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Manager, National Spent Nuclear Fuel Program

Introduction

This Quality Assurance Program Plan (QAPP) describes the National Spent Nuclear Fuel Program (NSNFP) quality assurance (QA) policy, the NSNFP organizational structure, the internal and external interfaces of the NSNFP, the general QA program principles applicable to the scope of the NSNFP mission, and the roles and responsibilities of NSNFP functional positions.

The NSNFP adopts applicable requirements from the Office of Civilian Radioactive Waste Management (OCRWM) DOE/RW-0333P, *Quality Assurance Requirements and Description*, (QARD) for NSNFP activities, including engineering and design-related activities intended to guide the development of a path forward for successful disposition of U.S. Department of Energy (DOE) spent nuclear fuel (SNF). Work performed by the NSNFP that may be used by OCRWM to develop design requirements and to demonstrate DOE SNF compliance with repository acceptance requirements will be suitably controlled for its intended use.

This NSNFP QAPP and the NSNFP QARD Requirements Matrix have been developed to communicate the selection of requirements applicable to the objectives and mission set forth in the NSNFP Program Management Plan (DOE/SNF/PP-033).

Attachment A, Organization Diagram, demonstrates the internal and external organizational interfaces of the NSNFP.

Attachment B, Roles and Responsibilities, provides a description of the roles and responsibilities of the functional positions within the NSNFP.

Quality Assurance Policy

The policy of the NSNFP is to institute, implement, and maintain an effective QA program in all aspects of its work that may affect the safety and protection of workers, the public, and the environment. The NSNFP QA Program has been developed with these objectives and to ensure compliance with DOE/RW-0333P, OCRWM QARD. It is the responsibility of the NSNFP personnel to comply with NSNFP QA Program implementing documents.

External Interfaces

The NSNFP interfaces with OCRWM and the DOE SNF sites for technical matters. The OCRWM Office of Quality Assurance (OQA) has accepted the NSNFP QA Program.

NSNFP Organization—General Description

As indicated in Attachment A, the NSNFP is composed of three interfacing organizations. The organizations are the DOE NSNFP Program Management Organization, the Program Support Organization (PSO), and the Quality Assurance Staff (QAS). These organizations perform activities in accordance with this NSNFP QAPP and the implementing procedures represented by the NSNFP QARD Requirements Matrix (DOE/SNF/MTX-001).

Staffed by contractor personnel, the PSO and the QAS perform delegated activities that are overseen by the DOE NSNFP Management Organization. QA program roles and responsibilities assigned to the PSO and QAS are consistent with the anticipated work scope of those organizations.

DOE NSNFP Program Management Organization

The DOE NSNFP Program Management Organization is composed of the Manager, NSNFP and others within DOE Idaho Operations Office (DOE-ID) as may be delegated by the Manager, NSNFP.

The Manager NSNFP provides overall program management in coordination with a designated representative of DOE EM and the DOE-ID Manager. The Manager NSNFP is responsible for work delegated within the NSNFP.

The Manager NSNFP coordinates with the QA function within DOE-ID to periodically assess the performance of the NSNFP including the implementation of the QA program. This assessment activity is at the discretion of the Manager NSNFP and does not replace the annual QA program audits, quality program management assessments, and periodic QA surveillances required by the QARD.

The NSNFP, Program Support Organization (PSO)

Led by the PSO Manager, the PSO within the NSNFP is directly responsible for performing technical work and administrative tasks in support of the Manager, NSNFP.

The PSO Structure

As indicated in Attachment A, the PSO is composed of a technical support function interfaced with various internal support staff functions ultimately reporting to a single manager who is responsible for work delegated within the PSO. The functions interact through technical leads to perform activities in accordance with the NSNFP implementing documents in support of the Manager, NSNFP.

The PSO provides facilities, resources, and supporting processes for training coordination, document control, records management, administrative support, communications, and project management for the NSNFP.

The NSNFP, Quality Assurance Staff Organization

Led by the NSNFP Quality Assurance Staff Manager (QASM), the NSNFP QAS organization provides support to the Manager NSNFP for required QA program oversight activities, quality engineering activities, and coordination with external interfaces for QA program-related matters.

