16.0 TECHNICAL SPECIFICATIONS

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16.1 PRELIMINARY TECHNICAL SPECIFICATIONS

This section is not applicable; see Section 16.2 for specific information.

16.2 PROPOSED FINAL TECHNICAL SPECIFICATIONS

16.2.1 DISCUSSION

The previous information included in this Section was removed to facilitate compliance with the Standard Technical Specifications (STS) for Westinghouse Pressurized Water Reactors provided to TXU Electric by the NRC (Reference 1). The format of the STS addresses the categories of the Technical Specifications required by 10CFR50.36. Section 16.2.2 briefly describes the submittal and issuance of Final Technical Specifications for CPSES Units 1 and 2.

16.2.2 FINAL TECHNICAL SPECIFICATION

Final Technical Specifications for CPSES Unit 1 based on Westinghouse Standard Technical Specifications as provided by the NRC (Reference 1) were submitted to the NRC for review and approval. The NRC, by NUREG-1399 (Reference 2) approved CPSES Unit 1 Technical Specifications, as Appendix “A” to the CPSES Unit 1 Operating License.

Final Technical Specifications for CPSES Units 1 and 2, based on Westinghouse Standard Technical Specifications provided by the NRC (Reference 1) were submitted to the NRC for review and approval. The NRC, by NUREG-1468 (Reference 3), approved CPSES Units 1 and 2 Technical Specifications, as Appendix “A” to the CPSES Units 1 and 2 Operating Licenses.

These Technical Specifications are updated periodically by the NRC issuance of License Amendments.

Certain information from the Technical Specifications has been relocated to a separate document titled the CPNPP Technical Requirements Manual (TRM).

Changes to the CPNPP TRM are subject to safety evaluations completed in accordance with the provisions of 10CFR50.59.

REFERENCES

1. NRC letter, dated August 14, 1987, “NRC Current Westinghouse Standard Technical Specifications - Comanche Peak - Unit 1”.

2. NUREG-1399, “Technical Specifications - Comanche Peak Steam Electric Station, Unit 1”, April 1990.

3. NUREG-1468, “Technical Specifications - Comanche Peak Steam Electric Station, Unit Nos. 1 and 2”, February, 1993.

17.0 QUALITY ASSURANCE (QA)

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LIST OF FIGURES

Number	Title
17.2-1	Deleted (see Figure 13.1-2)
17.2-2	Deleted (see Figure 13.1-3)
17.2-3	Deleted

Luminant Power Company is submitting this application as Licensee for Comanche Peak Nuclear Power Plant (CPNPP). Luminant Power acts as owners agent for construction and operation of CPNPP and is therefore responsible for the design, engineering, procurement, fabrication, and construction technical support of CPNPP. This delegation of authority has been formally established among the Owners. Energy Future Holdings Corporation (EFH) is the parent company of Luminant Power.

To establish and maintain the high quality level required for all quality-related activities for CPNPP, Luminant Power has developed a comprehensive Quality Assurance Program (QA Program) as documented in this chapter of the FSAR. Luminant Power has implemented those portions of the Quality Assurance Program that are commensurate with the quality activities currently being performed. The program requires, as a minimum, that the quality activities performed by Luminant Power and its contractors/vendors comply with the NRC criteria established in 10 CFR Part 50, Appendix B, Licensing of Production and Utilization Facilities, "Quality Assurance Criteria for Nuclear Power Plants". Where appropriate, the requirements of regulatory or safety guides have been incorporated into the program.

The Luminant Power Quality Assurance Program requires that a Quality Assurance Manual be established to provide references to the written policies, procedures and instructions used to implement the QA Program for each nuclear power plant project for which it provides service. The combination of the requirements documented in the Quality Assurance Program and the Quality Assurance Manual provides Luminant Power with the means of fully executing its assignment.

Appendix 17A identifies all safety-related items for CPNPP within the scope of the Quality Assurance Program.

17.1 QUALITY ASSURANCE DURING DESIGN AND CONSTRUCTION

Section 17.1 has been deleted in its entirety.

17.2 QUALITY ASSURANCE DURING THE OPERATIONS PHASE

17.2.1 ORGANIZATION

17.2.1.1 Organizational Structure

Luminant Power Company, as the licensee, has overall responsibility for the operation of the Comanche Peak Nuclear Power Plant (CPNPP) which includes the Dry Cask Storage System. The Nuclear Generation Group (NG) has been designated by Luminant Power to coordinate the design, construction and operation of CPNPP. The organizational structure of Luminant Power and the Nuclear Generation Group are described in Section 13.1.

The following paragraphs amplify upon Section 13.1 with regard to establishment and execution of the quality assurance program for the operation of CPNPP. Figure 13.1-2 shows the structure and relationships of those elements of Nuclear Generation Group which function under the control of the QA program. Figure 13.1-3 shows the CPNPP Nuclear Operations organizational structure.

Luminant Power may, from time to time, assign responsibility for executing certain portions of the program to qualified consultants and contractors. However, Luminant Power retains ultimate responsibility for the CPNPP operations quality assurance program.

The reference to Dry Cask Storage System in this document includes the Independent Spent Fuel Storage Installation (ISFSI) facility, activities supporting spent fuel dry cask loading, and the associated dry cask storage equipment.

