in DoD or DOE/NNSA inventory determined to excess to programmatic requirements.

Parts declared excess to programmatic needs by the PAs throughout the weapon program life may be suitable for use as base or military spares. NA- 122 screens all PA excess lists (see Chapter 4.1) to identify parts that should be placed into base spares. Copies of those lists are provided to DTRA to be further screened against base and military spares requirements.

NA-122 directs the shipment of weapon shipping containers and bomb hand trucks from the PAs to the DoD for all weapon programs that are out of production, until such time as the DoD reports that they have a minimum of one usable container and bomb hand truck for each fielded weapon. At that point, if there is no further use for the containers and bomb hand trucks, NA- 122 directs the KCP to change the RDI to authorize final disposition.

Weapon retirements may be an important source of base and military spares during Phase 6 of the weapon program. NA-122 screens all purchase orders for base and military spares against RDIs to identify parts that may be available at no cost as the result of weapon retirements and encourages DTRA to do the same before originating base and military spares purchase orders.

5.3. Defense Threat Reduction Agency (DTRA)

DTRA is responsible for tracking the inventory of base spares in DoD custody for NA-122, and for participating in all provisioning meetings and activities for base and military spares.

DTRA initiates no-cost purchase orders for replacement Navy base spares required to keep inventories adequate to support anticipated weapon maintenance and repair activities for the remainder of the weapon's stockpile life.

DTRA combines military service requirements and issues reimbursable purchase orders for the procurement and/or repair of military spares. All reimbursable purchase orders are submitted to NA-122 for approval and subsequent transmittal to the local DOE/NNSA Site Office and the appropriate PA. Purchase orders contain information identifying the type of order; the document control number (HD1029-XXXX-5XXX for base spares, FD2388-XXXX- 6XXX (AF) and N00104-XXXX-6XXX (Navy) for military spares); the responsible local office; the part number, national stock number and nomenclature of the item being ordered; the quantity being ordered; the estimated cost; the shipping address; billing information if the order is DoD funded; miscellaneous notes; and desired delivery date. An 18-month delivery time is usually allowed for special design parts, and 12 months are allowed for commercial hardware.

5.4. Site Offices (superseded by R019 per Change Notice 10 and FCO 20150059SA)

5.5. Production Agencies (PA)

PAs are responsible to their local DOE/NNSA Site Office and to NA-122 for the timely and cost-effective completion of purchase orders approved by NA- 122 or authorized via the BMSS and assigned to them; for repairing DSRL items expeditiously; for providing NA-122 with monthly reports showing the status of all Navy open purchase orders and DSRL repairs; for providing estimated cost data to NA-122.1 to support provisioning activities; for making appropriate recommendations for spares program enhancements and for attending provisioning conferences when requested by NA-122. PAs are responsible for saving tooling for base and military spares until the weapon program is retired.

PAs are encouraged to fill open orders at the earliest reasonable date and not to wait for the required delivery date shown on the individual orders. The only exceptions to this generality are orders for TP 35-51A shelf-life material where specific delivery schedules are shown on the purchase orders.

5.6. Department of Energy (DOE)/National Nuclear Security Administration (NNSA)

The DOE/NNSA will budget and fund for base spares and base spares repair costs and for the transportation of base spares between the PA and the using military services.

The DOE/NNSA will budget and fund for maintenance and technological upgrades of the BMSS as recommended by KCP.

5.7. Department of Defense (DoD)

The DoD will budget and fund for all costs associated with the procurement, transportation, and repair of military spares; and for the cost of storing base spares and transporting them between military locations.

The DoD shall fund all Intra-Service spares shipments.

The DoD shall fund for upgrades of the BMSS that are specifically requested to be implemented to support DoD requirements.

6.0 REFERENCES

1. DOE-DNA (U.S. Department of Energy-Defense Nuclear Agency), "General Instructions Applicable to Nuclear Weapons (Supplement)," TP 35-51A (current version).

2. SNL (Sandia National Laboratories), Engineering Procedures Manual, EP401540, "Spare Parts," Albuquerque, NM (current version).

3. DE-GMO4-89AL-53649 (Navy) and DE-GM04-2001AL77146 (Air Force)

7.0 POINT OF CONTACT FOR ADMINISTRATION

R. Gergen, Office of Nuclear Weapons Stockpile, Stockpile Systems Division, NA 122.1, 505-845-5192 is responsible for this chapter

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 7.3: MATERIALS AND TOOLS TO RETROFIT THE WAR-RESERVE STOCKPILE

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	IER_____
B	**Change Notice 10 dated 05-15-2015, FCO20152801SA effective 10-01-2015**

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1.0 OBJECTIVE

- Outline Department of Energy/National Nuclear Security Administration (DOE/NNSA) responsibilities for providing retrofit material and tools required to retrofit the War Reserve (WR) stockpile.
- Require Sandia National Laboratories (SNL), with appropriate input from the nuclear Design Agency (DA), to define and release the retrofit material/components, tool kit definitions, and attrition items required to retrofit the WR stockpile.

2.0 BACKGROUND

Direction to perform retrofits to the stockpile is provided by the Production and Planning Directive (P&PD). Direction is based upon coordination with the DOD.

3.0 APPLICABILITY

These requirements apply to the DOE/NNSA Office of Defense Programs, NA- 10 organizations, Site Offices, NNSA Service Center, and DOE/NNSA contractor organizations with the responsibility for executing any phase of the nuclear weapons program.

4.0 DEFINITIONS

See the Glossary, Acronym, & Cross Reference (GAC) Section.

5.0 REQUIREMENTS and RESPONSIBILITIES

5.1. Sandia National Laboratories (SNL)

SNL with appropriate input from the nuclear design agency is responsible for defining and releasing the retrofit material, retrofit kit definitions, and attrition requirements. SNL jointly determines retrofit requirements with the Office of Nuclear Weapons Stockpile (NA-122).

SNL coordinates both internally and with the Defense Threat Reduction Agency (DTRA) and NA-122 for determination of retrofit requirements, based on circumstances pertaining to each retrofit.

When a proposed retroactive change to WR, TYPE 2, Joint Test Assembly (JTA), training weapons, and associated field test and handling equipment, or any in-

process changes requiring a Mod or ALT identification, SNL will initiate the Product Change Proposal (PCP) process.

5.2. Office of Nuclear Weapons Stockpile (NA-122)

NA-122 determines jointly with SNL the retrofit kit requirements for units in the WR stockpile and includes these requirements in the appropriate Program Control Document (PCD) or Master Nuclear Schedule (MNS).

When a hold order prohibits delivery of a unit that must be retrofitted before it is returned by the Production Agency (PA) to the stockpile, NA-122 may schedule, in the appropriate scheduling document, the retrofit material requirements for that unit. If NA-122 agrees a directive schedule delivery line is unnecessary for this material, then the Pantex Plant can obtain the retrofit material through an off-schedule requisition.

If a PCP is initiated, Technical Publication (TP) 40-1, “Field Modernization and Retrofit Orders”, prescribes the manner in which NNSA and the military services participate in the PCP review and approval process.

5.3. Production Agencies (PAs) (superseded by R019 per Change Notice 10 and IER 20150059SA)

5.4. Defense Threat Reduction Agency (DTRA)

DTRA provides retrofit material support to the Pantex Plant by:

- providing requested retrofit kits to support the modernization of weapons returned for stockpile laboratory and flight tests; and
- distributing requested retrofit kits and/or retrofit attrition material required for weapons returned for repair.

DTRA issues requisitions to NA-122 for off-schedule retrofit material.

6.0 POINT OF CONTACT FOR ADMINISTRATION

R. Stevens, Office of Nuclear Weapon Stockpile, Stockpile Systems and Business Processes Division (NA-122.1) 505-845-5192 is responsible for this chapter.

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 7.4: EQUIPMENT REQUIREMENTS SCHEDULE

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	IER_____
B	**Change Notice 10 dated 05-15-2015** **FCO20152801SA effective 10-01-2015**

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1.0 OBJECTIVE

- Describe the responsibilities of the Department of Energy/National Nuclear Security Administration (DOE/NNSA) production system for providing nuclear ordnance material and special equipment required for use by Department of Defense (DoD) personnel for personnel training and for handling, transporting, and maintaining nuclear weapons.
- Provide for the definition and acquisition of nuclear ordnance material and special equipment required by DoD personnel.

2.0 APPLICABILITY

These requirements apply to the DOE/NNSA Office of Defense Programs, NA- 10 organizations, Site Offices, NNSA Service Center, and DOE/NNSA contractor organizations with the responsibility for executing any phase of the nuclear weapons program.

3.0 DEFINITIONS

See the Glossary, Acronym, & Cross Reference (GAC) Section.

4.0 REQUIREMENTS and RESPONSIBILITIES

4.1. DOE/NNSA and Department of Defense (DoD)

Agencies of the DOE/NNSA and the DoD determine military requirements and funding sources for DOE/NNSA nuclear ordnance material and special equipment through configuration conferences, Joint Task Group meetings, provisioning conferences, and logistic working group meetings.

4.2. Sandia National Laboratories (SNL)

As soon as possible after specifications become available, SNL Military Liaison Engineering (MLE) Department prepares and releases Special Equipment Lists (SELs) and Commercial Equipment Lists (CELs) to the Defense Threat Reduction Agency (DTRA), NNSA, and to applicable Production Agencies (PA).

SELs specify the Test (T), Handling (H) and Use Control (UC) equipment required in the field for each nuclear weapon system produced by the DOE/NNSA. Nomenclature, description, use, specification, packaging and estimated times for first delivery to the DoD of each new item are incorporated in the SEL.

CELs specify those parts of nuclear weapons and T, H and UC equipment that have a general commercial application, do not contain source and special nuclear materials, and are not within the definition of nonnuclear weapon parts.

4.3. Defense Threat Reduction Agency (DTRA)

DTRA is responsible for forwarding copies of SNL-prepared SELs and CELs to the appropriate military services and DTRA offices.

DTRA obtains and consolidates requirements for nuclear ordnance material and special equipment from DoD agencies.

DTRA obtains estimated unit prices from the Office of Nuclear Weapons Stockpile (NA-122) before submitting the DTRA reimbursable purchase order to NNSA. Unit costs are provided as "Estimated Unit Costs" by NA-122. Estimated unit costs may be revised as more reliable costing criteria become available. Reimbursement is based on actual costs

DTRA obtains funding from the military services for DoD-funded nuclear ordnance material and special equipment.

DTRA orders nuclear ordnance material and special equipment on a DTRA reimbursable purchase order (DTRA Form 472). Each purchase order identifies the item and provides the shipping quantity, estimated cost, destination, and desired delivery date. Purchase orders for these items are numbered FD2388 (AF) or N00104 (Navy)-XXXX-77XX and should be annotated as "major item" on the Type of Order block. When new orders are received, they are priced and evaluated as to production and delivery capability.

DTRA submits all reimbursable purchase orders to NA-122 for acceptance.

DTRA reimbursable purchase orders for nuclear ordnance material and special equipment are placed in a time period that allows for delivery of the items to the DoD before the First Production Unit date of the weapon system.

DTRA initiates revisions to the reimbursable purchase orders. Revisions should indicate incrementally increased and decreased quantities or costs, new items, and cancellations.

DTRA certifies availability of funds to NNSA on the reimbursable purchase order and its amendments.

NNSA does not require DTRA to advance funds but must reimburse NNSA for full costs on the basis of billings for deliveries made or cancellation costs incurred. DTRA reimburses NNSA promptly after receiving monthly billings from the PAs.

Information relative to first destination delivery requirements is provided to the appropriate DOE/NNSA local Site Offices by DTRA via destination provided on the purchase order.

4.4. National Nuclear Security Administration and Defense Threat Reduction Agency

NNSA and DTRA negotiate adjustment of discrepancies or shortages of material.

NNSA and DTRA negotiate lead times for new orders and reorders on a case-by-case basis.

4.5. Office of Nuclear Weapons Stockpile (NA-122)

NA-122 obtains cost and lead time information for nuclear ordnance material and special equipment from the PAs.

NA-122 authorizes the production of NNSA-funded nuclear ordnance material and special equipment.

NA-122 reviews and accepts purchase orders under provisions of the Economy Act of 1932, as amended. When accepted, DTRA reimbursable purchase orders are forwarded to the appropriate local DOE/NNSA Site Office for compliance.

NA-122 indicates acceptance of a DTRA reimbursable purchase order by promptly returning the original signed copy of the order to DTRA.

NA-122 negotiates delivery schedules for all items with the PAs. Nuclear ordnance material and special equipment are scheduled for delivery in the Equipment Requirements Schedule (ERS) PCD by NA-122. The ERS PCD contains the consolidated DTRA requirements through the period for which the DoD has authorized procurement. NA-122 also assigns production responsibility.

NA-122 ensures special equipment is delivered concurrently with or prior to the First Training Unit (FTU) of the associated weapon. Priority equal to that for war-reserve deliveries is authorized for special equipment required to meet FTU dates.

NA-122 advises DTRA of the predicted completion of production of individual purchase orders for materials in order to permit timely submittal of DTRA’s final statement of requirements.

By agreement, NA-122 is responsible for maintaining repair facilities for "Life of Type" on all DOE/NNSA-developed and DOE/NNSA-produced special equipment that has been sold to the DoD.

4.6. NNSA Service Center

4.6.1. Financial Services Department (FSD)

The FSD maintains long term accounting information.

NNSA uses the DOE/NNSA full cost recovery pricing policy for sales of new materials and equipment to DTRA and DoD agencies from the NNSA weapons program operations.

4.6.2. Budget and Resources Management Department (BRMD)

The BRMD certifies the funding on the DTRA reimbursable purchase order in the appropriate PA's Authorized Financial Plan (AFP). Once the funding is authorized in the PA's AFP, they are authorized to commence production activities.

4.7. Production Agencies (PAs) (superseded by R019 per Change Notice 10 and IER 20150059A)

PAs should procure the most economical type of tooling (Category 1 or 2), based on consideration of all planning information available, which may show additional quantities beyond the authorized procurement date. However, in determining requirements for duplicate sets of tooling, only the authorized procurement quantities should be considered.

The total quantity of items scheduled in the ERS or appropriate weapon PCD is authorized for procurement and delivery, unless otherwise specified.

~~PAs make all shipments of scheduled material directly against the DTRA reimbursable purchase order number. Therefore, the information normally cited on the PAs' invoices and reports of charges will contain a cross-reference to the applicable purchase order number. All PA invoices should include the military service's Military Interdepartmental Purchase Request (MIPR) number.~~

~~PAs make all shipments of scheduled NNSA-funded material against the appropriate ERS PCD Line Order Number.~~

All PAs having delivery responsibilities furnish monthly production status reports to NA-122 and DTRA.

The PAs submit monthly billings to DTRA.

4.8. Department of Defense

The cost for repair of special equipment is normally borne by the DoD.

Figure 7.4-1 illustrates the ordering and shipping process for ERS material.

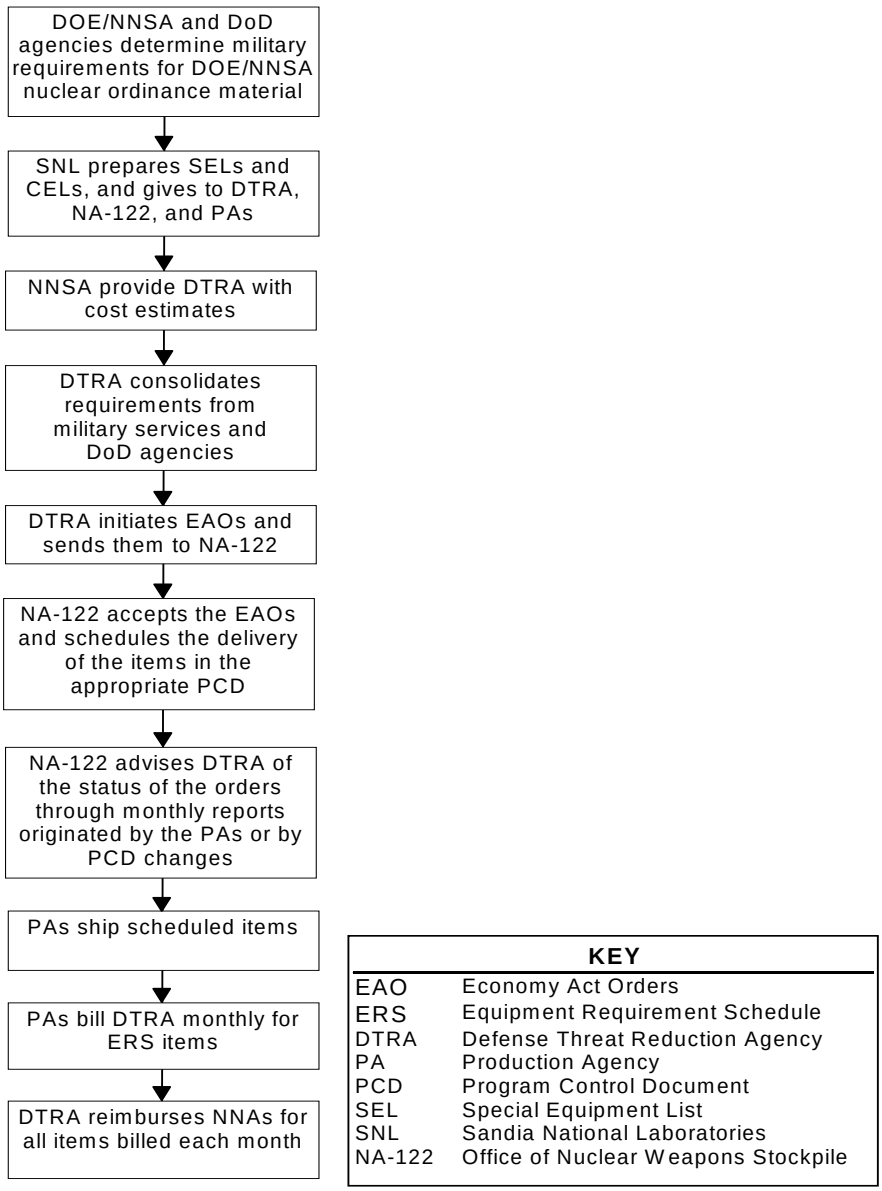

Figure 7.4-1. Ordering and Shipping Process for Material in the Equipment Requirement Schedule

5.0 REFERENCES

1. Agreements DE-GMO4-89AL-53649 (Navy) and DE-GM04-2001AL77146 (Air Force)

6.0 POINT OF CONTACT FOR ADMINISTRATION

R. Gergen, Office of Nuclear Weapons Stockpile, Stockpile Systems Division, NA-122.1, 505-845-5192 is responsible for this chapter

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 7.5: REIMBURSABLE EQUIPMENT SCHEDULE

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	IER_____
B	**Change Notice 10 dated 05-15-2015, FCO20152801SA effective 10-01-2015**

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1.0 OBJECTIVE

- Describe the responsibilities of the Department of Energy/National Nuclear Security Administration (DOE/NNSA) production system for providing ancillary equipment required by the Department of Defense (DoD).
- Provide to the DoD all ancillary equipment required by the DoD as defined in Military Interdepartmental Purchase Requests (MIPR).

2.0 APPLICABILITY

These requirements apply to the DOE/NNSA Office of Defense Programs, NA- 10 Organizations, Site Offices, NNSA Service Center, and DOE/NNSA contractor organizations with the responsibility for executing any phase of the nuclear weapons program.

3.0 DEFINITIONS

See the Glossary, Acronym, & Cross Reference (GAC) Section.

4.0 REQUIREMENTS and RESPONSIBILITIES

4.1. DOE/NNSA and Department of Defense (DoD)

Military requirements for ancillary equipment evolve from DOE/NNSA and DoD interface at aircraft, aircraft monitor and control, and/or weapon Project Officer Group (POG) meetings.

4.2. Department of Defense (DoD) (superseded by R019 per Change Notice 10 and FCO 20150059SA)

The DoD states military requirements to the Office of Nuclear Weapons Stockpile (NA-122) by MIPRs.

~~The DoD obtains estimated unit prices from NA-122 before submitting an MIPR.~~

The DoD submits MIPRs for ancillary equipment in a time period that permits delivery of the items as determined by the POG. Each MIPR should contain the required quantity, funds authorized, shipping destination, and desired delivery date.

The DoD states revisions to ancillary equipment requirements by amending MIPRs. Revisions should indicate incrementally increased and decreased quantities, new items, and cancellations.

NNSA does not require the DoD to advance funds, but must reimburse NNSA for full costs on the basis of billings for deliveries made or cancellation costs incurred. The DoD normally pays for repair of ancillary equipment.

The DoD certifies availability of funds on MIPRs and the amendments to them.

The DoD provides via the MIPR information relative to first destination delivery requirements.

The military services are encouraged to place final orders for Reimbursable Equipment Schedule (RES) items at least six months before predicted completion of the item.

4.3. Office of Nuclear Weapons Stockpile (NA-122)

NA-122 examines each request from the military services for the DOE/NNSA to design and manufacture a new item of ancillary equipment in order to determine if the item has some unique requirement that would make it unsuitable for design and manufacture by commercial sources.

NA-122 ensures Sandia National Laboratories (SNL) prepares and releases drawings to the appropriate Production Agency (PA) as soon as possible after requirements are determined by the appropriate military service.

NA-122 advises the military services of the predicted completion of production of individual purchase orders for RES material to permit timely submittal of a final statement of requirements by the military services to NA-122.

NA-122 indicates acceptance of an MIPR by promptly sending to the DoD the acceptance form (DD Form 448-2). NA-122 accepts MIPRs under provisions of the Economy Act of 1932.

NA-122 negotiates delivery schedules for RES items with the PAs, and these schedules are incorporated into the RES Program Control Document (PCD). The RES PCD also provides to the PAs information relative to first destination delivery requirements. The RES PCD contains consolidated requirements for items throughout the period for which the DoD has authorized procurement.

When new RES orders or reinstated RES orders are received, NA-122 prices and evaluates them as to production and delivery capability. The NA-122 provides unit costs as "estimated unit costs." NA-122 may revise estimated costs as more reliable costing criteria become available. Final billing is based on actual costs incurred.

NA-122 and the appropriate military service negotiate lead times for new orders and reorders on a case-by-case basis. NA-122 notifies the military services about

anticipated completion dates for items by changing the RES PCD. Adjustments of discrepancies or shortages of material are negotiated between NA-122 and the appropriate military service.

If requested by the DoD, NA-122 repairs ancillary equipment developed and produced by the DOE/NNSA.

4.4. Production Agencies (PAs)

With regard to tooling, the most economical type (Category 1 or 2) should be procured, based on consideration of all planning information available, which may show additional quantities beyond the authorized procurement date. However, in determining requirements for duplicate sets of tooling, only the authorized procurement quantities should be considered.

PAs make all shipments of scheduled material directly against the RES order number and the MIPR number. Therefore, the information normally cited on the PAs' invoices and reports of charges must contain a cross-reference to the applicable RES order number and the MIPR number.

All PAs having RES delivery responsibilities must furnish monthly production status reports to NA-122.

PAs submit monthly billings to the appropriate DoD agency.

4.5. NNSA Service Center

4.5.1. Financial Service Department (FSD)

The FSD maintains long term accounting information.

NNSA uses the DOE/NNSA full cost recovery pricing policy for sales of new materials and equipment to the DoD agencies from the NNSA weapons program operations.

4.5.2. Budget and Resources Management Department (BRMD)

The BRMD certifies the funding on the MIPR’s in the appropriate PA’s Authorized Financial Plan (AFP). Once the funding is authorized in the PA’s AFP, they are authorized to commence production activities.

4.6. DoD Agencies

DoD agencies promptly reimburse the appropriate PA for the full amount of the monthly billings upon receipt of the billings.

5.0 REFERENCES

1. Agreement DE-GM04-2001AL77133

6.0 POINT OF CONTACT FOR ADMINISTRATION

R. Gergen, Office of Nuclear Weapons Stockpile, Stockpile Systems Division, NA-122.1, 505-845-5192 is responsible for this chapter

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 8.2: PILOT PRODUCTION

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	IER_____

	REV.	CHANGE	DATE	PAGE NO.
56XB	**2**		**February 27, 2004**	**1**

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1.0 OBJECTIVE

- Define the Department of Energy/National Nuclear Security Administration (DOE/NNSA) policy for pilot production and establish responsibilities for determining quantities, schedules, authorizations, identification, and disposition of pilot production material.
- Implement a pilot production program to:
  1. facilitate evaluation of manufacturing aspects of design drawings and specifications;
  2. determine whether manufacturing facilities, processes, and personnel are capable of producing material that meets War Reserve (WR) requirements at rates that will satisfy production schedules; and
  3. allow evaluation and prove-in to be conducted sufficiently in advance of normal production to permit corrective actions, if necessary, and still meet production schedules.

2.0 APPLICABILITY

These requirements apply to the DOE/NNSA Office of Defense Programs, NA-10 Organizations, Site Offices, NNSA Service Center, and DOE/NNSA contractor organizations with the responsibility for executing any phase of the nuclear weapons program.

3.0 DEFINITION

See the Glossary, Acronym, & Cross Reference (GAC) Section.

4.0 REQUIREMENTS and RESPONSIBILITIES

4.1 Design Agencies, Production Agencies, and Sandia National Laboratories

During weapon development Phase 4, Full Scale Engineering Development (FSED), Design Agencies (DAs), Production Agencies (PAs), and Sandia National Laboratories (SNL) jointly establish pilot production quantities.

Pilot production of nonnuclear items is intended to meet WR schedule requirements. Pilot production may utilize dummy nuclear items, mock high explosive, etc., in lieu of WR nuclear items when appropriate.

4.2 Office of Nuclear Weapons Stockpile (NA-122)

Provides administrative authorization for pilot production activities by referring to the Pilot Production Program Definition (PPPD) in the weapon system Program Control Document (PCD).

4.3 Design Agencies

DAs define pilot production items and quantities in the PPPD. DAs issue engineering releases to provide product definition and other technical direction.

SNL revises the PPPD to reflect NA-122-approved changes required to maintain the objectives of pilot production. Before PPPD publication, the SNL coordinates any changes to the PPPD with NA-122 that add items or increase quantities of a line item by more than 10%. SNL furnishes NA-122 with copies of all changes by standard distribution.

DAs establish pilot production activity dates after consulting with the PAs and include them in the appropriate project schedules.

DAs utilize the PPPD until weapon First Production Unit (FPU). Thereafter, if additional quantities for engineering evaluation activities are required, the DA will distribute an engineering release. However, SNL may reactivate the PPPD with NA-122 concurrence as necessary.

Pilot production material is funded in accordance with Chapter 9.1, "Procurement Classes of Weapon Material."

DAs issue disposition instructions for material that does not meet WR requirements.

4.4 Production Agencies

PAs manufacture acceptable units to meet the quantity requirements described in 5.3. If some units manufactured for Process Prove-In (PPI) are rejects, PAs do not need to replace these units.

Pilot production material that meets mark quality requirements can yield to next assembly pilot or WR application. Material suitable for training use is processed accordingly.

PAs will determine a disposition path for material that does not meet mark quality requirements in accordance with DA instructions.

5.0 POINT OF CONTACT FOR ADMINISTRATION

Joe Gazda, Director, Office of Nuclear Weapons Stockpile, Stockpile Systems Division, NA-122.1, (301) 903-2984 is responsible for this chapter.

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 9.1: PROCUREMENT CLASSES OF WEAPON MATERIAL/ COMPONENTS

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	IER_____

	REV	CHANGE	DATE	PAGE NO.
56XB	**2**		**March 8, 2004**	**1**

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1.0 OBJECTIVE

- Require that all weapon material/ components be designated Class A unless otherwise designated
- To limit the Class B designation to the minimum necessary to attain program objectives.
- Define procurement classes for weapon material/ components and delineates responsibilities for Class B material activities.

2.0 BACKGROUND

It is the policy of the Department of Energy/National Nuclear Security Administration (DOE/NNSA) that all weapon material/components are Class A unless designated otherwise and that Class B designation is to be limited to the minimum necessary to attain program objectives.

3.0 APPLICABILITY

These requirements apply to the DOE/NNSA Office of Defense Programs, NA-10 Organizations, Site Offices, NNSA Service Center, and DOE/NNSA contractor organizations with the responsibility for executing any phase of the nuclear weapons program.

4.0 DEFINITIONS

See the Glossary, Acronym, & Cross Reference (GAC) Section.

5.0 REQUIREMENTS and RESPONSIBILITIES

5.1 Production Agencies

PAs budget for qualification and production quantities of Class A and B material. This includes pilot production, tool-made sample, qualification sample, and engineering evaluation material.

PAs participate in the selection and development of vendors for Class B material to the maximum practicable extent.

PAs participate in a periodic review of the Class B material designation list when requested to do so by the DA.

When appropriate, PAs submit requests for additions or deletions of Class B sources to the cognizant DA.

PAs communicate any serious problem(s) that develop with Class B material vendors to the DA, local DOE/NNSA Site Office, and the Weapon Quality and Surveillance Division (NA-121.3).

5.2 Design Agencies

DAs specify when procurement is to be limited to one or a few sources according to the policy detailed above. This limitation may occur for the following reasons:

- Only one supplier or a very few suppliers have the knowledge and skill needed to build the desired quality into the required quantity of an item by the time a production order must be placed.
- Scheduled production volume may be so small it is not economical to develop other suppliers because of the cost of security-cleared facilities, production tooling, test equipment, and/or personnel training.

DAs establish a procedure for documenting the decision to designate an item as Class B when fewer than three non-government agency sources are specified. If three or more sources are identified, the DA will document the reason(s) the item is designated as Class B material.

With PA agreement, the DA may make the following exceptions to the procedures for designating Class B material:

- procurement of qualification quantities or limited production quantities by the DA;
- fabrication of limited production quantities by the DA;
- DA designation of the PA as an additional source of material that was previously placed in Class B; and
- DA designation of the PA as the sole manufacturer of the material/ component (used when procurement from a commercial source is prohibited).

DAs establish a procedure by which PAs may request a DA to review either additions to or deletions from Class B designation or as a specified source for Class B material/ component.

DAs establish a system to periodically review the Class B designation list to determine if it is still appropriate and if the source list is still valid.

DAs establish an auditable system that justifies the Class B material/ component designation.

DAs maintain a database of pertinent information on Class B material/ component items and sources. The information should include nomenclature

or item name, drawing number, specified supplier(s) with addresses, justifying engineering release, PA, DA, and weapon system.

DAs provide a listing of the database on an annual basis to NA-121.3.

DAs provide information from the Class B material database as requested by DOE/NNSA and/or PAs.

DAs involve PAs in the selection and development of vendors for Class B material/ components to the maximum practicable extent.

DAs involve PAs in the periodic review of the Class B material/ component designation list.

5.3 Site Offices

Site Offices monitor PA activities with regard to the review of Class B material/ components under their purview.

Site Offices monitor the PA to ensure they are providing the support requested by a DA with regard to Class B material/ component designation and/or selection and development of vendors.

Site Offices coordinate and work with the PA, DA, NA-121.3, and other NNSA organizations, as appropriate, in the resolution of any problems with Class B material/ component vendors.

5.4 Weapon Quality and Surveillance Division (NA-121.3)

NA-121.3 periodically reviews new Class B material/ component designation for appropriateness and proper justification.

NA-121.3 annually reviews an updated listing of current Class B material/components.

NA-121.3 is the focal point for resolution of Class B material/ component vendor quality-related problems with PAs, DAs, local DOE/NNSA Site Offices, and other NNSA organizations, as appropriate.

6.0 POINT OF CONTACT FOR ADMINISTRATION

P. Krumpe, Office of Nuclear Weapon Stockpile, Stockpile Systems Division (NA-122.1) 301-903-1739 is responsible for this chapter.

R. Pierson, Weapon Quality and Surveillance Division (NA-121.3) 505-845-4612 is responsible for the technical content of this chapter.

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 9.2: MAKE-OR-BUY DECISIONS

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	IER_____

	REV.	CHANGE	DATE	PAGE NO.
56XB	**2**		**March 2, 2004**	**1**

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1.0 OBJECTIVE

- Establish the Department Of Energy/National Nuclear Security Administration (DOE/NNSA) responsibilities and procedures for the implementation of the objective commensurate with Department of Energy Acquisition Regulation (DEAR) 970.1504-4-3, Requirements.
- Define the make-or-buy policy for weapon materials and components to procure all weapon materials and components that private industry can provide on schedule, to the required specifications, and at reasonable cost.

2.0 BACKGROUND

National defense policy requires the DOE/NNSA ensure the capability and capacity to produce and maintain nuclear weapons or weapon components in conformance with current and future stockpile requirements. Ensuring this capability and capacity requires the preservation of essential expertise, facilities, and equipment and may be provided in government-owned facilities, private industry, or a combination of the two. Within this framework, DOE/NNSA requires Management and Operating Contractors to develop and implement make-or-buy plans that establish a preference for providing supplies or services (including construction and construction management) on a least cost basis, subject to program specific make-or-buy criteria. The emphasis of this make-or-buy structure is to eliminate bias for in-house performance where an activity may be performed at least cost or otherwise more efficiently through subcontracting (DEAR 970.1504-4-2).

3.0 APPLICABILITY

These requirements apply to the DOE/NNSA Office of Defense Programs, NA-10 Organizations, Site Offices, NNSA Service Center, and DOE/NNSA contractor organizations with the responsibility for executing any phase of the nuclear weapons program.

4.0 DEFINITIONS

See the Glossary, Acronym, & Cross Reference (GAC) Section.

5.0 REQUIREMENTS and RESPONSIBILITIES

5.1 Production Agencies (PAs)

Establish a site-based or local make-or-buy policy that supports the DOE/NNSA policy above while accounting for the particular circumstances and experiences at the individual PA.

Analyze make-or-buy options on all new items and make decisions in conformance with the local policy.

Establish and convene a Make-or-Buy Committee (the Committee) as needed for the following purposes:

- to review all new major cost items--this review should occur as early as practicable, while make-or-buy options are viable; and
- to review previous make-or-buy decisions when the conditions upon which the original decision was based have changed significantly.

The Committee will consider the following factors, as a minimum, in developing make-or-buy recommendations:

- schedule requirements,
- quality requirements,
- costs,
- technology, and
- critical capabilities.

The Committee will categorize each major cost item as either must-make, must-buy, or make-or-buy. The rationale for placing items in these categories shall be documented. Cost comparisons will be developed for items in the make-or-buy category.

The Committee will address cost comparisons on the basis of the incremental costs required to produce an item in-house. These incremental costs include all direct costs and the variable portion of indirect costs that are attributable to this work.

The Committee will prepare and maintain documentation for each of its make-or-buy recommendations. These recommendations are provided to appropriate levels of PA management for review and approval in the form of make-or-buy decisions. A copy of these decisions with supporting rationale is provided to the local DOE/NNSA Site Office.

Funding will not be committed to a **major** cost item until a make-or-buy decision has been reached.

5.2 Design Agencies (DAs)

Maintain an awareness of the DOE/NNSA's make-or-buy policy and, where practicable, structure weapon development schedules and product specifications in a manner that facilitates outside procurement.

Provide technical support and assistance as requested by the DOE/NNSA and the PAs.

5.3 Site Offices

Monitor the PA's make-or-buy activities to ensure compliance with established policy and procedures and review PA make-or-buy decisions.

Forward copies of make-or-buy decisions on **major** cost items to the Office of Nuclear Weapons Stockpile (NA-122).

5.4 Office of Nuclear Weapons Stockpile (NA-122)

Review make-or-buy decisions to ensure the NNSA policy is being interpreted and implemented properly throughout the weapon production complex.

Provide guidance to the PAs and the local DOE/NNSA Site Offices on weapon program issues related to make-or-buy decisions.

6.0 POINT OF CONTACT FOR ADMINISTRATION

P. Krumpe, Office of Nuclear Weapons Stockpile, Stockpile Systems Division, NA-122.1, 301-903-1739 is responsible for this chapter.

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 9.3: ADVANCE PROCUREMENT AUTHORITY

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	IER_____
B	**Change Notice 10 dated 05-15-2015** **FCO20152801SA effective 10-01-2015**

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1.0 OBJECTIVE

- Describe the Department of Energy/National Nuclear Security Administration (DOE/NNSA) requirements and procedures for requesting advance procurement authority.
- Advance procurement authority is required for all expenditures of Core Stockpile Management (CSM) funds for:

    1. materials, components and/or services for a weapon program that is in Engineering Development, with the exception of normal manufacturing development activities, and

    2. any weapons, materials, or weapon components scheduled to be delivered to the ultimate user outside of the authorized period of procurement

2.0 APPLICABILITY

These requirements apply to the DOE/NNSA Office of Defense Programs, NA- 10 Organizations, Site Offices, NNSA Service Center, and DOE/NNSA contractor organizations with the responsibility for executing any phase of the nuclear weapons program.

3.0 DEFINITIONS

See the Glossary, Acronym, & Cross Reference (GAC) Section.

4.0 REQUIREMENTS and RESPONSIBILITIES

4.1. Defense Programs (DP)

The Assistant Secretary for Defense Programs authorizes the period of procurement, which normally extends three years beyond the current fiscal year. (See figure 9.3-1 below). DP approves requests for expenditure of funds to support Ultimate User (UU) schedules beyond the authorized period of procurement.

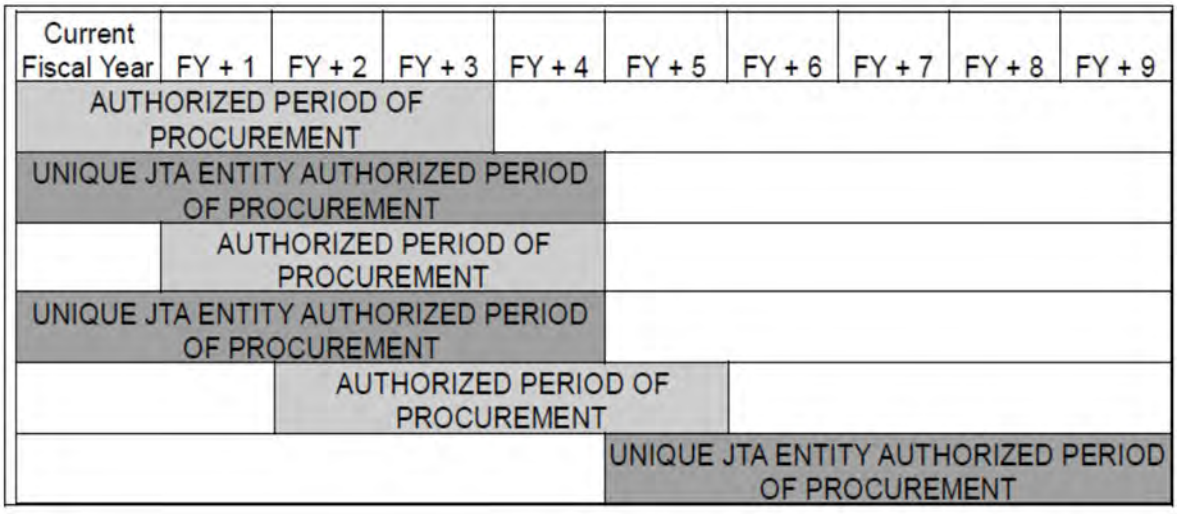

Figure 9.3-1. JTA Unique Ship Entity Authorized Period of Procurements

4.2. Office of Nuclear Weapons Stockpile (NA-122)

NA-122 authorizes the period of procurement for the PAs and publishes the period of procurement in the PCD and Master Nuclear Schedule, Volume III.

NA-122 notifies the PAs if the authorized period of procurement is not to be extended at the beginning of each fiscal year.

4.3. Production Agencies (PAs) (superseded by R019 per Change Notice 10 and IER 20150059SA)

PAs may conduct normal manufacturing development activities for programs in Engineering Development without advance procurement authority if the activities are absolutely necessary to ensure meeting critical programmatic dates and if funds for that purpose are available in the approved financial plan.

When it is necessary to parallel manufacturing development activities with testers, gauges, or special tooling, PAs may fabricate single copies of each, provided funds are available and that such expenditures are approved by the local DOE/NNSA Site Office.

~~For programs in Production Engineering (weapon development Phase 4) or beyond, PAs are authorized to procure parts or materials, fabricate parts, and perform assembly operations that will support delivery of completed weapons or weapon components to support ultimate user schedules through the end of the authorized period of procurement.~~

~~PAs are authorized to buy additional parts over the authorized quantity if it is due to minimum buy requirements and the expenditure is within the operating budget.~~

~~For expenditures of funds that require advance procurement authority, PAs submit requests through the local DOE/NNSA Site Office to NA-122.~~

PAs should include the following information (if applicable) for each item in the request for advance procurement authority:

- part number and nomenclature,
- program application,
- vendor name,
- lead time for placement of the order to ultimate use,
- quantity per weapon,
- total quantity required,
- the time period of ultimate user support covered by the quantity requested, and
- a statement of the advance engineering release status (if appropriate).

PAs should justify in requests for advance procurement authority the need for the commitment of production funds for weapons systems scheduled to-be-delivered beyond the authorized procurement period. To assist in evaluating the request, the request should also suggest alternative courses of action and any penalties that might be associated with such alternatives.

PAs should include in the request cost data for the total number of units required, the unit cost, and the total cost by fiscal year. It is not necessary to include supporting data, but the PA should make the data available if required. The request should state whether or not funds are available within the current financial plan or budget submission. PAs should allow a minimum of four weeks for processing requests for advance procurement authority to permit DP to obtain any necessary input from the DoD.

It is the PAs responsibility to monitor shelf life material. Shelf life material is generally not procured outside of the authorized period of procurement.

PAs can produce all common material scheduled to support Joint Test Assembly (JTA) or rebuild schedules after the end of the War Reserve (WR) weapon new build or Alteration (ALT) kit production by following the normal course of WR or ALT kit production. The actual timing of such production is left to the discretion of the PA. Generally, such material is not held in inventory by the PA but is completed and shipped to the receiving PA for the next higher assembly and finally to Pantex for storage and inventory control.

Material unique to JTA is authorized in five-year increments using the authorized period of procurement (current year plus three) plus one more year. When the

unique JTA ship entity next planning year becomes authorized, an additional increment of five years is authorized. This method is used throughout schedule completion. Figure 9.3-1 illustrates this concept graphically.

4.4. Site Offices

During Engineering Development the Site Offices may authorize either in-house fabrication or outside procurement of one each of testers, gauges, or special tooling, depending on which is most advantageous to the government.

4.5. Design Agencies (DAs)

DAs issue purchase orders to the respective PAs to fund development support work not categorized as manufacturing development engineering.

Figure 9.3-2 illustrates the time frames for the authorized procurement period and for the period requiring advance procurement authority.

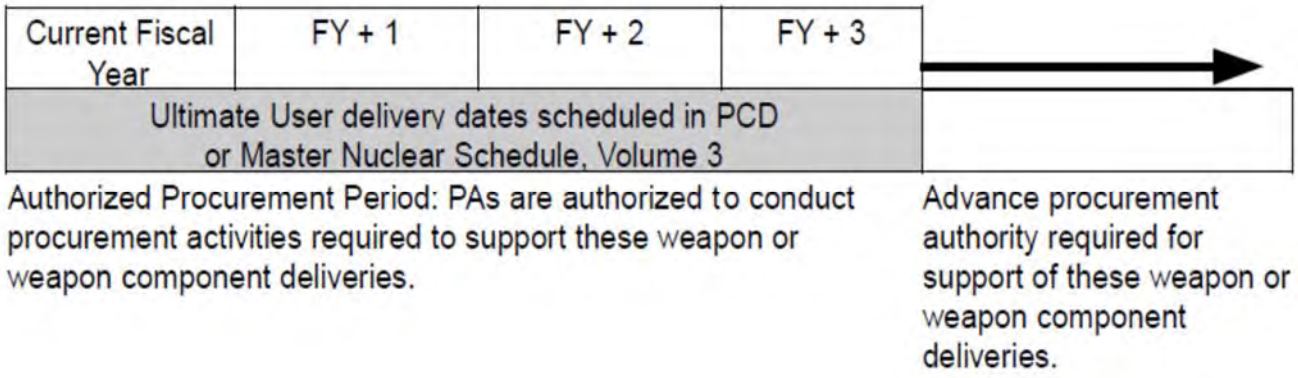

Figure 9.3-2. Procurement Requirements

5.0 POINT OF CONTACT FOR ADMINISTRATION

P. Krumpe, Office of Nuclear Weapon Stockpile, Stockpile Systems Division, NA-122.1, (301) 903-1739 is responsible for this chapter.

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 9.4: INTER-CONTRACTOR PURCHASES

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	IER_____

	REV.	CHANGE	DATE	PAGE NO.
56XB	**2**		**March 2, 2004**	**1**

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1.0 OBJECTIVE

- Describe agency responsibilities for conducting and managing Inter-Contractor Purchases among Department of Energy/National Nuclear Security Administration (DOE/NNSA) Nuclear Weapon Complex (NWC) contractors.
- Require that non-directive work scheduled between contractors be authorized and administered by a system of Integrated Contractor Orders (ICO).
- Where applicable and authorized by the DOE/NNSA, this procedure is also extended to limited procurement from other federal agencies and selected non-federal agencies.

2.0 BACKGROUND

DOE Acquisition Guide Subchapter 70.10, Inter-Contractor Purchases, provides guidance on the internal management control process to be followed by contracting activities to ensure that Inter-Contractor Purchases (ICPs) entered into by authorized contractors under their cognizance comply with necessary guidance. The term “Inter-Contractor Purchase” means a subcontract level purchase transaction between two or more DOE/NNSA management and operating contractors.

3.0 APPLICABILITY

These requirements apply to the DOE/NNSA Office of Defense Programs, NA-10 Organizations, Site Offices, NNSA Service Center, and DOE/NNSA contractor organizations with the responsibility for executing any phase of the nuclear weapons program.

4.0 DEFINITIONS

See the Glossary, Acronym, & Cross Reference (GAC) Section.

5.0 RESPONSIBILITIES

5.1 Site Offices

The Site Office monitors the Inter-Contractor Purchase procedures and procurement activity of the procuring contractor to ensure compliance with DOE Acquisition Guide Subchapter 70.10, Inter-Contractor Purchases.

Interoffice Work Orders (IWOs) placed on contractors under the jurisdiction of a different operations office are transmitted through the Site Office.

Office of Nuclear Weapons Stockpile (NA-122) approves orders placed on other federal agencies or non-federal agencies prior to release.

5.2 Production Agencies (PAs) and Design Agencies (DAs)

5.2.1 Procedures

User PAs must acquire concurrence from supplier PAs and DOE/NNSA before reallocating directive material to any non-directive use.

PAs and DAs engaged in Inter-Contractor Purchases are responsible for maintaining procedures and control systems that ensure compliance with applicable DOE/NNSA regulations.

PAs and DAs are required to establish and maintain records necessary to support operational requirements, to establish financial and quality audit trails, and to support DOE/NNSA audits.

5.2.2 Funding and Cost

Funding for each ICO procurement is predetermined between the supplying and receiving PA or DA, depending on the activity being supported. Funding normally falls into one of three categories:

- Cash Reimbursement; all transactions for which the ordering PA or DA has full funding responsibility;
- Nonbudgetary Transfer; product transactions under which the material ordered is a mission assignment of the supplying agency, and the intended application meets a criterion of the supplier's production and surveillance budget; and
- No Charge; transactions involving no cost or costs that are not eligible for recovery from the ordering facility; this includes things such as excess material and products billed directly by the supplier to a participating third party such as the DoD or the United Kingdom.

The supplying PA or DA computes costs for quotation and invoice (or transfer) purposes on a basis of either full cost recovery or fiscal year standard price. Recovery of direct and overhead costs must be in accordance with current policy established between the supplying PA or DA and the Site Office.

5.2.3 Contractual Exemptions

Because all applicable work is ordered and performed under provisions of local, formal DOE/NNSA contracts, each PA or DA is subject to all applicable DOE/NNSA and other federal regulations, procedures, and audits. Therefore,

ICOs are generally exempt from most detailed contracting regulations of a commercial purchase order. Such exemptions include the following:

- contractual terms and conditions,
- competitive bids,
- single-source justification,
- auditing (between contractors), and
- pre-award investigation and supplier evaluation.

5.2.4 Auxiliary Applications

Ordering PAs and DAs may use control systems of their ICO procedure to manage and administer the internal scheduling, receipt, control, and logistics of incoming DoD-supplied components and any materials received under the DOE/NNSA Interproject (IP) schedule system.

5.2.5 Content

ICOs must include at a minimum the following information:

- identification of the ordering and supplying PA or DA, including the DOE/NNSA contract numbers of each;
- a standard legal statement designating the ICO as a requisition between two DOE/NNSA contractors; and
- a definition of the material or service ordered that includes a clear definition of the scope of work or product definition being ordered, quantity and quality requirements.

6.0 REFERENCES

1. DOE (U.S. Department of Energy), "Accounting", DOE O 534.1, (current version).
2. DOE Acquisition Guide Subchapter 70.10, Inter-Contractor Purchases

7.0 POINT OF CONTACT FOR ADMINISTRATION

P. Krumpe, Office of Nuclear Weapons Stockpile, Stockpile Systems Division, NA-122 (301) 903-1739 is responsible for this chapter.

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 10.3: MANAGEMENT OF NUCLEAR MATERIALS

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	IER_____

	REV.	CHANGE	DATE	PAGE NO.
56XB	**2**		**February 27, 2004**	**1**

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1.0 OBJECTIVE

Define the nuclear materials management requirements for U.S. Department of Energy (DOE)/National Nuclear Security Administration (NNSA) sites that are responsible for managing the government-owned nuclear materials in their custody and for identifying those nuclear materials that exceed their programmatic requirements.

2.0 BACKGROUND

This chapter supplements U.S. Department of Energy (DOE) Order 5660.1B, "Management of Nuclear Materials," dated May 26, 1994[1]. This chapter does not change any requirements contained in the DOE order, but provides the Nuclear Materials Management (NMM) policies required to responsibly manage all government-owned nuclear material at the Pantex Plant (PX), Los Alamos National Laboratory (LANL), Lawrence Livermore National Laboratory (LLNL), Sandia National Laboratories (SNL), Y-12 Site (Y-12), Savannah River Site (Tritium) (SRS), and Nevada Test Site (NV).

3.0 APPLICABILITY

These requirements apply to the DOE/NNSA Office of Defense Programs, NA-10 organizations, Site Offices, NNSA Service Center, and DOE/NNSA contractor organizations with the responsibility for executing any phase of the nuclear weapons program.

4.0 DEFINITIONS

See the Glossary, Acronym, & Cross Reference (GAC) Section.

5.0 REQUIREMENTS AND RESPONSIBILITIES

5.1 Office of Operations and Readiness, NA-124

NA-124 reports to the Assistant Deputy Administrator for Military Application and Stockpile Operations (NA-10). Accordingly, NA-124 acts for NA-10 in establishing policy and providing guidance and oversight for managing nuclear material inventories at NNSA-managed sites. Further, NA-124 provides oversight of the NNSA-managed site NMM programs and has responsibility and authority to review and evaluate these programs as required by DOE Order 5660.1B[1]. NA-124 also has the following major responsibilities and authorities:

- Provides guidance and approval of nuclear materials disposition and discard criteria developed by NNSA-managed sites.

- Exercises the reporting requirements described in DOE Order 5660.1B[1]
- In conjunction with the NNSA-managed sites, develops and provides policy guidance for all aspects of NMM.
- Prepares the NNSA "National Security Materials Plan" annually
- Conducts the NMM Program Reviews periodically

5.2 National Nuclear Security Administration-Administered Sites

NNSA-administered Sites will ensure the following major objectives of NMM are met:

- nuclear material inventories are periodically assessed;
- plans are developed to reflect current and future nuclear material needs;
- programmatic need for material is verified;
- disposition plans are developed for nuclear material that does not have a defined use;
- nuclear material inventory data and information is properly managed and controlled in accordance with security requirements;
- nuclear material usage and disposition is tracked and reported to NA-124; and
- nuclear materials are properly utilized in support of DOE programs and are properly stabilized, packaged, and stored to minimize Environmental Safety & Health (ES&H) risks associated with these materials.

Sites must submit all required reports in accordance with DOE Order 5660.1B[1] and NA-124 guidance. Occasionally, NA-124 may ask the sites to prepare reports on NMM data that is not an annual requirement. When such data is required, NA-124 will provide the specific guidance necessary to complete the request for data collection.

Sites will establish a Disposition Methodology for all DOE nuclear materials. A formal methodology will be developed and implemented to determine if there is a programmatic need for nuclear material in a site's nuclear material inventory. A disposition plan will be developed, documented, and implemented upon approval by NA-124. Material determined by this process to be excess to National Security Programs, and to other Non-National Security Programs, will have a disposition pathway identified.

Sites are to establish, document, and implement a program to manage and control Excess to National Security material separately from material in the National Security category. This material **cannot** be used for any national security purposes as it is destined for ultimate disposition as described in the *"Storage and Disposition of Weapons-Usable Fissile Materials Final Programmatic Environmental Impact Statement"* and the associated Record of Decision issued on January 14, 1997.

A NMM program will be developed and implemented by NNSA contractors that use DOE-owned nuclear materials. The site NMM program should effectively manage the nuclear materials for which the site is responsible, as stipulated by law and/or contract. Each site will establish and document specific procedures and objectives used to implement their NMM program.

Training outlines will be developed at each site. These outlines will provide the basis for training new personnel or used for familiarization training of other interested parties.

The NMM policies and procedures for those sites that maintain material in the Strategic Reserves, and other national security materials, will include procedures that describe how the materials are managed and controlled.

Sites are responsible for implementing DOE Order 474.1A2 concerning material control and accountability of nuclear.

6.0 REFERENCES

1. DOE (U.S. Department of Energy), “Management of Nuclear Materials,” DOE Order 5660.1B, Washington, DC (current version).
2. DOE (U.S. Department of Energy), “Control and Accountability of Nuclear Materials,” DOE Order 474.1A, Washington, DC (current version).

7.0 POINT OF CONTACT FOR ADMINISTRATION

D. Dunsworth, Office of Operations and Readiness, NA-124, (301) 903-5156 is responsible for this chapter.

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 11.3: SEAMLESS SAFETY (SS-21) FOR ASSEMBLY AND DISASSEMBLY OF NUCLEAR WEAPONS AT THE PANTEX PLANT

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	IER_____

	REV	CHANGE	DATE	PAGE NO.
56XB	**2**		**March 31, 2004**	**1**

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1.0 OBJECTIVE

1. Describe the U.S Department of Energy (DOE)/National Nuclear Security Administration (NNSA) requirements for the Seamless Safety (SS-21) process.
   a. The SS-21 process integrates the weapon, facility, tooling (testers & equipment), operating procedures, and personnel to form a safe, efficient, and effective operating environment and is the preferred process for developing weapons assembly and disassembly processes at the Pantex Plant.
2. Ensure that safety aspects of the nuclear explosive operations are considered early on during the process development phase.

2.0 BACKGROUND

As a result of Defense Nuclear Facilities Safety Board (DNFSB) Recommendations 93-1 and 93-6, DOE/NNSA established a formal process (known as Seamless Safety for the 21st Century or "SS-21") that specifies the safety criteria for developing weapon operation processes. In response to Recommendation 95-2, DOE/NNSA established a model for integrated safety management (ISP) consisting of five core functions:

- Define the scope of work
- Analyze the hazards
- Develop and implement hazard controls
- Perform work within controls, and
- Provide feedback and continuous improvement

DOE/NNSA established the following guiding principles related to ISP:

- Line management responsibility for safety
- Clear roles and responsibilities
- Competence commensurate with responsibilities
- Balanced priorities
- Identification of safety standards and requirements
- Hazard controls tailored to work being performed, and
- Operations authorization

3.0 APPLICABILITY

These requirements apply to the DOE/NNSA, Office of Defense Programs, NA-10 Organizations, NNSA Service Center, Site Offices, and DOE/NNSA contractor organizations with the responsibility for executing nuclear weapon assembly, disassembly, and associated testing operations performed in the

bays and cells at the Pantex Plant. These assembly and disassembly operations include, but are not limited to, those performed during new production, stockpile improvement programs, disassembly and inspection and selected testing for surveillance, builds, rebuilds, and dismantlement activities

4.0 DEFINITIONS

See Glossary, Acronym, & Cross Reference (GAC) Section.

5.0 REQUIREMENTS

5.1 General

It is DOE/NNSA policy that nuclear explosive operations be developed with safety as a primary consideration. A formal process is required to ensure that only efficient, effective, and safe nuclear weapon assembly, disassembly, and associated testing operations are employed. Project Teams (PT) are expected to exercise judgment in determining how to apply the requirements contained herein and to develop and implement robust processes for which the safety implications have been considered from the beginning. The objective of each project must be to develop verifiable safety criteria and assembly/disassembly processes that enable operations to be completed safely and predictably.

To the extent possible, the safety criteria must:

1. Prevent the application of unauthorized or unanalyzed energy from sources external to the nuclear weapon, or any component of a nuclear weapon, so as to prevent the release of energy from sources internal to the nuclear weapon. Energy sources include but are not limited to:

    a. Mechanical energy
    b. Electrical energy
    c. Thermal energy
    d. Electro-mechanical energy
    e. Potential/kinetic energy (e.g. lifting, transportation, etc.)
    f. Chemical energy

2. Allow no single-point failure in an operation that could cause:

    a. Energy sources within the weapon, including self-contained energy sources that could have a safety concern, to be activated or released
    b. Radioactive exposure or contamination above thresholds set in the operating procedures
    c. Injury to personnel, environment, or public

d. Loss of facility operability

3. Mitigate personnel exposure to radiation and hazardous substances to "As Low As Reasonably Achievable" (ALARA) levels. Levels include, but are not limited to:

   a. An operational ALARA goal established by the responsible Health Physicist in coordination with the PT and the Pantex ALARA
   b. OSHA limits, and
   c. Those required by process specific operations

For those situations where the above safety criteria cannot be met, sufficient controls must be in place to provide confidence that the risk in the operation is acceptable to the DOE/NNSA.

It is also NNSA policy that nuclear explosive operations be designed not only to maximize safety but also to minimize the possibility of deliberate unauthorized use (DUU). DOE Order 452.4A *Security and Control of Nuclear Explosives and Nuclear Weapons* documents requirements for control of nuclear explosive operations. To meet these requirements, design of nuclear explosive operations at Pantex shall incorporate surety criteria during the design phase of the project. Implementation of the criteria shall be done in a manner that does not compromise Nuclear Explosive Safety. Implementation of the criteria shall be evaluated prior to authorizing the nuclear explosive operation.

The other requirements include completion and implementation of the Weapon Safety Specification (WSS), Personnel Plan, Operating Procedure, Operating Facility Readiness, Equipment & Facility Layout, Tooling, and Hazard Assessment.

5.2 Weapon Safety Specification

A WSS shall be consistent with the requirements outlined in D&P Chapter 11.4 and prepared by the cognizant Design Agencies (DAs). The WSS needs to incorporate information from design drawings, Baseline Process Flow, Use Control Report, Criticality Report, and Intrinsic Radiation Report. The WSS shall provide as-built information pertaining to the characteristic design features, safety attributes, and hazards for a nuclear weapon configuration or a family of similar nuclear weapon configurations, and safety-critical information to enable development of other documents (e.g., Personnel Plan, Operating Procedures, Operating Facility Readiness, the updated Facility Safety Basis, Hazard Analysis Report (HAR), Equipment and Facility Layout, and Tooling).

The DAs shall review and summarize the use-control features of the warhead or bomb consistent with applicable guidelines concerning dissemination of use-control information. When applicable, use-control features shall be incorporated and employed at the earliest practical point in the assembly of a nuclear weapon and removed at the latest practical point in its disassembly.

The DAs shall also review past surveillance program data and include pertinent safety related information derived from that review in the WSS. For enduring stockpile weapon systems, any safety related results from surveillance activities must be incorporated in annual updates if required. Initial and updated WSS's must undergo a DA peer review. Results of this peer review will be forwarded to the appropriate NA-12 organizations.

5.3 Personnel Plan

A Personnel Plan shall be generated defining the selection process and training requirements for all personnel involved in hands-on nuclear weapons work or who have direct responsibility for the assembly or disassembly operation, including production technicians, radiation technicians, line supervisors, engineers, and managers. The plan must identify requirements for general weapons training, Personnel Assurance Program, and weapon-specific training. The plan must employ methods to ensure personnel are trained, qualified, and certified before they are allowed to perform nuclear weapons work. The plan needs to incorporate methods to track personnel to ensure their training is maintained and utilize certification verification methods that support the pre-operational check process conducted at the beginning of each shift.

5.4 Operating Procedure

An Operating Procedure shall be generated and comprised of a Pre-Operational Checklist, the Nuclear Explosive Operating Procedure (NEOP), and applicable Technical Safety Requirements (TSRs). The Operating Procedure must address normal operations and identified credible deviations and be developed to integrate interactions of the nuclear weapon, personnel, operating facility (including layout), equipment, and tooling. The operating procedure has to reflect the technical safety requirements and account for all hazards and hazardous operations that have been identified. The NEOP must be structured so that safety critical information is identified and is controlled to assure that changes to this type of information are thoroughly analyzed and subjected to hazard assessment review before allowing the change.

5.5 Operating Facility

The Operating Facility shall be configured and controlled such that only authorized permanent equipment, hoists, mobile equipment, and utility services are allowed for a given nuclear weapon operation. Furthermore, it must be configured to allow facility users to readily determine facility status including operability of safety systems, facility maintenance status, and quantities of Special Nuclear Material, high explosives, and other hazardous materials in the facility. The facility configuration will be subject to formal change control processes.

5.6 Equipment & Layout

A formal method for selecting equipment and development of the layout requirements for a dedicated facility must be generated by the Pantex Plant M&O contractor. The equipment selection portion of this deliverable is for equipment typically available from commercial sources, but may also include specially designed equipment as required for the weapon-specific operation (e.g., electrical testers, leak detectors, etc.). The equipment must be selected based on need, the established safety criteria, and ergonomics. Its configuration and maintenance requirements must be formally documented in approved procedures. The equipment shall be allowed to enter or exit the operating environment only as authorized. The facility layout must be formally documented and take into consideration the facility configuration, tooling, equipment, and the placement of these items into and out of the operating facility.

5.7 Tooling

Tooling shall be designed, utilizing information from the WSS, to mitigate occupational hazards, to prevent insults to the nuclear weapon, and to enable the production technician(s) to perform the assembly or disassembly in an efficient, effective, and safe manner. The tooling design should improve mechanical advantage, control motion, control position, and mitigate accidents caused by misinterpretation or incorrect handling. For safety critical operations, the tooling must incorporate fail-safe designs such that a failure cannot occur that compromises safety. If this is not practical, the design must include at least two independent physical safety features or barriers that must fail before experiencing a detrimental consequence.

5.8 Hazard Assessment

A formal hazard assessment and Hazard Analysis Report (HAR) shall be performed and published in accordance with D&P Chapter 11.4. The hazard assessment shall be performed concurrent with the process development.

5.9 Milestone Reviews

Five formal reviews (i.e. Milestones) shall be conducted by the PT. These reviews shall be the "close-out activities" of the Task Direction and Planning, Concept Development, Preliminary Development, Implementation & Verification, and the Authorization Phases, also known as Milestones 0, 1, 2, 3 and 4. To make assertions as delineated in D&P Chapter 11.1, the SMT will be briefed on Milestones 0 and 1. One of the goals of the Milestone reviews is for the PT to present to the SMT that the safety criteria were adequately addressed. At the same time, the PT shall apprise the SMT of the process development status, trade-off issues, and schedule status. Issues identified at these reviews must be resolved to the satisfaction of the SMT. To allow the project to quickly proceed, the SMT's acknowledgments may be given verbally followed by a documented acknowledgment. The PT shall document the results of each Milestone Review including decisions pertaining to safety-critical issues with reference to the SMT's acknowledgments.

Any changes adversely affecting the scope, schedule or budget of the project as delineated in the Project Plan must be presented to the SMT for consideration as outlined in D&P Chapter 11.2.

6.0 RESPONSIBILITIES

6.1 Assistant Deputy Administrator for Military Application and Stockpile Operations (NA-12)

NA-12 has the responsibility to manage nuclear weapons programs. NA-12 issues periodic P&PDs, setting end-of-fiscal year requirements for weapon quantities in the stockpile and other guidance. Prior to authorization for nuclear explosive operations performed at the Pantex Plant, NA-12 provides the certifications required by DOE Order 452.1A.

6.2 Director, Office of Nuclear Weapons Stockpile (NA-122)

As the Chair of the SMT and owner of the Integrated Weapons Activity Plan (IWAP), the NA-122 Director coordinates among all stakeholders to ensure successful execution of the IWAP. NA-122 federal program managers are responsible for leading the PT for each weapon system and PT members, comprised of production plant and DA representatives, are jointly responsible for success of the project.

6.3 Manager, Pantex Site Office (PXSO)

The PXSO Manager is responsible for the development and implementation of the facility authorization basis, ensuring the execution of the Pantex Plant's responsibilities and providing lessons learned on relevant projects. The PXSO Manager is the Authorizing Official (AO) for nuclear explosive operations performed at the Pantex Plant and ensures the execution of weapon program plans.

6.4 Director, Nuclear Explosive Safety Division (NESD), NNSA Service Center

As a member of the SMT, the NESD Director is responsible for planning and execution of the Nuclear Explosive Safety activities that support the resulting Project Plans. The NESD Director is also responsible to obtain approval from NA-12 for the results of nuclear explosive safety reviews.

6.5 The NNSA Service Center, Office of Technical Services, Environmental, Safety, & Health Department, Safety Review Division (SRD)

SRD is responsible for technical support to line management from the Safety Basis Review Team, as well as for performance of independent readiness reviews conducted for NA-12 and the PXSO Manager.

6.6 Standing Management Team (SMT)

The SMT will oversee the development and execution of the project and will serve as the Change Control Board for specified requirements and processes. The SMT will define expectations for projects well in advance of execution and will establish measures of success. Specific responsibilities of the SMT are found in Chapter 11.1.

6.7 Pantex Plant

The Pantex Plan Management & Operating (M&O) contractor leads the facility authorization basis (AB) upgrade projects and supports the resulting project plans. PT members contribute to the plan's development and the Pantex Plant M&O contractor provides administrative support to the drafting and finalization of the plan. Upon approval of the individual project plans, PT members must work with their appropriate organizations to assure proper resources are made available for successful project plan implementation within agreed upon cost, scope and schedule commitments. In addition, the Plant M&O contractor is responsible for maintaining updates to the IWAP that have been agreed upon by the SMT, maintaining P3 schedules in accordance with NNSA direction, and developing and maintaining an integrated SS-21

project plan to aid the SMT in multi-system program trade-off decisions. The operating contractor coordinates Hazard Assessment Task Teams (HATT) and walk downs, works with production plant and DA personnel to document and forward weapons response, and supports all contractor and NNSA SS-21 related reviews.

6.8 Design Agencies (DAs)

The DAs are responsible for providing a PT member for each weapon system and providing technical expertise as required for weapons projects or facility AB upgrade projects, within negotiated resources and priorities. The DAs are also responsible for supporting the resulting project plans, ensuring proper resources are made available for plan implementation within cost, scope and schedule, for the preparation and control of the Weapon Safety Specifications (WSS), and providing weapons response and documenting this via an Information Engineering Release (IER).

6.9 Project Team (PT)

The PT is responsible is accountable for project success, to include:

- Development, management, and update of the project plan, including cost, scope, schedule, and resources;
- Directing the work of the Task Teams (TT) (which are in turn accountable to the PT);
- Declaring readiness to proceed with independent reviews;
- Coordinating and interfacing with all applicable safety and readiness reviews; and
- Providing a timely, accurate, and complete assessment of project status and impacts to the SMT.

NA-122 will lead the PTs. PT membership will be composed of one representative from the appropriate physics laboratory, Sandia National Laboratories, PXSO, and the Pantex Plant M&O contractor. Each representative will serve as the sole spokesperson for his or her parent organization. Roles and responsibilities of the participating organizations are defined below.

6.9.1 NA-122 Project Team Lead

The NA-122 representative will lead the PT and is the ultimate authority for PT action. The PT Lead is responsible for the integration and execution of project tasks. The PT Lead will work closely with PT members to ensure DOE/NNSA expectations are met. All PT members will ensure the timely integration of expectations and requirements of their cognizant organizations.

The PT Lead has final signature authority over the project plan before transmitting the plan to the SMT for review and approval. The PT Lead is responsible for ensuring differences between PT members are resolved. If the PT Lead cannot resolve differences, then they may be elevated to the next level of line management or ultimately to the SMT if still unresolved.

6.9.2 Design Agency (DA) Representatives

The DA representatives ensure laboratories' expectations and requirements are integrated into the process as early as possible. The representatives are full participants on the PT and contribute to the success of the project. The representatives serve as a single point of contact for all information, expectations, and requirements regarding the design, function and safety of the weapon system.

6.10 Task Teams (TTs)

The PT will utilize TTs, as necessary, for the completion of the approved Project Plan. The TTs consist of technically competent individuals that maintain an expert level of knowledge in topical areas which they are providing advice on, such as Weapons Design, Operating Procedure, Operating Facility, Equipment and Layout, Tooling, Electrical Testers and Hazard Assessment.

7.0 REQUIREMENTS

7.1 PROCESS PHASES

7.1.1 Task Direction and Planning Phase

The first phase is the Task Direction and Planning Phase, where requirements are identified and agreed to by all parties. The phase begins with NA-122 issuing a weapon-specific tasking letter to the DA's and Pantex Plant. The letter shall state that SS-21 is to be undertaken and shall identify the applicable requirements and schedule that's consistent with the IWAP. The DA's and the Pantex Plant must respond to the tasking letter by preparing resource and personnel estimates needed to support the proposed task, as well as a notice of impact on any existing schedule. The DA's and Pantex shall forward their responses to NA-122. A PT is established to develop a project plan to define the task requirements for the supporting TTs. The PT establishes and employs the TTs to develop, implement, review, and verify the following throughout the subsequent phases: 1) the WSS and the applicable safety criteria, 2) an Operating Procedure, 3) Personnel Requirements, 4) an Operating Facility and its Safety Basis Documentation, 5) Equipment and Layout, 6) Tooling, and 7) a HAR. Prior to Milestone 1 the PT lead will

coordinate training and orientation of all PT and TT members. The orientation will include, but not limited to, detailed review of the WSS, Weapon Design, current D&I and Assembly videos, WRD capability, process and specifics for data entry and approval of data, review of the HA process and walk downs, and process and timing of eye-to-eye data reviews.

7.1.2 Concept Development Phase

This phase includes the following main elements:

- Review and update of the WSS
- Development of the safety criteria
- Identification of trainer fidelity requirements
- Conducting an assessment for on-going processes
- Initiation of procedures, tooling, hazards assessment, facility selection, equipment and layout
- Conduct a conceptual hazards analysis
- Illustrated process flow that depicts how the tooling interfaces with the unit's various configurations

The WSS shall be reviewed and updated and applicable baseline Safety Criteria identified and developed. Source information for the WSS needs to include the Baseline Process Flow, Archiving Data, Use-Control Report, Criticality Report, and Intrinsic Radiation Report.

During this phase, the functional requirements for a high fidelity trainer must be identified and documented. For weapon systems that have an established, approved and on-going process, a process assessment must be conducted to evaluate the need for any improvements. The PT along with the HATT must evaluate the existing processes against the safety criteria and existing safety basis documents.

