NNSA POLICY LETTER

NAP-24

Approved: 6-20-13

WEAPON QUALITY POLICY

National Nuclear Security Administration

NATIONAL NUCLEAR SECURITY ADMINISTRATION
Office of Defense Programs

AVAILABLE ONLINE AT:
http://hq.na.gov

INITIATED BY:
Weapon Quality Division

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WEAPON QUALITY POLICY

1. PURPOSE. The purpose of this document, *NNSA Weapon Quality Policy (NAP-24)*, is to identify the quality requirements applicable to weapon activities of the NNSA, NNSA contractors and subcontractors.

   The requirements contained herein are in addition to the scope of quality requirements found in DOE Order 414.1D, *Quality Assurance*. NAP-24 establishes specific weapon and weapon-related product focused quality requirements for designing, producing and surveilling safe, secure and reliable weapon products.

2. CANCELLATION. *DOE/NNSA Weapon Quality Policy* (QC-1), Revision 10, dated 02/10/2004.

3. APPLICABILITY.

   a. NNSA Applicability. This NNSA Policy (NAP) applies to NNSA Federal personnel, NNSA Contractors and subcontractors who perform weapon or related activities as defined in this NAP.

   b. Equivalencies. In accordance with the responsibilities and authorities assigned by Executive Order 12344, codified at 50 USC sections 2406 and 2511 and to ensure consistency through the joint Navy/DOE Naval Nuclear Propulsion Program, the Deputy Administrator for Naval Reactors (Director) will implement and oversee requirements and practices pertaining to this Directive for activities under the Director's cognizance, as deemed appropriate.

4. REQUIREMENTS. See Attachment 1 and Attachment 2

5. RESPONSIBILITIES. See Attachment 2, Section 4.0

6. REFERENCES.

   a. DOE O 414.1D, *Quality Assurance*, dated 04-25-11

   b. Supplemental Directive NA SD M 452.3-1, *Defense Programs Business Requirements and Processes Manual*, dated 12-10-09. NA SD M 452.3-1 combines active Development and Production Manual Chapters and Requirements Modernization and Integration Level 2 and Level 3 content at a single electronic gateway, RMI Explorer Portal https://rmi.sandia.gov/

   c. NNSA Definition Lexicon, located at *https://rmi.sandia.gov/pages/lexicon.aspx*

7. DEFINITIONS. Definitions regarding this NAP are documented and maintained in the NNSA Definition Lexicon.

8. CONTACT. Questions concerning this NAP should be addressed to the Weapon Quality Division, NA-121.3 (505-845-5171).

BY ORDER OF THE ADMINISTRATOR:

Neile L. Miller
Acting Administrator

Attachments:
1. Contractor Requirements Document
2. Weapon Quality Requirements

ATTACHMENT 1: CONTRACTOR REQUIREMENTS DOCUMENT
NAP-24, *Weapon Quality Policy*

This Contractor Requirements Document (CRD) establishes the following requirements for NNSA contractors within the Nuclear Security Enterprise for the management of NNSA facilities that are involved in or interact with the management of the nuclear weapons stockpile, develop or produce weapon product or weapon related product.

Regardless of the performer of the work, the contractor is responsible for complying with the requirements of this CRD. The contractor is responsible for flowing down the requirements of this CRD to subcontractors at any tier to the extent necessary to ensure the contractor's compliance with the requirements. In doing so, the contractor must not flow down requirements to subcontractors unnecessarily or imprudently. The contractor will ensure that it and its subcontractors comply with the requirements of this CRD.

The requirements of this CRD are in NAP-24, Attachment 2, *Weapon Quality Requirements*.

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ATTACHMENT 2: WEAPON QUALITY REQUIREMENTS

TABLE OF CONTENTS

1.0 PURPOSE

Attachment 2 provides the weapon quality requirements as required by NAP-24, *Weapon Quality Policy*.

1.1 SCOPE

This document describes minimum quality requirements for the NNSA, NNSA contractors and subcontractors responsible for weapon life-cycle phases 1-7 activities (as defined in Supplemental Directive NA SD M 452.3-1, *Defense Programs Business Requirements and Processes Manual,* Chapter 3.1, *Phases 1-7,* located at https://prp.sandia.gov/DPManual/d-p_chap03-1.pdf). Requirements are aimed at ensuring customer requirements are met during all seven phases of weapon and weapon-related product realization – from concept definition to disposal.