17.2.1.1.1 Senior Vice President & Chief Nuclear Officer

The Senior Vice President & Chief Nuclear Officer is responsible for the overall management of Nuclear Generation operations, including operation of CPNPP, and for the establishment of company policies related to Nuclear Generation. He has the overall responsibility for the establishment and execution of the quality assurance program for the operation of CPNPP.

The Senior Vice President & Chief Nuclear Officer has assigned to the Site Vice President the overall responsibility for operation of CPNPP and for implementation of the quality assurance program for the Nuclear Operations function at CPNPP.

The Senior Vice President & Chief Nuclear Officer has assigned to the Vice President, Nuclear Engineering and Support the overall responsibility for engineering and support of CPNPP, and for implementation of the quality assurance program for the Nuclear Engineering function at CPNPP.

17.2.1.1.2 Site Vice President

The Site Vice President is responsible to the Senior Vice President & Chief Nuclear Officer for plant operations at CPNPP.

Specific duties and responsibilities of the Site Vice President include the following:

1. Technical and administrative direction of the Manager, Plant Support.

2. Technical and administrative direction of the Manager, Nuclear Training.

3. Operational and technical support of CPNPP.

4. Technical and administrative direction for the implementation of quality assurance requirements and controls at CPNPP.

5. Technical and administrative direction of Plant Manager and assumes duties if the position is not occupied.

6. Technical and administrative direction of the Director, Performance Improvement

17.2.1.1.3 Plant Manager

The Plant Manager is responsible to the Site Vice President for plant operations at CPNPP.

Specific duties and responsibilities of the Plant Manager include the following:

1. Technical and administrative direction of the Director, Operations.

2. Technical and administrative direction of the Director, Maintenance.

3. Technical and administrative direction of the Manager, Radiation and Industrial Safety.

4. Operational and maintenance support of CPNPP.

5. Manager of all operations activities at CPNPP.

6. Chairmanship of the Station Operations Review Committee (SORC).

7. Membership on the Operations Review Committee upon appointment by the Senior Vice President & Chief Nuclear Officer.

17.2.1.1.3.1 Station Operations Review Committee (SORC)

The SORC shall function to advise the Plant Manager on all matters related to nuclear safety.

The SORC shall as a minimum be composed of the Chairman and six individuals who collectively have experience and expertise in the areas listed below and meet the requirements of Regulatory Guide (RG) 1.8, Rev. 2 for required experience.

Operations

Maintenance

Instrumentation and Controls

Technical Support

Radiation Protection

Quality Assurance

The Plant Manager shall serve as the chairman of SORC. A senior health physicist is acceptable for the Radiation Protection representative on SORC. The SORC members shall be designated, in writing, by the Plant Manager.

All alternate members shall be appointed in writing by the Plant Manager to serve on a temporary basis; however, no more that two alternates shall participate as voting members in SORC activities at any one time.

The SORC shall meet at least once per calendar month and as convened by the SORC Chairman or his designated alternate.

The quorum of the SORC necessary for the performance of the SORC responsibility and authority shall consist of the Chairman or his designated alternate and a majority of the regular members (or their alternates).

The SORC shall be responsible for:

1. Review of applicable administrative procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978.

2. Review of: (1) procedures, (2) change to procedures, equipment, systems or facilities, and (3) tests or experiments where nuclear safety is adversely affected;

3. Review of proposed procedures and changes to procedures, equipment, systems or facilities which require an amendment to the operating license;

4. Review of proposed test or experiments which require an amendment to the operating license;

5. Review of proposed changes to Technical Specifications or the Operating License:

6. Investigation of all violations of the Technical Specifications requiring a written report to the NRC, including the forwarding of reports covering evaluation and recommendations to prevent recurrence to the Senior Vice President & Chief Nuclear Officer and to the ORC:

7. Review of reports or operating abnormalities, deviations from expected performance of plant equipment and of unanticipated deficiencies in the design or operation of structures, systems or components that affect nuclear safety;

8. Review of all events submitted pursuant to 10CFR50.73. Other nonroutine reports may be reviewed at the discretion of the SORC Chairman or the responsible manager.

9. Review of changes to the PROCESS CONTROL PROGRAM, the OFFSITE DOSE CALCULATION MANUAL, and Radwaste Treatment Systems;

10. Review of any accidental, unplanned or uncontrolled radioactive release including the preparation of reports covering evaluation, recommendations, and dispositions of the

corrective action to prevent recurrence and the forwarding of these reports to the Senior Vice President & Chief Nuclear Officer and to the ORC;

11. Review of Unit operations to detect potential hazards to nuclear safety;

12. Investigations or analysis of special subjects as requested by the Chairman of the ORC or the Plant Manager.

13. Review of the Fire Protection Report and implementing procedures and submittal of recommended Fire Protection Report changes to the ORC; and

14. Review of the Technical Requirements Manual and revision thereto.

17.2.1.1.3.1.1 The SORC shall:

1. Recommend in writing to the designated manager (see Section 17.2.1.6) approval or disapproval of items considered under items 1 through 5 above. prior to their implementation; and

2. Provide written notification within 24 hours to the Senior Vice President & Chief Nuclear Officer, and the Operations Review Committee of disagreement between the SORC and the designated manager (see Section 17.2.1.6) however, the Plant Manager shall have responsibility for resolution of such disagreements pursuant to Technical Specification 5.1.1.

The SORC shall maintain written minutes of each SORC meeting that, at a minimum, document the results of all SORC activities performed under the responsibility provisions above. Copies shall be provided to the Senior Vice President & Chief Nuclear Officer and the Operations Review Committee.

