



YANKEE ATOMIC ELECTRIC COMPANY

49 Yankee Road, Rowe, Massachusetts 01367

October 2, 2019

BYR 2019-020

10 CFR 50.71(e)(4) and 10 CFR 71.106

10 CFR 50.4 and 10 CFR 71.1

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-001

Yankee Atomic Electric Company
Yankee Nuclear Power Station Independent Spent Fuel Storage Installation
NRC License No. DPR-3 (NRC Docket No. 50-029 and 71-0068)

Subject: Biennial Update of the YAEC Quality Assurance Program for the Yankee
Rowe ISFSI

Pursuant to the requirements of 10 CFR 50.71(e)(4), 10 CFR 71.106, 10 CFR 50.4, and 10 CFR 71.1, Yankee Atomic Electric Company (YAEC) provides the following update regarding the YAEC Quality Assurance Program (QAP) for the Yankee Rowe Independent Spent Fuel Store Installation (ISFSI).

Enclosure 1 contains Revision 39 of the YAEC Yankee QAP for the Yankee Rowe ISFSI. Enclosure 2 provides a summary of the changes implemented in Revision 39.

The changes contained in this revision either did not reduce commitments in the QAP previously accepted by the NRC or were previously approved by the NRC with an associated NRC issued Safety Evaluation Report (SER) describing the approval and alternatives. The information contained in Enclosure 1 and 2 accurately reflects the changes made to the YAEC QAP for the Yankee Rowe ISFSI, since the last biennial update was submitted on October 5, 2017 (Reference 1).

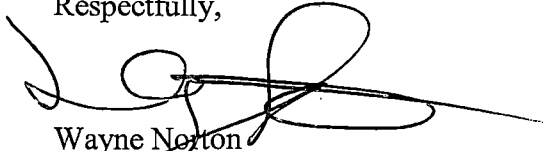
This letter contains no commitments.

Should you require additional information please contact Mr. Bryan Lovin at 413-424-5261, Extension 303.

NMSSD1
Q004
NMSS

I state under penalty of perjury that the foregoing is true and correct. Executed on
October 2, 2019.

Respectfully,



Wayne Norton
YAEC President and CEO

Reference:

- 1) Letter from W. Norton (YAEC) to Document Control Desk (NRC), Biennial Update of the YAEC Quality Assurance Program for the Yankee Rowe ISFSI, dated October 5, 2017 (BYR 2017-026).

Enclosures:

- 1) Revision 39 to the YAEC QAP for the Yankee Rowe ISFSI
- 2) Summary of Changes to YAEC QAP for the Yankee Rowe ISFSI Implemented in Revision 39

cc: J. Nguyen, Project Manager, NRC Headquarters
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ENCLOSURE 1

REVISION 39 TO THE YAEC QAP FOR THE YANKEE ROWE ISFSI

Yankee Atomic Electric Company

Quality Assurance Program

For The

Yankee Rowe ISFSI

Revision 39

Prepared By: Joseph Bourassa Date: 9/5/19

Approved By: Joseph Bourassa Date: 9/5/19

Approved By: Bye Lee Date: 9/25/19

QUALITY ASSURANCE PROGRAM FOR THE YANKEE ROWE ISFSI

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QUALITY ASSURANCE PROGRAM FOR THE YANKEE ROWE ISFSI

A. MANAGEMENT

1. Methodology

- a. The Quality Assurance Program (QAP) provides a consolidated overview of the quality program controls that govern the operation and maintenance of the Yankee Rowe Independent Spent Fuel Storage Installation (ISFSI). The QAP describes the quality assurance organizational structure, functional responsibilities, levels of authority and interfaces.
- b. The requirements and commitments contained in the QAP are mandatory and must be implemented, enforced, and adhered to by all individuals and organizations. Employees are encouraged to actively participate in the continued development of the QAP as well as its implementation. Changes should be promptly communicated when identified.
- c. The QAP applies to all activities associated with structures, systems, and components (SSCs) which are Important to Safety (10 CFR 72). The QAP also applies to transportation packages licensed by the NRC under 10 CFR 71. Requirements of the QAP are done in a graded approach commensurate with an item or activities importance to safety. This graded approach is responsive to NRC Regulatory Guide 7.10. The applicability of the requirements of the QAP to other items and activities is determined on a case-by-case basis. The QAP satisfies the requirements of 10 CFR 50 Appendix B, 10 CFR 71 Subpart H, and 10 CFR 72 Subpart G.
- d. The QAP is implemented through the use of approved procedures (i.e., policies, directives, procedures, manuals, instructions, or other documents) which provide written guidance for the control of Important to Safety items and activities and provides for the development of documentation to demonstrate objective evidence of compliance with stated requirements.

2. Organization

The organizational structure responsible for implementation of the QAP is described below, as well as in an organization chart provided in Appendix D. The specific organization titles for the quality assurance functions described in this QAP are identified in implementing procedures. The authority to accomplish the quality assurance functions described is delegated to the incumbent staff, as necessary, to fulfill the identified responsibility.

- a. The President reports to the Board of Directors and has overall responsibility for the implementation of the QAP for the Yankee Rowe ISFSI. The President resolves all disputes related to the implementation of the QAP for which resolution is not achieved at the appropriate organizational levels within YAEC.