1.2 SUPPLEMENTAL POLICY AND CLARIFICATIONS

Occasionally, supplemental policy and/or clarification to the Weapon Quality Policy is required. For instances where clarification of requirements is needed, a Guidance and Clarification (G&C) message will be issued by NA-121.3, Weapons Quality Division (HQ WQD). G&C messages will be incorporated into the NAP upon the next revision. When supplemental policy or a change in policy is needed, a revision to that section of the NAP will be performed.

2.0 BASIC REQUIREMENTS

2.1 RISK MANAGEMENT

When choosing to use a graded approach

a. a risk-management process shall be used to analyze, determine and document the rigor of meeting the requirements of this NAP, provided the risk-management process can ensure there are no adverse impacts to the quality of weapon and weapon-related products; and

b. the risk-management process and areas of graded rigor shall be documented in the Weapon Quality Assurance Program (WQAP).

2.2 WEAPON QUALITY MANAGEMENT SYSTEM

NNSA, NNSA contractors and subcontractors shall integrate quality requirements into management and work practices so that missions are accomplished and customer requirements are met. Metrics shall be used to evaluate the effectiveness of the Weapons Quality Management System (WQMS).

2.2.1 WQAP

Implementation of NAP-24 requirements shall be described in a WQAP. The WQAP may be integrated into the DOE O 414.1D (or equivalent) required Quality Assurance Program (QAP). The WQAP shall

a. describe the WQMS;

b. describe the approach to implementing NAP-24 requirements and other weapon quality requirements contained in contractual documents and their flow down to implementing procedures; and

c. describe the organizational structure.

2.2.2 Submittal, Approval, Implementation, and Reporting

NNSA and NNSA contractors responsible for work in any weapon life-cycle phase shall

a. submit WQAP to the appropriate Field/Production Office Manager or Assistant Deputy Administrator for approval;

b. implement the WQAP;

c. submit significant changes of the WQAP to the appropriate Field/Production Office Manager or Assistant Deputy Administrator for approval;

d. maintain WQMS metrics to provide objective evidence of performance;

e. perform and document an annual management assessment of their WQMS; and

f. use the approved organization WQAP as the basis for assessment of the organization's weapon quality program.

2.3 ORGANIZATION

Senior management shall provide evidence of their commitment to the WQMS by

a. describing in the WQAP, the organizational structure, responsibilities, levels of authority, and lines of communication for implementing the WQAP;

b. establishing processes and policies that ensure customer requirements are determined, documented, communicated, and met with the aim of enhancing customer satisfaction; and

c. assigning responsibility to a senior manager with sufficient authority, responsibility, and unrestricted access to all levels of management and staff to ensure

i.) WQMS is implemented and effective;

ii.) improvement opportunities are identified, communicated and resolved;

iii.) WQAP performance, at all organizational levels, is monitored and communicated;

iv.) manage nonconformances in accordance with NAP-24, Attachment 2, Section 3.12;

v.) manage corrective actions in accordance with NAP-24, Attachment 2, Section 3.13; and

vi.) personnel verifying quality achievement must not be directly responsible for the work being evaluated.

2.4 EARLY AND CONTINUOUS APPLICATION OF QUALITY PRINCIPLES

NNSA contractors responsible for weapon and weapon-related product or process design shall

a. have a documented process to ensure that operating, production, and quality requirements are incorporated in the design process as early as feasible;

b. provide for the timely identification and evaluation of key elements that are critical to program success; and

c. provide an objective means to measure design, product, process, and production readiness.

2.4.1 Producibility

Producibility shall be

a. formally addressed in the weapon design and design change processes; and

b. evaluated by the design agency and production agency through an established and documented process.

2.5 ESTABLISHING AND VALIDATING REQUIREMENTS

Beginning with Phase 1, *Weapon Conception,* and continuing throughout the life-cycle of the weapon or weapon-related product, documented processes shall be in place to identify, document, validate, control and maintain customer requirements.

2.6 PLANNING

Planning activities shall

a. be performed and documented prior to the start of work to ensure that work is accomplished to satisfy applicable requirements; and

b. provide for special controls, processes, test equipment, tools, and skills needed to attain and verify the required quality.

3.0 QUALITY REQUIREMENTS

3.1 QUALITY IMPROVEMENT

3.1.1 Continuous Improvement Process

A continuous improvement process shall

a. document the methodology for achieving improvement;

b. review item characteristics, process performance, and other quality-related information and analyze the data to identify items, services, and processes needing improvement;

c. manage nonconformances in accordance with NAP-24, Attachment 2, Section 3.12; and

d. manage corrective action in accordance with NAP-24, Attachment 2, Section 3.13.