Any changes in the conduct of operation of the SORC will be made with the approval of the Plant Manager. Changes in the organization of the SORC will be made with the approval of the Plant Manager.

17.2.1.1.4 Manager, Nuclear Oversight

The Manager, Nuclear Oversight reports directly to the Senior Vice President & Chief Nuclear Officer and is responsible for assuring effective implementation of the Quality Assurance Program. This reporting relationship assures that the Manager, Nuclear Oversight has sufficient authority, organizational freedom, and independence from undue influence from, or responsibility for, costs and schedules such that the Manager, Nuclear Oversight can effectively assure implementation of and compliance with the CPNPP operations quality assurance requirements and controls.

The Manager, Nuclear Oversight communicates directly with the Nuclear Generation Group supervisory and management personnel and with appropriate management levels in consultant and contractor quality assurance organizations to identify quality problems; initiate, recommend or provide solutions; and to verify implementation of solutions to quality problems. The Manager, Nuclear Oversight also has authority to “stop work” during the operations phase.

Specific duties and responsibilities of the Manager, Nuclear Oversight include the following:

1. Providing technical services and management in areas of Nuclear Oversight including quality assurance/quality control

2. Membership on the Operations Review Committee upon appointment by the Senior Vice President & Chief Nuclear Officer.

Specific duties and responsibilities of the Manager, Nuclear Oversight include the following:

1. Technical and administrative direction of Nuclear Oversight personnel.

2. Verification through evaluations that procedures for the control of quality-related activities comply with quality assurance requirements.

3. Verification through evaluations of the implementation of the quality assurance program within the Nuclear Generation Group and evaluation of its effectiveness.

4. Assurance through evaluation and inspection that consultants, contractors and suppliers providing quality-related items or services have established and implemented an adequate quality assurance program.

5. Responsible for submitting the Quality Assurance Manual for concurrence and approval to the Senior Vice President & Chief Nuclear Officer.

17.2.1.1.5 Vice President, Nuclear Engineering and Support

The Vice President, Nuclear Engineering and Support is responsible for providing engineering related technical services in support of CPNPP operations.

Specific duties and responsibilities of the Vice President, Nuclear Engineering and Support include the following:

1. Technical support to Nuclear operations.

2. Technical direction and administrative guidance to engineering staff.

3. Assistance, as required, in the procurement of equipment, materials, and services for the operation, maintenance or modification of CPNPP.

17.2.1.2 Nuclear Oversight

Nuclear Oversight, under the direction of the Manager, Nuclear Oversight functions to assure effective implementation of the quality assurance program.

Nuclear Oversight has sufficient authority and organizational freedom at CPNPP to identify quality problems, recommend solutions, verify implementation of solutions, to stop unsatisfactory work and control further processing, delivery or installation of nonconforming material until proper disposition has occurred.

The Manager, Nuclear Oversight advises the Senior Vice President & Chief Nuclear Officer of the status of the quality assurance program at CPNPP and of any significant conditions which are adverse to quality.

Specific functions performed by Nuclear Oversight include:

1. Quality assurance evaluations of Nuclear Generation quality-related activities, both offsite and onsite.

2. Evaluation of consultants', contractors', and suppliers' quality assurance programs and implementing procedures.

3. Evaluations and inspections conducted at equipment and material suppliers' facilities.

4. Review of procurement documents to assure incorporation of adequate quality assurance requirements for procured items and services.

5. Evaluations and inspections of site quality related activities to assure compliance with the applicable quality requirements.

6. Engineering services to support the Operations Review Committee (ORC).

7. Health Physics review of programs necessary for radiological protection of Company personnel and property, the environment and the general public.

8. Support the development of appropriate emergency plans for Luminant Power in accordance with regulatory guidelines and requirements and performance of the 10CFR50.54(t) independent review of the Emergency Planning Program.

9. Other independent verification/review responsibilities as described in section 13.1.1.2.4 for Manager, Nuclear Oversight.

10. Proposed changes to Technical Specifications or the Operating License;

17.2.1.3 Operations Review Committee

Independent reviews of activities affecting plant safety during the operations phase are performed by the Operations Review Committee.

The ORC shall function to provide independent review of designated activities in the areas of:

1. Nuclear power plant operations,

2. Nuclear engineering,

3. Chemistry and radiochemistry,

4. Metallurgy,

5. Instrumentation and control,

6. Radiological safety,

7. Mechanical and electrical engineering,

8. Quality assurance practices, and

9. Other appropriate fields associated with the unique characteristics of CPNPP.

The ORC shall report to and advise the Senior Vice President & Chief Nuclear Officer on those areas of responsibility specified in Section 17.2.1.3. ORC members should report all matters adversely affecting nuclear safety to the Senior Vice President & Chief Nuclear Officer (via the ORC Chairman) upon identification.

The ORC shall be composed of at least six individuals of whom no more than a minority are members of the CPNPP nuclear operations staff. The Chairman and all members will be appointed by the Senior Vice President & Chief Nuclear Officer.

The ORC Chairman shall hold a bachelor's degree in an engineering or physical science field or equivalent experience and a minimum of 6 years technical managerial experience.