The NSNFP QAS Organizational Structure

NSNFP QASM

The NSNFP QASM has responsibility for coordinating the development, implementation, and maintenance of the NSNFP QA Program.

The NSNFP QASM interfaces with the OCRWM OQA to obtain clarification and interpretation of OCRWM QA requirements, resolves QA program issues relative to OCRWM requirements, and provides final interpretation of OCRWM QA requirements within the NSNFP.

The NSNFP QASM is responsible for coordinating the reviews of the NSNFP QARD Requirements Matrix with OCRWM OQA and providing subsequent updates of the matrix to OCRWM OQA.

Within the NSNFP, the NSNFP QASM responsibility and authority is consistent with the OCRWM-QARD requirements. The QASM shall:

- Be at the same or higher level as the highest equivalent manager directly responsible for performing work subject to the QARD.
- Be sufficiently independent from cost and schedule considerations.
- Have the organizational freedom to effectively communicate with other senior management positions.
- Be responsible for interpreting and approving QA program requirements.
- Have no other assigned responsibilities unrelated to the QA program that would prevent full attention to QA matters.
- Be responsible for identifying quality problems; initiating, recommending, or providing solutions to quality problems; and verifying solutions to quality problems.
- Be responsible for verifying the proper establishment and execution of the QA program.
- Have authority to stop work when significant conditions adverse to quality warrant such action.

As necessary, the NSNFP QASM elevates quality disputes or stop work recommendations progressively to successively higher levels of management within NSNFP including the Manager NSNFP.

As indicated in Attachment A, the QAS organization is composed of an assessment function and a quality engineering function reporting to the QASM. The functions interact with the NSNFP QASM to perform activities in accordance with the NSNFP QA Program documents in support of the NSNFP. NSNFP QAS provides dedicated quality engineering resources to the PSO. The assessment function interfaces with the NSNFP technical activities.

The PSO quality engineers (QEs) are assigned by the NSNFP QASM and provide a quality engineering function that is integrated with the PSO processes. To resolve QA issues, the PSO QE has a reporting relationship to the QASM.

QA Program Plan

To accomplish the mission of the NSNFP, the following general principles of the QARD apply and are implemented by the NSNFP. The NSNFP QARD Requirements Matrix provides a definitive road map from each applicable QARD section to the NSNFP QA Program implementing documents.

QA Program Documents

The NSNFP provides a NSNFP QARD Requirements Matrix and updates to the OCRWM.

As demonstrated by the NSNFP QARD Requirements Matrix, the NSNFP develops and implements procedures responsive to the requirements of the QARD for NSNFP functions. The Manager, NSNFP approves the matrix for the NSNFP.

The NSNFP organizations and implementing procedures shall be structured such that quality is achieved and maintained by those who have been assigned responsibility for performing work. Persons not directly responsible for performing the work verify quality achievement.

NSNFP QA Program documents are contained in the NSNFP Documents Manual. Figure 1 illustrates the hierarchy of the NSNFP Program Documents that implement program requirements from the depicted upper tier documents.

Work Planning

The Manager, NSNFP approves budgeted work scope. The PSO further plans the approved work scope in accordance with established procedures that integrate the technical work with the required work controls to implement the QARD. The planning is based on a written evaluation to determine the appropriate work controls when considering the end use of the product.

Training and Personnel Qualification

Training and Personnel Qualification shall be performed in accordance with established procedures. The PSO provides resources for coordination of training activities for the NSNFP.

The NSNFP QAS provides auditor and lead auditor training and qualification processes for the NSNFP.

Personnel experience requirements are established, and methods to verify personnel experience are prescribed by NSNFP procedures.

QA Program Information Management

The NSNFP QASM reports the status, adequacy, and compliance aspects of the NSNFP QA Program to the Manager, NSNFP and the PSO Manager, and as applicable to OCRWM and EM representatives.