3.1.2 Prevention Versus Detection

The WQMS shall

a. focus on preventing nonconformance, reducing variability, and building quality into weapon and weapon-related products and processes; and

b. utilize methods to prevent quality issues, including but not limited to the following: process characterization, mistake-proofing, and reduction of product and process variability.

3.1.3 Metrics

NNSA, NNSA contractors and subcontractors shall identify, document, track, trend, and maintain WQMS metrics and utilize them for corrective action, continuous improvement and objective evidence of performance.

3.2 TRAINING

Documented processes shall ensure

a. personnel are trained and/or qualified to be capable and competent prior to performing their assigned work;

b. personnel are provided continuing training to maintain job proficiency;

c. evidence of training, qualification, and/or certification are maintained; and

d. qualification is based on a combination of factors including education, training, skills and experience.

3.3 DESIGN

The design agency shall be responsible for the design of items and design processes under their responsibility.

3.3.1 Design Input

Design inputs shall be identified and documented, and their selection reviewed and approved prior to the final design implementation.

3.3.2 Design Process

a. Items and processes shall be designed using sound engineering, scientific principles and appropriate standards.

b. Designs shall provide a clear link between design inputs and design requirements, including production requirements and specifications.

c. Design work, including changes, shall incorporate applicable requirements and design bases.

d. Designs shall also incorporate critical characteristics required for such things as function, reliability, interchangeability, design life, safety, dismantlement and reuse.

e. Design specifications shall not be more restrictive than essential for achieving required performance with appropriate margin.

f. The design agency shall determine and set the value and tolerance for design specifications.

g. The design agency shall produce final designs that lead to successful manufacture, assembly, use, and operation.

h. Calculations, modeling, and testing shall establish the design parameters and maintain the appropriate margins by taking into account uncertainties associated with the design envelope.

i. Test equipment and instrumentation used for the development of design parameters shall be calibrated, and the precision and accuracy shall be established over the full range of use.

j. Design information that supports use and maintenance of the weapon and weapon-related product, in addition to the disposition of non-conforming materials and items, shall be developed as part of the design process and documented.

3.3.3 Design Verification

The adequacy of designs shall be verified and documented before approval and implementation.

3.3.4 Design Reviews

a. At suitable stages, design reviews shall be conducted and documented by individuals or groups not directly responsible for the work to ensure, at the time of the review, that

i.) design inputs are complete and correct;

ii.) assumptions necessary to perform the design are adequately described and valid;

iii.) applicable design standards are used;

iv.) computer programs, including mathematical models used in simulation codes, are adequately verified and validated and recorded for future retrieval;

v.) suitable materials, parts, processes, and inspection and testing criteria are specified; and

vi.) design qualification methods are adequate.

b. The design review process shall accommodate observation or subsequent review(s) by NNSA and/or independent third parties.

3.3.5 Design Qualification

The design agency shall specify when qualification is required and the qualification methods to be used to confirm that customer requirements are met. Qualification test plan(s) shall

a. be developed and documented; and

b. be used to document qualification test results and ensure that performance objectives and requirements are met.

The design agency shall

c. obtain concurrence from the using organization that specifications in design documents are complete and the detail is understood; and

d. obtain concurrence for the product design from the applicable production facilities or organization that the producibility of the design is mutually acceptable.

3.3.6 Design Documents

Design information transmitted across organization interfaces shall identify the status of information provided and incomplete items that require further evaluation, review, or approval.

3.3.7 Design Change Control and Configuration Management

a. Changes to design inputs and final designs shall

   i.) be subject to control measures (including design reviews) commensurate with the risk introduced by the change; and

   ii.) include evaluation of effects of the changes on the overall design and on analyses upon which the design is based.

b. A design configuration management process shall be established and documented and ensure that

   i.) configuration control is established early in the design process; and

   ii.) configuration control is applied to design inputs, design calculations and analyses, design qualification, and design documents.

3.3.8 Interface Control

Design interfaces shall be identified and controlled.

3.3.9 Design Records

Complete and accurate records of weapon design activities shall be maintained in accordance with NAP-24, Attachment 2, Section 3.14.

3.4 INSTRUCTIONS, PROCEDURES AND DRAWINGS

a. Work shall be prescribed by and performed in accordance with approved and controlled documented instructions, procedures, drawings, specifications, other documents, or models that include or reference appropriate acceptance criteria for determining that results have been satisfactorily attained.

b. Current instructions, procedures, drawings, specifications, other documents, and models shall be available to and used by the personnel performing the work.