The ORC members shall hold a bachelor's degree in an engineering or physical science field or equivalent experience and a minimum of 5 years technical experience. It is the responsibility of the Chairman to ensure experience and competence is available to review problems in areas listed in items 1 through 9 above. To a large measure, this experience and competence rests with the membership of the ORC. In specialized areas, this experience may be provided by personnel who act as consultants to the ORC.

The alternate for the Chairman and all alternate members shall be appointed in writing by the Senior Vice President & Chief Nuclear Officer to serve on a temporary basis.

Consultants shall be utilized as determined by the Chairman, to provide expert advice to the ORC.

The ORC shall meet at least once per 6 months.

The quorum for formal meetings shall consist of not less than a majority of the principals, or duly appointed alternates, of which, as a minimum, two are outside members and shall be subject to the following constraints: the Chairman or his designated alternate shall be present for all formal meetings and no more than a minority of the quorum shall be members of the CPNPP nuclear operations staff. The Chairman or his alternate (if a member of ORC) will be included in the overall quorum count.

17.2.1.3.1 ORC Reviews

The ORC shall be responsible for the review of:

1. The 10CFR50.59 evaluations for: (1) changes to procedures, equipment, or systems; and (2) tests or experiments.

2. Violations of codes, regulations, orders, Technical Specifications, license requirements, or of internal procedures or instructions having nuclear safety significance;

3. Significant operating abnormalities or deviations from normal and expected performance of unit equipment that affect nuclear safety;

4. All events submitted pursuant to 10CFR50.73;

5. All recognized indications of an unanticipated deficiency in some aspect of design or operation of structures, systems, or components that could affect nuclear safety; and

6. Reports and meeting minutes of the SORC.

7. ORC shall perform periodic reviews of the audit program, including the audits discussed in 17.2.18.

17.2.1.3.2 ORC Records

Records of ORC activities shall be prepared, approved and distributed as indicated below:

1. Minutes of each ORC meeting shall be prepared, approved and forwarded to the Senior Vice President & Chief Nuclear Officer within 30 days following each meeting. Meeting minutes will be promptly distributed to appropriate members of management;

2. Reports of reviews encompassed by Section 17.2.1.3.1 shall be prepared, approved and forwarded to the Senior Vice President & Chief Nuclear Officer within 30 days following completion of the review; and

3. Audit program review reports encompassed by Section 17.2.1.3.1(7) shall be forwarded to the Senior Vice President & Chief Nuclear Officer within 30 days following completion of the review.

17.2.1.4 Delegation of Nuclear Oversight Functions

Nuclear Generation (NG) periodically retains qualified consultants and contractors to provide safety-related services. All consultants and contractors providing safety-related services and suppliers providing safety-related equipment or materials for CPNPP are required to establish and implement quality assurance programs appropriate for their scope of supply. NG includes specific requirements in procurement documents with which consultants', contractors', or suppliers' quality assurance programs must comply.

17.2.1.5 Personnel Qualifications

17.2.1.5.1 Manager, Nuclear Oversight

The qualification requirements for the Manager, Nuclear Oversight are described in Table 13.1-1.

17.2.1.6 Independent Technical Review and Controls

Activities which affect nuclear safety shall be conducted as follows:

1. Procedures required by Technical Specification 5.4 and other procedures which affect plant nuclear safety, and changes thereto, shall be prepared, reviewed and approved. Each such procedure or procedure change shall be reviewed by a qualified individual/group other than the individual/group which prepared the procedure or procedure change, but who may be from the same organization as the individual/group which prepared the procedure or procedure change. The Plant Manager shall approve Station Administrative Procedures. Other procedures shall be approved by the appropriate department manager as previously designated by the Plant Manager, in writing. Individuals responsible for procedure reviews shall be members of the Nuclear Operations Management Staff previously designated by the Plant Manager. Changes to procedures which do not change the intent of approved procedures may be approved for implementation by two members of the Nuclear Operations Management Staff, at least one of whom holds a Senior Operation License, provided such approval is prior to implementation and is documented. Such changes will be approved by the original approval authority within 14 days of implementation.

2. Proposed tests and experiments which affect plant nuclear safety shall be prepared, reviewed and approved. Each such test or experiment shall be reviewed by a qualified individual/group other than the individual/group which prepared the proposed test or experiment. Proposed test and experiments shall be approved before implementation by the Plant Manager. Individuals responsible for conducting such reviews shall be members of the Nuclear Operations Management Staff previously designated by the Plant Manager.

3. Proposed changes to Technical Specifications or Operating License. Each such change shall be reviewed by a qualified individual/group meeting the experience requirements of Regulatory Guide 1.8 revision 2, 1987 other than the individual/group which proposed the change.

4. Proposed changes, or modifications to plant nuclear safety-related structures, systems and components shall be reviewed as designated by the Vice President, Nuclear Engineering and Support. Each such modification shall be reviewed by a qualified individual/group meeting the experience requirements of ANSI N18.1-1971 Section 4.6 other than the individual/group which designed the modification, but who may be from the same organization as the individual/group which designed the modifications. Individuals/groups responsible for conducting such reviews shall be previously designed by the Vice President, Nuclear Engineering and Support. Proposed modifications to plant nuclear safety-related structures, systems, and components shall be approved by the Plant Manager prior to implementation.