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- b. The individuals fulfilling the following management functions report to the President. These individuals may report through an additional layer of management, but shall maintain sufficient authority and organizational freedom to implement the assigned responsibilities. These individuals may fulfill more than one function described below unless prevented by the need to maintain independence as required elsewhere in the QAP.
 - 1. ISFSI Manager – Reports to the President and is responsible for the direction and administration of ISFSI Operations, Site Training, Procurement, Security, Non-conformance and Corrective Actions Programs and Emergency Planning. The Independent Safety Review Function (ISR), described in Section D, reports to the ISFSI Manager.
 - 2. Quality Assurance Representative – Reports to the President and is responsible for the audit/survey and surveillance functions described in the QAP. The Quality Assurance Representative are designated by and has a direct line of communication with the President.
 - 3. Radiation Protection Manager (RPM) – Reports to the ISFSI Manager and is responsible for the Radiation Protection Program.
- 3. **Responsibility**
 - a. YAEC has the responsibility for the scope and implementation of an effective quality assurance program.
 - b. YAEC may delegate all or part of the activities of planning, establishing, and implementing the quality assurance program to others, but retains the responsibility for the program and its effectiveness.
 - c. Independent Management Assessments are periodically performed to monitor overall performance and confirm that activities affecting quality comply with the QAP and that the QAP is effectively implemented. This Independent Management Assessment is performed by individual(s) designated by the President, independent of activities assessed and who provide the appropriate level of expertise in the activities assessed. The Independent Management Assessment results are communicated in an understandable form and in a timely fashion to a level of management having the authority to effect corrective action. In addition, these results are reported in a timely fashion to the President of YAEC.
 - d. YAEC is responsible for ensuring that the applicable portion(s) of the Quality Assurance Program is properly documented, approved, and implemented (staff is trained, necessary materials and approved procedures are available) before an activity within the scope of the QAP is undertaken by YAEC or by others who have been delegated the responsibility. As such, implementing controls and procedures for some elements of the QAP are not needed under normal ISFSI operations and will only be developed if and when a need is identified.
 - e. Supervision is responsible for ensuring that personnel working under their cognizance are provided with the necessary training and resources to accomplish assigned tasks that fall within the scope of the QAP.

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- f. Approval of QAP implementing procedures will be by the ISFSI Manager. These procedures shall reflect the requirements of the QAP and work is required to be accomplished in accordance with them.

4. Authority

- a. When YAEC delegates responsibility for planning, establishing, or implementing any part of the QAP, sufficient authority to accomplish the assigned responsibilities is also delegated.
- b. The Quality Assurance Representative provides management with objective evidence of the performance of activities affecting quality, independent of the individual or group directly responsible for performing the specific activity. This individual has the authority and organizational freedom to verify activities affecting quality and is independent of undue influences and responsibilities for schedules and costs. The Quality Assurance Representative has the responsibility and authority to stop unsatisfactory work and control further processing, delivery, or installation of nonconforming materials. The individual also has the responsibility and authority to identify quality problems, to recommend or provide solutions, and to verify their implementation.

5. Personnel Training and Qualification

- a. Each member of the facility staff (including audit/survey, surveillance and inspection personnel) shall have sufficient qualifications to perform their assigned duties. Implementing procedures provide the guidance used for determining and assessing appropriate staff qualifications.
- b. Training programs are established and implemented to ensure that personnel achieve and maintain suitable proficiency.
- c. Personnel training and qualification records are maintained in accordance with procedures.
- d. In addition to the above, the following specific qualification requirements are required:
 - 1. The position of the Quality Assurance Representative shall meet the following minimum qualifications:
 - a. Graduate of a four-year accredited engineering or science college or university, or the equivalent in practical experience plus five (5) or more years in positions of leadership, such as lead engineer, project engineer, audit team leader, etc.
 - b. At least two years of this experience should be associated with nuclear quality assurance activities, and at least one year of this experience shall be in a quality assurance organization. An additional two years of quality assurance program implementation may be substituted for the one-year experience within a quality assurance organization.

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- c. A master's degree in engineering or business management is considered equivalent to two years of experience.
- 2. The position of Radiation Protection Manager shall meet the following minimum qualifications:
 - a. Academic degree in an engineering/science field or equivalent as provided for in paragraph c, below.
 - b. Minimum of five years professional experience in the area of radiological safety, three years of which shall be in applied radiation work in a nuclear facility.
 - c. Technical experience in the area of radiological safety beyond the five-year minimum may be substituted on a one-for-one basis towards the academic degree requirement (four years of technical experience being equivalent to a four-year academic degree).
 - d. Academic and technical experience must total a minimum of nine years.
- 3. The position of Independent Safety Reviewer (ISR), shall meet the following minimum qualifications:
 - a. Knowledgeable of the regulatory requirements and operational aspect of an ISFSI.
 - b. At least 5 years of professional experience and either a Bachelor's Degree in Engineering or the Physical Sciences or shall have equivalent qualifications.
 - c. Knowledge in the subject areas requiring review.

The ISFSI Manager shall evaluate potential reviewers' qualifications and document the appointment of a reviewer(s) based on their qualifications.

6. Corrective Action

- a. Each individual working at YAEC is responsible for promptly identifying and reporting conditions adverse to quality. Management at all levels encourages the identification of conditions that are adverse to quality.
- b. The corrective action program will ensure the prompt identification, documentation, and correction of conditions adverse to quality. Significant conditions adverse to quality shall require cause determination and a corrective action plan that should prevent or lessen the likelihood of recurrence.
- c. Specific responsibilities within the corrective action program may be delegated, but YAEC maintains responsibility for the program's effectiveness.
- d. Non-conforming items are properly controlled to prevent their inadvertent installation or use. They are reviewed and either accepted, rejected, repaired, or

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reworked.

- e. Reports of conditions that are adverse to quality are analyzed to identify negative performance trends. Significant conditions adverse to quality and significant trends are reported to the appropriate levels of management.

7. Regulatory Commitments

Except when alternatives or exceptions are identified, the implementing procedures for the QAP shall comply with the quality assurance guidance documents listed in Appendix B. Additionally, the following clarifications apply to all guidance documents listed in Appendix B:

- a. If the guidance in any of the listed documents is in conflict with the QAP, the guidance provided in the QAP is the controlling document.
- b. Standards, guides, codes, etc., identified in any commitment document are not quality assurance program requirements unless that document is also listed in the Appendix.
- c. Guidance applicable to safety related items and activities (10 CFR 50) are applicable to comparable items and activities (Important to Safety) required by 10 CFR 71 and 10 CFR 72.

B. PERFORMANCE/VERIFICATION

1. Methodology

- a. Personnel performing work activities such as design, engineering, procurement, installation, maintenance, modification and operation are responsible for achieving acceptable quality.
- b. Personnel performing independent verification activities are responsible for verifying the achievement of acceptable quality and are different personnel than those who performed the work.
- c. Work is accomplished and verified using instructions, procedures, or other appropriate means that are of a detail commensurate with the activity's complexity and importance to safety.
- d. Criteria that define acceptable quality are specified, and quality is verified against these criteria.