3.5 DOCUMENT CONTROL

A documented process shall be established and maintained to control documents, including models and data. Documents shall be prepared, reviewed, approved, issued, used, and revised to prescribe processes, specify requirements, or establish design. The process shall ensure

a. identification of controlled documents;

b. identification of individuals responsible for the preparation, review, approval, and distribution of controlled documents;

c. review of controlled documents for adequacy, completeness, and approval prior to distribution;

d. correct documents are available;

e. documents specify an effective date; and

f. timely release, distribution, and implementation.

3.6 PROCUREMENT

Purchasers are responsible to ensure that purchased weapon and weapon-related products conform to specified purchase requirements. The procurement process shall be documented and ensure that

a. procurement documents, including contracts, contain correct requirements;

b. prospective Suppliers are evaluated and selected on the basis of specified criteria, technical capabilities and rigor of their Quality Management System (QMS);

c. procured items and services meet established requirements and perform as specified;

d. risks associated with supply chain management are evaluated and addressed; and

e. it prevents introduction of suspect/counterfeit items in accordance with Attachment 3 to DOE O 414.1D, Suspect/Counterfeit Items Prevention.

3.6.1 Supplier Evaluation, Selection, and Monitoring

a. The Purchaser shall select Suppliers on the basis of assessment of ability to supply weapon and weapon-related product in accordance with requirements, including quality requirements and technical capabilities for the product(s) and service(s) being procured.

b. Supplier evaluation and selection shall be documented.

c. Suppliers shall be monitored with regard to the effectiveness of their QMS and the quality of their weapon and weapon-related product.

d. Contractor's purchase orders or contracts shall provide for NNSA and its contractors to perform quality surveys and inspections at Supplier locations where materials or services are rendered.

3.6.2 Procurement Documentation

Procurement documents shall specify that the Supplier have an effective QMS that complies with the applicable requirements of this document. Procurement documents shall be controlled and identify

a. documentation required;

b. requirements for approval and/or qualification of weapon and weapon-related product, processes and equipment, to include supplier requirements to notify Purchaser of subsequent changes and when to obtain re-approval;

c. requirements for control of weapon and weapon-related product and equipment;

d. requirements for configuration control of customer requirements and implementing procedures;

e. requirements to notify of nonconforming weapon and weapon-related products or processes;

f. requirements for disposition of nonconforming weapon and weapon-related products;

g. flow-down requirements to Supplier's supply chain;

h. records to be submitted and/or maintained;

i. record retention and disposition requirements; and

j. requirements for purchaser's prior approval of substitutions.

3.6.3 Acceptance of Procured Items and Materials

a. Processes and controls shall

i.) be established to evaluate procured items and materials to determine conformance to applicable specifications; and

ii.) ensure malicious hardware or software are prevented from entry into the Nuclear Security Enterprise (NSE) supply chain.

b. When Supplier-provided reports are used as a basis of acceptance, the reported results shall be compared with requirements. The validity of Supplier-provided reports shall be periodically verified by the purchaser by at least one of the following methods:

i.) independent evaluation to requirements; or

ii.) independent assessment (to establish the validity of the Supplier-provided reports).

3.6.4 Acceptance of Procured Services

In cases involving procurement of services only (such as third-party inspection/testing; engineering and consulting services; assessment; and installation, repair, overhaul, or maintenance work), the Purchaser shall accept the service by any or all of the following methods:

a. technical verification of data produced;

b. surveillance and/or assessment of the activity; and/or

c. review of objective evidence for conformance to the procurement document requirements.

3.6.5 Certificate of Conformance

a. A certificate of conformance is required for weapon and weapon-related material and hardware destined for production activities. The certificate shall

i.) identify the purchased material or equipment and associated procurement document(s);

ii.) identify the specific procurement requirements met by the purchased material or equipment; and

iii.) be signed or otherwise authenticated by a person who is responsible for this function as described in the Supplier's Quality Management System.

b. Where a certificate of conformance is not available, ensure and document the method used for determining purchased material or equipment meets specification requirements for procurements.

c. The Purchaser shall establish means to verify the validity of Supplier certificates and the effectiveness of their certification process, by at least one of the following methods:

i.) independent evaluation of requirements; or

ii.) independent assessment (to establish the validity of the certificate of conformance).