A Conceptual Hazard Assessment (CHA) on the existing process shall be conducted and completed during this phase. The CHA and the process safety criteria assessment must identify any current process parameters (e.g., tooling, procedures, facilities, training, etc.) that do not meet the safety criteria or do not comply with facility safety basis documents.

7.1.3 6.3 Preliminary Development Phase

During this phase, the following items must be completed:

- Detailed process flow
- Preliminary HAR
- Baseline operating procedures

- Review current applicable TSRs
- Proposed personnel selection, training and qualification plan
- Trainer requirements
- Design and qualification requirements for equipment, tooling, layout and facilities

During the Preliminary Development Phase the PT is responsible for ensuring the TTs are completing each task in a prescribed sequence that contemplates the impact of other tasks evolving in parallel. A significant amount of TT interactions are required in this phase. This phase also requires that each TT establish specifications for subsequent procurement, manufacture, inspection, and/or acceptance of the deliverables. A Preliminary Hazard Assessment (PHA) is performed in this phase to assess the risks associated with the concepts developed in the previous phase.

7.1.4 Implementation & Verification Phase

During this phase the following items must be achieved:

- Safety criteria has been satisfied
- Weapons response analyses have been peer reviewed by the DAs
- Adequate HAR and an effective AB exist
- Adequate tooling, procedures, equipment and facilities exist
- Positive Verification Tryout has been completed
- Completion of a proposed scope for the Independent Review Team
- Operations personnel are trained and qualified
- Statement of readiness to proceed to independent verification

7.1.5 Authorization Phase

The following items must be completed during this phase:

- Readiness and Nuclear Explosive Safety Reviews in accordance with DOE Order 452.1, 452.2A and 452.2C
- Safety Evaluation Report by the Safety Basis Review Team or equivalent
- Authorization Agreement per D&P Manual Chapter 11.4

During the Authorization Phase, the PT is responsible for ensuring proper disposition of all concerns raised by the independent review teams and, when disagreements exist, presenting technical rationale to the SMT for resolution.

Upon receiving authorization to proceed with operations, the Pantex Plant is responsible, with support from the PT to accomplish the authorized scope of work within the approved controls, schedule and budget. Throughout the

lifetime of the operation, the Pantex Plant with the PT support will monitor and evaluate the controls through a single integrated change-control process to ensure the required safety basis is maintained with high confidence throughout the life of the task. The HAR and TSRs will be used for change control subsequent to the authorization to proceed when operations is received.

8.0 REFERENCES

1. DOE Policy 450.1, Integrated Safety Management
2. DOE Order 5480.23, Safety Analysis Reports for Nuclear Facilities
3. DOE Order 5480.22, Technical Safety Requirements
4. DOE Order 452.1A, Nuclear Explosive and Weapon Surety Program
5. DOE Order 452.2A, Safety of Nuclear Explosive Operations
6. DOE Order 452.2C, *(To be published shortly)*
7. DOE-STD-3009-94, Basis and Methods for Hazard Analysis, Accident Analysis, and TSR Derivation
8. DOE-STD-XXXX-96, Hazard Analysis Reports for Nuclear Explosive Operations
9. Technical Business Practice (TBP-901), Integrated Safety Process for Assembly and Disassembly of Nuclear Weapons
10. Guidelines for Hazard Evaluation Procedures, AIChE

9.0 POINT OF CONTACT FOR ADMINISTRATION

M. Schoenbauer, Director, Office of Nuclear Weapons Stockpile, NA 122, 301-903-3489, is responsible for this chapter.

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 11.4: DEVELOPMENT OF DOCUMENTED SAFETY ANALYSES, TECHNICAL SAFETY REQUIREMENTS, UNREVIEWED SAFETY QUESTION DETERMINATION, JUSTIFICATION FOR CONTINUED OPERATIONS, AND AUTHORIZATION AGREEMENTS FOR NUCLEAR EXPLOSIVE OPERATIONS AND FACILITIES AT THE PANTEX PLANT

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	Original Release 03-31-2004
B	Change 7, 06-09-06

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1.0 OBJECTIVE

The object of this chapter is for the U.S. Department of Energy (DOE)/National Nuclear Security Administration (NNSA) to:

1. Delineate the process for development of Documented Safety Analysis (DSA), Technical Safety Requirements (TSRs), Unreviewed Safety Question Determinations (USQDs), Justifications For Continued Operations (JCOs), and Authorization Agreements (AAs) for nuclear explosive operations and facilities at the Pantex Plant.
2. Ensure that the DSA, TSRs, USQDs, JCOs, and AAs contain the appropriate level of detail and rigor commensurate with the hazards of nuclear explosive operations.

2.0 BACKGROUND

In response to the Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 98-2 as revised, Development & Production Manual Chapter, 11.4 established and subsequently revised improvement practices for developing the authorization basis (AB) and associated control measures for nuclear explosive operations at Pantex.

3.0 APPLICABILITY

These requirements apply to the DOE/NNSA, Office of Defense Programs, NA-10 Organizations, NNSA Service Center, Site Offices, and DOE/NNSA management and operating (M&O) contractor organizations with the responsibility for executing nuclear weapon assembly, disassembly, and associated testing operations performed in the bays and cells at the Pantex Plant. These assembly and disassembly operations include, but are not limited to, those performed during new production, stockpile improvement programs, disassembly and inspection and selected testing for surveillance, builds, rebuilds, and dismantlement activities.

4.0 DEFINITIONS

See Glossary, Acronym, & Cross Reference (GAC) Section.

5.0 REQUIREMENTS

5.1 Documented Safety Analysis (DSA)

The DSA shall comply with 10 CFR 830.204 *(Documented Safety Analysis).*

5.1.1 DSA General Information

The DSA is the documented analysis of the extent to which a nuclear explosive operation and facility can be operated safely with respect to workers, the public, and the environment, including a description of the conditions, safe boundaries, and hazard controls that provide the basis for ensuring safety.

For nuclear explosive operations, the DSA is the combination of site, facility, and topical safety analysis reports (SARs) and program-specific hazard analysis reports (HAR), per 10 CFR 830, Subpart B *(Safety Basis Requirements),* Table 2. In this section, these documents are referred to collectively as the site and program-specific DSA. The site and program-specific DSA provides the technical basis for deriving the necessary site and program-specific hazard controls. NNSA approval of the site and program-specific DSA indicates that NNSA has decided that the residual risk associated with operations that are performed in accordance with the stated hazard controls is acceptable, considering the benefit of the task.

The site DSA may be completed in facility and topic-related modules (e.g. bays, cells, transportation, seismic, lightning, fire, etc.). Consideration of a representative nuclear explosive operation is useful to derive common program-specific or site hazard controls. The analysis shall also include potential threats to a generic operation from natural phenomena or external hazards (e.g. appurtenances falling).

Program-specific DSA for nuclear explosive operations is developed to provide the technical basis for deriving the program-specific hazard controls. The program-specific DSA shall use the nuclear explosive operations evaluation guidelines as a tool to determine what hazards or accident scenarios require additional focus and improved controls.

5.1.2 Supporting Analysis

Supporting analysis for site and program-specific DSAs take many forms, including published technical reports, work done by analysts during preparation of the document, other documents prepared to support independent reviews, etc. These supporting analyses are considered part of the safety basis and shall be retained in a retrievable form for as long the results of the supporting analysis are used in the DSAs.

5.1.3 Additional Hazard Controls

Implementation of a layered defense philosophy shall include hazard controls that enhance safety in addition to those hazard controls specified in the site or

program-specific TSR documents. The Pantex Plant M&O contractor shall clearly identify these hazard controls at the site and program-specific DSA and ensure they are implemented and managed appropriately.

5.2 Technical Safety Requirements (TSR)

TSR documents shall comply with 10 CFR 830.205 *(Technical Safety Requirements).* TSR documents establish site and program-specific hazard controls for nuclear explosive operations as derived in the DSA.

5.3 Unreviewed Safety Question (USQ) Determination And Justification For Continued Operations (JCO)

USQ process shall comply with 10 CFR 830.203 *(Unreviewed Safety Question Process)* and Chapter 11.7, *Nuclear Explosive Operations Change Control Process.*

The JCO is a temporary addition to the safety basis and provides a means for the Pantex Plant M&O contractor to obtain NNSA approval of nuclear explosive operations and facilities on a temporary basis when the current requirements cannot be fully met. In effect, a JCO is a request for approval to operate temporarily beyond the current AB. The JCO information may be incorporated into the DSA.

5.4 Authorization Agreements

The AA contractually documents the NNSA and Pantex Plant M&O contractor agreement to the conditions of operation. An AA invokes the DSA and TSR documents and changes and/or additions to these documents (e.g., USQDs, JCOs) as requirements for the operation, and references other reviews or documents relied upon by NNSA in authorizing the operation. As a minimum, the AA shall:

1. Define the scope of authorized operations
2. List the applicable DSA and TSR documents and changes and additions to these documents (e.g. USQDs, JCOs)
3. List other documents that support the decision to authorize operations, such as the S/RID, applicable readiness review reports, Nuclear Explosive Safety review reports, National Environmental Policy Act documents, and certification that all nuclear explosive surety standards are met, and
4. Define any other terms and conditions

5.5 Safety Basis Review Process

SBRT lead and members shall be responsible for assessing the DSA and TSR documents and supporting analyses. The review shall focus on ensuring a comprehensive identification of hazards, an analysis of a representative set of credible accidents, and the establishment of appropriate hazard controls. Accordingly, the SBRT is not expected to perform comprehensive confirmatory analyses, and is not required to perform specific confirmatory analyses. The SBRT is expected to use its technical judgment to identify instances when additional analysis would be beneficial to gain clarity. The SBRT shall:

1. Submit a safety basis review plan, signed by the team leader, to the approval authority
2. Review draft documents as available and provide informal comments to the Pantex Plant M&O contractor
3. Validate the thoroughness and completeness of the hazard identification and accident analyses
4. Examine the analysis technique, binning methodology, and the consequence assigned to accident sequences
5. Assess adequacy of hazard controls using technical judgment
6. Determine that TSRs ensure operability, reliability, and maintainability of derived hazard controls
7. Ensure consistency and integration of nuclear explosive operations and associated activities analysis with other Pantex safety bases
8. Develop a SER using the guidance of DOE-STD-1104-96 and the Safety Basis Review Plan
9. Provide a SER, if documentation is acceptable, signed by the team leader, documenting the conclusions and recommendations of the team to the NNSA approval authority

The Pantex Plant Site Office (PXSO) Manager formally approves the SER of the site and program specific DSA and TSR documents and transmits the SER to the Pantex Plant M&O contractor. The PXSO Manager has the authority to impose additional operational hazard controls or restrictions when approving the SER. These additional requirements shall be incorporated by revision of the site and program-specific DSA and TSR documents. The NNSA SER shall be considered a formal approval of the site and program-specific DSA and TSR documents and is part of the DSA.

6.0 RESPONSIBILITIES

6.1 Pantex Site Office (PXSO) Manager

- Manages the safety basis review process by ensuring the Pantex Plant M&O contractor meets the safety basis regulatory requirements (10 CFR 830, Subpart B) and this chapter.
- Authorizes nuclear explosive operations performed at the Pantex Plant after the Assistant Deputy Administrator for Military Application and Stockpile NA-12 provides the certifications required by DOE Order 452.1A.
- Appoints the Safety Basis Review Team (SBRT) lead and members.
- Approves the safety basis review plans.
- Approves the site and program-specific DSA and TSR documents and any subsequent changes and/or additions to these documents (e.g., USQDs, JCOs) through a Safety Evaluation Report (SER).
- Monitors implementation of the Pantex Plant AB.

6.2 Safety Basis Review Team (SBRT)

- Reviews draft and final site and program-specific DSA and TSR documents for nuclear explosive operations and changes and/or additions to these documents (e.g., USQDs, JCOs).
- Develops and submits SER with recommendations to the PXSO Manager.

6.3 National Laboratories

- Provides weapon and hazardous component response information to the Pantex Plant M&O contractor for identified accident scenarios.
- Issue information engineering releases (IERs) that document the release of weapon response information
- Participate on and support SBRTs.

6.4 Pantex Plant

- Ensures consistency among approved site and program-specific DSA and TSR documents.
- Documents (S/RIDs) or otherwise required by the contract or applicable laws.
- Submits the site and program-specific DSA and TSR documents under the Pantex Plant M&O contractor General Manager or designee's signature to NNSA for approval. This signature means that 1) competent contractor technical staff have defined acceptable hazard controls for a defendable set of scenarios and accurately characterized the risk remaining in the operation; 2) the risk is judged to be acceptable (using guidance provided by the NNSA); and 3) the submittal is complete and accurate in all material aspects.

- Conducts an appropriate internal review to ensure a high level of quality in the final site and program-specific DSA and TSR documents submitted to NNSA for approval.
- Maintains all NNSA-approved DSA and TSR documents and commitments.
- Identifies and manages hazard controls that enhance safety, in addition to those specified in the site and program-specific TSR documents.
- Trains safety analysts and other personnel who support the development of site and program-specific DSA and TSR documents to ensure roles and responsibilities, as well as the expectations of the approval authority, are clearly understood.

7.0 REFERENCES

1. 10 CFR 830, *Nuclear Safety Management,* January 2003.
2. DOE Policy 450.4, *Safety Management System Policy,* October 15, 1996.
3. DOE O 452.2C, *Nuclear Explosive and Weapon Surety Program*, September 20, 2005.
4. DOE O 452.2B, *Safety of Nuclear Explosives Operations*, August 7, 2001.
5. D&P Manual, Chapter 11.7, *Nuclear Explosive Operations Change Control Process*, December 15, 2004.
6. DOE-STD-1027-92, Change Notice No. 1, *Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports*, September 1997.
7. DOE-STD-1104-96, Change Notice No. 3, *Review and Approval of Nonreactor Nuclear Facility Safety Analysis Reports*, December 2005.
8. DOE-STD-3009-94, Change Notice No. 3, *Preparation Guide for U. S. Department of Energy Facility Safety Analyses,* March 2006.
9. DOE-DP-STD-3016-99, *Hazard Analysis Reports for Nuclear Explosive Operations*, February 1999.

8.0 POINT OF CONTACT FOR ADMINISTRATION

D. Glenn, Manager, Pantex Site Office, 806-477-3182, is responsible for this chapter.

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 11.6: INDEPENDENT REVIEW PROCESS FOR NUCLEAR EXPLOSIVE OPERATIONS AT THE PANTEX PLANT

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	IER_____

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1.0 OBJECTIVE

Describe the U.S. Department of Energy (DOE)/National Nuclear Security Administration (NNSA) independent review requirements for Nuclear Explosive Operations (NEOs) conducted at the Pantex Plant.

2.0 BACKGROUND

As a result of Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 98-2, DOE/NNSA combined various independent reviews into a single process to ensure the contractor has adequately prepared a safe process to assemble, disassemble, or test a nuclear explosive prior to authorizing startup or resumption. There are three independent reviews required for NEO operations: the Contractor Readiness Assessment (CRA), the DOE/NNSA Readiness Assessment (RA), and the Nuclear Explosive Safety Study (NESS). Reviews will be conducted in accordance with DOE O 425.1B, DOE O 452.2B, DOE-STD-3015 and DOE-STD-3006-2000, local guidelines, and this Chapter.

3.0 APPLICABILITY

These requirements apply to the DOE/NNSA, Office of Defense Programs, NA-10 Organizations, NNSA Service Center, Site Offices, and DOE/NNSA contractor organizations with the responsibility for executing nuclear weapon assembly, disassembly, and associated testing operations performed in the bays and cells at the Pantex Plant. These assembly and disassembly operations include, but are not limited to, those performed during new production, stockpile improvement programs, disassembly and inspection and selected testing for surveillance, builds, rebuilds, and dismantlement activities.

4.0 DEFINITIONS

See Glossary, Acronym, & Cross Reference (GAC) Section.

5.0 REQUIREMENTS

5.1 Independent Reviews

5.1.1 Contractor Readiness Assessment

The Management & Operating (M&O) contractor must submit a Startup/Restart Notification Report (SNR) for pending readiness reviews on a periodic basis to the DOE/NNSA Authorization Authority as prescribed in DOE O 425.1B and associated DOE Order(s).

The M&O contractor shall perform a CRA of the NEO in accordance with DOE O 425.1B and associated Order(s).

The geographic and technical scope of the CRA shall be defined in a Plan of Action (POA) prepared by the contractor and concurred with by the NNSA Pantex Site Office (PXSO) and concurred with by the Office of Nuclear Weapons Stockpile (NA-122).

The CRA team shall develop an Implementation Plan (IP) against the scope of the approved POA that addresses, on a graded approach, the minimum core requirements as provided in DOE Standard 3006-2000. The IP in all cases will include the core requirement for the thorough evaluation of the implementation of controls that are included in the DOE/NNSA approved authorization basis (AB). Upon completion of the CRA, the M&O contractor shall submit a declaration of readiness to the PXSO Manager. The declaration of readiness shall include a recommendation to proceed with the DOE/NNSA RA as designated in established DOE and local guidance.

5.1.2 DOE/NNSA Readiness Assessment (RA)

The M&O contractor will provide a declaration of readiness to proceed with the NEO and a recommendation to proceed with the DOE/NNSA RA to the PXSO Manager, along with the CRA final report. The NA-122.X Director then formally notifies the designated DOE/NNSA RA Team Leader to start the DOE/NNSA RA.

The geographic and technical scope of the DOE/NNSA RA should be the same as defined in the contractor POA. The contractor POA may be used as the DOE/NNSA POA provided a formal memorandum by the Authorization Authority documents the decision. The Authorization Authority approves the POA. NA-122 and PXSO will coordinate the approval of the DOE/NNSA POA with the Authorization Authority.

The DOE/NNSA RA Team shall develop an IP against the scope of the approved POA that addresses, on a graded approach, the minimum core requirements as provided in DOE-STD-3006-2000. The IP in all cases will include the core requirement for the thorough evaluation of the implementation of controls that are included in the approved AB.

Upon completion of the DOE/NNSA RA, the DOE/NNSA RA Team will make a recommendation to the Authorization Authority on the readiness of the NEO to safely startup. The DOE/NNSA RA Team will develop a formal report supporting the recommendation and providing details on the results of the review. The report shall include the technical basis for all of the findings and their categorization as pre-start or post-starts findings.

The DOE/NNSA RA Team Leader will present the results of the review to the PXSO Manager prior to the final briefing to the DOE/NNSA Authorization Authority. The final briefing to the DOE/NNSA Authorization Authority should be attended by the PXSO Manager, the NA-122 Director, the NNSA Service Center Nuclear Explosive Safety Division (NESD), NESS Group (NESSG) Chairman, or their designees, and others, as may be required.

Upon resolution of all the DOE/NNSA RA pre-start findings and development of corrective action plan(s) for any post-start findings, the PXSO Manager, with concurrence from the NA-122.X Director, will provide a request for startup approval of the NEO to the Authorization Authority. Upon receipt of approval of the NESSG Report, the Authorization Authority will approve start-up of the NEO.

5.1.3 Nuclear Explosive Safety Study (NESS)

The NES review for a given NEO shall be conducted per the requirements specified in DOE O 452.2B, *Safety of Nuclear Explosive Operations* and DOE Standard 3015, *Nuclear Explosive Safety Study Process*. A NESS is required for the startup of any NEO or for significant changes to an existing operation as determined through D&P Chapter 11.7, "*Nuclear Explosive Operations Change Control Process"*. The Authorization Authority appoints the Chairman of the NESSG. The Chairman is responsible for organizing, and assembling the NESSG and conducting the study for the NEO in accordance with local guidance and the guidance provided in DOE Standard 3015.

NA-122 will coordinate with NESD to determine the need and schedule for a NESS. Upon satisfactory completion of specific SS-21 Milestone(s) (see D&P Chapter 11.1) for the specific NEO, NA-122 in coordination with PXSO, will formally notify the NESSG Chairman to start the review. For other non-SS-21 activities requiring a NESS, formal notification to commence the review can be made by the appropriate DOE/NNSA line management organization.

Upon completion of the NESS, the NESSG Chairman will present the results of the review to the PXSO Manager prior to the final briefing to the DOE/NNSA Authorization Authority. The final briefing with the DOE/NNSA Authorization Authority should be attended by the PXSO Manager, NA-122 Director, NESD Director, RA Team Leader, or their designee, and others as may be required. The NESSG Chairman shall provide the NESSG Report to the Authorization Authority for review and action.

5.2 DOE/NNSA Readiness Assessment (RA) & NESS Coordination

The DOE/NNSA RA and NESS where possible should be conducted in the same time frame for specific NEOs. The DOE/NNSA RA Team Leader will manage the review in accordance with the geographic and technical scope defined in the DOE/NNSA POA. The NESSG Chairman will manage the scope of the study to adequately cover the proposed NEO and in accordance with DOE Standard 3015.

The DOE/NNSA RA Team Leader and NESSG Chairman will manage their respective reviews in coordination to the extent practicable relative to the following:

- Ensuring any issues or concerns identified by one review team that could potentially impact the other review team is effectively communicated and follow-up action is assigned.
- Ensuring the effective utilization of contractor support resources for needed review team briefings, performance based demonstrations, and needed documentation.
- Ensuring findings (pre-start and post-start) are communicated between the DOE/NNSA RA Team Leader and NESSG Chairman during the course of the reviews.
- The DOE/NNSA RA Team Leader and NESSG Chairman should attend each other's senior management out briefings on the results of the reviews. Review team members should attend as practicable.
- The draft final report for each review team should be reviewed by the other for any potential issues.

6.0 RESPONSIBILITIES

6.1 Assistant Deputy Administrator for Military Application and Stockpile (NA-12)

1. Reviews and approves with the NESS Report.

6.2 Director, Office of Nuclear Weapon Stockpile (NA-122)

1. Coordinates and concurs on the Contractor and DOE/NNSA POAs for the NEO.
2. Formally notifies the NESS Chairman to start the review based on the results of the SS-21 Milestone meeting for the NEO.
3. Formally notifies the DOE/NNSA RA Team Leader to start the RA based on PXSO concurrence of contractor readiness to start declaration.

4. Plans and schedules NESSs and RAs with NESD through approved Integrated Safety Process Project Plans. Changes in schedule should be coordinated with NESD.
5. Provides a recommendation to the Authorization Authority regarding startup of the NEO following completion of DOE/NNSA RA, completion of the NESS, and resolution of all pre-start findings.

6.3 Director, Nuclear Explosive Safety Division (NESD)

1. Manages and coordinates the NESSs and RAs for NEO's at the Pantex Plant in accordance with applicable orders and standards.
2. Appoints the NESS Chairman and NESS members, with informal approval from PXSO.
3. Recommends the DOE/NNSA RA Team Leader to the NA-12 for the review of a NEO.
4. The NESS Chairman and RA Team Leader will brief the PXSO Manager on the results of the review prior to briefing the Authorization Authority.

6.4 Pantex Site Office (PXSO) Manager

1. The PXSO Manager is the Approval Authority for Pantex ABs.
2. Concurs on Contractor and DOE/NNSA POAs and submits to Authorization Authority for approval in coordination with NA-122.
3. Forwards the Contractor readiness to proceed declaration for nuclear explosive operations (NEO) and submits to NA-122 to initiate the DOE/NNSA RA.
4. Formally communicates to the Authorization Authority concurrence or non-concurrence with the findings and conclusions made by the review teams (NESSG and RA).
5. Provides a recommendation to the Authorization Authority, with NA-122 coordination, regarding startup of NEO following completion of the DOE/NNSA RA, completion of the NESS, and resolution of all pre-start findings.
6. Reviews and concurs with the DOE/NNSA RA Report.
7. Provides the DOE/NNSA RA Report to the line organization with direction on any corrective action(s) needed for startup of the NEO.
8. The NA-12 is the Authorization Authority for NEO performed at the Pantex Plant.
9. Approves the Contractor and DOE/NNSA POAs for a NEO.

6.5 M&O Contractor

1. Issues Startup/Restart Notification Report (SNR) in accordance with Departmental and local guidance.
2. Performs the CRA and issues declaration of readiness and recommendation to start the DOE/NNSA RA.

3. Develops the NEO RA POA and submits to PXSO and NA-122 for approval.

7.0 REFERENCES

1. DOE Order 425.1C, Startup and Restart of Nuclear Facilities
2. DOE Order (O) 452.1B, Nuclear Explosive and Weapon Surety Program
3. DOE O 452.2B, Safety of Nuclear Explosives Operations
4. DOE-STD-3006-2000, Planning and Conduct of Operational Readiness Reviews (ORR)
5. DOE-STD-3015, 2001, Nuclear Explosive Safety Study Process

8.0 POINT OF CONTACT FOR ADMINISTRATION

R. Baca, Director, Nuclear Explosive Safety Division, NNSA Service Center, 505-845-6213, is responsible for this Chapter.

DEVELOPMENT
AND PRODUCTION MANUAL

Chapter 13.1: QUALITY PROGRAM

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	IER_____
B	**Change Notice 10 dated 05-15-2015, FCO20152801SA effective 10-01-2015**

TABLE OF CONTENTS

1.0 OBJECTIVE

- Establish the responsibilities necessary to accomplish the Department of Energy/National Nuclear Security Administration (DOE/NNSA) nuclear weapons quality program and for acceptance of nuclear weapon material.
- Establish and maintain an effective quality management system for DOE/NNSA research, design, development and testing activities, production, maintenance, stockpile evaluation, dismantlement, and/or disassembly/disposal of weapons and weapon-related material

2.0 BACKGROUND

The authority for the NNSA Quality Program comes from requirements identified in Quality Criteria-1, DOE Order 414.1A, and 10 CFR 830.120.

By issuance of this Chapter 13.1, the Quality Assurance Procedures (QAP) Manual located at http://prp.lanl.gov is incorporated into the D&P Manual thus making it contractually required.

3.0 APPLICABILITY

These requirements apply to the DOE/NNSA Office of Defense Programs, NA-10 Organizations, Site Offices, NNSA Service Center, and DOE/NNSA contractor organizations with the responsibility for executing any phase of the nuclear weapons program.

4.0 DEFINITIONS

See the Glossary, Acronym, & Cross Reference (GAC) Section.

5.0 REQUIREMENTS and RESPONSIBILITIES

5.1. Office of Nuclear Weapon Surety and Quality (NA-121)

- Establishes DOE/NNSA-wide quality policy and criteria for the nuclear weapons program and ensures effective implementation.
- Establishes Quality Assurance Agency (QAA) operating requirements and procedures through instructions contained in the QAP Manual.
- Plans, leads, and directs Quality Assurance (QA) surveys of Design Agencies (DAs) and Production Agencies (PAs) to verify conformance to Quality Criteria (QC-1) and evaluates the effectiveness of their quality programs.

5.2. Quality Assurance Agencies (superseded by R019 per Change Notice 10 and IER 20150059SA)

5.3. Design Agencies (DAs) (superseded by R019 per Change Notice 10 and FCO 20150059SA)

DAs have primary responsibility in the following areas:

- designing quality weapon and weapon-related material;
- ~~defining and maintaining a product definition document;~~
- implementing nuclear weapon quality management systems in conformance with QC-1 requirements;
- applying quality and reliability engineering methodologies concurrent with the product realization process in pursuit of meeting and exceeding customer requirements for cost, schedule, and performance;
- conducting formal qualification evaluations concurrent with the product realization process to assess whether the development and manufacturing processes are capable of meeting customer requirements and to demonstrate production readiness (the evaluation determines whether adequate evidence exists of minimal risk in proceeding);
- performing independent assessments to evaluate the adequacy of quality systems ensuring conformance with QC-1, as well as providing management with objective evidence that quality policies and principles are carried out through all weapon phases;
- supporting NA-121 in the performance of DOE/NNSA QA surveys at PAs, as requested; and
- supporting PAs in the product realization process and concurrent qualification evaluation activities.

5.4. Production Agencies (PAs) (superseded by R019 per Change Notice 10 and IER 20150059SA)

PAs have primary responsibility in the following areas:

- procuring or producing quality material;
- implementing nuclear weapon quality management systems in conformance with QC-1 requirements;
- applying quality and reliability engineering methodologies concurrent with the product realization process in pursuit of meeting and exceeding customer requirements for cost, schedule, and performance;
- ~~providing substantiating quality evidence for DOE/NNSA acceptance of material;~~

- performing independent assessments to evaluate the adequacy of quality systems ensuring conformance with QC-1 for both procured and produced material; and
- supporting DAs in the product realization process and concurrent qualification evaluation activities.

6.0 REFERENCES (revised per NNSA release of NAP-24)

1. Memorandum for J.M. Barr, DOE HQ, Subject: Quality Management Policy for the Nuclear Weapons Program, dated November 20, 1989.

2. ~~Quality Criteria-1 (QC-1) (current version).~~ Weapon Quality Policy, NAP-24

3. Weapon Quality Assurance Procedures Manual (WQAPM), (current version) located at ~~http://prp.lanl.gov~~ https://prp.sandia.gov/WQAP/Forms/AllItems.aspx

7.0 POINT CONTACT FOR ADMINISTRATION

~~H. F. Gregory,~~ Weapon Quality ~~and Surveillance~~ Division, NA-121.3, ~~(505) 845-6020~~ (505)-845-5171 is responsible for this chapter.

DEVELOPMENT AND PRODUCTION MANUAL

Chapter 13.2: METROLOGY PROGRAM

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
A	Original Release 02-27-04
B	Change 3, 12-10-04
C	Change 7, 06-09-06

TABLE OF CONTENTS

1.0 OBJECTIVE

- Establish the standards and calibration program (SCP) for Department of Energy/National Nuclear Security Administration (DOE/NNSA), its contractors and subcontractors who are engaged in activities related to Research, Development, Testing, and Evaluation (RDT&E), as well as pre-production, production, dismantlement, maintenance, stockpile evaluation, and disassembly/disposal of nuclear weapons and weapons related activities.
- Assign responsibilities and set minimum requirements for management and operation of a SCP. Provide a system to ensure accuracy of measurement standards, as well as Measuring and Test Equipment (M&TE) used in nuclear weapons, nuclear weapons related material, non-weapons, and general operations activities.
- Provide additional administrative or contractual support to the DOE/NNSA Weapon Quality Policy (QC-1) [1] and latest issue of DOE Order 414. 1

2.0 BACKGROUND

The authority to establish a SCP for the Nuclear Weapons Complex comes from QC-1.

3.0 APPLICABILITY

These requirements apply to the DOE/NNSA Office of Defense Programs, NA-10 Organizations, Site Offices (SO) , NNSA Service Center, and DOE/NNSA contractor and sub-contractor organizations with the responsibility for executing any phase of the nuclear weapons program, non-weapons and general operations activities.

Requests for deviation from any part of this chapter must be submitted in writing to the Weapon Quality and Surveillance Division (NA-121.3).

4.0 DEFINITIONS

See the Glossary, Acronym, & Cross Reference (GAC) Section, ANSI/ISO/IEC17025: 2000, and the current version of Technical Business Practices Definitions (TBP-DEF) for additional definitions. Also see the International Vocabulary of Basic and General Terms in Metrology (VIM) for metrology definitions not included in TBP-DEF.

5.0 REQUIREMENTS and RESPONSIBILITIES

5.1 Assistant Deputy Administrator for Military Applications and Stockpile Operations (NA-12)

Approves deviations from this chapter which can affect nuclear safety

5.2 Weapon Quality and Surveillance Division (NA-121.3)

NA-121.3 ensures an effective SCP by:

- Establishing policies and requirements;
- Overseeing its implementation at DOE/NNSA local Site Offices, DOE/NNSA nuclear weapon contractors, and the Primary Standards Laboratory (PSL);
- Providing guidance and interpretation;
- Approving and issuing PSL Memoranda (PSLM);
- Reviewing and providing recommendations, based on Site Office input, to the appropriate DOE/NNSA Office on the current and future capacity and capability in the areas of personnel, facilities, and equipment, of PSL and nuclear weapon contractor's metrology organizations and SO SCP implementation.
- Coordinating with the Site Offices (SOs) and the PSL the implementation of a system of technical audits/surveys of the Nuclear Weapons Complex (NWC) SCP.
- Developing system-wide performance metrics for the SCP.
- Providing assurance that resources/budgets are adequate to meet SCP needs across the NWC.
- Providing technical assistance as requested by the Site Offices.
- Reviewing and recommending action on deviation requests that could affect nuclear safety.
- Approving deviations that do not affect nuclear safety.

NA-121.3 provides oversight by:

- Performing and reporting results of QAS 2.0 surveys of the PSL;
- Performing and reporting results of QAS 1.0 surveys of the SOs;
- Participating in selected technical surveys performed by PSL as official members of the survey team;
- Providing the final authority in the resolution of conflicts in survey schedules/frequencies, corrective actions, and issues involving multiple sites across the NWC.

5.3 Site Offices

Each Site Office ensures its contractor complies with this chapter and the PSLMs by:

- Performing and reporting QA survey results of its DOE/NNSA nuclear weapon contractor's SCP;
- Periodically participating in its DOE/NNSA nuclear weapon contractor's QA and technical surveys of commercial calibration laboratories (CCLs) and designated calibration sources (DCSs);
- Participating in PSL technical surveys of its DOE/NNSA nuclear weapon contractor;
- Reviewing and distributing PSL technical survey reports and contractor's corrective action reports, as well as providing approval notification and ultimate survey closure.
- Reviewing and distributing PSL proficiency testing reports (formally known as measurement audits) which obtain a rating of unsuccessful along with the perceived impact on product and issuing a corresponding corrective action plan to NA-121.3.

Site Offices, in conjunction with DOE/NNSA nuclear weapon contractors, review and provide recommendations to NA-121.3 on the current and future capacity and capability of the contractors' metrology organizations in the areas of personnel, facilities, and equipment.

Site Offices coordinate with their DOE/NNSA nuclear weapon contractors and PSL all technical survey activities including scheduling, corrective action reports, corrective action status reports and final survey closure. Copies of all official correspondence associated with these surveys will be issued to NA-121.3 to include the final survey report.

PSL surveys shall occur at least every 24 months for each contractor performing applicable operations.

5.4 Sandia National Laboratories (SNL)

SNL operates in accordance with the requirements of this chapter, American National Standards Institute/International Standards Organization/International Electrotechnical Commission (ANSI/ISO/IEC) 17025:2000[3] and PSLMs, and is responsible for:

- establishing and maintaining a PSL by providing facilities, staff, equipment, and management; and
- ensuring the PSL maintains the capabilities and expertise for an effective SCP in accordance with this chapter.

5.4.1 Primary Standards Laboratory

1. Coordinates a system-wide SCP for DOE/NNSA and its contractors by providing technical guidance, training, and consultation.
2. Prepares PSLMs for review and approval by NA-121.3

3. Provides a research and development program in the area of measurement technology to enable the timely provision of new measurement standards and M&TE for a properly balanced program and measurement compatibility.
4. Develops and maintains primary standards. When no recognized national standard is available, the PSL shall document the use of consensus standards.
5. Provides certification of reference standards, when they are within their capacity and capability, to CSLs.
6. Assists the CSL in obtaining sources of outside calibration or specifying standards for which NIST or PSL do not have capability.
7. Provides technical oversight of DOE/NNSA nuclear weapon contractors by:
   a. Performing and reporting to the local SO technical survey results of DOE/NNSA nuclear weapon contractor's SCP including CSL, CCL, and DCS programs;
   b. Periodically attending CSL surveys of current and potential CCLs and DCSs;
   c. Conducting and reporting the results of proficiency testing shall be reported to NA-121.3 and appropriate Site Office(s);
   d. Reviewing the program used for the approval and oversight of CCLs and DCSs and providing written approval to CSL;
   e. Coordinating technical surveys and corresponding official correspondence, as well as written reports with the local SO;
   f. Providing immediate feedback to the appropriate Site Office when any deficiencies are identified during a technical survey;
   g. Maintaining a current list of PSL- and CSL-approved DCSs and CCLs, which include--name, address, point of contact (POC), phone number, metrology parameter, range, uncertainty, and expiration information.
   h. Publish annually and update semi-annually a survey schedule covering a complete PSL audit cycle of the NWC SCP.

5.5 DOE/NNSA Nuclear Weapon Contractors

DOE/NNSA nuclear weapon contractors operate in accordance with the requirements of this chapter, ANSI/ISO/IEC 17025:2000, and PSLMs, and have the following responsibilities:

1. Maintaining an effective SCP in accordance with this chapter by providing facilities, staff, equipment, and management for implementation of an SCP, as well as establishing a Contractor Standard Laboratory (CSL) function. The SCP shall require certification of any measurement standard and M&TE used in activities affecting quality. Certification shall occur either at the time of use or on a periodic basis as part of a recall system. The SCP shall address the types of activities normally requiring use of certified measurement standards and M&TE. These activities include, but are not limited to, obtaining reportable data, establishing specifications, evaluating

or testing weapons material or systems, executing non-weapons and general operations activities, or testing product.

2. Consulting with its CSL organization prior to procurement of M&TE, which may require calibration, to determine whether the procurement could impact the current calibration capability.
3. When measurement standards or M&TE are either removed from service, removed from periodic calibration, or placed in storage, and they have been used since their last calibration, a final calibration or cross-check must be performed. If a final calibration or crosscheck is not performed, justification for not performing this function must be documented.
4. With CSL participation, establishing and implementing a documented program for approval, re-approval, and oversight of Commercial Calibration Laboratories (CCLs) and Designated Calibration Sources (DCSs) to ensure integrity of procured products and/or services. The program shall describe the roles and responsibilities of involved organizations, shall have PSL approval, and shall conform to the following requirements:
   a. Any contractor calibrating the M&TE listed below or standards used to calibrate M&TE for nuclear weapons pre-production, production, dismantlement, maintenance, stockpile evaluation, and disassembly/disposal activities shall be approved as a CCL or DCS.
   b. M&TE identified and/or controlled in the design definition (including equipment qualification documentation).
   c. Environmental conditioning devices or equipment used in conjunction with such M&TE (e.g., “E”-test, “D”-test, etc.).
   d. M&TE used to verify critical nuclear safety parameters (e.g., annotated as Pentagon-S or /S/).
   e. M&TE used to verify process control in lieu of measurement of product requirements.
5. Any subcontractor calibrating M&TE or standards used to calibrate M&TE for nuclear weapons RDT&E, non-weapons, and general operations activities may be of such importance the subcontractor shall be approved as a CCL or DCS. The PSLM provides further guidance for approval of sub-contractors as a CCL or DCS.
6. CCLs and DCSs will be approved to perform calibrations within specific measurement fields, ranges, and uncertainties. If a calibration laboratory is accredited by an accreditation body, it may be accepted for use without additional oversight provided both of the following criteria are satisfied:
   a. The accreditation body that accredited the calibration laboratory either is currently recognized by the National Cooperation for Laboratory Accreditation (NACLA) or it holds mutual recognition signatory status under the International Laboratory Accreditation Cooperation (ILAC) “Mutual Recognition Arrangement;” in addition, the accreditation body’s Scope of Recognition must include calibration.
   b. The published Scope of Accreditation for the calibration laboratory covers the needed measurement parameters, ranges, and uncertainties.

7. The extent of approval and oversight activities for each CCL and DCS shall depend on the requirements of the products and/or services supplied. Factors to consider include:
   a. The level of uncertainty or tolerance associated with the technical requirements of the product or service;
   b. The degree of difficulty, importance, and/or risk associated with performing measurements or calibrations supporting the technical requirements of the product or service. The risk factors shall include, as appropriate, safety, environment, health, reliability, scheduling, economics, etc.;
   c. How measurements performed in support of the program may be impacted by the CCL's or DCS's calibration program.
8. CCL or DCS approval is not required for measurements performed by a subcontractor that will later be substantiated by a DOE/NNSA nuclear weapon contractor.

5.6 Metrology Organizations

Metrology organizations must operate in accordance with the requirements of this chapter, ANSI/ISO/IEC 17025:2000, and the PSLM. NNSA recognizes the value of laboratory accreditation performed by an accreditation body that is recognized by the National Cooperation for Laboratory Accreditation (NACLA). A metrology organization that is so accredited could reduce the need for technical survey by the PSL, depending upon their Scope of Accreditation. Metrology organizations are also responsible for the following general requirements:

- Intervals or expiration criteria for M&TE that require calibration shall be determined and controlled by the calibrating organization. Intervals shall be established and maintained to assure acceptable reliability, where reliability is defined as the probability that M&TE will remain in-tolerance throughout the interval. Calibration intervals shall be limited to a maximum of five years unless documented justification is made to support the deviation from this requirement.
- Notifying customers promptly when any of the customer's M&TE or standards are found to be out-of-tolerance and reporting to them as-found measurement data so that appropriate actions can be taken.
- In cases where an uncertainty analysis following ANSI/ISO/IEC 17025:2000 requirements is excessive or not appropriate, an acceptable uncertainty analysis procedure is to ensure that the collective uncertainty of the measurement process (at a 95% level of confidence) shall not exceed 25% of the acceptable tolerance (e.g. manufacturer's specification) for each characteristic of the M&TE being certified, unless an appropriate guard banding technique is used.

5.6.1 Contractor Standards Laboratory

1. Coordinates and oversees the SCP at its DOE/NNSA nuclear weapon contractor site including all metrology organizations; maintains certified reference standards; certifies and maintains working and transfer standards, M&TE, and other associated instruments used to perform calibrations; and utilizes PSL, other CSLs or CCLs when necessary, to obtain calibrations not within its' current capacity and/or capability.
2. Consults with the PSL prior to procurement of measurement standards and/or M&TE that may impact the current PSL capability.
3. Assists in establishing and maintaining a documented program used for approval, re-approval, and oversight of CCLs and DCSs; as well as obtaining written approval for the program and any significant proposed changes from the PSL.
4. Provides initial approval, re-approval, and oversight of CCLs and DCSs by:
   a. Performing technical surveys and/or proficiency testing to ensure the subcontractor's SCP is consistent with the requirements of ANSI/ISO/IEC 17025:2000;
   b. Reporting results of all CCL and DCS technical surveys and proficiency testing reports to the PSL;
   c. Maintaining a current list of its approved CCLs and DCSs; and reporting current CCLs and DCSs twice a year to the PSL (changes in the status of an approved CCL should be reported as soon as practical), including name, address, POC, phone number, metrology parameter, range, uncertainty, and expiration information.
5. Coordinates with its NNSA Site Office all PSL technical survey activities including scheduling, corrective action reports, and corrective action status reports.
6. Provides prompt notification to the Site Office of identified deficiencies with the potential of impacting weapon product.

6.0 REFERENCES

1. QC-1 current version
2. DOE (U.S. Department of Energy), "Quality Assurance," DOE O 414.1 (current version).
3. ANSI/ISO/IEC 17025:2000, "General Requirements for the Competence of Testing and Calibration Laboratories."
4. 10 CFR 830.120, "Quality Assurance" (current version).

7.0 POINT OF CONTACT FOR ADMINISTRATION

Col Greg Boyette, Office of Nuclear Weapon Surety and Quality, NA-121, is responsible for this chapter.

8.0 Appendix A: Primary Standards Laboratory Memorandum, February 17, 2006

Department of Energy
National Nuclear Security Administration
Washington, DC 20585

February 17, 2006

MEMORANDUM FOR: Steve C. Taylor, Manager, Kansas City Site Office
Patrice M. Wagner, Manager, Sandia Site Office
Edwin L. Wilmot, Manager, Los Alamos Site Office
Camille C. Yuan Soo Hoo, Manager, Livermore Site Office
Daniel E. Glenn, Manger, Pantex Site Office
Richard W. Arkin, Manager, Savannah River Site Office
William J. Brumley, Manger, Y-12 Site Office
Kathleen A. Carlson, Manger, Nevada Site Office

FROM: Robert J. Lopez
Acting Director, Weapon Quality and Surveillance Division, NA-121.3, Albq., NM

SUBJECT: Transmittal of the Primary Standards Laboratory Memorandum (PSLM)

In accordance with NNSA Supplemental Directive 56XB, Development and Production Manual, Chapter 13.2, Metrology Program, attached is the latest revision to the Primary Standards Laboratory Memorandum (PSLM). The purpose of the PSLM is to provide additional guidance and clarity to the NNSA Standards and Calibration Program, which is required under the DOE/NNSA Weapon Quality Policy. This revision replaces the PLSM dated July 31, 2001.

Significant changes to the PSLM include the addition of packaging requirements for shipment of standards to the Primary Standards Laboratory, and guidance for the Standards Laboratories to use for guard banding and tolerance testing. Any questions or comments should be addressed to Curtis Chambellan at 505-845-5073.

attachment
cc:
See Page 2

cc w/attachment:
D. Pellegrino, SSO
D. Zweifel, SRSO
M. Holecek, KSCO
E. Demerson, PXSO
M. Glasman, YSO
A. Leivo, LASO
L. Dancy, LSO
L. Azevado, SNL/NM

FEDERAL AGREEMENT				
NUMBER	ISSUE	RELEASE DATE	EFFECTIVE DATE	PAGE
G001	**B4**	**03/20/2012**	**06/30/2012**	**1 of 12**

MANAGE FEDERAL REQUIREMENTS AND AGREEMENTS

For RPO Administration Use Only **CAGE CODE: 14213**

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
B4	IER 20121698SA

TABLE OF CONTENTS

1. SCOPE

This content defines the process for developing, reviewing, approving, and managing RMI Level 2 Federal Requirements and Level 3 Federal Agreements. The content also defines the process for conducting site impact analysis of RMI content.

2. APPLICABILITY

This content applies to the following organizations or individuals:

All NNSA Federal organizations reporting to the Defense Programs Office of the Assistant Deputy Administrator for Stockpile Management

Section 5 lists external interfaces for this content.

This content applies when writing, reviewing, revising, authorizing, approving, and managing Federal Requirements and Federal Agreements.

2.1 Cancellation

When this content becomes effective, the following content will be cancelled:

D&P Manual, Introduction

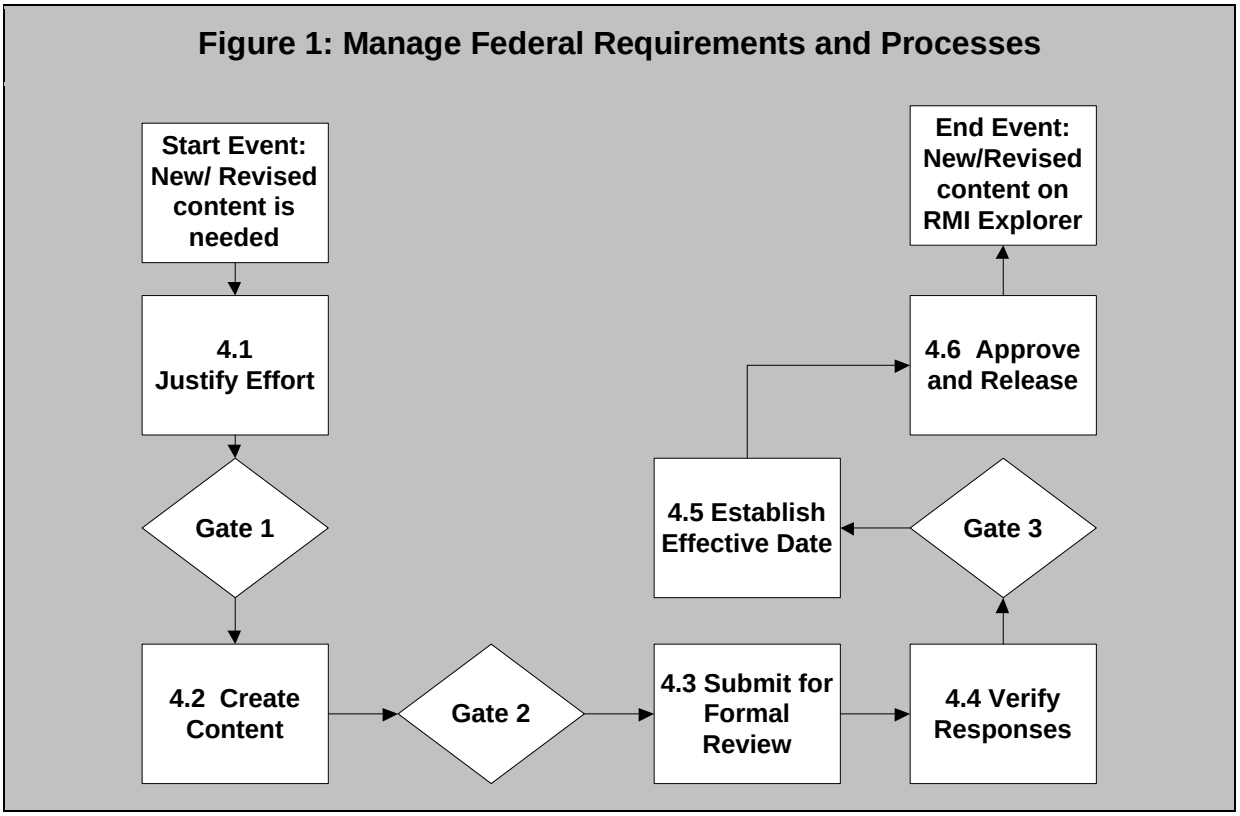
2.2 Organization Responsible for Content

The Office of Stockpile Management (NNSA/NA-12) is responsible for this content.

3. PROCESS DIAGRAM

Figure 1 represents the process needed to clarify the requirements.

Figure 1: Manage Federal Requirements and Processes



Start Event

An individual or content team determines that:

a) New or revised content may be required
b) Legacy content should be considered for deactivation or for revision into RMI subject content

Process

a) Justify the Effort: The RMI content team completes the initial planning and provides evidence to the RAC Federal Subcommittee to support a Gate 1 decision to authorize content development.
b) Create Content: The RMI content team develops their draft(s) and provides evidence to the RAC Federal Subcommittee to support a Gate 2 decision to start the formal review.
c) Submit for Formal Review: Federal and contractor personnel provide comments and the content team resolves the comments.
d) Verify Responses: The comment resolution is provided to the commenting federal and contractor personnel to verify that their comments were addressed.
e) Establish Effective Date: The effective date is established through the results of the site impact analysis on RMI content that is requested from M&O Contractors.
f) Approve and Release: Federal Senior Management approves content with a common effective date for release into RMI Explorer.

End Event

The RPO releases content into RMI Explorer.

4. REQUIREMENTS

This section exclusively lists federal requirements. A rationale appears where further explanation adds clarity. Rationales do not contain additional requirements.

A unique number identifies each requirement. The information underneath each requirement provides traceability.

Section 6 lists the definitions called out in this content.

Section 7 lists the titles of documents called out in this content.

4.1 Justify Effort

FR56677 **Deleted**

FR85226 **A content team member must present a completed Gate 1 package to the RAC, consisting of T002, T003, and T005.**

Rationale: The purpose of the Gate 1 review is to provide sufficient evidence to allow the RAC to decide whether to authorize the team to begin developing content. The content team may present additional information they deem necessary to support the gate review.

Parent: R002 FR26820
Supersedes: D&P Manual Introduction Section 5.2

FR26368 **The RAC Federal Subcommittee must review Gate 1 package requests and document the decision per T003.**

Parent: R002 FR21632 / R002 FR26820
Supersedes: D&P Manual Introduction Section 5.2

4.2 Create Content

FR71574 **The content team must create content drafts per T018, T020, and T021.**

Rationale: The approved templates and tools are used to provide consistency.

Parent: R002 FR81421
Supersedes: D&P Manual Introduction Section 5.4

FR17067 **Prior to Gate 2, the RPO must inspect the content for format and consistency.**

Rationale: Teams are offered training to get to each gate. Teams are responsible for making correction(s) as a result of inspection.

Parent: R002 FR26820
Supersedes: D&P Manual Introduction Section 5.2.2.c / D&P Manual Introduction Section 5.2.2.d

FR82849 **Deleted**

FR26512 **A content team member must present a completed Gate 2 Package to the RAC per T012.**

Rationale: The purpose of the Gate 2 review is to provide sufficient evidence to allow the RAC to decide whether the content is ready for a formal review. The content team may present any additional information they deem necessary to support the gate review.

Parent: R002 FR26820
Supersedes: N/A

FR52345 **The RAC Federal Subcommittee must review Gate 2 package requests and document the decision per T012.**

Parent: R002 FR60200 / R002 FR26820
Supersedes: N/A

4.3 Submit for Formal Review

FR26340 **Deleted**

FR11962 **After Gate 2 authorization, each RMI Coordinator must conduct a formal review at their site and document results using T006.**

Rationale: The purpose of the formal review is to provide an opportunity for subject matter experts and users at each site to review and provide comment on the draft content set. The RPO coordinates formal reviews. The Federal Project Manager requests comments from other defense program offices. The appointed site office members requests comments from site office personnel. Level 3 MOCAs and associated tools are also sent to RMI Coordinators for review and comment.

Parent: R002 FR26820 / R002 FR40840
Supersedes: D&P Manual Introduction Section 5.2.2.e / D&P Manual Introduction Section 5.2.2.f

FR96422 **Deleted**

FR99504 **Each Federal Site Representative must provide consolidated defense program and site office comments to the RPO using T006.**

Rationale: Comments are consolidated, without duplicates, for the content team to resolve.

Parent: R002 FR26820
Supersedes: D&P Manual Introduction Section 5.2.2.g / D&P Manual Introduction Section 5.2.2.h

FR54520 **The content team must:**

a) **Document the resolution of comments**
b) **Revise the content to incorporate accepted comments**
c) **Submit the content and documented resolution to the RPO using T006**

Parent: R002 FR26820
Supersedes: D&P Manual Introduction Section 5.2.2.f

4.4 Verify Responses

FR38658 **Before site verification, the RPO must inspect the revised content for format and consistency and verify that the comment resolution has been completed and documented.**

Rationale: Teams are offered training to get to each gate. Teams are responsible for making correction(s) as a result of inspection.

Parent: R002 FR26820
Supersedes: D&P Manual Introduction Section 5.2.2.c / D&P Manual Introduction Section 5.2.2.d

FR53310 **Upon request from the RPO, each RMI Coordinator must verify that the site's comments were addressed, using T015.**

Rationale: The purpose of Site Verification is to share comment resolution as completed per FR54520 to assure each site's comments were correctly understood, and incorporation of other site's comments does not cause adverse impacts.

Parent: R002 FR26820
Supersedes: N/A

FR97172 **The RMI Coordinators must submit the site verification results to the RPO, using T015.**

Parent: R002 FR26820
Supersedes: N/A

FR39905 **The RPO must provide the consolidated results of the site verification to the content team.**

Parent: R002 FR26820
Supersedes: N/A

FR27322 **Prior to Gate 3, the content team must document the final gap analysis and process and requirement linkages.**

Rationale: The final gap analysis provides the formal evidence of legacy content supersession. Preliminary gap analysis are performed prior to Gate 2 and documented per T012.

Parent: R002 FR26820
Supersedes: N/A

FR12148 **Deleted**

FR95481 **A content team member must present the completed Gate 3 Package to the RAC per T016.**

Rationale: The purpose of the Gate 3 review is to provide sufficient evidence to allow the RAC to decide whether to recommend final approval of the content. The content team may present any additional information they deem necessary to support the gate review.

Parent: R002 FR26820
Supersedes: N/A

FR89821 **The RAC Federal Subcommittee must review Gate 3 package requests and document their decision per T016.**

Parent: R002 FR60200 / R002 FR26820
Supersedes: N/A

4.5 Establish Effective Date

FR50781 **After Gate 3 authorization but before site impact analysis, the RPO must place the RAC Authorized RMI content on RMI Explorer.**

Rationale: Gate 3 RAC Authorized content is placed on RMI Explorer and marked "RAC Approved" until it is approved for release with a common effective date by the Senior Steering Committee.

Parent: R002 FR37348
Supersedes: N/A

FR90830 **After Gate 3 authorization, the RMI Project Manager must request the Site Offices to direct the contractors to conduct site impact analysis for RMI Level 2 Federal Requirements and associated Tools using T014.**

Rationale: T014 is not required for Level 3 Federal Agreements.

Parent: NA SD M 452.3-1 CRD
Supersedes: D&P Manual Introduction Section 5.2.2 Paragraph 3.d

FR59357 **Each NNSA Site Office must request their site M&O Contractor prepare and return a completed T014 to their office.**

Rationale: Site Impact Analyses are completed in order for the M&O to clearly identify any impacts with implementing the RMI requirements, including a proposed effective date, such that Site Office management is aware of the impacts and implementation schedule and concurs with them. Either the Site Office Manager or the Site office RAC Member is authorized to approve the Site Impact Analysis, consistent with the RAC Delegation of Authority memo.

Parent: NA SD M 452.3-1
Supersedes: D&P Manual Introduction Section 5.2.2 Paragraph 3.d

FR61844 **Each Site Office must return a completed T014 within 60 calendar days of the request to the RMI Project Manager.**

Parent: NA SD M 452.3-1 CRD
Supersedes: D&P Manual Introduction Section 5.2.2 Paragraph 3 Bullet d

FR66529 **The Federal Project Manager must review the T014 to determine the common effective date for implementation.**

Rationale: The common effective date is the latest date provided by any site on the site impact analysis form. The common effective date is published on the Federal Senior Management approved content. If the Federal Project Manager determines the common effective date is unacceptable, then it may be renegotiated by the Federal Project Manager, Program Manager, or forwarded to the Senior Federal Manager for resolution.

Parent: R002 FR26820
Supersedes: D&P Manual Introduction Section 5.2.2

4.6 Approval and Release

FR91016 **Not later than 10 working days after receipt of the Site Impact Analysis from the Site Office, the RMI Project Manager must submit the RAC Federal Subcommittee's Gate 3 recommendation and the results of the site impact analysis to the Office of Defense Program's senior management for their approval to release Level 2 Federal Requirements, Level 3 Federal Agreements, and related tools with a common effective date.**

Parent: R002 FR26820
Supersedes: D&P Manual Introduction Section 5.2.2 Paragraph 3 Bullet c

FR49093 **After Gate 3 authorization, the RPO must enter authorized RMI content into the requirements management tool.**

Parent: R002 FR37348
Supersedes: N/A

FR29798 **Prior to release and implementation through the Enterprise, the Office of Defense Programs senior management must approve the RAC Federal Subcommittee Authorized RMI content using a release memo containing the common effective date.**

Parent: R002 FR26820
Supersedes: N/A

FR60964 **After the RMI content is approved by the Office of Defense Program senior management, the RPO must enter the common effective date on the content set and release the content on RMI Explorer.**

Parent: R002 FR53969
Supersedes: D&P Manual Introduction Section 5.2.2 Paragraph 3 Bullet e

5. EXTERNAL INTERFACE RESPONSIBILITIES

This section exclusively lists responsibilities for organizations and individuals external to NNSA.

N/A

6. KEY DEFINITIONS

The following sections represent definitions needed to understand the content.

6.1 RMI-specific Terms

The following terms are for use with any RMI content.

Context: Set of circumstances or facts that surround a particular event, situation, etc. (Dictionary.com)

Contractor Requirement: Binding practice that is under M&O Contractor governance; binding practice represented by the word “shall”

Federal Requirement: Binding practice that is under Federal governance; binding practice represented by the word “must”

Goal: Non-mandatory provision represented by the word “should”

Option: Acceptable practice represented by the word “may”

Rationale: Explanation of why a requirement exists, any assumptions made when writing a requirement or other information useful in managing requirements over the life of a project (excerpt from Chapter 8, page 120 of “Customer-Centered Products” by Ivy F. Hooks & Kristin A. Farry)

Reference: Something that refers a reader to another source of information represented by the word “per”

Statements of Fact: Declaration of purpose represented by the word “will” or “is”

6.2 RMI Explorer Portal Terms

The following terms are for use with this content during review.

RMI Content: Consists of requirements, processes and tools created by and managed within the RMI System.

Content (applicable to RMI): See RMI Content

RMI Explorer: The website where users can access RMI Content.

Content Owner: The individual with appropriate subject matter expertise that has been given the authority to interpret RMI content and to coordinate potential revisions to that content.

7. TRACEABILITY REFERENCE

This section lists references used in this content:

R002: Requirements Modernization & Integration System Management

NA SD M 452.3-1: Defense Programs Business Requirements and Process Manual

D&P Manual, Introduction: Introduction and the D&P Process

R002: Requirements Modernization & Integration System Management

T002: Justification for RMI Content

T003: Disposition Gate 1

T005: RMI Content Team Charter

T006: Review Comments Form

T012: Disposition Gate 2

T014: Site Impact Analysis Results

T015: Verification Form

T016: Disposition Gate 3

T018: Tool Format

T020: Federal Requirements Format

T021: Federal Agreement Format

APPENDIX A: SITE OFFICE APPOINTMENT LETTER

APPOINTMENT LETTER INSTRUCTIONS

To complete the letter, replace red text with desired information.

Letterhead

Date:

Name (Site Office Appointee),

I hereby delegate name (Personnel to which this letter delegates authority to) the authority to perform as the Site Office RMI Action Committee member pursuant to R002 "Requirements Modernization & Integration System Management" and perform federal review, verification or submit site impact analysis in the name of and on behalf of the Site Office pursuant to G001 "Manage Federal Requirements and Processes".

This authority shall include the power to endorse all review, verification, and site impact analysis instruments and to take such further steps as may be necessary in order to fully carry out the intent of such authority, including such delegated duties from the NNSA Senior Management as described below.

This letter is valid for one year from the issuance date.

Sincerely,

Name
Site Office Manager – NNSA Site Office

CC:
RMI Federal Project Manager
RMI Federal Program Manager

FEDERAL REQUIREMENTS				
NUMBER	ISSUE	RELEASE DATE	EFFECTIVE DATE	PAGE
R001	**C2**	**2016-05-04**	**2016-05-09**	**1 of 28**

Product Realization

For RPO Administration Use Only CAGE CODE: 14213

CHANGE HISTORY

EFFECTIVE DATE	ISSUE	RELEASE/CHANGE NO.
2014-03-31	C1	IER 20132739SA
2016-05-09	C2	FCO 20161851SA

TABLE OF CONTENTS

1. SCOPE

This content is used for WR and JTA product realization. The IPG requirements herein allow tailoring as determined by the Project Team and are included in an IPG-IP per T140. For 6.X refurbishment programs, additional requirements are defined in R006.

NNSA's phase-gated PRP is intended to achieve the following objectives:

a) Use concurrent engineering to optimize the product for the lifecycle (design, performance, quality, cost, schedule, safety, surety, testing, qualification, production, surveillance, and dismantlement)

b) Increase cross-functional interaction among customers, DAs, and PAs throughout the PRP

c) Incorporate systems engineering rigor and consistency in application

d) Assess technology and manufacturing system maturity

e) Ensure accountability at all levels of the PRP

f) Implement risk-informed decision-making at key transition points in the PRP

2. APPLICABILITY

This content applies to the following organizations:

a) All NNSA federal organizations reporting to the Defense Programs Office of the Assistant Deputy Administrator for Stockpile Management and the weapon-related portions of Defense Programs Office of the Assistant Deputy Administrator for Major Modernization Programs

b) M&O Contractors: KCP/ LANL / LLNL / NNSS / PX / SNL / SRS / Y-12

c) FOs

Section 5 lists external interfaces for this content.

This content applies when specifically tasked by NNSA to realize product using the phase-gated PRP.

2.1 Cancellation

When this Product Realization Content Set (listed below) becomes effective, the following content will be cancelled:

Portions of the following NNSA documents are superseded, revisions of each document remove the cancelled content: D&P Manual Chapter 2.4 Section 4.2.3 and Section 4.2.4 paragraph 1; D&P Manual Chapter 3.2, excluding Phase 6.6 after achievement of Steady State Production; D&P Manual Chapter 3. 7 Section 5 .1 paragraph 4 bullet 2

M&O Contractor documents cancelled in their entirety: TBP-100; TBP-101 EE Guide; TBP-101 User Guide; TBP-400

Portions of the following M&O Contractor documents are superseded, revisions of each document remove the cancelled content: TBP-101 excluding Section 4.4 and Appendix A; TBP-PRP, excluding Appendix B Section 3.1 b-d, f-j, and Section 3.2; TBP-000 excluding Appendices B, C, and D; TBP-200 Section 2; TBP-300 Sections 2 and 3; TBP-404 Section 2.2 and Figure 2; TBP-700 Section 2; TBP-701 Sections 3.1 and 3.4; and TBP-800 Section 2

The Product Realization Content Set consists of R001, R006, T046, T054, T063, T065, T076, T077, T121, Tl33, and Tl40.

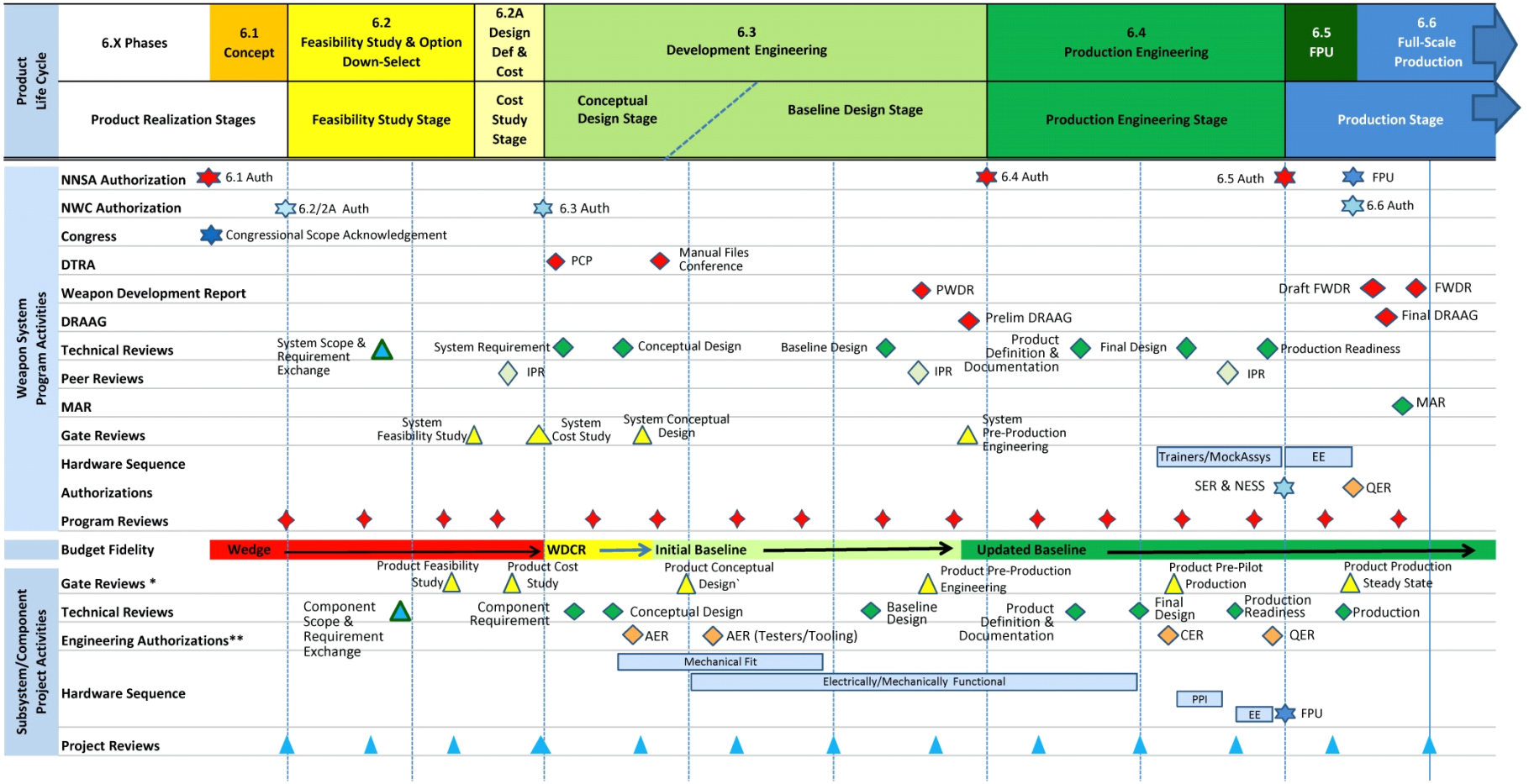
2.2 Organization Responsible for Content

The Office of Nuclear Weapons Stockpile (NA-122) is responsible for this content.

3. CONTENT DIAGRAM

The following diagram (Figure 1) represents the process, group of processes, or group of activities needed to clarify the requirements.

Figure 1: Notional Weapons Acquisition Time Line



* NOTE: Level of gate application and specific timing determined by Federal Program Manager and Project Team

**NOTE: Specific timing of engineering authorizations may occur at any time as long as the requirements of R001/R006 are met.

Legend

Authorizations	Exchanges	Technical Reviews	Gate Reviews	Engineering Authorizations
Program Reviews	Peer Reviews	Reports/Publications	Project Reviews	Hardware Sequence

3.1 Fundamental Goals for Product Realization

A fundamental goal of product realization is to implement systems engineering principles including: requirements management, early consideration of lifecycle needs, change management, and risk management. At the start of product realization, a Project Team is formed and then key management plans are established and put into effect, including IPG, program-project, requirements, and risk management.

Program and product realization is accomplished in the six stage approach shown in Figure 1 and described below.

3.2 Feasibility Study Stage

The Feasibility Study Stage is the initial element of PRP and focuses on:

a) Effective identification and analysis of source requirements

b) Conception of weapon/weapon-related product needs

c) Elicitation and analysis of technical and programmatic requirements at the source level

d) Development of program management planning

e) Identification of risks

3.3 Cost Study Stage

The Cost Study Stage focuses on ensuring sufficient maturity of program/product information to support development of cost and schedule estimates against feasibility design(s). Stage activities include:

a) Initiation of plans for certification, qualification, production and surveillance strategies

b) Documentation of product functional and physical architectures

c) Determination of maturity required for technology and manufacturing systems

d) Articulation of options and trade-offs

This information is used to update program management planning. Culmination of this stage occurs with the completion of initial cost and schedule estimation actions.

3.4 Conceptual Design Stage

The Conceptual Design Stage represents the start of engineering development. Stage activities include:

a) Refinement of system and product design concepts

b) Documentation of design options and derived requirements

c) Update of plans for certification, qualification, production and surveillance strategies

d) Update of documentation of product functional and physical architectures updated technology and manufacturing maturity assessments

e) Documentation of lifecycle schedule, costs, and risks within the NPP

f) Authorization for procurement of long-lead items (AER)

3.5 Baseline Design Stage

During the Baseline Design Stage, development hardware is produced and tested, the baseline design is established, and technology demonstrations and down-selects are completed. This stage includes a review of the functional interaction of weapon subsystems, components, ancillary equipment, and other equipment. It also includes an assessment of the ability of the system to meet customer, technical and nuclear explosive safety requirements. Stage activities include:

a) Planning

b) Prototype builds

c) Performance testing required to validate that the design meets requirements

d) Maturation of the design based on test results

e) Completion of the BDR to establish the baseline design (DER, AER)

3.6 Production Engineering Stage

During the Production Engineering Stage, the system's and product’s final design and process development are completed in preparation for system production readiness in the Production Stage. Per Figure 1, the subsystem and component levels achieve production readiness in this stage to support the system FPU. Production Engineering Stage activities include:

a) Production of development hardware from PA sources

b) Performance of product and system level testing

c) Modification of design based on test results

d) Release of the product definition (CER)

e) Preparation, maturation, and readiness of production processes and equipment

f) Performance of PPI and qualification activities of the production enterprise

g) Updating of program management plans based on maturity of design and manufacturing

h) Continuing analysis and handling of risks

3.7 Production Stage

During the Production Stage, the system achieves production readiness and qualification. Production processes mature sufficiently to achieve steady state production. Stage activities include:

a) Verification of production readiness

b) Completion of qualification of processes, equipment and product

c) Maturation of manufacturing processes and technology to a level sufficient for steady state production

d) Completion of the formal documentation needed to move into steady state production

Production and maintenance requirements start at the completion of the Production Stage. Production and maintenance hand-offs occur at component and system levels at different times.