5. Individuals responsible for reviews performed in accordance with the requirements of items 1 and 2 above, shall be members of the Nuclear Operations Management staff previously designated by the Plant Manager. Each such review shall include a determination of whether or not additional cross-disciplinary review is necessary. If deemed necessary, such review shall be done in accordance with the appropriate qualification requirements; and

6. Each review shall include a determination of whether or not an amendment to the operating license is required. For items requiring an amendment to the operating license, NRC approval shall be obtained prior to the Plant Manager approval for implementation.

Records of the activities described above shall be provided to the Plant Manager, SORC, and/or ORC as necessary for the required reviews.

17.2.1.6.1 Reportable Events

The following action shall be taken for all events submitted pursuant to 10CFR50.73:

Each event shall be reviewed by the SORC, and the results of this review shall be submitted to the ORC and the Senior Vice President & Chief Nuclear Officer.

Written procedures shall be established, implemented and maintained covering the Process Control Program implementation.

Changes to the PCP:

1. Shall be documented and records of reviews performed shall be retained as required by FSAR Section 17.2.17.1. This documentation shall contain:

   a. Sufficient information to support the change together with the appropriate analyses or evaluations justifying the change(s) and

   b. A determination that the change will maintain the overall conformance of the solidified waste product to existing requirements of Federal, State, or other applicable regulations.

2. Shall become effective after review and acceptance by the SORC and the approval of the Plant Manager.

Each procedure and administrative policy of Technical Specification 5.4.1 and changes thereto, shall be reviewed and approved prior to implementation as set forth above.

17.2.2 QUALITY ASSURANCE PROGRAM

The Quality Assurance Program requires a Quality Assurance manual be developed for each nuclear power plant, which prescribe specific measures to assure the quality of safety-related activities, structures, systems and components of that facility. The quality assurance requirements and controls implemented during operations of CPNPP are established by the portion of the CPNPP Quality Assurance Program in this section (17.2) of the FSAR. Quality assurance requirements and controls established by the CPNPP Quality Assurance Program for the Dry Cask Storage System shall be implemented throughout the period during which the ISFSI is licensed or the spent fuel storage cask is certified.

Quality assurance requirements and controls are established and implemented throughout the testing and operation phases at CPNPP. This program shall be implemented at least 90 days prior to fuel loading. Responsibilities and authority, and measures for the control and accomplishment of activities affecting the quality and operation of safety-related structures,

systems, and components of CPNPP are defined. The structures, systems, and components covered by the quality assurance program are discussed in Appendix 17A. These provisions apply to all activities, such as operating, maintaining, repairing, modifying, and refueling which affect the safety-related functions of those structures, systems, and components. These provisions, as necessary, shall ensure conformance with the approved design of the ISFSI or spent fuel storage cask.

A Quality Assurance Program shall be developed and implemented to attain high levels of quality assurance during the operation of CPNPP. This program shall comply with the requirements of Title 10, Code of Federal Regulations, Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Processing Plants," and certain NRC Regulatory Guides and ANSI standards as identified in the Final Safety Analysis Report (FSAR).

The Quality Assurance Program also complies with the requirements of Title 10, Code of Federal Regulations, Part 72, Subpart G, "Quality Assurance Requirements for the Independent Storage of Spent Nuclear Fuel, High Level Radioactive Waste, and Reactor-Related Greater Than Class C Waste". Appendix 17A addresses the applicability of the quality assurance program requirements and procedural controls for the Dry Cask Storage System shall be based on the following considerations concerning the complexity and proposed use of the structures, systems, or components:

1. The impact of malfunction or failure of the item on safety;

2. The design and fabrication complexity or uniqueness of the item;

3. The need for special controls and surveillance over processes and equipment;

4. The degree to which functional compliance can be demonstrated by inspection or test; and

5. The quality history and degree of standardization of the item.

Luminant Power may delegate to others such as contractors, agents, or consultants the work of establishing and executing the quality assurance program, or any part thereof, but the overall responsibility for the Quality Assurance (QA) Program lies with the Senior Vice President & Chief Nuclear Officer. Specific responsibility for development and administration of the program rests with the Manager, Nuclear Oversight. The Senior Vice President & Chief Nuclear Officer will assure that a biennial independent assessment of the evaluation program is performed.

These independent assessments will be conducted in accordance with predetermined schedules, with results documented, and a follow-up system utilized to assure that corrective action is taken and evaluated when it is considered necessary to verify implementation requirements of 10CFR50, Appendix B and 10CFR72 Subpart G, as applicable. The Vice-Presidents shall meet periodically to assess the status and adequacy of the quality assurance program.

The quality assurance requirements and controls applicable to the operations phase, comply with the requirements of 10 CFR Part 50, Appendix B. Table 17.2-1 provides a matrix showing those sections of the QA Manual which satisfy the requirements of each criterion of 10 CFR Part 50, Appendix B. The quality assurance requirements and controls shall be consistent with the

applicable guidance of those Regulatory Guides and industry standards listed in Table 17.2-2 and discussed in Appendix 1A(B).

The quality assurance requirements and controls are designed to assure that activities affecting the quality and operation of safety-related items are accomplished in a planned and controlled manner. Activities affecting quality are accomplished in accordance with written, approved procedures and instructions under suitably controlled conditions. Controlled conditions include, as applicable, appropriate equipment, suitable environmental conditions, and completion of prerequisites. All procedures prescribing activities affecting quality are controlled and distributed in accordance with the measures described in Section 17.2.6.