3.7 IDENTIFICATION, CONTROL, AND STATUS OF ITEMS

A process shall be established and documented so that items are identified and controlled to ensure proper use and maintained to prevent damage, loss, or deterioration.

3.7.1 Identification of Items

a. Physical identification shall be used where possible. Identification markings shall

i.) be applied using materials and methods that provide a clear and legible identification;

ii.) not degrade the function or service life of the item;

iii.) be transferred to each part of an identified item when subdivided; and

iv.) not be obliterated or hidden unless other means of identification are substituted.

b. Where physical identification on the item is either impractical or insufficient, physical separation, procedural control, or other appropriate means shall be employed.

3.7.2 Control of Items

a. Markings, authorized stamps, tags, labels, routing cards, physical location, or other suitable means shall identify the status of items from the initial receipt and fabrication of items up to and including use.

b. Items shall be traceable to the applicable specification and grade of the material; heat, batch, lot, part, or serial number; or specified inspection, test, or other records.

c. The process shall provide for maintenance or replacement of markings and identification records due to damage from handling or aging, as well as protection of identifications on items subject to excessive deterioration due to environmental exposure.

3.7.3 Status of Items

a. The status of inspection and test activities shall be identified either on the items or in documents traceable to the items where it is necessary to ensure that required inspections and tests are performed.

b. Items which have not passed the required inspections and tests shall not be installed, used, or operated.

3.7.4 Tooling and Fixtures

Tooling and fixtures (e.g., dies, molds, fixtures, gages, crucibles, assembly tools, disassembly tools, handling devices) used in conjunction with weapon production, surveillance, or dismantlement shall be identified and controlled.

3.7.5 Limited-Life Materials and Components

a. Materials and components having limited calendar, operating, or cycle life shall be identified and controlled to preclude use of expired items.

b. Means for efficient recall and disposition of limited-life materials and components shall be established.

3.7.6 Materials or Items Designated for Destructive Testing

Controls shall be established for materials or items designated for destructive testing or special evaluation to ensure testing or evaluation is performed to specified requirements and to prevent inadvertent use or shipment.

3.7.7 Special Instructions and Environments

Instructions for marking and labeling items shall be established as necessary to adequately identify, maintain, and preserve the items, including an indication of the presence of special environments or the need for special controls.

3.8 CONTROL OF PROCESSES

Work shall be performed to established technical standards and administrative controls using approved instructions, procedures, or other appropriate means and shall ensure that

a. criteria for workmanship are stipulated in written standards or by means of representative standards;

b. processes are characterized, documented, and maintained under controlled conditions to minimize variability and to prevent nonconformance;

c. proposed process changes are evaluated for their potential impact on quality, producibility, and maintainability prior to incorporation;

d. when qualification is required, the design agency and production agency will jointly qualify processes (including inspection, test, and acceptance processes) and document the qualification prior to use for acceptance and production;

e. equipment used for process monitoring or data collection are calibrated and maintained in accordance with NAP-24, Attachment 2, Section 3.10; and

f. a process to formally suspend weapon work is developed and implemented for conditions significantly adverse to quality, to include establishing measurable criteria for work suspension and resumption.

3.8.1 Process Control Methods

a. When production quantities are sufficient in number, statistical methods (such as statistical process control) shall be used to ensure continuous control over production processes and to identify and continually reduce variability.

b. When production quantities are not large enough to permit the use of statistical methods, alternative control methods shall be applied, such as 100 percent test and inspection when that degree of rigor is necessary to confirm compliance to specification.

3.8.2 Special Processes

a. Special processes shall be identified and procedures, processes, and controls implemented to ensure a high level of confidence in the control of weapon and weapon-related product variability and to minimize nonconformances.

b. Special-process equipment and procedures shall be qualified and controlled.

i.) When the outcome of a special process is dependent upon the skill of the person performing the process, that person shall be certified to a written procedure.

ii.) Evidence of qualification of equipment and procedures and certification of personnel shall be maintained.

c. When available, special process codes and standards (including acceptance criteria for the process) shall be specified or referenced in procedures or instructions.

d. For special processes not covered by existing codes and standards or where quality requirements specified exceed those of existing codes or standards, the necessary requirements for qualification of personnel, procedures, or equipment shall be specified or referenced in procedures or instructions.