Design Interface

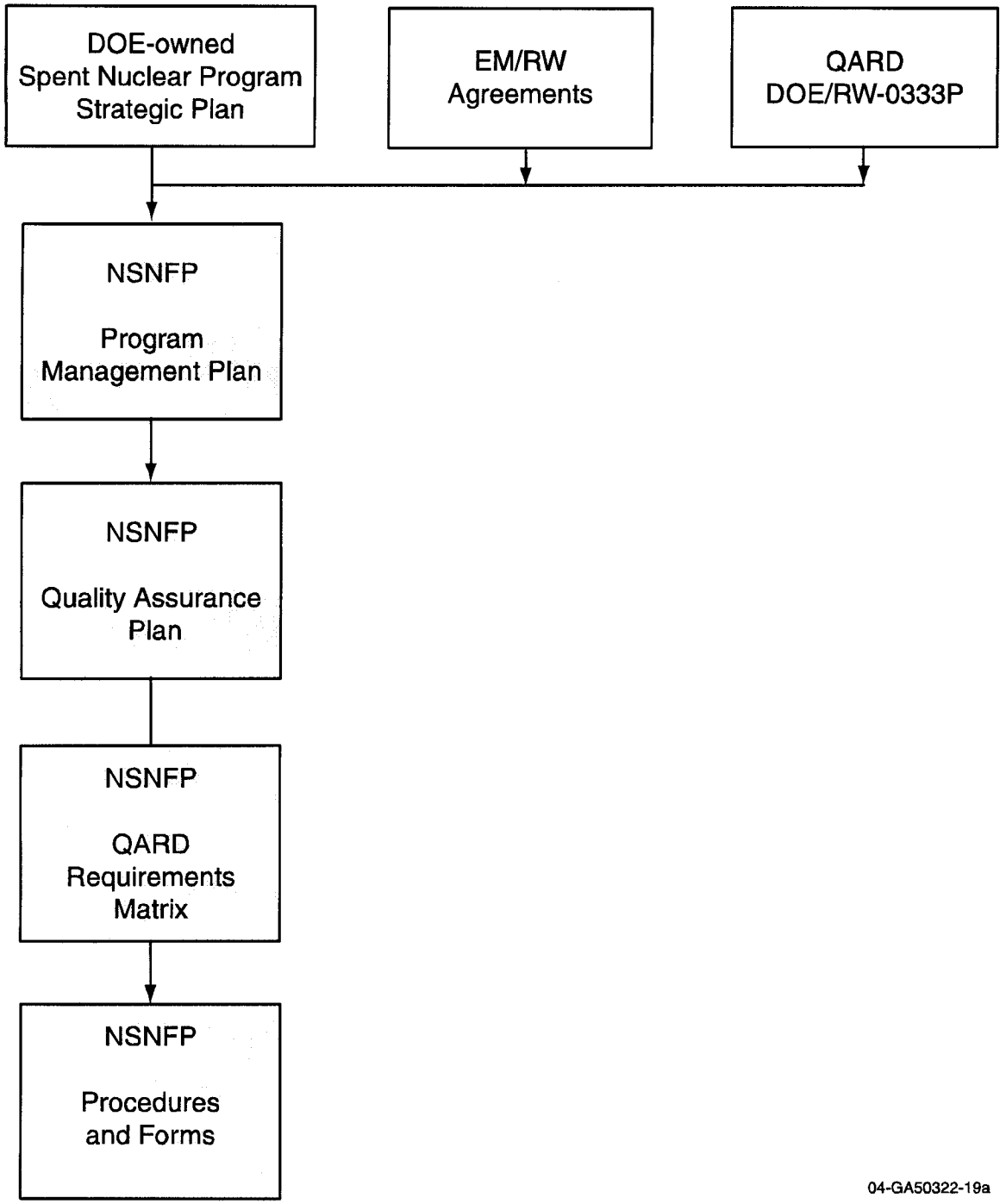
Implementing procedures control the development of conceptual designs, the preparation of performance specifications, interfaces between the NSNFP and OCRWM design authority, and the NSNFP interface with designated design agents. OCRWM or the designated design agent manages design inputs in the form of technical information from NSNFP. The design authority ultimately determines suitability of the design inputs for use.

Managing Procurement Activities

The PSO manages the day-to-day activities associated with procurement of services from government sector suppliers. The NSNFP QASM performs audits/surveillance of government sector suppliers and the qualified procurement services used by NSNFP.