2. Design Control

- a. The program will ensure that the activities associated with the design of structures, systems and components and modifications thereto, are executed in a planned, controlled, and orderly manner.
- b. The program utilizes the guidance of NUREG/CR-6407 to classify structures, systems and components such that appropriate quality requirements are identified and documented on drawings, component lists, or procurement documents, as applicable.

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- c. The program includes provisions to control design inputs, processes, outputs, changes, interfaces, records, and organizational interfaces.
- d. Design inputs (e.g., performance, conditions of the facility license, quality, and quality verification requirements) shall be correctly translated into design outputs (e.g., specifications, drawings, procedures, and instructions).
- e. The final design output shall relate to the design input in sufficient detail to permit verification.
- f. The design process shall ensure that materials, parts, equipment and processes are selected and independently verified consistent with their importance to safety to ensure they are suitable for their intended application.
- g. Changes to final designs (including field changes and modifications) and dispositions of non-conforming items to either use-as-is or repair shall be subjected to design control measures commensurate with those applied to the original design and approved by the organization that performed the original design or a qualified designee. The original design organizations for the Yankee Rowe ISFSI are identified in Appendix A.
- h. Interface controls (internal and external between participating design organizations and across technical disciplines) for the purpose of developing, reviewing, approving, releasing, distributing, and revising design inputs and outputs shall be defined in procedures.
- i. Design documentation and records, which provide evidence that the design and design verification process was performed in accordance with the QAP, shall be collected, stored, and maintained in accordance with documented procedures. This documentation includes final design documents, such as drawings, and specifications, and revisions thereto and documentation which identifies the important steps, including sources of design inputs that support the final design.

3. Design Verification

- a. The program will verify the acceptability of design activities and documents for the design of items. The selection and incorporation of design inputs and processes, outputs and changes are verified.
- b. Verification methods include, but are not limited to, design reviews, alternative calculations, and qualification testing. The extent of this verification will be a function of the importance to safety of the item, the complexity of the design, the degree of standardization, the state of the art, and the similarity with previously proven designs. Standardized or previously proven designs will be reviewed for applicability prior to use.
- c. When a test program is used to verify the acceptability of a specific design feature, the test program will demonstrate acceptable performance under conditions that simulate the most adverse design conditions expected to be encountered.
- d. Independent design verification is to be completed before design outputs are used by other organizations for design work and before they are used to support other

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activities such as procurement, manufacture, or construction. When this timing cannot be achieved, the unverified portion of the design is to be identified and controlled. In all cases, the design verification is to be completed before relying on the item to perform its Important to Safety function.

- e. Individuals or groups responsible for design reviews or other verification activities shall be identified in procedures and their authority and responsibility shall be defined and controlled. Any competent individuals or groups other than those who performed the original design but who may be from the same organization shall perform design verification. The designer's immediate supervisor or manager may perform the design verification provided:
 - 1. The supervisor or manager is the only technically qualified individual capable of performing the verification.
 - 2. The need is individually documented and approved in advance by the supervisor's or managers management.
 - 3. The frequency and effectiveness of the supervisors or managers use as a design verifier is independently verified to guard against abuse.
- f. Design verification procedures are to be established and implemented to ensure that an appropriate verification method is used, the appropriate design parameters to be verified are chosen, the acceptance criteria is identified, the verification is satisfactorily accomplished and the results are properly recorded.

4. Procurement Control

- a. The program will ensure that purchased items and services are of acceptable quality.
- b. The program includes provisions for evaluating prospective suppliers and selecting only appropriate suppliers.
- c. The program includes provisions for taking corrective action with suppliers (qualified or otherwise) whose products and services are not considered acceptable.
- d. The program includes provisions for source verification (inspection, audit, etc.) for accepting purchased items and services identified as important to safety when determined necessary.
- e. The program includes provisions for involving applicable technical, regulatory, administrative, and reporting requirements (e.g., specification, codes, standards, tests, inspections, special processes, records, certifications, 10 CFR 21) for procurement documents for items and services identified as important to safety.
- f. The program includes provisions for ensuring that documented evidence of an item's conformance to procurement requirements is available at the site before the item is placed in service or used unless otherwise specified in procedures.
- g. The program includes provisions for ensuring that procurement, inspection, and test requirements have been satisfied before an item is placed in service or used unless

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otherwise specified in procedures.

- h. The program includes provisions for the identification of critical characteristics and methods of acceptance for the dedication of a commercial grade item or service for its use in an Important to Safety function(s).

5. Procurement Verification

- a. The program will verify the quality of purchased items and services at intervals and to a depth consistent with the item's or service's importance to safety, complexity and quantity and the frequency of procurement.
- b. The program is executed in all phases of procurement. As necessary, this may require verification of activities of suppliers below the first tier.
- c. Controls for the audits or surveys of suppliers providing Important to Safety items and services are provided for in Section C.
- d. Controls for the inspection (source verification/surveillance/inspection) of suppliers providing Important to Safety items and services are provided for in Section B.12.

6. Identification and Control of Items

- a. The program will identify and control Important to Safety items to prevent the use of incorrect or defective items.
- b. Identification of each item is maintained throughout fabrication, erection, installation, and use so that the item can be traced to its documentation. Traceability is maintained to an extent consistent with the item's importance to safety.

7. Handling, Storage, and Shipping

- a. The program will control the handling, storage, shipping, cleaning, and preserving of items to ensure the items maintain acceptable quality.
- b. Special protective measures (e.g., containers, shock absorbers, accelerometers, inert gas atmospheres, specific moisture content levels and temperature levels, etc.) are specified and provided when required to maintain acceptable quality.
- c. Specific procedures shall be developed and used for cleaning, handling, storage, packaging, shipping and preserving items when required to maintain acceptable quality.
- d. Items are marked and labeled during packaging, shipping, handling, and storage to identify, maintain, and preserve the item's integrity and identify the need for any special controls.