The Manager, Nuclear Oversight is responsible for assuring, through surveillance and audit, implementation of the Quality Assurance Program. He is responsible for regularly assessing the status and adequacy of the Program, within the Nuclear Generation Group, and as implemented by consultants, contractors, and suppliers. The Manager, Nuclear Oversight reports the results of these evaluations to the Senior Vice President & Chief Nuclear Officer. Unresolved issues between the Manager, Nuclear Oversight and others concerning quality are brought to the Senior Vice President & Chief Nuclear Officer for resolution.

The Manager, Nuclear Oversight has overall responsibility for the identification, scheduling, assignment, conduct and reporting of station activities assigned to the Nuclear Oversight. Station activities affecting quality are subject to quality surveillance and audit by Nuclear Oversight personnel.

In addition, the Manager, Nuclear Oversight has responsibility for administration and implementation of the CPNPP quality control program.

The Manager, Nuclear Oversight reviews procedures involving operation, maintenance, modification, inspection and testing during the operations phase for quality assurance requirements either as a normal function of the Station Operations Review Committee, or as described in section 17.2.6. Procedural implementation of quality requirements is periodically reviewed by the Nuclear Oversight organization through evaluation activities.

An indoctrination and training program is established for those personnel performing activities affecting quality. The scope, objectives, and methods for implementing the indoctrination and training program are prescribed by written, approved procedures. These procedures also prescribe methods for documenting the accomplishment of training. The indoctrination and training program includes provisions that personnel performing activities affecting quality are:

1. Instructed as to the purpose, scope, and implementation of the Quality Assurance Program and related procedures and instructions as appropriate to their activities.

2. Qualified in the principles and techniques of activities for which they are responsible.

3. Retrained, re-examined or recertified, when appropriate, to maintain necessary proficiency in those activities for which they are responsible.

17.2.3 DESIGN CONTROL

Requirements for the control of design activities associated with modifications (involving a new design or change in existing design) of safety-related structures, systems, and components are consistent with the provisions of Regulatory Guide 1.33, and Regulatory Guide 1.64 as discussed in Appendix 1A(B).

The Plant Manager, or his designee, shall have the responsibility for approving and controlling the implementation of station design modifications. The Vice President, Nuclear Engineering and Support shall have the overall responsibility for developing procedures to maintain and control the design control process.

The SORC will submit all proposed station design modifications which involve a change in CPNPP Technical Specifications or other changes to the operating license to the ORC for review. 10CFR50.59 evaluations on station design modifications which do not require a license amendment or a change in CPNPP Technical Specifications will be reviewed by ORC, however, this will not be a prerequisite for implementation. The Plant Manager, or his designee, approves each station design modification for implementation.

10CFR72.48 establishes the conditions under which an Independent Spent Fuel Storage Installation (ISFSI) licensee or a spent fuel storage cask certificate holder may make changes in the ISFSI facility or spent fuel storage cask design without prior NRC approval. Changes in the conditions specified in the license or Certificate of Compliance (CoC) require prior NRC approval. When changes occur that affect the Dry Cask Storage System structures, systems, and components, review and approval of the change must consider the requirements of 10CFR72.48.

All design modification requests made by station personnel shall be submitted to the Vice President, Nuclear Engineering and Support for coordination of the station level engineering review. The actual change of design for those design modification requests approved by the Plant Manager may be done by Nuclear Engineering and Support personnel or approved engineering services contractors. The above organizations will have approved design procedures and/or instructions before any design modifications are performed by the respective organization. These procedures and/or instructions will assure proper design review and verification. These procedures and instructions will also assure that design control is commensurate with the original design. The Vice President, Nuclear Engineering and Support will assure that the designer is provided with the latest revisions to all drawings, specifications, and other design documents which are applicable.

Design changes, including those originating on site, are subject to the same controls which were applicable to the original design. The Vice President, Nuclear Engineering and Support may designate an organization to make design changes other than the one which prepared the original design. In these cases, the Vice President, Nuclear Engineering and Support will assure that organization has access to pertinent background information, including an adequate understanding of the requirements and intent of the original design, and has demonstrated competence in applicable design areas.

The Vice President, Nuclear Engineering and Support shall coordinate necessary revisions to drawings and other design documents. The Plant Manager shall coordinate necessary revisions to plant procedures and instructions as a result of design changes. Changes are promptly distributed to ensure availability to responsible plant personnel prior to commencement of work

and replacement; and delineation of acceptance criteria for inspection and tests. In addition, the above controls are applied as necessary to the Dry Cask Storage System for shielding and features that facilitate documentation.

17.2.3.1 Design Changes

Design changes made to the facility are accomplished in a planned and controlled manner in accordance with written, approved procedures. These procedures include provisions, as necessary, to ensure that:

1. Design documents, specifications, drawings, and procedures and instructions reflect applicable regulatory requirements and design bases.

2. Design documents specify quality requirements or reference quality standards as necessary.

3. There is adequate review of the suitability of materials, parts, components, and processes which are essential to the safety- related functions of structures, systems, and components.

4. Materials, parts, and components which are standard commercial (off the shelf) or which have been previously approved for a different application are evaluated for suitability prior to selection.

5. Design documents are revised to reflect design modifications.

6. Internal and external design interfaces between organizations participating in design modifications are adequately controlled, including the review, approval, release, and distribution of design documents and revisions.