The PSO interfaces with a qualified procurement service for procurement of services and items from private sector suppliers. The qualified procurement service provides audits/surveillance of the private sector suppliers that are periodically observed by NSNFP QAS.

The NSNFP procedures require flow down of requirements to suppliers that are consistent with the QARD for the proposed scope of work.



*NSNFP Documents Manual general content (in shaded areas).

Figure 1. National Spent Nuclear Fuel Program document hierarchy.

Development and Control of Implementing Documents

Written processes establish criteria for implementing documents and control of documents that specify technical requirements or quality requirements. Work shall be performed in accordance with controlled implementing documents. When work cannot be accomplished as described in the implementing document or accomplishment of such work would result in an undesirable condition, the work shall be stopped. Work shall not resume until the implementing document is formally changed in accordance with NSNFP document control processes to reflect the correct work practices.

Test Control

Processes for test control are developed, maintained, and implemented by the NSNFP or suppliers to NSNFP.

Corrective Action

Methods to ensure prompt identification and correction of conditions adverse to quality are established. Conditions adverse to quality are documented and reported to appropriate levels of management. Conditions adverse to quality are evaluated for significance against established criteria, tracked, trended, and followed to closure. Significant conditions adverse to quality are evaluated for stop work.

Quality Records Management

Quality records resulting from the performance of NSNFP procedures are captured and protected until turnover to designated recipients.

Assessments/Audits

The NSNFP QAS performs assessments of NSNFP activities including internal surveillances and audits required by the QARD.

The NSNFP QASM performs audits and surveillances of government sector suppliers and approved procurement services for private sector procurements.

OCRWM performs or causes the performance of audits, surveillances, and QA Management Assessments (QAMAs) of the NSNFP.

Through agreements with OCRWM, DOE EM may perform audits or surveillances of the NSNFP.

At the option of the Manager, NSNFP, manager-sponsored assessments of NSNFP are conducted that are in addition to but not a replacement for internal audits and surveillances performed to comply with the QARD.

Software Control

Processes for software control are developed, maintained, and implemented by the PSO.

Scientific Investigation

Processes to obtain appropriate scientific investigations are developed, maintained, and implemented by the PSO.

Control of the Electronic Management of Data

Formal processes for control of the electronic management of data are developed, maintained, and implemented by the NSNFP.

Storage and Transportation

The communication or translation of repository criteria for SNF storage and transportation systems is performed in accordance with established NSNFP procedures responsive to the QARD.