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8. Test Control

- a. The program will demonstrate that items will perform satisfactorily in service.
- b. The test control program includes, as appropriate, proof tests before installation, pre-operational tests, post-maintenance tests, post-modification tests, and operational tests.
- c. Test procedures shall be developed which include:
 - 1. Instructions and prerequisites to perform the test;
 - 2. Use of proper test equipment;
 - 3. Acceptance criteria; and
 - 4. Mandatory inspections, as required.
- d. Test results are evaluated to assure that test objectives and inspection requirements have been satisfied.
- e. Unacceptable test results shall be evaluated for impact on safety and reportability.

9. Control of Measuring and Test Equipment

- a. The program will control the calibration, maintenance, and use of measuring and test equipment consistent with an activity's importance to safety. Measuring and test equipment does not include permanently installed operating equipment or test equipment used for preliminary checks where data obtained will not be used to determine acceptability or be the basis for design or engineering evaluation. Additionally, calibration and control measures are not required for rulers, tape measures, levels and other such devices if normal commercial manufacturing practices provide adequate accuracy.
- b. The types of equipment covered by the program (e.g., instruments, tools, gages, and reference and transfer standards) are defined in procedures.
- c. Measuring and test equipment is calibrated at specified intervals or immediately before use on the basis of the item's required accuracy, intended use, frequency of use, stability characteristics and other conditions affecting its performance.
- d. Measuring and test equipment is labeled, tagged, or otherwise controlled to indicate its traceability to calibration test data.
- e. Measuring and test equipment is calibrated against standards that have an accuracy of at least four times the required accuracy of the equipment being calibrated or, when this is not possible, have an accuracy that ensures the equipment being calibrated will be within the required tolerance.
- f. If nationally recognized standards exist, calibration standards are to be traceable to them.

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- g. Measuring and test equipment found damaged or out of calibration is tagged or segregated. The acceptability shall be determined of items measured, inspected, or tested with a damaged or out-of-calibration device.

10. Inspection, Test, and Operating Status

- a. The program will ensure that required inspections and tests and the operating status of items important to safety is verified before release, fabrication, receipt, installation, test, and use, as applicable. This verification is to preclude inadvertent bypassing of inspections and tests and to prevent inadvertent operation of controlled equipment.
- b. Items whose required inspections and tests are incomplete or inconclusive may be released for further processing. Controls are provided in procedures for establishing limitations on the release, applying status indications and documenting the basis for the conditional release of the item and any limitations.
- c. The application and removal of inspection, test, and operating status indicators are controlled in accordance with procedures.

11. Special Process Control

- a. This program will ensure that special processes identified as Important to Safety are properly controlled.
- b. The criteria that establish which processes are special are described in procedures. The following are examples of special processes:
 - 1. Welding,
 - 2. Heat treating,
 - 3. NDE (Non Destructive Examination),
 - 4. Chemical cleaning, and
 - 5. Unique fabricating or test processes which require in-process controls.
- c. Shall be accomplished by qualified personnel, using appropriate equipment, and procedures in accordance with applicable codes, standards, specifications, criteria, and other special requirements.

12. Inspection

- a. The program will ensure the performance of inspections of Important to Safety activities in order to verify conformance with documented instructions, procedures and drawings for accomplishing the activity. The inspection program may be implemented by or for the organization performing the activity to be inspected.
- b. Provisions to ensure inspection planning is properly accomplished are to be established. Planning activities shall identify the characteristics and activities to be inspected, the inspection techniques, the acceptance criteria, and the organization

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responsible for performing the inspections.

- c. Provisions to identify inspection hold points, beyond which work is not to proceed without the consent of the inspection organization are to be defined.
- d. Inspection results are to be documented by the inspector and reviewed by qualified personnel.
- e. Unacceptable inspection results shall be evaluated and resolved in accordance with procedures.
- f. Inspections are performed by qualified personnel other than those who performed or directly supervised the work being inspected. While performing the inspection activity, inspectors functionally report to the Quality Assurance Representative.

13. Document Control

- a. The program will control the development, review, approval, issue, use, and revision of documents.
- b. The scope of the document control program includes, but is not limited to:
 - 1. Safety Analysis Report(s),
 - 2. NRC License Documents, including Technical Specifications,
 - 3. Design Documents,
 - 4. Procurement Documents,
 - 5. Procedures, Manuals, Plans, Directives, Policies, Instructions, etc.,
 - 6. Corrective Action Documents, and
 - 7. Other documents as defined in procedures.
- c. Revisions of controlled documents are reviewed for adequacy and approved for release by the same organization that originally reviewed and approved the documents or by a designated organization that is qualified and knowledgeable.
- d. Copies of controlled documents are distributed to and used by the person performing the activity.
- e. The distribution of new and revised controlled documents is in accordance with procedures. Superseded documents are controlled to prevent inadvertent use.

14. Records

- a. The program will ensure that sufficient records of decommissioning activities are generated and maintained to reflect the completed work.

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- b. Controls for the administration, identification, receipt, storage, preservation, safekeeping, retrieval, and disposition of records are provided in procedures.
- c. The scope of the records program includes, but is not limited to:
 - 1. Records required by 10 CFR 20;
 - 2. Records required by 10 CFR 50, except as permitted by the NRC granted exemption dated July 24, 2006;
 - 3. Records required by 10 CFR 71;
 - 4. Records required by 10 CFR 72; and
 - 5. Records of Reviews and Audits.
- d. Controls for the retention of records are provided for in procedures. These controls include applicable record retention requirements of Title 10, Code of Federal Regulations and the following additional requirements:
 - 1. The following records, except as permitted by NRC granted exemption dated July 24, 2006, shall be retained for at least 5 years:
 - a. Records and logs of ISFSI operations;
 - b. Records and logs of principal maintenance activities, inspections, repair, and replacement of principal items of equipment related to safety;
 - c. All reportable events;
 - d. Records of surveillance activities, inspections, and calibrations required by the NAC MPC Certificate of Compliance or the NAC STC Certificate of Compliance;
 - e. Records of tests and experiments;
 - f. Records of changes made to the procedures required by the NAC MPC Certificate of Compliance or the NAC STC Certificate of Compliance;
 - g. Record of changes made to programs and procedures required by Appendix C;
 - h. Records of radioactive shipments; and
 - i. Records of annual physical inventory of all sealed source material of record.