4. REQUIREMENTS

This section exclusively lists federal requirements. A rationale appears where further explanation adds clarity. Rationales do not contain additional requirements.

A unique number identifies each requirement. The information underneath each requirement provides traceability.

Definitions and acronyms related to this content can be found in the online Lexicon - see Section 6.

Section 7 lists the titles of documents called out in this content.

4.1 Recurring Product Realization Requirements

Once initiated, these requirements occur throughout the stages of the phase-gated PRP.

FR89482 **NNSA must implement and lead a phase-gated PRP approach per T140.**

Rationale: The extent of IPG requirements used is tailored and is included in the IPG-IP. The IPG-IP defines how the program is phase-gated and the extent to which subordinate projects are phase-gated. T140 provides the minimum requirements for the IPG-IP.

Parent: GAO-09-152C Response: D'Agostino to Tauscher Management Decision dated 3/12/2009 Recommendation 1 / BOP-006.001 V.E
Supersedes: D&P Manual Chapter 3.2 Section 6.2.4.2 Bullets 3 & 6

FR36302 **In the Feasibility Study Stage, NNSA must form and lead as the project evolves a Project Team with representation from each participating PA and DA to perform process requirements per R008, R009, and R012.**

Rationale: The intent is that all product realization efforts have a Project Team. T121 is guidance that describes the formation and membership criteria, the roles and responsibilities, and best practices for Project Teams. For small product realization efforts, the Project Team membership may be the same as the top level PRT. PRTs maintain the detailed technical aspects of product realization. R008 provides a standardized and repeatable approach for managing a program-project. R009 provides a graded approach for the amount of rigor used in risk and opportunity management. This requirement identifies

the designee from R009 as the Project Team. R012 provides a graded approach to managing requirements engineering activities. Because the Project Team is a programmatic team, NNSA and the Project Team designate the DA(s) as responsible for R012.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.2.4 / BOP 006.001 V
Supersedes: D&P Manual Chapter 3.2 Section 6.2.4.2 Bullets 3 & 6 ; Section 6.3.3.2 Bullet 6; Section 6.4.3.2 Bullet 4; Section 6.5.3.2 Bullet 7; Chapter 12.3 Section 4.0.1 / TBP-PRP Section 4.2 a and f; App B 1.1

FR60460 **In the Feasibility Study Stage, NNSA must lead the Project Team to create the following plans then update, release, and revise as the project evolves:**

a) NPP per R008

b) ROMP per R009

c) Requirements Management Plan per R012

d) Surveillance planning documents per T112

e) IPG-IP per T140

Rationale: The Project Team focuses primarily on programmatic integration and is responsible to senior-level NNSA management for overall project execution. R008 provides information for documenting elements of a program-project plan using T067. T063 provides an example list of additional NPP elements. R009 provides information used in risk and opportunity management plans. R012 provides information for creating requirements management plans. T112 provides information for specific surveillance documents. The Surveillance planning documents should describe activities, if any, for the Laboratory Test Program, Flight Test Program, and Shelf Life Program. T140 describes the minimum set of information required for an IPG-IP as well as guidance for additional information that should be considered for inclusion. T133 provides an example of an NPP. In the Feasibility Study Stage, these plans are created and will exist in the immature state until there is an expectation for release in the Baseline Design Stage.

Parent: GAO-09-152C Response: D'Agostino to Tauscher Management Decision dated 3/12/2009 Recommendation 1 / BOP-006.001 IV.B / BOP-006.001 V
Supersedes: D&P Manual Chapter 3.2 Section 6.2.1 Paragraph 2; Section 6.2.4.2; Appendix B / TBP-000 Section 2; Section 3.7.2 Phases 6.2 - 6.6/ TBP-PRP Section 3.1 Paragraph 2; Section 3.1.1 a; Section 4.2; App. B 1.1 c Bullets 1 and 3, d

FR80124 **In the Feasibility Study Stage, NNSA must document PA product mission assignments and review these assignments as the project evolves.**

Rationale: The PRT identifies any missing production assignments. The PRT may recommend product assignment changes. NNSA may consider changes to PA product assignments at any time, for a variety of reasons.

Parent: Procedural Guideline For the Phase 6.X Process, Phase 6.2A.1 / BOP-006.001 Section V.C
Supersedes: D&P Manual Chapter 3.2 Section 6.2.2 Paragraph 2

FR29561 **In each stage, beginning in Feasibility Study Stage, the PRTs must conduct MRL and TRL assessments.**

Rationale: The assessment of manufacturing and technology readiness against recommended scales provides a standard basis for assessment of maturity. The MRL and TRL assessment processes are defined in C017 and C018. Producibility is assessed per C048 in MRL 5, 6, and 7.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.2A.1 / QC-1 Section 2.4 Paragraph 2
Supersedes: TBP-PRP App B 1.1 f Bullet 1 / TBP-403 Section 3.2.4

FR34890 **In the Feasibility Study Stage, the appropriate DAs must create qualification plan(s) per T076 with input from the PRTs then update, release, and revise as the project evolves.**

Rationale: Required minimum elements of a qualification plan for both design qualification and production qualification are specified in T076. An example of a Qualification Plan (PQ), containing both required minimum elements and more extensive best practices, is documented in T077.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.2A.1 / QC-1 Section 3.3.3 Paragraphs 4-5 / QC-1 Section 3.8 Paragraph 2
Supersedes: D&P Manual Chapter 3.2 Section 6.2.1 / TBP-PRP Section 4.3; App B 2 / TBP-100 Section 3.2.2

FR27809 **In the Feasibility Study Stage, NNSA with the Project Team must create classification guidance then update, release, and revise as the project evolves.**

Rationale: NNSA with the Project Team include DOE- approved classification guidance if provided. Establishing classification guidance early in the project lowers security and financial risks associated with inadvertent release of classified information which offers an opportunity for cost avoidance. Since the classification guidance is preliminary at this time and not yet released, the location of the information may be documented in the NPP. DOE provides final approval.

Parent: E.O. 13526 / 42 U.S.C. 2011-2296
Supersedes: D&P Manual Chapter 3.2 Section 6.1.1 Paragraph 3

FR64761 **Beginning in the Feasibility Study Stage, the DAs must perform and update fault analyses to support nuclear safety design requirements.**

Rationale: The Nuclear Safety Specification (NS) incorporates the requirements of the Military Characteristics (MC), STS, and the NNSA and DoD nuclear explosive safety standards and provides a focal point for traceability of nuclear explosive safety requirements, surety, design approach, test and analysis approach and verification requirements. DOE O 452.1 reflects source requirements for the nuclear safety design approach. C049 provides the process for implementing nuclear safety design. C047 provides information on conducting nuclear safety reviews.

Parent: DOE O 452.2 / DOE O 452.1 / Procedural Guideline for the Phase 6.X Process, Phase 6.2A.1
Supersedes: N/A

FR52199 **In the Conceptual Design Stage, SNL with input from the nuclear DAs must create the WSS, then update, release, and revise as the project evolves.**

Rationale: The WSS documents the weapon's intrinsic safety features and inherent hazards to provide input to required safety basis documentation and authorization for Pantex operations and facilities per TBP 901 and D&P 11.3. C047 provides information on conducting nuclear safety reviews.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.2A.1 / DOE O 452.2 / DOE O 452.1
Supersedes: N/A

FR73651 **In the Conceptual Design Stage, NNSA must create the PMDs as specified in the NPP, then update, release, and revise as the program evolves.**

Rationale: The program management documents normally consist of the PPD, PCD (Program and LLC schedules), Retirement Disposition Instructions (RDIs) and PPPD. T063 contains a list of PMD that may be utilized, and D&P Manual Chapter 3.3 contains PMD details.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.2A.1 / BOP-006.001 V
Supersedes: N/A

FR11578 **The FPM must coordinate changes to scope, cost, and schedule and revise and release respective federal authorization documents. The respective FO Contracting Officer (CO) or FO Contracting Officer Representative (COR) or Field Office Manager will issue, when required, revised contract direction to the M&O Contractor.**

Rationale: Gate decisions must be coordinated and cannot provide direction to M&O Contractors outside the existing work authorization. Examples of federal authorization documents include work authorization/AFP, PCD, IPG-IP.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.2A.2 / BOP-006.001 V;
Supersedes: D&P Manual Chapter 3.2 Section 6.2.4.2 Bullet 6

FR98381 **In the Feasibility Study Stage, the DAs and PAs must create a schedule for conducting technical design and production reviews and update as the project evolves.**

Rationale: This schedule may be placed in the NPP per T063. C047 provides information for conducting reviews.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.2A.2 / BOP-001.31 / BOP-006.001 Section V
Supersedes: D&P Manual Chapter 3.2 Section 6.2

FR15042 **NNSA and Project Team must comply with specified NSA requirements for Use Control.**

Rationale: The NSA requires compliance with the IASRD for IAD Certified Equipment, including Use Control. The NSA RAP guides the certification process and the effort is managed through a UPA.

Parent: IASRD
Supersedes: N/A

4.2 Feasibility Study Stage

FR93764 NNSA must officially initiate PRP activities through a tasking letter to M&O Contractors documenting scope, and designating the responsible FPM.

Rationale: Tasking may be communicated through a variety of formal mechanisms, for example: by memorandum or as an entry in the weapon system PCD. The tasking document marks the beginning of the phase-gated PRP.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.2.2 / BOP 006.001 V.C
Supersedes: D&P Manual, Chapter 3.2 Section 6.2.4.2 Bullet 2 / TBP-PRP Section 3.1 Paragraph 2

FR97020 The Project Team must document in the NPP the appropriate PRT structure to support the Feasibility Study Stage and Cost Study Stage.

Rationale: The FPM and the Project Team know the scope, schedule, and budget available for the project and may provide tasking commensurate with the resources available. A deeper PRT structure created before the Conceptual Design Stage will provide more accurate cost and schedule estimates, but will require more time, money and resources. Refer to T121 for additional guidance on PRT structure. T063 contains a list of elements to consider for inclusion in the NPP.

Parent: BOP-006.001 Section V.D
Supersedes: TBP-PRP Section 3.2

FR58900 The FPM must authorize the PRT structure for the Feasibility Study Stage and Cost Study Stage.

Parent: BOP-001.31 / BOP-006.001 Section V
Supersedes: N/A

FR15977 Appropriate DAs and PAs must form and designate membership for the PRTs that are required to fulfill NNSA product realization tasking.

Rationale: SMEs from key stakeholder organizations participate in a PRT to plan and perform the project concurrently. Some PRTs may be formed during the top-level product Feasibility Study Stage and Cost Study Stage. Due to budget or resource constraints, some PRTs may not be formed until after the top-level product Cost Study Stage is initiated. See T054 for guidance on PRT membership.

Parent: QC-1 Section 2.3
Supersedes: TBP-PRP Section 3 Paragraph 2; Section 3.1 Paragraph 1; App. B 1.1 b and h

FR19976 The PRT must formulate its project plan per the Project Team's NPP.

Rationale: The intent is that PRTs follow the common structure of the NPP to achieve better alignment and integration of efforts. The Project Team assigns project management activities to the PRTs through the NPP.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.2A.1 / BOP 006.001 Section V
Supersedes: D&P Manual Chapter 3.2 Section 6.2.1 Paragraph 2 Sentence 2; Section 6.2.2 Paragraph 1 Sentence 1, Paragraph 2 Sentence 1, Paragraph 4 Sentence 3; Section 6.2.3 Bullet 1; Section 6.2.4.2 Bullet 5; Section 6.2.4.3 Bullet 3 / TBP-PRP Section 3.1.1 a; Section 4.2 a-d

FR52959 **NNSA must provide written guidance to the DAs and PAs for development of option cost estimates including direction on:**

a) Design options

b) Development hardware required

c) Development and qualification testing/analysis

d) Production schedules

e) Stockpile maintenance requirements

f) Stockpile evaluation requirements

g) Risk handling

h) Contingency methodology

Rationale: Cost guidance from NNSA should include direction on whether to include funding/scheduling for risk handling or contingency.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.2.2 / BOP-001.31 / BOP-006.001 Section V
Supersedes: D&P Manual Chapter 3.2 Section 6.2.4.2

FR47926 **NNSA and the PRTs must develop an acquisition strategy for trainers, LLC items and ancillary tools, equipment, and testers associated with the product.**

Rationale: The PRT should specify time and resources for development and delivery of these items in enough detail to permit cost and schedule estimates to be prepared. Ancillary tools and equipment may also include handling gear. The PRT identifies these items based upon the conceptual design(s), conceptual manufacturing process flows, the requirements, the surveillance planning documents, and the qualification plan. The results of this task are further inputs to risk identification and management during this stage.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.2.3 and 6.2.4
Supersedes: D&P Manual Chapter 3.2 Section 6.3.1 Paragraph 1 Sentence 2 / TBP-000 Section 3.4

FR60238 **The PAs must lead the PRTs to create and document the Production Strategy.**

Rationale: The Production Strategy documents the assumptions made to allow creation of a cost estimate. PAs capture and communicate the assumptions for strategic decisions, such as: life-of-program buys, make versus buy, and use of COTS items in the Production Strategy. The Production Strategy also captures the process map, which includes assembly and inspection steps. The strategy matures and is updated until the end of the Baseline Design Stage when the information is carried forward in other PRP documentation such as project and qualification plans. An example production strategy document is contained in T054.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.2.2 / BOP-001.31 / BOP-006.001 Section V
Supersedes: D&P Manual Chapter 3.2 Section 6.3.1 Paragraph 1 Sentence 2 / TBP-PRP App B 1.1 f Bullet 1

FR70312 **The PRT must identify associated projects, support facilities, or other capability improvements that are beyond PRT control to the FPM.**

Rationale: The FPM coordinates with other FPMs and programs/projects. Examples would include facility projects funded separately from weapons programs, RTBF, or Campaign support for technology development.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.2A.1 and Phase 6.2.2 / QC-1 Section 2.3
Supersedes: TBP-PRP Appendix B 2.1 f Bullet 2 and i

FR48522 **The Project Team must conduct a System Scope and Requirement Exchange per T118.**

Rationale: T118 provides descriptions of weapon-specific reviews and requirement exchanges. This communication is meant to ensure that appropriate DA/PA knowledge is shared for cost estimating and documenting early requirements including available technical content, for example: design options. PAs should share the production strategies in this exchange. The System Scope and Requirement Exchange is not a technical design review.

Parent: Procedural Guideline For the Phase 6.X Process, Phase 6.2A.1 / QC-1 Section 2.4 Paragraph 1 Sentence 2
Supersedes: N/A

FR42880 **The PRT must conduct Component Scope and Requirement Exchanges per T118.**

Rationale: T118 provides descriptions of weapon-specific reviews and requirement exchanges. This communication is meant to ensure that appropriate DA/PA knowledge is shared for cost estimating and documenting early requirements including available technical content, for example: design options. PAs should share the production strategies in this exchange. The Component Scope and Requirement Exchange is not a technical design review.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.2A.1 / QC-1 Section 2.4 Paragraph 1 Sentence 2
Supersedes: N/A

FR38017 **The PRT must provide input on PPPD hardware needs to NNSA.**

Rationale: Each PRT analyzes hardware needs for qualification activities and provides input to the cost estimate and later implementation in the PPPD.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.2A.2 / BOP-001.31 / BOP-006.001 Section V
Supersedes: TBP-000 Section 6.2 Paragraph 1

FR11562 **PRTs selected in the IPG-IP must conduct Product Feasibility Study Gate reviews per the IPG-IP.**

Parent: GAO-09-152C Response: D'Agostino to Tauscher Management Decision dated 3/12/2009 Recommendation 1 / QC-1 Section 2.4 Paragraph 1
Supersedes: N/A

FR74391 **The Project Team must perform a System Feasibility Study Gate review per the IPG-IP.**

Parent: GAO-09-152C Response: D'Agostino to Tauscher Management Decision dated 3/12/2009 Recommendation 1 / QC-1 Section 2.4, Paragraph 1
Supersedes: N/A

4.3 Cost Study Stage

FR40837 **Each DA and PA must create, document, and submit cost estimates to NNSA for the product lifecycle per FR52959.**

Rationale: The intent is to estimate the cost of the design options. NNSA works with Project Team members to develop the cost estimates. The output of this activity is rolled up and integrated at the top-level for the system Cost Study Gate review.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.2A.1 / BOP-001.31 / BOP-006.001 Section V
Supersedes: D&P Manual Chapter 3.2 Section 6.2.2 Paragraph 6; Section 6.2.4.3 Bullet 2 / TBP-PRP Section 3.1 Paragraph 2; App B 2.1 g

FR22869 **The PRTs selected in the IPG-IP must conduct Product Cost Study Gate reviews per the IPG-IP.**

Parent: GAO-09-152C Response: D'Agostino to Tauscher Management Decision dated 3/12/2009 Recommendation 1
Supersedes: N/A

FR99238 **The Project Team must perform a System Cost Study Gate review per the IPG-IP.**

Parent: GAO-09-152C Response: D'Agostino to Tauscher Management Decision dated 3/12/2009 Recommendation 1
Supersedes: N/A

4.4 Conceptual Design Stage

FR53024 **NNSA must lead the Project Team to assess and document any changes to funding, scope, or schedule direction and the impact to subsequent PRP activities in the NPP.**

Rationale: A program transition between the Cost Study Stage and Conceptual Design Stage sometimes involves a change in scope, schedule and funding. Similarly, changes in fiscal year budgets may involve changes in funding. This activity is a trigger for a re-assessment of potential impacts.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.2A.2 / BOP-006.001 Section V
Supersedes: TBP-PRP Section 4.2 / TBP-000 Section 3.3

FR68059 **NNSA must lead the Project Team to direct PRTs to update project plans per FR53024.**

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.2A.2 / BOP-006.001 Section V
Supersedes: TBP-PRP Section 3.1 Paragraph 2; Section 4.2; App B 1.1 i

FR81810 The Project Team must finalize the appropriate PRT structure for the remaining PRP stages.

Rationale: The PRT structure may change between the Feasibility Study and Conceptual Design Stages. The FPM and the Project Team know the scope, schedule, and budget available for the project and may provide tasking commensurate with the resources available. Refer to T121 for additional guidance on setting up the PRT structure.

Parent: Procedural Guideline For the Phase 6.X Process, Phase 6.2A.2 / BOP-006.001 Section V.D
Supersedes: TBP-PRP Section 3.2

FR55827 The FPM must authorize the finalized PRT structure.

Parent: BOP-006.001 Section V.D
Supersedes: N/A

FR15977 Appropriate DAs and PAs must form and designate membership for the PRTs that are required to fulfill NNSA product realization tasking.

Rationale: SMEs from key stakeholder organizations participate in a PRT to plan and perform the project concurrently. Some PRTs may be formed during the top-level product Feasibility Study Stage and Cost Study Stage. Due to budget or resource constraints, some PRTs may not be formed until after the top-level product Cost Study Stage is initiated. See T054 for guidance on PRT membership.

Parent: QC-1 Section 2.3
Supersedes: TBP-PRP Section 3 Paragraph 2; Section 3.1 Paragraph 1; App. B 1.1 b and h

FR79759 If applicable, SNL must initiate the PCP process and submit the draft PCP to DTRA.

Rationale: Not all products require a PCP. A PCP is initiated when a proposed retroactive change is defined for WR, TYPE 2, JTA, training weapons, and associated field test and handling equipment. A PCP is also initiated for in-process changes requiring a MOD or ALT identification. SNL initiates the PCP process on behalf of NNSA and coordinates the required input with NNSA and DTRA. SNL will work with NNSA and the PAs to create the draft PCP.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.3.4 / MOU AT(29-2)-701
Supersedes: D&P Manual Chapter 3.2 Section 6.2.2

FR67595 The DAs must document the requirements set per R003.

Rationale: The requirements set will contain the allocated or derived requirements. T030 provides descriptions of several options for documenting requirements. T127 provides the minimum elements for a Compatibility Definition (CD).

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.3.5
Supersedes: TBP-300 Section 3.1 Paragraph 1; Section 4.1 c

FR40759 In the absence of a DoD CRR, the appropriate DAs must conduct System Requirements Reviews.

Rationale: It is best to conduct System Requirements Reviews as early as possible (Feasibility Study Stage) but no later than Conceptual Design Stage.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.3.1
Supersedes: N/A

FR49193 The DAs must conduct Component Requirements Reviews of PRT technical scope.

Rationale: It is best to conduct Component Requirements Reviews as early as possible (Feasibility Study Stage) but no later than Conceptual Design Stage.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.3.5
Supersedes: N/A

FR67739 PAs must identify the need and timing for production material or equipment (long-lead) provisioning that must occur ahead of the Production Engineering Stage.

Rationale: The intent of this requirement is to ensure that production materials, tools, fixtures, testers, and gauges are available to meet program schedules. A long-lead item is an item required to meet production schedules that will be built or purchased before Phase 6.4 authorization, or before approval to proceed into the final design and process development stage. The PA identifies long-lead items that require immediate funding for acquisition. The PA needs to balance the risk of not having items available when needed with the risk that the design may change. Not all product realization efforts have long-lead item requirements. The DA will document long-lead items per FR85585.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.2A.2
Supersedes: D&P Manual Chapter 3.2 Section 6.3.3.3 Bullet 2

FR85585 The DA must release and authorize product definition for acquisition of long-lead production material or equipment per R003.

Rationale: Production materials, tools, fixtures, testers, and gauges need to be available to meet program schedules. The PA identifies long-lead items per FR67739. R003 defines the use of T045 to authorize product definition for specific uses. Not all product realization efforts have long-lead item requirements.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.3.5
Supersedes: D&P Manual Chapter 3.2 Section 6.3.3.3 Bullet 2 / TBP-PRP App B 2.1 q

FR76434 The FPM must authorize procurement of long lead production material or equipment per R008.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.3.1
Supersedes: N/A

FR34725 The PRT must obtain development hardware for design development testing per the qualification plan.

Rationale: Best practice is for PAs with production mission assignments to build development hardware or to obtain development hardware from PA source. This approach helps the PA gain fabrication experience and begin developing new processes or identifying revisions needed to existing manufacturing processes. Hardware may be fully representative, or mock, or bread-board pedigree.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.3.1 / QC-1 3.3.3
Supersedes: D&P Manual Chapter 3.2 Section 6.3.1 Paragraph 1 / TBP-PRP App B 2.1 b bullets 5, 6, 7 and 8

FR27493 The DA must conduct activities per the qualification plan to ensure that the design meets requirements.

Rationale: Physical and computational simulation activities are conducted to assess the performance of the design as detailed in qualification and certification plans. Verification and validation activities may iterate with the activities of test planning and analyzing results.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.3.1 / QC-1 Section 3.3.2 Paragraph 1
Supersedes: D&P Manual Chapter 3.2 Section 6.3.1 Paragraph 1 / TBP-PRP App B 2.1 b bullets 2, 3, 4, 5 and 6

FR61287 DAs must conduct System CDRs.

Rationale: The intent of the CDR is to ensure that the conceptual design addresses requirements. The schedule for conducting technical design and production reviews was created in FR98381. C047 provides information for conducting and documenting reviews.

Parent: GAO-09-152C Response: D'Agostino to Tauscher Management Decision dated 3/12/2009 Recommendation 1 / QC-1 Section 3.3.3 Paragraph 2
Supersedes: TBP-403 Section 3.1.2; Section 3.2.2

FR68947 DAs must conduct Component CDRs.

Rationale: The intent of the CDR is to ensure that the conceptual design addresses requirements. The schedule for conducting technical design and production reviews was created in FR98381. C047 provides information for conducting and documenting reviews.

Parent: GAO-09-152C Response: D'Agostino to Tauscher Management Decision dated 3/12/2009 Recommendation 1 / QC-1 Section 3.3.3 Paragraph 2
Supersedes: TBP-403 Section 3.1.2; Section 3.2.2

FR72352 The DA must lead the PRT to update and document the conceptual design with version control.

Rationale: This requirement helps ensure that other PRT members have the latest design information and enables cost and schedule estimates to be tied to a particular version of design. The DA provides the design information, but this requirement is worded to allow for PRT involvement to ensure the latest design has been communicated throughout the PRT.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.3.5 / QC-1 Section 2.4; Section 3.3; 3.3.2 Paragraphs 2 and 3; Section 3.3.4; Section 3.3.5
Supersedes: D&P Manual Chapter 3.2 Section 6.2.4.3 Bullet 2 / TBP-401 Section 4 / TBP-PRP App B 1.1 j

FR66761 **The Project Team must conduct a System Conceptual Design Gate review per the IPG-IP.**

Parent: GAO-09-152C Response: D'Agostino to Tauscher Management Decision dated 3/12/2009 Recommendation 1 / QC-1 Section 2.4 Paragraph 1
Supersedes: TBP-403 Section 2.4 Paragraph 3

FR31422 **PRTs identified in the IPG-IP must perform a Product Conceptual Design Gate review per the IPG-IP.**

Parent: GAO-09-152C Response: D'Agostino to Tauscher Management Decision dated 3/12/2009 Recommendation 1 / QC-1 Section 2.4 Paragraph 1
Supersedes: TBP-403 Section 2.4 Paragraph 3

4.5 Baseline Design Stage

FR20917 **PRTs/Project Team responsible for weapon assembly/disassembly must perform product realization that encompasses product definition requirements and Authorization Basis (AB) requirements.**

Rationale: This includes nuclear explosives safety in the process, tooling, and quality activities. Process qualification involving nuclear explosive authorization has different process requirements that are followed. PRTs and the Project Team may or may not be the same team. The term "weapon assembly /disassembly" is intended for work normally completed at Pantex.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.2A.1 / QC-1 Section 3.8 Paragraph 1
Supersedes: N/A

FR16386 **PRTs must continue system and product testing and analysis per project and qualification plans.**

Rationale: PA-manufactured product, subject to the design validation testing and analysis, exercises PA capabilities, identifies production issues, and provides valuable production experience and feedback before PPI. Tools and gauges are procured for design validation testing, analysis, and production. The testing or analysis is performed as documented in the qualification plan(s). Project and qualification plan changes should reflect the outcome and feedback from the previous gate review.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.3.1 / Procedural Guideline For the Phase 6.X Process, Phase 6.3.5
Supersedes: N/A

FR32923 NNSA, DAs and PAs must support the Manual Files Conference.

Rationale: DTRA personnel lead this joint agency activity, and military service representatives are invited to evaluate the new or modified procedures prior to entry into JNWPS. SNL Military Liaison (ML) personnel are responsible for coordinating with NNSA offices, other SNL organizations, nuclear DAs, PAs and military personnel in preparing, validating, verifying, publishing, and maintaining the TP's source data covering hardware and information under NNSA cognizance. Manual Files Conference personnel identify all impacted DTRA JNWPS TPs and develop plans for delivering updated TPs including reviews conducted through the Laboratory Task Group (LTG) and Joint Task Group (JTG).

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.4.2 / MOU AT(29-2)3230
Supersedes: D&P Manual Chapter 3.2 Section 6.4.1 Paragraph 1

FR31616 DAs must conduct and document System BDRs.

Rationale: The timing of this task is to conduct the review before DAs document the baseline design with released product definition. Technology down-selection should also be made after this review as an input to the Baseline Design Gate review. For 6.X process, the BDR should be completed before the preliminary DRAAG. The schedule for conducting technical design and production reviews was created in FR98381. C047 provides information for conducting reviews.

Parent: GAO-09-152C Response: D'Agostino to Tauscher Management Decision dated 3/12/2009 Recommendation 1 / QC-1 3.3.3 Paragraph 2
Supersedes: TBP-403 Section 3.1.3

FR72797 DAs must conduct and document Component BDRs.

Rationale: The timing of this task is to conduct the review before DAs document the baseline design with released product definition. Technology down-selection should also be made after this review as an input to the Baseline Design Gate review. For 6.X, it is recommended the BDR be completed before the preliminary DRAAG. The schedule for conducting technical design and production reviews was created in FR98381. C047 provides information for conducting reviews.

Parent: GAO-09-152C Response: D'Agostino to Tauscher Management Decision dated 3/12/2009 Recommendation 1 / QC-1 Section 3.3.3 Paragraph 2
Supersedes: TBP-403 Section 3.1.3

FR67746 The DAs must document the baseline design with released product definition per R003 including /S/ and /I/ flow down.

Rationale: The purpose of this activity is to document the baseline design with product definition so the PA may continue to be engaged to build hardware. Early PA engagement to build hardware is a best practice. C019 provides the methods for releasing product definition per T045 and defining pentagon symbolization. C049 provides the process for implementing nuclear safety design.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.3.5 / QC-1 Section 3.3.2 / QC-1 Section 3.3.4
Supersedes: TBP-000 Section 3.4 b last sentence

FR85817 The PRT(s) identified in the IPG-IP must perform a Product Pre-Production Engineering Gate review per the IPG-IP.

Parent: GAO-09-152C Response: D'Agostino to Tauscher Management Decision dated 3/12/2009 Recommendation 1 / QC-1 Section 2.4 Paragraph 1
Supersedes: TBP-403 Section 2.4 Paragraph 3

FR78574 The Project Team must conduct a System Pre-Production Engineering Gate review per the IPG-IP.

Parent: GAO-09-152C Response: D'Agostino to Tauscher Management Decision dated 3/12/2009 Recommendation 1 / QC-1 Section 2.4 Paragraph 1
Supersedes: TBP-403 Section 2.4 Paragraph 3

4.6 Production Engineering Stage

FR52400 PRTs must continue product/process development and qualification activities per project and qualification plans.

Rationale: PA-manufactured product, subject to the design validation testing and analysis, exercises PA capabilities, identifies production issues, and provides valuable production experience and feedback before PPI. Tools and gauges are procured for design validation testing, analysis, and production. The testing or analysis is performed as documented in the qualification plans.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.3.1 / Procedural Guideline For the Phase 6.X Process, Phase 6.4.1
Supersedes: D&P Manual Chapter 3.2 Section 6.3.1 / TBP-PRP App B 2.1 b and h

FR73987 If applicable, SNL must release the PCP.

Rationale: A PCP may not be needed for all products; NNSA will specify when it is needed. SNL works with the NNSA, DTRA and the PAs to create and finalize the PCP.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.3.4 / TP 40-1
Supersedes: D&P Manual Chapter 3.2 Section 6.3.1

FR70288 The FPM must concur with changes to PPPD requirements and qualification planning that involves hardware quantity and pedigree.

Rationale: The intent of this requirement is to ensure that the risk of using hardware of a different pedigree than that called for in the qualification plan is assessed, and that the FPM concurs with the decision to alter the pedigree. Per R008, the FPM may choose to document a threshold of significance of change before notification is needed.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.3.3 and Phase 6.4 / BOP-006.001 V.J / QC-1 Section 3.7.1
Supersedes: N/A

FR95494 DAs must revise product definition per R003 to document the final design.

Rationale: Documenting the final design per T044 allows the PA to build PPI and EE hardware.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.4 / QC-1 Section 3.3
Supersedes: TBP-PRP App B 2.1 c Bullet 6

FR51855 PRTs must conduct PDDRs.

Rationale: The PRT reviews product definition and documentation to be sure it is complete and ready for the PA to begin PPI and process characterization. The schedule for conducting technical design and production reviews was created in FR98381. C047 provides information for conducting reviews.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.4.1 / QC-1 Section 3.3.2 Paragraph 3; Section 3.3.3 Paragraphs 2 and 5
Supersedes: N/A

FR91203 PRTs must conduct the Component FDR.

Rationale: The timing of this task is to conduct the review before authorizing the design for Directive Schedule use. The PRT performs this activity to emphasize concurrent engineering. The DA is expected to coordinate and lead this activity. The schedule for conducting technical design and production reviews was created in FR98381. C047 provides information for conducting reviews. Producibility is also discussed during the FDR per C047. Best practice is for the PRT to achieve "acceptable" producibility per C048 before PPI.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.4.1 and Phase 6.5.4 / QC-1 Section 2.1.g; Section 3.3.3 Paragraph 2
Supersedes: TBP-PRP App B 2.1 k Bullet 2/ TBP-403 Sections 3.1.4; Section 3.2.3

FR94082 PRTs must conduct the System FDR.

Rationale: The timing of this task is to conduct the review before authorizing the design for Directive Schedule use. The PRT performs this activity to emphasize concurrent engineering. The DA is expected to coordinate and lead this activity. The schedule for conducting technical design and production reviews was created in FR98381. C047 provides information for conducting reviews. Producibility is also discussed in the FDR per C047. Best practice is for the PRT to achieve "acceptable" producibility per C048 before PPI.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.4.1 and Phase 6.5.4 / QC-1 Section 3.3.3 Paragraph 2
Supersedes: TBP-PRP App B 2.1 k Bullet 2/ TBP-403 Sections 3.1.4; Section 3.2.3

FR34351 The DAs must authorize the product definition for Directive Schedule use per R003.

Rationale: This product definition authorization is called the CER. The CER authorizes the design for use in meeting Directive Schedule deliveries per T045, and enables the PAs to finalize production processes and tooling to be used during production. CERs may happen over a range of time because PPI builds occur level by level. The DA should work with the PA to negotiate a mutually agreeable CER date (prior to PPI when feasible). However, the CER should not be issued until the DA has confidence that the product definition and production processes combine to yield product that meets design and production requirements.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.3.5 / QC-1 Section 3.3.4
Supersedes: D&P Manual Chapter 3.2 Section 6.4.3.3 Bullet 1 / TBP-101 Section 4.2 [0012]

FR25797 **The PA must formalize and place under version control the following production enterprise information elements:**

a) Product-related procedures

b) Deliverable schedules

c) Data and information identified by the PRT (for example: ROAs, RODs, Lot IDs, Data Forms)

Rationale: The purpose of this activity is for the PAs to establish the production enterprise information elements before EE activities in the next stage. Version control means the latest information is controlled and available for EE activities.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.4.1 / QC-1 Section 3.3.5
Supersedes: D&P Manual Chapter 3.2 Section 6.4.3.4 Bullet 1

FR63881 **When product has surveillance requirements, the DAs must release and authorize surveillance product definition per R003.**

Rationale: This activity is flexible since not all weapon-related hardware (for example: testers, handling gear) have surveillance requirements. Authorization of product definition occurs per T045. Some component surveillance requirements are captured by plans at a higher level (subsystem or system). Requirements for REST activities consisting of laboratory tests and joint flight tests are also included.

Parent: Procedural Guideline For the Phase 6.X Process, Phase 6.3.5 / MOU AT(29-2)-2056
Supersedes: D&P Manual Chapter 3.2 Section 6.4.1 Paragraph 1

FR87842 **The PRT(s) identified in the IPG-IP must conduct a Pre-Pilot Production Gate review(s) per the IPG-IP.**

Parent: GAO-09-152C Response: D'Agostino to Tauscher Management Decision dated 3/12/2009 Recommendation 1 / QC-1 Section 2.4 Paragraph 1
Supersedes: TBP-403 Section 2

FR97609 **Upon completion of FR87842, PRTs must complete a PA PPI build per the PPPD and meet product definition using the production enterprise or obtain approval from the FPM for deviations regarding hardware pedigree.**

Rationale: PAs need to verify that the elements of the manufacturing system are capable of yielding mark quality products to cost, schedule, and quality performance goals before starting qualification for production. PPI is used to verify that manufacturing facilities, production processes, tooling, gauges, test equipment, inspection and acceptance methods, material, and personnel have reached production readiness. PPI activities occur in advance of production qualification activities so that process adjustments and corrective actions may be accomplished before qualification and production begin.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.4.1 / QC-1 Section 2.4 Paragraph 2 / QC-1 Section 3.3.3 Paragraph 5
Supersedes: D&P Manual Chapter 3.2 Section 6.4.3.4 Bullets 2 and 3 / TBP-PRP App B 2.1 i

FR46499 When PPI build results in change to product definition, the DAs must revise product definition per R003.

Rationale: Product definition is changed per T044.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.3.5
Supersedes: D&P Manual Chapter 3.2 Section 6.2.1 / D&P Manual Chapter 3.2 Section 6.2.2

FR93135 PRTs must conduct PRRs.

Rationale: PRTs demonstrate readiness for production per C017 in MRL 7. PPI verifies that manufacturing facilities, production processes, tooling, gages, test equipment, inspection and acceptance methods, material and personnel are capable of yielding mark quality products to cost, schedule and quality performance goals. PPI activity should occur in advance of engineering evaluation and production activity so that process adjustments and corrective actions may be accomplished before qualification and production begin. The schedule for conducting technical design and production reviews was created in FR98381. C047 provides information for conducting reviews.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.4.1 / QC-1 Section 3.3.3
Supersedes: D&P Manual Chapter 3.2 Section 6.4.3.4 Bullets 2 and 3 / TBP-403 Section 3.1.5

FR45026 When product is rated less than TRL 7 and MRL 7 during a PRR, PRTs must obtain approval from the FPM for the path forward.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.4.1
Supersedes: TBP-403 Section 3.1.5

FR97299 After completion of FR97609 and FR93135, the PRTs must perform EE activities per T046 including the Qualification Lot Build as specified in the PPPD and qualification plan(s).

Rationale: The purpose of this activity is to ensure EE is performed, while giving flexibility to which product builds are used in performing the EE activities. The qualification plan(s) indicate whether EE activities are performed on PPI product or EE product. EE hardware is built to CER definition.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.4.1 and Phase 6.4.3 / QC-1 Section 3.8 Paragraphs 1 and 2
Supersedes: TBP-101 [0001], [0011], [0014], [0015], [0019], [0020], [0021]

FR41917 The DAs must document component EE results and qualification status per T046.

Rationale: The component QER identifies the product, its qualification status, processes and the authorized uses. The evaluation results are captured and documented in the EER or PQ per T046.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.4.1 and Phase 6.4.3 / QC-1 Section 3.3.3 Paragraph 4;Section 3.8 Paragraph 2
Supersedes: D&P Manual Chapter 3.2 Section 6.4.3.3 Bullet 1 / TBP-101 [0029] and [0030]

FR80594 **The PAs must build a designated quantity of product that meets product definition and submit applicable product to NNSA for acceptance.**

Rationale: This product acceptance represents the component FPU(s). An acceptable or conditional QER is necessary prior to submitting product. See submittal requirements in the WQAPM.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.4.1 / QC-1 Section 4.6.c
Supersedes: D&P Manual Chapter 3.2 Section 6.5.3.4 / TBP-PRP App B 3.1 a and e

4.7 Production Stage

FR23034 **The PAs must build the system FPU unit that meets product definition and submit applicable product to NNSA for acceptance.**

Rationale: This product acceptance represents the system FPU(s). An acceptable or conditional QER is necessary prior to submitting product. See submittal requirements in the WQAPM. FPU supports the integrated schedule.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.5.1 / QC-1 Section 4.6.c
Supersedes: D&P Manual Chapter 3.2 Section 6.5.3.4/ TBP-PRP App B 3.1 a and e

FR55556 **DAs and PAs must begin execution of surveillance activities.**

Rationale: Surveillance activities consist of laboratory tests, joint flight tests, and shelf life tests consistent with the surveillance documents created in FR60460.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.5.1 / MOU AT(29-2)-2056
Supersedes: D&P Manual Chapter 3.2 Section 6.5.3.3

FR43854 **The PAs must lead the PRT to conduct Production Reviews to determine readiness for steady state production.**

Rationale: Steady state production metrics are defined per C017 in MRL 7 and evaluated in MRL 9. The goal is to demonstrate steady state design, processes, and acceptable and stable quality while meeting customer requirements at cost and on schedule. TRLs would be impacted by redesigns if significant issues have occurred. For products that have very small or singular production (such as testers), this requirement is met when production is completed. The schedule for conducting technical design and production reviews was created in FR98381. C047 provides information for conducting reviews.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.4.1 / QC-1 Section 3.8 Paragraph 2
Supersedes: D&P Manual Chapter 3.2 Section 6.4.3.4 Bullet 3 / TBP-403 Section 3.1.6; Section 3.2.5

FR92866 **The PRTs identified in the IPG-IP must conduct a Production Steady State Gate review(s) per the IPG-IP.**

Parent: GAO-09-152C Response: D'Agostino to Tauscher Management Decision dated 3/12/2009 Recommendation 1 / QC-1 Section 2.4 Paragraph 1 Sentence 2
Supersedes: N/A

5. EXTERNAL INTERFACE RESPONSIBILITIES

This section exclusively lists responsibilities for organizations and individuals external to NNSA and M&O Contractors.

5.1 DTRA

DTRA is responsible for processing a PCP when submitted by SNL.

5.2 DoD

DoD is responsible for conducting the DoD Customer Requirements Review.

5.3 DOE

DOE is the approval authority for classification guidance.

5.4 NSA

NSA provides requirements for and certifies Use Control equipment.

6. KEY DEFINITIONS

Definitions and acronyms related to this content can be found in the Glossary (Lexicon) on the DPBPS Portal Explorer at this URL: https://dpbps.sandia.gov/Pages/Lexicon.aspx.

7. TRACEABILITY REFERENCES

The following references are used in this content:

42 USC 2011-2296: The Public Health and Welfare, Chapter 23 Development and Control of Atomic Energy

BOP-001.31: NNSA PPBE Budget Formulation Process

BOP-006.001: NNSA Program Management Policy

C017: Conduct Manufacturing Readiness Level (MRL) Assessment

C018: Conduct Technology Readiness Level (TRL) Assessment

C019: Control Product Definition

C047: Conduct Technical Design and Production Reviews

C048: Conduct Producibility Assessment

C049: Develop Nuclear Detonation Safety Requirements

DOE O 452.1: Nuclear Explosive and Weapon Surety Program

DOE O 452.2: Nuclear Explosive Safety

D&P Manual, Chapter 1.1: Agency Functions Within the Nuclear Weapons Complex

D&P Manual, Chapter 1.6: Production Mission Assignment

D&P Manual, Chapter 1.7: Joint Nuclear Weapons Publication System

D&P Manual, Chapter 3.2: Phase 6.X Process

D&P Manual, Chapter 3.3: Program Management Document - Program Control Document (PCD) and Production Program Definition (PPD)

D&P Manual, Chapter 7.3: Materials and Tools to Retrofit the War-Reserve Stockpile

D&P Manual, Chapter 8.2: Pilot Production

D&P Manual, Chapter 11.3: Seamless Safety (SS-21) for Assembly and Disassembly of Nuclear Weapons at the Pantex Plant

D&P Manual Chapter 12.3: Risk Management for the Directed Stockpile Work Program

E.O. 13526: Classified National Security Information

GAO-09-152C Response: D'Agostino to Tauscher Management Decision dated 3/12/2009

MOU AT(29-2)-701: Product Change Proposals

MOU AT(29-2)-2056: AEC-Air Force Joint Flight Test Program

MOU AT(29-2)-3230: The Preparation, Publication and Maintenance of Technical Publications in the Joint Atomic Weapons Publication System

Procedural Guideline for the Phase 6.X Process

QC-1: DOE/NNSA Weapon Quality Policy (QC-1)

R003: Product Definition Control

R006: 6.X Process

R008: Portfolio-Program-Project Management

R009: Risk and Opportunity Management

R012: Requirements Engineering

T030: Product Documentation Types

T044: Change Product Definition Business Rules

T045: Authorize Product Definition Business Rules

T046: Qualify Product or Process Business Rules

T054: Product Realization Teams

T063: NNSA Program Plan

T076: Qualification Plan Minimum Elements

T077: Qualification Plan PQ Document Template

T112: Stockpile Evaluation Support Documents

T121: Weapon Project Team Guidance

T127: Compatibility Definition Elements

T133: Weapon Project Team Documentation Example

T140: IPG Implementation Plan

TBP-000: Program Management

TBP-100: Concurrent Qualification

TBP-101: Engineering Evaluation Process

TBP-101_EE_Guide: A Reference Guide for TBP-101 Engineering Evaluation Process: Recommendations and Considerations

TBP-101_User_Guide: Guide to the New TBP Format: A Brief Explanation of the “Whats” and “Whys”

TBP-200: Product Identification and Traceability

TBP-300: Product Definition

TBP-400: Design Control

TBP-401: Definition Control

TBP-404: Engineering Authorization System

TBP-700: Product Acceptance and Control of Nonconformance

TBP-800: Stockpile Management

TBP-901: Integrated Safety Process for Nuclear Weapons Operations and Facilities

TBP-PRP: Product Realization Process

TP 40-1: Field Modernization and Retrofit Orders

WQAPM: Weapon Quality Assurance Procedures Manual

FEDERAL REQUIREMENTS				
NUMBER	ISSUE	RELEASE DATE	EFFECTIVE DATE	PAGE
R002	**B4**	**03/20/2012**	**06/30/2012**	**1 of 12**

RMI SYSTEM MANAGEMENT

For RPO Administration Use Only **CAGE CODE: 14213**

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
B4	IER 20121698SA

TABLE OF CONTENTS

1. SCOPE

This content defines the federal requirements for the management and oversight of the RMI System (content and infrastructure).

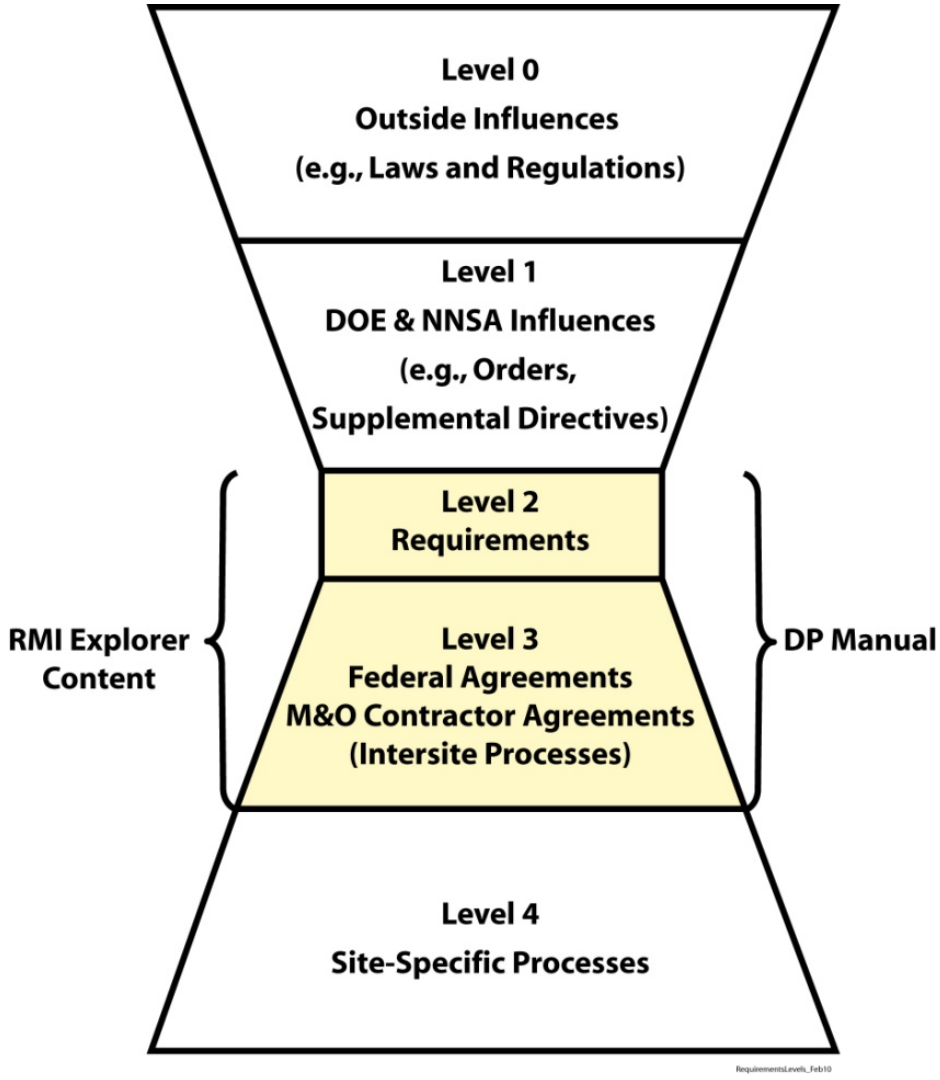
The objective of the RMI System is to provide and maintain a requirements-driven, process-based system to manage the DP portion of Nuclear Security Enterprise.

These requirements provide federal control of:

a) Managing review and approval of new and changed content
b) Managing the configuration of content
c) Demonstrating full traceability and links between sets of content
d) Providing evidence and traceability between old and new content
e) Managing the IT infrastructure that houses all of the above.

Content levels are depicted in Figure 1.

Figure 1: Content Levels



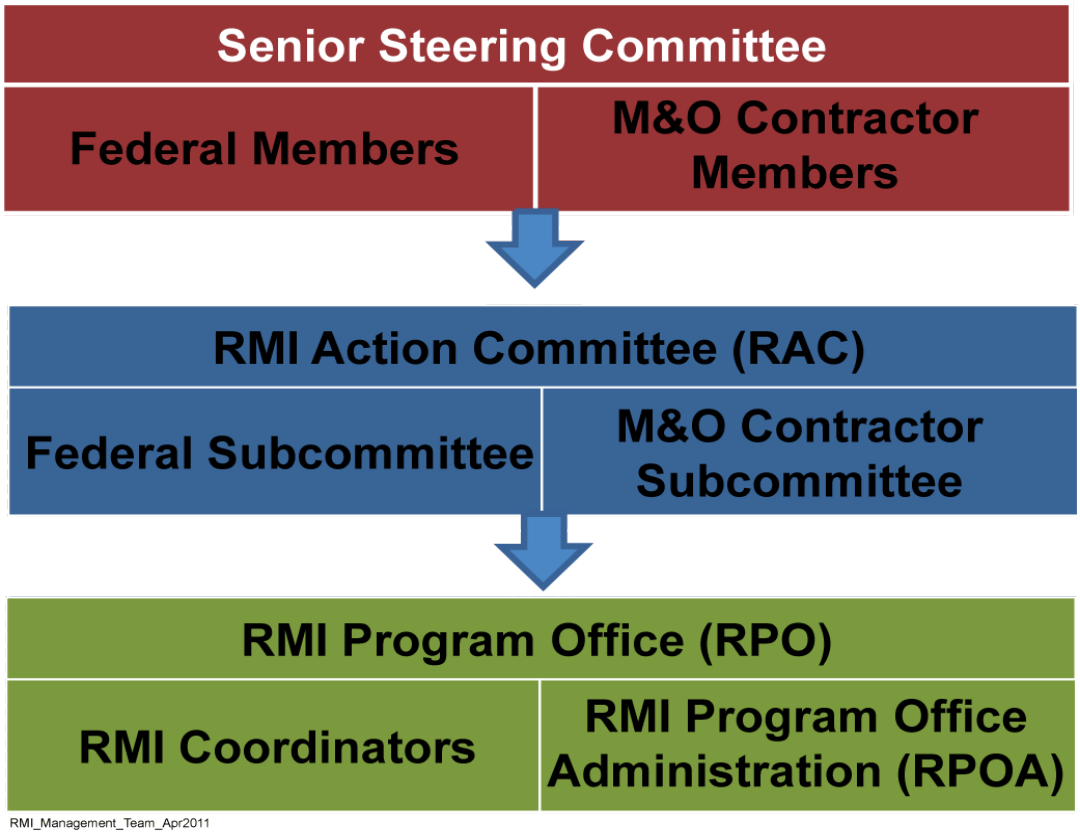
Content Levels are numbered as follows to allow the user to know where the content fits in the RMI hierarchy:

Content Level	Content ID
Level 2 Federal Requirements	RXXX
Level 3 Federal Agreements	GXXX
Level 3 MOCAs	CXXX
Tools	TXXX

Tools are supplementary content that may be used at any RMI level to consistently implement requirements and processes.

RMI Management Team Descriptions are depicted in Figure 2 and described below.

Figure 2: RMI Management Team



The Senior Steering Committee (consisting of federal and M&O Contractor senior managers) approves RMI content for release into RMI Explorer.

The RAC consists of authorized Federal and M&O Contractor representatives who oversee the processes for developing and maintaining RMI content. The RAC is chaired by the RMI Federal Program Manager.

a) The Federal Subcommittee consists of a single member each from DP organizations and SOs as determined by the RMI Federal Program Manager.
b) The M&O Subcommittee consists of single members representing LANL, LLNL, SNL, KCP, NNSS, PX, SRS and Y-12.

The RPO is a team consisting of Federal and M&O Contractor RMI Coordinators and RPO Administration individuals that:

a) Facilitates and manages content
b) Manages the RMI IT infrastructure (for example: RMI Explorer and collaborative work environments)
c) Manages the configuration of RMI content, traceabilities and linkages, and tracks legacy content that has been superseded or deleted
d) Supports the Federal Program and Project Managers and the RAC
e) Manages RMI communications and training

2. APPLICABILITY

This content applies to the following organizations:

a) All NNSA Federal organizations reporting to the Defense Programs Office of the Assistant Deputy Administrator for Stockpile Management
b) M&O Contractors: KCP / LANL / LLNL / NNSS / PX / SNL / SRS / Y-12

Section 5 lists external interfaces for this content.

This content applies when writing, reviewing, revising, authorizing, approving, and managing RMI content.

2.1 Cancellation

When this content becomes effective, the following content will be cancelled:

a) D&P Manual, Introduction and Chapter 2.8
b) TBP-SYS
c) EP401001
d) PRS50000

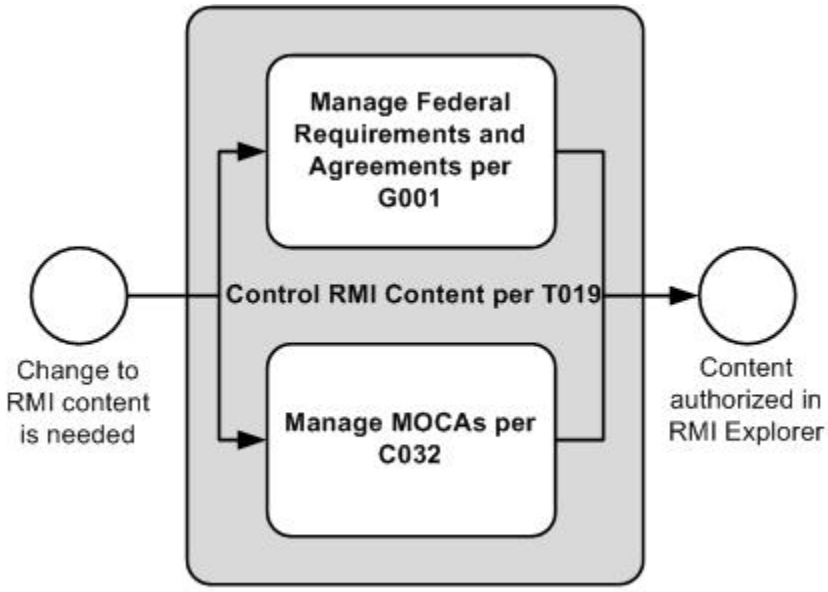
2.2 Organization Responsible for Content

The Office of Stockpile Management (NNSA/NA-12) is responsible for this content.

3. CONTENT DIAGRAM

The following diagram (Figure 3) represents the process, group of processes, or group of activities needed to clarify the requirements.

Figure 3: RMI System Management



T019 defines the graded approach used to create or change RMI Content. Level 2 Federal Requirements or Level 3 Federal Agreements are managed through G001 and MOCAs are managed through C032.

4. REQUIREMENTS

This section exclusively lists federal requirements. A rationale appears where further explanation adds clarity. Rationales do not contain additional requirements.

A unique number identifies each requirement. The information underneath each requirement provides traceability.

Section 6 lists the definitions called out in this content.

Section 7 lists the titles of documents called out in this content.

FR62212 **The RMI Federal Program Manager must create and maintain a Program Plan per R008.**

Parent: NA SD M 452.3-1 Section 5.b
Supersedes: N/A

FR53326 **The RMI Federal Program Manager must assign responsibility for developing and maintaining processes and requirements that ensure:**

a) **Content is identified and controlled**
b) **Definitions and acronyms are identified and controlled per T078**
c) **Roles, responsibilities, and authorities for preparing, reviewing, and approving content are identified**
d) **Content is reviewed for completeness, adequacy, and correctness prior to approval**

Rationale: The RMI Federal Program Manager assigns responsibility through the RAC as documented in the R008 compliant Program Plan and implemented through G001, C032, and T078.

Parent: NA SD M 452.3-1 Section 5.b / QC-1 Section 3.5
Supersedes: N/A

FR63526 **Each Federal and M&O Contractor organization represented on the RAC must document the appointment and authority of their RAC member to the RMI Federal Program Manager.**

Rationale: Appendix A provides an example letter that may be used to document the appointment and authority for each RAC member. See Section 1a) Federal organizations include SOs.

Parent: NA SD M 452.3-1 Section 5.b / NA SD M 452.3-1 CRD 4
Supersedes: D&P Manual Chapter 2.8 / TBP-SYS / EP401001

FR40840 **Each Federal and M&O Contractor organization represented on the RAC must designate an RMI Coordinator to manage, coordinate, and complete the review and verification of RMI content at their respective site.**

Rationale: Both federal and M&O Contractor content are sent to federal and M&O Contractor RMI Coordinators to complete the review process to ensure an integrated approach. Federal organizations include SOs.

Parent: NA SD M 452.3-1 Section 5.b / NA SD M 452.3-1 CRD 4
Supersedes: D&P Manual Introduction / D&P Manual Chapter 2.8

FR21632 **The RAC Federal Subcommittee must recommend major changes to Federal Requirements and Federal Agreements for approval by the senior management of the NNSA Office of Defense Programs.**

Rationale: The process for approving major changes to federal requirements and agreements is documented in G001. Major changes are considered to be those that impact the scope of the content. Major changes include new content. Criteria for major changes are defined in T019.

Parent: NA SD M 452.3-1 Section 4.c / NA SD M 452.3-1 Section 5.b
Supersedes: D&P Manual Introduction / D&P Manual Chapter 2.8 Section 5.1 / D&P Manual Chapter 2.8 Section 5.2 Paragraph 1 / TBP-SYS Section 3.2 Paragraph 1 / PRS50000

FR60200 **The RAC M&O Contractor Subcommittee must recommend major changes to MOCAs for approval by the senior management of the M&O Contractors.**

Rationale: The process for approving major changes to MOCAs is documented in C032. Major changes are considered to be those that impact the scope of the content. Major changes include new content. Criteria for major changes are defined in T019.

Parent: NA SD M 452.3-1 Section 4.c / NA SD M 452.3-1 CRD 4
Supersedes: D&P Manual Introduction / D&P Manual Chapter 2.8 Section 5.2 / TBP-SYS Section 3.3 / EP401001 / PRS50000

FR74361 **Prior to release in RMI Explorer, the senior management of the NNSA Office of Defense Programs must approve recommended major changes to Federal Requirements, Federal Agreements, and associated Tools.**

Rationale: Federal approval authority is designated by the NNSA Office of Defense Programs (NA-10). NA-10 owns the RMI Federal Requirements, Federal Agreements, and associated Tools. NA-10 determines membership of the Senior Steering Committee. Criteria for major changes are defined in T019.

Parent: NA SD M 452.3-1 Section 5.a / NA SD M 452.3-1 Section 5.b / QC-1 Section 3.5
Supersedes: D&P Manual Introduction / D&P Manual Chapter 2.8 Section 5.4

FR66182 **Prior to release in RMI Explorer, the senior management of the M&O Contractors must approve recommended major changes to MOCAs and associated Tools.**

Rationale: The M&O Contractor senior management may delegate this approval authority, in writing, to their RAC M&O Subcommittee Member.

Parent: NA SD M 452.3-1 CRD 4 / QC-1 Section 3.5
Supersedes: D&P Manual Introduction / D&P Manual Chapter 2.8 Section 5.2 / EP401001

FR26820 **The RAC must use a graded approach to control changes to RMI content per T019.**

Rationale: The graded approach is implemented through a RMI content gated process. T019 directs the use of a gated process for major changes. The RMI gated processes are defined in G001 and C032. The gated process provides structure to the decision-making process and provides assurance to the RAC that all required steps regarding content justification, content development, and reviews have been performed.

Parent: NA SD M 452.3-1 Section 4.c / NA SD M 452.3-1 Section 5.b / NA SD M 452.3-1 CRD 4 / QC-1 Section 2.1 / QC-1 Section 3.5
Supersedes: D&P Manual Chapter 2.8 Section 5.0 / TBP-SYS Appendix B / EP401001 / PRS50000

FR42490 **When an RMI gate decision is not unanimous, the RAC must document the majority decision and minority opinion.**

Rationale: The minority opinion is included with the gate package.

Parent: NA SD M 452.3-1 Section 5.b
Supersedes: N/A

FR19041 **When the RAC is unable to achieve a unanimous gate decision, the RMI Federal Program Manager must resolve the dispute.**

Parent: NA SD M 452.3-1 Section 5.b
Supersedes: TBP-SYS / EP401001

FR43801 **When the RMI Federal Program Manager and RAC are unable to define a path forward to achieve a unanimous gate decision, the senior management responsible for approval must arbitrate the dispute.**

Parent: NA SD M 452.3-1 Section 5.b
Supersedes: N/A

FR46546 **When major changes to RMI content occur, the RMI Federal Project Manager must request the SOs obtain a T014 from the M&O Contractor.**

Rationale: The RMI Federal Project Manager is designated in the RMI Program Plan. The RAC will determine if a moderate change needs a T014. Criteria for major and moderate changes are defined in T019.

Parent: NA SD M 452.3-1 CRD 5
Supersedes: N/A

FR53969 **The RPO must issue notification of approved content including the common effective date per T014 for packages containing federal content or T087 for contractor content only.**

Rationale: The common effective date is the latest of all the sites' effective dates as established by T014 or T087. Both the notification and content includes the common effective date.

Parent: NA SD M 452.3-1 CRD 6
Supersedes: D&P Manual Chapter 2.8 Section 5.2 / TBP-SYS Section 3.3.4

FR81421 **Deleted**

FR37348 **The RPO must perform configuration management and ensure traceability of RMI content.**

Rationale: The RPO maintains the traceability and linkages of current content, as well as supersession of legacy content. Definitions and acronyms are maintained per T078.

Parent: QC-1 Section 3.3.5
Supersedes: N/A

FR19351 **Deleted**

FR73965 **Deleted**

5. EXTERNAL INTERFACE RESPONSIBILITIES

This section exclusively lists responsibilities for organizations and individuals external to NNSA and M&O Contractors.

N/A

6. KEY DEFINITIONS

The following sections represent definitions needed to understand the content.

6.1 RMI-specific Terms

The following terms are for use with any RMI content.

Context: Set of circumstances or facts that surround a particular event, situation, etc. (Dictionary.com)

Contractor Requirement: Binding practice that is under M&O Contractor governance; binding practice represented by the word “shall”

Federal Requirement: Binding practice that is under Federal governance; binding practice represented by the word “must”

Goal: Non-mandatory provision represented by the word “should”

Option: Acceptable practice represented by the word “may”

Rationale: Explanation of why a requirement exists, any assumptions made when writing a requirement or other information useful in managing requirements over the life of a project (excerpt from Chapter 8, page 120 of “Customer-Centered Products” by Ivy F. Hooks & Kristin A. Farry)

Reference: Something that refers a reader to another source of information represented by the word “per”

Statements of Fact: Declaration of purpose represented by the word “will” or “is”

6.2 RMI Explorer Portal Terms

The following terms are for use with this content during review.

RMI Content: Consists of requirements, processes and tools created by and managed within the RMI System.

Content (applicable to RMI): See RMI Content

RMI Explorer: The website where users can access RMI Content.

Content Owner: The individual with appropriate subject matter expertise that has been given the authority to interpret RMI content and to coordinate potential revisions to that content.

7. TRACEABILITY REFERENCE

The following references are used in this content:

NA SD M 452.3-1: Defense Programs Business Requirements and Process Manual

D&P Manual, Chapter 2.8: Technical Business Practice System

QC-1: DOE/NNSA Weapon Quality Policy

TBP-SYS: Technical Business Practices System

EP401001: Engineering Procedures System

PRS50000: Product Realization Standards System

APPENDIX A: SAMPLE APPOINTMENT LETTER FOR RAC MEMBER

SAMPLE APPOINTMENT LETTER INSTRUCTIONS

To complete the letter, replace red text with desired information.

Letterhead

Date:

RMI Federal Program Manager,

I hereby delegate to name (Senior Management Level or other personnel to which this letter delegates authority) the authority to perform as the RMI Action Committee member in the name of and on behalf of Organization [contractor site or Federal function or SO(s)] pursuant to the requirements defined in R002 “Requirements Modernization & Integration System Management”. This authority shall include the ability to endorse all RMI instruments and RMI content and to take such further steps as may be necessary in order to fully carry out the intent of such authority, including such delegated duties as described below.

Sincerely,

Name
Senior Management – DP function represented on RAC, or
Senior Management – M&O Contractor Manager responsible for DP functions, or
SO Manager – NNSA SO

CC: RMI Federal Project Manager

FEDERAL REQUIREMENTS				
NUMBER	ISSUE	RELEASE DATE	EFFECTIVE DATE	PAGE
R003	**B2**	**2016-05-04**	**2016-05-09**	**1 of 8**

Product Definition Control

For RPO Administration Use Only CAGE CODE: 14213

CHANGE HISTORY

EFFECTIVE DATE	ISSUE	RELEASE/CHANGE NO.
2014-03-31	B1	IER 20132934SA
2016-05-09	B2	FCO 20161851SA

TABLE OF CONTENTS

1. SCOPE

This content defines the requirements for the creation and control of product definition.

2. APPLICABILITY

This content applies to the following organizations:

a) NNSA: N/A

b) M&O Contractors: KCP / LANL / LLNL / NNSS / PX / SNL / SRS / Y-12

c) FOs: N/A

Section 5 lists external interfaces for this content.

This content applies when defining weapon and weapon-related product definition.

2.1 Cancellation

When this Control Product Definition content set (listed below) becomes effective, the following content will be cancelled:

NNSA documents cancelled in their entirety: D&P Manual Chapter 2.3, and the DOE Memorandum from D. H. Crandall and D. E. Beck, dated 10/13/2000, “Models-Based Product Realization for Weapons Systems."

M&O Contractor documents cancelled in their entirety: TBP-300, TBP-301, TBP-302, TBP-303, TBP-304, TBP-400, TBP-401,TBP-600, TBP-601, TBP-602, TBP-802, D10127, D10131, D10132, D10210, D10506, D10555, D40007, D40030, D40034, PRS12002, PRS21001, PRS21301, PRS31101, PRS31102, PRS31103, PRS31108, PRS31201, EP401103, EP401404. Previous versions of all content in the Control Product Definition content set listed below.

The following are obsolete and will be cancelled: TBP-CM, TBP-502, EP401106.

Portions of the following are superseded, revisions of each document remove the cancelled content: TBP-306 Section 2.5; TBP-307 Section 2.2; TBP-402 Sections 2, 5.4.2; TBP-404 all except Sections 3.5, and 7; IBP-404 Sections 1.4, 1.6, 2.2, 2.3, and 2.4; TBP-702 Section 2.2.2a; TBP-801 Section 3 except 3.10, Section 4.2, and Section 5.2 paragraph 2; TBP-803 Section 2.1; and EP401075 Section 5.3.

The Control Product Definition content set consists of R003, C019, T030, T031, T032, T033, T034, T035, T036, T037, T038, T039, T040, T041, T044, T045, T049, T053, T089, T093, T097, T099, T100, T112, T122, T123, T127, and T131.

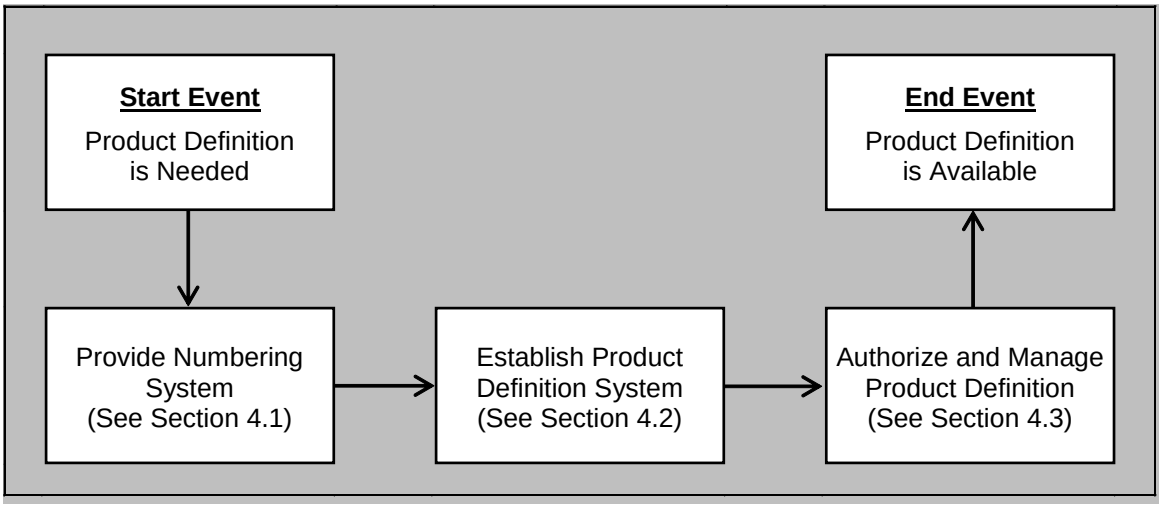
2.2 Organization Responsible for Content

The Office of Nuclear Weapon Stockpile (NA-122) is responsible for this content.

3. CONTENT DIAGRAM

The following diagram (Figure 1) represents the process, group of processes, or group of activities needed to clarify the requirements.

Figure 1: Product Definition Control



M&O Contractors use this process to validate that product definition can comply with requirements in a consistent and reliable manner.

Start Event

Need for new product definition or changes to current product definition exists.

Process

This process describes the acceptable methods for defining and identifying product.

End Event

Product definition and identification elements are available for use.

4. REQUIREMENTS

This section exclusively lists federal requirements. A rationale appears where further explanation adds clarity. Rationales do not contain additional requirements.

A unique number identifies each requirement. The information underneath each requirement provides traceability.

Definitions and acronyms related to this content can be found in the online Lexicon-see Section 6.

Section 7 lists the titles of documents called out in this content.

4.1 Provide Numbering System

FR25150 SNL must administer the numbering system for the Enterprise.

Rationale: A designated administrator for numbers allows NNSA to communicate with one entity to track which numbers have been assigned to each site. The numbering system includes administration of base numbers and designations.

Parent: QC-1 Section 3.5
Supersedes: D&P Manual Chapter 2.3 Section 4.2

FR77169 The M&O Contractors must implement a numbering system across the Enterprise.

Rationale: The numbering system supports unique identification and traceability for both product definition and product. PAs may mark product in addition to the product definition requirements per TBP-201, Section 2.2.

Parent: QC-1 Section 3.5
Supersedes: D&P Manual Chapter 2.3 Section 1.0 / D&P Manual Chapter 2.3 Section 4.2

FR68582 The M&O Contractors must configuration manage their assigned product definition numbers and the linkage of their product definition, including support documents, to the using agencies.