The above controls are applied as necessary to such aspects of design as reactor physics; seismic, stress, thermal, hydraulic, radiation, and accident analyses; compatibility of materials; and accessibility for inservice inspection, maintenance, repair and replacement; and delineation of acceptance criteria for inspections and tests. In addition, the above controls are applied as necessary to the Dry Cask Storage System for shielding and features that facilitate decontamination.

17.2.3.1.1 Design Change Verification

The adequacy of design changes shall be verified by the performance of design reviews, alternate calculations, or qualification testing. The control measures specified in the plan for control of design verification activities are as follows:

1. Personnel responsible for design verification do not include the original designer or the designer’s immediate supervisor.

2. Written procedures identify the positions or organizations responsible for design verification and define their authority and responsibility.

3. Qualification tests to verify the adequacy of the design are performed using the most adverse specified design conditions.

4. Design changes are reviewed to assure that design parameters are defined and that inspection and test criteria are identified.

Any errors or deficiencies found in the design process or the design itself are documented and corrective action taken, as described in Section 17.2.16.

Design documents and revisions thereto are controlled and distributed as described in Section 17.2.6. Records of design activities and design changes are collected, stored, and maintained, as described in Section 17.2.17.

17.2.4 PROCUREMENT DOCUMENT CONTROL

Requirements are established for the control of procurement documents prepared by NP, or their designated agents for safety-related components, materials, and services. These requirements are consistent with the provisions of Regulatory Guide 1.33 and Regulatory Guide 1.123 as discussed in Appendix 1A(B) and apply to procurement documents prepared by NP, or their designated agents.

Procurement documents, such as purchase specifications, contain or reference the following:

1. The design basis technical requirements, including the applicable regulatory requirements, material and component identification requirements, drawings, specifications, codes and industrial standards, and test and inspection requirements, including inspection hold points.

2. The applicable requirements of 10 CFR Part 50, Appendix B and of the QA Program, which must be complied with and described in the supplier's QA program; or, identification and verification of characteristics critical to the safety function of the procured item to provide reasonable assurance that the item will perform its intended safety related function.

   The applicable requirements of 10CFR72, Subpart G are imposed in procurement documents for Dry Cask Storage System items and services as required by Appendix 17A.

   When purchasing commercial grade calibration services from a calibration laboratory accredited by National Voluntary Laboratory Accreditation Program (NVLAP) or American Association for Laboratory Accreditation (A2LA), the procurement documents are not required to impose a quality assurance program consistent with the requirements of 10CR50 Appendix B or identification and verification of characteristics critical to the safety function provided each of the following conditions are met:

   a. The procurement documents impose any additional technical and administrative requirements, as necessary, to comply with NP's QA program and technical provisions. The procurement document shall require that the calibration certificate/report include identification of the laboratory equipment/standard used.

b. The procurement documents require reporting as-found calibration data when calibrated items are found to be out-of-tolerance.

c. A documented review of the supplier's accreditation has been performed as discussed in Section 17.2.7.

3. Identification of the documentation to be prepared, maintained, or submitted (as applicable) to NP for review and approval. These documents may include, as necessary, inspection and test records, qualification records, or code required documentation.

4. Identification of those records to be retained, controlled, and maintained by the supplier, and those delivered to the purchaser prior to use or installation of the hardware.

5. NP's right of access to supplier's facilities and records for source inspection and evaluation.

6. Requirements for supplier reporting and dispositioning of nonconformances from procurement requirements.

7. Provisions for extending applicable requirements of the procurement documents to lower-tier suppliers.

NP procurement documents are prepared, reviewed, approved, and controlled in accordance with written procedures which clearly delineate the sequence of actions to be accomplished and which identify the individuals or groups responsible for accomplishing those actions. These procedures include provisions for review of procurement documents. This review is performed to insure that necessary quality requirements are incorporated and correct, and that procurement requirements for spare or replacement parts are equivalent to or better than those used for the original equipment. Documentary evidence of that review and approval is retained and available for verification. Changes to purchase documents are subject to the same degree of control as that utilized in the preparation of the original documents.

NP evaluates supplier quality assurance programs prior to award of contracts or issuance of purchase orders, as discussed in Section 17.2.7.

17.2.5 INSTRUCTIONS, PROCEDURES, AND DRAWINGS

Activities affecting the quality of safety-related structures, systems, and components be prescribed by and accomplished in accordance with documented instructions, procedures, and drawings. The manager or supervisor who has cognizance over a specific safety-related activity is responsible for the development and approval of procedures and instructions for prescribing the accomplishment of that activity. Administrative procedures and instructions are reviewed and approved prior to performance of the activity. The cognizant supervisor is responsible for ensuring that the activity is performed in accordance with the procedures and instructions. The development, review, and use of procedures, instructions, and drawings is reviewed on a periodic basis by Nuclear Oversight personnel as part of the station surveillance and audit program. These requirements are consistent with the provisions of Regulatory Guides 1.33, 1.30, and 1.116 as discussed in Appendix 1A(B).

Requirements regarding the content of various types of instructions and procedures are established which provide for the inclusion, as necessary, of items such as prerequisites, precautions, qualitative or quantitative acceptance criteria, inspection points, and checklists, depending upon the nature of the instruction or procedure.

Administrative procedures clearly delineate the sequence of actions to be accomplished in the preparation, review, approval, and control of those instructions and procedures, and they identify the individuals responsible for those actions.

Confirmation that these instructions and procedures meet requirements of the QA Program and are properly implemented is accomplished through audit activities by Nuclear Oversight.