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2. The following records, except as permitted by NRC granted exemption dated July 24, 2006, shall be retained for the duration of the facility Operating License:
 - a. Record and drawing changes reflecting facility design modifications made to systems and equipment described in the current FSAR;
 - b. Records of irradiated fuel inventory, fuel transfers, and assembly burn up histories;
 - c. Records of facility radiation and contamination surveys;
 - d. Records of radiation exposure for all individuals entering radiation control areas;
 - e. Records of gaseous and liquid radioactive material released to the environs;
 - f. Records of training and qualification for current members of the facility staff;
 - g. Records of reviews performed for changes made to procedures or equipment or reviews of tests and experiments pursuant to 10 CFR 50.59 or 10 CFR 72.48;
 - h. Records of Independent Safety Reviews (ISR) and Independent Management Assessments; and
 - i. Records of reviews performed for changes to the Offsite Dose Calculation Manual (ODCM) and the Process Control Program (PCP).

C. AUDIT

1. Methodology

- a. A program of planned and periodic audits will ensure that activities affecting quality comply with the QAP and that the QAP is being implemented effectively. Audit frequencies will be implemented as required by the applicable Code of Federal Regulations, Facility License, Final Safety Analysis Report and other commitments to the NRC.
- b. Organizations performing audits shall be technically and performance oriented commensurate with the activity being reviewed.
- c. Personnel performing audits shall have no direct responsibilities in the area they are assessing.
- d. Audits shall be accomplished using instructions, procedures, or other appropriate means that are of a detail commensurate with the activity's complexity and importance to safety.

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2. Performance

- a. Audit schedules assure that the following areas are audited at the indicated frequencies or more frequently as performance dictates.
 1. The conformance of ISFSI operation to provisions contained within the Technical Specifications and applicable license conditions is audited nominally at least once every 24 months. The audit shall include elements such as:
 - Training and qualifications of the staff;
 - Actions taken to correct deficiencies occurring with equipment, structure, systems, or method of operation that affect nuclear safety;
 - Performance of activities required by the QAP to meet the criteria of 10 CFR 50, Appendix B, 10 CFR 71, Subpart H and 10 CFR 72, Subpart G; and
 - Implementation of Programs required by Appendix C, Sections 1.0 and 2.0.
 2. Other activities and documents as requested by the President.
 3. Nominally means that the audit may be initiated within a period of 90 days longer than the period started. Thus, the next scheduled due date for a biennial audit could be no longer than 27 months from the original audit schedule. The audit schedule date resets to the original schedule date for the next 24-month period.
- b. External audits or surveys of suppliers providing Important to Safety materials, parts, equipment or services are performed at the indicated frequency or more frequently as performance dictates.

Suppliers providing commercial grade calibration and testing services who are accredited by a nationally recognized accrediting body, as described in Nuclear Energy Institute (NEI) 14-05 guidelines, may be used without additional qualification, provided the conditions of the associated NRC Safety Evaluation are met.. Controls shall be established in applicable procedures to ensure the requirements of the NRC Safety Evaluation are satisfied prior to acceptance.
- c. Implementing procedures for the audit/survey program include controls to ensure that the following are met:
 1. Audit/surveys shall provide an objective evaluation of quality related practices, procedures, instructions, activities, and items and a review of documents and records as applicable.
 2. Audit/surveys shall be performed in accordance with approved written procedures or checklists. Deficiencies from previous audits shall be reviewed and re-audited, as appropriate. The checklists are used as guides to the auditor.

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3. Scheduling and resource allocation are based on the status and safety importance of the activity, program or process being assessed.
4. Audit/survey reports are written and distributed to the appropriate levels of management for review. Follow-up action, including re-audit/survey of deficient areas, is initiated as deemed appropriate.
5. Implementation of any delegated elements of the quality assurance program is assessed.
6. Audit/surveys are conducted using predetermined acceptance criteria.
7. Audit/surveys are performed by appropriately trained and qualified personnel.

D. INDEPENDENT SAFETY REVIEW

1. An Independent Safety Review shall be a thorough review conducted by one or more qualified Independent Safety Reviewers. Persons performing these reviews shall be knowledgeable in the subject area being reviewed. Independent Safety Reviews must be completed prior to implementation of the proposed activity requiring the review.
 - a. Independent Safety Reviewers shall be individuals without direct responsibility for the performance of these activities under review. These reviews may be from the same functionally cognizant organization as the individual or group performing the original work.
 - b. The following subjects shall be independently reviewed by a qualified Independent Safety Reviewer:
 1. Review of proposed changes to the Yankee Rowe Technical Specifications, and review of those changes submitted to YAEC by the NRC Certificate Holder for the NAC-MPC System or the NAC-STC System that are to be implemented at the Yankee Site.
 2. Review of proposed tests and experiments not described in the FSAR, NAC-MPC SAR or the NAC-STC SAR for activities being implemented at the Yankee Site.
 3. Review of proposed changes or modifications to site or ISFSI systems or equipment that affect nuclear safety.
 4. Review of all procedures and programs required by Appendix C and changes thereto that require an evaluation in accordance with 10CFR50.59 or 10CFR72.48.
 5. Render determination in writing to the ISFSI Manager if any items considered under 1 through 4, above, as appropriate and as provided for in 10CFR50.59, 10CFR50.90 or 10CFR72.48 as requiring prior NRC approval, a license amendment or requires a significant hazards consideration determination.

QUALITY ASSURANCE PROGRAM FOR THE YANKEE ROWE ISFSI

APPENDIX A

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IMPORTANT-TO-SAFETY STRUCTURES, SYSTEMS AND COMPONENTS

The pertinent quality assurance requirements of 10CFR50, Appendix B, 10CFR 71 Subpart H and 10 CFR 72 Subpart G will be applied, as a minimum, to all quality activities affecting the Important-to-Safety Structures, Systems and Components (SSCs) associated with spent fuel storage and transportation package.