3.9 INSPECTION, TEST, AND ACCEPTANCE

3.9.1 Inspection and Test

a. Inspection and testing of specified items, services, and processes shall be conducted under controlled conditions using established acceptance and performance criteria.

b. Inspection and test requirements and results shall be documented.

c. Equipment used for inspections and tests shall be calibrated and maintained.

d. Measurement uncertainty requirements and capability of inspection and test processes shall be determined and documented.

e. Qualified persons, other than those who perform or directly supervise the work being inspected or tested, shall perform acceptance inspections and tests verifying weapon and weapon-related product conformance to design criteria.

f. Where independent inspections and tests are not feasible because of special requirements, the responsible organization shall develop an alternative method, document it and the basis for requesting exception, and obtain design agency approval for use.

g. Records shall be maintained to establish traceability between product and measuring and test equipment used for its test or inspection.

3.9.2 Acceptance

There shall be a documented process and procedures for contractor submittal of completed weapon and weapon-related product and for NNSA acceptance of that product to ensure that

a. the weapon and weapon-related product was manufactured to and conforms to the correct design definition;

b. the quality evidence is correct and representative of that weapon and weapon-related product;

c. when automated manufacturing processes are used as the method of acceptance, they are designed, validated, qualified, controlled, and monitored sufficiently to protect weapon and weapon-related product quality such that the completion of the automated operation may be accepted as objective evidence of conformance to requirements;

d. when fixtures, molds, and other such tooling are used as the method of acceptance, they are certified prior to release for use and controlled and recertified according to established criteria;

e. when material requires modification, repair, or replacement after weapon and weapon-related product acceptance, there is a witnessing or verification of the modification, repair, or replacement and reverification of affected characteristics prior to reacceptance; and

f. sampling plans prescribe random sampling and afford a sound statistical basis to ensure quality.

3.10 CONTROL OF MEASURING AND TEST EQUIPMENT

A standards and calibration program shall be established, documented and maintained in accordance with Supplemental Directive NA SD M 452.3-1, *Defense Programs Business Requirements and Processes Manual*, Chapter 13.2, *Metrology Program*, located at https://prp.sandia.gov/DPManual/d-p_chap13-2.pdf.

3.11 HANDLING, STORAGE, PACKAGING, AND DELIVERY

a. Handling, storage, packaging, and delivery shall be controlled to prevent damage, loss, deterioration, or substitution, and the process to control handling, storage, packaging, and delivery shall be documented.

b. Special handling tools and equipment shall be utilized and controlled, where necessary, to ensure safe and adequate handling.

c. Special handling tools and equipment shall be inspected and tested according to established criteria to ensure performance.

3.11.1 Government-Furnished Material

Material shipped from one contractor's responsibility to another will be provided as Government-Furnished Material and shall be inspected by the receiving contractor for quantity, completeness, proper type, and shipping and handling damage.

3.11.2 NNSA-Accepted Material

a. NNSA-accepted material shall be under NNSA management control.

b. NNSA shall be notified when accepted material is issued from stores for purposes different from the original intent.

c. NNSA shall also be notified when accepted material is issued to perform additional evaluation, inspection, or rework.

d. The design agency shall describe the need to perform additional evaluation, inspection, or rework of the material and the methods that will be used for processing.

e. Special handling, storage, processing, or evaluation of NNSA-accepted material, including work specified in a Design Agency Special Instruction Engineering Release (SIER), shall be approved by NNSA prior to performance.

3.12 NONCONFORMANCE

A documented process shall be established, which prescribes the actions (identify, investigate, correct and disposition) to address potential and actual nonconforming conditions and shall

a. ensure that when a potential or actual nonconformance is identified, the discrepancy is evaluated and appropriate action is taken;

b. define the qualification of personnel authorized to disposition nonconformances;

c. require personnel performing evaluations for determining disposition of a nonconformance, to have demonstrated competence in the specific area they are evaluating;

d. require personnel performing evaluations to have adequate understanding of the requirements; and

e. require personnel performing evaluations to have access to pertinent background information.

3.12.1 Nonconforming Item Control

a. Establish a process to ensure that weapon and weapon-related products that do not conform to requirements are prevented from use or shipment.

b. Control of nonconforming items shall provide for the identification, documentation, evaluation, preservation, segregation, and disposition of the item, as well as notification to the organization(s) concerned.

c. Nonconforming items shall be identified by legible marking, tagging, or other methods on the item or on the container or package containing the item.

d. Marking shall be durable and not detrimental to the material.

e. Nonconforming items shall be segregated, when practical, by placing them in a clearly identified and designated hold area until properly dispositioned.

f. When segregation is impractical or impossible due to physical conditions such as size, weight, access or other limitations, other precautions shall be employed to preclude inadvertent use of a nonconforming item.