Parent: QC-1 Section 3.3.5
Supersedes: D&P Manual Chapter 2.3 Section 4.2

4.2 Establish Product Definition System

FR51827 The DA must lead the PRT to select a product definition approach.

Rationale: There are several alternatives for documenting the product definition described in C019.

Parent: QC-1 Section 3.3.4
Supersedes: N/A

FR87040 **If the product is mechanical, the M&O Contractors must use a common Enterprise approach that meets one of the following criteria selected by the PRT:**

Type 1) 3D mechanical models only (when capabilities exist for the design, manufacture, inspection, and acceptance)
Type 2) 3D mechanical models with simplified 2D mechanical drawings (when capabilities exist for the design, manufacture, inspection, and acceptance)
Type 3) 3D mechanical models with supporting 2D mechanical drawings (when capabilities exist for the design, manufacture, inspection, and acceptance)
Type 4) 2D mechanical drawings with supporting 3D mechanical models
Type 5) 2D mechanical drawings

Rationale: M&O Contractors need a common method for developing and documenting mechanical product definition and supporting a model-based approach. A model-based approach to mechanical product definition and management uses models as the preferred element for the mechanical product definition set. Elements (for example: models, drawings, graphics, and specifications) combine to form a complete product definition set. There is no intent to convert existing product definitions. The goals for transformation of the Enterprise depend on the ability to define and manage mechanical product definition in an electronic system.

Parent: QC-1 Section 3.3.4
Supersedes: DOE Memorandum from D. H. Crandall and D. E. Beck, dtd. 10/13/2000, “Models-Based Product Realization for Weapons Systems"

FR37760 **The DA and PA must create the product definition.**

Rationale: The DA ensures that product definition specifies functional, technical, environmental, and interface performance requirements that are part of the design intent. Production elements where the DA wants responsibility are also documented in the product definition.

Parent: QC-1 Section 3.3
Supersedes: N/A

FR61647 **The M&O Contractors must configuration manage the product definition.**

Rationale: Configuration management ensures consistency and compliance with document management practices.

Parent: QC-1 Section 3.3.5
Supersedes: N/A

FR75970 **The DA must specify part marking requirements in the product definition.**

Parent: QC-1, Section 3.7
Supersedes: D&P Manual Chapter 2.3 Section 4.1

FR33745 **The DA must define and control the data elements for marking, identifying, and tracing parts.**

Rationale: The DAs determine the data elements required for traceability of the product to the product definition version. Some examples are serial numbers, lot code, and date code.

Parent: QC-1 Section 3.3.4
Supersedes: N/A

FR41838 **The M&O Contractors must make the product definition available throughout the life cycle on an NTK basis to the Enterprise.**

Rationale: Product definition and records are available from origination through demilitarization and sanitization of the product.

Parent: QC-1 Section 3.5
Supersedes: N/A

4.3 Authorize and Manage Product Definition

FR25313 **The DA must authorize product definition for a specified use per T045.**

Rationale: T045 provides information for authorizing product definition to support activities such as long-lead item procurement or directive schedule production.

Parent: QC-1 Section 3.3.4
Supersedes: D&P Manual Chapter 3.1 Section 5.4.4 / D&P Manual Glossary (AER/CER)

FR52239 **The DA must authorize changes to product definition except for /M/ features per T044.**

Rationale: /M/ identifies features controlled by the PA.

Parent: QC-1 Section 3.3.5
Supersedes: N/A

FR43387 **The DA and PA must configuration manage changes to the product definition per T045.**

Rationale: Changes to product definition are distributed to affected agencies.

Parent: QC-1 Section 3.3.5
Supersedes: N/A

FR39447 **The M&O Contractors must disposition product definition records using a site-specific DOE- and NARA-approved records retention and disposition schedule.**

Parent: DOE Records Schedule (DOERS), Schedule 3
Supersedes: D&P Manual Chapter 2.3 Section 1.0 / D&P Manual Chapter 2.3 Section 4.2

5. EXTERNAL INTERFACE RESPONSIBILITIES

This section exclusively lists responsibilities for organizations and individuals external to NNSA and M&O Contractors.

This content does not contain interface responsibilities for organizations or individuals external to NNSA and M&O Contractors.

6. KEY DEFINITIONS

Definitions and acronyms related to this content can be found in the Glossary (Lexicon) on the DPBPS Portal Explorer at this URL: https://dpbps.sandia.gov/Pages/Lexicon.aspx.

7. TRACEABILITY REFERENCES

The following references are used in this content:

C019: Control Product Definition

D&P Manual Administration: Glossary, Acronym and Cross Reference

D&P Manual Chapter 2.3: Part Numbering System

D&P Manual Chapter 3.1: Phases 1 Through 7

DOE Memorandum from D. H. Crandall and D. E. Beck, dated 10/13/2000, “Models-Based Product Realization for Weapons Systems"

DOE Records Schedule (DOERS) Schedule 3

QC-1: DOE/NNSA Weapon Quality Policy

T044: Change Product Definition Business Rules

T045: Authorize Product Definition Business Rules

TBP-201: Weapon Identification Systems and Marking Criteria

FEDERAL REQUIREMENTS				
NUMBER	ISSUE	RELEASE DATE	EFFECTIVE DATE	PAGE
R005	**B2**	**2016-06-16**	**2016-07-01**	**1 of 21**

New Material and Stockpile Evaluation Program

For PRRO Administration Use Only CAGE CODE: 14213

CHANGE HISTORY

EFFECTIVE DATE	ISSUE	RELEASE/CHANGE NO.
2016-07-01	B1	IER 20154198SA
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TABLE OF CONTENTS

1. SCOPE

This content specifies requirements for conducting the New Material and Stockpile Evaluation (NMSE) Program. This program is also known as Core Surveillance, the Stockpile Evaluation Program, or the Core Surveillance Program.

These requirements provide control of the following:

a) Laboratory Test Programs (system, subsystem, and component)

b) Flight Test Programs

c) Shelf Life Programs (SLPs)

For each weapon system, teams schedule and provision in support of the NMSE Program while maintaining required stockpile quantities for the duration of the lifecycle.

The National Nuclear Security Administration's (NNSA’s) Surveillance Program is comprised of two elements that work closely together: the NMSE Program and the Enhanced Surveillance (ES) subprogram within the Engineering Campaign.

The NMSE Program consists of planning for and conducting tests (flight, lab, and shelf life) of War Reserve (WR) hardware, or hardware considered to be representative of WR product, using qualified test equipment and procedures described by a BB (or equivalent) drawing. The NMSE Program provides critical data to evaluate the safety, security, performance, and reliability of the current condition of the active and inactive stockpile and to inform decisions about the stockpile. The NMSE Program has the following goals:

a) Identify defects that affect safety, security, performance, and reliability

b) Establish margins between design requirements and performance at the component and material level

c) Identify changes and aging trends at a component and material level

d) Develop the capability for predictive assessments of stockpile components and materials

In the context of this document, NA-11-funded personnel in ES coordinate with NMSE personnel because some ES activities can lead to capabilities (test equipment, analysis techniques, and computational simulations) that may ultimately be incorporated into the NMSE Program. ES has the following broad objectives, including high-level objectives or goals:

a) Identify stockpile aging concerns early to allow sufficient lead-time to respond and mitigate impacts to safety, reliability, or performance

b) Provide information and capabilities to the stockpile Life Extension Program (LEP) and/or other future weapon design programs to support age-aware component design, component screening, materials selection, manufacturing and process development, and certification for longevity

c) Avoid unnecessary replacement costs associated with premature failure of components

d) Deliver technologies and methods to transform stockpile surveillance to be more predictive, less invasive, and more cost-effective

e) Improve predictive models and codes to quantify margins and uncertainties in weapon performance

f) Develop and maintain responsive capabilities and weapon understanding to address emerging age-related concerns

Supersedes: D&P Manual Chapter 8.1 Section 1 / TBP-800 Section 1 Bullet a, Section 1.1 Bullet a, Section 3 Paragraph 1, Bullet a, and Bullet b

2. APPLICABILITY

This content applies to the following organizations when performing NMSE Program activities:

a) NNSA: All federal organizations reporting to the Defense Programs Office of the Assistant Deputy Administrator for Stockpile Management (NA-12), Assistant Deputy Administrator for Research, Development, Test Capabilities and Evaluation (NA-11), and the weapon-related portions of Defense Programs Office of the Assistant Deputy Administrator for Major Modernization Programs (NA-19)

b) M&O Contractors: KCNSC / LANL / LLNL / NNSS / PX / SNL / SRS / Y-12

c) Field Offices (FO)

Section 5 lists external interfaces for this content.

2.1 Cancellation

When this content becomes effective, in combination with associated tools and R017, the following content will be cancelled:

NNSA documents cancelled in their entirety: D&P Manual Chapter 8.5

M&O Contractor documents cancelled in their entirety: TBP-803

Portions of the following are superseded, revisions of each document remove the cancelled content: D&P Chapter 8.1 except Section 6.1, TBP-800 Section 3, and TBP-801 Sections 2, 4, 5, 6

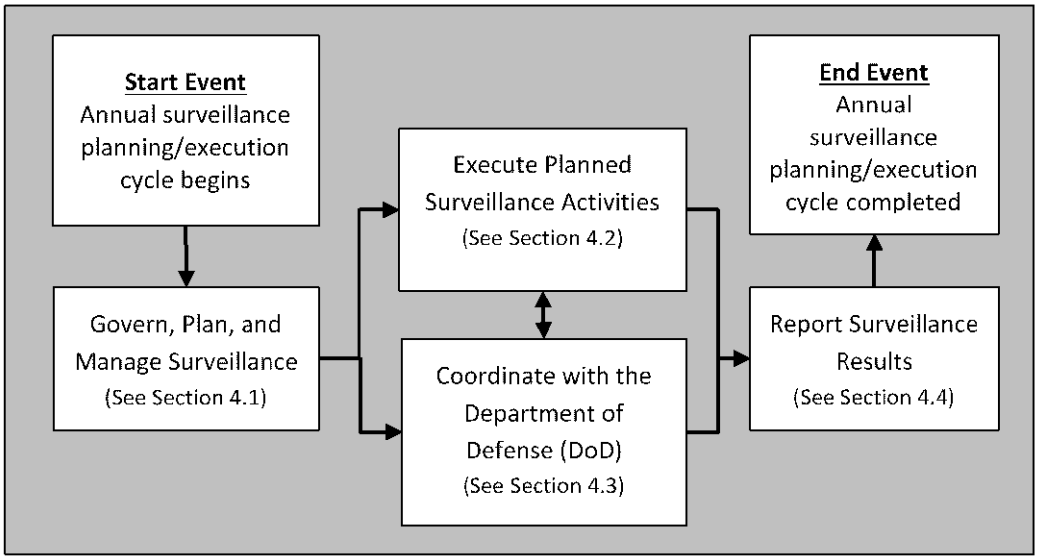
2.2 Organization Responsible for Content

The Office of Nuclear Weapons Stockpile (NA-122) is responsible for this content and the NMSE Program. The Office of Testing and Evaluation (NA-115) is responsible for ES. Coordination between these two organizations is articulated in T125.

3. PROCESS DIAGRAM

Figure 1 represents the process needed to clarify the requirements.

Figure 1: New Material and Stockpile Evaluation



"Govern, Plan and Manage Surveillance" activities (Section 4.1) crosscut multiple budget lines and NNSA organizations, driving a need for extensive coordination and planning. This section establishes the organizations needed to support the NNSA Surveillance Governance Model in Appendix A, details planning activities and development of program requirements, and is intended to specifically support the annual NNSA Planning, Programming, Budgeting, and Evaluation (PPBE) cycle defined in R007.

"Execute Planned Surveillance Activities" (Section 4.2) includes activities needed to carry out the NNSA- authorized and -funded Annual Stockpile Evaluation Master Plan: documenting and maintaining the surveillance strategy and data needs throughout the weapon cycle; qualifying, storing and using test hardware; performing lab, flight, and shelf life tests; and recommending new technologies from ES for incorporation into the NMSE Program. Also included is reporting and investigation of anomalies discovered from any source.

"Coordinate with the Department of Defense (DoD)" activities (Section 4.3) include integration between NNSA and DoD essential to the success of the overall NMSE Program. Planning of the joint DoD/NNSA flight and lab test activities is accomplished by subgroups of each weapon system's Project Officers Group (POG) and includes the preparation/maintenance of the Nuclear Weapon Subsystem Test Plan (NWSSTP). The design agencies (DAs) support NNSA at the necessary joint meetings and with inputs for the NWSSTP.

"Report Surveillance Results" activities (Section 4.4) allow NNSA leadership to evaluate the effectiveness of the NMSE Program. The quantities and types of tests and test reports completed are reported using the Quality Evaluation Requirements Tracking System (QERTS). Results from surveillance tests are used to prepare a

Stockpile Evaluation Program Report for each weapon system during a given cycle and contribute to the semiannual Weapons Reliability Reports (WRR). Surveillance data also help inform decisions about the stockpile in the Annual Assessment Reports (AAR).

4. REQUIREMENTS

This section exclusively lists federal requirements. A rationale appears where further explanation adds clarity. Rationales do not contain additional requirements.

A unique number identifies each requirement. The information below each requirement provides traceability. Supersession links identify legacy content cancelled by the requirement.

Definitions and acronyms related to this content can be found in the online Glossary (Lexicon) - see Section 6.

Section 7 lists the titles of documents called out in this content.

4.1 Govern, Plan, and Manage Surveillance

FR89478 **NA-12 must plan and manage the work described within the surveillance governance model per Appendix A and R007.**

Rationale: Appendix A depicts elements of the surveillance governance model (Figure 2). The activity boxes in the diagram are numbered, and statements in the rationale of associated requirements refer to the diagram and activity. In Figure 2, the boxes in gray are interfacing PPBE activities that are defined in R007. The activities color-coded yellow occur in Section 4.1, "Plan, Govern, and Manage Surveillance," the activity colored green occurs in Section 4.2, "Execute Planned Surveillance Activities," and the activity color-coded blue occurs in Section 4.4, "Report Surveillance Results."

Parent: DOE O 452.3 4.e. (5) (or successor)
Supersedes: D&P Manual Chapter 8.1 Section 5.1.1, and Section 5.6.1 Paragraph 1

FR12186 **NA-12 must release an annual schedule for surveillance planning activities per Appendix A.**

Rationale: Appendix A depicts the surveillance governance model. Only a small number of critical requirements in this document have specified deadlines. The budget cycle in recent history has been highly variable, making concrete deadlines difficult to specify. For any planning due dates not specifically called out in this document, NNSA prepares and publishes an annual schedule for the activities. Figure 3 in Appendix A shows an approximate timeline of activities.

Parent: DOE O 452.3 4.e. (5) (or successor)
Supersedes: N/A

FR72796 NA-12 must maintain the Surveillance Integrated Requirements Working Group (SIRWG) and Surveillance Enterprise Steering Committee (SESC).

Rationale: The surveillance enterprise needs a cross-cutting group of decision makers to deliberate issues and identify solutions while transcending the viewpoints and concerns of specific sites or weapon systems. These issues include prioritizing and proposing trade-offs among requirements; balancing resources; resolving Requirements Over Target (ROTs) at an Enterprise level; resolving multi-weapon or multi-site execution issues; standardizing planning, execution, and reporting practices; facilitating integration of the ES, NMSE Program, and Weapon Modernization programs; supporting audits and studies focused on the surveillance enterprise; and assisting the Senior Technical Advisor for Surveillance (STAS) and NNSA leaders in ensuring the surveillance enterprise is accurately represented to external stakeholders. Members are appointed by NNSA leadership, and selected from NA-122, NA-123, NA-115, NA-191, NA-192, and M&O Contractor surveillance leadership. Guidance on the roles and responsibilities of these groups are documented in T128 and T129. Charters are maintained by NA-12. NNSA documents SIRWG and SESC operations in the Annual Stockpile Evaluation Master Plan (ASEMP).

Parent: DOE O 452.3 4.e. (5) (or successor)
Supersedes: D&P Manual Chapter 8.1 Section 5.1.1, and Section 5.14

FR10117 Each DA must submit surveillance requirements, by weapon system, for the Future Years Nuclear Security Program (FYNSP) period to NA-122 and NA-115 by April 1 of each year.

Rationale: See Activity 1 in Figure 2 (Appendix A). Requirements submission includes both NMSE Program requirements and requests for hardware to support development work typically funded by ES. The April deadline is needed to support the budget schedule. It precedes the QERTS data entry in FR26000, and the Integrated Weapon Evaluation Team (IWET) plan in FR69814.

Parent: DOE O 452.3 CRD 7.a (or successor)
Supersedes: D&P Manual Chapter 8.1 Section 5.1.2.1 Paragraph 4, and Section 5.1.2.2

FR68860 DAs must define SLP requirements per T108 and T112.

Rationale: The purpose of the SLP is to evaluate the long-term functionality of weapon product in stockpile by placing production components in storage or accelerated-aging environments. Test results from the SLP are used to monitor for trends and aid in identifying and predicting stockpile problems.

Parent: DOE O 452.3 CRD 7.a (or successor)
Supersedes: D&P Manual Chapter 8.1 Section 5.8

FR26000 Each DA must enter the NMSE requirements for the FYNSP period into the QERTS by May 1 each year per T126.

Rationale: QERTS is the central repository for NMSE Program requirements planning and test execution. IWETs need updated DA requirements in QERTS to plan the upcoming fiscal year (FY) weapon baseline in May. The SIRWG can then balance the ROTs in June, and the enterprise baseline for the upcoming FY can be set in July ahead of the August Execution Summit. QERTS Baseline Change 1 occurs 15 working days after receipt of the appropriation for the execution year.

Parent: DOE O 452.3 CRD 7.a (or successor)
Supersedes: D&P Manual Chapter 8.1 Section 5.7.2 Paragraph 1

FR69814 Federal Program Managers (FPMs) must convene IWETs for each weapon system as directed by the Program Control Document (PCD).

Rationale: IWETs exist throughout the lifecycle of the weapon system. When the system is in active or inactive stockpile, or in managed retirement, the weapon system FPM has responsibility for the IWET. When the weapon system is retired, the FPM responsibility for the IWET passes from the weapon system FPM to the Weapon Dismantlement and Disposal (WDD) FPM.

Parent: DOE O 452.3 Section 4 e. (5) (or successor)
Supersedes: D&P Manual Chapter 8.1 Section 4.2, and Section 5.9.1 Paragraph 1 / TBP-800 Section 3.2.1 Paragraph 1

FR17016 Each IWET must develop a surveillance plan for the upcoming year and the remaining work for the FYNSYP period per T120.

Rationale: See Activity 2 in Figure 2 in Appendix A. DAs and production agencies (PAs) associated with each weapon system select representatives for the IWETs. IWETs are typically led by an NNSA surveillance engineer. The individual IWET plans are assembled into the ASEMP annually.

Parent: DOE O 452.3 Section 4 e. (5) (or successor)
Supersedes: D&P Manual Chapter 8.1 Section 4.2, Section 5.9.1 Paragraph 1, Section 5.9.2 Paragraph 1, Bullet 1 and Paragraph 2, and Section 5.13 / TBP-800 Section 3.2.1 Paragraph 1

FR11379 NNSA and M&O Contractors must participate in SIRWG planning and execution activities each year.

Rationale: The SIRWG prioritizes activities across all weapon systems and sites, shown in Activity 3 in Figure 2 (Appendix A). T129 contains guidance for the SIRWG. SIRWG members utilize surveillance metrics to help inform prioritization of requirements and to communicate risks. This responsibility is executed at SIRWG meetings in support of the NNSA PPBE. To execute these duties, the SIRWG members should understand the specific priorities and regrets associated with their sites based on their budget targets.

Parent: DOE O 452.3 4.e. (5) and CRD 7.a (or successor)
Supersedes: D&P Manual Chapter 8.1 Section 5.1.1, Section 5.1.2 Paragraph 1, and Section 5.1.3

FR95529 NNSA and M&O Contractors must participate in SESC Planning and Execution activities each year.

Rationale: The SESC reviews surveillance program results and provides strategic guidance and recommendations to the SIRWG and/or NNSA senior leaders on surveillance issues. T128 contains guidance for the SESC. Additionally, the SESC addresses surveillance risks and issues that require internal executive level decision, if issues arise that cannot be resolved by the SIRWG (e.g., disagreements on relative priorities, resource allocations). SESC members are tasked to make these decisions based on the overall benefit for the Enterprise, rather than representing their sites. They should be in a position to speak authoritatively for their sites and make commitments on behalf of their sites, as needed, to resolve such issues.

Parent: DOE O 452.3 4.e. (5), and CRD 7.a (or successor)
Supersedes: D&P Manual Chapter 8.1 Section 5.1.1, Section 5.1.2 Paragraph 1, and Section 5.1.3

FR13301 When a need for a new diagnostic is identified, the Component Evaluation Program Planning Committee (CEPPC)/Component Working Group (CWG) must provide justification to the SIRWG.

Rationale: The CEPPCs work with the SIRWG to identify evaluation needs and candidate diagnostics for funding. CEPPCs are responsible for specific component families. CEPPCs evaluate the need for new capabilities and diagnostics to support assessment, in particular for applications on cross-cutting diagnostics and common components per T117. Many diagnostic needs are unilaterally required by one DA because of knowledge gaps that are particular to a specific weapon system. In this instance, recommendations are made by a subset of the CEPPC team responsible for addressing the specific knowledge gap. Note that SNL uses CWGs to fulfill the role of CEPPCs in cases where SNL is the only DA for a component family.

Parent: DOE O 452.3 Section 4 e. (5), and CRD 7.a (or successor)
Supersedes: D&P Manual Chapter 8.1 Section 4.2 Paragraph 3, Section 5.1.1 Paragraph 4, and Section 5.1.2 Paragraph 1

FR36504 Within 45 calendar days of appropriation each year, NA-122 must issue and maintain a single, cross-cutting ASEMP covering the FYNSP per R008.

Rationale: The IWETs are responsible for developing input to the ASEMP. The initial baseline should be created as Revision 0 each summer, based on the President's Budget Request (see Activity 4 in Figure 2 in Appendix A.) An October (or later) update incorporates budget information into an executable version and is the basis for authorizing work in Activity 5 of Figure 2 (Appendix A). The ASEMP documents the decisions based on the Governance Model, and reflects consideration of the SIRWG/SESC recommendations, resource balancing, and the impacts and risks associated with the unfunded regrets. NA-122 maintains this plan through a change control process per FR63998. The ASEMP of record is captured in the QERTS system to provide a point of reference for the weapon community.

Parent: DOE O 452.3 Section 4 e. (5) (or successor) / DP Program Execution Instructions (October 15, 2015 or successor)
Supersedes: D&P Manual Chapter 8.1 Section 5.7.1

FR11177 **NNSA must authorize the surveillance workload.**

Rationale: The ASEMP documents the planned surveillance workload baseline. Work-authorizing documents (e.g., PCDs, Work Authorizations) are then issued to authorize work executed to that baseline (see Activity 5 in Figure 2 in Appendix A.) Maintaining the configuration and alignment of surveillance workload facilitates planning and predictability of surveillance activities.

Parent: DOE O 452.3 Section 4 e. (5) (or successor)
Supersedes: D&P Manual Chapter 8.1 Section 5.7.1

FR63998 **NA-122 must control changes to the surveillance workload as detailed in QERTS and the ASEMP per Appendix B.**

Rationale: Programmatic change control threshold levels and authorities are consistent with DP Program Execution Instructions Table 5 requirements for "Standard Management," and are detailed in Table 1 in Appendix B. Any changes impacting M&O Contractor contracts are processed through the appropriate field office.

Parent: DOE O 452.3 Section 4 e. (5) (or successor) / DP Program Execution Instructions (October 15, 2015 or successor) Table 5
Supersedes: N/A

FR35595 **Each November, SNL must issue a sample selection memo to NA-122, including each weapon system, that identifies weapon serial numbers for laboratory and flight tests selected for the surveillance cycle two years in the future per T114.**

Rationale: Other DAs provide SNL input to the sample selection memo.

Parent: DOE O 452.3 CRD 7.a (or successor)
Supersedes: D&P Manual Chapter 8.1 Section 5.3.2 and Section 5.4.2 / TBP-800 Section 3.3 Paragraph 1

FR14032 **NA-122 must issue a New Material and Stockpile Evaluation Schedule (NMSES) each month that includes the following information:**

- **a) Surveillance cycle number and start date**
- **b) New material and stockpile laboratory and flight test sample serial numbers and selection date**
- **c) Dates and location that weapons are available for pickup**
- **d) Applicable PCD line order numbers**
- **e) Date required at PX**
- **f) Incremental and cumulative quantities of weapon returns and Joint Test Assembly (JTA) builds**
- **g) Planned and actual build completion dates**
- **h) JTA type and serial numbers**
- **i) JTA military service consignee with required and actual delivery date to consignee**
- **j) Planned or actual flight test completion date**

Rationale: The NMSES serves as the single, integrating, scheduling document directing stockpile evaluation weapon and JTA movements by the Office of Secure Transportation (OST). Logistics schedules are coordinated with PX, SNL, OST, and the Defense Threat Reduction Agency (DTRA) (which coordinates with all affected DoD agencies). NA-122 revises the PCD before authorizing the publication of, or changes to, the NMSES.

Parent: DOE O 452.3 Section 4 e. (5) (or successor)
Supersedes: D&P Manual Chapter 8.1 Section 5.3.1, and Section 5.4 / TBP-801 Section 2 Paragraph 3 with all bullets, and Section 5.4

4.2 Execute Planned Surveillance Activities

FR39578 NA-122 and M&O Contractors must execute the NNSA authorized and funded activities.

Rationale: See Activity 6 in Figure 2 (Appendix A). The FPM for each stockpile weapon system employs an IWET to develop the weapon's evaluation plan, which is integrated into a single ASEMP covering all weapon systems. Work-authorizing documents (e.g., PCDs, Work Authorizations) are then issued to authorize work executed to the baselined ASEMP. Stockpile evaluations are conducted throughout stockpile life to support the assessment of the safety, security, reliability, and performance of weapons. These evaluations are based on the requirements that have been identified by the DAs for their weapon system designs. The results of these evaluations support weapon certification, military use and operations, and weapon assessments; the results also inform stockpile management decisions such as initiating Alterations (ALTs), Modifications (MODs), and weapon retirement/dismantlement activities.

Parent: DOE O 452.3 4.e. (5), and CRD 7.a (or successor)
Supersedes: D&P Manual Chapter 8.1 Section 1 Bullet 2, Section 4.2 Paragraphs 1- 3, Section 5.6.2 Paragraph 2, and Section 6.2

FR80620 DAs must identify, document, and maintain the surveillance strategy and data needed throughout the weapon lifecycle in the New Material and Stockpile Evaluation Plan (NMSEP) per T112.

Rationale: See Activity 7 in Figure 2 (Appendix A). The strategy and requirements drive the stockpile evaluation activities and support the stockpile assessments. SNL is responsible for drafting, issuing, and maintaining the NMSEP, released as the BG drawing, in coordination with the Nuclear DA. The system-level BG drawing contains requirements for the following:

a) Flight testing

b) Laboratory testing (system, subsystem, and component)

c) SLP

Parent: DOE O 452.3 CRD 7.a (or successor)
Supersedes: D&P Manual Chapter 8.1 Section 5.1.1 Paragraph 1, Section 5.1.2.1 Paragraphs 1-3, Section 5.1.2.2 Paragraph 1, and Section 5.8.1 / TBP-801 Section 2 Paragraph 1, and Section 5.3

FR37732 NA-122 must conduct safety testing on systems in the inactive stockpile and retired systems as authorized and funded by NA-12 per authorizing documents and T114.

Rationale: NNSA issues work authorizations in FR11177. Safety testing continues for weapon systems in the inactive stockpile and retired systems until dismantlement is complete. The FPM, in consultation with the federal weapon engineers and cognizant DAs, develops the weapon safety testing requirements. Once a weapon system enters the dismantlement period, the WDD FPM directs and funds safety testing. T114 contains sampling rules.

Parent: DOE O 452.3 4.e. (5) (or successor)
Supersedes: D&P Manual Chapter 8.1 Section 5.9.1, Section 5.9.2 Paragraph 1 Bullets 2 and 3, and Section 5.11

FR61360 NA-12 and M&O Contractors must meet anomaly reporting and investigation requirements per R017.

Rationale: DAs and PAs investigate anomalies to understand potential stockpile problems.

Parent: DOE O 452.3 Section 4 e. (5), and CRD 7.a (or successor) / NAP-24A (or successor) Attachment 2 Section 3.1.2
Supersedes: D&P Manual Chapter 8.1 Section 5.12 / TBP-800 Section 3.1.3

FR79196 DAs must jointly develop a minimum set of JTA designs for flight test evaluation per T110 and T127.

Rationale: SNL and the responsible nuclear DA coordinate JTA development. JTA fidelity to the WR system is optimized so that the data collected accurately represent the WR system performance and can be assessed with confidence concerning data validity. Coordination with DoD is worked as needed, per the requirements in Section 4.3. T110 documents rules for Joint Flight Tests (JFTs), while T127 describes how to document, in a Compatibility Definition (CD), the technical requirements across interfaces between DAs.

Parent: DOE O 452.3 CRD 7.a (or successor)
Supersedes: D&P Manual Chapter 8.1 Section 5.5.1 Paragraphs 1-2, Section 5.5.2.1, Section 5.5.2.2 Paragraph 1, and Section 5.5.2.2 Paragraph 4 / D&P Manual Chapter 8.5 / TBP-800 Section 3.3.2 Paragraph 1 / TBP-801 Section 5.1, Section 5.3, Section 5.6, Section 5.7, and Section 6

FR18517 DAs, PX, and NNSA must conduct a Non-Nuclear Assurance Program (NNAP) per T138.

Rationale: The NNAP uses multiple independent means to ensure the intended JTA/ Nuclear Explosive-Like Assembly (NELA) design hardware is in the correct non-nuclear test configuration. Coordination with DoD is accomplished as needed. NA-122 is responsible for managing the NNAP and ensuring its implementation. Flight Test Units (FTUs) or JTAs will be supplied to the DoD for flight-testing only if verifications are performed per the NNAP. NA-122 ensures participation of SNL in field verifications at United States Air Force (USAF) locations.

Parent: DOE O 452.3 Section 4 e. (5), and CRD 7.a (or successor)
Supersedes: D&P Manual Chapter 8.1 Section 5.5.1 Paragraph 4, Section 5.5.2.1 Paragraph 4, Section 5.5.3 Paragraph 1, and Section 5.5.4 / TBP-800 Section 3.3.2 Paragraph 2 / TBP-803 (superseded by T138)

FR39983 **The DAs must authorize product definition for flight testing, laboratory testing, and shelf life testing requirements for PAs to produce test hardware per T112, T037, and C019.**

Rationale: Test hardware may include, but is not limited to, components, fixturing, and test bed assemblies. T112 contains specifics on the contents of stockpile evaluation support drawings, while T037 contains procedures in support of JTA telemetry. C019 contains requirements for controlling product definition. The product definition set for individual laboratory and flight test units should include Test Data Forms (DF) and a Record of Assembly (RD) drawing, updated to reflect as-tested hardware.

Parent: DOE O 452.3 CRD 7.a (or successor)
Supersedes: D&P Manual Chapter 8.1 Section 5.6.2 Paragraph 1 Sentence 2, and Section 5.7.2 Paragraph 3 / TBP-800 Section 3.1.1, Section 3.1.2, Section 3.2 Paragraph 1, Section 3.2.2, and Section 3.3.2 / TBP-801 Section 4.1, Section 4.3, Section 4.4 Paragraphs 1 and 5.3, Section 5.5, and Appendix A

FR50586 **M&O Contractors must conduct Engineering Evaluations (EEs) per T046.**

Rationale: T046 contains the steps for planning, conducting and documenting product or process qualification.

Parent: DOE O 452.3 CRD 7.a (or successor) / NAP-24A (or successor) Attachment 2 Section 3.8.d
Supersedes: TBP-801 Section 4.3, Section 4.4 Paragraphs 2 and 5, Section 4.5, and Appendix B.

FR65430 **PAs must build, store, and maintain testers and testing capability, as well as JTA and shelf life components, per DA requirements and the schedule defined in the Lab and Flight Test NMSEPs (BG), Shelf Life Requirements (ST), and the ASEMP.**

Rationale: PAs should make recommendations to the DA and FPMs on equipment storage and maintenance costs to facilitate disposition decisions. When there is no longer a need the DA should update the governing documents accordingly.

Parent: DOE O 452.3 CRD 7.a (or successor)
Supersedes: D&P Manual Chapter 8.1 Section 5.6.2 Paragraph 1 Sentence 1 / TBP-801 Section 4.1

FR58401 **NA-122 must authorize diversion of WR hardware for surveillance activities.**

Rationale: Usage of WR hardware for JTAs or other tests is authorized by NNSA. Planned use can be documented in directive documents such as PCDs, or the ASEMP, which are approved by NNSA. If additional diversion of WR hardware is needed, NNSA authorizes the release. The DA documents the authorization in an SIER per T049.

Parent: DOE O 452.3 4.e (5) (or successor) / NAP-24A Attachment 2 Section 3.11.2 (or successor)
Supersedes: D&P Manual Chapter 8.1 Section 5.6.1 Paragraph 2

FR46715 **M&O Contractors must electronically capture surveillance records and ensure their provenance, accessibility, understandability, and preservation per NNSA and Federal records requirements.**

Rationale: Surveillance data are essential for stockpile assessment and decisions on LEPs, new weapon systems, and lifetimes.

Parent: DOE O 243.1B, Admin Chg 1 (or successor) / 36 CFR Subchapter B (2011 or successor)
Supersedes: N/A

FR92524 **When introducing new technology into the NMSE Program, M&O Contractors must use the process delineated in T125, if either of the following conditions is met:**

a) The project is not completely funded within an individual site's budget

b) More than one M&O Contractor is involved in the transition and the NMSE Program implementation funding is not identified

Rationale: New technologies cover hardware or a capability; for example, a diagnostic tool that improves the cost-effectiveness or increases the efficiencies of surveillance, or that collects new data required by the DA.

Parent: DOE O 452.3 CRD 7.a (or successor)
Supersedes: D&P Manual Chapter 8.1 Section 6.3

4.3 Coordinate with the Department of Defense

FR73576 **NA-122 must collaborate with DAs to develop and deliver input to DoD for the revision or development of the NWSSTP for each new ALT or MOD, per T111.**

Parent: DOE O 452.3 Section 4 e. (5) (or successor)
Supersedes: D&P Manual Chapter 8.1 Section 5.2.2.1 Bullets 1 – 3, and Section 5.2.2.2 Sentence 1

FR28813 **Before joint testing is executed, NA-122 must approve the initial NWSSTP for each weapon system.**

Rationale: NNSA and the DoD lead agency jointly approve the NWSSTP, which is the joint testing plan, by weapon system. R006 requires the NWSSTP to be approved in Phase 6.5.

Parent: DOE O 452.3 Section 4 e. (5) (or successor)
Supersedes: D&P Manual Chapter 8.1 Section 5.2.1 Sentence 1, and Section 5.2.3

FR62280 **NA-122 and DAs must review the NWSSTP annually.**

Rationale: This annual review is accomplished in collaboration with the DoD lead agency. DoD is responsible for issuing the revised NWSSTP, created in FR73576 using required tool T111.

Parent: DOE O 452.3 Section 4 e. (5), and CRD 7.a (or successor)
Supersedes: D&P Manual Chapter 8.1 Section 5.2.1 Sentence 2, Section 5.2.2.1 Bullet 4, and Section 5.2.2.2 Sentence 2

FR97938 **NA-122 FPM must serve as co-chair of the joint DoD/NNSA working groups formed to coordinate the Joint Flight and Joint Laboratory Test Programs.**

Rationale: DoD/NNSA Memoranda of Understanding (MOU) define the leadership roles and interfaces between DoD and NNSA. The POGs charter the Joint Test Working Group (JTWG) (co-chaired by NNSA and the Air Force), the Quality Assurance & Reliability Subcommittee (QARSC), and the System Performance Assessment Technical Working Group (SPATWG) (co-chaired by NNSA and the Navy) to coordinate test programs.

Parent: DOE O 452.3 Section 4 e. (5) (or successor)
Supersedes: D&P Manual Chapter 8.1 Section 5.2.1 Sentence 2, and Section 5.6.2 Paragraph 3 / TBP-800 Section 3.2.1, Section 3.3.1

FR81840 **NA-122 FPM must coordinate execution of integrated flight tests of NNSA and DoD materiel for each weapon system with the DoD.**

Rationale: Flight tests ensure compatibility and allow for detection of flight-unique issues not observable in laboratory testing throughout stockpile life. The Stockpile Evaluation Plan and the DoD NWSSTP document the flight test frequency.

Parent: DOE O 452.3 Section 4 e. (5) (or successor)
Supersedes: D&P Manual Chapter 8.1 Section 5.5.1 Paragraph 3 / TBP-800 Section 3.2.1 Paragraph 2

4.4 Report Surveillance Results

FR62302 **M&O Contractors must meet cycle reporting requirements per T115.**

Rationale: Cycle reports show the results of the cycle evaluations against the DA product definition. T115 defines the PA roles for cycle reporting and also defines the DA roles for the Stockpile Evaluation Program Report.

Parent: DOE O 452.3 CRD 7.a (or successor)
Supersedes: D&P Manual Chapter 8.1 Section 6.1.1 Paragraph 2, and Section 6.1.2 / TBP-800 Section 3.1.3

FR82641 **Within 5 working days after the end of each month, M&O Contractors must report surveillance test completion dates and changes to planned dates in QERTS per T126.**

Rationale: QERTS includes completion dates for both actual tests and submission of required reports. If planned tests were not completed during the month, the rescheduled dates are entered in QERTS. See Appendix B change control thresholds to evaluate if any programmatic approvals or notifications are required.

Parent: DOE O 452.3 CRD 7.a (or successor)
Supersedes: D&P Manual Chapter 8.1 Section 5.7.2 Paragraph 2, and Section 5.7.3 / TBP-800 Section 3.1.3

FR93738 **Within 2 months after the end of the FY, NA-122 must report completed ASEMP work to NA-11 and NA-12.**

Rationale: This report gives NNSA and DA leadership information to evaluate NMSE Program execution. M&O Contractors provide input on work completion.

Parent: DOE O 452.3 Section 4 e. (5), and CRD 7.a (or successor)
Supersedes: N/A

5. EXTERNAL INTERFACE RESPONSIBILITIES

Responsibilities for organizations and individuals external to NNSA and M&O Contractors are listed exclusively in this section.

5.1 DoD Lead Agency

The DoD lead agency is responsible for:

a) Approving the NWSSTP jointly with NNSA

b) Issuing revisions to the NWSSTP

c) Co-chairing DoD/NNSA working groups

d) Providing DoD hardware for joint tests

e) Planning and conducting the NNAP jointly with NNSA

5.2 POG

The POG is responsible for chartering the following groups to coordinate test programs:

a) The JTWG (co-chaired by NNSA and the Air Force)

b) The QARSC

c) The SPATWG (co-chaired by NNSA and the Navy)

6. KEY DEFINITIONS

Definitions and acronyms related to this content can be found in the Glossary (Lexicon) on the DPBPS Portal at this URL: https://dpbps.sandia.gov/Pages/Lexicon.aspx.

7. TRACEABILITY REFERENCES

The following references are used in this content:

36 CFR Subchapter B (2011 or successor): Records Management

C019: Control Product Definition

D&P Manual Chapter 8.1: New Material and Stockpile Evaluation Test Program

D&P Manual Chapter 8.5: Joint Test Assembly Design Policy

DOE O 243.1B, Admin Chg 1 (or successor): Records Management Program

DOE O 452.3 (or successor): Management of the Department of Energy Nuclear Weapons Complex

DP Program Execution Instructions (October 15, 2015 or successor)

NAP-24A (or successor): Weapon Quality Policy

R006: 6.X Process

R007: DSW Program Funding Within PPBE Process

R008: Portfolio-Program-Project Management

R017: Anomaly Reporting and Investigation

T037: Telemetry Procedures

T046: Qualify Product or Process Business Rules

T049: Special Instructions Business Rules

T108: Shelf Life Program

T110: Joint Flight Test Program

T111: Nuclear Weapon Subsystem Test Plan

T112: Stockpile Evaluation Support Documents

T114: Stockpile Surveillance Sampling

T115: Cycle Reporting

T117: Component Evaluation Program Planning Committee (CEPPC) Guidance

T120: Integrated Weapon Evaluation Team Planning

T125: Transition of Technology into the NMSE Program

T126: QERTS Overview

T127: Compatibility Definition Elements

T128: Surveillance Enterprise Steering Committee (SESC) Guidance

T129: Surveillance Integrated Requirements Working Group (SIRWG) Guidance

T138: Non-Nuclear Assurance Program

TBP-800: Stockpile Management

TBP-801**:** Laboratory and Flight Test Material

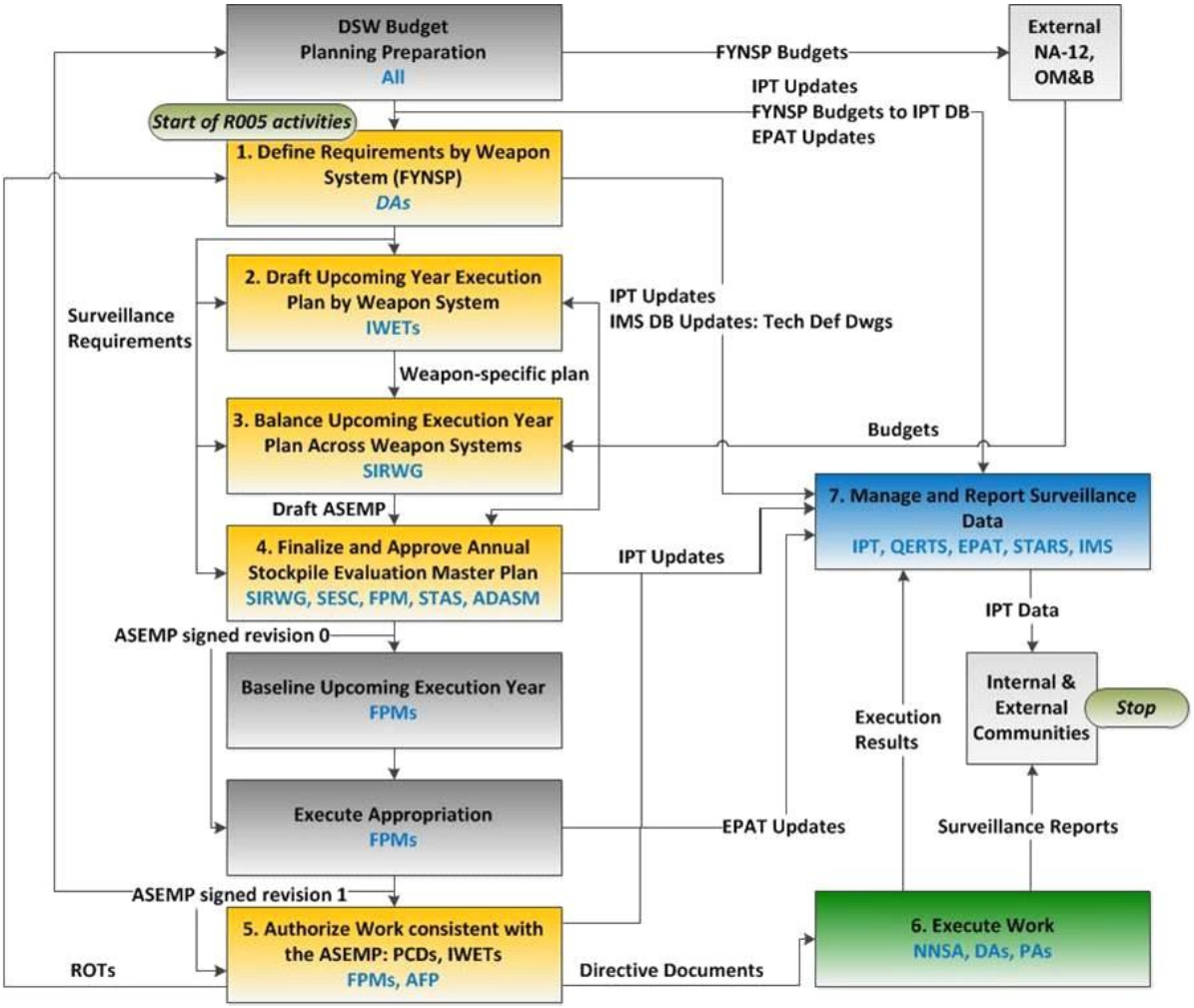
TBP-803: Non-Nuclear Assurance Program

APPENDIX A: SURVEILLANCE GOVERNANCE MODEL

The NNSA Surveillance Governance Model in Figure 2 was established to enable development, execution, tracking, and reporting of a coordinated and effective program, which addresses requirements across all weapon systems in a prioritized manner. The model defines processes and products needed to support surveillance management, is aligned to the NNSA budget process, and is intended to specifically support the annual NNSA PPBE cycle defined in R007.

The activity boxes in Figure 2 are numbered, and statements in the rationale of associated requirements refer to the diagram and activity. In the figure, the activities color-coded gray are interfacing PPBE activities that are defined in R007. The activities color-coded yellow occur in Section 4.1, “Plan, Govern, and Manage Surveillance,” the activity colored green occurs in Section 4.2, “Execute Planned Surveillance Activities,” and the activity color-coded blue occurs in Section 4.4, “Report Surveillance Results.”

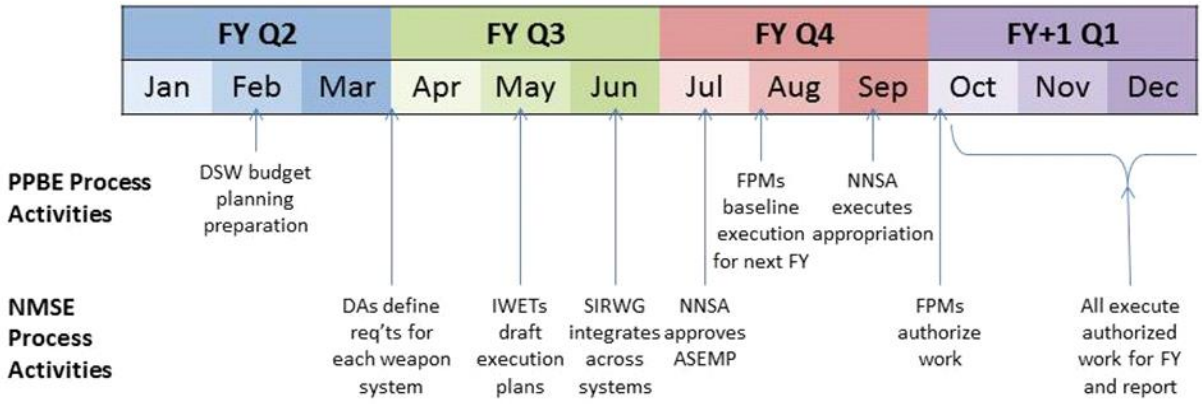
Figure 2: Surveillance Governance Model



NOTE: Acronyms in Figure 2 not previously defined are: Assistant Deputy Administrator for Stockpile Management (ADASM), Approved Funding Program (AFP), Enterprise Projections Analysis Tool (EPAT), Image Management System (IMS), Integrated Project Team (IPT), Office of Management and Budget (OMB), and Standard Accounting and Reporting System (STARS).

Only a small number of critical requirements in this document have specified calendar deadlines. The budget cycle in recent history has been highly variable, making concrete deadlines difficult to specify. For any planning due dates not specifically called out in this document, NNSA prepares and publishes an annual schedule for the activities as required by FR12186. Figure 3 is a notional timeline of the sequence of activities from Figure 2 that shows actual dates in a given year following the NNSA-released schedule.

Figure 3: Approximate Timeline of Activities



NOTE: Acronym in Figure 3 not previously defined is: Directed Stockpile Work (DSW).

APPENDIX B: PROGRAMMATIC CHANGE CONTROL THRESHOLDS

Table 1: Change Management Authority Levels and Thresholds

Lvl	Change Management Authority	Change Coordinators	Change Management Threshold Guidelines			Notification Requirements
			Scope *Major Activities per Production and Planning Directive Annex D	Schedule	Budget	
1	NA-12	NNSA Office Manager(s), affected DA and PA reps at the SESC level	Nuclear Weapon Council-directed changes			SESC members
2	NA-122, Division Directors	FPM(s), affected DA and PA representatives at the SIRWG level	Major change to Major Activities deliverable, for example: a) Affects DA ability to meet reliability or assessment reporting thresholds		Any change that cannot be managed within the entire weapon system annual budget that requires reprogramming	SIRWG
3	NA-122 Lead Engineers	Fed Engineer, affected DA and PA representatives at the SIRWG level	Moderate change to Major Activities deliverable, for example: a) Affects other sites'/programs' deliverables b) Changes to Level II milestone	Slip that extends into the next FY	Any change that cannot be managed within the weapon system's annual weapon system budget	NA-122 Division Directors
4	NA-122 Surveillance Engineers	DA and PA surveillance and product engineers	Minor change to Major Activities deliverable, for example: a) Does not affect other sites'/programs' deliverables b) Changes quantity c) Changes scope	Slip that extends beyond a fiscal quarter, but not an FY	Any change within the Site's annual weapon system's Surveillance Budget Authority that requires additional funding	NA-122 Lead Engineers
5	DA and PA approval authority per internal procedures	PA	No impact to site Major Activities deliverables	Slip not extending beyond the current fiscal quarter	Any change that can be managed within the Site's weapon system's Surveillance Budget Authority	NA-122 Surveillance Engineers

Examples:

Level 2 Examples: Scope/Schedule: Approval is required if a delivery affects a performance commitment at another site, i.e. a late telemetry unit from KC that is scheduled for a JTA build this FY.

Level 1 Examples: Schedule change: IWET Major Evaluations are defined in the IWET Report. If any of these evaluations slip by more than one quarter or moves into the next FY, a change control form is needed.

Level 0 Examples: Scope change: Any changes in number identifiers are allowed without a Change Control Form as long as the QERTS data base reflects the authorizing DA name.

FEDERAL REQUIREMENTS				
NUMBER	ISSUE	RELEASE DATE	EFFECTIVE DATE	PAGE
R006	**C2**	**2016-05-04**	**2016-05-09**	**1 of 21**

6.X Process

For RPO Administration Use Only CAGE CODE: 14213

CHANGE HISTORY

EFFECTIVE DATE	ISSUE	RELEASE/CHANGE NO.
2014-03-31	C1	IER 20132739SA
2016-05-09	C2	FCO 20161851SA

TABLE OF CONTENTS

1. SCOPE

This content defines specific requirements for NNSA and M&O Contractors when the 6.X joint NNSA/DoD weapon system acquisition process is involved in program and product realization.

This content addresses the requirements for Phase 6.2 through entry into Phase 6.6. Weapon product changes defined as refurbishments and weapon subsystem or component changes generally require compliance with the requirements in this content as determined by the Federal Program Manager. This 6.X Process complies with the DOE agreement with the DoD as defined in the DoD/DOE/Nuclear Weapons Council (NWC) Procedural Guideline for the Phase 6.X Process. When the 6.X process is required, program and product realization will follow R001 and R006 content.

Appendix A provides additional background information concerning the 6.X process, including Phase 6.1, and Appendix B provides a summary of 6.X phases, timing, interfaces, functions, and documentation.

2. APPLICABILITY

This content applies to the following organizations:

a) All NNSA federal organizations reporting to the Defense Programs Office of the Assistant Deputy Administrator for Stockpile Management and the weapon-related portions of Defense Programs Office of the Assistant Deputy Administrator for Major Modernization Programs

b) M&O Contractors - KCP/ LANL / LLNL / NNSS / PX / SNL / SRS / Y-12

c) NNSA FOs

Section 5 lists external interfaces for this content.

This content applies when the weapon program/project is specifically tasked by NNSA to realize product using the 6.X Process.

2.1 Cancellation

When this Product Realization Content Set (listed below) becomes effective, the following content will be cancelled:

Portions of the following NNSA documents are superseded, revisions of each document remove the cancelled content: D&P Manual Chapter 2.4 Section 4.2.3 and Section 4.2.4 paragraph 1; D&P Manual Chapter 3.2, excluding Phase 6.6 after achievement of Steady State Production; D&P Manual Chapter 3. 7 Section 5 .1 paragraph 4 bullet 2

M&O Contractor documents cancelled in their entirety: TBP-100; TBP-101 EE Guide; TBP-101 User Guide; TBP-400

Portions of the following M&O Contractor documents are superseded, revisions of each document remove the cancelled content: TBP-101 excluding Section 4.4 and Appendix A; TBP-PRP, excluding Appendix B Section 3.1 b-d, f-j, and Section 3.2; TBP-000 excluding Appendices B, C, and D; TBP-200 Section 2; TBP-300 Sections 2 and 3; TBP-404 Section 2.2 and Figure 2; TBP-700 Section 2; TBP-701 Sections 3.1 and 3.4; and TBP-800 Section 2

The Product Realization Content Set consists of R001, R006, T046, T054, T063, T065, T076, T077, T121, Tl33, and Tl40.

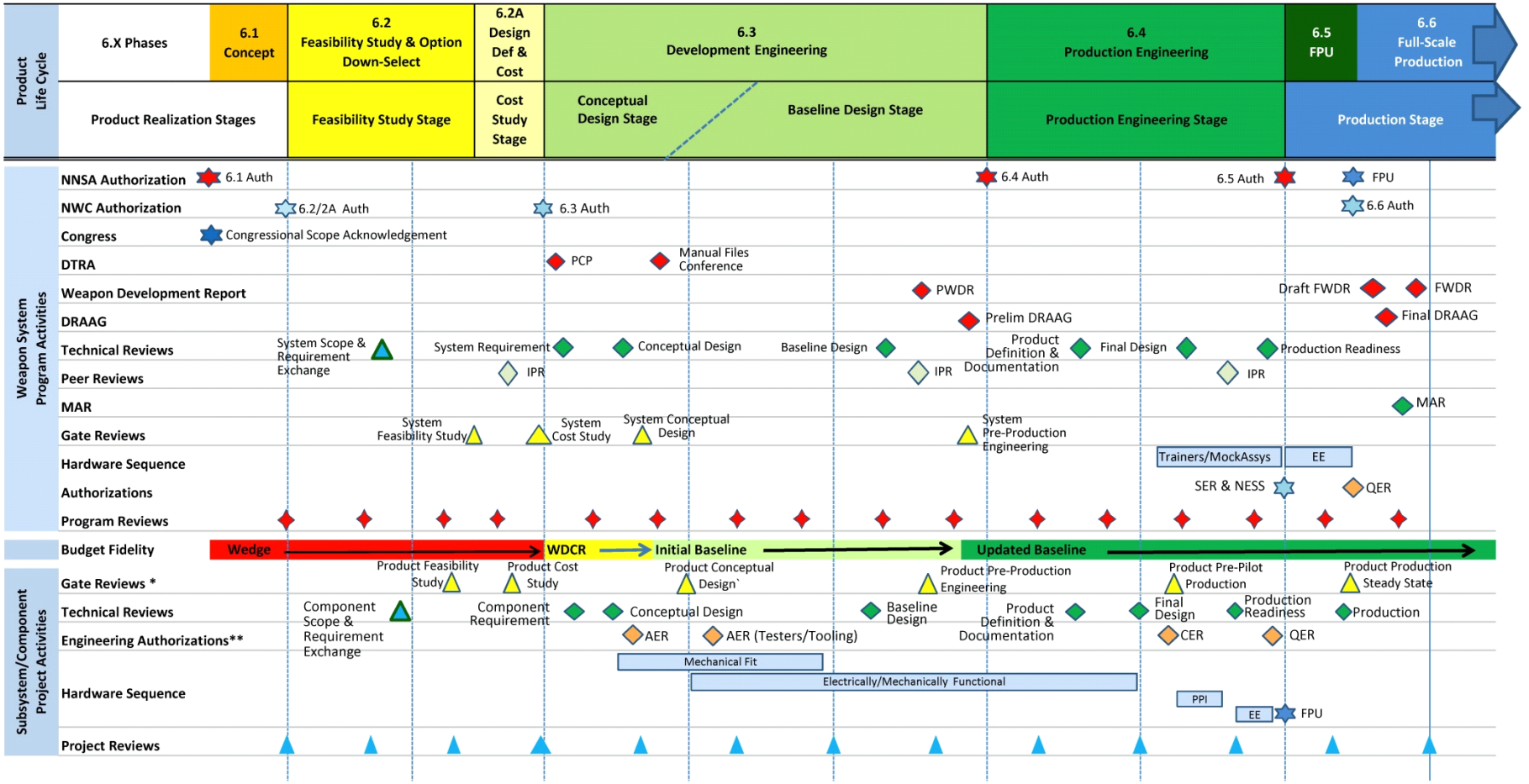
2.2 Organization Responsible for Content

The Office of Nuclear Weapon Stockpile (NA-122) is responsible for this content.

3. CONTENT DIAGRAM

The following diagram (Figure 1) represents the process, group of processes or group of activities needed to clarify the requirements.

Figure 1: Notional Weapons Acquisition Time Line



* NOTE: Level of gate application and specific timing determined by Federal Program Manager and Project Team

**NOTE: Specific timing of engineering authorizations may occur at any time as long as the requirements of R001/R006 are met.

Legend

Authorizations	Exchanges	Technical Reviews	Gate Reviews	Engineering Authorizations
Program Reviews	Peer Reviews	Reports/Publications	Project Reviews	Hardware Sequence

4. REQUIREMENTS

This section exclusively lists federal requirements. A rationale appears where further explanation adds clarity. Rationales do not contain additional requirements.

A unique number identifies each requirement. The information underneath each requirement provides traceability.

Definitions and acronyms related to this content can be found in the online Lexicon-see Section 6.

Section 7 lists the titles of documents called out in this content.

4.1 Phase 6.2/6.2A: Feasibility Study and Option Down-Select/Design Definition and Cost Study

FR77249 **NNSA must provide a formal response to the Nuclear Weapons Council (NWC) request for participation in a Phase 6.2/6.2A.**

Rationale: NNSA may accept the request, include conditions or changes, or suggest modifications to the request prior to accepting joint participation in the study.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.1-4
Supersedes: D&P Manual Chapter 3.2 Section 6.2.4.2

FR23166 **NNSA and the DAs must draft source requirements with DoD through the POG.**

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.2-4
Supersedes: D&P Manual Chapter 3.2 Section 6.2.4.3

FR16355 **NNSA must issue a tasking letter to M&O contractors authorizing Phase 6.2 or combined 6.2/6.2A activities.**

Rationale: Formal guidance is necessary to contractually authorize the sites across the NSE to support the study.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.2-2
Supersedes: D&P Manual Chapter 3.2 Section 6.2.4.2

FR65649 **The Project Team must complete requirements contained within these sections of R001: Recurring Requirements, Feasibility Study Stage and Cost Study Stage.**

Parent: QC-1 Section 2.6
Supersedes: N/A

FR63234 **The DA must conduct an IPR prior to the conclusion of Phase 6.2A per D&P Manual Chapter 3.7.**

Rationale: The IPR is done at the top-level of product and is not required for each PRT. The DAs conduct and publish the IPRT report. The output of the IPR goes to the DRAAG.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.2-1
Supersedes: D&P Manual Chapter 3.2 Section 6.2.4.2 Bullet 7; Section 6.2.4.3 Bullet 4 / D&P Manual Chapter 3.7 Section 5.1 Paragraph 4 Bullet 2

FR73765 **NNSA in conjunction with the project team must create the WDCR.**

Rationale: After completion of cost estimates by M&O contractor sites per R001 FR40837, NNSA may use T065 as a template for development of the WDCR elements. The WDCR is referenced in the NPP. The WDCR is used as part of the option down-select process.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.2A-2
Supersedes: D&P Manual Chapter 3.2 Section 6.2.4.2 and Appendix C

FR55896 **After completion of the WDCR, NNSA must lead the project team to select pertinent items from the NPP and submit them as input to the JIPP.**

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.2A
Supersedes: D&P Manual Chapter 3.2 Section 6.2.4.2 and Appendix E

FR24267 **NNSA in conjunction with the project team, must prepare an MIR to identify any significant negative impacts of the design options to the NSE.**

Rationale: The WDCR and the MIR supports the design down-select process.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.2-5
Supersedes: D&P Manual Chapter 3.2 Section 6.2.2; Section 6.2.4.2; Appendix D

FR56358 **NNSA must provide input to the POG Phase 6.2/2A reports.**

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.2-5 and 6; Phase 6.2A-2 and 3
Supersedes: N/A

FR90188 **NNSA must respond to the Nuclear Weapons Council (NWC) request for Phase 6.3 participation, including comments on the draft Military Characteristics (MC) and STS.**

Parent: Procedural Guideline for the 6.X Process, Phase 6.3-1
Supersedes: D&P Manual Chapter 3.2 Section 6.3

4.2 Phase 6.3: Development Engineering

FR36015 **NNSA must issue a tasking letter to the M&O contractors authorizing Phase 6.3 activities.**

Rationale: The letter provides the NSE formal direction of entrance into Phase 6.3.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.3-1
Supersedes: D&P Manual Chapter 3.2 Section 6.3.3.2

FR83676 The Project Team must support and participate in CRRs as designated by the DoD.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.3-1 and 2
Supersedes: N/A

FR50705 The Project Team must complete Conceptual Design Stage and Baseline Design Stage requirements per R001.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.3-1 and 2
Supersedes: N/A

FR53530 The nuclear DA must release the NEP certification plan.

Rationale: The certification plan is created in Phase 6.2, revised in 6.2A, and released in Phase 6.3 to prepare for the BDR.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.3-1, 2, and 5
Supersedes: D&P Manual Chapter 3.2 Section 6.2.4.3

FR28190 The DA must conduct a Phase 6.3 IPR of the selected design option(s) per D&P Manual Chapter 3.7.

Rationale: The DAs conduct IPR and release the IPRT report after the BDR consistent with D&P Chapter 3.7.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.3-1
Supersedes: D&P Manual Chapter 3.2 Sections 6.3.1 Paragraph 3 and Appendix F; Chapter 3.7 Section 5.1 Paragraph 4 Bullet 2

FR93267 NNSA in conjunction with the project team, must create and update a Selected Acquisition Report (SAR).

Rationale: The SAR is required by 10 USC § 2432, accompanies the annual submission of the President's budget, and is submitted to the Armed Services and Appropriations Committees of Congress. Yearly updates, accompanying the current year President's budget, are required until the end of production and are managed by NNSA.

Parent: Section 2432 of Title 10, United States Code / Procedural Guideline for the Phase 6.X Process, Phase 6.3-2
Supersedes: D&P Manual Chapter 3.2 Section 6.3.1; Section 6.3.3.2

FR98014 The DAs must create a preliminary addendum to the FWDR with PA input.

Rationale: Mods use a new WDRI ALTS use an addendum. The preliminary addendum to the FWDR is an entrance criterion for the preliminary DRAAG review. The addendum documents the weapon refurbishment design status and provides refurbishment design objectives, weapon refurbishment descriptions, proposed qualification and certification activities, and ancillary equipment requirements.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.3-2
Supersedes: D&P Manual Chapter 3.2 Section 6.3.3.3

FR92101 **The NNSA program manager and DAs must support and participate in the Preliminary DRAAG activities conducted by the DoD.**

Parent: Procedural Guideline for the 6.X Process, Phase 6.3-3
Supersedes: N/A

FR89292 **NNSA must direct SNL with input from the nuclear DAs to draft the NWSSTP per D&P 8.1 Section 5.2.**

Rationale: The surveillance planning document drafts precede the creation of the NWSSTP. The surveillance planning documents provide detail of the types and quantities of tests to be performed, and affect the contents of the NWSSTP. An MOU between DoD and DOE for the NWSSTP Program details these requirements.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.3
Supersedes: N/A

4.3 Phase 6.4: Production Engineering

FR51544 **NNSA must issue a tasking letter to the M&O contractors authorizing Phase 6.4 activities.**

Rationale: The letter provides the NSE formal direction of entrance into Phase 6.4.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.4-1
Supersedes: D&P Manual Chapter 3.2 Section 6.4.3.2 bullet 1

FR11883 **The Project Team must complete Production Engineering Stage requirements per R001.**

Parent: Procedural Guideline for Phase 6.X Process, Phase 6.4-1 and 2
Supersedes: N/A

FR36055 **The DA must conduct a Phase 6.4 IPR of the final design per D&P Manual Chapter 3.7.**

Rationale: NNSA manages the IPR process according to D&P Chapter 3.7; the DAs conduct and publish the IPRT report after FDR.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.4-1
Supersedes: D&P Manual Chapter 3.2 Sections 6.4.1 Paragraph 4 and Appendix F; Chapter 3.7 Section 5.1 Paragraph 4 Bullet 2

FR29379 **NNSA must issue the NWSSTP prior to the start of Phase 6.5.**

Rationale: The NWSSTP is drafted in FR89292. NNSA approves this plan along with the DoD lead agency. The agreed upon test plan has to be in place before testing can be performed.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.4-1
Supersedes: N/A

4.4 Phase 6.5: First Production

FR68828 NNSA must issue a tasking letter to M&O contractors authorizing Phase 6.5 activities.

Rationale: Final design technology readiness and manufacturing system readiness provide the basis for a Phase 6.5 decision (weapon system level only). NNSA reviews the final refurbishment design; the rationale for certification; and the production qualification status. NNSA uses this information to make a decision of readiness to proceed into First Production. NNSA issues a letter to M&O contractors with authorization to proceed into Phase 6.5. Copies of this memorandum should be provided to the DoD Service agency and NWCSSC.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.5-1
Supersedes: D&P Manual Chapter 3.2 Section 6.5.3.2

FR15140 The Project Team must complete Production Stage requirements per R001.

Parent: Procedural Guideline for Phase 6.X Process, Phase 6.4-1 and 2
Supersedes: N/A

FR67279 The DAs must release the addendum to the FWDR for refurbishments.

Rationale: The FWDR is a principal review document provided to the DRAAG. Changes to the FWDR addendum may be necessary based on comments received from the DRAAG.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.5-6 and 8
Supersedes: D&P Manual Chapter 3.2 Section 6.5.3.3

FR21141 NNSA must support and participate in the DRAAG activities conducted by the DoD.

Rationale: The DRAAG is typically a two month process concluding with one to two weeks of briefings. The DRAAG activities start with the final draft of the FWDR around 6 weeks prior to the DRAAG review. The output of the review is the DRAAG Report.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.5-1
Supersedes: N/A

FR65492 The nuclear DA must formally document achievement of nuclear system certification.

Rationale: The certification documents the nuclear laboratory's assertion that the nuclear system performance meets specified requirements as stated in weapon system Military Characteristics (MC), STS, and ICDs. (Exceptions may be noted or referenced.)

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.5-6 and 8
Supersedes: D&P Manual, Chapter 3.2 Section 6.5.3.3

FR94449 **The DAs must prepare the MAR which signifies the produced weapon is suitable for use.**

Rationale: D&P Manual Chapter 2.4 Section 4.2.1 provides guidance on composition of the MAR. The MAR is a statement that WR products are satisfactory for release to the DoD for specified capabilities and uses. The DA provides the base MAR statement subject to NNSA review. The MAR is issued prior to the initial delivery of WR products from NNSA to DoD.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.5-9
Supersedes: D&P Manual Chapter 2.4 Section 4.2.3 / D&P Manual Chapter 3.2 Section 6.5.3.3

FR75017 **NNSA must issue the MAR to the DoD.**

Rationale: NNSA may generate comments requiring resolution before the MAR is released to the DoD. The purpose of the MAR is for NNSA to advise the DoD that the produced weapon is suitable for use, but may also communicate limitations. If a conditional MAR is issued, then an IPR may be performed to address conditional provisions or other remaining issues. SNL on behalf of NNSA distributes the MAR.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.5-9
Supersedes: D&P Manual Chapter 2.4 Section 4.2.4 paragraph 1/ D&P Manual Chapter 3.2 Section 6.5.3.2

FR23141 **NNSA must participate with the POG in preparing the request for Nuclear Weapons Council (NWC) Phase 6.6 Authorization.**

Rationale: The POG requests approval from the NWC to proceed into Phase 6.6.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.5 Sentence 10
Supersedes: D&P Manual Chapter 3.2 Section 6.6.3.2

4.5 Phase 6.6: Full Scale Production

FR24566 **After Nuclear Weapons Council (NWC) authorization is received, NNSA must issue a tasking letter to M&O contractors authorizing Phase 6.6 activities.**

Rationale: Phase 6.6 is initiated when the NWC accepts the modified weapons and authorizes full-scale production. Additional guidance from the NWC to NNSA may indicate changes in production schedules or rates.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.6-1
Supersedes: D&P Manual Chapter 3.2 Section 6.6.3.2

5. EXTERNAL INTERFACE RESPONSIBILITIES

This section exclusively lists responsibilities for organizations and individuals external to NNSA and M&O Contractors.

5.1 DoD

Under Secretary of Defense for Acquisition, Technology and Logistics is responsible for:

a) Chairing the Nuclear Weapons Council (NWC) (10 USC § 179) which is the Milestone Review Body for all nuclear weapon activities (within DODI 5030.55)

b) Supervising the Defense Acquisition System (DODD 5000.1) as the Defense Acquisition Executive having the ultimate authority for the DoD nuclear weapon acquisition process

c) Acting as the Milestone Decision Authority for all nuclear weapon activities (within DODD 3150.1 and DODI 5030.55)

d) Executing DoD nuclear weapons development, production, sustainment and retirement requirements (10 USC 179, DODI 5030.55)

5.2 Nuclear Weapons Council (NWC)

The 1987 Defense Authorization Act became law in 10 USC § 179 and defines NWC responsibilities and membership. The NWC is the focal point for joint DoD-NNSA activities to secure, maintain, and sustain the U.S. nuclear weapons stockpile.

The NWC is responsible for:

a) Approving all MODs/ALTs, changes to the STS that require a change to a weapon subsystem or component, and changes to the Military Characteristics (MCs)

b) Coordinating programming and budget matters between DoD and NNSA

c) Ensuring adequate consideration is given to design, performance, and cost trade-offs for all proposed new nuclear weapons programs

d) Coordinating and approving NNSA activities for the study, development, production, and retirement of nuclear warheads

e) Providing the POGs with guidance on weapons programs through the NWC using the NWSM/RPD, and approving POG activities per the Phase process such as transition to Phase 6.X

f) Determining, based on the extent of the refurbishment, which requirements within the Phase 6.X process are applicable to a given refurbishment activity. Some of the phases in the Phase 6.X process may be merged, omitted, or deferred.

5.3 POG

POGs are chartered by the NWC. Current POG procedures are established in DODI 5030.55. The POG is responsible for:

a) Referring refurbishment proposals to the NWC

b) Performing an in-depth analysis of each design option to consider nuclear safety, system trade-offs (both design and cost), technical risk, life expectancy, research and development requirements/capabilities, qualification and certification requirements, production capability, lifecycle maintenance/logistics, delivery system/platform issues and rationale for replacing/not replacing components during refurbishment

c) Providing the NWC with an annual Lead Project Officer briefing and briefings for approval of changes to MCs, MODs, and ALTs

d) Providing periodic progress reports to the NWC

e) Coordinating joint efforts in NNSA-DoD nuclear weapons programs

f) Coordinating interface matters

g) Coordinating investigations concerning weapon design tradeoffs

h) Coordinating required changes and updates of the MC and STS

i) Coordinating joint development test programs

j) Ensuring timely exchange of information

6. KEY DEFINITIONS

Definitions and acronyms related to this content can be found in the Glossary (Lexicon) on the DPBPS Portal Explorer at this URL: https://dpbps.sandia.gov/Pages/Lexicon.aspx.