NOTE

The safety classification of systems, structures and components (SSCs) of the YNPS and YR ISFSI Facility may be revised based on engineering evaluations and a revision to the YNPS FSAR. These modifications are controlled in accordance with the Design Control Process and are not considered a reduction in the commitments to the QAP.

The quality classification of NRC Licensed ISFSI Dry Fuel Storage Components and Transportation Packages may not be revised using the YAEC Design Control Process. These modifications must be made by the NRC Certificate Holder. The Certificate Holder is responsible for design and licensing controls for these components under their NRC approved Quality Assurance Program. YAEC utilizes these types of components and packages under the provisions of an NRC General License for Radioactive Material Transportation Packages (10 CFR 71) and Spent Fuel Storage (10 CFR 72).

Items and services associated with Radioactive Material Transport Packages as described in 10 CFR 71 and Spent Fuel Storage as described in 10 CFR 72 will also fall under the requirements of the QAP.

Important-to-Safety SSCs associated with spent fuel storage and radioactive material transportation packages are defined below:

IMPORTANT-TO-SAFETY AS DEFINED BY 10 CFR 71 AND 10 CFR 72

A. Dry Spent Fuel Storage (10 CFR 72)

SSC	Quality Category	Design/License Responsible
Transportable Storage Canister and Fuel Basket Assembly	A	NAC Intl.
Vertical Concrete Cask	B	NAC Intl.
Transfer Cask and Adapter Plate	B	NAC Intl.
ISFSI Pad	C	YAEC
Lifting Yoke	B	NAC Intl.
Damaged Fuel Can	A	NAC Intl.
Reconfigured Fuel Assembly	A	NAC Intl.

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APPENDIX A

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IMPORTANT-TO-SAFETY, STRUCTURES, SYSTEMS AND COMPONENTS

B. Transport of Spent Fuel and GTCC Waste (10 CFR 71)

SSC	Quality Category	Design/License Responsible
Transportable Storage Canisters and Fuel Basket Assembly	A	NAC Intl.
Damaged Fuel Can	A	NAC Intl.
Reconfigured Fuel Assembly	A	NAC Intl.
Transportable Storage Canister and Basket Assembly For GTCC Waste Containers	A	NAC Intl.
Storage Transport Cask (STC)	A	NAC Intl.

C. Radioactive Material Transport Packages (10 CFR 71)

Radioactive Material Transport Packages subject to the provisions of 10 CFR 71, Subpart C, "General Licenses" are "Important-to-Safety" and subject to the applicable requirements of the QAP.

NOTES:

1. See NAC-MPC Safety Analysis Report (SAR) and associated NAC specifications for additional classification information.
2. See NAC Storage Transport Cask (STC) Safety Analysis Report and associated NAC specifications for additional classification information.
3. For the definition of Quality Categories A, B, and C refer to NUREG/CR-6407.
4. See YAEC EDCR No. 99-302 for the bases of the Quality Categories assigned to ISFSI Facility SSCs. The ISFSI Pad was subsequently reclassified to Category C through the Yankee Design Control Process.

QUALITY ASSURANCE PROGRAM FOR THE YANKEE ROWE ISFSI

APPENDIX B

REGULATORY COMMITMENTS, ALTERNATIVES AND EXCEPTIONS

REGULATORY COMMITMENTS

Regulatory Guide 7.10, Revision 2 (3/05), "Establishing Quality Assurance Programs for Packaging Used in the Transportation of Radioactive Material."

NUREG/CR-6407, "Classification of Transportation Packaging and Dry Fuel Storage System Components According to Important to Safety (2/96)."

ALTERNATIVES

Suppliers providing commercial grade calibration and testing services, who are accredited by a nationally recognized accrediting body, as described in Nuclear Energy Institute (NEI) 14-05 guidelines, may be used without additional qualification, provided the conditions of the associated NRC Safety Evaluation are met. Controls shall be established in applicable procedures to ensure the requirements of the NRC Safety Evaluation are satisfied prior to acceptance.

EXCEPTIONS

Yankee was granted approval by the NRC for a partial Exemption to Record Keeping Requirements under 10CFR50 Appendix B, along with other regulations. This is documented in NYR-2006-042, "Yankee Nuclear Power Station – Request for Partial Exemption for Record Keeping Requirements (TAC No. L52674)" dated July 24, 2006.

QUALITY ASSURANCE PROGRAM FOR THE YANKEE ROWE ISFSI

APPENDIX C

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ADMINISTRATIVE CONTROLS

These Administrative Controls have been developed to support the Operation of the ISFSI. These requirements were previously included in the Technical Specifications and were relocated to the Quality Assurance Program.

1.0 Procedures and Programs

- 1.1 Written procedures shall be established, implemented, and maintained covering the activities referenced below:
 - a. The procedures applicable to the safe storage of spent fuel and GTCC waste.
 - b. Fire Protection Program implementation.
 - c. Radiation Protection and Offsite Dose Calculation Manual.
- 1.2 Each procedure and changes thereto, shall be independently reviewed in accordance with Section D and approved by the ISFSI Manager or designee prior to implementation.

2.0 Programs and Manuals

2.1 Radiation Protection Program

A program for personnel radiation protection shall be prepared consistent with the requirements of 10 CFR 20 and shall be approved, maintained, and adhered to for all operations involving personnel radiation exposure.

2.2 Offsite Dose Calculation Manual (ODCM)

The ODCM shall contain the methodology and parameters used in the calculation of off-site doses and in the conduct of the radiological environmental monitoring program; and

The ODCM shall also contain the Radiological Environmental Monitoring Program activities, and descriptions of the information that should be included in the Annual Radiological Environmental Operating and Radioactive Effluent Release Reports required under Section 2.3 and the ODCM.

Changes to the ODCM:

- a) Shall be documented and records of review shall be retained. This documentation shall contain:
 - 1. Sufficient information to support each change, together with the appropriate analyses or evaluations to justify the change; and

QUALITY ASSURANCE PROGRAM FOR THE YANKEE ROWE ISFSI

APPENDIX C

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ADMINISTRATIVE CONTROLS

2. A determination that each change maintains the levels of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, 10 CFR 50, Appendix I and 10 CFR 72.104 and that the change will not adversely impact the accuracy or reliability of dose calculations; and
- b) Shall be submitted to the NRC in the form of a complete legible copy of the entire ODCM as a part of or concurrent with the Annual Radioactive Effluent Release Report for the period of the report in which any change was made to the ODCM. A summary of each change shall be included.