Glossary

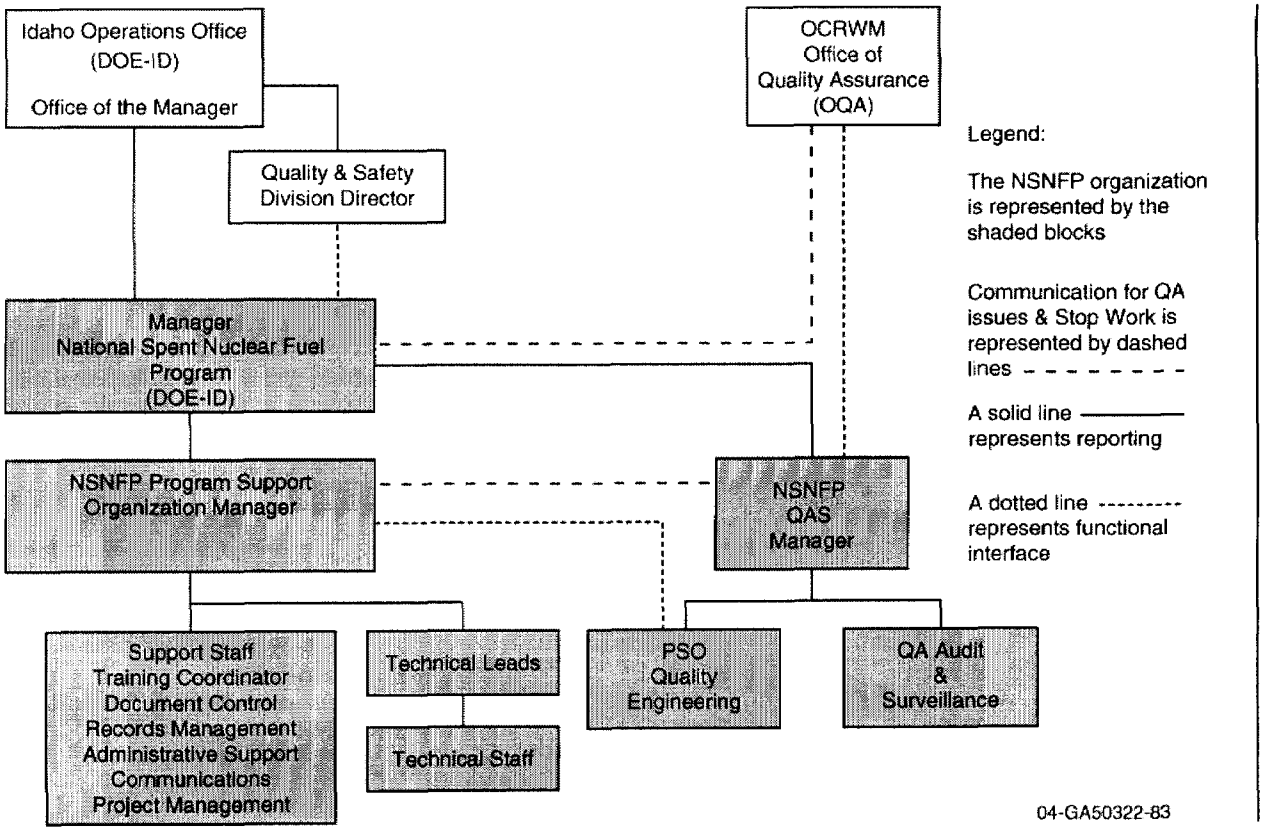
The NSNFP uses the QARD glossary of terms to establish a NSNFP Glossary. The NSNFP glossary incorporates QARD glossary of terms that are applicable to the NSNFP work scope and the QARD sections implemented by NSNFP. Additional terms unique to NSNFP are included in the NSNFP glossary.

Reference

DOE/RW-0333P, Office of Civilian Radioactive Waste Management (OCRWM) Quality Assurance Requirements and Description (QARD).

Attachment A

Organization Diagram



Attachment B

Roles and Responsibilities

The Manager, NSNFP

1. Interfaces with the Manager, U.S. Department of Energy (DOE) Idaho Operations Office (DOE-ID), DOE Environmental Management (EM), and DOE Office of Radioactive Waste Management (OCRWM) for overall policy and direction.

2. Approves the National Spent Nuclear Fuel Program (NSNFP) Quality Assurance Program Plan (QAPP) and the Program Management Plan including:

   - The management and structure of the NSNFP organization

   - The NSNFP Quality Assurance (QA) Program Policy directing mandatory compliance with the NSNFP QA Program.

3. Establishes and maintains an organizational structure to implement the NSNFP QA Program described by the QAPP.

4. Establishes the responsibilities and authorities of the NSNFP organizations and management.

5. Ensures a QA organization for program assessments is established and maintained and is sufficiently independent from cost and schedule.

6. Directs the preparation of controlled QA program implementing documents for acceptance by the OCRWM Office of Quality Assurance (OQA). The documents describe the internal and external organizational interfaces, organizational structures, requirements, and responsibilities.

7. Assigns NSNFP technical work tasks to the Program Support Organization (PSO) through approved budget documents.

8. Periodically monitors assignments made to the NSNFP Quality Assurance Staff Manager (QASM) to ensure that the QASM has no other assigned responsibilities that would prevent full attention to QA matters.

9. Establishes methods to escalate differences of opinion involving the NSNFP QA Program through the NSNFP management chain to obtain resolution.