7. TRACEABILITY REFERENCES

The following references are used in this content:

10 USC § 179: Nuclear Weapons Council

10 USC § 2432: Selected Acquisition Reports

DODD 3150.1 (8/26/2002): Joint DoD-DOE Nuclear Weapon Life-Cycle Activities

DODD 5000.1 (5/12/2003): The Defense Acquisition System NWC Procedural Guideline for the Phase 6.X Process for the DoD and DOE

DODI 5030.55 (1/25/2001): DoD Procedures for Joint DoD-NNSA Nuclear Weapons Life-Cycle Activities

DOE O 452.2: Nuclear Explosive Safety

DOE Standard 3015

DOE Standard 3016

D&P Manual, Chapter 1.6: Production Mission Assignment

D&P Manual, Chapter 2.4: Major Assembly Release, Emergency Capability Release, and Hold Order

D&P Manual, Chapter 3.2: Phase 6.X Process

D&P Manual, Chapter 3.7: Interlaboratory Peer Review Process

D&P Manual, Chapter 8.1: New Material and Stockpile Evaluation Test Program

Procedural Guideline for the Phase 6.X Process

QC-1: DOE/NNSA Weapon Quality Policy (QC-1)

R001: Product Realization

T065: Weapon Design and Cost Report

TBP-000: Program Management

TBP-100: Concurrent Qualification

TBP-101: Engineering Evaluation Process

TBP-101_EE_Guide: A Reference Guide for TBP-101 Engineering Evaluation Process: Recommendations and Considerations

TBP-101_User_Guide: Guide to the New TBP Format: A Brief Explanation of the “Whats” and “Whys”

TBP-200: Product Identification and Traceability

TBP-300: Product Definition

TBP-400: Design Control

TBP-404: Engineering Authorization System

TBP-700: Product Acceptance and Control of Nonconformance

TBP-701: Acceptance Equipment Interfaces

TBP-800: Stockpile Management

TBP-PRP: Product Realization Process

APPENDIX A: PHASE 6.X BACKGROUND

The traditional seven phases of the weapon's acquisition lifecycle reflect the logical progression of activity for the development, production, deployment, and retirement of a new weapon. Because stockpile weapons are currently in Phase 6, an expanded process is necessary for their refurbishment. This process is an expanded subset of Phase 6 of the traditional process and has been called the 6.X process. Phase 6.0 and Phase 6.1 are covered in Phase 6 documentation. This document begins with NNSA tasking to start Phase 6.2/6.2A of the 6.X process for a specified product.

Phase 6 - Quantity Production and Stockpile and Entry into the 6.X Process

The title of Phase 6 indicates that the product in question is present in the stockpile before and after the refurbishment process. The Phase 6.X Process provides the framework for nuclear weapons refurbishment activities and is not intended to replace Phase 6 activities such as routine maintenance and stockpile evaluation (also called "surveillance"). The Phase 6.X Process requires NWC approval for MODs, ALTs, or changes to the STS that require a change to a weapon subsystem or component, and changes to the Military Characteristics (MC).

Phase 6 activities (or ongoing research and development activities) could identify potential issues leading to proposed product changes, repairs, or weapon refurbishments. Weapon product changes defined as refurbishment (for example: ALTs, MODs, LEPs, retrofits) and weapon subsystem or components changes based on MCs or STS changes, require compliance with the requirements in this 6.X Process documents as determined by the Federal Program Manager.

Appendix B provides a summary of Phase 6.X functions, activities, durations, interfaces and documentation.

Phase 6.1 - Concept Assessment Activities

Phase 6.1 is ongoing for weapons in the stockpile. Phase 6.1 begins with the annual refurbishment planning activity directed at updating the TBSTP [formerly known as Life Extension Options] published by NNSA. The DoD is invited to participate in this annual process; at a minimum, the DoD is briefed on the results through the POG. STP planning consists of the review of stockpile evaluation findings, studies, weapon system and surety enhancements, and research and development activities that may indicate a need for refurbishment. NNSA uses the TBSTP process results to identify long-term workload and capacity issues in conjunction with the normal budget process.

A formal Phase 6.1 study may be conducted either jointly between NNSA and the DoD or independently by either department, depending on the issues, changes or options under consideration. Normally, both departments will agree to conduct the study jointly under the auspices of the POG. For conceptual studies conducted jointly, the DoD, through the POG, reviews (or drafts) the MCs, STS, and ICDs. The study team gathers information on the concept and supporting rationale, formulates a recommendation on whether to proceed with refurbishment, and documents the information in the Phase 6.1 report to the NWC. The purpose of the study is to provide enough information for the NWC to determine whether a continuation into Phase 6.2 should be authorized.

Phase 6.2 - Feasibility Study and Option Down-Select Activities

Initiation of Phase 6.2 is authorized by the NWC after a request from DoD or NNSA. The DoD and NNSA conduct a joint study which is managed by the POG. The Phase 6.2 objective is to develop design options and study the technical feasibility of the refurbishment program. DAs will identify design options for refurbishment and, concurrently with PAs, will develop the design options to the degree needed to complete the feasibility study as scoped by NNSA. Variability in execution for Phase 6.2 activities may occur in terms of the weapon design effort conducted within the Enterprise. At the request of DoD, or through NNSA direction, Phase 6.2 may include a competitive design effort.

NNSA and DoD will work together to evaluate options that properly address the objectives of the refurbishment. Throughout Phase 6.2, the POG considers changes to the draft MCs, STS, and ICDs and performs an in-depth analysis of each design option according to the criteria in the "Procedural Guideline for the 6.X Process." NNSA conducts a review to evaluate the adequacy of the options to meet source requirements and establishes draft program planning documentation, including the impact of the design options on the NSE. The options will be developed by the POG for preparation of the down-select package. NNSA and the DoD Service will coordinate on the down-selection of the Phase 6.2 preferred option(s) and will authorize the start of Phase 6.2A.

Phase 6.2A - Design Definition and Cost Study Activities

Phase 6.2A activities are initiated when a down-selected refurbishment option(s) from Phase 6.2 merits further concept development. Phase 6.2A activities will result in a program plan proposal that addresses the refurbishment activities.

DoD will coordinate with the DoD Service, through the POG, to develop the necessary plans in its area of responsibility (such as flight testing, maintenance/logistics, trainer and handling gear procurement, or procurement of new DoD components). The POG will incorporate NNSA and Service inputs into the NWC required JIPP and will refine the analysis of operational impacts/benefits of the refurbishment option. The POG will monitor progress, gather data for inclusion in the JIPP, and function as the clearing-house for the requirements' resolution activities. The POG will present the design, testing, production, maintenance, and cost estimate information, with estimated DoD costs, to the NWC and will provide a recommendation to the NWC whether to proceed to Phase 6.3. The POG completes the JIPP and publishes the Phase 6.2/6.2A Report. The NWC will evaluate the request based on the results of the Phase 6.2/6.2A Reports and the NPP (referencing the WDCR and the MIR). The NWC will determine whether a Phase 6.3 should be authorized.

NNSA will work with the Project Team to identify production issues and to develop workload and process development plans to accomplish the refurbishment. NNSA and the Project Team will incorporate plans for qualifying the production methods and implementing production into the NPP, along with the design options and project cost estimates. PRTs should be expanded during this phase.

NNSA, the DAs, and the PAs will develop NNSA design, testing, production, maintenance, and cost estimates for the life of the project, which will then be reported in the WDCR. This work will be brought to the POG for coordination.

NNSA will work through Phase 6.2A with the PRT/Project Team to complete the NPP and to draft a PCP per R001.

DAs also will further refine their qualification and certification plans, building on the draft certification and qualification plans developed in Phase 6.2. Qualification and Certification Plan summaries are prepared for inclusion in the NPP.

Phase 6.3 - Development Engineering Activities

The POG submits a request to the NWC to initiate Phase 6.3. At Phase 6.3 approval, the NWC prepares a letter requesting DoD and NNSA's participation in Phase 6.3 activities and forwards the draft MCs and STS. Subsequently, DoD and NNSA respond to the NWC with letters indicating their acceptance of participation in Phase 6.3 and provide comments on the draft MCs and STS criteria.

NNSA tasks the DAs and PAs to complete Phase 6.3 activities, and the military Services will issue similar tasking to their subordinate commands. The POG may propose additional changes to the MCs and STS during this phase. Changes to the MCs and STS are subsequently returned to the NWC for review and approval, and the POG updates the JIPP. The MCs should be approved by the NWC after the initiation of the Phase 6.3 study.

A draft addendum to the FWDR is prepared after the DAs and PAs review the key dates of the project schedule. The FWDR addendum updates weapon refurbishment design status and provides refurbishment design objectives (how the design meets the MCs, STS, and ICDs), weapon refurbishment descriptions, proposed qualification activities, ancillary equipment requirements, and project schedules.

The DRAAG will review the FWDR draft addendum and publish the Preliminary DRAAG Report with its recommendations regarding the status of the project. The Preliminary DRAAG Report will be forwarded by the DoD Service agency to the NWCSSC for acceptance. These activities will be coordinated with parallel DoD activities in the POG. The lead Service may decide a Preliminary Safety Study of the system is required to examine design features, hardware, procedures, and aspects of the concept of operation that will affect the safety of the weapon system. During this study, the NWSSG identifies safety-related concerns and deficiencies so that corrections may be made in this joint development phase in a timely and cost-efficient manner.

Phase 6.3 entry authorizes a heavy commitment of resources for design, development, and ramping up of concurrent engineering PRT activities. The DAs, in coordination with DoD as necessary, will conduct experiments, tests, and analyses. During this phase, best practices include PAs providing the prototype hardware for the experiments and tests so that the PAs and DAs are exercising production and design activities simultaneously.

The design will be updated per testing and analysis results. At the end of Phase 6.3, there will be a detailed baseline design that has been technically reviewed with regard to safety, performance, reliability, and producibility and is acceptable to release to the PAs. These activities will be coordinated with parallel DoD activities in the POG.

NNSA updates the PMD. Specific documents within the PMD are updated/created starting in Phase 6.3 and will continue to be updated until FPU.

Before the end of Phase 6.3, NNSA coordinates preparation for production engineering activities with the DoD through the POG and may include integrating DoD-furnished hardware (or for other reasons). The time period necessary to complete this phase depends on the complexity of the design option. As needed, some Phase 6.4 activities may begin during Phase 6.3, such as long-lead material or equipment procurements, process development, and capital projects.

Phase 6.4 - Production Engineering Activities

The following activities will take place during Phase 6.4, consistent with continued implementation of the JIPP:

a) Testing and analysis of products

b) Qualification of processes and products

c) Qualification testing, experiments, and analysis

d) Definition and qualification of tooling, gauges, and testers

e) Updating of production cost estimates based on process development and product qualification

f) Spares provisioning, in conjunction with DoD

g) Updating and validating of technical publications through LTG and JTG evaluations

h) Updating of stockpile evaluation planning

Activities started in Phase 6.3 for trainers, test and handling gear, logistics and maintenance, and joint testing will be completed. This phase also defines the methodology for refurbishment of the weapon and production of the components (to include identified Trainer components). NNSA will negotiate weapon delivery quantities and schedule the agreed-upon deliveries by updating the PMD.

At least six months prior to FPU, at any point from the BDR to the FDR, activities for nuclear safety operations are completed according to NNSA's ISP or SS-21. Additional information for NESS activities can be found in the DOE Order 452.2 Series. SS-21 descriptions are provided in DOE Standards 3015 and 3016.

Phase 6.4 is broad and encompasses the final design and process development stage, as well as part of the production readiness and qualification stage. The final design and process development stage involves further testing or analysis, so that the design is fully defined, documented, and released ("final design"). The PAs supply hardware for testing to develop processes and prepare for PPI or qualification activities, per the qualification plan(s). Surveillance requirements are released. Technologies and manufacturing system maturity are assessed again, with the results incorporated into risk management.

Phase 6.4 makes a strong commitment of resources to the PAs to prepare for stockpile production. During this phase, acquisition of capital is completed, tooling and gauges are procured, and PAs continue process development operations to characterize the production processes. The DAs will issue the directive schedule use authorizations for example: CERs. Using the CERs and associated product definition, the PAs will implement final tooling, equipment, and processes to perform PPI and validate the processes. The PAs will then produce the EE lots of components and assemblies for the final demonstration of production readiness.

After the PA and DA evaluation, the DAs will issue qualification status determinations, such as QERs. (Specific QERs may be released in previous stages depending on the process or product under evaluation.)

Program management plans are updated and program monitoring continues. The production readiness and qualification stage covered in Phase 6.4 involves achievement of production readiness and product qualification.

Phase 6.5 - First Production Activities

Phase 6.5 is initiated by a NNSA decision to proceed to the production of the first WR unit. This decision should be made after all the qualification evaluation determinations (QERs) for this refurbishment are authorized as either “Conditional” or “Acceptable.” The FPU will usually occur soon after the beginning of Phase 6.5. Phase 6.5 includes of the phase-gate process for product realization.

NNSA will coordinate the final activities with the DoD that culminate in the release of refurbished weapons to the military. During this period, PAs will produce a limited number of refurbished weapons and will then disassemble and examine some of them for final qualification of the production process. DAs will assist the PAs and address issues that arise.

After NNSA, DAs, and PAs have completed their evaluation of the limited production and the other reviews are complete, DAs will prepare the MAR, which will be endorsed by senior DA leadership. NNSA will then concur with the approval of the MAR and advise SNL to issue these documents to the DoD. Upon acceptance of the final DRAAG report by the NWCSSC and issuance of the MAR, the first refurbished weapons will be released to the DoD. With the MAR, NNSA has advised the DoD that the produced weapon is suitable for use, including limitations. If a conditional MAR is issued, NNSA may direct an IPR to be performed at the time the conditional provision is removed or to address other remaining issues.

DAs will prepare a final draft of the addendum to the FWDR and will submit it for final DRAAG review. The DRAAG will review the final draft of the addendum to the FWDR and will issue a final DRAAG report, with comments and recommendations, to the NWCSSC with the DoD Service agency. The DRAAG, in coordination with the DoD Service agency and through the NWCSSC, will inform NNSA whether the weapon meets the requirements of the MCs. After receiving comments from the DRAAG, the DAs will complete the final addendum to the FWDR and will attach a Certification Letter as the formal certification document for the refurbishment.

The POG will brief the NWC concerning readiness to proceed to Initial Operational Capability (IOC) and full deployment. The lead DoD Service conducts a Pre-Operational Safety Study in such time that specific weapon system safety rules can be coordinated, approved, promulgated, and implemented 60 days before IOC or first weapon delivery. NNSA contributes to the safety study (with the DAs as subject matter experts) and maintains the DoD interface

per DOE Order 452.6. During this study, the NWSSG examines system design features, hardware, procedures, and aspects of the concept of operation that will affect safety of the weapon system to determine if the DoD nuclear weapon system safety standards can be met. The NWSSG will recommend draft weapon system safety rules to the military departments.

NNSA, with the POG, ensures that between FPU and steady state production, the NSE meets the IOC commitment. A briefing package, prepared by the POG Chair, is provided to the NWC on readiness to enter Phase 6.6. The POG will request approval from the NWC to proceed into Phase 6.6. The NPP and JIPP are updated to reflect changes to the project.

Phase 6.6 - Full-Scale Production Activities

This phase is initiated when the NWC accepts the modified weapons and authorizes full-scale production. NNSA issues tasking letters to M&O Contractors authorizing 6.6 activities.

During this phase, refurbished weapons are shipped to the DoD, REST activities continue, and evaluation activities begin for deployed weapons that have been refurbished. Issues that arise during this phase may require initiating an IPR or other review activity. The weapon phase process will revert to normal maintenance mode, Phase 6, following completion of the refurbishment activity.

Throughout the production period, and continuing through maintenance and sustainment activities, DA and PA organizations maintain knowledgeable personnel to address issues throughout the product's lifecycle.

APPENDIX B: SUMMARY OF PHASE 6.X PROCESS MAJOR ACTIVITIES

Phase	**6.1**	**6.2**	**6.2A**	**6.3**	**6.4**	**6.5**	**6.6**
Title	Concept Assess-ment	Feasibility Study & Option Down-Select	Design Definition & Cost Study	Development Engineering	Production Engineering	First Production	Full-Scale Production
Approval Authority	NNSA or DoD (Note 1)	NWC (Note 2)	NNSA and DoD	NWC (Note 2)	NNSA	NNSA	NWC (Note 2)
Estimated Length of Phase	Ongoing process updated annually	9 - 18 months	3 – 6 months	1 - 3 years	1 - 3 years	3 - 6 months	Variable
Documen-tation produced by the Enterprise	Phase 6.1 Report for joint studies	Draft NPP	NPP with WDCR & MIR referenced Draft PCP IPRT Report	Updated NPP with BCR referenced AERs PCP Draft NWSSTP Draft Addendum to the FWDR IPRT Report Draft NS and WSS	Updated NPP PMD CERs QERs IPRT Report NWSSTP NS WSS	MAR Addendum to the FWDR and Certification Letter Updated NPP	End-of-Project Report Final NPP
Documen-tation produced by External Interfaces (POG, NWC, DoD)	Phase 6.1 Report for NNSA studies	Draft JIPP Updated MCs,STS & ICDs Phase 6.2 Report	JIPP Phase 6.2A Report	Updated JIPP Approved MCs, STS & ICDs Preliminary DRAAG Report Preliminary NWSSG Report	Updated JIPP	Updated JIPP Final DRAAG Report Pre-Operational NWSSG Report	
Major Reviews (Notes 3 and 4)			IPR	Preliminary DRAAG Preliminary NWSSG IPR	IPR	Final DRAAG Pre-Operational NWSSG	

Note 1 – For Phase 6.1 activities that are jointly conducted by DoD and NNSA, the Nuclear Weapons Council Standing and Safety Committee (NWCSSC) will be informed in writing before the onset of the activity.
Note 2 – The Nuclear Weapons Council may delegate its authority to the NWCSSC.
Note 3 – This does not include the required NNSA management reviews or reviews initiated by the cognizant DAs.
Note 4 – The NWCSSC will periodically conduct reviews to evaluate program milestones, requirements, and strategies (for example annual POG briefings to the Nuclear Weapons Council Standing and Safety Committee).

FEDERAL REQUIREMENTS				
NUMBER	ISSUE	RELEASE DATE	EFFECTIVE DATE	PAGE
R008	**A5**	**2016-06-14**	**2016-06-21**	**1 of 11**

Portfolio-Program-Project Management

For PRRO Administration Use Only CAGE CODE: 14213

CHANGE HISTORY

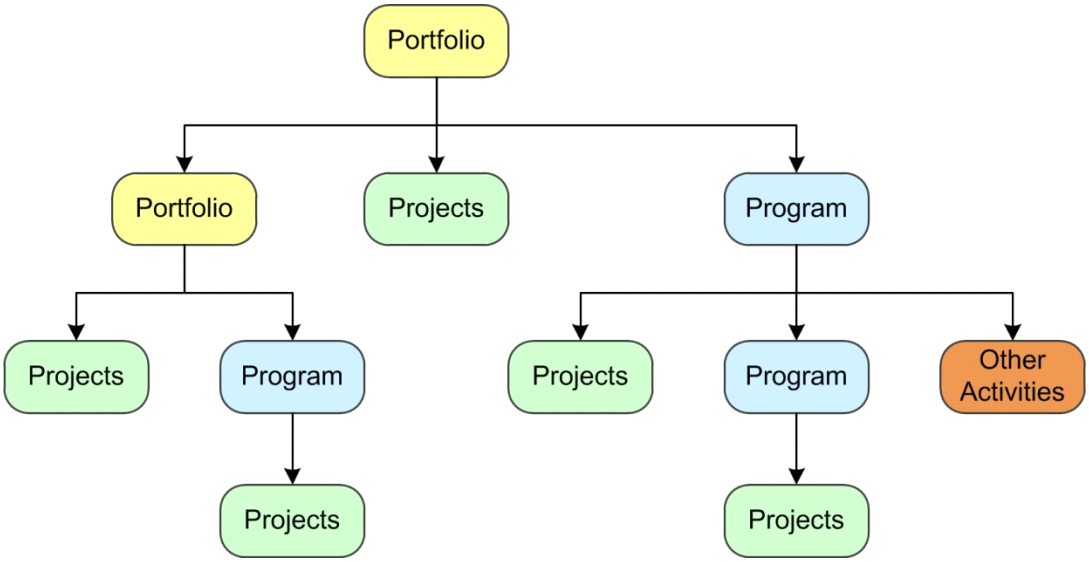
EFFECTIVE DATE	ISSUE	RELEASE/CHANGE NO.
2013-07-01	A2	IER 20130058SA
2013-07-01	A3	FCO 20131811SA
2016-05-09	A4	FCO 20161851SA
2016-06-21	A5	FCO 20163095SA

TABLE OF CONTENTS

1. SCOPE

This content provides federal control of portfolio-program-project management to establish a standardized and repeatable approach for successful delivery of product, service, or result to the sponsor. A hierarchical view of portfolios, programs, and projects is shown in Figure 1.

Figure 1: Hierarchy



Federal program-project managers use the minimum plan elements to determine the level of detail needed to meet program objectives. The term federal program-project manager also includes federal portfolio managers.

This content is based on international standards developed by the Project Management Institute and the American Association of Cost Estimators International.

2. APPLICABILITY

This content applies to the following organizations when performing portfolio-program-project management:

a) NNSA: all federal organizations reporting to the Defense Programs Office of the Assistant Deputy Administrator for Stockpile Management and the weapon-related portions of Defense Programs Office of the Assistant Deputy Administrator for Major Modernization Programs

b) M&O Contractors: KCNSC / LANL / LLNL / NNSS / PX / SNL / SRS / Y-12

c) Field Offices (FO)

Section 5 lists external interfaces for this content.

2.1 Cancellation

When this content and tool T082 Issue Resolution Group become effective, the following content will be cancelled:

R008(A4) and T082(A3)

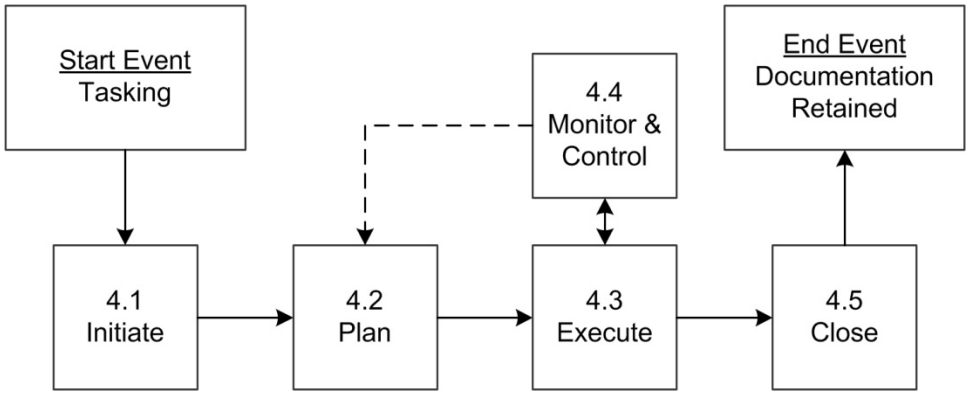
2.2 Federal Organization Responsible for Content

The Office of Nuclear Weapons Stockpile (NA-122) is responsible for this content.

3. PROCESS DIAGRAM

Figure 2 represents the process necessary to clarify the requirements. Each numbered box represents a specific process step.

Figure 2: Program-Project Management Process



The process begins with portfolio-program-project tasking.

4. REQUIREMENTS

This section exclusively lists federal requirements. A rationale appears where further explanation adds clarity. Rationales do not contain additional requirements.

A unique number identifies each requirement. The information below each requirement provides traceability. Supersession links identify legacy content cancelled by the requirement.

Definitions and acronyms related to this content can be found in the online Glossary (Lexicon) - see Section 6.

Section 7 lists the titles of documents called out in this content.

4.1 Initiate

FR13164 **When a formal request to initiate work is received from a sponsor, the lead federal organization responding must assign a qualified federal program-project manager.**

Rationale: The degree of detail in the request documentation depends on the level of work to be undertaken.

Parent: DOE O 426.1; NAP-24A 3.2
Supersedes: None

FR47357 **The federal program-project manager must write an acknowledgement to the sponsor for formal requests for initiation of work.**

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.2A
Supersedes: None

FR22642 **The federal program-project manager must document the program-project:**

a) Team membership

b) Team roles

c) Team responsibilities

d) Team authorities

e) When to establish the plan

Rationale: Preliminary program-project information is the plan basis.

Parent: Procedural Guideline for the Phase 6.X Process, Phase 6.2A
Supersedes: None

FR11574 **The federal program-project manager must document the charter:**

a) Scope

b) Goals and objectives

c) Assumptions

d) Constraints

Rationale: Developing a charter formally documents initial requirements that satisfy the sponsor's needs and expectations. T067 Section 2.1 contains additional information.

Parent: BOP-006.001; NAP-24A, 2.5
Supersedes: None

FR26065 **The federal program-project manager must obtain sponsor approval of the charter.**

Rationale: Sponsor review is essential to ensure clarity and avoid misunderstandings of the work scope. Approval documents initial requirements that satisfy the sponsor's needs and expectations and starts the detailed planning.

Parent: BOP-006.001
Supersedes: None

4.2 Plan

FR89592 **The federal program-project manager must document a program-project plan per T067 Section 2.2.**

Rationale: The program-project plan defines how the program-project will be managed to meet the charter. The federal program-project manager determines the extent to which the minimum plan elements are addressed. The program-project plan is a living document. Minimum plan elements will be further developed and refined during the course of the program-project. Particular programs or projects may require additional requirements in the program-project plan. Optional plan elements are described in T067 Section 2.3.

Parent: BOP-006.001
Supersedes: None

FR58776 **The federal program-project manager must disposition information access requests.**

Rationale: The federal program-project manager uses experts in classification, public affairs and NTK to determine information access.

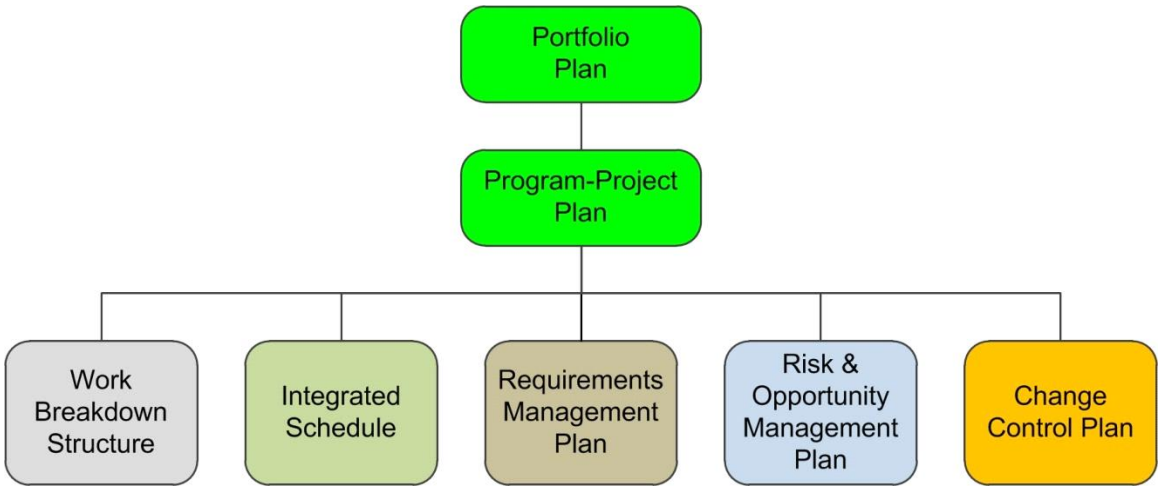
Parent: DOE O 205.1
Supersedes: None

FR96433 **If subordinate plans are required by the federal program-project manager, the team lead must document the subordinate plan per the federal program-project plan or T067 Section 2.2.**

Rationale: Consistent subordinate documentation and reporting allows roll-up to the federal program-project plan. Figure 3 shows a normal hierarchy of plans.

Parent: BOP-001.31; BOP-006.001
Supersedes: None

Figure 3: Hierarchy of Plans



FR80547 **The federal program-project manager must obtain funding per R007.**

Rationale: The federal program-project manager will use a cost estimating methodology similar to T071 to provide consistent resource requests. A Cost Estimating Checklist is found in T070. R007 defines the funding process within Planning, Programming, Budgeting, Evaluation.

Parent: BOP-001.31; BOP-006.001
Supersedes: None

FR11219 **The federal program-project manager must document coordination of internal and external integration requirements with other federal program-project managers.**

Rationale: Planning establishes the integration approach(s) used to address issues and conflicts when coordinating resources and "deliverable" between programs and projects.

Parent: NAP-24A, 2.3
Supersedes: None

FR61740 **The federal program-project manager must obtain approval of the program-project plan by the program-project team.**

Parent: BOP-006.001
Supersedes: None

FR30093 **The federal program-project manager must review the program-project plan with the sponsor(s) and obtain approval.**

Rationale: Sponsor review is essential to ensure clarity and avoid misunderstandings.

Parent: BOP-006.001
Supersedes: None

4.3 Execute

FR34822 **The program-project team must implement the program-project plan.**

Parent: BOP-006.001
Supersedes: None

FR71828 **The program-project team must perform requirements engineering per R012.**

Parent: NAP-24A, 2.5
Supersedes: None

FR24505 **The program-project team must perform risk and opportunity management per R009.**

Parent: BOP-006.001
Supersedes: None

4.4 Monitor and Control

FR76020 **The program-project team must document performance metrics against the program-project plan.**

Rationale: The plan is compared to actual performance to evaluate progress.

Parent: BOP-006.001
Supersedes: None

FR20196 **When NA-12 activates an Issue Response Group (IRG), the assigned NNSA organizations and M&Os must participate per T082.**

Rationale: NA-12 may activate an IRG if a programmatic problem emerges that results in unrecoverable delay to an NNSA deliverable.

Parent: None
Supersedes: D&P Manual, Chapter 2.2 Section 1.0 bullet 1, Section 1.0 bullet 3 reference to Code Blue, Section 4.1, and Section 4.2.1 first sentence

FR74512 **The program-project team must document changes from the approved program-project plan to the sponsors per T081.**

Rationale: Revisions to the plan are made according to the plan specifics or at the federal program-project manager's discretion. Changes are identified, assigned, reviewed and evaluated, and either accepted, rejected, or deferred. An example change request form is found in T081 Appendix A.

Parent: BOP-006.001
Supersedes: None

4.5 Close

FR17349 **The program-project team must document unresolved or incomplete tasks that need resolution before close out.**

Parent: BOP-006.001
Supersedes: None

FR31856 **The program-project team must document the completion of tasks that are authorized and funded and the unfunded tasks not completed.**

Parent: BOP-006.001
Supersedes: None

FR93613 **The federal program-project manager must document the close out report per T068.**

Parent: DOE O 243.1; BOP-006.001
Supersedes: None

FR33510 **The federal program-project manager must transmit the final program-project plan and the close out report to the sponsor(s).**

Rationale: Sponsor approval acknowledges closure. Maintaining the program-project plan ensures required information will be readily available for use.

Parent: BOP-006.001
Supersedes: None

FR30265 **At the close of the program-project, the program-project team must retain the program-project documentation per the program-project plan.**

Parent: DOE O 243.1; BOP-006.001
Supersedes: None

5. EXTERNAL INTERFACE RESPONSIBILITIES

This section exclusively lists responsibilities for organizations and individuals external to NNSA and M&O Contractors.

5.1 External Sponsors

a) Formally request work from NNSA

b) Review and approve charter

c) Review and approve program-project plan

d) Other responsibilities as outlined in the program-project plan

6. KEY DEFINITIONS

Definitions and acronyms related to this content can be found in the Glossary (Lexicon) on the DPBPS Portal at this URL: https://dpbps.sandia.gov/Pages/Lexicon.aspx.

7. TRACEABILITY REFERENCES

The following references are used in this content.

BOP-001.31: Budget Formulation

BOP-006.001: NNSA Program Management Policy

D&P Manual, Chapter 2.2: Stop Work

DOE O 205.1: DOE Cyber Security Program

DOE O 243.1: Records Management Program

DOE O 426.1: Federal Technical Capability

T067: Program-Project Plans

T068: Reviews and Reports

T070: Cost Estimating Checklist

T071: Cost Estimating Guide

T081: Programmatic Change Control

T082: Issue Resolution Group

APPENDIX A: PORTFOLIO-PROGRAM-PROJECT EXAMPLES

Table 1: Portfolio-Program-Project Examples

Defense Programs Portfolios	Programs	Projects
DSW	Cruise Missiles SLBMs ICBMs Bombs Stockpile Services	LEP, SS-21, ALT, Mod, LLC LEP, SS-21, ALT, Mod, LLC LEP, SS-21, ALT, Mod, LLC LEP, SS-21, ALT, Mod, LLC Dismantlement LLCE
Campaigns	Engineering Science ICF	
RTBF		Materials Management Facilities Construction

FEDERAL REQUIREMENTS				
NUMBER	ISSUE	RELEASE DATE	EFFECTIVE DATE	PAGE
R009	**A6**	**2016-09-15**	**2016-10-01**	**1 of 10**

Risk And Opportunity Management

For PRRO Administration Use Only CAGE CODE: 14213

CHANGE HISTORY

EFFECTIVE DATE	ISSUE	RELEASE/CHANGE NO.
2012-06-30	A4	IER 20121727SA
2016-05-09	A5	FCO 20161851SA
2016-10-01	A6	FCO 20164024SA

TABLE OF CONTENTS

1. SCOPE

This content specifies requirements for implementation of risk and opportunity management of program-project activities funded by NA-10.

These requirements provide federal control to improve the chances of success for program activities by:

a) Ensuring risk and opportunity items are addressed to eliminate or minimize negative impacts and maximize positive impacts on cost, performance, or schedule,

b) Ensuring risk aspects are factored into decision making and program planning,

c) Improving the quality of resource allocation, planning, and scheduling decisions,

d) Applying a graded approach to the rigor used in risk and opportunity management based on the program magnitude, scope, and importance.

2. APPLICABILITY

This content applies to the following organizations when performing risk and opportunity management activities:

a) NNSA: all federal organizations reporting to the Defense Programs Office of the Assistant Deputy Administrator for Stockpile Management and the weapon-related portions of Defense Programs Office of the Assistant Deputy Administrator for Major Modernization Programs

b) M&O Contractors: KCNSC / LANL / LLNL / NNSS / PX / SNL / SRS / Y-12

c) Field Offices

Section 5 lists external interfaces for this content.

2.1 Cancellation

When this content becomes effective, the following content will be cancelled:

R009(A5)

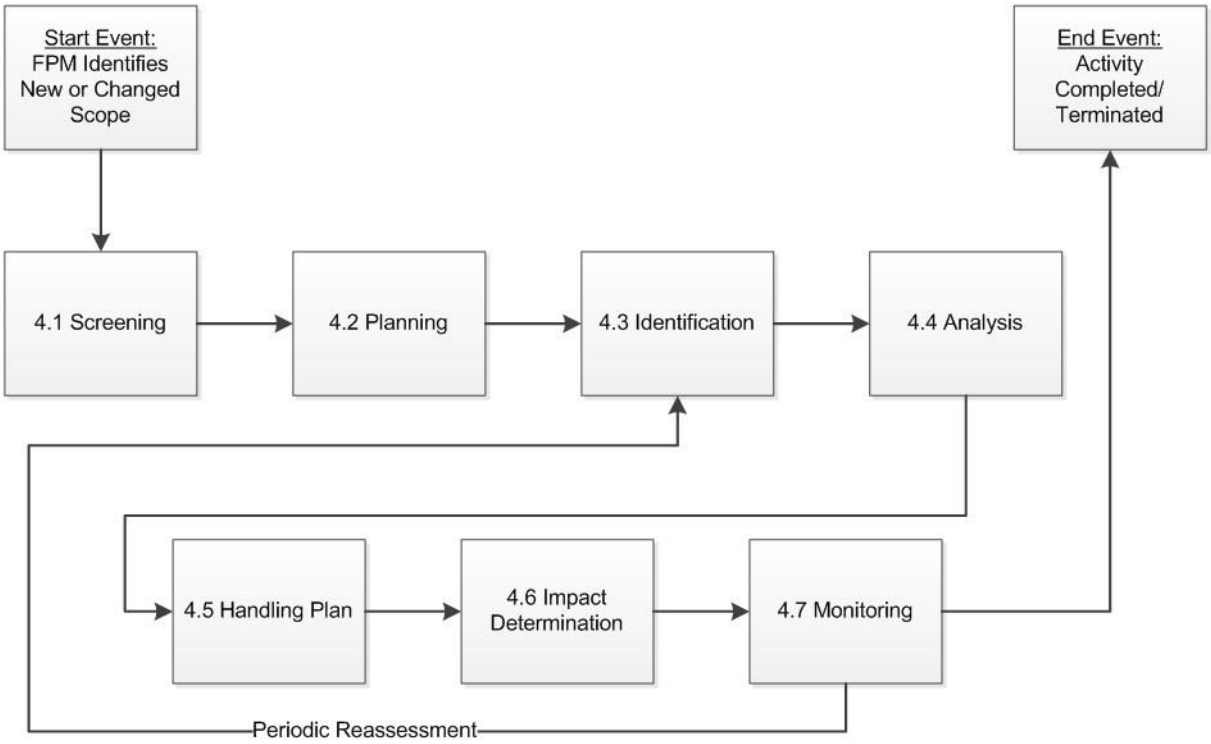
2.2 Organization Responsible for Content

The Office of Nuclear Weapon Stockpile Division (NA-122) is responsible for this content.

3. PROCESS DIAGRAM

Figure 1 represents the process needed to clarify the requirements.

Figure 1: Risk and Opportunity Management



Program-Project risk is characterized by the likelihood of achieving objectives such as cost, schedule and performance given the various risks, their seriousness (likelihood and consequence), and their combined potential impact on the objectives. Conversely, opportunities may exist that could enhance achievement of these same program objectives.

The Federal Program Manager or their designee(s) are responsible for managing risks as well as opportunities associated with assigned programs. A risk management process is used to identify, assess, and systematically manage risk and opportunity events in order to reduce program risk to an acceptable level or to enhance program opportunities. Key to managing risk and opportunity is a Risk and Opportunity Management Plan and integration of the handling strategies into the overall program work practices.

Risk and Opportunity Management Process Description

The process begins when the Federal Program Manager identifies new or changed work scope program-project activity for screening.

Screening - Determines if risk potential of the proposed work warrants formal risk management.

Planning - Identifies how risk management will be performed, any specific risk management requirements, the risk management organization, and other management issues.

Identification - Develops a comprehensive list of risks and opportunities for analysis.

Analysis - Qualitatively, and possibly quantitatively assigns likelihood, risk consequence, and opportunity benefit ratings to each risk and opportunity.

Handling Plan - Develops and implements handling strategies with the purpose of eliminating, or minimizing, the likelihood and/or consequences of an identified risk or enhancing the likelihood and/or benefit of an opportunity.

Impact Determination - Estimates the resources necessary to implement handling actions and performs risk based cost and schedule contingency analysis, if warranted.

Monitoring - Tracks the status and effectiveness of the handling strategies, the status of existing risks and opportunities, effectiveness of the Risk and Opportunity Management Plan, provides reports, and monitors the program-project for new risk and opportunity identification.

Periodic reassessment occurs throughout the lifecycle. The process ends when the program-project is completed or terminated.

4. REQUIREMENTS

This section exclusively lists federal requirements. A rationale appears where further explanation adds clarity. Rationales do not contain additional requirements.

A unique number identifies each requirement. The information below each requirement provides traceability. Supersession links identify legacy content cancelled by the requirement.

Definitions and acronyms related to this content can be found in the online Glossary (Lexicon) - see Section 6.

Section 7 lists the titles of documents called out in this content.

4.1 Screening

FR15868 **Federal Program Manager or designee(s) must determine the need for risk and opportunity management by screening new or changed work scope and document the screening results per T055.**

a) If the results of screening indicate the activity has no potential for risk, the risk screening process is complete and no further risk evaluation is required.

b) If the results of screening indicate the activity has potential for risk, then a Risk and Opportunity Management Plan is developed at the onset of the activity.

Parent: DOE O 413.3B Chg 2 (PgChg) (2016) (or successor) Appendix A Table 2.1 Row 5 and Appendix C.19
Supersedes: D&P Manual Chapter 12.3 / Program Management Manual Section 3.7.1

FR18057 M&O Contractors must respond to Federal Program Manager requests for assistance in risk and opportunity screening documenting results in T055.

Rationale: The Federal Program Manager request for M&O contractor responses will depend on the need for additional input to complete T055.

Parent: DOE O 413.3B Chg 2 (PgChg) (2016) (or successor) Appendix A Table 2.1 Row 5 and Appendix C.19
Supersedes: D&P Manual Chapter 12.3 / Program Management Manual Section 3.7.1

4.2 Planning

FR68652 The Federal Program Manager or designee(s) must develop a Risk and Opportunity Management Plan per T056.

Rationale: Planning defines the specific details and actions employed for risk and opportunity management for the specific work scope activity. This information is also used to determine resources needed for conducting risk and opportunity management as part of budget requests within the annual R007 process steps to ensure adequate resources are included in baseline management. Additional guidance for the Risk and Opportunity Management Plan content is contained in T057.

Parent: DOE O 413.3B Chg 2 (PgChg) (2016) (or successor) Appendix A Table 2.1 Row 5 and Appendix C.19
Supersedes: D&P Manual Chapter 12.3 / Program Management Manual Section 3.7.1

FR91362 The Federal Program Manager must approve the Risk and Opportunity Management Plan.

Parent: DOE O 413.3B Chg 2 (PgChg) (2016) (or successor) Appendix A Table 2.1 Row 5 and Appendix C.19
Supersedes: D&P Manual Chapter 12.3 / Program Management Manual Section 3.7.1

FR26379 The Federal Program Manager must specify in the Risk and Opportunity Management Plan how risk and opportunity management information will be documented, shared, and retained in a single location.

Rationale: A single location supports the integration that is necessary to ensure that all risks are appropriately considered and prioritized and risk informed decisions are made. Examples of a single location include a risk register or other database.

Parent: DOE O 413.3B Chg 2 (PgChg) (2016) (or successor) Appendix A Table 2.1 Row 5 and Appendix C.19
Supersedes: D&P Manual Chapter 12.3 / Program Management Manual Section 3.7.1

4.3 Identification

FR10510 **The Federal Program Manager or designee(s) must identify and document risks and opportunities for the work scope as directed by the Risk and Opportunity Management Plan.**

Rationale: The Risk and Opportunity Identification section of the applicable Risk and Opportunity Management Plan will dictate the method and rigor needed to adequately conduct the risk and opportunity identification process (for instance frequency, tools to be used, personnel that will be involved). The intent is to capture information that provides consistent interpretation and understanding of the risk or opportunity.

Parent: DOE O 413.3B Chg 2 (PgChg) (2016) (or successor) Appendix A Table 2.1 Row 5 and Appendix C.19
Supersedes: D&P Manual Chapter 12.3 / Program Management Manual Section 3.7.1

4.4 Analysis

FR55342 **The Federal Program Manager or designee(s) must qualitatively assign and document the following per the grading criteria in the Risk and Opportunity Management Plan:**

a) Likelihood of event

b) Consequence of adverse event or benefit of positive event

c) Risk or opportunity level of each event

Parent: DOE O 413.3B Chg 2 (PgChg) (2016) (or successor) Appendix A Table 2.1 Row 5 and Appendix C.19
Supersedes: D&P Manual Chapter 12.3 / Program Management Manual Section 3.7.1

FR42830 **The Federal Program Manager or designee(s) must address in their Risk and Opportunity Management Plan whether, and how, an analysis process will be used to clarify, combine, consolidate, or otherwise optimize risks and opportunities and their handling strategies.**

Rationale: The risk and opportunity management process often results in many similar but differently worded risks and opportunities that could be combined or integrated into a single risk or opportunity with one single effective or more optimal handling strategy. Analyses (e.g., comparative analyses, sensitivity analyses, or interrelationship evaluations) are performed throughout the risk and opportunity management process to ensure the most effective and efficient handling strategies and related actions are implemented. See T057 for additional guidance.

Parent: DOE O 413.3B Chg 2 (PgChg) (2016) (or successor) Appendix A Table 2.1 Row 5 and Appendix C.19
Supersedes: D&P Manual Chapter 12.3 / Program Management Manual Section 3.7.1

FR39250 **The Federal Program Manager or designee(s) must address in the Risk and Opportunity Management Plan whether, and how, prioritization of risks and opportunities will be used in the risk and opportunity management process.**

Rationale: Resource limitations may warrant execution of a prioritization process to ensure higher impact risks are addressed first. Variation in grading can occur even when the same grading criteria is used, so normalization of risk assessments across the work scope activities covered by the Risk and Opportunity Management Plan should be considered. See T057 for additional guidance.

Parent: DOE O 413.3B Chg 2 (PgChg) (2016) (or successor) Appendix A Table 2.1 Row 5 and Appendix C.19
Supersedes: D&P Manual Chapter 12.3 / Program Management Manual Section 3.7.1

4.5 Handling Plan

FR95408 **The Federal Program Manager and designee(s) must develop handling strategies and actions per the Risk and Opportunity Management Plan:**

a) Identify handling strategy for each risk (avoid, mitigate, accept, transfer)

b) Identify handling strategy for each opportunity (exploit, share, enhance, ignore)

c) Identify detailed actions, their schedule and owner(s) necessary to implement handling strategy.

Rationale: Handling strategies and specific actions are developed for the purpose of eliminating, or limiting, the likelihood and/or consequences of an identified risk, and enhancing the likelihood and/or benefit of an identified opportunity. The Federal Program Manager relies on the input from the designees on the specific details for individual risks and opportunities and manages with consolidated information at a programmatic level.

Parent: DOE O 413.3B Chg 2 (PgChg) (2016) (or successor) Appendix A Table 2.1 Row 5 and Appendix C.19
Supersedes: D&P Manual Chapter 12.3 / Program Management Manual Section 3.7.1

FR73384 **When risk handling strategy is transferred, the Federal Program Manager or designee(s) must document the formal transference of risk from both parties.**

Parent: DOE O 413.3B Chg 2 (PgChg) (2016) (or successor) Appendix A Table 2.1 Row 5 and Appendix C.19
Supersedes: D&P Manual Chapter 12.3 / Program Management Manual Section 3.7.1

4.6 Impact Determination

FR63797 **The Federal Program Manager and designee(s) must determine the estimated cost, schedule and performance impacts of implementation of risk and opportunity handling actions per the Risk and Opportunity Management Plan.**

Rationale: Cost and schedule impacts from handling actions are inputs to the programmatic baseline per R008 process to gain commitment of resources to accomplish those actions. The Federal Program Manager relies on the input from the designees on the specific details for impacts for individual risks and opportunities and manages with consolidated information at a programmatic level.

Parent: DOE O 413.3B Chg 2 (PgChg) (2016) (or successor) Appendix A Table 2.1 Row 5 and Appendix C.19
Supersedes: D&P Manual Chapter 12.3 / Program Management Manual Section 3.7.1

FR54059 **The Federal Program Manager or designee(s) must determine and document in the Risk and Opportunity Management Plan if quantitative analysis on cost, schedule and performance is necessary to support handling implementation decisions and contingency.**

Rationale: Quantitative analysis is an optional method that may be used to help justify expenditure of funds for implementing handling actions. Quantitative analysis may also be used to help establish risk-based contingency analysis to address known risks if they are realized. Risk-based contingency is distinct from overall management reserve, which is covered in R008 tools, T070 and T071, and also addressed in R007. See T057 for additional guidance.

Parent: DOE O 413.3B Chg 2 (PgChg) (2016) (or successor) Appendix A Table 2.1 Row 5 and Appendix C.19
Supersedes: D&P Manual Chapter 12.3 / Program Management Manual Section 3.7.1

FR57677 **The Federal Program Manager or designee(s) must determine the need to identify residual risk in the Risk and Opportunity Management Plan.**

Rationale: Results of residual risk identification can be used to develop residual risk impacts and risk-based contingency estimates.

Parent: DOE O 413.3B Chg 2 (PgChg) (2016) (or successor) Appendix A Table 2.1 Row 5 and Appendix C.19
Supersedes: D&P Manual Chapter 12.3 / Program Management Manual Section 3.7.1

4.7 Monitoring

FR97075 **The Federal Program Manager or designee(s) must conduct risk and opportunity management as an on-going process throughout the program-project lifecycle.**

Parent: DOE O 413.3B Chg 2 (PgChg) (2016) (or successor) Appendix A Table 2.1 Row 5 and Appendix C.19
Supersedes: D&P Manual Chapter 12.3 / Program Management Manual Section 3.7.1

FR79772 **The Federal Program Manager or designee(s) must provide reports identified in the Risk and Opportunity Management Plan.**

Rationale: The Risk and Opportunity Management Plan will identify required reports, recipients, and frequency for the specific program-project activity.

Parent: DOE O 413.3B Chg 2 (PgChg) (2016) (or successor) Appendix A Table 2.1 Row 5 and Appendix C.19
Supersedes: D&P Manual, Chapter 12.3 / Program Management Manual, Section 3.7.1

FR69078 **The Federal Program Manager or designee(s) must determine the frequency for reassessment of identified risks and opportunities and for identifying potential new risks and opportunities and document in the Risk and Opportunity Management Plan.**

Rationale: Best management practice indicates that reassessment of identified risks and opportunities are conducted annually as a minimum. This reassessment is in addition to reassessment of individual risks and opportunities driven by trigger dates. Identification of new risks and opportunities or the need to combine/split risks is often one of the results of this reassessment.

Parent: DOE O 413.3B Chg 2 (PgChg) (2016) (or successor) Appendix A Table 2.1 Row 5 and Appendix C.19
Supersedes: D&P Manual Chapter 12.3 / Program Management Manual Section 3.7.1

5. EXTERNAL INTERFACE RESPONSIBILITIES

This content does not contain interface responsibilities for organizations or individuals external to NNSA and M&O Contractors.

6. KEY DEFINITIONS

Definitions and acronyms related to this content can be found in the Glossary (Lexicon) on the DPBPS Portal at this URL: https://dpbps.sandia.gov/Pages/Lexicon.aspx.

7. TRACEABILITY REFERENCES

The following references are used in this content:

D&P Manual, Chapter 12.3: Risk Management for the Directed Stockpile Work Program

DOE G 413.3-7A (2011) (or successor): Risk Management Guide

DOE O 413.3B Chg 2 (PgChg) (2016) (or successor), Program and Project Management for the Acquisition of Capital Assets

R007: DSW Program Funding within PPBE Process

R008: Portfolio-Program-Project Management

T055: Risk and Opportunity Screening Checklist

T056: Risk and Opportunity Management Plan

T057: Risk and Opportunity Management Methodology Guidance

T070: Cost Estimating Checklist

T071: Cost Estimating Guide

FEDERAL REQUIREMENTS				
NUMBER	ISSUE	RELEASE DATE	EFFECTIVE DATE	PAGE
R016	**A5**	**2016-09-15**	**2016-10-01**	**1 of 6**

Annual Assessment Reporting Process

For PRRO Administration Use Only CAGE CODE: 14213

CHANGE HISTORY

EFFECTIVE DATE	ISSUE	RELEASE/CHANGE NO.
2015-10-01	A3	IER 20154200SA
2016-05-09	A4	FCO 20161851SA
2016-10-01	A5	FCO 20164024SA

TABLE OF CONTENTS

1. SCOPE

This content specifies requirements for the annual assessment reporting process.

These requirements provide control of annual assessment reporting for nuclear warhead/bomb safety, reliability, and performance of every weapon type in the nuclear stockpile.

2. APPLICABILITY

This content applies to the following organizations when preparing and reporting the annual assessment:

a) All NNSA federal organizations reporting to the Defense Programs Office of the Assistant Deputy Administrator for Stockpile Management and the weapon-related portions of Defense Programs Office of the Assistant Deputy Administrator for Major Modernization Programs

b) M&O Contractors: LANL / LLNL / SNL

Section 5 lists external interfaces for this content.

2.1 Cancellation

When this content becomes effective, the following content will be cancelled:

R016(A4)

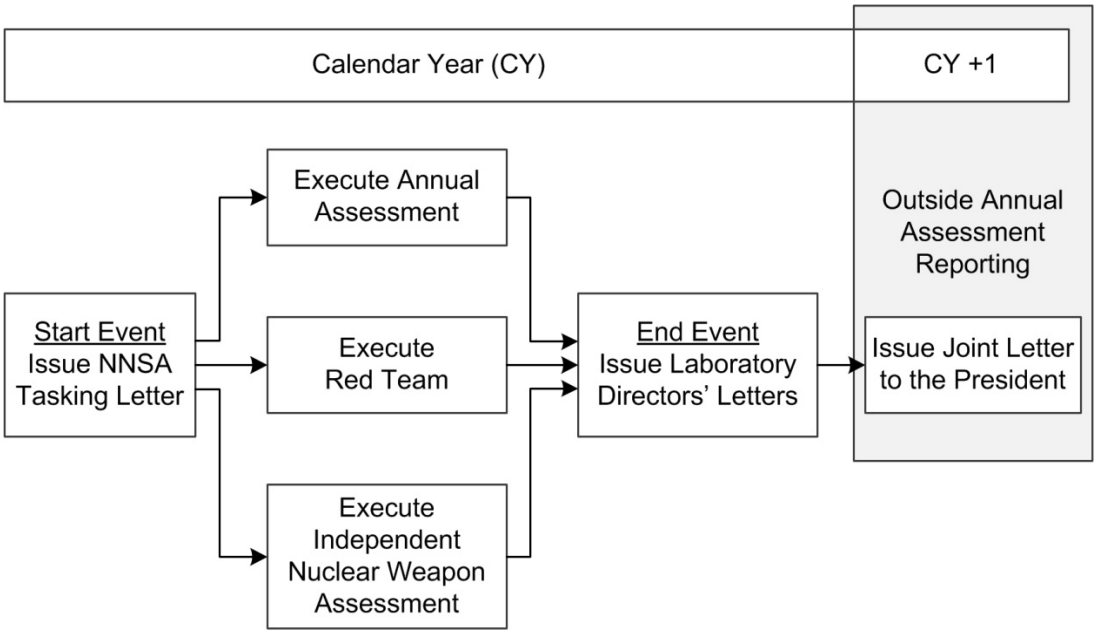
2.2 Organization Responsible for Content

The Office of Nuclear Weapons Stockpile (NA-122) is responsible for this content.

3. PROCESS DIAGRAM

Figure 1 represents the process needed to clarify the requirements.

Figure 1: Annual Assessment Reporting Process



The process begins when NNSA/NA-10 issues the annual assessment reporting process tasking letters to the laboratory directors. The National Laboratories then execute the annual assessment, the Red Team, and the Independent Nuclear Weapon Assessment. The process ends when the National Laboratory Directors' issue their annual assessment letters to the Secretary of Energy, Secretary of Defense, and the Nuclear Weapons Council (NWC). The Secretaries of Defense and Energy are responsible for issuing the Joint Memorandum to the President.

4. REQUIREMENTS

This section exclusively lists federal requirements. A rationale appears where further explanation adds clarity. Rationales do not contain additional requirements.

A unique number identifies each requirement. The information below each requirement provides traceability. Supersession links identify legacy content cancelled by the requirement.

Definitions and acronyms related to this content can be found in the online Glossary (Lexicon) - see Section 6.

Section 7 lists the titles of documents called out in this content.

FR89448 **NNSA/NA-10 must develop and issue the annual assessment reporting process tasking letters and Cycle Execution Plan to the laboratory directors.**

Rationale: NNSA provides guidance for the execution of the annual assessment reporting through an Annual Stockpile Assessment - Cycle xx Execution Plan and tasking letters to the Laboratory Directors. The annual assessment reporting process tasking letters and

Cycle Execution Plan, which are developed with laboratory concurrence, outline the key milestones and deliverables.

Parent: NNSA BOP-10.001 (July 14, 2005 or successor) Section V.B.2
Supersedes: D&P Chapter 3.2 Section 5.1.2 Bullet 3

FR22024 **National laboratories must execute the annual assessment.**

Rationale: The annual assessment reports address nuclear warhead/bomb safety, reliability and performance assessments.

Parent: 50 U.S.C.§ 2525 (2015 or successor) (e)
Supersedes: D&P Chapter 3.2. Section 5.1.2 Bullet 3

FR54436 **National laboratories must execute the Red Team.**

Rationale: Red Teams perform evaluations per internal site processes and report to their respective laboratory directors.

Parent: 50 U.S.C.§ 2525 (2015 or successor) (d)
Supersedes: D&P Chapter 3.2 Section 5.1.2 Bullet 3

FR49140 **National laboratories must execute the Independent Nuclear Weapon Assessment Process.**

Rationale: Independent Nuclear Weapon Assessment Teams conduct independent assessments and report as directed by the laboratory directors.

Parent: 50 U.S.C.§ 2525 (2015 or successor) (c)
Supersedes: D&P Chapter 3.2 Section 5.1.2 Bullet 3

FR81053 **The National Laboratory Directors' must issue their annual assessment letters to the Secretary of Energy, Secretary of Defense, and the NWC.**

Rationale: The laboratory directors' letters address nuclear warhead/bomb safety, reliability, and performance assessment results and whether underground nuclear tests are required.

Parent: 50 U.S.C.§ 2525 (2015 or successor) (e)
Supersedes: D&P Chapter 3.2 Section 5.1.2 Bullet 3

5. EXTERNAL INTERFACE RESPONSIBILITIES

This section exclusively lists responsibilities for organizations and individuals external to NNSA and M&O Contractors.

5.1 Departments of Defense and Energy

Secretaries of Defense and Energy are responsible for issuing the Joint Memorandum to the President.

Parent: 50 U.S.C.§ 2525 (2015 or successor) (e)

5.2 US Strategic Command

Commander of US Strategic Command is responsible for providing an annual assessment letter to the Secretary of Defense.

Parent: 50 U.S.C.§ 2525 (2015 or successor) (e)

5.3 President of the United States

The President of the United States is responsible for forwarding the Joint Memorandum to the President to Congress.

Parent: 50 U.S.C.§ 2525 (2015 or successor) (f)

6. KEY DEFINITIONS

Definitions and acronyms related to this content can be found in the Glossary (Lexicon) on the DPBPS Portal at this URL: https://dpbps.sandia.gov/Pages/Lexicon.aspx.

7. TRACEABILITY REFERENCES

The following references are used in this content:

50 U.S.C. § 2525 (2015 or successor): Annual Assessments and Reports to the President and Congress Regarding the Condition of the United States Nuclear Weapons Stockpile

D&P Manual, Chapter 3.2: Phase 6.X Process

NNSA BOP-10.001 (July 14, 2005 or sucessor): Business and Operating Policy for the Conduct of the Annual Assessment of the National Nuclear Stockpile

FEDERAL REQUIREMENTS				
NUMBER	ISSUE	RELEASE DATE	EFFECTIVE DATE	PAGE
R017	**A4**	**2016-09-15**	**2016-10-01**	**1 of 20**

Anomaly Reporting and Investigation

For PRRO Administration Use Only CAGE CODE: 14213

CHANGE HISTORY

EFFECTIVE DATE	ISSUE	RELEASE/CHANGE NO.
2016-01-01	A2	IER 20156016SA
2016-05-09	A3	FCO 20161851SA
2016-10-01	A4	FCO 20164024SA

TABLE OF CONTENTS

1. SCOPE

This content specifies the federal requirements for reporting and investigating anomalies that could adversely affect nuclear weapon reliability, safety, performance, or field operations. This content also defines requirements for investigations of anomalies that are test-related. This content covers the process that occurs when a potentially significant anomaly is discovered, up to and including the conduct and documentation of Significant Finding Investigations (SFIs), and Test System Investigations (TSIs).

2. APPLICABILITY

This content applies to the following organizations when identifying or investigating anomalies that could adversely affect nuclear weapon reliability, safety, performance, or field operations, and for anomalies that are test-related:

a) NNSA: all federal organizations reporting to the Defense Programs Office of the Assistant Deputy Administrator for Stockpile Management and the weapon-related portions of Defense Programs Office of the Assistant Deputy Administrator for Major Modernization Programs

b) M&O Contractors: KCNSC / LANL / LLNL / NNSS / PX / SNL / SRS / Y-12

c) Field Offices

Section 5 lists external interfaces for this content.

2.1 Cancellation

When this content becomes effective, the following content will be cancelled:

R017(A3)

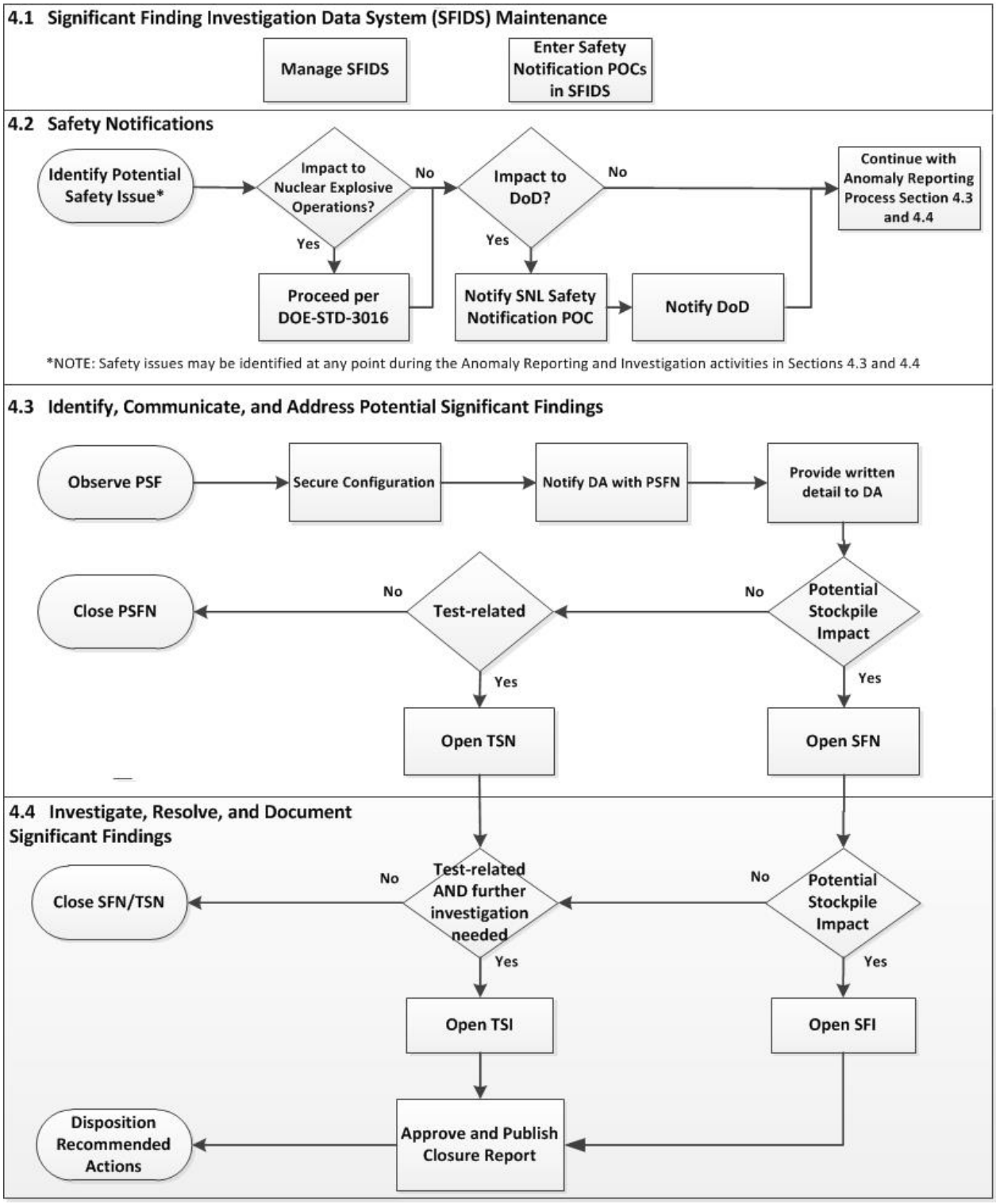
2.2 Organization Responsible for Content

The Office of Nuclear Weapon Stockpile (NNSA/NA-122) is responsible for this content.

3. PROCESS DIAGRAM

Figure 1 represents the process needed to clarify the requirements.

Figure 1: Anomaly Reporting and Investigation



4. REQUIREMENTS

This section exclusively lists federal requirements. A rationale appears where further explanation adds clarity. Rationales do not contain additional requirements.

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Definitions and acronyms related to this content can be found in the online Glossary (Lexicon) - see Section 6.

Section 7 lists the titles of documents called out in this content.

4.1 Significant Finding Investigation Data System (SFIDS) Maintenance

FR38314 **Sandia National Laboratory (SNL) must manage Significant Finding Investigation Data System (SFIDS).**

Rationale: The National Nuclear Security Administration(NNSA) has assigned the responsibility for managing SFIDS to SNL. SFIDS contains the anomaly discovery date, date promoted to Significant Finding Notification (SFN), SFI and TSI opening and closure dates, cause and impact, serial number(s), relevant component, anomaly description, and other pertinent information. SFIDS is also used to track the resolution, closure, and disposition of SFI and TSI recommended actions.

Parent: NAP-24A (or successor) Attachment 2 Section 3.8, Section 3.12 Bullet a, and Section 3.14
Supersedes: D&P Manual Chapter 8.1 Section 5.12.2 Paragraph 6 / TBP-800 Section 3.5 Paragraph 2 Sentence 3 / TBP-801 Section 7 Paragraph 2 Sentence 3

FR54268 **Each design agency (DA) must designate at least one Safety Notification point of contact (POC) per weapon system and enter contact information into SFIDS.**

Rationale: To provide for clear and timely communication of issues that may have safety significance, all agencies need to provide up-to-date POC contact information, such as email address and telephone number. Information should be reviewed annually and updated if necessary. DAs should have documented processes to further disseminate the information to the appropriate personnel. DAs may enter multiple Safety Notification POCs, based on function and responsibility, e.g., product, test, or weapon.

Parent: NAP-24A (or successor) Attachment 2 Section 2.3
Supersedes: N/A

4.2 Safety Notifications

FR68078 **If a potential safety issue is identified at any time by a production agency (PA), the PA must notify the responsible DA using a Potential Significant Finding Notification (PSFN) per Section 4.3.**

Parent: NAP-24A (or successor) Attachment 2 Section 2.3, and Section 3.1.2 a
Supersedes: N/A

FR96180 **If a potential safety issue is identified at any time during anomaly identification and evaluation processes, the responsible DA must notify the applicable Safety Notification POCs and take each of the following actions if applicable:**

a) If the safety issue has the potential to impact nuclear explosive operations at Pantex (PX) proceed per DOE-STD-3016-2006 (or successor).

b) If the safety issue has the potential to impact the Department of Defense (DoD) notify SNL's Safety Notification POC.

c) If notified that a safety issue has the potential to impact the Department of Defense (DoD), SNL notifies DoD.

Rationale: The notification requirement applies to all 3 DAs. The initial Safety Notification is made to the Safety Notification POC identified in FR54268. The initial notification does not have to be in writing. Potential safety impacts may be identified at any time during these processes, regardless of whether the issue is product or test-related. Increased understanding of weapon stockpile aging issues and technology development, gleaned from a variety of sources including surveillance assessments, significant finding investigations, enhanced surveillance, and modeling, flows between the PAs and DAs as part of day-to-day operations in several forms. In accordance with the established protocol, once the identifying agency management determines that information has reached a sufficient level of maturity or is technically complete and validated in accordance with internal procedures, that information is formally transmitted to the other NSE organizations.

Parent: NAP-24A (or successor) Attachment 2 Section 2.3, and Section 3.1.2 a
Supersedes: D&P Manual Chapter 2.2 Section 2.0 paragraph 2 bullet 1, and Section 4.2.2 paragraph 1 bullets 1 and 3.

4.3 Identify, Communicate, and Address Potential Significant Findings

FR66554 **The DA must provide the PAs with POCs for PSFNs.**

Rationale: Possible Potential Significant Finding (PSF) sources are shown in Appendix A. Because discovering agencies are expected to make PSFNs quickly and DAs are expected to respond in a timely manner, all agencies need to have up-to-date POC contact information, such as email address and telephone number. DAs should have documented processes to further disseminate the information to the appropriate personnel. DAs may provide multiple POCs, based on function and responsibility, e.g., product, test, or weapon.

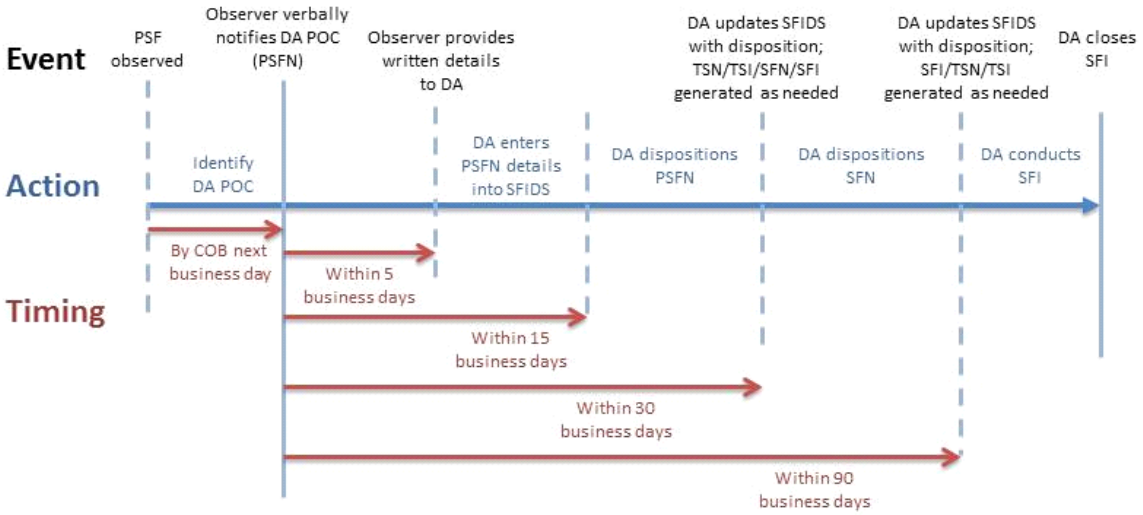
Parent: NAP-24A (or successor) Attachment 2 Section 3.12 Bullet a
Supersedes: N/A

FR33250 **By the close of the next work day after PSF detection, the M&O Contractor must provide the PSFN to the DA POC.**

Rationale: In requirement FR66554, each DA identifies POC(s) to receive PSFNs. The PSFN does not have to be in writing. Appendix A contains a list of possible PSF sources. See Figure 2 for a graphical representation of the PSF and SFI timeline requirements.

Parent: NAP-24A (or successor) Attachment 2 Section 3.12 Bullet a, and Section 3.12.1 a
Supersedes: D&P Manual Chapter 8.1 Section 5.12.3 Paragraph 1 Sentence 1 / TBP-704 Section 2.2.1 / TBP-801 Section 7.1 Sentence 2

Figure 2: Timeline for PSF, SFN, and SFI Activities



FR90127 **The agency identifying a PSF must cease work on the Device Under Test (DUT) until DA direction is provided, except to establish a safe, stable state.**

Rationale: These actions preserve the observed condition and facilitate further investigation. The identifying agency uses the product definition or contacts the DA for directions, after placing the test configuration in a safe, stable configuration.