2.3 Reporting Requirements

The following identified reports will be submitted pursuant to 10 CFR 50.4:

2.3.1 Annual Radiological Environmental Operating Report

The Annual Radiological Environmental Operating Report covering the activities of the facility during the previous calendar year shall be submitted prior to May 1 of each year. The Report shall include summaries, interpretations, and analyses of the trends of the results of the Radiological Environmental Monitoring Program for the reporting period. The material provided shall be consistent with the objectives outlined in the Offsite Dose Calculation Manual (ODCM).

2.3.2 Annual Radioactive Effluent Release Report

The Radioactive Effluent Release Report covering activities of the facility during the previous calendar year shall be submitted by May 1 of each year. The Report shall include a summary of the quantities of radioactive liquid effluents and solid waste released from the facility. The material provided shall be consistent with the objectives outlined in the ODCM and in conformance with 10 CFR 50.36 (a).

The Annual Radioactive Effluent Release Report shall include licensee-initiated changes to the ODCM during the period of the report as described in Section 2.2.

2.4 High Radiation Area Control

Paragraph 20.1601, "Cautions Signs, Labels, Signals and Controls." in lieu of the "control device" or "alarm signal" required by Paragraph 20.1601, each high radiation area in which the intensity of radiation is 1000 mrem/hr or less shall be barricaded and conspicuously posted as a high radiation area and entrance thereto shall be controlled by requiring issuance of a Radiation Work Permit (RWP). Radiation Protection personnel shall be exempt from the RWP issuance requirement during the performance of their assigned radiation protection duties, providing they are following plant radiation protection procedures for entry into high radiation areas.

QUALITY ASSURANCE PROGRAM FOR THE YANKEE ROWE ISFSI

APPENDIX C

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ADMINISTRATIVE CONTROLS

An individual or group of individuals permitted to enter such areas shall be provided with one or more of the following:

1. A radiation monitoring device which continuously indicates the radiation dose rate in the area.
2. A radiation monitoring device which continuously integrates the radiation dose rate in the area, and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate level in the area has been established and personnel have been made knowledgeable of them.
3. A Radiation Protection qualified individual (i.e. qualified in radiation protection procedures), with a radiation dose rate monitoring device, who is responsible for providing positive control over activities within the area and who will perform radiation surveillance at the frequency specified in the RWP. The Radiation Protection Manager will establish the surveillance frequency.

The above procedure shall also apply to each high radiation area in which the intensity of radiation is greater than 1000 mrem/hr. In addition, locked doors shall be provided to prevent unauthorized entry into such areas and that the key shall be maintained under administrative control of the Shift Supervisor on duty and/on the Radiation Protection Manager.

NOTE

Each of the inspections and/or tests shall be performed within the specified FREQUENCY with a maximum allowable extension not to exceed 25% of the specified FREQUENCY.

2.5 Sealed Source Contamination

2.5.1 Limiting Condition for Operation

Each sealed source containing radioactive material either in excess of 100 micro Curies of beta and/or gamma emitting material or 5 microCuries of alpha emitting material shall be free of greater than or equal to 0.005 microCuries of removable contamination.

Applicability: At all times

Action

Each sealed source with removable contamination in excess of the above limits shall be immediately withdrawn from use and either:

1. Decontaminate and repair the sealed source, or
2. Dispose of the sealed source in accordance with NRC Regulations.

QUALITY ASSURANCE PROGRAM FOR THE YANKEE ROWE ISFSI

APPENDIX C

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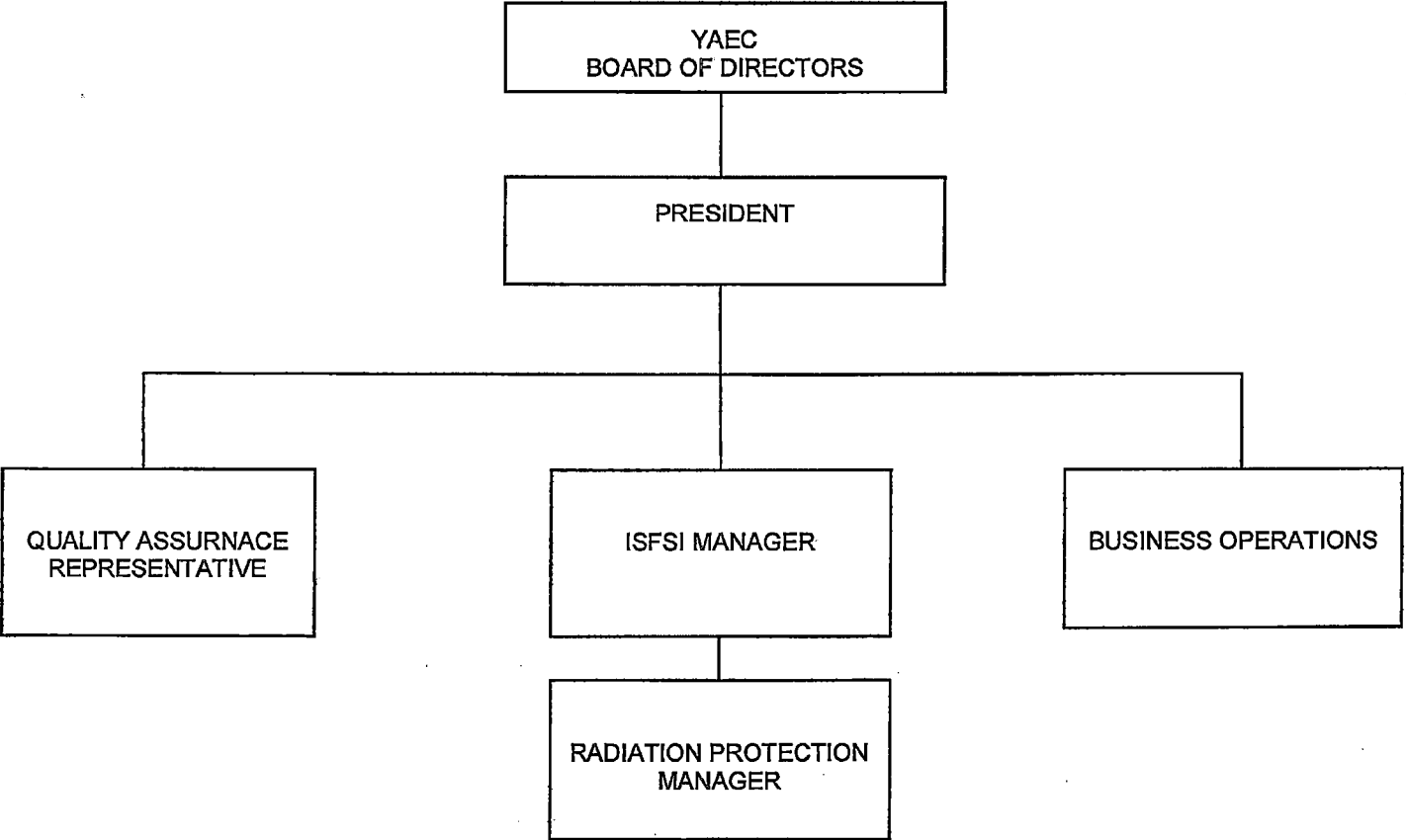
ADMINISTRATIVE CONTROLS