3.12.2 Nonconforming Item Disposition

a. Promptly identify, correct and disposition any nonconforming items.

b. Responsibility for review and the authority for disposition of nonconforming items shall be defined and documented.

c. A disposition (such as “use as is,” reject, repair, or rework) of nonconforming items shall be made and documented.

d. NNSA shall be notified when a nonconforming condition involving Government-Furnished Material is suspected or discovered.

e. NNSA shall report the information regarding the suspect or nonconforming condition to the contractor that supplied the material.

f. Disposition of nonconforming conditions involving Government-Furnished Material shall be the responsibility of the design agency.

g. Nonconforming items may be authorized for “use as is” by the design agency.

h. Repair, rework, or evaluation of nonconforming items shall be performed in accordance with documented procedures approved by the design agency.

i. The technical justification for the acceptability of a nonconforming item dispositioned as repair or “use as is” shall be documented.

j. “Use as is” or repair dispositions shall be subject to design control measures commensurate with those applied to the original design.

k. As-built records shall reflect the “use as is” or repair condition.

l. Repaired items shall be reexamined in accordance with applicable procedures and with the original acceptance criteria unless the design agency has established alternative acceptance criteria.

m. When nonconforming items are identified, an evaluation shall be performed to determine if any other previously produced item is also nonconforming and is properly dispositioned.

3.13 CORRECTIVE ACTION

a. A process shall be established and documented for corrective action. The process shall

i.) identify and categorize conditions adverse to quality (including criteria for determining significant conditions adverse to quality);

ii.) track, trend, and report conditions adverse to quality;

iii.) apply compensatory measures, and for significant conditions adverse to quality, compensatory measures are in place prior to continuing work;

iv.) perform causal analysis of a significant condition adverse to quality to determine if the condition is incidental or systemic;

v.) develop and implement corrective action to prevent recurrence;

vi.) verify that the corrective action prevents a recurrence of the condition adverse to quality;

vii.) capture and communicate lessons learned for effective use in preventing problems and making improvements;

viii.) identify if a corrective action effectiveness review is needed; and

ix.) for those identified, review the effectiveness of corrective actions taken.

b. Senior management shall take appropriate action to determine the cause(s) and correct the systemic failures.

3.14 RECORDS

a. A process shall be established and documented for records management and shall comply with DOE O 243.1A, Records Management Program. Records may be originals, copies, or electronic.

b. The process shall include the identification, collection, organization, filing, storage, maintenance, retrieval, distribution, retention, and disposition of records.

c. Records shall be

i.) specified, prepared, reviewed, approved, and maintained to demonstrate achievement of quality requirements and an effective WQMS;

ii.) stored such that they are retrievable and in a suitable environment to minimize deterioration or damage and to prevent loss;

iii.) maintained to furnish objective evidence that items or activities meet specified requirements;

iv.) identifiable as a record;

v.) completely and accurately reflect the work accomplished or information required;

vi.) legible;

vii.) traceable to associated requirements, items, and activities; and

viii.) authenticated and dated by authorized personnel.

d. Acceptable methods of authentication include statements of authenticity, handwritten signatures, electronic signatures, or other means that ensure traceability to a specific authenticating individual and organization and to an authentication date.

3.15 ASSESSMENTS

Processes for management assessments and independent assessments shall be established and documented to

a. plan and conduct assessments;

b. evaluate item and service quality;

c. evaluate the adequacy of work performance;

d. promote improvement;

e. verify the adequacy of flow-down of NAP-24 requirements to their implementing procedures; and

f. report organizational performance to WQAP requirements.

3.15.1 Management Assessments

a. Managers shall assess their management processes by performing management assessments.

b. Management responsible for the area assessed shall ensure that corrective actions are taken to correct and eliminate nonconformances and their causes.

3.15.2 Independent Assessments

Personnel performing independent assessments shall have sufficient authority and freedom from the line organization to carry out their responsibilities.

3.15.3 Assessor Qualification

Personnel conducting assessments shall be technically qualified and knowledgeable in the areas assessed.

3.15.4 Scheduling

a. Risk shall be used as a basis for scheduling management and independent assessments.

b. The management and independent assessment schedules and associated risk bases shall be documented.

3.15.5 Planning

a. Management and independent assessment plans shall be established and documented.

b. The plans shall identify the objectives, scope, approach, and performance criteria to be used.