Parent: NAP-24A (or successor) Attachment 2 Section 3.12.1 a
Supersedes: D&P Manual Chapter 8.1 Section 5.12.3 Paragraph 1 Sentence 2 / TBP-801 Section 7.2 Paragraph 2 Sentence 1

FR33232 **Within 5 days after the PSFN, the M&O Contractor must provide the following minimum information, in writing, to the DA POC:**

a) Specific hardware involved

b) General nature of the PSF

c) If test-related, qualification and calibration status of the test equipment used

d) If test-related, test protocol used

Rationale: In requirement FR66554, each DA identifies the POC(s) to receive PSFNs. Information supplied by the detecting agency on the hardware tested should include hardware details such as quality, serial number, storage conditions, previous tests, relevant environments experienced, and source. Test protocol information supplied by the detecting agency should include the drawing or other procedural reference, whether the test was within defined test parameters, and the test quality plan used. Description of the nature of the PSF should include the specific requirement being evaluated, the actual measurement

obtained, and relevant metadata. See Figure 2 for a graphical representation of the PSF, PSFN, and SFI timeline requirements. Note that the test-specific Test System Notification (TSN)-to-TSI sequence does not have a required timeline.

Parent: NAP-24A (or successor) Attachment 2 Section 3.12 Bullet a, and Section 3.12.1 a
Supersedes: D&P Manual Chapter 8.1 Section 5.12.3 Paragraph 1 Sentence 1 / TBP-704 Section 2.2.1 / TBP-801 Section 7.1 Sentence 2

FR69928 In the event of a Department of Defense (DoD)-submitted Unsatisfactory Report (UR), the SNL Military Liaison (ML) must submit the PSFN to the nuclear lab DA POC identified in SFIDS by the close of the next working day per FR33232.

Rationale: When the military discovers an anomaly, notification will come to the SNL ML through a UR. ML notifications to SNL DA POCs are completed per internal procedures. In requirement FR96180 each DA enters a POC into SFIDS to receive Safety Notifications; the nuclear DAs also use this POC to receive PSFNs. DoD instructions to complete URs are contained in JNWPSXX 50-2. ML works with DoD representatives to ensure the submitted UR is complete

Parent: NAP-24A (or successor) Attachment 2 Section 3.12 a, and Section 3.12.1 a
Supersedes: N/A

FR22111 Within 15 working days after receipt of the PSFN from the identifying agency, the DA must enter details of the PSFN into SFIDS.

Rationale: Entry of PSFN information into SFIDS, including "Notification Date," allows tracking of status of the investigation. See Figure 2 for a graphical representation of the PSF and SFI timeline requirements.

Parent: NAP-24A (or successor) Attachment 2 Section 3.12 a
Supersedes: TBP-801 Section 7.1

FR80043 The DA must evaluate the PSF for impact to stockpile weapon reliability, safety, performance, or field operations, and determine whether the PSF is test-related.

Rationale: Appendix D lists guidelines to help determine whether or not to open an SFI or TSI. The DA may convene a committee to help plan and implement investigation activities. Potential impacts may be identified any time during this evaluation process, regardless of whether the issue is product- or test-related. The DA opens an SFI or TSI by entering the necessary metadata into SFIDS and publishing an opening Significant Finding Investigation Report (SFIR) or Test Significant Investigation Report (TSIR), using the report format in Appendix C.

Parent: NAP-24A (or successor) Attachment 2 Section 3.3, and Section 3.12 a
Supersedes: D&P Manual Chapter 8.1 Section 5.12.2 Paragraph 1 Sentence 1 / TBP-800 Section 3.5 Paragraph 1 Sentence 1 / TBP-801 Section 7 Paragraph 1 Sentence 1

FR21147 Within 30 working days after receipt of the PSFN, the DA must document disposition in SFIDS and complete appropriate actions per Table 1.

Rationale: The DA may open an SFI or TSI directly from a PSFN at their discretion, e.g., if the DA is confident that the PSF merits an SFI based upon its perceived significance. Appendix D lists guidelines to help determine whether or not to open an SFI or TSI. The DA may convene a committee to help plan and implement investigation activities. The DA opens an SFI or TSI by entering the necessary metadata into SFIDS; the DA then publishes an

opening SFIR or TSIR, using the report format in Appendix C. See Figure 2 for a graphical representation of the PSF and SFI timeline requirements. If the investigation involves nonconforming product, further information is found in TBP-702.

Parent: NAP-24A (or successor) Attachment 2 Section 3.12 a, and Section 3.12.2 a
Supersedes: D&P Manual Chapter 8.1 Section 5.12.1 Sentence 1, Section 5.12.2 Paragraph 1 Sentences 3, 4, and 6, Section 5.12.2 Paragraph 7, and Appendix A / TBP-800 Section 3.5 Paragraph 1 Sentence 2 / TBP-801 Section 7 Paragraph 1 Sentence 3, Section 7 Paragraph 3, Section 7.1, Section 7.2, and Section 7.3

Table 1: PSFN Disposition Criteria

Action	Criteria
Close PSFN	Not the result of test-related factors, with no impact on stockpile reliability, safety, performance, or field operations
Open an SFN or SFI	a. Potential impact on stockpile reliability, safety, performance, or field operations b. No determination is possible within the allowed time frame
Open a TSN or TSI	The result of test-related factors, with no impact on stockpile reliability, safety, performance, or field operations

FR73803 The DA must notify the Federal Program Manager (FPM) in writing when opening an SFN, SFI, or TSI.

Rationale: For SFNs, DAs may choose to use an Engineering Authorization (EA), because it provides long-term accessibility and traceability of notification and investigation information, but it is not required. For SFIs and TSIs, the FPM should be copied on the SFIR and TSIR opening reports.

Parent: NAP-24A (or successor) Attachment 2 Section 3.12 a, and Section 3.12.2 a
Supersedes: N/A

4.4 Investigate, Resolve, and Document Significant Findings

FR88297 Within 90 working days after receipt of the PSFN, the DA must document disposition of the SFN in SFIDS per Table 2.

Rationale: Appendix D lists guidelines to help determine whether to open an SFI or TSN/TSI. The DA may convene a committee to help plan and implement investigation activities. The DA opens an SFI or TSI by entering necessary metadata in SFIDS and publishing an opening SFIR or TSIR, using the report format in Appendix C. See Figure 2 for a graphical representation of the PSF and SFI timeline requirements.

Parent: NAP-24A (or successor) Attachment 2 Section 3.12 a
Supersedes: D&P Manual Chapter 8.1 Section 5.12.1 Sentence 1, Section 5.12.2 Paragraph 1 Sentences 3, 4 and 6, Section 5.12.2 Paragraph 7, and Appendix A, / TBP-800 Section 3.5 Paragraph 1 Sentence 2 / TBP-801 Section 7 Paragraph 1 Sentence 3, Section 7.1, Section 7.2, and Section 7.3

Table 2: SFN Disposition Actions and Criteria

Action	Criteria
Close SFN	a) No impact on stockpile reliability, safety, performance, or field operations b) If test-related, a TSN or TSI will be opened c) If not test-related, the SFN is closed with no further action required
Promote to SFI	a) Potential impact on stockpile reliability, safety, performance, or field operations b) No determination is possible within the allowed time frame
Open a TSN or TSI	Potentially the result of test-related factors, with no impact on stockpile reliability, safety, performance, or field operations

FR75007 **For extensions to the listed PSFN and SFN timeline standards, the DA must receive authorization from the FPM and document the authorization in SFIDS.**

Rationale: Timeline extensions are sometimes appropriate when the DA is awaiting crucial information to decide the path forward. M&O Contractors are urged to use good engineering judgment in requesting extensions. See Figure 2 for a graphical representation of the anomaly identification, PSF, and SFI timeline requirements.

Parent: NAP-24A (or successor) Attachment 2 Section 3.8.2 and Section 3.12
Supersedes: N/A

FR29079 **When material needed for an investigation is not in the possession of the DA, the DA must negotiate SFI and TSI hardware delivery schedules with PAs and NNSA.**

Rationale: For SFI or TSI material in DoD possession, the DA negotiates with the NNSA to develop a material return schedule.

Parent: NAP-24A (or successor) Attachment 2 Section 3.8.2, and Section 3.12
Supersedes: N/A

FR59163 **If needed to support an investigation, the PA must receive approval to use additional WR hardware from NNSA.**

Rationale: This requirement does not apply to hardware use already planned in approved documentation (IWET/ASEMP/P&PD).

Parent: NAP-24A (or successor) Attachment 2 Section 3.8.2, and Section 3.12
Supersedes: N/A

FR49290 **The DA must provide updated SFI quarterly report information to the SNL Quarterly Summary POC by the fifth day of each quarter, including:**

a) Brief description of the status, including findings and future activities

b) Potential reliability, safety, performance, and field operations implications

c) The prior 3 months of progress, including explanations of unexpected delays and steps planned to resolve those delays

d) Six (6)-month plan of key activities for resolution on all SFIs opened more than a year ago

e) Estimated month and year for SFI closure

f) SFI priority status per Appendix B

g) For high-priority-status SFIs, a listing of or reference to a separate report of activities, funding, and program interactions required for closing the SFI

Rationale: SNL is responsible for preparing and issuing a quarterly report using the DA-supplied information. (See FR87814.)

Parent: NAP-24A (or successor) Attachment 2 Section 3.12
Supersedes: D&P Manual Chapter 8.1 Section 5.12.2 Paragraph 3 Sentence 2, Section 6.1.3 Paragraph 1, and Section 6.1.4 Paragraph 1 / TBP-800 Section 3.5 Paragraph 2 Sentence 1 1

FR87814 SNL Surveillance POC must prepare and issue a Quarterly Summary Report of ongoing SFIs by the fifteenth day of each quarter.

Rationale: The DAs supply updated information to SNL each quarter. (See FR49290.) SNL distributes the Quarterly Summary Report to NNSA, DoD, SFIDS POCs, and appropriate Nuclear Security Enterprise (NSE) sites.

Parent: NAP-24A (or successor) Attachment 2 Section 3.1.1 b, and Section 3.13 a
Supersedes: D&P Manual Chapter 8.1 Section 5.12.2 Paragraph 3 Sentences 1 and 3, and Section 6.1.3 Paragraph 1

FR61661 The DA must enter or update SFI and TSI information quarterly in SFIDS, including:

a) Status

b) If closing, justification for closure

c) If actions are planned or revised, recommended actions

Rationale: Updated information in SFIDS enables NNSA to monitor progress.

Parent: NAP-24A (or successor) Attachment 2 Section 3.13 a
Supersedes: D&P Manual Chapter 8.1 Section 5.12.2 Paragraph 3 Sentence 2, Section 5.12.2 Paragraph 8, and Section 6.1.4 Paragraph 3

FR73679 For all high-priority SFIs per Appendix B, the DA must report the following data to NA-122 within 12 months of elevation to high priority:

a) Key milestones, schedules, and resources needed to reach closure

b) Vital projected experimental needs

c) Vital projected data and computational needs

d) Integration needs among Directed Stockpile Work (DSW) programs and between DSW and other campaigns

e) Risks and risk handling strategies

Rationale: Instructions for determining SFI priority are in Appendix B. The DA documents require information in either the SFI Quarterly Summary Report or in a stand-alone plan to provide status and to support NNSA resource decisions.

Parent: NAP-24A (or successor) Attachment 2 Section 3.12, and Section 3.13 a
Supersedes: D&P Manual Chapter 8.1 Section 5.12.2 Paragraphs 4 and 5

FR77339 When the SFI is complete per the following criteria, the DA must document results in SFIDS and publish a closing SFIR per Appendix C:

a) Cause(s) of the anomaly or reason for closure if cause remains undetermined

b) Impacts on reliability, safety, performance, or field operations

c) Fraction of weapons in stockpile susceptible to the same type of defect

d) Recommended actions to prevent the defect in production

e) Recommended actions to remove or accommodate the defect in material already produced.

Parent: NAP-24A (or successor) Attachment 2 Section 3.12 b ,c, d, e, and Section 3.12.2 a
Supersedes: D&P Manual Chapter 8.1 Section 5.12.2 Paragraph 1 Sentence 5 and Appendix A

FR89642 When the TSI is complete, the DA must approve and publish a closing TSIR per Appendix C.

Parent: NAP-24A (or successor) Attachment 2 Section 3.12 b, c, d, e, and Section 3.12.2 a
Supersedes: D&P Manual Chapter 8.1 Section 5.12.2 Paragraph 1 Sentence 5 and Appendix A

FR24507 NA-122 must sign the closing SFIR.

Rationale: NA-122 signature indicates NNSA's acceptance of conclusions and understanding of implications.

Parent: NAP-24A (or successor) Attachment 2 Section 3.12 b ,c, d, e, and Section 3.12.2 a
Supersedes: D&P Manual Chapter 8.1 Section 5.12.1 Sentence 1

FR12583 Within 90 working days of SFI closure, NA-122 and the DA must document the decision in SFIDS to accept, reject, or defer recommended actions from the closing SFIR.

Rationale: NA-122 and DA collaborate on responsibilities for determining disposition. Recommendations that require extensive resources may need additional NNSA funding. NA-122 will consider support required from any M&O Contractor and from other funding sources in making its decision. NA-122 may delegate to the DA responsibility for recommendations that can be accomplished with existing resources.

Parent: NAP-24A (or successor) Attachment 2 Section 3.13 a
Supersedes: D&P Manual Chapter 8.1 Section 5.12.1 Sentence 4, and Section 5.12.2 Paragraph 8 Sentence 2 Numbers 1-6

5. EXTERNAL INTERFACE RESPONSIBILITIES

This section exclusively lists responsibilities for organizations and individuals external to NNSA and M&O Contractors.

5.1 DoD

DoD is responsible for reporting anomalies identified in the field into the UR system.

6. KEY DEFINITIONS

Definitions and acronyms related to this content can be found in the Glossary (Lexicon) on the DPBPS Portal at this URL: https://dpbps.sandia.gov/Pages/Lexicon.aspx .

7. TRACEABILITY REFERENCES

The following references are used in this content:

D&P Manual: Chapter 2.2: Stop Work

D&P Manual: Chapter 8.1: New Material and Stockpile Evaluation Test Program

DOE-NA-STD-3016-2006 (or successor): Hazard Analysis Reports for Nuclear Explosive Operations

NAP-24A (or successor): Weapon Quality Policy

TBP-702: Nonconforming Material

TBP-704: Evaluation and Disposition of Discrepant Weapon Material

TBP-800: Stockpile Management

TBP-801: Laboratory and Flight Test Material

APPENDIX A: POTENTIAL SIGNIFICANT FINDING SOURCES

PSFs may result from any processing or testing activity. Possible sources include the following:

a) Processing or testing of weapon systems
b) Component testing
c) Production
d) Retrofit
e) Weapon repair
f) Dismantlement
g) Reacceptance/rebuild
h) Enhanced Surveillance
i) Computational simulation
j) Returned base spares material
k) URs from DoD
l) United Kingdom (UK) testing (RD/DR)
m) Reverse URs to DoD

Examples of Reportable Anomalies:

a) PSF uncovered in a visual inspection
b) PSF uncovered in a computational simulation
c) Failure to meet requirements:
    1) Electrical
    2) Mechanical
    3) Chemical tests
    4) B-series drawings
    5) Reprocessing Specs/Special Instruction Engineering Releases (SIERs)

Supersedes: TBP-704 Section 2.1

APPENDIX B: SFI PRIORITY

Use the following information to determine priority rating (low, medium, or high) of SFIs. Determining priorities for TSIs is not required.

Priority Rating Calculation: The Priority Rating is determined by adding:

- The higher of the two ratings for Potential Impact on Reliability and Safety, and
- Age (time since opening the SFI) ratings using the tables that follow:

Potential Impact Rating for Reliability	None	Low	Unknown	Medium	High
	2	4	6	8	10

Potential Impact Rating for Safety	None	Low	Unknown	Medium	High
	2	4	6	8	10

Consider the following minimum factors when determining how to rate Potential Impact:

a) Expected impact on stockpile reliability or safety

b) Percent of the stockpile affected

c) Impact on performance (yield over target)

Age in Months	0-6	7-12	13-18	19-24	>24
Rating	1	2	3	4	5

The sum of those two ratings determines the Priority Rating.

G	Low Priority	Score: 3-6
Y	Medium Priority	Score: 7-10
R	High Priority	Score: >10

Status: Indicate each high priority activity using the color coding below:

G	On schedule
Y	Some possible minor delays or technical issues
R	Activity significantly behind schedule

APPENDIX C: REPORT FORMAT FOR SFIR AND TSIR

Report Classification: Reports are classified according to content and are reviewed per site procedure. However, classification should be undertaken early in the process with the recognition that subsequent analyses and information may raise the classification level.

SFIR and TSIR Designators:

Each SFIR and TSIR is identified by a sequence of five designators, separated by dashes. The designators are the following:

a) "SFI" or "TSI"

b) The four digits of the current calendar year (CY)

c) Total number of SFIs or TSIs issued to date in the CY

d) The designator of the weapon system (for example, B61, W76)

e) The total number of SFIs or TSIs issued to date against that weapon system during the CY

f) The total number of supplemental reports issued since the opening SFIR (an alphabetic designator)

Example: **SFI 2000-10-B83-03B**

The designator indicates that this is

a) An SFI

b) Issued during CY2000

c) The tenth SFI issued during CY2000

d) Related to the B83 weapon system

e) The third SFI issued in that CY on the B83 weapon system

f) The second supplemental (update) SFIR during the life of the SFI. In current practice, supplements are rarely done because of the ease of classified communications.

SUBJECT: SFI (or TSI) YEAR-XX-WPN-YY

WEAPON: *B/Wxx, MOD, ALT*

COMPONENT: *MCxxxx, Name, Parent Unit and Component Serial Number*

TYPE OF TEST: *(e.g., Disassembly and Inspection (D&I), Stockpile Laboratory Test (SLT), Reacceptance)*

LOCATION OF TEST: *(e.g., PX, WETL, KCNSC)*

TEST DATE:

STATUS: ***Open, Closed, or Supplement***

RELIABILITY IMPACT: (For SFI Closeout)

SAFETY IMPACT: (For SFI Closeout)

PERFORMANCE IMPACT: (For SFI Closeout)

SECURITY IMPACT (to include Nuclear Enterprise Assurance (NEA) trust): (For SFI Closeout)

FIELD OPERATIONS IMPACT: (For SFI Closeout)

DA:

PA:

AGENCIES INVOLVED IN INVESTIGATION:

OTHER SYSTEMS IMPACTED: Applicable weapon/MOD/ALT or NONE

PRINCIPAL INVESTIGATOR: Name, Organization, Address, Mail Stop, Phone #

SUMMARY: *Describe the anomaly, the investigation, and the results (for closeouts) in summary form*.

INVESTIGATION: *Describe the anomaly investigation. Enter N/A if that section is not applicable.*

Note: Some of the information may not be applicable for opening SFI or TSI Reports.

a) Weapon System, MOD, ALT, and Serial Number

b) Anomaly description including where, when, and how anomaly was found

c) Unsatisfactory Report number, if applicable

d) Test Environment (for example, lab, flight, hot, cold, or ambient)

e) Relevant Failure History (for example, similar anomalies, SFIs, or TSIs)

f) Analysis and investigation activities performed, including rationale

g) Cause (If cause is undetermined, give rationale for closing SFI or TSI with undetermined cause)

h) Weapons and components affected and portion of the stockpile affected (For SFI closeout)

i) Reliability, Safety, or Performance Impact (For SFI Closeout)

j) SFI number(s) of other weapon(s) impacted

k) TSI number, if anomaly is test-related

CONCLUSIONS: (For SFI Closeout)

RECOMMENDED ACTIONS: (For SFI Closeout)

SIGNATURES:

LABORATORY MANAGEMENT CONCURRENCE: (For SFI Closeout)

NA-122 SIGNATURE: (For SFI Closeout)

REFERENCES: *(For example, SFN or TSN, Opening and Supplemental SFI or TSI Reports, meeting minutes, test plans/reports, or reliability impact assessment memos)*

DISTRIBUTION:

APPENDIX D: GUIDELINES FOR DA TO DETERMINE WHETHER TO OPEN AN SFI OR TSI

1. Guidelines for Opening an SFI

a) War Reserve (WR) Components: Was the tested item a WR-quality component or at least “representative” of WR product in the stockpile? For example, a defective component purchased from WR production but used in development testing (within stockpile-to-target sequence (STS)) might be appropriate for an SFI. Anomalies detected during a flight test would almost always be elevated as an SFI. A defect found in a production component manufactured with a significant process change that was not fielded in stockpile might not be a candidate for an SFI.

b) STS Environment: Was the tested item exposed to environments that are within the STS or other specifications? Exposures could occur in handling or storage, during intentional preconditioning (for example, vibration, temperature/humidity extremes or durations, or radiation exposure), or during the actual anomalous test. Environments should be representative of actual use and configuration in the stockpile and within STS or specification limits.

c) Testing: It is possible to test outside the STS and still have an SFI if the nature of the anomaly is not dependent on the test environment. For example, if aged hardware is tested and fails the test and the forensic examination reveals severe corrosion, an SFI is appropriate.

d) Examples of when an SFI might not be warranted include the following:

1. A significant or unknown period of time of exposure to an unknown or uncontrolled storage or handling environment (for example, not in bonded WR stores)
2. Test environments that exceed allowable STS/specification environments
3. A test configuration not consistent with the intended use in WR
4. A deviation from the required limit so minor as to be reasonably considered within the accuracy and precision of the test equipment

2. Guidelines for Opening a TSN/TSI

Anomalies associated with the test system should be promoted to TSN so a clear analysis of test systems issues is possible. TSIs address anomalies that may arise in any part of the test system, including special transportation, material processing in preparation for test, and the testing itself. Specific anomalies of interest affect personnel safety, important data for scoring weapon or component performance, significant extraneous costs, or test/evaluation delays.

3. Change in Attributed Cause of Anomaly

At any time during an investigation, an investigative team may determine that the focus needs to be changed from product to testers or vice versa. When an investigative team determines a switch in investigation is needed, the new

investigation is opened in SFIDS before closing the current investigation (so data are not lost). The initial SFI or TSI is closed with a reference to the new investigation and a justification for the change. The new opening report will reference any investigations that were closed.

FEDERAL REQUIREMENTS				
NUMBER	ISSUE	RELEASE DATE	EFFECTIVE DATE	PAGE
R018	**A5**	**2016-09-15**	**2016-10-01**	**1 of 8**

Weapons Reliability Reporting

For PRRO Administration Use Only CAGE CODE: 14213

CHANGE HISTORY

EFFECTIVE DATE	ISSUE	RELEASE/CHANGE NO.
2015-10-01	A3	IER 20154202SA
2016-05-09	A4	FCO 20161851SA
2016-10-01	A5	FCO 20164024SA

TABLE OF CONTENTS

1. SCOPE

This content specifies requirements for weapons reliability reporting.

The Weapons Reliability Report (WRR) provides the current reliability assessment for the National Nuclear Security Administration (NNSA) weapon material in the stockpile. The assessment is based on nuclear and non-nuclear information derived from the NNSA Stockpile Evaluation and Reliability Assessment Programs at Sandia National Laboratories (SNL), Lawrence Livermore National Laboratory (LLNL), and Los Alamos National Laboratory (LANL); and on data received from the military services.

2. APPLICABILITY

This content applies to the following organizations when preparing the semi-annual WRR:

a) NNSA: all federal organizations reporting to the Defense Programs Office of the Assistant Deputy Administrator for Stockpile Management and the weapon-related portions of Defense Programs Office of the Assistant Deputy Administrator for Major Modernization Programs

b) M&O Contractors: LANL / LLNL / SNL

Section 5 lists external interfaces for this content.

2.1 Cancellation

When this content becomes effective, the following content will be cancelled:

R018(A4)

2.2 Organization Responsible for Content

The Office of Nuclear Weapons Stockpile (NA-122) is responsible for this content.

3. PROCESS DIAGRAM

This content does not require a process diagram for clarity.

4. REQUIREMENTS

This section exclusively lists federal requirements. A rationale appears where further explanation adds clarity. Rationales do not contain additional requirements.

A unique number identifies each requirement. The information below each requirement provides traceability. Supersession links identify legacy content cancelled by the requirement.

Definitions and acronyms related to this content can be found in the online Glossary (Lexicon) - see Section 6.

Section 7 lists the titles of documents called out in this content.

FR14863 **NA-122 must distribute an approved WRR to key stakeholders within NNSA and the Department of Defense (DoD) in May and November of each year.**

Rationale: NNSA is committed to report the stockpile weapon systems reliability per Memoranda of Understanding (MOUs) with the Navy and the Air Force. The WRR includes the yield of all weapons. Source documents for yield may include formal yield certification documents or the weapon Major Assembly Release (MAR). Addendum may be issued when there are significant changes to the reliability of any system. Approval and issuance of Addendum will follow a similar process as the WRR. NNSA maintains the WRR distribution list.

Parent: DE-GM04-94AL94738 (2001) (or successor) Section 7.1 / DE-GM04-94AL94732 (1995) (or successor) Section 10.0 / DOE O 452.3 (or successor) Section 4.e (5)
Supersedes: D&P Manual Chapter 8.1 Section 6.1.1 Paragraphs 1 - 2 / D&P Manual Chapter 8.1 Section 6.1.3 Paragraph 2 Sentences 4- 5

FR76422 **Design agencies (DAs) must report reliability assessments on components or systems for which they are responsible to SNL for consolidation into the WRR.**

Rationale: SNL negotiates data need-by dates with the nuclear laboratories to support NNSA in publishing the WRR in May and November of each year.

Parent: DE-GM04-94AL94738 (2001) (or successor) Section 7.1 / DE-GM04-94AL94732 (1995) (or successor) Section 10.0 / DOE O 452.3 (or successor) CRD Section 7.a
Supersedes: D&P Manual Chapter 8.1 Section 6.1.4 Paragraph 4

FR34752 **DAs must identify conditions that limit confidence in the WRR assessments.**

Rationale: Limiting conditions may include problems in obtaining sufficient flight, laboratory, or component data. If the MAR already documents these limitations or exceptions, the WRR does not need to repeat the limitations.

Parent: DE-GM04-94AL94738 (2001) (or successor) Section 7.1 / DE-GM04-94AL94732 (1995) (or successor) Section 10.0 / DOE O 452.3 (or successor) CRD Section 7.a
Supersedes: N/A

FR98080 **SNL must consolidate reliability assessments in a draft WRR per Appendix A.**

Rationale: SNL requests updated assessments from the DAs as needed to support system reliability reassessments. SNL relies on data in the Weapon Information System (WIS) accountability tool being current at the end of March and September for inclusion in the WRR. Appendix A shows generic WRR introduction information that describes the content of the WRR in more detail.

Parent: DE-GM04-94AL94738 (2001) (or successor) Section 7.1 / DE-GM04-94AL94732 (1995) (or successor) Section 10.0 / DOE O 452.3 (or successor) CRD Section 7.a
Supersedes: D&P Manual Chapter 8.1 Section 6.1.3 Paragraph 2 Sentence 1 / D&P Manual Chapter 8.1 Section 6.1.3 Paragraph 2 Sentence 3

FR84015 **By the third week of April and October, SNL must provide NA-122 with a WRR draft that contains inputs from the DAs and NNSA weapon engineers.**

Rationale: SNL provides the draft in advance of the publication date to provide NNSA sufficient time to review and approve the WRR.

Parent: DE-GM04-94AL94738 (2001) (or successor) Section 7.1 / DE-GM04-94AL94732 (1995) (or successor) Section 10.0 / DOE O 452.3 (or successor) CRD Section 7.a
Supersedes: D&P Manual Chapter 8.1 Section 6.1.3 Paragraph 2 Sentence 2

FR80087 **NA-122.1 must approve the WRR.**

Parent: DE-GM04-94AL94738 (2001) (or successor) Section 7.1 / DE-GM04-94AL94732 (1995) (or successor) Section 10.0 / DOE O 452.3(or successor) CRD Section 7.a
Supersedes: D&P Manual Chapter 8.1 Section 6.1.1 Paragraph 1

FR50021 **DAs must review reliability assessment methodology, process, and results.**

Rationale: The DA staff responsible for reliability assessments periodically review work to identify and share opportunities for improvement at least every three years. The reliability assessment managers determine the scope and exact schedule of these reviews. The reliability assessment managers apply a graded approach based on risk, complexity, and maturity of the reliability calculations.

Parent: NAP-24A (or successor) Attachment 2 Section 3.1.1 / DOE O 452.3 (or successor) Section 4.e.(7) / DOE O 452.3 (or successor) CRD Section 7.a
Supersedes: N/A

5. EXTERNAL INTERFACE RESPONSIBILITIES

This content does not contain interface responsibilities for organizations or individuals external to NNSA and M&O Contractors.

6. KEY DEFINITIONS

Definitions and acronyms related to this content can be found in the Glossary (Lexicon) on the DPBPS Portal at this URL: https://dpbps.sandia.gov/Pages/Lexicon.aspx.

7. TRACEABILITY REFERENCES

The following references are used in this content:

D&P Manual Chapter 8.1: New Material and Stockpile Evaluation Test Program

DE-GM04-94AL94732, MOU between U.S. Department of Energy and U.S. Department of Navy for Navy Nuclear Weapons Stockpile Evaluation and Reliability Assessment (1995) (or successor)

DE-GM04-94AL94738: MOU between the National Nuclear Security Administration and the Department of the Air Force Regarding Joint Testing and Assessment of the Nuclear Weapons Stockpile (2001) (or successor)

DOE O 452.3 (or successor): Management of the Department of Energy Nuclear Weapons Complex

NAP-24A (or successor): Weapon Quality Policy

APPENDIX A: WRR GENERIC INTRODUCTION INFORMATION

Generic WRR introduction information is included to illustrate the content of the WRR.

Stockpile Weapons

The WRR enumerates nuclear warheads and bombs in the stockpile and provides:

a) Current reliability assessments for these weapons

b) Military Characteristics (MC) requirements

An assessment is presented for each of the specified use option and yield configuration combinations. Reliability assessments are presented separately for each weapons' Active and Inactive Stockpiles. Each category has a stockpile weighted-average assessment value.

Subpopulations

Many weapon stockpiles contain identified reliability subpopulations. Reliability assessments are also reported for the subpopulations associated with weapon Alterations (ALTs) and Modifications (MODs). Units in unaccepted status (for example: at the Pantex Site (PX) for repair, refurbishment, or surveillance) are not included in the reliability calculations for either the Active or Inactive Stockpile.

Active Stockpile Reliability Changes

The introduction notes changes in any reliability assessment values from the last WRR report, along with the reason for the change. Changes to the component or subsystem reliability assessment since the last WRR resulting from the discovery and evaluation of a problem are reported with the resultant effect on the weapon reliability.

Test Limitations

The WRR Introduction documents specific scope and criteria for reporting of test limitations, including weapons whose test programs provide less information than is felt necessary for adequate evaluation.

Test Summary

A summary of the system-level tests from the Stockpile Evaluation Program is provided for each system. Three quantities are reported for each: instrumented tests, non-instrumented tests, and no-tests:

a) Tests accomplished since the last WRR publication

b) Tests accomplished in the last two years

c) Cumulative system tests over the life of the weapon (totals do not reflect component tests)

Yields

Yields in the WRR, including subpopulations, are from the:

a) Most recent published MAR

b) Documentation identified by the design laboratories as an authoritative source

Dates

The introduction includes the cut-off date for data included in the WRR.

Reporting Criteria

Reporting criteria included in the introduction may change periodically:

a) Criteria for reporting increased uncertainty

b) Criteria for cessation of reporting because of test limitations

FEDERAL REQUIREMENTS				
NUMBER	ISSUE	RELEASE DATE	EFFECTIVE DATE	PAGE
R019	**A2**	**2016-05-04**	**2016-05-09**	**1 of 21**

Produce and Maintain

For PRRO Administration Use Only CAGE CODE: 14213

CHANGE HISTORY

EFFECTIVE DATE	ISSUE	RELEASE/CHANGE NO.
2015-10-01	A1	IER 20150059SA
2016-05-09	A2	FCO 20161851SA

TABLE OF CONTENTS

1. SCOPE

This content specifies requirements for producing and delivering Program Control Document (PCD) driven Nuclear Security Enterprise (NSE) six-digit base number product, which includes both Interproject (IP) and Ultimate User (UU) products. This content also specifies requirements for providing weapon stockpile maintenance and control quantities at desired levels until weapon retirement.

NOTE: There may be legacy part numbers that do not meet current six-digit base number product but are still within the scope of this content.

2. APPLICABILITY

This content applies to the following organizations when conducting production or maintenance of weapon products:

a) NNSA: all federal organizations reporting to the Defense Programs Office of the Assistant Deputy Administrator for Stockpile Management and the weapon-related portions of Defense Programs Office of the Assistant Deputy Administrator for Major Modernization Programs

b) M&O Contractors: LANL / LLNL / NNSS / NSC / PX / SNL / SRS / Y-12

c) Field Offices (FO).

Section 5 lists external interfaces for this content.

2.1 Cancellation

When this Produce & Maintain content set (listed below) becomes effective, the following content will be cancelled:

D&P Manual Chapter 1.1 Section 5.1.1 Bullet 3

D&P Manual Chapter 1.2 Section 5.2.1 Bullet 2, and Section 5.3.1 2c

D&P Manual Chapter 2.4 Section 1.0 (ECR reference), Section 4.1 Bullet 2, Section 4.2.1 Paragraph 2 (all ECR references), and Section 4.2.1 last paragraph

D&P Manual Chapter 3.1 Section 5.6.1 Bullet 1

D&P Manual Chapter 3.2 Section 6.6.3.4

D&P Manual Chapter 3.3 Section 5.1.2 Bullet 3

D&P Manual Chapter 4.3 Section 5.1, and Section 6 Number 7

D&P Manual Chapter 6.2 Section 4.2, and Section 4.4

D&P Manual Chapter 6.3 Section 4.2 Numbers 3-4 and 6

D&P Manual Chapter 7.1 Section 5.4

D&P Manual Chapter 7.3 Section 5.3 Paragraph 1

D&P Manual Chapter 7.4 Section 4.7 Paragraph 3-4

D&P Manual Chapter 7.5 Section 4.2 Paragraph 2

D&P Manual Chapter 8.1 Section 5.5, Section 5.6.3 Paragraphs 1-3, and Section 6.1.5

D&P Manual Chapter 9.3 Section 4.3 Paragraphs 3-5

D&P Manual Chapter 13.1 Section 5.2 Bullets 1-2, Section 5.3 Bullet 2, and Section 5.4 Bullet 4

TBP-001 Section 2.1 Paragraph 3a-d

TBP-101

TBP-203

TBP-700 Section 4.1, Sections 5-5.2, Section 6.1, Section 6.3, and Section 6.5

TBP-704 Section 2.2, Section 3, and Section 5 Paragraph 2

TBP-800 Section 3.3.2 Paragraph 2, Section 4.4 Paragraph 3, and Section 5.2

TBP-803

TBP-804 Section 2

TBP-805 Section 3.4

TBP-901 Section 1 (Policy)

The Produce & Maintain content set consists of R019, T135, T136, T137, T138, and T139.

2.2 Organization Responsible for Content

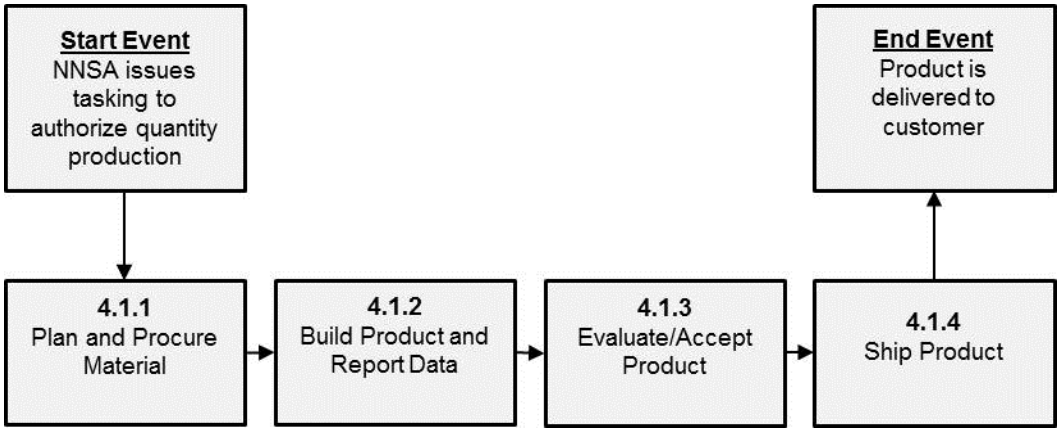
The Office of Nuclear Weapons Stockpile (NA-122) is responsible for this content.

3. PROCESS DIAGRAM

Figures 1 and 2 represent the group of processes needed to clarify the requirements.

The Produce process (Figure 1) and the Maintain process (Figure 2) are executed in parallel, potentially multiple times, during Phase 6 of the weapon lifecycle. The use of these two processes begins with the National Nuclear Security Administration (NNSA) authorizing Phase 6.6 and ends with the end of Phase 6.6, when the weapon enters Phase 7, Dismantlement.

Figure 1: Produce Process Flow Diagram



The Produce process begins with the receipt of National Nuclear Security Administration (NNSA) authorization via a tasking letter to Managing & Operating (M&O) Contractors authorizing Phase 6.6 activities (i.e., the beginning of stable production following the successful completion of R001, Production Stage: Complete Production Readiness and Qualification).

In step Plan and Procure Material, the NNSA and M&O Contractors use this process to generate production plans and obtain any parts or material needed during production.

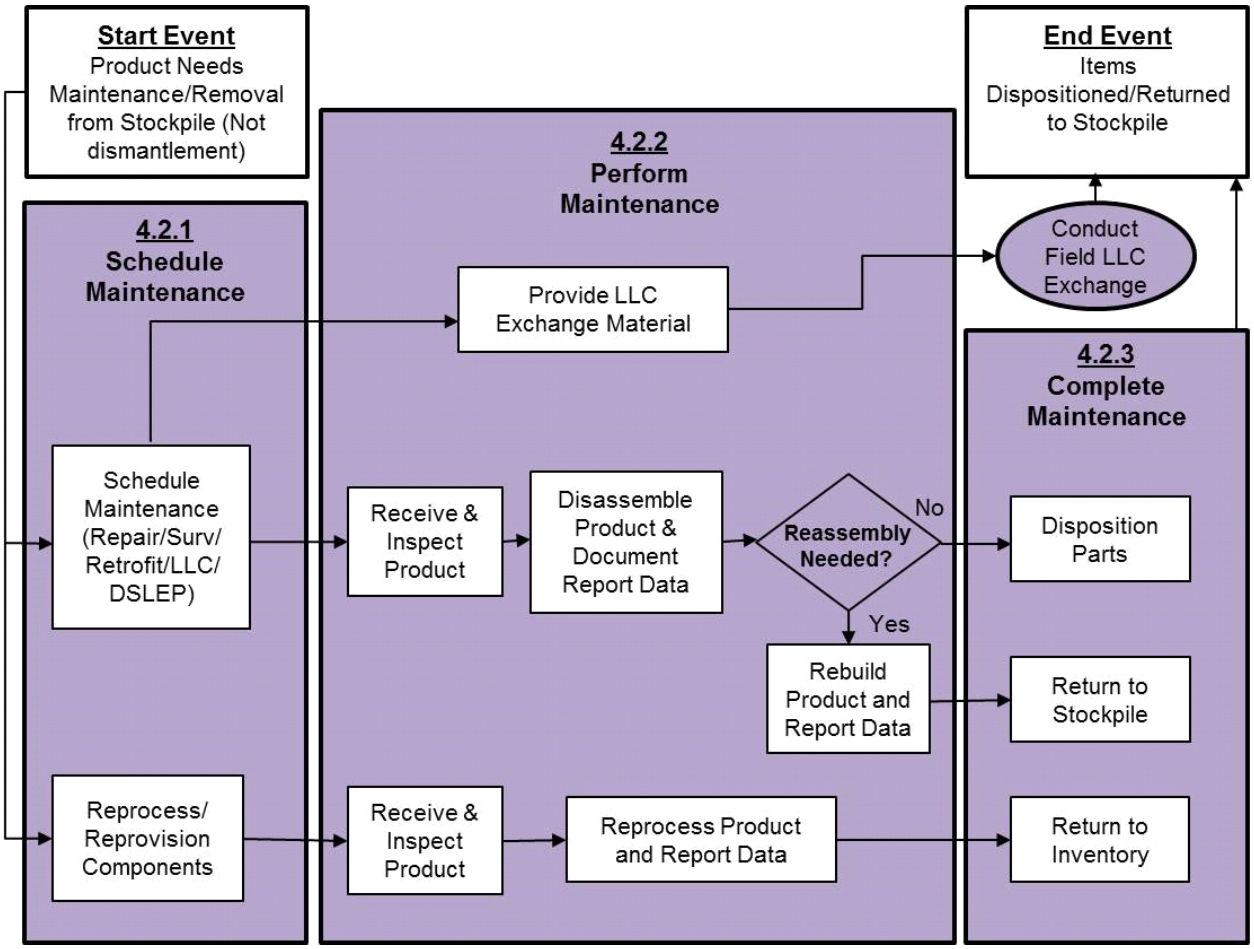
In step Build Product and Report Data, the NNSA, M&O Contractors, and FOs use this process to build the weapon product and provide production status reports.

In step Evaluate/Accept Product, the NNSA, M&O Contractors, and FOs use this process to evaluate the product for acceptability and accept the product for use.

In step Ship Product, the NNSA, M&O Contractors, and FOs use this process to ship the product to the customer.

The Produce process ends when the product has been delivered to the customer.

Figure 2: Maintain Process Flow Diagram



The Maintain process begins when the weapon in the stockpile needs either maintenance or removal from the stockpile for any non-dismantlement reason.

In step Schedule Maintenance, the NNSA and M&O Contractors use this process to prepare for weapon maintenance activities.

In step Perform Maintenance, the NNSA, M&O Contractors, and FOs use this process to conduct the weapon maintenance activities.

In step Complete Maintenance, the NNSA, M&O Contractors, and FOs use this process to properly identify weapons that have undergone maintenance and to document the maintenance results.

The Maintain process ends when the weapon is returned to the stockpile or the weapon parts are dispositioned.

4. REQUIREMENTS

This section exclusively lists federal requirements. A rationale appears where further explanation adds clarity. Rationales do not contain additional requirements.

A unique number identifies each requirement. The information below each requirementprovides traceability. Supersession links identify legacy content cancelled by the requirement. Change history documents any changes since the previous DPBPS version per T019 thresholds.

Definitions and acronyms related to this content can be found in theonline Glossary (Lexicon) - see Section 6.

Section 7 lists the titles of documents called out in this content.

4.1 Produce Product

4.1.1 Plan and Procure Material

FR36151 **The NNSA must maintain the PMD for product production.**

Rationale: The PMD was created in R001, requirement FR73651. NNSA negotiates weapon delivery quantities and schedules for the agreed-upon deliveries by updating the PMD, per D&P Manual Chapter 3.3.

Parent: DOE O 452.3 5.b(3)
Supersedes: N/A

FR52916 **Each production agency (PA) must develop a site-specific production schedule and a supporting budget estimate per R007.**

Rationale: Inputs to these site schedules include Pilot Production Program Definition (PPPD), Integrated Programmatic Scheduling System (IPSS), Equipment Requirement Schedule (ERS), PCD, Military Interdepartmental Purchase Request (MIPR) funded reimbursable orders, documents directing maintenance activities, Integrated Contractor Orders (ICO), and Military and Base Spares authorizing documents. Provisioning, per D&P Manual Chapter 5.1 Section 5.3 and Section 5.4, integrates these site-specific schedules and identifies additional quantities (for example: attrition).

Parent: DOE O 452.3 CRD3
Supersedes: D&P Manual Chapter 3.3 Section 5.1.2 Bullet 3

FR44253 **NNSA must provide funding for negotiated site-specific production schedules per R007.**

Rationale: Site-specific production schedules may need modification to reflect final funding authorization from NNSA.

Parent: DOE O 452.3 5.c(1)
Supersedes: N/A

FR46381 **PAs must obtain and control material for site production schedules per D&P Manual Chapter 4.1.**

Rationale: Raw materials are procured and are consumed into next level assemblies.

Parent: DOE O 452.3 CRD 9
Supersedes: D&P Manual Chapter 1.2 Section 5.3.1 2c

FR59406 **For reimbursable items, NA-122 must obtain production cost and lead time estimates from the PA and design cost and lead times from the design agency (DA).**

Rationale: NNSA communicates this information to the UU to obtain funding. Department of Defense (DoD) funds design of DoD-requested hardware, and NNSA authorizes the work upon receipt of funding.

Parent: DOE Accounting Handbook Chapter 13 / DOE O 481.1 and 481.1-1
Supersedes: D&P Manual Chapter 7.5 Section 4.2 Paragraph 2

FR71759 **When the DoD issues revisions to the Military Characteristics (MC) or Stockpile-to-Target Sequence (STS) documents, the DAs must evaluate these revisions for impacts to the product definition and the Major Assembly Release (MAR) and provide a response to the Project Officers Group (POG).**

Rationale: The NNSA, with DA support, may initiate weapon studies to implement changes. DAs also initiate weapon redesign and development activities as required to implement changed requirements. The MC and STS documents are active and applicable until weapon retirement. In addition, DAs may recommend revisions through the POG throughout weapon lifecycle.

Parent: DOE O 452.3 CRD 2
Supersedes: N/A

FR81847 **The DA must revise and reissue the MAR if**

a) a new Modification (MOD) number assignment takes place per R006;

b) a major change occurs in the capability or uses of the major assembly (a revision to the MCs normally precedes major changes of this type);

c) a major change occurs in the limitations and exceptions to the military requirements of the major assembly; or

d) a revision to the STS document occurs that impacts the MAR.

Rationale: Changes of this nature may initiate 6.X activities per R006 and Product Realization Process (PRP) activities per R001. Direction for approval and distribution of the MAR is also contained in R006.

Parent: DOE O 452.3 CRD 2
Supersedes: D&P Manual Chapter 2.4 Section 4.2.1 last paragraph / TBP-001 Section 2.1 Paragraph 3 a-d

FR37927 **When DoD establishes an emergency capability requirement and the MAR prerequisites have not been satisfied, the DA must document an Emergency Capability Release (ECR).**

Parent: DOE O 452.3 CRD 1 and CRD 2
Supersedes: D&P Manual Chapter 2.4 Section 1.0 (ECR reference only), Section 4.1 Bullet 2, and Section 4.2.1 Paragraph 2 (all ECR references only)

FR79316 **NNSA must sign the ECR and direct Sandia National Laboratories (SNL) to distribute the ECR to the DoD.**

Parent: DOE O 452.3 Section 5.c.8
Supersedes: N/A

4.1.2 Build Product and Report Data

FR14115 **M&O Contractors must build to the funded site-specific production schedule using DA authorized product definition.**

Rationale: The site-specific production schedule is established in FR52916 and funded in FR44253.

Parent: DOE O 452.3 CRD 2
Supersedes: D&P Manual Chapter 3.2 Section 6.6.3.4, Chapter 8.1 Section 5.6.3 Paragraphs 1-3

FR12322 **Pantex (PX) must produce nuclear explosive product per D&P Manual Chapters 11.3, 11.4, and 11.6.**

Rationale: NNSA nuclear explosive operations comply with DOE O 452.2D and NA SD 452.2 as documented in D&P Manual Chapters 11.3, 11.4, and 11.6.

Parent: DOE O 452.2 CRD 1, CRD 8, CRD 10, CRD 13, and CRD 14 / NA SD 452.2
Supersedes: TBP-901 Section 1 (Policy)

FR84936 **M&O Contractors must comply with T138 when designing and producing Nuclear Explosive-like Assemblies (NELA).**

Rationale: The Non-Nuclear Assurance Program (NNAP) (T138) includes:

a) the DA providing design specifications for independent verification of components,

b) the PA verifications,

c) the application of the tamper-evident seal to the Joint Test Assembly (JTA) by the NNSA specialists at the production facility, and

d) submission of Certificate of Work for the Air Force.

Parent: DOE O 452.2 CRD 17
Supersedes: TBP-800 Section 3.3.2 Paragraph 2 / TBP-803 Section 3 Paragraph 1 and Table

FR16455 **PAs must provision for and produce sufficient production quantities to account for planned surveillance rebuilds, reprocessing, maintenance, and anticipated repair activities per D&P Manual Chapter 4.3 Section 5.2 and Section 6, Chapter 4.4 Section 5.3, and Technical Business Practice (TBP)-202.**

Rationale: PAs may request approval from NNSA to budget for and pre-build assets during quantity production to cover planned maintenance and repair activities.

Parent: DOE O 452.3 CRD 2
Supersedes: D&P Manual Chapter 6.3 Section 4.2 Numbers 3-4, Chapter 9.3 Section 4.3 Paragraphs 3-5

FR25844 **The M&O Contractors must use calibrated, traceable Measuring and Test Equipment (M&TE) to produce and maintain Mark Quality products.**

Parent: NAP-24 Attachment 2 Sections 3.9-3.10
Supersedes: N/A

FR29964 **The DA must maintain product definition per R003.**

Rationale: For more information on when the product definition was created, released, and authorized for use, see R001.

Parent: DOE O 452.3 Section 2 / NAP-24 Attachment 2 Section 3.3
Supersedes: D&P Manual Chapter 13.1 Section 5.3 Bullet 2

FR14395 **Each PA must establish and execute a product change process.**

Rationale: This is the process that translates DA product definition changes into PA product or process changes.

Parent: NAP-24 Attachment 2 Section 3.3 and Section 3.8
Supersedes: N/A

FR57661 **The M&O Contractors must manage nonconforming product per D&P Manual Chapter 2.1.**

Rationale: Product includes NNSA 6 digit base number product. TBP-702 provides additional information for managing nonconforming product.

Parent: NAP-24 Attachment 2 Section 3.12
Supersedes: TBP-700 Sections 5–5.2

FR96615 **The M&O Contractor must evaluate, report, and disposition discrepant DoD weapon material per T139.**

Parent: NAP-24 Attachment 2 Section 3.12
Supersedes: TBP 704 Section 2.2, and Sections 2.2.1-2.2.3

FR27484 **M&O Contractors must report to their field office (FO) potentially nonconforming NNSA material received at their site.**

Rationale: The questionable NNSA material associated with IP shipments are handled by Incoming Material Report (IMR) processing

Parent: NAP-24 Attachment 2 Sections 3.11-3.12
Supersedes: TBP-700 Section 6.5

FR55978 **NNSA FOs must manage potentially nonconforming NNSA material associated with IP shipments per the NNSA Weapon Quality Assurance Procedures Manual (WQAPM).**

Rationale: The questionable NNSA material associated with IP shipments is handled by IMR processing.

Parent: DOE O 452.3 Section 5.g.8 / NAP-24 Attachment 2 Section 3.11 / WQAPM Chapter 7 Section 4
Supersedes: N/A

FR30835 **M&O Contractors must implement the Stop Work process per D&P Manual Chapter 2.2.**

Parent: NAP-24 Attachment 2 Section 3.13
Supersedes: N/A

FR60363 **The PAs must maintain as-built records per Schedule 3 of the Department of Energy Records Schedule (DOERS).**

Rationale: Examples of as-built records include Record of Assembly (ROA), Weapon Information System (WIS), and other records as specified in the product definition documentation.

Parent: NAP-24 Attachment 2 Section 3.14
Supersedes: TBP-700 Section 4.1

FR43460 **The M&O Contractors must report production data.**

Rationale: Production data may include Developmental Joint Test Assemblies (DJTA) or other Flight Test Units (FTU). Data include acceptance data, ROA data per TBP-202, WIS per D&P Manual Chapter 4.3 Section 5.2 and Section 6, and Daily Change Report (DCR) per D&P Manual Chapter 4.4 Section 5.3.

Parent: NAP-24 Attachment 2 Section 3.14
Supersedes: D&P Manual Chapter 4.3 Section 5.1 / TBP-700 Section 4.1.2

FR70612 **The M&O Contractors must maintain qualification and perform requalification process per T046.**

Parent: NAP-24 Attachment 2 Section 3.8
Supersedes: TBP-101

FR69980 **The Federal Program Manager (FPM) must conduct a post-Initial Operational Capability (IOC) review two to four years after the weapon enters the stockpile.**

Rationale: The FPM tasks the M&O Contractors to conduct a post-IOC review per C047.

Parent: DOE O 452.3 Section 4.e (1) and (7), and Section 4.f
Supersedes: N/A

4.1.3 Evaluate/Accept Product

FR14152 **The PA must submit product for acceptance per the WQAPM.**

Rationale: Product to be submitted is listed on the Quality Instruction List (QIL).

Parent: WQAPM Chapter 4 Number 3 c 1
Supersedes: D&P Manual Chapter 13.1 Section 5.4 Bullet 4

FR30410 **The NNSA Production Office (NPO) must certify the conformance of the JTA to the design with respect to the presence or absence of Special Nuclear Material (SNM), tritium, and main charge components and apply the tamper-indicating seal to the JTA.**

Rationale: The NPO verifies conformance through a formal inspection of all JTAs produced and shipped by the Pantex Plant.

Parent: DOE O 452.2 Section 4.a (17)
Supersedes: D&P Manual Chapter 8.1 Section 5.5.4

FR86398 **The FO must conduct product acceptance and stamping per the WQAPM.**

Rationale: The FO may delegate acceptance and stamping authority to the M&O Contractor.

Parent: WQAPM Chapter 4 and Chapter 5
Supersedes: D&P Manual Chapter 13.1 Section 5.2 Bullet 1

FR16663 **The FO must conduct Quality Assurance Surveys (QAS) per the WQAPM.**

Parent: WQAPM Chapter 3
Supersedes: D&P Manual Chapter 13.1 Section 5.2 Bullet 2

FR32444 **When the UU has an urgent need for product that does not meet product definition and is not deviated by an Specification Exception Release (SXR), and when directed by the NNSA, the M&O Contractor must apply for and receive a Production Waiver per D&P Manual Chapter 2.1.**

Rationale: Production Waivers may impose restrictions, limitations, or cautions upon the UU.

Parent: DOE O 452.3 CRD 2
Supersedes: N/A

FR39082 **M&O Contractors must record and report weapon record card information for production weapons per T136 (Inspection Record Card (IRC)) or T137 (Nuclear Ordnance Record Card (NORC)).**

Rationale: The IRC is for Air Force product. The NORC is for Navy product.

Parent: DOE O 452.3 CRD 1 and CRD 2
Supersedes: TBP-203

4.1.4 Ship Product

FR60168 **PAs must ship product according to the funded site specific production schedule per D&P Manual Chapter 5.1.**

Rationale: The schedule is established in FR52916 and funded in FR44253, and product is built in FR14115.

Parent: DOE O 452.3 CRD 1, CRD 6, and CRD 9
Supersedes: D&P Manual Chapter 3.2 Section 6.6.3.4 and Chapter 7.4 Section 4.7 Paragraphs 3-4

FR31812 **FOs, where appropriate, must monitor and report the status of base and military spares purchase orders to NA-122 on a monthly basis.**

Rationale: Monthly reports list Defense Threat Reduction Agency (DTRA) purchase orders, arranged in numerical sequence and include the following information:

a) NNSA part number and nomenclature

b) Quantity ordered

c) Quantity shipped during the reporting month

d) Cumulative quantity shipped against the purchase order

Parent: DOE O 452.3 Section 4.f
Supersedes: D&P Manual Chapter 7.1 Section 5.4

FR95048 **NNSA must approve shipment of tritium reservoirs in the H1616 container per T135.**

Parent: DOE O 461.1 / DOE O 452.3 Section 4.e.4.a and Section 4.e.4.c
Supersedes: TBP-804 Section 2

4.2 Maintain Product

4.2.1 Schedule Maintenance

FR51026 **NNSA must maintain the PMD for product maintenance.**

Rationale: The PMD is created prior to First Production Unit (FPU) per R001, requirement FR73651, and maintained during production per R019, requirement FR36151. Surveillance, repair, and Life Extension Program (LEP) activities are added as needed. The PCD defines the stockpile return schedule.

Parent: DOE O 452.3 Section 4.a
Supersedes: D&P Manual Chapter 1.2 Section 5.2.1 Bullet 2

FR29055 **Each PA must develop a site-specific maintenance schedule and a supporting budget estimate per R007.**

Rationale: This schedule may include surveillance units, repair units, stockpile reduction units, LEP disassemblies, and Limited Life Component (LLC) exchanges. Inputs to these site schedules may include PPPD, IPSS, ERS, PCD, MIPR funded reimbursable orders, documents directing maintenance activities, ICOs, and Military and Base Spares authorizing documents. Provisioning, per D&P Manual Chapter 5.1 Section 5.3 and Section 5.4, is used to integrate these schedules and to identify additional quantities (for example: attrition).

Parent: DOE O 452.3 CRD 3
Supersedes: N/A

FR53342 **NNSA must provide funding for negotiated site-specific maintenance schedule per R007.**

Rationale: Maintenance schedules may need to be modified to reflect final funding authorization from NNSA.

Parent: DOE O 452.3 Section 4.a
Supersedes: D&P Manual Chapter 1.1 Section 5.1.1 Bullet 3

FR81949 **Prior to transporting a defective weapon to the PA for repair, NNSA must verify that the DA has issued special instructions documenting normal or special activities for the defective weapon being returned from DoD.**

Rationale: The DoD notifies the NNSA about unsatisfactory defective weapon conditions in an Unsatisfactory Report (UR). Repair actions needed, including receiving and repair details, should be received from the DA in special instructions coordinated with the affected DAs and PAs. Special instructions may be issued using a Special Instruction Engineering Release (SIER) per T049.

Parent: DOE O 452.3 Section 4.e.4 (b) and (c)
Supersedes: D&P Manual Chapter 6.2 Section 4.4

FR27987 **When the defective weapon repair special instructions include a DA Nuclear Explosive Safety Study (NESS) determination assessment, the PA performing the repair must perform the NESS determination.**

Rationale: The special instructions are documented by the DA in an SIER. The M&O Contractor NESS group is responsible for the NESS determination for nuclear explosive operations.

Parent: DOE O 452.2 CRD 1.f and CRD 13
Supersedes: D&P Manual Chapter 6.2 Section 4.2

FR62914 **If the defective weapon repair actions fall outside an approved NESS, the FPM must initiate NESS Change Evaluation activities per D&P Manual Chapter 11.3.**

Parent: DOE O 452.2 Section 4.a.1. (f), and Section 4.a.13 / NA SD 452.2 Chapter 2 Section 1.c
Supersedes: TBP-800 Section 5.2

4.2.2 Perform Maintenance

FR23683 **M&O Contractors must execute to the funded site-specific maintenance schedule.**

Rationale: This includes providing components and material for LLCs.

Parent: DOE O 452.3 CRD 1, CRD 6, and CRD 9
Supersedes: D&P Manual Chapter 3.1 Section 5.6.1 Bullet 1, Chapter 3.2 Section 6.6.3.4

FR94106 **The sending PA must fund transportation costs for material returned to another PA for reprocessing.**

Parent: DOE O 452.3 CRD 1, CRD 2, and CRD 7a
Supersedes: D&P Manual Chapter 6.3 Section 4.2 Number 6

FR60822 **The M&O contractor must perform receipt inspection and accept custody of incoming weapons and components for maintenance.**

Rationale: The receipt of items may include weapons, assemblies, components, and associated material. The receiving activities may include the following: receipt, container inspection, documentation accuracy, storage, and safety and security verifications.

Parent: DOE O 452.3 CRD 2 and CRD 8
Supersedes: D&P Manual Chapter 4.3 Section 6 Number 7

FR65595 **The M&O contractor must report receipt of weapon parts and assemblies per D&P Manual Chapter 4.3 Section 5.2 and Section 6.**

Parent: DOE O 452.3 CRD 1 and CRD 8
Supersedes: D&P Manual Chapter 4.3 Section 6 Number 7

FR76705 **NNSA and M&O Contractors must implement the UR process for DoD returned material per D&P Manual Chapter 6.1.**

Parent: DOE O 452.3 CRD 2 and CRD 7d
Supersedes: TBP-700 Section 6.1 / TBP-704 Section 5 Paragraph 2 / TBP-800 Section 4.4 Paragraph 3

FR94854 **When NNSA decides to change the status of a weapon received at PX, NA-122 must document the status change decision, by serial number, to the NPO.**

Rationale: The FPM should communicate with the PX M&O Contractor to ensure operations are not started on the weapon requiring the status change. This status change can include surveillance to dismantlement; dismantlement to surveillance; Disassembly For Life Extension Program (DSLEP) to surveillance, Stockpile Flight Test (SFT) to Stockpile Laboratory Test (SLT), etc.

Parent: DOE O 452.3 Section 4.e.1
Supersedes: N/A

FR61487 **When NA-122 directs the weapon status change, the NPO must verify that no weapon operations are in-process on the weapon of interest and direct PX to change the weapon status.**

Rationale: The NPO should verify the appropriate status of the received weapon. PX should have a notification system to assure appropriate modification of unit status changes when requested by NA-122 and the NPO. If weapon operations are in-process, the NPO should negotiate the status change necessity with NA-122.

Parent: DOE O 452.3 Section 4.e.1
Supersedes: N/A

FR78185 **When the NPO directs the weapon status change, PX must change the weapon's designated status in inventory to the requested status.**

Rationale: PX should have a notification system to assure appropriate modification of unit status changes when requested by NA-122 and the NPO.

Parent: DOE O 452.3 CRD 7a
Supersedes: N/A

FR91895 **The M&O Contractors must report significant defects or anomalies found in returned War Reserve (WR) stockpile material to the appropriate DA for investigation and follow-up action as required per D&P Manual Chapter 8.1 Section 5.12.**

Rationale: The PA determines what is significant. The WR stockpile returned material may include repair, refurbishments, and DISLEP. Additional information on discrepant DoD material evaluation and disposition is provided in T139.

The purpose of the reporting requirements is two-fold:

a) To assure timely evaluation of defects indicative of stockpile conditions

b) To provide the design agency with data needed to assess the quality of material in stockpile, including indications of degradation that may occur with time or that result from stockpile environment

Parent: DOE O 452.3 CRD 2 and CRD 7a
Supersedes: TBP-700 Section 6.3

FR99589 **The M&O Contractor must manage nonconforming product during maintenance activities per D&P Manual Chapter 2.1.**

Parent: DOE O 452.3 CRD 2, CRD 7a, and CRD 7h
Supersedes: N/A

FR48474 **The PAs must report maintenance data per D&P Manual Chapter 4.3 Section 5.2 and Section 6 and Chapter 4.4 Section 5.3.**

Rationale: IRC or NORC reporting may be required per FR24054.

Parent: DOE O 452.3 CRD 2, CRD 7a, and CRD 7h
Supersedes: D&P Manual Chapter 8.1 Section 6.1.5

FR34372 **M&O Contractors must reprocess or rework product per D&P Manual Chapter 6.3 Section 4.1 and Section 4.2.**

Rationale: Weapon material may be returned to a PA for reprocessing caused by occurrences such as (1) rejection during assembly, (2) damage, (3) a need to incorporate an engineering change, (4) field rejection, (5) laboratory or flight tests, or (6) retrofit activities.

Parent: DOE O 452.3 CRD 2, CRD 7a, and CRD 7h
Supersedes: TBP-700 Section 5.2

FR27985 **Prior to return to the stockpile, PX must retrofit surveillance rebuild weapons to the current product definition.**

Rationale: When scheduled to rebuild a surveillance weapon, PX uses the current product definition to build the product to the latest part number suffix. Repair weapons may be retrofitted only within the extent of the repair unless otherwise specified by an SIER.

Parent: DOE O 452.3 CRD 1, CRD 2, and CRD 7a
Supersedes: D&P Manual Chapter 7.3 Section 5.3 Paragraph 1 / TBP-805 Section 3.4

FR24625 **The PAs must submit reprocessed product for acceptance per the WQAPM.**

Rationale: Product to be submitted is listed on the QIL.

Parent: DOE O 452.3 CRD 1, CRD 2, and CRD 7a
Supersedes: N/A

FR69897 **The FO must perform acceptance of the reprocessed product per the WQAPM.**

Rationale: Acceptance is performed to the reprocessing definition documented in a Reprocessing Specification (RS) or the original product definition coupled with an SIER.

Parent: DOE O 452.3 Section 4.a, Section 4.e.1, and Section 4.e.4.b
Supersedes: D&P Manual Chapter 13.1 Section 5.2 Bullet 1

FR24054 **PAs must record and report weapon record card information for rebuilt or repaired weapons per T136 (IRC) or T137 (NORC).**

Rationale: The IRC is used for Air Force product. The NORC is used for Navy product.

Parent: DOE O 452.3 CRD 1 and CRD 2
Supersedes: TBP-203

4.2.3 Complete Maintenance

FR92482 **When NNSA decides to change the status of a weapon previously disassembled at PX, NA-122 must document the status change decision by serial number to the NPO, and provide the disposition direction for the components to PX.**

Rationale: The FPM has the authority to permanently reduce stockpile quantities based on DoD needs and treaty commitments. The reduction, after the start or completion of disassembly actions, requires permanent marking removal from the warhead or bomb case, component routing changes that could include demilitarization, sanitization, and destruction

per the Retirement Disposition Instruction (RDI), and weapons records and weapon record card entries to appropriately record the new status.

Parent: DOE O 452.3 Section 4.e.8, and Section 4.e.9
Supersedes: N/A

FR40529 **When NA-122 directs the weapon status change to a previously disassembled unit, the NPO must direct PX to schedule needed component operations and document record entries for the requested status.**

Rationale: The NPO should assure that the PX M&O Contractor schedules the permanent marking removal of the selected weapon components. In addition, the NPO should ensure completion of the component disposition activities and weapon records changes.

Parent: DOE O 452.3 Section 4.e.8, and Section 4.e.9
Supersedes: N/A

FR95826 **When the NPO directs the weapon status change to a previously disassembled weapon, PX must change the weapon records to reflect the new status and schedule required component operations and component status changes.**

Rationale: PX should assure that appropriate modifications to weapon status changes are made when requested by NA-122 and NPO. Component usage changes, component shipment changes, and weapon record changes should be documented.

Parent: DOE O 452.3 CRD 7i
Supersedes: N/A

FR59383 **NNSA must direct disposition of parts/assemblies yielded from planned stockpile reduction.**

Rationale: Stockpile reduction permanently removes a quantity of nuclear weapons. This includes performing disassembly activities, reporting, and dispositioning the components excessed per the RDI or retained for potential reuse.

Parent: DOE O 452.3 Section 4.e.8, and Section 4.e.9
Supersedes: N/A

FR89505 **The M&O Contractors must disposition parts/assemblies yielded from stockpile reduction per NNSA direction.**

Rationale: The M&O Contractor determines and conducts the series of activities performed on the part or assembly to accomplish schedule requirements (for example: assembly, disassembly, storage, maintenance, repair, accept, recycle, or reuse).

Parent: DOE O 452.3 CRD 7i
Supersedes: N/A

FR50234 **The M&O Contractor must maintain disposition records for SNM and classified materials.**

Parent: DOE O 452.3 CRD 7i
Supersedes: N/A

5. EXTERNAL INTERFACE RESPONSIBILITIES

This section exclusively lists responsibilities for organizations and individuals external to NNSA and M&O Contractors.

5.1 Department of Defense (DoD)

The DoD is responsible for:

a) issuing revisions to the Military Characteristics (MC) or Stockpile-to-Target Sequence (STS) documents

b) establishing an emergency capability requirement for the weapon when the MAR prerequisites have not been met

c) funding design of DoD-requested hardware

d) notifying the NNSA about unsatisfactory defective weapon conditions in a Unsatisfactory Report (UR)

6. KEY DEFINITIONS

Definitions and acronyms related to this content can be found in the Glossary (Lexicon) on the DPBPS Portal Explorer at this URL: https://dpbps.sandia.gov/Pages/Lexicon.aspx.

7. TRACEABILITY REFERENCES

The following references are used in this content:

C047: Conduct Technical Design and Production Reviews

D&P Manual, Chapter 1.1: Agency Functions Within the Nuclear Weapons Complex

D&P Manual, Chapter 1.2: Development and Production Functions

D&P Manual, Chapter 2.1: Use of a Product That Does Not Meet Specifications

D&P Manual, Chapter 2.2: Stop Work

D&P Manual, Chapter 2.4: Major Assembly Release, Emergency Capability Release, and Hold Order

D&P Manual, Chapter 3.1: Phases 1 Through 7

D&P Manual, Chapter 3.2: Phase 6.X Process

D&P Manual, Chapter 3.3: Program Management Document - Program Control Document (PCD) and Production Program Definition (PPD)

D&P Manual, Chapter 4.1: Inventory & Disposition of Nonnuclear Weapons Material and Special Tooling and Acceptance Equipment

D&P Manual, Chapter 4.3: Reporting and Accounting for the Nuclear Weapon Stockpile Inventory

D&P Manual, Chapter 4.4: Disposal of Retired Weapons

D&P Manual, Chapter 5.1: Interproject Scheduling

D&P Manual, Chapter 6.1: Reporting, Special Procedures and Disposition of Defective Weapon Assemblies

D&P Manual, Chapter 6.2: Examination and Repair of Weapon Assemblies at Pantex

D&P Manual, Chapter 6.3: Reprocessing of Weapon Materials

D&P Manual, Chapter 7.1: Base Spares and Military Spares

D&P Manual, Chapter 7.3: Materials and Tools to Retrofit the War-Reserve Stockpile

D&P Manual, Chapter 7.4: Equipment Requirement Schedule

D&P Manual, Chapter 7.5: Reimbursable Equipment Schedule

D&P Manual, Chapter 8.1: New Material and Stockpile Evaluation Test Program

D&P Manual, Chapter 9.3: Advance Procurement Authority

D&P Manual, Chapter 11.3: Seamless Safety (SS-21) for Assembly and Disassembly of Nuclear Weapons at the Pantex Plant

D&P Manual, Chapter 11.4: Development of Documented Safety Analyses, Technical Safety Requirements, Unreviewed Safety Question Determination, Justification For Continued Operations, and Authorization Agreements For Nuclear Explosive Operations And Facilities At The Pantex Plant

D&P Manual, Chapter 11.6: Independent Review Process for Nuclear Explosive Operations at the Pantex Plant

D&P Manual, Chapter 13.1: Quality Program

DOE Accounting Handbook

DOE O 452.2: Nuclear Explosive Safety

DOE O 452.3: Management of the Department of Energy Nuclear Weapons Complex

DOE O 461.1: Packaging and Transportation for Offsite Shipment of Materials of National Security Interest

DOE O 481.1: Strategic Partnerships Projects (Formerly Known as Work For Others (Non-Department of Energy Funded Work))

DOE Records Schedule, Schedule 3

NA SD 452.2: Nuclear Explosive Safety Evaluation Processes

NAP-24: Weapon Quality Policy

R001: Product Realization

R003: Product Definition Control

R006: 6.X Process

R007: DSW Program Funding Within PPBE Process

T019: Control DPBPS Content

T046: Qualify Product or Process Business Rules

T049: Special Instructions Business Rules

T135: Qualifying Tritium Reservoirs in H1616 Containers Business Rules

T136: Inspection Record Card Business Rules

T137: Nuclear Ordnance Record Card Business Rules

T138: Non-Nuclear Assurance Program

T139: Discrepant DoD Material Evaluation & Disposition

TBP-001: Major Assembly Release System

TBP-101: Engineering Evaluation Process

TBP-202: Record of Assembly and Disassembly

TBP-203: Weapon Record Cards

TBP-700: Product Acceptance and Control of Nonconformance

TBP-702: Nonconforming Material

TBP-704: Evaluation and Disposition of Discrepant Weapon Material

TBP-800: Stockpile Management

TBP-803: Non-nuclear Assurance Program

TBP-804: Stockpile Support Material

TBP-805: Repair and Retrofit of Weapons and Ancillary Equipment

TBP-901: Integrated Safety Process for Nuclear Weapons Operations and Facilities

Weapon Quality Assurance Procedures Manual (WQAPM)

FEDERAL REQUIREMENTS				
NUMBER	ISSUE	RELEASE DATE	EFFECTIVE DATE	PAGE
R020	**A2**	**2016-05-04**	**2016-05-09**	**1 of 14**

Phase 7 - Dismantlement

For PRRO Administration Use Only CAGE CODE: 14213

CHANGE HISTORY

EFFECTIVE DATE	ISSUE	RELEASE/CHANGE NO.
2016-01-01	A1	IER20154199SA
2016-05-09	A2	FCO 20161851SA

TABLE OF CONTENTS

1. SCOPE

This content specifies the requirements for Phase 7 - Dismantlement.