2.5.2 Surveillance Requirements

1. Test Requirements – Each sealed source shall be tested for leakage and/or contamination by:
 - a. The licensee, or
 - b. Other persons specially authorized by the NRC or an Agreement State.
2. Test frequencies – Each category of sealed sources shall be tested at the frequency described below.
 - a. Sources in use – At least once per 6 months (184 days) for all sealed sources containing radioactive materials:
 - 1) With a half-life greater than 30 days (excluding Hydrogen 3), and
 - 2) In any form other than gas.
 - b. Stored sources not in use – Each sealed source shall be tested prior to use or transfer to another licensee unless tested within the previous 6 months (184 days). Sealed sources transferred without a certificate indicating the last test date shall be tested prior to being placed into use; and
3. Reports – A special report shall be prepared and submitted to the NRC pursuant to 10CFR50.4, on an annual basis if sealed source leakage tests reveal the presence of greater than 0.005 microCuries of removable contamination.

QUALITY ASSURANCE PROGRAM
FOR THE YANKEE ROWE ISFSI

APPENDIX D
ORGANIZATION CHART



ENCLOSURE 2

SUMMARY OF CHANGES TO THE YAEC QAP FOR THE YANKEE ROWE ISFSI IMPLEMENTED IN REVISION 39

Revision 39 to the Yankee Atomic Electric Company's Quality Assurance Program for the Yankee Rowe Independent Spent Fuel Storage Installation (ISFSI) implements several changes. These changes either did not reduce commitments in the QAP previously accepted by the U.S. Nuclear Regulatory Commission (NRC) or were previously approved by the NRC with an associated NRC issued a Safety Evaluation Report (SER) describing the approval and alternatives.

The following are descriptions and evaluations of the three (3) changes:

1. Minor administrative/editorial changes, such as deleting unnecessary spaces and adding hyphens.

These changes are administrative changes which have no impact on the document.

2. Adds the term "nominal" to the audit frequency in Section C.2.a and defines nominal inclusive of a 90-day period beyond the original schedule for the audit.

This change is a reduction in commitments to the previously approved YAEC Quality Assurance Program; however, the same change was made for another facility and an associated NRC SER was issued which allows the change to be made without prior NRC approval being required (see Reference 1). The bases for the NRC approval are applicable to YAEC, because the site remains under an NRC Part 50 License and maintains a Quality Assurance Program as required by 10 CFR 50 Appendix B. The comparable change and associated SER was for a change to a quality assurance program for nuclear facilities that continues to operate which can translate to a facility that has shut down, certified cessation of power operations under 10 CFR 50.82, maintains an ISFSI as a general licensee under 10 CFR 72.210, and continues to maintain a quality assurance program that satisfies the requirements of 10 CFR 50 Appendix B.

3. Replaces the Alternative included in Appendix B with more current guidance that was accepted by the NRC and was based on the information that is currently included in the Quality Assurance Program manual. Associated corresponding changes are proposed to be made to Section C.2.b.

This is the adoption of more current guidance that has been approved by the NRC with the issuance of a Safety Evaluation Report, which was based on the information that was included within the Quality Assurance Program Revision 38, so it is not a reduction in commitments that would require prior NRC approval. Currently, the

ENCLOSURE 2

following is an approved Alternative included in the Quality Assurance Program Appendix B:

“Letter from NRC to Arizona Public Service Company titled “Palo Verde Nuclear Generating Station, Units 1, 2 and 3 – Approval of Change to Quality Assurance Program (Commercial-Grade Calibration Services) TAC Nos. MC4402, MC4403, and MC4404)” and associated NRC Safety Evaluation dated September 28, 2005.”

Subsequent to this approval of this quality assurance program change, the industry worked with Nuclear Energy Institute (NEI) to develop a generic guidance document which obtained NRC concurrence (NEI 14-05, Revision 1 and issued in August 2014) (ML14245A392). This was endorsed by the NRC on February 9, 2015 with an associated Safety Evaluation Report (ML 14322A535) (Reference 2). As discussed in the Forward section of that document, this has been endorsed by the NRC and allows its use. This specifically describes the link back to the Arizona Public Service Company approval and the associated NRC SER. The bases for the NRC approval are applicable to YAEF, because the site remains under an NRC Part 50 License and maintains a Quality Assurance Program as required by 10 CFR 50 Appendix B.

References:

1. Letter from the NRC to the Site Vice President of Northern States Power Company and associated Safety Evaluation Report dated February 20, 2015 (ML14358A039)
2. NEI 14-05, Revision 1, issued August 2014 (ML14245A392) and endorsed by the NRC on February 9, 2015 with an associated Safety Evaluation Report (ML14322A535)