10. Participates in the development and approval of memorandums of agreement between the DOE EM Program and OCRWM.

11. Approves NSNFP procedures.

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The PSO Manager

By direct action or through assignments to the PSO staff, the PSO Manager provides support to the Manager, NSNFP for implementing the QA program by:

1. Assisting in the establishment and maintenance of the NSNFP QAPP.
2. Creating NSNFP QA Program documents including procedure drafts and provides support for processing those documents for approval and use by the NSNFP.
3. Creating procedures with integrated QE functions.
4. Establishing processes for training coordination, document control, and records management for use by the NSNFP, and staffing those functions.
5. Determining training and qualification needs of the PSO staff.
6. Adhering to and requiring all PSO staff to adhere to the NSNFP Program Policy directing mandatory compliance with the NSNFP QA Program.
7. Establishing the internal responsibilities and authorities of the PSO staff.
8. Assigning NSNFP technical work tasks to PSO technical leads.
9. Approving procurement requisitions for items and services from the private sector that are within the PSO scope established by budget baseline documents.
10. Generating responses to deficiencies identified during independent assessments in accordance with approved processes.
11. Supporting the performance of assessments in accordance with NSNFP procedures.
12. Interfacing with the PSO QE, NSNFP QASM, or the Manager, NSNFP to resolve QA issues.

Delegation of Internal PSO Work

As represented by the Work Breakdown Structure (WBS) within the NSNFP Program Management Plan, support tasks that contribute to the objectives of the NSNFP are grouped by control accounts. The PSO Manager assigns a group of tasks to a PSO technical lead, who in turn delegates individual tasks to PSO staff members. The PSO technical staff interfaces with PSO support staff to perform the technical work in accordance with approved NSNFP procedures.

The PSO Technical Lead

1. Provides guidance and direction to PSO staff for assigned tasks.
2. Participates in document reviews as stipulated by NSNFP procedures.

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3. Performs work in accordance with NSNFP procedures.

4. Oversees development and maintenance of NSNFP Work Planning/Quality Program Applicability Evaluations for the group of assigned tasks.

5. Approves NSNFP-generated Task Management Agreements associated with the group of assigned tasks.

6. Approves NSNFP-generated technical documents associated with the group of assigned tasks.

7. Coordinates annual performance evaluations of active suppliers.

The PSO Technical Staff

1. Performs work in accordance with NSNFP procedures.

2. Prepares draft documents in accordance with NSNFP procedures and interfaces with the PSO support staff and PSO Manager or the appropriate technical lead to issue approved documents.

3. Participates in formal reviews of documents prepared by others.

4. Prepares Task Management Agreements associated with assigned tasks.

5. Prepares procurement requisitions for items and services from the private sector that are within the scope of the assigned task.

6. Interfaces with the approved procurement service to facilitate or perform actions within the NSNFP-approved processes established by the procurement service.

7. Provides day-to-day internal and external coordination for NSNFP/supplier interactions and formal communication to suppliers supporting assigned tasks.

8. Participates in the initial acceptance of suppliers to the NSNFP and annual supplier performance reviews of each active supplier associated with assigned tasks.

9. Accepts the products of suppliers on behalf of the PSO based on internal PSO reviews.

10. Prepares and submits records stipulated by NSNFP procedures.

The PSO Quality Engineer (QE)

1. Participates in the establishment of procedures and processes.

Attachment B

2. Assists in the generation of responses to deficiencies identified during independent assessments in accordance with processes established or approved by the NSNFP and as, applicable, implements the approved responses.

3. Plans and performs assessments as assigned by the NSNFP QASM in accordance with NSNFP procedures when independent of the activity being assessed.

4. Interfaces with the PSO staff, PSO Manager, or QASM to resolve QA issues.

5. Provides guidance to the PSO staff for QA Program implementation and seeks interpretations from the NSNFP QASM as necessary to support the PSO.

6. Participates in document reviews as stipulated by NSNFP procedures.

7. Performs work in accordance with NSNFP procedures.

8. Participates in the development and maintenance of NSNFP Work Planning/Quality Program Applicability Evaluations.

9. Reviews NSNFP-generated task management agreements.

10. Reviews NSNFP-generated technical documents.

11. Participates in annual performance evaluations of active suppliers.

12. Prepares draft implementing documents in accordance with NSNFP procedures and interfaces with the PSO support staff and PSO Manager during document development.