These requirements provide control of the following:

a) Dismantlement of Department of Defense (DoD) retired weapons and trainers

b) Disposal of legacy excess/surplus weapon components or materials

Note: Excluded from the process are materials, tooling, and equipment generated in future weapons development and surveillance programs.

2. APPLICABILITY

This content applies to the following organizations when a nuclear weapon system is retired from the stockpile and released for dismantlement, dismantlement of the unit occurs, and disposal of the excess/surplus components or materials is performed, including legacy material, tooling, and test equipment.

a) NNSA: all federal organizations reporting to the Defense Programs Office of the Assistant Deputy Administrator for Stockpile Management and the weapon-related portions of Defense Programs Office of the Assistant Deputy Administrator for Major Modernization Programs

b) M&O Contractors: LANL / LLNL / NNSS / NSC / PX / SNL / SRS / Y-12

c) Field Offices (FO)

Section 5 lists external interfaces for this content.

2.1 Cancellation

When this content becomes effective, the following D&P Manual Chapters/Sections will be cancelled:

Chapter 1.2 Section 5.2.1 Bullet 3, Chapter 3.1 Section 5.7, Chapter 3.3 Section 4.2.3 Number 6, Section 4.3.3, and Table 3.3.2 Row 5, Chapter 4.1 Section 5.1.2, and Section 5.4, Chapter 4.3 Section 6 Numbers 4-7, Chapter 4.4 Section 2 Paragraph 1, Section 5.1, Section 5.2, Section 5.3 Paragraph 1 and Paragraphs 6-8, Section 5.4, and Section 5.5, and Chapter 8.1 Section 5.9.1 Paragraph 2.

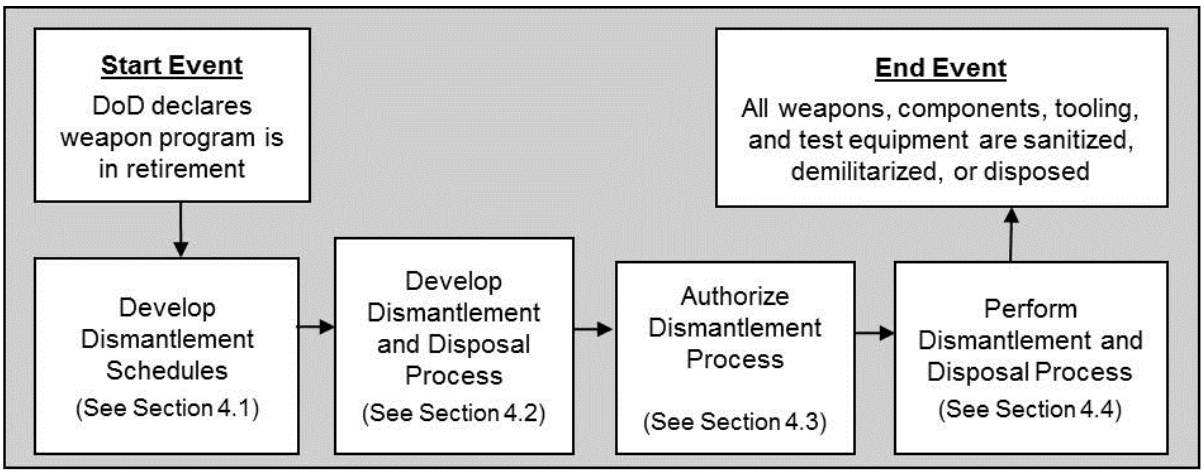
2.2 Organization Responsible for Content

The Office of Nuclear Weapon Stockpile (NA-122) is responsible for this content.

3. PROCESS DIAGRAM

Figure 1 represents the process needed to clarify the requirements.

Figure 1: Weapon Dismantlement



The process begins when the DoD declares a weapon program is in retirement status.

In step Develop Dismantlement Schedules, the National Nuclear Security Administration (NNSA) and Managing and Operating (M&O) Contractors develop plans and schedules for weapon dismantlement.

In step Develop Dismantlement Process, the M&O Contractors process for dismantling the weapons and disposing of the parts.

In step Authorize Dismantlement Process, the NNSA and M&O Contractors conduct the necessary reviews and provide / receive authorization to dismantle the weapons.

In step Perform Dismantlement and Disposal Process, the M&O Contractors dismantle the weapons and dispose of the parts.

The process ends when all weapons, components, tooling and test equipment are sanitized, demilitarized, and disposal is complete.

4. REQUIREMENTS

This section exclusively lists federal requirements. A rationale appears where further explanation adds clarity. Rationales do not contain additional requirements.

A unique number identifies each requirement. The information below each requirement provides traceability. Supersession links identify legacy content cancelled by the requirement. Change history documents any changes since the previous DPBPS version per T019 thresholds.

Definitions and acronyms related to this content can be found in the online Glossary (Lexicon) - see Section 6.

Section 7 lists the titles of documents called out in this content.

4.1 Develop Dismantlement Schedules

FR36259 **NA-122 must negotiate the weapon return schedules for dismantlement and trainer disposal activities with the DoD.**

Rationale: NA-122 and DoD coordinate:

a) Weapon storage requirements (including containers and packaging material)

b) Necessary DoD weapon alterations (ALT) needed before transportation

c) Timing of weapon returns

Disassembly and disposal of DoD and Defense Threat Reduction Agency (DTRA) trainers are available at no cost to the DoD during War Reserve (WR) dismantlement processing.

Parent: DOE O 452.3 Section 4.e.(8)
Supersedes: D&P Manual Chapter 3.1 Section 5.7.1, and Chapter 4.4 Section 2 Paragraph 1, Section 5.1 Paragraph 6, and Section 5.5 Paragraph 3

FR61963 **The design agency (DA) must submit an Offsite Transportation Authorization (OTA), Offsite Transportation Certificate (OTC), or Offsite Transportation Direction (OTD) request to NNSA's Packaging and Certification Division for transportation of the trainers for disposal.**

Parent: DOE O 461.1 CRD 1
Supersedes: N/A

FR19659 **NA-122 must issue notification documents to all M&O Contractors and field offices of the DoD weapon program status change to retirement and initiation of Phase 7 - Dismantlement.**

Rationale: The Nuclear Weapons Council (NWC) formally changes the status of a weapon program to "retired," which triggers Phase 7. The status change allows NNSA to prepare for weapon dismantlement and full-scale demilitarization activities. The NNSA notification drives the compilation of the M&O Contractor Excess Material List.

Parent: DOE O 452.3 Section 5.c.(6)
Supersedes: D&P Manual Chapter 3.1 Section 5.7.2 Bullet 2 and Chapter 4.4 Section 5.1 Paragraph 1

FR52308 **NA-122 must issue a memorandum to Sandia National Laboratories (SNL) Military Liaison (ML) to prepare the dismantlement Technical Publications (TP) by revising TPs to include any return ALTs, storage and handling requirements, and shipping requirements for weapon storage and return.**

Rationale: This memorandum ensures that any ALTs, shipping configuration changes, or DoD instructions for storage and return agreements are available for DoD retirement processes. SNL ML produces the TPs per D&P Manual, Chapter 1.7.

Parent: DOE O 452.3 Section 5.c.(6)
Supersedes: D&P Manual Chapter 3.1 Section 5.7.2 Bullet 3, Section 5.7.3 Paragraph 1, and Chapter 4.4 Section 5.1 Paragraph 1

FR22885 **NA-122 must update the Program Control Document (PCD) and Production and Planning Directive (P&PD) with the WR dismantlement schedules for the weapon system, weapon system trainers, pits, and canned subassemblies (CSA).**

Rationale: Each PCD lists the dismantlement quantity for items by month and year.

Parent: DOE O 452.3 Section 5.c.(1)
Supersedes: D&P Manual Chapter 3.1 Section 5.7.2 Bullet 1, Chapter 3.3 Section 4.2.3 Number 6, and Chapter 4.4 Section 5.1 Paragraphs 1-2

FR82243 **NA-122 must issue the Retirement Disposition Instructions (RDI) designating the PA responsible for component disposition.**

Rationale: As part of the P&PD system, the RDI precedes the first production unit (FPU). The RDI specifies the PA responsible to design the component disposal process and perform demilitarization, sanitization, and disposal on excess material.

Parent: DOE O 452.3 Section 5.c.(6)
Supersedes: D&P Manual Chapter 3.1 Section 5.7.2 Bullet 1, Chapter 3.3 Section 4.3.3 and Table 3.3.2 Row 5, Chapter 4.4 Section 5.1 Paragraphs 1-2, Section 5.3 Paragraph 1, and Section 5.4 Paragraph 4

FR48350 **NA-122 must issue a memorandum to the DAs to verify that the component information in the Stockpile Dismantlement Database (SDDB) is complete and accurate.**

Rationale: The SDDB is an NA-122 database maintained by SNL that records characterization information for use in weapon component disposal. The PAs use the SDDB as the main source for component hazard information to facilitate disposal process development.

Parent: DOE O 452.3 Section 5.c.(6)
Supersedes: D&P Manual Chapter 3.1 Section 5.7.2 Bullet 3, Section 5.7.3 Paragraph 2 Bullet 2, and Chapter 4.4 Section 5.4 Paragraph 1

FR83471 **Within 120 days after notification that weapon status has changed to retired, each M&O Contractor must provide to NA-122 a list of the following items maintained in active inventory:**

a) Nonnuclear materials and material deemed excess to dismantlement and disposal

b) Components

c) Production/special tooling

d) Acceptance equipment

Rationale: This requirement ensures identification of items that are excess to direct dismantlement schedule activities. This list also supports the DoD and contractor 90-day review, initiated by the transmittal letter issued per FR95066.

Items identification and information on the list include:

a) Weapon program

b) Part number

c) Description

d) Nomenclature

e) Ship entity in which the material is used

f) Category

g) Classification identification

h) Condition of the material or special tooling or acceptance equipment

i) Excess quantity of each item

Excess material does not include:

a) Scrap material

b) Obsolete material

c) Commercial Off-The-Shelf (COTS) parts

d) Residue material from any source (e.g., surveillance)

e) Tooling that is not authorized for use

Parent: DOE O 452.3 CRD 4
Supersedes: D&P Manual Chapter 4.1 Section 5.1.2, Section 5.4.2, and Section 5.4.3, and Chapter 4.4 Section 5.1 Paragraph 4

FR95066 **NA-122 must issue a transmittal letter and the Excess Material List to the DoD and the M&O Contractors per D&P Manual Chapter 4.1 Section 5.3.**

Rationale: Sharing excess lists ensures that the DoD and NNSA retain useful material for future needs.

Parent: DOE O 452.3 Section 5.c.(6)
Supersedes: N/A

4.2 Develop Dismantlement and Disposal Process

FR18637 SNL must update the SDDB with component hazard information from SNL and the responsible DA.

Rationale: The SDDB incorporates the material composition and the component's inherent hazards to provide input to required safety basis documentation and authorization for operations and facilities.

Parent: DOE O 452.3 CRD 7.i and 8
Supersedes: D&P Manual Chapter 3.1 Section 5.7.3 Paragraph 2 Bullet 2 and Chapter 4.4 Section 5.4 Paragraph 1

FR71969 NA-122 must authorize by memorandum to the supplying M&O Contractor any excess items or materials requested by M&O Contractors or the DoD.

Rationale: This authorization ensures that transferring of custodianship, planning of disposal methods, and reimbursing of costs to the PA for special processing, packaging, and shipping paid by the receiver are addressed. Following transfer, NA-122 authorizes disposal of remaining excess items or materials per FR98768.

Parent: DOE O 452.3 Section 5.c (6) and (10)
Supersedes: D&P Manual Chapter 4.4 Section 5.1 Paragraphs 3-4, Section 5.3 Paragraph 7, and Section 5.4 Paragraph 3

FR90283 NA-122 must establish a project team for dismantlement activities.

Rationale: The tasking letter outlines the project team members' roles and responsibilities and establishes the start date of the project.

Parent: DOE O 452.3 Section 5.c.(6)
Supersedes: D&P Manual Chapter 3.1 Section 5.7.2 Bullet 3

FR87715 NA-122 must lead the project team to complete the activities defined in D&P Manual Chapters 11.3, 11.4, and 11.6, and to prepare for Nuclear Explosive Safety Study (NESS) and Department of Energy (DOE)/NNSA Readiness Review activities.

Parent: DOE O 425.1 Section 4.a.(3) / DOE O 452.3 Section 5.c.(6)
Supersedes: N/A

FR72117 The NA-122 lead engineer and the project team must evaluate the readiness of the weapon dismantlement process using T132 and document the evaluation results in a formal report.

Rationale: T132 is a checklist that helps the project team evaluate potential issues.

Parent: DOE O 452.3 Section 5.c.(6)
Supersedes: N/A

FR30999 **NA-122 must authorize DA-requested data collection actions in the dismantlement process by a memorandum to the PA.**

Rationale: This authorization ensures dismantlement occurs with only essential safety testing. However, NA-122 is open to additional data and information collection provided its effect on dismantlement cost and schedule is acceptable.

Parent: DOE O 452.3 Section 5.c.(6)
Supersedes: D&P Manual Chapter 8.1 Section 5.9.1 Paragraph 2

FR98768 **Following the determination to transfer excess items per FR71969, NA-122 must authorize M&O Contractors to initiate disposal of all remaining excess materials, production/special tooling, and acceptance equipment.**

Rationale: This authorization starts disposal activities in preparation of dismantlement and to reduce storage space. The authorization also allows the M&O Contractors to begin using the RDI to dispose of or ship for disposal any items listed that are excess to Nuclear Security Enterprise (NSE) PCD requirements and that are not needed to support dismantlement training needs.

Parent: DOE O 452.3 Section 5.c.(6)
Supersedes: D&P Manual Chapter 4.4 Section 5.1 Paragraph 4

FR85482 **The Pantex Plant (PX) must lead the design of the process for weapon dismantlement operations.**

Rationale: Implementation of the Integrated Safety Management (ISM) philosophy using D&P Manual Chapter 11.3 takes place unless previously done during the lifecycle of the weapon system.

Parent: DOE O 452.3 CRD 7.i
Supersedes: D&P Manual Chapter 3.1 Section 5.7 Paragraph 1 and Section 5.7.4 Paragraphs 1-2

FR73263 **Before disposing of components allocated by the RDI, M&O Contractors must document the disposal process.**

Rationale: PAs provide the necessary tooling, training, and procedures to safely and securely perform weapon component disposal as assigned in the RDI.

Parent: DOE O 452.3 CRD 1 and CRD 8
Supersedes: D&P Manual Chapter 3.1 Section 5.7.3 and Section 5.7.4, and Chapter 4.4 Section 5.3 Paragraph 6

FR54466 **NA-15 must transport retired weapons from the DoD to PX.**

Rationale: Helps establish the priority for the Secure Transportation Asset Advisory Board (STAAB).

Parent: DOE O 452.3 Section 5.c.(2)
Supersedes: D&P Manual Chapter 4.4 Section 5.2

4.3 Authorize Dismantlement Process

FR74482 **The DAs and the Weapon Dismantlement and Disposition (WDD) Federal Program Manager (FPM) must determine if WR parts are required to support life extension programs, reuse for stockpile sustainment, or surveillance prior to authorizing weapon system dismantlement.**

Rationale: This approach creates a robust dismantlement process that preserves the WR pedigree of parts for future applications, when required.

Parent: DOE O 452.3 CRD 7.i / NAP-24 Attachment 2 Section 2.1
Supersedes: D&P Manual Chapter 3.1 Section 5.7.3 and Section 5.7.4

FR44305 **PX must perform Operational Readiness Review (ORR), DOE/NNSA Readiness Assessment (RA), and NESS on trainer units to demonstrate the WR dismantlement process.**

Rationale: PX uses high-fidelity trainers to demonstrate the weapon-specific dismantlement process operations. Readiness reviews ensure that the dismantlement process meets requirements.

Parent: DOE O 425.1 CRD 2.d / DOE O 452.3 Section 5.c.(2), Section 5.g.(5), CRD 7.i, and CRD 8
Supersedes: D&P Manual Chapter 3.1 Section 5.7.4

FR68902 **After receiving recommendations to proceed from the NESS and the NNSA RA, the NNSA Production Office (NPO) must issue a memorandum to PX that authorizes nuclear explosive dismantlement operations.**

Rationale: PX is responsible for designing and documenting the weapon-specific nuclear explosive dismantlement process and submitting the process for NNSA operations and risk approvals. The NPO approves the documented Hazard Analysis Report (HAR) that specifies the known hazards and hazard mitigation of the documented operations.

Parent: DOE O 452.3 Section 5.c.(2) and Section 5.g.(5) / NA SD 452.2 Chapter I Section 2.g.(1) and Chapter IV Section 11.c / 10 CFR 830.207
Supersedes: D&P Manual Chapter 3.1 Section 5.7.4

FR51079 **The field office (FO) must authorize the M&O Contractor nuclear component dismantlement process.**

Rationale: The authorization ensures the completion of readiness requirements to ensure the safety of the nuclear operations. The FO manager is the federal risk acceptance official for mission and safety of the site and is the approval authority for the M&O Contractor and NNSA RAs.

Parent: DOE O 425.1 Section 5.a / DOE O 452.3 Section 5.c.(2) and Section 5.g.(5)
Supersedes: D&P Manual Chapter 3.1 Section 5.7.4

4.4 Perform Dismantlement and Disposal Process

FR49422 M&O Contractors must report weapon and Special Nuclear Material (SNM) shipment and staging activities.

Rationale: PX reporting of weapons and SNM shipments and staging is per D&P Manual Chapter 4.4, Appendix E. This information helps develop planning strategies that include transportation, staging, and M&O Contractor production capacities.

Parent: DOE O 452.3 CRD 8
Supersedes: D&P Manual Chapter 4.3 Section 6 Numbers 4-7

FR37566 PX must dismantle scheduled WR units per D&P Manual Chapters 11.3 and 11.4.

Rationale: The safety of nuclear operations is maintained during weapon dismantlement. As information changes, PX receives risk and safety evaluations.

Parent: DOE O 452.1 CRD 1 and CRD 2 a-d / DOE O 452.3 CRD 7.i and CRD 8
Supersedes: D&P Manual Chapter 1.2 Section 5.2.1 Bullet 3 and Chapter 3.1 Section 5.7.5

FR64791 NA-15 must transport dismantled or excess nuclear components to PAs as directed in the RDI.

Rationale: NA-122 establishes the priority for the STAAB.

Parent: DOE O 452.3 Section 5.c.(2)
Supersedes: D&P Manual Chapter 4.4 Section 5.2

FR88236 Before disposing of components at non-NNSA facilities, M&O Contractors must demilitarize and sanitize RDI-directed components.

Rationale: Nonproliferation concerns mandate demilitarization and sanitization.

Parent: DOE O 452.3 CRD 8
Supersedes: D&P Manual Chapter 4.1 Section 5.4.1

FR10257 M&O Contractors must maintain traceability of accountable components they disposition.

Rationale: A record of destruction (e.g., paper, electronic record management system, or other suitable media) ensures NA-122 of cradle-to-grave tracking and helps reconcile the DoD Nuclear Weapons Related Material (NWRM).

Parent: DOE O 452.3 CRD 7.i / NAP-24 Attachment 2 Section 3.14
Supersedes: D&P Manual Chapter 4.1 Section 5.4.1 and Chapter 4.4 Section 5.3 Paragraph 8

FR84410 NA-122 must document the completion of the demilitarization, sanitization, and disposal activities of components listed in the RDI by memorandum to the M&O Contractors.

Rationale: The memorandum finalizes the financial, scheduled obligations of NA-122 and the M&O Contractors to a weapon system and facilitates cancellation of the RDI.

Parent: DOE O 452.3 Section 5.c.(6)
Supersedes: D&P Manual Chapter 4.4 Section 5.1 Paragraph 7

FR28574 **NA-122 must notify SNL ML and DTRA by memorandum when all weapons and trainers transfer from DoD custody to NNSA custody.**

Rationale: The memorandum triggers the cancellation of the weapon-specific Joint Nuclear Weapons Publication System (JNWPS) and TPs by SNL and facilitates the Military Spare/Base Spare disposal by DoD.

Parent: DOE O 452.3 Section 5.c.(6)
Supersedes: D&P Manual Chapter 4.4 Section 5.1 Paragraphs 5-6 and Section 5.5 Paragraph 2

FR98790 **SNL ML must cancel JNWPS, TPs, and training to the military upon receipt of the NA-122 notification memorandum per FR28574.**

Rationale: Cancellation removes unnecessary costs associated with technical manual publication and training for the DoD.

Parent: DOE O 452.3 Section 5.c.(6)
Supersedes: D&P Manual Chapter 4.4 Section 5.1 Paragraph 5 and Section 5.4 Paragraph 2

5. EXTERNAL INTERFACE RESPONSIBILITIES

This section exclusively lists responsibilities for organizations and individuals external to NNSA and M&O Contractors.

5.1 Department of Defense (DoD)

Under Secretary of Defense for Acquisition, Technology and Logistics is responsible for:

a) Chairing the Nuclear Weapons Council, which is the Milestone Review Body for all nuclear weapon activities

b) Acting as the Milestone Decision Authority for all nuclear weapon activities

c) Executing DoD nuclear weapons development, production, sustainment, and retirement requirements

5.2 Nuclear Weapons Council

The 1987 Defense Authorization Act became law in Title 10 USC Sec 179 and defines NWC responsibilities and membership. The NWC is the focal point for joint DoD-NNSA activities to secure, maintain, and sustain the United States nuclear weapons stockpile. The NWC is responsible for:

a) Approving all Modifications (MODs) and Alterations (ALTs), changes to the Stockpile-to-Target Sequence (STS) that require a change to a weapon subsystem or component, and changes to the Military Characteristics (MCs)

b) Coordinating programming and budget matters between DoD and NNSA

c) Coordinating and approving NNSA activities for the study, development, production, and retirement of nuclear warheads

5.3 Defense Threat Reduction Agency (DTRA)

DTRA is responsible for:

a) Submitting any requests for components from retired weapons to be used as base or military spares using DTRA Form 472

b) Providing NNSA with a list of weapon-unique base spare parts when the last weapon in retirement status has changed custody from the DoD to NNSA

c) Disposal of base spares once they coordinate with NNSA that the base spares in DTRA's possession are no longer needed by either agency.

Supersedes: D&P Manual Chapter 4.4 Section 5.5 Paragraph 1

6. KEY DEFINITIONS

Definitions and acronyms related to this content can be found in the Glossary (Lexicon) on the DPBPS Portal Explorer at this URL: https://dpbps.sandia.gov/Pages/Lexicon.aspx**.**

7. TRACEABILITY REFERENCES

The following references are used in this content:

10 CFR 830.207: DOE Approval of Safety Basis

D&P Manual Chapter 1.2: Development and Production Functions

D&P Manual, Chapter 1.7: Joint Nuclear Weapons Publication System

D&P Manual Chapter 3.1: Phases 1 Through 7

D&P Manual Chapter 3.3: Program Management Document - Program Control Document (PCD) and Production Program Definition (PPD)

D&P Manual Chapter 4.1: Inventory & Disposition of Nonnuclear Weapons Material and Special Tooling & Acceptance Equipment

D&P Manual Chapter 4.3: Reporting and Accounting for the Nuclear Weapon Stockpile Inventory

D&P Manual Chapter 4.4: Disposal of Retired Weapons

D&P Manual Chapter 8.1: New Material and Stockpile Evaluation Test Program

D&P Manual, Chapter 11.3: Seamless Safety (SS-21) for Assembly and Disassembly of Nuclear Weapons at the Pantex Plant

D&P Manual, Chapter 11.4: Development of Documented Safety Analyses, Technical Safety Requirements, Unreviewed Safety Question Determination, Justification for Continued Operations, and Authorization Agreements for Nuclear Explosive Operations and Facilities at the Pantex Plant

D&P Manual, Chapter 11.6: Independent Review Process for Nuclear Explosive Operations at the Pantex Plant

DOE O 425.1: Verification of Readiness to Start Up or Restart Nuclear Facilities

DOE O 452.1: Nuclear Explosive and Weapon Surety Program

DOE O 452.3: Management of the Department of Energy Nuclear Weapons Complex

DOE O 461.1: Packaging and Transportation for Offsite Shipment of Materials of National Security Interest

NA SD 452.2: Nuclear Explosive Safety Evaluation Processes

NAP-24: Weapon Quality Policy

T019: Control RMI Content

T132: Dismantlement/Disposal PT Checklist

TOOL				
NUMBER	ISSUE	RELEASE DATE	EFFECTIVE DATE	PAGE
T003	**B4**	**03/20/2012**	**06/30/2012**	**1 of 4**

DISPOSITION GATE 1

For RPO Administration Use Only

CAGE CODE: 14213

CHANGE HISTORY

ISSUE	RELEASE/CHANGE NO.
B4	IER 20121698SA

Content Title:

Purpose: Use this form to obtain Gate 1 approval to apply resources and to establish project documentation and traceability. *(A hard copy of this tool is needed at the Gate 1 presentation to collect approver signatures.)*

Gate 1 Criteria	**Yes**	**No**	**N/A**
Pre-requisite			
a. For Level 3 documents: Have all parent Level 2 requirements been identified? *(Level 3 content is directly connected to the parent requirements. Ideally Level 3 content should be drafted after the Level 2 parents have passed Gate 2. Unusual situations should be explained)*	☐	☐	☐
T005 Charter Review			
b. Is scope defined?	☐	☐	☐
c. Are team objectives defined?	☐	☐	☐
d. Have SMEs, interfaces, and stakeholders been identified? *(Interfaces are representatives from other sub teams with processes that may impact or be impacted by your content. Stakeholders representing other organizations or functions either within or outside the scope of RMI.)*	☐	☐	☐
e. Have existing processes that will be replaced been identified?	☐	☐	☐
f. Have gaps been identified? *(for example: are there processes or tools/topics that require documentation that have not been documented before?)*	☐	☐	☐
g. Is it clear where this fits in the architecture?	☐	☐	☐
T002 Justification Review			
h. Is there a justification for new or eliminated content? *(for example, what improvements are expected, why is the change necessary, and what are the drivers. Justification Form provides evidence)*	☐	☐	☐
Resources			
i. Are appropriate personnel involved? *(This should address subject matter expertise and appropriate site representation. The RAC may assist in finding appropriate personnel.)*	☐	☐	☐
j. Has a preliminary schedule been entered into the Integrated Master Schedule? *(T023 is available to assist in the development of a preliminary schedule)*	☐	☐	☐
k. Are there sufficient resources *(money, time, expertise, and RPOA support)* available for process development?	☐	☐	☐

Attachments: *(check all that apply)*

☐	Additional supporting evidence and comments
☐	No attachments

Content Title:

RAC Decision	
☐	**AUTHORIZED** *(RAC agrees that all criteria have been met.)*
☐	**CONDITIONALLY AUTHORIZED** *(Not all criteria have been fully met, but RAC agrees to authorize while defining conditions that must be met to ensure all applicable criteria are met by a specified date.)*
☐	**HOLD** *(RAC agrees that not all criteria are met, and the risk is too high to grant a conditional authorization. Team will be asked to go through this gate again.)*
☐	**CANCELED** *(Under rare circumstances, the RAC may agree to cancel process development entirely.)*

If CONDITIONALLY AUTHORIZED: *(Insert List of actions that must be completed and date for final review)*

1.
2.
3.

These actions will be added to the project schedule.

If HOLD: *(Insert List of actions that must be completed and date for repeating gate review)*

1.
2.
3.

These actions will be added to the project schedule.

If CANCELED *(Include an explanation of why cancelled)*

Concurrence on RMI decision and commitment to any additional actions to be completed.

Signed by: _____

Team Lead *(insert Typed Name here)* Date

Signed by: _____

RMI Program Manager *(insert Typed Name here)* Date

A second copy of this signature page will be added to document the RAC's decision when any conditions are met.

Content Title:

If ☐L2 or ☐FA or ☐Tool *Federal Subcommittee Members	**Individual Name Participating in Gate Review**	**Initial or 'non concur'**
Nuclear Weapons Stockpile		
Weapon Tech Maturation & Stockpile Assessment		
Nuclear Explosive Safety		
Weapon Quality		
Stockpile Materials		
Program Management & Integration		
Participating Site Office Representative		
☐ Kansas City Site Office		
☐ Los Alamos Site Office		
☐ Livermore Site Office		
☐ Pantex Site Office		
☐ Nevada Site Office		
☐ Sandia Site Office		
☐ Savannah River Site Office		
☐ Y-12 Site Office		

**Pursuant to R002, Federal Subcommitte RAC Member concurrence is not required for Level 3 MOCAS and associated tools. However, the RAC Member may sign if they chose to do so.*

If ☐MOCA or ☐Tool M&O Contractor **Subcommittee Members	**Individual Name Participating in Gate Review**	**Initial or 'non concur'**
LANL		
LLNL		
SNL		
KCP		
NNSS		
PX		
SRS		
Y-12		

**Pursuant to R002, M&O Subcommitte RAC Member concurrence is not required for Level 2 Federal Requirements and Level 3 MOCAS and associated tools. However, the RAC Member may sign if they chose to do so.*

Note: If the package contains Level 2 Federal Requirements, Level 3 Federal Agreements, Level 3 M&O Contractor Agreements and any associated required tools, all RAC Members must sign the package or write 'non concur'.

TOOL				
NUMBER	ISSUE	RELEASE DATE	EFFECTIVE DATE	PAGE
T067	**A3**	**2016-05-04**	**2016-05-09**	**1 of 17**

Program-Project Plans

For RPO Administration Use Only CAGE CODE: 14213

CHANGE HISTORY

EFFECTIVE DATE	ISSUE	RELEASE/CHANGE NO.
2013-07-01	A2	IER 20130058SA
2016-05-09	A3	FCO 20161854SA

TABLE OF CONTENTS

1. SCOPE

This content defines work that occurs to document planning and control of NNSA programs-projects:

a) Scope

b) Schedule

c) Costs

d) Measurement

2. INSTRUCTIONS

2.1 Charter

The charter is developed in coordination with sponsors to establish a solid partnership. The charter establishes an agreement between the organization delivering the product, service, or result and the sponsor requesting the deliverables before resources are committed or expenses incurred. The charter confirms agreement between the sponsor and the program-project manager on the goals and needs that justify the program-project. The charter includes the primary objectives that measure the program-project's success. By formally chartering a program-project, the program-project manager and team have clear guidance on how the program-project should be planned and managed. The charter ensures a comprehensive view has been communicated and authorized to continue. Planning activities are not started without an approved charter. The minimum elements of a program-project charter are scope, goals and objectives, assumptions, and constraints. Additional program-project information can be included.

2.1.1 Scope

The high-level program-project scope defines the work needed to deliver the products and services to meet the objectives (how the work will be accomplished).

2.1.2 Goals and Objectives

The goals and objectives of the program-project needed to meet the scope are described. Goals state the desired end-result, while objectives state how the desired result will be achieved.

Goals	Objectives
Where we want to be:	The steps needed to get there are:
Broad	Narrow
General intentions	Precise
Intangible	Tangible
Abstract	Concrete
Achieve validation	Validated

2.1.3 Assumptions

A list of assumptions regarding the issues or items related to or affected by the proposed program-project is provided. Assumptions may be related to resources, delivery, environment, budget, or specific functionality of the product, service, or result that is to be delivered by the program-project.

2.1.4 Constraints

Constraints based on the current knowledge are described. Constraints can be schedule, budget, resources, products to be reused, technology to be developed or employed, products to be acquired, and interfaces to other products.

2.2 Minimum Plan Elements

The program-project plan is the foundation for planning, executing, monitoring and controlling, and closing a program-project based on the charter and scope of work defined to deliver the product and service. The program-project plan defines in detail what should be done, who will do the work, when the work will be accomplished, how much the project will cost, how the product will meet requirements, and how the project will manage risks, issues, scope, status reporting, and variance controls. As part of the review process, the program-project plan is used as a basis to evaluate whether the program-project is on schedule and within budget and to determine the ability of the project to meet project objectives.

Using the plan elements establishes a consistent method for the definition of the activities and resources needed to deliver a program-project's product and service. Additional information for the program-project can be added.

2.2.1 Scope

The detailed program-project scope establishes the boundaries of what the project will and will not accomplish. The scope description is a narrative or bulleted list of deliverables, services, and solutions expected. The scope description should reflect products and services delivered to the end user and may also include major work products developed and used by the program-project but not delivered to the end user.

The scope is the basis for defining the level of effort needed to deliver the product(s) or service(s) to meet the objectives. Deliverables should align with the goals and objectives identified in the approved charter. If a deliverable doesn't achieve a stated objective, question whether the deliverable is needed or whether a new objective statement should be created.

2.2.2 Rationale for Graded Approach

The graded approach rationale describes the level of analysis, extent of documentation, and degree of rigor applied, commensurate with the risk of failure to meet requirements.

2.2.3 Goals and Objectives

Goals state what the desired end-result is, while objectives state how the desired result will be achieved.

Goals	Objectives
Where we want to be:	The steps needed to get there are:
Broad	Narrow
General intentions	Precise
Intangible	Tangible
Abstract	Concrete
Achieve validation	Validated

2.2.4 Assumptions

Assumptions regarding the issues or items related to or affected by the proposed program-project. Assumptions may be related to resources, delivery, environment, budget, or specific functionality of the product, service, or result that is to be delivered by the program-project.

2.2.5 Constraints

Detailed constraints that restrict the team's options regarding scope, staffing, scheduling, and management of the program-project.

2.2.6 Requirements Engineering

How program-project requirements are managed. Additional information on requirements engineering is found in R012.

2.2.7 Team Membership

Team members and subordinate team leads are listed.

2.2.8 Roles and Responsibilities

Roles and responsibilities are summarized for the program-project team structure and external stakeholders, including subject matter experts. Responsibilities should describe key checkpoints needed for approval and authorization of work products or deliverables.

a) Sites

Unique roles and responsibilities for the sites are summarized.

b) Team Functions

Roles in critical project activities are summarized for communication, performance, and other areas such as monitoring and control.

Examples of key team functions include:

- Program-Project Manager
- Executive Sponsor
- Program Specialist
- Risk Manager
- Configuration Manager
- Software Developer
- Quality Specialist
- Release Manager
- Build Coordinator
- Change Control Board Chair
- Configuration Control Board member
- Performance Manager
- Technology Sponsor
- Contract Advisory Team

c) Subordinate Plans

Subordinate program-project plans needed to complete the program-project are defined in the federal program-project plan. Subordinate program-project plans follow the federal program-project plan details or T067 Section 2.2.

2.2.9 Interfaces

The ability to identify and analyze sponsors and stakeholders needs is important to satisfying their requirements. Additional information on requirements analysis is found in R012.

a) Sponsors

Sponsors are anyone who provides funding, sets requirements or is a recipient of project or process deliverables. Sponsors are also stakeholders.

The two key types of sponsors are:

- Internal (for example: corporate managers, internal funding sources)
- External (for example: personnel who set requirements, provide funding, take delivery, or operate the deliverables)

b) Stakeholders

Identifying stakeholders provides an understanding of interfaces. Stakeholders are individuals and organizations that are actively involved or whose interests may be affected as a result of program-project execution or completion. Stakeholders may also exert influence over the project's objectives and outcomes. Stakeholders are not equal, and different stakeholders are entitled to different considerations.

Examples of stakeholders include:

- Project leader
- Project team members
- Upper management
- Project sponsor
- PAs
- DAs
- Federal entities
- Line managers
- Product users

c) Need to Know

Guidance on NTK determinations is described.

d) Communication Strategy

Communication is a major component of successful program-project delivery. Without effective communication, vital information may not be exchanged between the team and other stakeholders. Lack of communication among stakeholders may prohibit or delay the execution or completion of scheduled tasks. Formal communication management policies and procedures established at the organization or agency level are referenced.

The communication section describes the methods and techniques for handling activities, such as:

- Identifying stakeholders
- Identifying the information that is to be exchanged between the team and stakeholders
- Ensuring collection, generation, dissemination, storage, and ultimate disposition of program-project information among stakeholders

2.2.10 Performance Metrics

How the program-project will identify, track, trend, and report metrics and use them for corrective action and continuous improvement is described.

2.2.11 Reviews and Reports

Specific reviews, decision points and reports for the program-project are described. Examples include programmatic reviews, technical reviews, and phase gates. Programmatic reviews provide program-project information and status so decisions can be made at the identified decision points. Technical reviews provide a look at the program-project product according to the rules of the discipline (for example: accounting, construction, engineering, testing). Reports provide program-project information for historical and potential trouble-shooting use. Additional information is found in T068.

2.2.12 Integrated Schedule

A program-project schedule or a reference to the location of the program-project schedule is included. Developing a schedule is done by establishing precedence relationships among activities, assigning work effort and resources, and establishing the start and end date of each activity and of the overall program-project. The schedule establishes the work plan (resources, activities, and timeline) for the program-project. The schedule is expected to show activities with planned effort, duration, resources, and start and end dates. Milestones, which have a date but no effort or duration, can be used to mark the completion of major activities.

a) Responsibility Assignment: If not provided in a WBS, provide a listing of assigned responsibilities against the work activities in the integrated schedule.

b) Timing of baseline: If the baseline is a time other than when it is approved by the sponsor, state the baseline timing, for example, baseline is at CER.

2.2.13 Cost

Costs for the program-project are defined and tracked. Costs are tracked from the baseline through program-project completion. Additional information is found in R007, T070, and T071.

2.2.14 Work Breakdown Structure

The subdivision of effort required to achieve the program-project objectives is shown in graphical form in the WBS. The statement of work and WBS dictionary supplement the WBS.

a) Statement of Work

The product, service, or result to be delivered by addressing "what" it is without describing "how" it will be addressed. The primary purpose of the statement of work is to focus the attention of the team by stating the problem clearly and with enough contextual detail to establish why it is important. Describe the approach the team will use to address the statement of work. Provide a general definition of the information and high-level requirements associated with the proposed solution. The description should summarize key information, including how the team will deliver the expected outcomes and performance objectives.

b) Dictionary

The dictionary lists and defines the WBS elements. The dictionary expands as the WBS is developed. The initial WBS dictionary should be based on generic definitions and made program-project specific to define the products being acquired.

2.2.15 Risk Management

The program-project risks and opportunities are described. Additional information on risk is found in R009.

2.2.16 Change Control

The approach for formally identifying, controlling, and documenting program-project plans is described. Describe the process for managing proposed changes, including how change requests are initiated, logged and tracked, and assigned for analysis and recommendation. As changes occur, changes are identified, assigned, reviewed and evaluated, and either accepted, rejected, or deferred. Monitoring and controlling change is critical because changes are inevitable. Include the change request review process, including a description of the roles of individuals and formal bodies that are involved in determining specific resolution actions. Include additional processes that may exist to further control changes of the program-project. Change management includes tracking, reviewing, and ultimately controlling change requests initiated throughout the life cycle. If formal change management policies and procedures have been established at the organization or agency level, refer to the applicable policies and procedures. In the description, include tailoring of policies and procedures for specific program-project needs. Additional information is found in T081 and an example change request form is found in T081 Appendix A.

2.2.17 Thresholds and Authorities

Thresholds and authorities tell who (authorities) is responsible and accountable for determining changes to what point (thresholds). Appendix A contains examples of thresholds and authorities. The Change Authority makes a determination on whether to proceed with the change. The sponsor can direct changes the Federal Program-

Project Manager implements. Although changes directed by the program-project sponsors will be implemented, impacts (scope, schedule, cost, risk) are still evaluated and documented.

2.2.18 Summary of Changes

Changes are summarized at each update of the program-project plan.

2.2.19 Procurement

Activities needed to incorporate acquired configuration items and configuration items for which a vendor has responsibility into the environment are described.

2.2.20 Accomplishments

The program-project accomplishments are summarized at each update of the program-project plan.

2.2.21 Records Management

The documents needed to be managed for historical purposes are listed.

2.3 Optional Plan Elements

2.3.1 Organization

The Organization section describes the program-project organizational structure, including the internal and organizational structure of the project team and stakeholders. Refer to the approved charter for initial source material.

2.3.2 Contacts

Establishing and maintaining contact information (for example: name, phone number and email) is critical. A Contact Register can be used to identify the external stakeholder function, name of liaison for the function, title, and other contact information.

2.3.3 Start-Up

The Start-Up section describes foundational elements that are needed to effectively plan and manage the program-project.

a) Life Cycle Model

Specify and describe the life cycle model(s) that will be used. Models that guide the processes involved during delivery and development of the deliverables exist at the agency or organization level. Because models are adaptable and implementation details may vary among different program-projects and organizations, describe tailoring of model(s) used.

b) Methods, Tools, and Techniques

Identify the method(s), standards, policies, procedures, programming language(s), reusable code repositories, software, and other notations, tools, and techniques that may be used to develop and deploy the products and services.

Note that methods, tools, and techniques may not be known during planning and may be identified and described at a later point during the life cycle.

2.3.4 Issue Management

The process for managing issues is described. Include the resources, methods, and tools that will be used to report, analyze, prioritize, and resolve issues. Issues may include problems with staffing or managing the project, new risks that are detected, missing information, defects in work products, and other problems. Include how the issues will be tracked and managed to closure. Formal issue management policies and procedures established at the organization or agency level are referenced. In the description, include tailoring of practices for specific program-project needs.

2.3.5 Quality Management

The Quality Management section describes the collection of activities for delivering the highest quality of products and services based on management of performance. Describe the overall, high-level approach to quality management. Quality management includes the processes for quality planning, quality assurance, and quality control. Quality planning involves identifying which quality standards are relevant based on quality objectives and determining how to satisfy them. Quality assurance is the evaluation of overall performance on a regular basis to gain confidence the work will satisfy the relevant quality standards. Quality control involves monitoring specific project results to determine compliance with relevant quality standards and to identify ways to eliminate unsatisfactory performance.

Identify if one or more teams will be formed to address a set of quality management activities such as a standards identification team or quality control team. Identify whether an independent, unbiased quality management team external to the organization and agency will be used to help ensure effective management of quality.

Formal quality management policies and procedures established at the organization or agency level are referenced. In the description, include tailoring of practices for specific program-project needs.

APPENDIX A: EXAMPLES OF THRESHOLDS AND AUTHORITIES

Table 1: Life Extension Program Thresholds and Authorities Examples

Approval / Authority Level	Cost Impact Resulting From Proposed Change	Scope Impact Resulting From Proposed Change	Schedule Impact Resulting From Proposed Change
Level 1- Nuclear Weapons Council	Greater than (>)10% total LEP program cost with DoD interface	Change in Enterprise approved scope or change in MCs or STS that affects mission need and requirements	Cumulative change in Enterprise milestones that will affect FPU and impact mission need and requirements ALL changes to Enterprise-approved Phase 6.x dates must be reviewed and approved
Level 2--NA-12	Greater than (>)20% change to site, annual, internal LEP program cost or Greater than (>)10% total LEP program cost, or reprogramming actions	Change to scope that may impact operation functions (new plant capability or significant change in capacity requiring additional facilities including changes that are caused by overlaps of multiple LEPs) but does not affect mission need and requirements	Cumulative change in NA-12 milestones that may affect FPU or impact mission need and requirements
Level 3--Project Officer's Group	Changes in reimbursable funding authority	Change in MC or STS or ICD that may affect mission need and requirements	Cumulative change in POG milestone reflected in the joint integrated project plan that may affect FPU or impact mission need and requirements

Table 1: Life Extension Program Thresholds and Authorities Examples (cont.)

Approval / Authority Level	Cost Impact Resulting From Proposed Change	Scope Impact Resulting From Proposed Change	Schedule Impact Resulting From Proposed Change
Level 4--LEP Program Manager	Greater than (>)10% change to site, annual, LEP program cost or Greater than (>)5% total LEP program cost	Change in scope defined in the LEP program-project plan	Cumulative change in PM approved milestones or deliverables, or reduction in the standard lead times which result in increased risk in meeting UU deliverables

Parent: BOP-006.001 V.J
Supersedes: D&P Manual, Chapter 3.4 Section 5.1

Table 2: Readiness Campaign Thresholds and Authorities Examples

Change Approval	Scope	Schedule	Funding Cost
Deputy Administrator	Major change to Level 1 milestone scope defined in program plan	A Level 1 milestone shift greater than 1 quarter within the current FY or that puts the milestone in the next FY	
Assistant Deputy Administrator	Major change to Level 2 milestone scope defined in program plan	A Level 1 milestone shift less than 1 quarter within the current FY OR A Level 2 milestone shift greater than 1 quarter within the current FY or that puts the milestone in the next FY	
Readiness Campaign Program Manager	Minor change to Level 1 or 2 milestone scope defined in program-project OR Any change that impacts the project level scope (WBS Level 3)	A Level 2 milestone shift less than or equal to 1 quarter within the current FY OR Project (WBS Level 3) completion date extension beyond the FY scheduled for completion	A change in cost of or reprogramming between Subprograms during the current FY OR A reallocation of project funding between sites OR A change in project (WBS Level 3) budgeted cost or a reallocation of funds between projects within a subprogram during the current FY greater than 10% of the current FY baseline funding

Table 2: Readiness Campaign Thresholds and Authorities Examples (cont.)

Change Approval	Scope	Schedule	Funding Cost
NNSA Site Office	Technical Change to Project/Program activities not impacting quality of deliverable(s)/Level 1 and 2 milestones OR Any change that does not impact the project level scope (WBS Level 3)	Project (WBS Level 3) completion date extension equal to or less than 1 quarter within the current FY	A change in project deliverables (WBS Level 4) budgeted cost OR A reallocation of funds between deliverables (WBS Level 4) during the current FY

Parent: BOP-006.001 V.J
Supersedes: D&P Manual, Chapter 3.4 Section 5

Table 3: Generic Thresholds and Authorities Examples

Change Approval	Schedule	Cost	Scope
DSW Program Director	Affects Level 2 MRT milestone	Exceeds the DSW target for a program or $5000K OR Requires changes in funding between B&Rs	Impacts Level 1 and Level 2 MRT milestones OR Introduces one or more HIGH risks
DSW Program Manager	Affects Level 3 milestones OR Grading criteria of a Level 2 MRT milestone	Exceeds the current FY work package baseline budget OR Allocation of Management Reserve	Impacts scope of Programs that do not impact Level 2 MRT milestones and above OR Causes an existing risk to increase to HIGH
DSW Work Package Manager	Affects internal programmatic OR PRTs OR Other milestones or deliverables	Exceeds current FY work package budget or center allocations over $250K	Impacts scope of Programs that do not impact Level 3 milestones and above OR Causes any increase in program-project risk

Parent: BOP-006.001 V.J
Supersedes: D&P Manual, Chapter 3.4 Section 5

TOOL				
NUMBER	ISSUE	RELEASE DATE	EFFECTIVE DATE	PAGE
T082	**A4**	**2016-06-14**	**2016-06-21**	**1 of 5**

Issue Resolution Group

For PRRO Administration Use Only CAGE CODE: 14213

CHANGE HISTORY

EFFECTIVE DATE	ISSUE	RELEASE/CHANGE NO.
2013-07-01	A2	IER 20130058SA
2016-05-09	A3	FCO 20161854SA
2016-06-21	A4	FCO 20163095SA

TABLE OF CONTENTS

1. TOOL USAGE

T082 “Issue Resolution Group” is a tool required by R008 “Portfolio-Program-Project Management” when a programmatic problem emerges that results in unrecoverable delay to an NNSA deliverable.

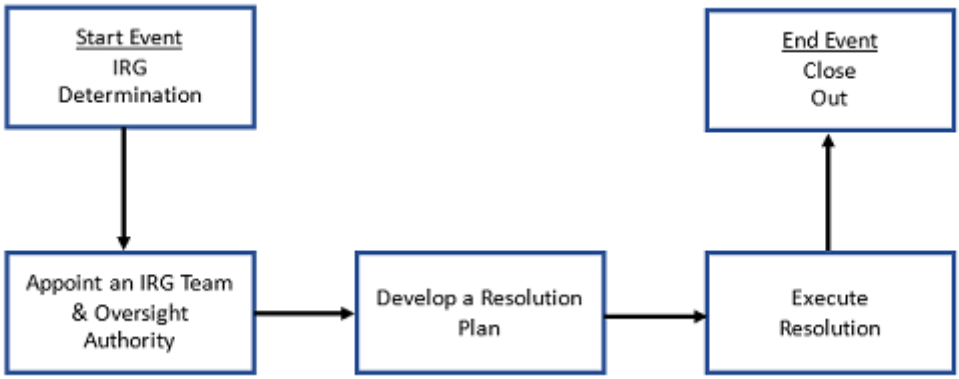
2. SCOPE

An Issue Resolution Group (IRG) request activates a response team for any identified problem that can result in a day-for-day unrecoverable delay to an NNSA deliverable. The NA-12 Assistant Deputy Administrator activates the team by notification to the affected site office managers and M&O management. The Issue Resolution Group Response Team will work on the issue until resolution is achieved.

Supersedes D&P Manual, Chapter 2.2 Section 4.1

3. ISSUE RESOLUTION GROUP PROCESS

Figure 1: Issue Resolution Group Process



3.1 Start Event: Issue Resolution Group Determination

Problems are brought to attention of NA-12, who determines whether an IRG event exists based on the criteria:

a) An identified problem with a day-for-day unrecoverable delay to an NNSA deliverable

b) Potential to affect deliveries to other sites or to customers

c) Previous mitigation efforts have failed

d) Allocated resources have already been spent or need additional resources and help that are not available at the responsible organization

3.2 Appoint an Issue Resolution Group Response Team and Oversight Authority

a) NA-12 appoints an IRG Authority to oversee the issue resolution planning and execution.

b) The IRG Authority works with affected site offices and M&O contractors to establish a Response Team to address the problem and develop a resolution plan.

3.3 Develop a Resolution Plan

3.3.1 The IRG Response Team develops a plan for resolving the problem that includes:

a) Resolution scope, risk, schedule, and cost/resource requirements

b) Resolution impact to programmatic commitments, cost, and risk

c) Projected impacts to other programs-projects caused by redirection of resources

d) Criteria for closing the IRG action

e) Alternative solutions for consideration

3.3.2 The IRG Authority and NA-12

a) Approve planned resolution actions

b) Ensure funding and resources for approved resolution actions

c) Determine the content and frequency of communications required from the IRG Response Team

3.4 Execute Resolution

The IRG Response Team:

a) Executes resolution plan actions

b) Communicates action status, cost, changes to the plan and issues to NA-12, the IRG Authority, Site Office management, and M&O Contractor management

c) Documents action status, cost incurred, changes and completion of close out criteria

The IRG Authority approves disposition of changes to the plan.

3.5 End Event: Close Out

a) The IRG Response Team provides evidence to the IRG Authority when the issue is ready for close out. IRG Authority approves the close out and notifies NA-12.

b) The IRG Authority communicates completion of resolution plan actions to NNSA Headquarter leadership, Site Office management, and M&O Contractor management.

4. KEY DEFINITIONS

Definitions and acronyms related to this content can be found in the Glossary (Lexicon) on the DPBPS Portal at this URL: https://dpbps.sandia.gov/Pages/Lexicon.aspx.

5. TRACEABILITY REFERENCES

The following references are used in this content:

R008: Portfolio-Program-Project Management

TOOL				
NUMBER	ISSUE	RELEASE DATE	EFFECTIVE DATE	PAGE
T108	**A2**	**2016-06-16**	**2016-07-01**	**1 of 5**

Shelf Life Program

For PRRO Administration Use Only CAGE CODE: 14213

CHANGE HISTORY

EFFECTIVE DATE	ISSUE	RELEASE/CHANGE NO.
2016-07-01	A1	IER 20154198SA
2016-07-01	A2	FCO 20161852SA

TABLE OF CONTENTS

1. TOOL USAGE

This tool is required by R005, New Material and Stockpile Evaluation Program, when planning and conducting a Shelf Life Program (SLP) to evaluate the long-term functionality of weapon product in the stockpile.

2. SHELF LIFE PROGRAM

The SLP is a comprehensive set of surveillance activities defined by the design agencies (DAs) to evaluate the long-term functionality of weapon product in the stockpile and provide data integral to the calculations of product lifetimes, system safety, and reliability. Both production agencies (PAs) and DAs perform SLP activities. Typically, the SLP consists of identifying and placing in storage component and subassembly production hardware, before and during production, to use in identifying and predicting stockpile conditions. Representative samples may be employed when no production samples exist or to represent different stockpile subpopulations. Additional information on the Lab and Flight Test Program New Material and Stockpile Evaluation Plan (BG) is in T030 and T112. Additional information on sampling is in T114.

Supersedes: D&P Manual Chapter 8.1 Section 5.8 in its entirety

3. SHELF LIFE PROGRAM ROLES AND RESPONSIBILITIES

3.1 National Nuclear Security Administration

For each weapon program, NA-12:

a) Concurs on additions of new component SLP

b) Authorizes SLP activities by year in the BG

c) Funds the build, storage, testing, and disposition of SLP samples

3.2 Design Agencies

3.2.1 Shelf Life Program Requirements

DAs initially determine and document SLP requirements for each weapon system in parallel with development of the New Material and Stockpile Evaluation Plan (NMSEP) during the Product Realization Feasibility Study Stage, Phase 3 or 6.3. These requirements address the following components:

a) Those defined as having a limited performance life

b) Those subject to aging effects (e.g., neutron generators, high explosives, detonators, timer-drivers, thermal batteries, pits)

c) Representative samples taken from the last production run before an orderly process shutdown, regardless of reason (e.g., production authorization is stopped

for a prolonged period of time, machine tooling is being changed, or a process is being relocated)

d) Representative samples defined from stockpile evaluation returns (surveillance material) when deemed the most suitable samples

3.2.2 Shelf Life Program Sampling Determination and Disposition

DAs select samples:

a) Randomly from War Reserve (WR) production lots unless design documents specify functional equivalents or surveillance returns

b) According to a random sampling plan described in a Shelf-Life Requirements drawing (ST), except for representative samples

c) In addition to the normal sampling plan that are held to fulfill future testing requirements defined in the ST drawing (e.g., unless a problem traceable to the current production arises)

DAs determine:

a) When representative samples fulfilled the purpose through engineering judgment

b) Whether to scrap or reaccept representative samples into WR inventory

3.2.3 Shelf Life Program Periodic Review

Each DA SLP requires review of each weapon system, both the quantities on hand and the testing requirements for each component or assembly in the SLP, when a significant change has occurred in the stockpile, or at a minimum annually. The DA documents the review, determines when to change requirements, and issues changes as needed.

3.2.4 ST Update

DAs update the ST drawing as needed to record storage, testing, and disposition activity for the component SLP per T112.

3.2.5 Shelf Life Program BG Input

DAs include a list of SLP components, the defining ST drawing number, and yearly quantities for storage and testing in the BGs per T112.

3.3 Production Agencies

3.3.1 Shelf Life Program Sampling Determination and Disposition

PAs:

a) Select samples from production, surveillance returns, and other sources defined in the ST

b) Clearly identify, stamp, package, and store samples as defined in the ST

c) Disposition samples in coordination with the DA as defined in the ST

3.3.2 Shelf Life Program Testing

PAs:

a) Test SLP components as defined in the ST drawing, when authorized by the BG

b) Maintain records for SLP assets and activities, and report to the DAs as specified in the BGs

4. ST DRAWING

The ST drawing defines aspects of the SLP for a given component per T112. The ST documents the serial numbers of the parts authorized for storage and testing. The ST also includes sampling per T114. The part defining drawing lists the ST per T030.

5. KEY DEFINITIONS

Definitions and acronyms related to this content can be found in the Glossary (Lexicon) on the DPBPS Portal at this URL: https://dpbps.sandia.gov/Pages/Lexicon.aspx.

6. TRACEABILITY REFERENCES

The following references are used in this content:

D&P Manual Chapter 8.1: New Material and Stockpile Evaluation Test Program

R005: New Material and Stockpile Evaluation Program

T030: Product Documentation Types

T112: Stockpile Evaluation Support Documents

T114: Stockpile Surveillance Sampling

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NUMBER	ISSUE	RELEASE DATE	EFFECTIVE DATE	PAGE
T110	**A2**	**2016-06-16**	**2016-07-01**	**1 of 9**

Joint Flight Test Program

For PRRO Administration Use Only CAGE CODE: 14213

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2016-07-01	A1	IER 20154198SA
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TABLE OF CONTENTS

1. TOOL USAGE

This tool is required by R005, New Material and Stockpile Evaluation Program, when planning and conducting Joint Flight Tests (JFTs) with the Department of Defense (DoD).

2. JOINT FLIGHT TEST PROGRAM

A JFT is a comprehensive, system-level assessment of the performance of a War Reserve (WR) weapon system throughout the operational environment, conducted by flight testing using Joint Test Assemblies (JTAs) as WR substitutes. The Nuclear Security Enterprise (NSE) performs a JFT in conjunction with the Department of Defense (DoD).

With the highest fidelity JTA possible, the JFT:

a) Provides continued assurance of proper weapon system function, including continuing compatibility with DoD hardware and software

b) Identifies potential performance issues that may arise during the weapon system lifetime

c) Complements the stockpile laboratory testing at the system, subsystem, and component levels

The JFT is the most comprehensive performance assessment in operational environments that may be performed given existing international treaty limitations. WR stockpile performance assessment necessitates maximum use of WR stockpile components and subassemblies from the parent unit.

The JFT captures many aspects of WR component fabrication, assembly methodology, assembly tooling, handling, transportation and storage, and delivery system interface and weapon delivery as accurately as possible within the JTA. Surveillance flight testing is initiated during production of the qualified weapon system and is conducted on a continual basis during the active weapon system life span (typically within two years of retirement of the weapon system). The JFT uses operational personnel, operational DoD hardware, and operational procedures to replicate the stockpile-to-target sequence (STS) environment as closely as possible.

Supersedes: D&P Manual Chapter 8.5 in its entirety

3. DESIGN OF JOINT TEST ASSEMBLIES

3.1 Design Objectives

The fundamental JTA design objective is to provide STS performance data from which the parent WR weapon system performance can be inferred.

As a substitute for the WR unit, the JTA simulates WR performance and provides data necessary for WR assessment given:

a) Fidelity of the JTA to WR

b) Ability to provide the data necessary for comprehensive WR performance assessment

JTA fidelity to the WR system is optimized so that the data collected accurately represent the WR system performance and can be assessed with confidence concerning data validity.

Efforts to reduce programmatic costs may include JTA designs optimized by:

a) Minimizing the number of different JTA designs necessary

b) Using commercial-off-the-shelf (COTS) sensors, data acquisition, and reliability hardware that also meet design performance and reliability requirements

3.2 Design Variants

Each JTA design is a direct variant of the parent WR system, but does not incorporate special nuclear material (SNM).

The fundamental JTA design objective is inferred performance assessment of the WR system. Realization of this objective involves two competing requirements:

a) Fidelity of the JTA to the uninstrumented WR system

b) Performance data to support assessment

This dilemma is generally resolved by using multiple JTA designs that collectively provide the necessary performance data. Two or more JTA designs are typically required for a specific weapon system: a high-fidelity uninstrumented design and one or more instrumented designs that supply the significant amount of data needed for performance assessment of the system. Additionally R005 requires the design agency (DA) or agencies to define(s) JTA interface requirements in the Compatibility Definition (CD) per T127.

3.2.1 Uninstrumented Joint Test Assembly Design

Uninstrumented JTA designs are identical to the parent WR design except for SNM replacement with non-nuclear inert surrogates. Each weapon system Modification (MOD)/MOD family may have an uninstrumented JTA design, that is., one that does not contain any non-WR onboard instrumentation. The primary purpose of an uninstrumented JTA design is to address the concern that instrumentation might mask a failure mode, causing erroneous conclusions about the WR system. Specific instances when uninstrumented tests should be performed include a major change to the system architecture or significant assembly/disassembly operations required when introducing an Alteration (ALT) or MOD. The number of tests needed after major changes and the frequency of future flight tests vary by weapon system and type of change(s).

Replacement JTA components are designed so component interfaces, mass properties, structural behavior, and assembly methodology match those of the SNM WR component being replaced. The high-fidelity design also typically incorporates the

WR high-explosive charge assembly and the ancillary equipment to allow high-explosive function during the flight test. All flight performance data are collected with off-board, noninvasive data collection systems (e.g., radar, optics, neutron detectors).

3.2.2 Instrumented

Instrumented designs incorporate instrumentation to satisfy the specific data collection objectives. Instrumentation is installed in place of WR components. The fidelity of the instrumented designs decreases as the level of internal non-WR instrumentation increases.

Comprehensive performance assessment of the weapon electrical system (WES) or Arming, Fuzing, & Firing (AF&F) needs acquisition and subsequent transmission/recording of a significant quantity of functional performance data regarding the subsystem. Data collection requirements typically mandate a dedicated JTA design incorporating a unique data acquisition and telemetry/recording system for this purpose.

The data acquisition and telemetry/recorder package are typically installed in place of some portions of the physics package. A particular design is specific to comprehensive WES performance assessment and does not accommodate assessment of the physics package. For some weapon systems, different instrumented JTAs may be needed to properly assess different fuzing options.

Additional instrumented, high-fidelity design variants also are used for data capture to support performance and environment assessment associated with specific operational events, specific physics package function assessment, or other specific data acquisition needs.

Instrumented JTAs of high-fidelity design maintain the inert physics package. These variants also incorporate a minimalist, perhaps distributed, telemetry package allowing selective data capture and data transmission from a high-fidelity body. Incorporation of a low-capacity, miniature, data acquisition and telemetry package may have minimal effect on overall design fidelity while allowing conventional data capture and transmission from a high-fidelity JTA design; the possible effect should be characterized before its use for stockpile evaluation.

3.3 Design of Joint Test Assembly-Unique Components

3.3.1 War Reserve Fidelity

DAs maintain JTA designs to reflect the physical appearance, mass properties, and the structural and dynamic response of the WR weapon to the maximum extent possible.

a) JTA designs retain DoD interfaces, DoD system operations, and the as-built WR configuration to the extent possible

b) JTA configurations retain parent unit weapon system components necessary for critical scoring measurements

c) To the maximum degree practicable, breaking of WR connections is minimized

d) When dual-channel components exist in the WR system, output measurements are made to determine individual component function to the extent practicable given the system design objectives

e) JTA data provide sufficient diagnostic information to assure that appropriate failure investigation actions can be implemented

f) The JTA data acquisition system is designed to survive agreed-upon off-normal events or should be designed to provide data up to the time of the off-normal event (e.g., a bomb JTA recorder is designed to survive an off-normal “slick” event and still provide reliable data)

g) Primary fuzing options are tested over an agreed-upon interval, not all fuzing options need to be exercised on a single test

h) To the maximum degree practicable, WR parts that could contribute to a failure are included in the JTA design

i) JTAs are designed to minimize use of radioactive or hazardous materials

j) Features that support the Non-Nuclear Assurance Program (NNAP) are considered in the JTA design per T138

3.3.2 Joint Test Assembly Data

The instrumented JTA program provides three distinct categories of data:

a) Category A: Weapon function data (also known as scoring data)

b) Category B: National Nuclear Security Administration (NNSA) and DoD interface data

c) Category C: Diagnostic data for failure resolution and to supplement reliability data

3.3.3 Joint Test Assembly Instrumentation Reliability

The JTA instrumentation system is designed to provide a reliable means of collecting, processing, recording and/or transmitting data. Multiple means and self-checks may be required to enhance the reliability of certain key elements to meet the reliability goals specified in Table 1.

Table 1: Reliability Goals

Type of Data	Goal	Definition
Category A P_D	0.98	The probability of gathering, processing, recording, and/or transmitting sufficient data to score all Category A functions for a given JTA configuration
Category B P_D	0.98	The probability of gathering, processing, recording, and/or transmitting the data required for each individual Category B measurement
Category C P_D	0.98	The probability of gathering, processing, recording, and/or transmitting the data required for each individual Category C measurement
P_{L1}	0.001	The probability of transmitting false data, which could lead to scoring a successful system a failure
P_{L2}	0.001	The probability of transmitting false data, which could lead to scoring a failed system a success

3.3.4 Data Maximization

For instrumented JTAs that transmit data, signal reception and processing are optimized to maximize the data that can be received and interpreted. The JTA design addresses technical considerations associated with the communication channel and receiving capabilities (including those for which DoD has principal responsibility, to ensure that the data requirements are met).

4. JOINT TEST ASSEMBLY PROCESSES

4.1 Component Selection

WR stockpile performance assessment necessitates maximum use of WR stockpile components and subassemblies from the parent unit.

4.1.1 Parent Unit Parts

Discrete components and subassemblies harvested from WR samples are used in JTA designs to the maximum extent possible. Disassembly and inspection (D&I) of the WR hardware destined for JTA use is conducted so that the component or assembly is not altered and remains representative of WR (e.g., fabrication tolerances and the associated fits and aging effects).

4.1.2 Replacement War Reserve Hardware

Replacement WR hardware is used if hardware is not available from a WR parent unit or if the particular component cannot be removed from a parent unit nondestructively. For replacement WR hardware, off-the-shelf WR hardware that possesses a pedigree

equivalent to that of the corresponding stockpile component is preferred. Interpretation of the results obtained using replacement parts should consider the possibility that a defect would have been discovered if the parent unit part was used. Per R005 FR58401, replacement WR hardware is authorized by NNSA and documented in a Special Instruction Engineering Release (SIER) per T049.

4.2 Joint Test Assembly Production and Pre-Flight Storage, Handling, and Transportation Logistics

To the extent possible, JTA production and handling processes use WR processes, procedures, assembly tooling, and similarly trained personnel. Thus the JTA accurately replicates subtle effects on performance that may be caused by nuances associated with the assembly process.

Variation from tooling redesign, repair, and modification and from assembly procedure improvement and refinement has been observed. Variation in assembly technique, specific skill, and expertise among assembly technicians has been observed.

5. FUTURE JOINT FLIGHT TEST PLANS

JFT Plans incorporate feasible technological advancements that enhance the WR weapon system assessment, by the collection of additional performance data or by increased test fidelity with respect to WR. This approach is applied to JTA designs and the linked ground-based sensing and data collection systems.

New or additional performance data, collected with sensor systems based on new technology, may add value to the overall performance assessment. Sensor systems may be either integral or remote. Relevant new technology should be evaluated carefully and considered for use.

Increased test fidelity with respect to WR can be achieved with instrumented JTA designs that incorporate internal miniature, unobtrusive sensors, miniaturized data acquisition and telemetry systems that have minimal effect on system fidelity. Miniaturization of the data acquisition and telemetry system necessary for WES performance assessment may allow for incorporation within a JTA design with a relatively high-fidelity Nuclear Explosive Package (NEP).

6. KEY DEFINITIONS

Definitions and acronyms related to this content can be found in the Glossary (Lexicon) on the DPBPS Portal at this URL: https://dpbps.sandia.gov/Pages/Lexicon.aspx.

7. TRACEABILITY REFERENCES

The following references are used in this content:

D&P Manual Chapter 8.5: Joint Test Assembly Design Policy

R005: New Material and Stockpile Evaluation Program

T049: Special Instructions Business Rules

T127: Compatibility Definition Elements

T138: Non-Nuclear Assurance Program

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Stockpile Surveillance Sampling

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2016-07-01	A1	IER 20154198SA
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TABLE OF CONTENTS

1. TOOL USAGE

This tool is required by R005, New Material and Stockpile Evaluation Program, to plan and document design agency (DA) sample selection for laboratory and flight tests.

2. GENERAL

This tool addresses the methodology associated with determining the surveillance sample size for each weapon system lifecycle segment. The segments addressed are:

a) New Material (during production)

b) Stockpile Sampling

   1. Early Stockpile (referred to as Stage I, typically beginning in the second year after First Production Unit (FPU))

   2. Later Stockpile (referred to as Stage II)

c) Retrofit Evaluation System Test (REST) (as a result of Alterations (ALTs), Modifications (MODs), and Life Extension Programs (LEPs))

During the development of the New Material and Stockpile Evaluation Plan (NMSEP) described in R005, the non-nuclear and nuclear design agency (DA) surveillance representatives establish surveillance requirements throughout the weapon lifecycle to obtain needed surveillance information with minimal need for samples in addition to what is described below.

For Weapon Safety Testing sampling guidelines throughout the lifecycle see T120.

Supersedes: D&P Manual Chapter 8.1 Section 4.3, Section 4.4, and Section 5.3

3. SAMPLING SEGMENTS

3.1 New Material Sampling

New material sampling, performed on weapons straight off the production line, provides the foundation for decisions about REST sampling for ALTs, MODs, and LEPs. REST sampling is discussed in Section 3.3.

The purpose of new material sampling is to detect defects as early as possible during the production period so that design and production processes can be changed to prevent that defect from occurring in future production.

Planning new material sampling consists of two steps:

a) Determining the total number of new material samples (NMs) for the entire production period

b) Allocating the number across the production period

3.1.1 Determining the Total Number of New Material Samples

The total number of NMs is determined by multiplying two factors together. The factors are:

a) Sample size (N) from the 90/5 table (Table 1) based on the total number of weapons of a particular type to be produced (builds plus rebuilds) over the entire production period

b) The square root of the length of the production period, expressed in years ($T^{1/2}$)

Example: Assume 1000 weapons were to be built over a 4- year period. Then the total number of NM samples would be as follows:

Total number of NM samples = NMs = N $T^{1/2}$ = (44) (2) = 88.

NOTE: Total production is modified to account for the additional sampling quantities, e.g., new material and stockpile evaluation samples.