3.15.6 Performance

a. Management and independent assessments shall compare actual performance with performance criteria.

b. Objective evidence shall be examined to the depth necessary to determine if requirements and criteria are being met.

c. Conditions requiring prompt corrective action shall be reported immediately to management of the assessed organization.

3.15.7 Reporting

Management and independent assessment reports shall be sent to the responsible management.

3.16 SOFTWARE QUALITY ASSURANCE

a. A Software Quality Assurance (SQA) process shall be established to provide assurance that software will satisfy customer requirements for software that is purchased, developed under contract, or developed by NNSA or its contractors.

b. The SQA process shall address applicable elements of NAP-24.

c. Software that is both safety and weapon related shall also meet the requirements of Attachment 4 of DOE O 414.1D, *Safety Software Quality Assurance Requirements for Nuclear Facilities*.

d. SQA activities shall be commensurate with the complexity and the risk associated with failure of the software to meet established requirements.

e. A documented risk-based approach shall be used to balance cost, risk and program flexibility.

f. The SQA process shall use a software life-cycle management methodology based upon a consensus SQA standard or an equivalently rigorous contractor-specific standard that addresses software development from beginning to end and the flow of activities and iterations for the software life cycle.

g. Requirements shall be identified, testable, and controlled.

h. Software configuration management shall ensure

i.) a software baseline is established no later than the completion of the software validation process; and

ii.) changes subsequent to the baseline are traceable to software requirements, approved, documented, and added to the baseline so that the baseline defines the most recently approved software configuration.

i. Software verification and validation activities shall be controlled, documented, and demonstrate that requirements are met.

4.0 RESPONSIBILITIES

4.1 NNSA ADMINISTRATOR

The NNSA Administrator (NA-1) shall promote quality principles and support resources needed for an effective WQMS.

4.2 DEPUTY ADMINISTRATORS AND CONTRACTOR MANAGERS

Deputy Administrators and Contractor Managers shall

a. actively participate in the WQMS development, implementation and improvement; and

b. review the organization’s WQMS at planned intervals to ensure its continuing adequacy and effectiveness.

4.3 NA-10, OFFICE OF DEFENSE PROGRAMS, ASSISTANT DEPUTY ADMINISTRATORS

The Assistant Deputy Administrators shall

a. identify the senior management position specifically assigned responsibility for developing and maintaining the WQAP;

b. review and approve their WQAPs;

c. review and address annual management assessment results, continuous improvement initiatives and WQMS and weapon activity metrics and provide upon request to HQ WQD; and

d. take appropriate action to determine the cause(s) of recurring nonconformances and correct the systemic problem.

4.4 NA-121.3, WEAPON QUALITY DIVISION

The HQ WQD shall

a. maintain and issue NAP-24, Weapon Quality Policy and revisions;

b. resolve situations where other requirements conflict with NAP-24 requirements;

c. resolve requests for exemption from a NAP- 24 requirement; and

d. evaluate the effectiveness of the NNSA WQMS through the conduct of assessments, the results of management assessments performed by NSE management organizations, NSE-wide metrics and nonconformances.

4.5 CONTRACTING OFFICERS

The NNSA Contracting Officers (CO) shall

a. include NAP-24 in applicable NNSA procurements and contract documents;

b. apply the provisions of NAP-24 to awards having applicable work scope; and

c. accept weapon product on behalf of NNSA or formally delegate to an NNSA official.

4.6 NA-00-LL/KC/SV/NS/SN/LA/NPO, FIELD/PRODUCTION OFFICE MANAGERS

The Field/Production Office Managers shall

a. identify the senior management position specifically assigned responsibility for developing and maintaining the WQAP, submitting the WQAP and implementing the WQAP;

b. review and approve Field/Production Office and Contractor WQAPs;

c. perform independent assessments of their Contractor(s) to evaluate the adequacy of WQAP implementation, and weapon activity work performance and submit the assessment report to the assessed Contractor and HQ WQD; and

d. maintain annual management assessment results, continuous improvement initiatives, and WQMS and weapon activity metrics for the Field/Production Office and its Contractor(s) and provide on request to HQ WQD.

4.7 CONTRACTORS

Contractors shall

a. implement and convey requirements of NAP-24 to their various organizations and subcontractors;

b. formally submit weapon and weapon-related products per the direction of their Field/Production Office;

c. be responsible for the quality of material procured or produced and for performing corrective actions if later evaluations reveal defective material (even after NNSA product acceptance); and

d. maintain annual management assessment results, continuous improvement initiatives, and WQMS and weapon activity metrics and provide on request to their Field/Production Office.