13. Interfaces with the approved procurement service to facilitate or perform QE-related actions within the NSNFP-approved processes established by the procurement service.

14. Coordinates with NSNFP QAS during the initial acceptance of NSNFP suppliers and annual supplier performance reviews of each active supplier.

15. Participates in reviews for acceptance of the products from suppliers as stipulated by NSNFP procedures.

16. Prepares QA records or reviews QA records prepared by others.

Attachment B

The PSO Support Staff

NSNFP Training Coordinator

1. Performs work in accordance with NSNFP procedures.
2. Interfaces with the Manager, NSNFP; the NSNFP QASM; and the PSO Manager to establish training and qualification needs for their respective staffs.
3. Facilitates verification of experience for NSNFP personnel and NSNFP staff augmentation personnel.
4. Tracks training and qualification status and reports delinquencies or omissions to the respective managers.
5. Interfaces with document preparers/requesters to confirm applicable training has been accomplished prior to entering a document into the review cycle.
6. Interfaces with NSNFP personnel to confirm applicable training requirements are met prior to releasing a new or revised document or adding personnel to existing distribution lists.

NSNFP Document Control Coordinator

1. Performs work in accordance with NSNFP procedures.
2. Interfaces with the Manager, NSNFP; the NSNFP QASM; and the PSO Manager and their staffs to establish controlled document distribution for their respective documents.
3. Prepares tables of content for the NSNFP Documents Manual.
4. Coordinates placement of NSNFP documents on NSNFP websites and makes hard copy distribution of selected documents.
5. Controls document numbering to provide a unique numbering scheme for NSNFP documents.
6. Provides records management support to the NSNFP in accordance with procedures.
7. Safeguards NSNFP records and supports records turnover to others as authorized by the Manager, NSNFP.
8. Enforces limits and controls for access to NSNFP records.
9. Maintains a NSNFP file guide list for NSNFP records including QA records and makes the list available to NSNFP personnel.

Attachment B

The QAS Manager

1. Participates in the development of the NSNFP QA program implementing documents including the NSNFP QAPP, the NSNFP QARD Requirements Matrix, and NSNFP procedures.

2. Adheres to and requires all QAS personnel to adhere to the NSNFP policy directing mandatory compliance with the NSNFP QA Program

3. Freely communicates with senior management positions within the NSNFP.

4. Determines training and qualification needs of QAS personnel and provides confirmation that the needs have been met.

5. Provides QA program assessments (Internal Audits and Surveillances).

6. Establishes internal controls and external interfaces for QA program oversight.

7. Assigns tasks to the NSNFP Quality Assurance Staff (QAS) and monitors the NSNFP QAS for performance to baseline documents.

8. Maintains a process to evaluate significant conditions adverse to quality and administer stop work actions if required.

9. Interfaces with PSO QE, the PSO Manager, and the Manager, NSNFP as applicable to resolve QA issues.

10. Assists in the generation of responses to deficiencies identified during independent assessments in accordance with established processes and, as applicable, implementing the approved responses.

11. Provides guidance to the QAS Organization for QA Program implementation and seeks interpretations from OCRWM OQA as necessary to support the NSNFP.

12. Participates in document reviews as stipulated by NSNFP procedures.

13. Performs designated action steps within NSNFP procedures.

14. Provides resources, procedures, and processes for qualification of audit personnel, conduct of audits and surveillances, corrective action tracking and trending, and QA information management for the NSNFP.

15. Provides guidance and direction to NSNFP PSO QE.

Attachment B

NSNFP QAS Personnel

1. Perform assigned work in accordance with NSNFP procedures.
2. Provide draft procedures and processes for approval.
3. Adhere to the NSNFP policy directing mandatory compliance with the NSNFP QA Program.
4. Generate responses to deficiencies identified during independent assessments in accordance with approved processes and implements the approved responses.
5. Interface with PSO QE, the PSO Manager, and the Manager, NSNFP as applicable to resolve QA issues.
6. Participate in assigned document reviews.
7. Prepare QA records or review QA records prepared by others.
8. Perform assigned audits and surveillances.
9. Perform administrative functions related to the corrective action process in accordance with NSNFP procedures.