Table 1: 90/5 Sample Sizes

90% chance that at least one of the selected samples will contain a defect if it is present in at least 5% of the population

POPULATION	SAMPLE SIZE
20	18
21	19
22-23	20
24-25	21
26-27	22
28-29	23
30-31	24
32-34	25
35-36	26
37-40	27
41-43	28
44-46	29
47-51	30
52-56	31

POPULATION	SAMPLE SIZE
57-62	32
63-69	33
70-76	34
77-86	35
87-97	36
98-112	37
113-131	38
132-156	39
157-191	40
192-244	41
245-334	42
335-519	43
520-1119	44
1120+	45

3.1.2 Guidelines for Sample Allocations

When developed as part of product realization per R001, the Project Team creates plans for sampling during the feasibility stage. During the lifecycle of a weapon system, the plans are maintained and updated. Guidelines for sample allocations across the production period are as follows:

a) Approximately twice as many samples are taken in each of the first two 6-month periods as in each of the 6-month periods for the remainder of the production

period. NOTE: The sampling numbers may taper down during the later portion of the production period.

b) Typically one out of every six samples is devoted to flight testing. However, this proportion may be increased when there are drivers for additional flights such as having several aircraft/platforms assigned as carriers and/or multiple Services as customers for the new MOD.

Assuming a constant production rate, applying these two allocation guidelines would result in the Table 2 example:

Table 2: Allocation Guideline Example

6-Month Production Period	1	2	3	4	5	6	7	8	Totals
Total Samples per Production Period	19	18	9	9	9	9	8	7	88
REST – Flight (REST-F) samples/period	3	3	2	2	1	1	1	1	14

When production rates are so low that fewer than six sample units would be tested in a 12-month period, the DA surveillance representatives may select additional samples for the purpose of testing (using sequence numbers) to make the total at least six and ensure continuity during slow production rates or breaks in production.

3.2 Stockpile Sampling

The Integrated Weapon Evaluation Team (IWET) determines when stockpile sampling will occur, except when the Department of Defense (DoD) requests flight testing in Cycle 2 (typically the second year after FPU), ending 2 years before complete weapon retirement. The non-nuclear portion of stockpile samples is primarily subjected to system-level laboratory and flight-testing during early stockpile life (Stage I). Stage I sampling begins when the weapon has been in the stockpile on the order of 2 years, on weapons returned from DoD custody. However some testing to address knowledge gaps at component and sub-system level are also performed in Stage I, especially for ALTs and LEPs. During later stockpile life (Stage II), laboratory test quantities typically decrease and flight test quantities typically remain the same when compared to Stage I. During Stage II, component and subsystem testing increases as compared to the Stage I level. The transition to Stage II typically takes place after there have been approximately 200 tests or data points obtained, beginning with production acceptance testing.

The samples throughout Stage I are normally selected on a random basis. NOTE: when the stockpile is not homogenous, filters can be in place when running the program to select the samples such that the non-homogeneities are handled by this “modified random sampling” rather than using pure random sampling. Examples of non-homogeneities include multiple designs for the reservoir, neutron generator, or pit.

The National Nuclear Security Administration (NNSA), with DA input, typically selects the weapons for laboratory and Submarine Launched Ballistic Missile (SLBM) flight testing. The Air Force selects the samples for flight testing of Air Force weapon systems. NNSA has requested that the Services select samples randomly unless otherwise requested.

3.2.1 Early Stockpile (Stage I)

a) Sample sizes: The Stage I annual stockpile sample quantity is typically one-half of the 90/10 level for the current total active and inactive stockpile population; meaning the 90/10 level will be achieved after 2 years of testing; this is also designated a 90/10/2 sample. Table 3 identifies the number of samples needed to achieve 90/10 based on the population (the stockpile quantity for that weapon system). The 90/10 concept is based on a statistical calculation, which asserts that there is a 90% probability that, for the correct population sample size, at least one of the selected samples will contain a defect if it is present in at least 10% of the population. Infrequent targeted sampling may be instituted during Stage I for specific issues with the proviso that random sampling be reinstituted as soon as possible.

Table 3: 90/10 Sample Sizes

90% chance that the sample population will contain a defective unit, if the defect is present in 10% of the stockpile

POPULATION	SAMPLE SIZE
20-22	14
23-27	15
28-33	16
34-41	17
42-54	18
55-76	19
77-121	20
122-273	21
274+	22

b) Sample selection: Sandia National Laboratories (SNL), in coordination with applicable stakeholders, selects the stockpile samples and provides these to NNSA each November for the cycle beginning two fiscal years (FYs) later (e.g., samples for cycles beginning in FY02 were selected in November 1999). Sample units are selected from the existing weapon inventory, with the goal that all stockpile sample units will be at least 2 years old when tested. EXCEPTION: For LEPs and ALTs, it may be necessary to delay selection of samples for the purpose of increasing the population from which to make those selections. In the first several years, some of the units selected, might not have seen 2 years of stockpile life.

c) Inoperable units: Each military service identifies those units it has placed in the "red" (temporarily inoperable) status to the NNSA. Weapons in "red" status may be included as part of the inventory. These units, if selected as a stockpile sample, should be returned to operational status by DoD before return to NNSA for surveillance testing. EXCEPTION: If weapon retirement is under way, then weapons in "red" status should not be included in the inventory since those weapons are typically retired without repair.

d) Weapon status: Weapon stockpiles may have active-only, both active and inactive, or inactive-only status. The active and inactive mix of the enduring stockpile weapons fluctuates year to year as the national policy changes in reaction to military requirements and world political events.

e) Active Stockpile (AS) and Inactive Stockpile (IS) quantities: The Production and Planning Directive (P&PD) prescribes the AS and IS quantities agreed to by DoD and NNSA and approved by the president. The IS for a given weapon may include portions designated for augmentation, reliability replacement, and Quality Assurance & Reliability Testing (QART). The Augmentation IS weapons are the subject of a Reactivation Plan that will provide the "hedge" needed to increase the size of the AS in the event of national security needs. The Reliability Replacement IS provides a pool of certain weapon types that could be used to replace another weapon type because of a serious reliability or safety problem. The QART IS quantities can replace weapons sampled for stockpile surveillance and retired because of D-Testing or because surveillance samples are not being rebuilt for that weapon type.

f) The P&PD establishes the following surveillance sampling guidelines:

   1. Stockpiles with AS-only or both AS and IS: The surveillance sample is taken from the combined AS and IS (if there is one) populations, and the NNSA weapon reliability reports will provide reliability assessments for both AS and IS weapons alike.

   2. Stockpiles with IS-only: A safety test sample of three every other year is taken and no reliability statement for the IS-only stockpiles will be issued.

   3. Systems in retirement status awaiting dismantlement that have not been tested in the stockpile evaluation program during the previous 3 years need to have special consideration by the DAs.

g) Considerations for inhomogeneous populations: The first guideline presents difficulties in actual application because not all weapon types with both AS and IS populations are homogeneous across the populations. If the AS and IS populations lack sufficient commonality, then the first guideline of combined AS and IS sampling is not appropriate, and the AS is sampled for the surveillance enterprise. The IS may, in these special cases, be a candidate for a safety test sampling of up to three samples every 3 years. Sampling variations outside the normal guidelines are documented in the Lab and Flight Test Program New Material and Stockpile Evaluation Plan drawing (BG).

h) Alternate samples: Annually, when SNL makes the random selections of weapon serial numbers (from a list provided by the Defense Threat Reduction Agency (DTRA)) for stockpile samples, typically at least twice as many weapon serial numbers (S/Ns) are drawn as are actually needed. For example, if eight S/Ns are required for the annual Stockpile Laboratory Test (SLT) samples, the surveillance engineer will request 16 S/Ns be randomly selected; the first eight S/Ns on the random list would typically be included on the Sample Select letter to NNSA. The extra sample S/Ns are considered alternate samples. The alternates may be used when one of the originally specified weapons cannot be moved because of logistic reasons. Alternates are provided in the order selected (unless there is a specific parameter of interest in the original sample that is also desirable in the alternate sample).

i) Additional sample requests: Additional quantities of weapons or components may be requested to investigate a weapon problem if targeted sampling within the normal sample size is not sufficient, e.g., selecting a statistically relevant sample from a segment of production to examine effects of a production change. If additional quantities are required, the selection is closely coordinated with NNSA, who will make the request to DoD for the return of the needed weapons.

3.2.2 Later Stockpile (Stage II)

a) Funding: The surveillance enterprise for Stage II components/systems allows additional flexibility (beyond that allowed for Stage I systems) to specify the surveillance enterprise in terms of requirements generated annually by the DAs. These requirements are provided by the DA surveillance representatives, and the federal surveillance engineers decide how to fund the surveillance requirements if funding is insufficient to address all of them in 1 year.

b) Minimum sample sizes: The Stage II baseline annual stockpile sample quantity is set as 1/3 of the 90/10 level (90/10/3, an average of 22 samples in a 3-year window for a stockpile quantity of greater than 273). Systems may deviate from the baseline with justification (reliability issues, extent of condition evaluations, remaining life, system-specific constraints). However the system-level test quantities should not fall below two system flight tests and two system laboratory tests per year to maintain a minimum capability of detecting unknown issues.

c) SLT/Stockpile Flight Test (SFT) hardware samples: These samples provide hardware for SLT (system and component) and SFT testing, depending on data needs for a given system.

d) Component testing samples: Sample requirements for hardware to support component testing and development of improved test capabilities are specified. The specified quantities should be sufficient (over possibly a number of years) to resolve the assessment concerns for which they are allocated. Statistical methods should be applied, where feasible, to determine hardware test quantities that provide confidence in the results.

e) Random versus targeted sampling: Random sampling is still preferred, but targeted sampling can be justified if there is a specific hypothesized or actual concern about some part of the stockpile.

3.3 REST Sampling

A semi-quantitative methodology is recommended for sizing the new material program for a retrofit. Following an explanation of the methodology, a few examples are provided.

3.3.1 Background

a) All but the simplest of retrofits require a REST program, a new material test program for the retrofit. The number of REST samples will vary, up to a number equal to a full new material program sample size, based on three risk factors that are described in Table 4 below.

b) The purposes of a REST program are to detect production or design defects introduced by the retrofit so that the remainder of production can be corrected and to obtain baseline data for the weapon system. There should be a REST program when a system undergoes a retrofit of sufficient complexity that reliability or safety may be affected.

c) This methodology provides a systematic, semi-quantitative approach to determining the sample size for a given ALT, MOD, or LEP.

3.3.2 Methodology Explained

The methodology first groups a number of criteria into three general risk factors: design/technology risk, disassembly/reassembly risk, and production risk. Table 4 shows the criteria assigned to each of these factors along with the respective weighting factors. Note that the design/technology risk is judged to be twice as important as either the disassembly/reassembly or the production risk factors.

Table 4: Risk Factors and Associated Criteria

Risk Factor *Weighting Factor (WF)*	**Associated Criteria**
Design / Technology *WF = 2*	a) How many components are being changed or added? b) Are there large numbers of commercial off-the-shelf (COTS) parts being used? c) Is there new technology or added capability that the Nuclear Security Enterprise has never designed or built before? d) What is the qualitative estimate of how these parts may affect system reliability (for example, single channel versus dual channel)? e) What is the impact of the change on compatibility with the DoD delivery system?
Disassembly / Reassembly *WF = 1*	a) What is the complexity of disassembly and reassembly? b) What is the level of disassembly to implement the retrofit (complete versus modified Limited Life Component Exchange [LLCE])? c) How long will it take to do the changes (on an individual weapon)? d) Are there new production processes being planned, or have current production processes been exercised recently?
Production *WF = 1*	a) How many NSE production and design agencies are involved? b) Who is doing the change (Pantex [PX], SNL, military)? c) How many different field locations are used? d) How many different teams are doing the change? e) What is the quality control over the process (NNSA at the NNSA Production Office, Military Liaison in field, none)? f) Is the production period long or short? g) Is the production a continuous or interrupted process? h) Is any new test equipment needed? i) How many production agencies are involved in the retrofit (larger number = higher risk)?

Applying this methodology involves the following process steps:

1. Assign a high (H = 3), medium (M = 2), or Low (L = 1) score to each of the three risk factors based on the associated criteria for a particular retrofit.
2. Multiply the numerical “score” for each risk factor by its weighting factor to arrive at each score.
3. Add the scores for the three factors to obtain a total (combined) score. The possible combined score ranges from 12 points (all Hs) to 4 points (all Ls).
4. Use Table 5 to convert the combined retrofit score into a recommended percentage of a full new material program.
5. Slightly modify the recommended percentage determined in Step 4 based on subject matter expert (SME) judgment, if appropriate. For example, a score of 10 or 11 results in a recommended percentage of 75% of a NM program. The DA surveillance representatives may use this percentage or they may select another percentage between the percentages shown in the rows immediately above and below the recommended row (between 50 and 100% in this example).

Table 5: REST Program Scores Recommended Sampling Program Size

Combined Score	Rec. % of New Material Program
12	100
10-11	75
8-9	50
6-7	25
5	15
4	10

NOTE: For small production quantities and minor retrofits, a REST program may be unnecessary, or a small REST quantity may be selected early in production to provide a minimal evaluation of the retrofit.

3.3.3 Example: Hypothetical Retrofit Programs

Four hypothetical retrofit programs to demonstrate the REST sampling methodology are shown here:

1. WXX LEP Option 1: Minimal retrofit to extend the life of WXX by replacing expiring desiccant, neutron generators, and leak check valve. Retrofit requires access into the warhead sealed volume. The retrofit would be done at PX.
2. WXX LEP Option 3: Replacement of multiple major components (MCs), including the Option 1 components listed above. Upgrade of the Permissive Action Link (PAL) subsystem, new Gas Transfer System (GTS), and reuse of existing Nuclear Explosive Package (NEP). Nearly complete warhead disassembly would be done at PX.
3. BXX ALT XXX PAL retrofit: Replacement of the PAL electronic assembly addition of a new coded switch. The retrofit would be done at PX.
4. BXX ALT YYY GTS replacement retrofit: GTS replaced with a new GTS with longer life. Modified LLCE procedures are used in the field.

Table 6 shows the four hypothetical programs and weighting factors used to arrive at program recommendations.

Table 6: Pseudo-Quantitative REST Program Recommendations

	Design/ Technology Risk	Disassembly/ Reassembly Risk	Production Risk	Score	Recommended % of NM
Weighting Factor	**2**	**1**	**1**		
Actual Retrofits					
W76-1	H (3)x2	H(3)	H(3)	12	100
Hypothetical Retrofits					
WXX LEP Option 1	L (1)x2	M (2)	L (1)	5	15
WXX LEP Option 3	H (3)x2	H (3)	H (3)	12	100
BXX ALT XXX PAL	M (2)x2	H (3)	L (1)	8	50
BXX GTS	L (1)x2	L (1)	L (1)	4	10

a) The actual W76-1 retrofit replaced almost all of the existing Arming, Fuzing, & Firing (AF&F) components, used technologies that had not been in production for 29 years, used many COTS parts, and was to be performed at PX over a relatively long production period. These factors resulted in a score of “High” on all three risk factors, the maximum possible combined score of 12, and the recommendation was in favor of 100% of a new material program. NOTE: The DA surveillance representatives decided, however, that some of the AF&Fs would be sent directly from the Kansas City National Security Campus (KCNSC) to the Weapon Evaluation Test Laboratory (WETL) for what was referred to as environmental testing (e-testing). The trade-off in this case was to be able to test the AF&Fs 6 months earlier, even though they had not experienced PX assembly and disassembly operations. The number of NM units directly from PX production was reduced by one for each e-test sample sent to WETL.

b) The DA surveillance representatives may use the percentage of an NM Program recommended in Table 6 or they may select another percentage, using engineering judgment. Project Teams should select a percentage in the range between the percentages shown in the rows immediately above and below the recommended row in Table 5.

c) Those involved in the REST decision may rate the risk factors differently (for example: retrofit involving physics package components may be seen as high-risk by the Nuclear DA member, yet low-risk by the SNL DA members). In case of differences of opinion, two scores may be computed and a compromise percentage between the scores could be the solution, if consensus cannot otherwise be reached.

d) During the retrofit program, those involved in the REST decision should determine when to recompute a new sampling quantity based on significant changes to retrofit hardware, procedures, or production issues. Changes in the length of production or population size being retrofitted may change the $NT^{1/2}$ value for a full retrofit and the resulting sample size even if the percentage remains unchanged.

4. KEY DEFINITIONS

Definitions and acronyms related to this content can be found in the Glossary (Lexicon) on the DPBPS Portal at this URL: https://dpbps.sandia.gov/Pages/Lexicon.aspx.

5. TRACEABILITY REFERENCES

The following references are used in this content:

D&P Manual Chapter 8.1: New Material and Stockpile Evaluation Test Program

R001: Product Realization

R005: New Material and Stockpile Evaluation Program

T120: Integrated Weapon Evaluation Team Planning

TOOL				
NUMBER	ISSUE	RELEASE DATE	EFFECTIVE DATE	PAGE
T115	**A2**	**2016-06-16**	**2016-07-01**	**1 of 6**

Cycle Reporting

For PRRO Administration Use Only CAGE CODE: 14213

CHANGE HISTORY

EFFECTIVE DATE	ISSUE	RELEASE/CHANGE NO.
2016-07-01	A1	IER 20154198SA
2016-07-01	A2	FCO 20161852SA

TABLE OF CONTENTS

1. TOOL USAGE

This tool is required by R005, New Material and Stockpile Evaluation Program, when completing surveillance cycle reporting activities.

2. GENERAL

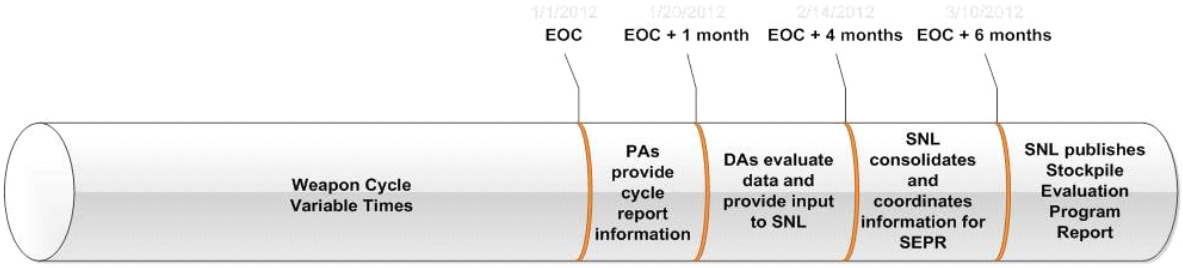
Cycle reports show the results of the cycle evaluations against design agency (DA) product definition. This tool defines the production agency (PA) roles for cycle reporting and also defines the DA roles for the Stockpile Evaluation Program Report (SEPR).

The PA cycle report provides surveillance test results as an input to the SEPR, which contains the consolidated stockpile surveillance results. PAs report surveillance test results to DAs. DAs evaluate the data and release SEPR input to Sandia National Laboratories (SNL). SNL consolidates and coordinates assembly of the SEPR and then publishes it according to the timeline in Figure 1.

Supersedes: D&P Manual Chapter 8.1 Section 6.1.2, Section 6.1.4 Paragraph 2, and Section 6.1.5 / TBP-801 Section 2 final Paragraph

3. STOCKPILE EVALUATION PROGRAM REPORT TIMELINE

Figure 1: SEPR Timeline



PAs report surveillance test results to DAs at end of cycle (EOC) plus 1 month, or as specified in the BB drawing. To level the resource requirements at Pantex (PX), particularly in the high explosives machining area, PX and the DAs agreed to a set month each year for PX to provide cycle reports for each weapon program. DAs evaluate the data and release SEPR input to SNL at EOC plus 4 months. SNL consolidates and coordinates the assembly of the SEPR and then publishes it at EOC plus 6 months.

4. ACTIVITIES

DAs define the cycle data reporting requirements in the product definition per T112.

PAs gather the cycle test data, then verify the accuracy and completeness of the data. Cycle report information is placed under configuration control.

DAs may request data earlier to support evaluation activities, but accept the risk that the data may not be accurate or complete due to lack of verification.

DAs evaluate cycle report information to make further stockpile decisions. DAs provide information to SNL for incorporation into the SEPR.

Agencies report information related to an anomaly per R017.

SNL consolidates and coordinates the inputs into the SEPR. Appendix A shows a typical SEPR format.

5. KEY DEFINITIONS

Definitions and acronyms related to this content can be found in the Glossary (Lexicon) on the DPBPS Portal at this URL: https://dpbps.sandia.gov/Pages/Lexicon.aspx.

6. TRACEABILITY REFERENCES

The following references are used in this content:

D&P Manual Chapter 8.1: New Material and Stockpile Evaluation Test Program

R005: New Material and Stockpile Evaluation Program

R017: Anomaly Reporting and Investigation

T112: Stockpile Evaluation Support Documents

TBP-801: Laboratory and Flight Test Material

APPENDIX A: STOCKPILE EVALUATION PROGRAM REPORT

SNL maintains internal procedures for creation and coordination of the SEPR. The following is a typical list of major elements of a cycle report, officially known as a SEPR.

Title: Bxx/Wyy Cycle Report (Cycle #)

1) Executive Summary
2) Introduction
3) System Description (brief)
4) Sample Selection and Allocation
5) Evaluation Activities
    a) Significant Finding Investigation (SFI) and Test System Investigation (TSI) status
    b) Disassembly and Inspection
    c) Nuclear System/Component Test Program – Design Laboratory
    d) New Material Laboratory Test Program
    e) New Material Flight Test Program
    f) Shelf Life Program
    g) Component Testing and Material Evaluation
6) Field Activities
    a) Unsatisfactory Reports (URs) (summary)
    b) Field retrofits
    c) Field repair
    d) Limited Life Component Exchange (LLCE)
7) Factory Activities
    a) Factory Retrofits
    b) Factory
    c) Repairs
    d) Reacceptance
    e) Retirements
8) Reliability
9) Future Test Plans

10) Appendices
    a) Test History
    b) Comprehensive System Description
    c) Test Description
    d) Acronyms
11) Safety Precautions and References to Safety Procedures
12) Responsibilities for Inspection and Test
13) Post-Test Disassembly of Joint Test Assembly (JTA) Configurations (if required and not already covered in the SS or BB drawings)
14) Key Reference Documents

TOOL				
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T117	**A2**	**2016-06-16**	**2016-07-01**	**1 of 10**

Component Evaluation Program Planning Committee (CEPPC) Guidance

For PRRO Administration Use Only CAGE CODE: 14213

CHANGE HISTORY

EFFECTIVE DATE	ISSUE	RELEASE/CHANGE NO.
2016-07-01	A1	IER 20154198SA
2016-07-01	A2	FCO 20161852SA

TABLE OF CONTENTS

1. TOOL USAGE

This tool is recommended by R005, New Material and Stockpile Evaluation Program, and contains guidance on the roles and responsibilities of Component Evaluation Program Planning Committees (CEPPCs).

2. INTRODUCTION

CEPPCs provide information and recommendations to the Weapon Program and surveillance community regarding required evaluation of nuclear weapon materials, components, and component families in order to assess the safety, reliability, and expected aging characteristics.

Original CEPPC plans, developed in response to the "Strategic Review of the Surveillance Program 150-Day Report," January 1, 2001, focused on identification of diagnostics needed to produce information on the stockpile, including data to support performance and aging, modeling, and model validation. Surveillance Transformation, chartered in 2007, aligned surveillance with Quantification of Margins and Uncertainties (QMU) efforts, made the CEPPCs integral to the annual surveillance planning process, and expanded CEPPC applicability to all component families identified by the design agencies (DAs). Sandia National Laboratories (SNL) forms Component Working Groups (CWGs) to plan and conduct Component and Material Evaluation (CME) activities. CWGs are analogous to CEPPCs for the component families for which SNL has singular DA responsibility.

The CEPPC process is iterative; component evaluation requirements evolve as knowledge gaps are identified and closed, as diagnostics are discovered or developed, and as modeling and simulation needs change. CEPPC Reports are to be updated periodically to support the Surveillance Requirements Process, as defined by NA-11.

Supersedes: D&P Manual Chapter 8.1 Section 4.1 (portions), Section 4.2 (portions), and Section 5.1 (portions)

3. MEMBERSHIP

CEPPCs are chartered under the direction of the Office of Testing and Evaluation (NA-115). NA-115 outlines the general expectations and reporting periodicity to the CEPPCs in their charter. CEPPCs will not start work without this charter from NA-115. NA-122 may make requests to NA-115 concerning the scope of the CEPPC work.

CEPPCs are composed of subject matter experts (SMEs) from the responsible DAs and, where appropriate, the production agencies (PAs) familiar with New Material and Stockpile Evaluation (NMSE) and Enhanced Surveillance (ES) activities at their respective sites. They are expected to understand and represent the views of the applicable weapon programs and report back the recommendations resulting from the CEPPC meetings.

4. TYPICAL COMPONENT EVALUATION PROGRAM PLANNING COMMITTEES

Multi-site CEPPCs address the following components:

a) Pits

b) Canned Subassemblies (CSAs)

c) High Explosives

d) Detonator Cable Assemblies

e) Strong Links/Mechanical Safing and Arming Detonator (MSAD)

f) Gas Transfer Systems

g) Valves

h) Polymer

CWGs address the following components:

a) Electro Mechanical (Environmental Sensing Devices (ESDs), Trajectory Sensing Signal Generators (TSSGs), Pre-Flight Controllers)

b) Parachutes

c) Materials and Structural Support

d) Explosively Initiated Energetic Components (may be a CEPPC or CWG, depending on scope)

e) Neutron Generators

f) Cable and Connectors

g) Batteries/Power Supplies

h) Firing Sets and Subcomponents

i) Lightning Arrestor Connectors

j) Impact Fuzes

k) Electrical and Radio Frequency (RF) Components

l) Use Control

5. GUIDANCE

The CEPPCs and their reports (Appendix A) are at various levels of maturity. CEPPCs are expected to prioritize their evaluation requirements based on the following actions:

a) Review and validate (or develop) surveillance requirements flow down from Military Characteristics (MCs)/stockpile-to-target sequence (STS) Product Specification requirements to the component and performance parameter level.

b) Review applicable production and surveillance data sources and identify those at risk of loss or degradation. Recommend data preservation priorities and short- and long-term needs for making data accessible.

c) Compare requirement and Critical Performance Parameters (CPPs) to the component and performance parameter level. Document recommendations for changes in requirements or tolerances that will reduce costs without compromising component certification. Reference the weapon program documents upon which the requirements flow down is based.

d) Review existing surveillance diagnostics and existing knowledge gaps. Identify technologies of concern from the standpoint of obsolescence or impact of failure. Identify and prioritize competing diagnostics and make a recommendation to eliminate those of questionable value.

e) Annually identify evaluation data sets that are being collected but not analyzed, and evaluate the rationale for continued collection.

f) Assess the rationale for different evaluation requirements for the same components across multiple weapons that drive additional PA costs. Determine if more standardization is beneficial and if there are opportunities to leverage results.

g) Review the statistical performance baseline for each component from qualification and production acceptance testing. Note significant subpopulations, defects, and areas of concern.

h) Review aging model baselines from each DA and reference the applicable documents. This should include both trends observed in NMSEP and in the results of ES or other studies. Provide recommendations for additional ES studies.

i) Review and prioritize new diagnostics being developed under ES or deployed from mature industry technologies. Recommend stopping development for those with a low benefit-to-cost ratio of the acquired data or those with insufficient funding to qualify, operate, or analyze data. Propose new diagnostics if identified.

j) Identify, justify, and prioritize new data analysis tools.

k) Identify and provide justification to retain testers that are not in current use but are being stored at the PA.

l) Recommend establishing or leveraging Joint Test Assembly (JTA), shelf-life, and dismantlement data opportunities or component streams to more effectively acquire needed data.

m) Develop recommendations for designers of future weapon systems for increasing testability of components and incorporating embedded diagnostic technologies.

CEPPCs provide notification of their planned meetings to the Surveillance Integrated Requirements Working Group (SIRWG) and stakeholders. CEPPCs provide a report to the SIRWG and any other stakeholders.

6. LEVELS OF MATURITY

Completing the entire scope requires the commitment of technical resources over several years. Progress depends on budget and staffing, competing requirements such as Significant Finding Investigations (SFIs) and life extension support, and the ability of the program to recover the necessary information to execute the required analysis. The following levels of maturity are used to gauge the progress over time and serve as the definitions for milestone commitments as necessary.

Phase 1: Reconciliation of existing diagnostics to needs. Complete scope, subfamily identification, and requirements flow down to diagnostics recommendations and prioritization. Perform cost/benefit assessment for any future diagnostics being deployed or being advocated by ES or an Integrated Weapon Evaluation Team (IWET), unless analysis is waived by the National Nuclear Security Administration (NNSA). Summarize key recommendations.

Phase 2: Analysis of alternate data sources. Complete identification of as-built baseline data and aging knowledge gaps; identify historical data preservation needs, prioritize data mining needs, and determine required data access and analysis tools. Summarize key recommendations.

Phase 3: Analysis of defect and aging detection capabilities. Complete review of aging studies and modeling baselines, and recommend aging assessment priorities. Identify aging models, including current code names and revisions. Identify any annual sampling requirement changes, configuration management issues, and code validation recommendations.

Phase 4: Recommendation for other capabilities. Document recommendations for shelf-life programs, JTA development, development of ground test units and test capabilities, and development of embedded sensors.

7. KEY DEFINITIONS

Definitions and acronyms related to this content can be found in the Glossary (Lexicon) on the DPBPS Portal at this URL: https://dpbps.sandia.gov/Pages/Lexicon.aspx.

8. TRACEABILITY REFERENCES

The following references are used in this content:

D&P Manual Chapter 8.1: New Material and Stockpile Evaluation Test Program

R005: New Material and Stockpile Evaluation Program

Strategic Review of the Surveillance Program 150-Day Report, January 1, 2001

APPENDIX A: CEPPC REPORT

A mature CEPPC Report will include the following information.

1. Scope

Describe the families within the scope of CEPPC Report and the characteristics common to each family, as well as those that distinguish one family from another.

2. Technical Requirements

Provide a summary-level description referencing design guides and detailed reports on the technical requirements for each component family (or subfamily) that establishes data needs for the stockpile evaluation program. This should be done in the context of all relevant historical data sources. Ongoing data needs should specifically address knowledge gaps in the technical basis or gaps expected in the absence of new stockpile data.

2.1 Family 1

Capture analysis and recommendations for the first family of components that can be treated as a common set for surveillance planning. Typically, a family shares similar or common requirements, design characteristics, and materials or production processes.

2.1.1 Family 1: Review of Data Needs

a) *Review each system's data needs for the adequacy of data obtained, including whether the test conditions and data resolution are adequate; the optimal test apparatus is being used; and adequate data needed for base-lining, code validation, and modeling are obtainable.*

b) *Determine from all the data sources for each requirement whether measurement needs to be improved. This effort determines what requirements are not adequately addressed and prioritizes them so that the team can optimize resources to address significant requirement gaps.*

c) *During the mapping process, note any evaluation not linked to a current requirement or that has data that are being collected but not analyzed. Also note any duplication of analysis. This may identify unnecessary measurements or tests from which resources may be reallocated.*

2.1.2 Family 1: Critical Performance Parameters

a) *CPPs are identified through the requirements flow down and are the highest priority for improved understanding. Assignment of a parameter as critical should be based on assessment of risk such as low margin, high uncertainty, or sensitivity of function to small changes in the parameter. The parameters may be critical to understand in the context of birth defects, latent defects, or aging drivers.*

b) *Prioritize CPPs, preferably by number from first to last, but at a minimum High-Medium-Low.*

2.1.3 Family 1: Knowledge Gaps – As-Built

2.1.3.1 Subpopulations and Homogeneity

a) Review the technical basis for understanding the as-built stockpile, including characterization of the number of subpopulations and the historical sampling of each population.

b) Provide sampling recommendations to reduce knowledge gaps.

c) Discuss any QMU-related issues, such as the need to improve sampling for uncertainty quantification or to establish diagnostics to characterize margins.

d) Where homogeneity or uncertainty assumptions have been made and continue to be asserted, state the rationale and assumptions and identify the body of work necessary to validate the assumption or rationale.

e) Where characterization of homogeneity will be difficult or prolonged, provide a recommended approach and schedule for addressing the issue.

2.1.3.2 Historical Data Preservation

a) Develop recommendations and priorities for preservation of important historical production records.

b) List the information assets of interest, the CPPs informed by each asset, their location and form, the recommended final state (indexed, scanned, or in a database), and the priority of the preservation and accessibility recommendations.

2.1.3.3 Data Mining Needs and Prioritization

Assess which of the CPPs are best characterized by data mining, and develop a risk-based prioritized list for data mining pilot studies or comprehensive studies.

2.1.4 Family 1: Knowledge Gaps – Aging and Lifetime Prediction

2.1.4.1 Aging Baseline Review

a) Review the stockpile data and statistical basis for aging model assessments, and assess risks that need to be addressed through additional sampling or modeling or additional diagnostics, including risks associated with validating results using limited data sets to predict aging of the stockpile in general.

b) Capture current configuration information, including code names and revisions and model validation basis, for any models in use or that form the basis for current aging or lifetime predictions.

c) Discuss any QMU-related issues such as the need to characterize or reduce uncertainty in the models or to improve sampling for model validation data.

2.1.4.2 Aging Assessment Priorities

Review the major drivers of aging uncertainty and provide a risk-based prioritization of the aging phenomena that need to be better characterized through improved aging models or improved sampling/characterization of the stockpile, whether that sampling is needed for aging model development or validation.

2.1.5 Sourcing, Handling, Storage, and Reacceptance Recommendations

a) Capture any constraints regarding sourcing components from storage or dismantlement streams and any handling, shipping, or storage requirements that would adversely impact data quality.

b) Identify all inactive diagnostics that are required to be stored by the PA for future utilization and rationale.

c) Provide any recommendation for reacceptance of components for reuse, either before or after surveillance testing.

2.2 Family N

Repeat the above for subsequent families, referencing the previous section as appropriate (rather than copying and pasting the text).

3. Diagnostic Recommendations

Review and revalidation of the current diagnostic recommendations are expected on a yearly basis.

a) As appropriate, include an assessment of the measurement uncertainty for all current diagnostics, or specify TBD and characterize the uncertainty in future years. The CEPPCs should represent the collective expertise of the DAs and PAs, which may involve engaging in difficult (and valuable) technical exchanges and cost-benefit analyses to weigh the strengths and differences of the diagnostics options, and down-select the optimal or minimum set of diagnostics for gathering each CPP.

b) Report any existing diagnostics or component-specific evaluation tooling, that is approaching the end of its service life and should therefore be considered for replacement.

c) Provide justification when more than one diagnostic or multiple-testing parameter is recommended for gathering the same data on different components within a single component family. The general approach is to apply the minimum number of diagnostics and testing parameters to the largest number of component families or subfamilies.

3.1 Diagnostic Prioritization

Prioritize the required diagnostics. Assume that all surveillance money for the component has been zeroed out. What is the first thing you would request be added back? What would be next? Include in the prioritization replacement of existing diagnostics and component-specific tooling.

3.2 Future Diagnostic Cost/Benefit Assessments

Estimating the cost of a development and deployment effort for a diagnostic takes significant resources and is not required for each recommendation of a diagnostic. However, a cost/benefit analysis is necessary when the recommendation becomes a requirement – typically when a weapon system accepts the recommendation and is preparing to present it to an IWET for endorsement. The CEPPC Report should summarize the cost analysis and the primary benefits of

deploying the diagnostic, the potential weapon programs whose components would use the diagnostics, and the PA resources that would be needed to deploy, sustain, and operate the proposed diagnostic.

4. Required Data Access and Analysis Tools

Describe any tools needed to support stockpile analysis and modeling efforts and those needed to provide connectivity between tools used by Core Surveillance, ES, and ASC Codes. For example, identify database tools that might be needed for aggregation and segregation of stockpile information for subpopulation identification, statistical analysis tools used for reliability, uncertainty analysis or confidence assessments, or tools used for exporting stockpile information in formats needed by the assessment community.

5. Recommendations for Other Capabilities

Provide recommendations for other surveillance activities, including, but not limited to, improvement in JTAs, establishment or improvement of shelf-life programs, establishment or improvement of safety assessments, development of ground test units and test capabilities, and acquisition of components or data from dismantlement programs.

6. Future Weapon System Recommendations

a) Provide recommendations for future weapon system surveillance.

b) Include component design considerations for surveillance, sampling, and diagnostic criteria for capture of new weapon component time-zero CPP data, embedded sensors, and modernization of diagnostics.

7. Summary Recommendations

a) Provide a general assessment of the current state of surveillance for the component family, and recommend improvements.

b) Provide a narrative and relative weighting of priorities from the previous sections (diagnostics and aging modeling).

c) Provide recommendations on whether it is more important to develop new diagnostics, improve aging models, preserve critical stockpile data, or perform pilot uncertainty studies of particularly sensitive performance parameters. This will be useful for informing trade-offs between the program elements that produce the range of results needed to support surveillance and the assessment process.

TOOL				
NUMBER	ISSUE	RELEASE DATE	EFFECTIVE DATE	PAGE
T125	**A2**	**2016-06-16**	**2016-07-01**	**1 of 15**

Transition of Technology into the NMSE Program

For PRRO Administration Use Only CAGE CODE: 14213

CHANGE HISTORY

EFFECTIVE DATE	ISSUE	RELEASE/CHANGE NO.
2016-07-01	A1	IER 20154198SA
2016-07-01	A2	FCO 20161852SA

TABLE OF CONTENTS

1. TOOL USAGE

This tool is required by R005, New Material and Stockpile Evaluation Program, when transitioning technology into the New Material and Stockpile Evaluation (NMSE) Program. R005 requirement FR92524 establishes the conditions under which T125 is required.

2. GENERAL

This tool defines the process for the development and implementation of new technology into the NMSE Program from Enhanced Surveillance (ES). A new technology may be a capability developed that improves the overall NMSE Program, such as a new diagnostic tool or tester. Additionally, this tool identifies:

a) Roles, responsibilities, and interfaces for the technology transition

b) Templates for some of the deliverables in this process

c) Funding sources and ownership for work activities

d) A graded approach for transition to the NMSE Program, dependent on the level of risk

The NMSE Program consists of Directed Stockpile Work (DSW) weapon surveillance activities performed on the current (active and inactive) stockpile. Other Defense Programs (DP) activities, primarily ES, support the NMSE Program by providing lifetime and aging assessments on components for timely and informed decision-making on stockpile transformation planning. ES also provides to the NMSE Program improved diagnostics and methods for more predictive, less invasive, or more cost-effective surveillance of the enduring stockpile.

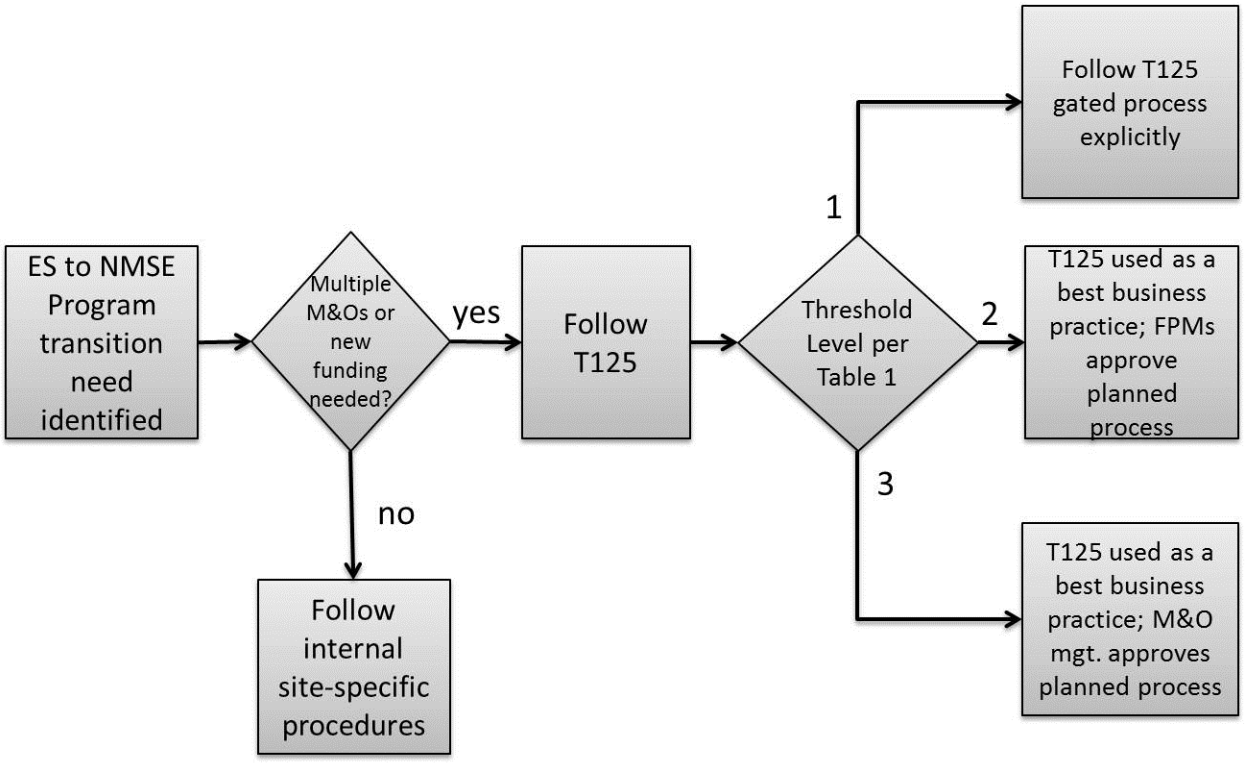
This content references evaluation of Technology Readiness Levels (TRLs) per C018. Users should evaluate the C018 exit criteria appropriate for technology development and implementation.

Supersedes: D&P Manual Chapter 8.1 Section 4.1

3. TRANSITION PROCESS

The transition process provides a structured approach and covers the full lifecycle of technology transition from proposal of a new technology through its implementation into the NMSE Program. The full process is designed for a new technology when developed from the ground up; not all new technologies developed for the NMSE Program follow each stage of the process described below. Figure 1 contains a decision tree to provide direction on the process to follow given different programmatic conditions.

Figure 1: Graded Approach Decision Tree



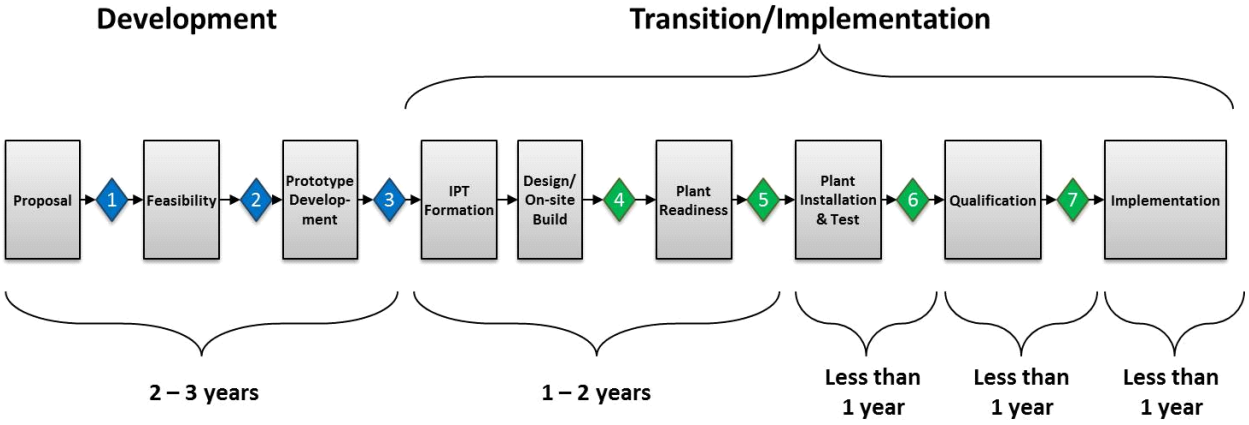
The process to be followed depends on the state of the technology. A graded approach is applied, dependent on the highest threshold level in any category per Table 1. For Level 1 programs, the process below is followed explicitly. For Levels 2 and 3, the Managing & Operating (M&O) Contractors work with the decision authorities listed in Table 1 to document the transition process used, with this process as a best business practice example. The full process, as shown in Figure 2, has two major phases: development and transition/implementation. Figure 2 shows the location of decision points, called gates, in the process.

Table 1: Threshold Levels and Approvals Based on Programmatic Cost and Other Factors

Level	*Thresholds*			*Approval Authority*
	Programmatic Cost over FYNSP	**Deliverable Time Frame**	**Cost Impact if Not Delivered[1]**	
1	>$4M	Firm time deliverable	Large	NA-11 and NA-12 FPMs
2	$2M–$4M	Somewhat flexible	Medium	NA-11 and NA-12 FPMs
3	<$2M	Very flexible	Low	M&O agreement or ES Site Program Manager

[1] Cost impacts are defined as differences the program will incur if the technology is not delivered. Discussions with the Federal Program Manager (FPM) will help M&O Contractors size the cost impact.

Figure 2: Technology Development Process Decision Points



3.1 Stages and Gates

Technical work activities occur within the stages, which have duration and are conducted sequentially. Gates are programmatic reviews (cost, scope, and schedule) conducted at the end of each stage to assess progress and evaluate risk before moving to the next stage. The gates are decision points at which outcomes of the previous stage are discussed and a decision to continue is made by the gate decision-makers listed in the sections that follow. Gates ensure the following:

a) Integration occurs among programs

b) Work is planned in a coordinated fashion with input from all appropriate participants and sites

c) Outcomes are documented

Formal gate reviews occur in development at the end of Stages 1, 2, and 3. If the Gate 3 decision is to move forward with technology implementation, then a project plan is developed by an Integrated Project Team (IPT) that specifies implementation stage activities and gates, detailed in Section 2.5.

3.2 Proposal (Stage 1)

3.2.1 Stage 1 Activities

The proposal stage begins the process. Representatives from technology development and NMSE program management at the respective design agency (DA) review the proposed technology against surveillance requirements and strategic direction to recommend the next steps. Based on these DA recommendations, NA-11 and NA-12 FPMs consider new technologies or increased surveillance robustness for implementation into the NMSE Program. TRL 1 and TRL 2 will be achieved to proceed to the feasibility stage.

3.2.2 Gate 1 Exit Criteria

Is the technology an improvement to routine surveillance and does it fit into the overall strategy?

Is the funding identified?

Has TRL 2 – “concept and application formulated” - been achieved?

3.2.3 Gate 1 Decision-Makers

ES FPM (NA-11) and NMSEP FPM (NA-12)

3.3 Feasibility Study (Stage 2)

3.3.1 Stage 2 Activities

Once feasibility is proven at the development level, the respective DA management evaluates the proposed technology to ensure feasibility and practicality of implementation. TRL 3 will be achieved by the end of the feasibility stage. The National Nuclear Security Administration (NNSA) bases the decision to proceed beyond the feasibility stage on the following deliverables:

a) Business case for technology development,

   which identifies the scope, schedule, cost, end-user, and benefits of the technology development portion of the project. This business case should be prepared by the technology development team. The business case template in Appendix A may be modified as needed.

b) User partnership agreement,

   which identifies the roles, responsibilities, and financial commitment of each program for the entire development and implementation of the technology. Using Figure 2 as a model, the user partnership agreement should identify the entire technology development and implementation process, the decision points within each stage, and the criteria to move on to the next stage. The agreement should be prepared by the technology development team and the NMSEP end-user. An example user partnership agreement is in Appendix B.

3.3.2 Gate 2 Exit Criteria

Is there a demonstrated proof of concept and an agreed-upon value of the technology?

Have the business case for development and the user partnership agreement been delivered?

Has TRL 3 – “concepts demonstrated analytically or experimentally” – been achieved?

3.3.3 Gate 2 Decision-Makers

ES FPM (NA-11) and NMSEP FPM (NA-12)

3.4 Development Stage (Stage 3)

3.4.1 Stage 3 Activities

This stage includes initial development and prototyping of technology during which key elements are integrated to establish that the pieces will work together. The validation should be consistent with the requirements of potential applications, but it is relatively low-fidelity when compared to a final product. Examples include integration of ad hoc hardware or software or with mock material in the laboratory, such as breadboards, low-fidelity development components, and rapid prototypes.

3.4.2 Gate 3 Exit Criteria

Does the technology align with surveillance strategy and priorities?

Are there implementation impacts and is the funding identified?

Has TRL 4 – “key elements demonstrated in laboratory environment” – been achieved?

3.4.3 Gate 3 Decision-Makers

ES FPM (NA-11) and NMSEP FPM (NA-12)

3.5 Integrated Project Team Activities (Stages 4-7)

If the ES FPM (NA-11) and NMSEP FPM (NA-12) approve the proposed technology at Gate 3, NA-12 charters an IPT to complete the process.

During Stage 4, the IPT, with input from NA-11 and NA-12, prepares a project plan for technology implementation. The IPT manages the remaining stages and gates of the process: design and build, production agency (PA) readiness, installation, test, and qualification per T046. Table 2 shows the typical stage activities and gate criteria.

Table 2: Typical Project Plan Stage Activities and Gate Criteria

Stage	Stage Title	Gate Exit Criteria
4	IPT Formation and Design/On-Site Build	Does the fully functioning prototype meet technical requirements? Is the final unit ready for installation? Has a project plan been delivered?
5	Plant Readiness	Is the PA ready for qualification and implementation? Has the PA received Authorization Basis? Has TRL 6 been achieved?
6	Plant Installation and Test	Is the final unit successfully installed and has it passed the acceptance test?
7	Qualification	Does the fully functioning prototype meet technical and graded qualification requirements? Has TRL 9 been achieved? Is the final unit ready for PA surveillance use?

The IPT, with the PA leading, executes the project plan to complete implementation of the technology. The process ends with the implementation of the technology into PA surveillance operations. The development phase is complete when TRL 6 is reached. In the transition/implementation phase, the development team initially leads the PA installation and testing. NA-12 and the PA are responsible for the qualification and implementation stages with support from the IPT. The transition/implementation phase is complete when TRL 9 is reached and the technology is fully functional as demonstrated by a Qualification Evaluation Release (QER).

4. KEY DEFINITIONS

Definitions and acronyms related to this content can be found in the Glossary (Lexicon) on the DPBPS Portal at this URL: https://dpbps.sandia.gov/Pages/Lexicon.aspx.

5. TRACEABILITY REFERENCES

The following references are used in this content.

C018: Conduct Technology Readiness Level (TRL) Assessment

D&P Manual Chapter 8.1: New Material and Stockpile Evaluation Test Program

R005: New Material and Stockpile Evaluation Program

R009: Risk and Opportunity Management

T046: Qualify Product or Process Business Rules

T125: Transition of Technology into NMSE Program

APPENDIX A: BUSINESS CASE TEMPLATE

GENERAL INFORMATION

Date mm/dd/yyyy

Site Proposal# FYxx-Site-number			**HQ Project #**	
Project Name:			**Program:**	
Site Point of Contact	**Name**	**Phone**	**Email**	**Lead Site**
HQ Program Office Sponsor (NA-124.1)	**Name**	**Phone**	**Email**	
Federal Customer **End-User Champion**	**Name**	**Phone**	**Email**	
Signature	**Name**	**Organization**	**Date**	

SCOPE AND BENEFITS

Project (Activity) Purpose/ Problem Statement *Define the need, proposed benefit, and purpose of project.*	
Statement of Work (Scope) *Define the project statement of work. Identify the scope for the lead site, and participating sites if a multi-site project.*	
Technology Roadmap Investment Areas *Check all applicable investment areas. Provide additional details in the Scope section.*	☐ 8.1 Pits ☐ 8.2 Canned Subassembly/Cases ☐ 8.3 High Explosives ☐ 8.4 Non-Nuclear Components ☐ 8.5 Non-Nuclear Materials ☐ 8.6 Systems ☐ Other *(Please Describe)*
Implementation Benefits *Check all applicable benefits. Provide additional details in the Scope section.*	☐ Benefits multiple weapon systems ☐ Supports current or planned Life Extension Projects ☐ Supports a current Component Maturation Framework (CMF) deliverable *(identify CMF in Scope or Schedule section)* ☐ Addresses DSW NMSE Program surveillance strategic needs or priorities ☐ Improves knowledge of system or component aging effects ☐ Improves surveillance processes with urgent or immediate needs ☐ Reduces or prevents future costs ☐ Facilitates reuse of existing components ☐ Improves Enterprise responsiveness or adds agility to surveillance ☐ Other (*Please Describe*)
Project Execution Risks *Describe risks with implementing the project. This can be in table or narrative format and supplemented by the Campaign's Risk Screening Questionnaire.*	
Risk for "No Action" Decision *Describe the risks to the NNSA Enterprise for not implementing the project. Identify what program could/will fund the project if ES does not.*	

PROJECT SCHEDULE

Project Deliverables/ Expected Results *List the deliverables, milestones, and CMF Peg Posts by year and quarter for the project.*	**Activity**	**Start Date** (year/mo)	**End Date** (year/mo)
	Start Project Complete Project Issue Closeout Report *(30 days after completion)*		

*PROJECT/OPERATING COST ESTIMATE

	dollars in thousands						
Site	**FY**	**FY+1**	**FY+2**	**FY+3**	**FY+4**	**FY+5**	**Total**
Totals							

*NOTE: The old project sheets and business cases included these cost items – Labor, Material/Equipment, Subcontracts, Travel, Other (describe), Lifecycle, and Net Present Value. If desired, these items could be added to the proposal form. The Enterprise Projections Analysis Tool (EPAT), in the future, may include this data. Now EPAT includes direct full-time equivalents (FTEs) and will be specified in greater detail in the future.

Cost Estimate Assumptions *Describe assumptions identified with developing the cost estimate.*	

Additional information, diagrams, and pictures may be added to help strengthen the proposed project.

APPENDIX B: EXAMPLE USER PARTNERSHIP AGREEMENT

1. PURPOSE AND BACKGROUND

1.1. Purpose. The purpose of this User Partnership Agreement (Agreement) is to define the roles and responsibilities between the Enhanced Surveillance (ES) Program and the Management, Technology, and Production (MTP) Program, and other stakeholders (such as, Stockpile Systems), concerning the design, development, procurement, qualification, and implementation of the B61/B83 Weapons Evaluation Test Laboratory (WETL) Systems Tester capabilities and its continuing operation after Qualification Evaluation Release (QER).

1.2. Background. The current system-level system test equipment (STE) at the WETL is aging, expensive, and time-consuming to maintain, and does not generate the quantity and quality of data required at this time. Thus, the purpose of this work is to replace the current WETL systems tester with a modernized tester that provides a more reliable and comprehensive assessment of weapon functions.

2. SCOPE AND PROGRAMMATIC RESPONSIBILITIES

2.1 Enhanced Surveillance Program. The ES program contributes to weapon safety, performance and reliability by providing tools needed to predict or detect the precursors of age-related defects and to provide engineering and physics-based estimates of component or system lifetimes based on the best available science and technology. These tools include the development of new first-of-its-kind STE at WETL. The ES provides funding and oversees the schedule for design and development activities. As part of its programmatic responsibilities, ES is funding the development, not QER, of new B61/B83 STE for delivery to WETL according to milestones and schedules set by NA-124. ES is responsible for developing a transition plan that incorporates NA-122 need dates and requested delivery status.

Requested delivery status from ES requires STE to be ready to be qualified (through a QER). Any work needing completion before the QER can be achieved must be negotiated with NA-122. All paperwork provided by ES must be of the acceptable quality as part of the QER process.

2.2 Management, Technology, and Production. MTP provides the cross-cutting capabilities for certifying the safety, security, and reliability of the nuclear stockpile. The MTP activities provide the products, components, and/or services for multi-weapon system surveillance, including laboratory and flight test data collection and analysis, weapons reliability reporting to the Department of Defense (DoD), Directed Stockpile Work (DSW) requirements tracking and implementation, management and operation, and stockpile planning.

As part of its programmatic responsibilities, MTP is providing funding to ensure that the B61/B83 WETL STE meets New Material and Stockpile Evaluation (NMSE) Program surveillance requirements to support successful QER for the B61/B83 System Tester at WETL, and to support on-going operations of the equipment after QER. MTP will execute laboratory testing according to milestones and schedules

coordinated within NA-122. NA-122 will ensure that its milestones and schedules for MTP work are consistent with ES milestones and schedule as determined by NA-124.

MTP is responsible for understanding the transition plan and funding any activities required.

2.3 Stockpile Systems. Stockpile Systems directly executes sustainment activities for the total (active and inactive) stockpile for the B61, W76, W78, W80, B83, W87, and W88 weapons.

Stockpile Systems does not provide funding for STE at WETL or have programmatic responsibilities regarding its development but it is the end user and major stakeholder of the B61/B83 WETL Systems Tester. Stockpile Systems should provide specifications input to NA-122 as part of the process leading up to the setting of milestones and schedule by NNSA's ES program and the MTP program.

Stockpile Systems is responsible for understanding the transition plan and supporting any activities identified.

3. RISK ANALYSIS AND MITIGATION

3.1 Risk Management Plan. ES, MTP, and Stockpile Systems Federal Program Managers (FPMs), with the support of the appropriate laboratory personnel, develop a Risk Management Plan per R009. For each risk identified, the plan should address likelihood, consequence, impact (to cost schedule, scope, and performance), mitigation strategies, owner, stakeholders, and communication strategy. Stockpile Systems should support development of risk mitigation strategies for the development, startup, and maintenance of the test equipment.

4. FUNDING AND SCHEDULE

4.1 Key Timeline Dependencies. The WETL tester must be qualified (through QER) in time to support third-quarter testing at WETL. Delays to schedule may result in zero Stockpile Laboratory Test data for laboratory assessments of current stockpile health for that fiscal year (FY).

	Estimated Dollar Amount	***Estimated Time for Work to be Conducted***
ES	$XX,XXX,XXX – FY12 $XX,XXX,XXX – FY13 $XX,XXX,XXX – FY14	Delivery to WETL of B61 7/11 STE by June 30, 2012. Delivery to WETL of B83 STE by June 30, 2013. Delivery to WETL of B61 3/4/10 STE by June 30, 2014. These estimates are subject to change as directed by NA-124 milestones and priorities.
MTP	$XX,XXX,XXX – FY12 $XX,XXX,XXX – FY13 $XX,XXX,XXX – FY14 The B61/B83 common tester will replace legacy B61 and B83 testers so no net additional sustainment cost is anticipated.	QER for B61 7/11 STE by September 30, 2012. QER for B83 STE by September 30, 2013. QER for B61 3/4/10 STE by September 30, 2014. These estimates are subject to change as directed by NA-122 milestones and priorities.

5. EFFECTIVE DATE, PERIOD OF AGREEMENT, AND REVIEW

5.1 Effective Date. This Agreement shall be effective upon signature of all parties acknowledging concurrence with the conditions outlined herein.

5.2 Period of Agreement. This Agreement shall remain in effect through completion of qualification evaluation tests of the B61/B83 WETL systems tester, and will continue with regard to MTP support for continuing WETL operations until modified or terminated.

5.3 Points of Contact.

ES POC for Project
MTP POC for Project
Stockpile Systems POC for Project

NATIONAL NUCLEAR SECURITY ADMINISTRATION,
NA-122, MTP FPM

By: _____
Date: _____

NATIONAL NUCLEAR SECURITY ADMINISTRATION,
NA-124, ES FPM

By: _____
Date: _____

NATIONAL NUCLEAR SECURITY ADMINISTRATION,
NA-122, B61 FPM

By: _____
Date: _____

NATIONAL NUCLEAR SECURITY ADMINISTRATION,
NA-122, B83 FPM

By:_____
Date: _____

TOOL				
NUMBER	ISSUE	RELEASE DATE	EFFECTIVE DATE	PAGE
T126	**A2**	**2016-06-16**	**2016-07-01**	**1 of 5**

QERTS Overview

For PRRO Administration Use Only CAGE CODE: 14213

CHANGE HISTORY

EFFECTIVE DATE	ISSUE	RELEASE/CHANGE NO.
2016-07-01	A1	IER 20154198SA
2016-07-01	A2	FCO 20161852SA

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1. TOOL USAGE

This tool is required by R005, New Material and Stockpile Evaluation Program. Design agencies (DAs) and production agencies (PAs) are required to use the Quality Evaluation Requirements Tracking System (QERTS), the central repository for New Material and Stockpile Evaluation (NMSE) Program requirements planning and test execution information, as specified in R005.

2. QERTS OVERVIEW

QERTS is the integrated planning, scheduling, and execution tracking system for NMSE requirements. It supports surveillance-related logistics tracking, and facilitates baseline management using a change control feature that implements an established change control process. It is a web-based application that resides on the Enterprise Secure Network (ESN).

Pantex (PX) developed the application for the National Nuclear Security Administration (NNSA) and is responsible for maintaining the application and the QERTS User's Manual (MNL-293123), which provides detailed instructions for navigating and using the system.

Supersedes: D&P Manual Chapter 8.1 Section 5.7.3 Paragraph 1 Sentence 2, and Section 6.1.3 Paragraphs 4 and 5 / TBP-801 Section 2 Paragraph 5

2.1 Interfaces

QERTS has a direct interface with the PX manufacturing planning and execution system. Users consolidate and reference information from various other logistics, accountability, planning, and scheduling systems within the Nuclear Security Enterprise (NSE) in QERTS.

2.2 Functions

QERTS supports five major functions within the NMSE Program.

2.2.1 Traceability of Design Agency Core Surveillance Requirements

DAs enter NMSE Program requirements in QERTS; each evaluation is associated with one or more DA surveillance specifications, thus linking the workload to a specific surveillance requirement or set of requirements. Specifications should be referenced for each evaluation record.

2.2.2 Requirements Prioritization to Support Funding Decisions

DAs and Integrated Weapon Evaluation Teams (IWETs) enter priorities for evaluations in the "Technical Priority" and "Programmatic Priority" fields, respectively.

2.2.3 Work Planning, Execution Tracking, and Reporting

PAs enter planned and actual completion dates for each evaluation.

2.2.4 Baseline Management Through Change Control

QERTS stores baseline information by weapon program, part category, site, and fiscal year against which change control may be exercised. QERTS stores information on change control actions that authorize scope, schedule, and funding status changes.

2.2.5 Unmet Requirements Disposition

IWETs determine the disposition of unmet requirements. The DA or PA records the results in QERTS.

3. QERTS ROLES AND RESPONSIBILITIES

3.1 National Nuclear Security Administration

a) Determines the funding status of each evaluation and either enters it into QERTS or delegates the data entry function to the PAs

b) Convenes a Configuration Control Board (CCB) of the QERTS application to oversee the upgrading and maintenance of the database

3.2 Design Agencies

a) Enter NMSE Program requirements for the Future Years Nuclear Security Program (FYNSP) period into QERTS, updating annually as required by R005

b) Enter surveillance serial number selections into QERTS; serial numbers should be entered no later than the beginning of the fiscal year prior to the year in which the work is expected to be completed, unless otherwise negotiated with the PA

c) Maintain requirement traceability information using the QERTS Change Control feature

d) Update serial number selections in QERTS when changes are made

e) Make changes only to evaluation requirements for which they have design authority

3.3 Production Agencies

a) Enter planned dates and funding status into QERTS after distribution of the President’s Budget Request (typically in the summer) to support Annual Stockpile Evaluation Master Plan (ASEMP) Revision 0, consistent with R005

b) Maintain planned evaluation and report dates using the QERTS Change Control feature in accordance with change management authority levels defined in the QERTS User Manual

c) Enter actual evaluation and actual report dates into QERTS no later than the fifth working day of the following month

3.4 Pantex

a) Hosts the QERTS application and provides access through the ESN

b) Enters unit Disassembly and Inspection (D&I) evaluations into QERTS, based on the Program Control Document (PCD) and ASEMP. Planned or actual D&I dates in QERTS support calculation of component arrival dates at downstream sites.

4. KEY DEFINITIONS

Definitions and acronyms related to this content can be found in the Glossary (Lexicon) on the DPBPS Portal at this URL: https://dpbps.sandia.gov/Pages/Lexicon.aspx.

5. TRACEABILITY REFERENCES

The following references are used in this content:

D&P Manual Chapter 8.1: New Material and Stockpile Evaluation Test Program

MNL-293123: QERTS User's Manual

R005: New Material and Stockpile Evaluation Program

TBP-801: Laboratory and Flight Test Material

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NUMBER	ISSUE	RELEASE DATE	EFFECTIVE DATE	PAGE
T138	**B2**	**2016-06-16**	**2016-07-01**	**1 of 7**

Non-Nuclear Assurance Program

For PRRO Administration Use Only CAGE CODE: 14213

CHANGE HISTORY

EFFECTIVE DATE	ISSUE	RELEASE/CHANGE NO.
2015-10-01	A1	IER 20150059SA
2016-05-09	A2	FCO 20161854SA
2016-07-01	B1	FCO 20154208SA
2016-07-01	B2	FCO 20161852SA

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1. TOOL USAGE

This tool is required by R019, Produce and Maintain, and by R005, New Material and Stockpile Evaluation Program, to conduct a Non-nuclear Assurance Program (NNAP) when designing, producing, and testing Nuclear Explosive-like Assemblies (NELA).

Supersedes: Issue A superseded D&P Manual Chapter 8.1 Section 5.5 / TBP-803

2. NEW DESIGN VERIFICATION

2.1 New Design Verification

2.1.1 Test Article In a Current Technical Publication (TP)

For a new weapon program or the development of a new Joint Test Assembly (JTA) or Flight Test Unit (FTU), the System Evaluation Engineer (SEE) and/or design engineer develops a Compatibility Definition (CD), per T127, for the JTA/FTU that will be flown on Department of Defense (DoD) and joint National Nuclear Security Administration (NNSA)/DoD flight tests. The JTA/FTU CD contains requirements for a unique engineered signature that is verifiable in the field and uniquely differentiates the FTU from the War Reserve (WR) weapon. The design agency (DA) designs this engineered signature into the FTU. If no CD for the FTU is required, then a memorandum or Information Engineering Release (IER) specifies the NNAP engineered signature requirements.

Supersedes: Issue A superseded D&P Chapter 8.1 Section 5.5.2.1

2.1.2 Air Force Designs Not In a Current TP

For new designs, if the test article does not appear in the current TP(s), a supplemental document (e.g., Specific Use Specification drawing (SS)) must be developed and a deviation request submitted to NNSA for approval. This supplemental information along with the deviation request should be developed to allow the NNAP team to perform the engineering signature requirements for that particular test asset in the field. These procedures should identify the engineering signature sections in the appropriate TP. This supplement will then be used in conjunction with the TP in the field to perform the NNAP requirements. Once the deviation request is approved by NNSA, it must be sent to the appropriate Air Force (AF) test agency; the approved deviation request allows the AF to use the supplement in conjunction with the TP. These procedures need to remain in place while the test vehicle is still in the design verification or development phase or until the test asset information is included in the appropriate TP.

Supersedes: N/A

2.2 Existing Systems Verification

Inspection criteria for the engineered signature of existing JTA/FTUs are provided in an NNAP Procedure (BJ drawing per T030 and T112) prepared by the Stockpile Evaluation Department. These criteria are used to perform the production and field

verification of the engineered signature. The BJ drawing, prepared for JTA/FTUs for each weapon, specifies the in-plant inspection criteria. For Navy systems, the BJ drawing provides criteria for field inspection of the tamper-evident seal and for the performance of the non-nuclear verification operation using a neutron detection instrument. For AF systems, the field inspection criteria are contained in DoD TP 569-2.

Supersedes: Issue A superseded D&P Chapter 8.1 Section 5.5.2.1, and Section 5.5.2.2/ TBP-803 Section 2.2

2.3 NNAP Verification Management

NNAP verification actions are shown in Table 1.

Table 1: NNAP Verification Actions

Responsible Party	Action
Stockpile Evaluation Department	Incorporates NNAP design requirements in the CD. Documents the engineered signature of new and existing systems. Provides the methods, procedures, and equipment necessary to conduct the independent verifications. Coordinates the NNAP field verification requirements with the Joint Test Working Group (JTWG). Provides the overall program management of the plant and field verification portions of the NNAP.

Supersedes: Issue A superseded D&P Chapter 8.1 Section 5.5.2.1 / TBP-803 Section 2.3

3. PRODUCTION AGENCY (PA) VERIFICATION

The DA provides design specifications for the PA to perform the following independent verifications. These specifications also define the location for the application of the tamper-evident seal to the JTA by NNSA personnel at the production facility.

3.1 Non-Nuclear and High Explosive Assurance

Actions of the DA, PA, and NNSA are shown in Table 2.

Table 2: Non-Nuclear and High Explosive (HE) Assurance Actions

Responsible Party	Action
DA	Provides design specifications.
WWPA	Performs two-person assurance and certification of all tested material, test units, and test equipment used for these verifications at the production facility. Evaluates simulated pits by gamma spectrometry to assure there is no special nuclear material. Evaluates mock HE by its color and differential scanning calorimetry to assure that it is not real HE. Evaluates the engineered signature of the assembled unit. Evaluates the assembled unit by gamma spectrometry a second time to assure that there is no Special Nuclear Material (SNM).
Authorized NNSA specialist	Applies a tamper-evident seal before shipment that provides assurance that the item was not tampered with after leaving the PA. Annotates on the Inspection Record Card (IRC) or the Nuclear Ordnance Record Card (NORC), as appropriate, that the seal was applied along with the seal serial number, series, date code, and the date of application. NOTE: For additional information on the IRC and NORC, see T136 and T137, respectively.

Supersedes: Issue A superseded D&P Chapter 8.1 Section 5.5.1, Section 5.5.3, and Section 5.5.4 / TBP-803 Section 3.0

3.2 Non-Tritium Assurance

The DA defines the requirements to the PA (in the Graphic Drawing (AY), NNAP Procedure (BJ), or Specific Use Specification (SS); material list; or other formal document) to provide positive assurance that tritium is not contained in any FTU. Depending on the design, this assurance is provided by visually verifiable holes or cut

stems in the reservoir assemblies, or by employing temperature measurement checks. Actions of the DA and PA are shown in Table 3.

Table 3: Non-Tritium Assurance Actions

Responsible Party	Action
DA	Provides the requirements to the PA.
PA	Evaluates the reservoir assembly to assure that tritium is not contained in the assembled unit.

Supersedes: Issue A superseded D&P Chapter 8.1 Section 5.5.3, and 5.5.4 / TBP-803 Section 3.1

4. FIELD VERIFICATION

The independent verifications will be accomplished in the field as close to time of flight as practicable as shown in Table 4.

Table 4: Independent Verification Actions

Responsible Party	Action
NNSA (one of the two-person NNAP team members) or Navy NNAP team member	Examines and verifies the integrity of the tamper-evident seal (applied at the production facility). Evaluates the engineered signature.
Both NNAP team members	Evaluate each FTU for neutron emissions using a designated neutron detection instrument. Check and sign the non-nuclear verification data sheet.

Supersedes: Issue A superseded D&P Chapter 8.1 Section 5.5.5 / TBP-803 Section 4.0

5. KEY DEFINITIONS

Definitions and acronyms related to this content can be found in the Glossary (Lexicon) on the DPBPS Portal at this URL: https://dpbps.sandia.gov/Pages/Lexicon.aspx.

6. TRACEABILITY REFERENCES

The following references are used in this content:

D&P Manual Chapter 8.1: New Material and Stockpile Evaluation Test Program

R005: New Material and Stockpile Evaluation Program

R019: Produce and Maintain

TBP-803: Non-Nuclear Assurance Program

TP 569-2 Change Number 1 (or successor): Operation and Maintenance Instructions with Illustrated Parts Breakdown; T569 Nonnuclear Verification Tester with Nonnuclear Assurance Program (NNAP) Field Procedures

T030: Product Documentation Types

T112: Stockpile Evaluation Support Documents

T127: Compatibility Definition Elements

T136: Inspection Record Card Business Rules

T137: Nuclear Ordnance Record Card Business Rules