17.2.6 DOCUMENT CONTROL

Requirements are established for the control of documents that prescribe activities affecting quality. The documents which are to be controlled include:

1. Design Specifications

2. Design, manufacturing, construction, and installation drawings

3. Procurement documents

4. The QA Manual and all station procedures and instructions which implement requirements of the QA Program.

5. Maintenance, modification, and operating procedures and instructions

6. Final Safety Analysis Report

7. Inspection and test procedures and instructions

17.2.6.1 Design Control Requirements

These requirements are consistent with the provisions of Regulatory Guide 1.33 as discussed in Appendix 1A(B) and include the following measures:

1. Documents, and changes thereto, are reviewed for adequacy and approved for release by authorized personnel in accordance with written procedures. These procedures identify those individuals or groups responsible for reviewing, approving, and issuing documents and revisions thereto. These reviews include as appropriate a review for QA-related aspects by Quality Assurance or an individual other than the person who generated the documents but qualified in quality assurance.

2. Documents, and changes thereto, are promptly distributed to ensure availability prior to commencement of work.

3. Changes to documents are reviewed and approved by the same organization that performed the original review and approval unless another qualified organization is designated.

4. Master status lists identifying the current revision of documents are periodically updated and utilized to preclude the use of superseded documents.

5. Obsolete or superseded documents are destroyed or identified to prevent their inadvertent use.

6. Documents generated by NP are controlled in accordance with written, approved procedures and instructions. Maintenance, modification and inspection procedures and instructions affecting safety related equipment are reviewed by a person knowledgeable in QA disciplines to determine:

    a. The need for inspection, identification of inspection personnel, and documentation of inspection results.

    b. That the necessary inspection requirements, methods, and acceptance criteria have been identified.

The Manager, Nuclear Oversight is responsible for providing the necessary reviews of these procedures and instructions.

17.2.7 CONTROL OF PURCHASED MATERIAL, EQUIPMENT AND SERVICES

Requirements are established for the control of purchased safety-related material, equipment and services, including spare or replacement parts. These requirements are consistent with the provisions of Regulatory Guides 1.33, 1.38, 1.123, and 1.144 as discussed in Appendix 1A(B).

Measures have been established in procedures which determine the level of quality assurance required for the procurement of an item or service. As required, contractor and suppliers are evaluated by Nuclear Oversight personnel prior to award of a purchase order or contract to assure the contractor's or supplier's capability to comply with procurement document requirements. This evaluation is based on one or more of the following:

1. A review of the supplier's quality assurance program description provided with the proposal/bid.

2. A review of historical evidence of the supplier's performance in providing similar items or services.

3. A preaward survey of the supplier's facilities and QA program.

Technical requirements for items and materials to be procured are developed by the design or engineering organization responsible for the modification or maintenance activity. Procurement documents for safety related items and materials are reviewed for inclusion of technical and quality assurance requirements by inspection personnel prior to acceptance of the procured item or material. The results of the Nuclear Oversight review are documented and retained for future reference.

Evaluation and inspection of suppliers and contractors, are conducted where appropriate, to assure compliance with quality requirements. The Nuclear Oversight is responsible for evaluation and inspection of offsite suppliers and contractors and for evaluation of contractors

providing services onsite. Evaluation of suppliers and contractors is performed by qualified personnel in accordance with written procedures, instructions and checklists.

When purchasing commercial grade calibration services from a calibration laboratory, source evaluation and inspection of these suppliers need not be performed provided each of the following conditions are met:

1. The procurement documents impose any additional technical and administrative requirements, as necessary, to comply with the NP's QA program and technical provisions. The procurement document shall require the calibration certificate/report to include identification of the laboratory equipment/standard used.

2. The procurement documents require reporting as-found calibration data when calibrated items are found to be out-of-tolerance.

3. A documented review of the supplier's accreditation shall be performed and shall include a verification of each of the following:

    - The calibration laboratory holds accreditation by the National Voluntary Laboratory Accreditation Program (NVLAP) or by the American Association for Laboratory Accreditation (A2LA) as recognized by NVLAP through the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA).

    - The accreditation is based on ANSI/ISO/IEC 17025.

    - The published scope of accreditation for the calibration laboratory covers the necessary measurement parameters, ranges, and uncertainties.

Evaluation, and inspection of suppliers are performed to an extent consistent with the importance, complexity, and quantity of the item(s) being purchased and include measures to periodically confirm the validity of suppliers' certificates of conformance. For triennial supplier audits and annual supplier evaluations, a grace period of up to 90-days may be used for the scheduled commencement date when conditions, such as plant operational considerations or to accommodate supplier activities, make meeting the specified schedule date impractical. For audit and evaluation activities deferred by using this grace period, the next scheduled due date shall be based on the original scheduled date. Quality verification records are reviewed by Nuclear Oversight personnel to assure their completeness and their compliance with procurement document requirements.

17.2.7.1 Receipt Inspection and Material Testing

Receipt inspection and material testing at CPNPP is performed by qualified quality control inspectors in accordance with written procedures and instructions to assure that:

1. Materials, equipment, or components are properly identified and correspond with associated documentation.

2. Inspection records or certificates of conformance attesting to the acceptance of materials, equipment, and components are completed and are available at CPNPP prior to installation or use.

3. Materials, equipment, and components are inspected and judged acceptable in accordance with predetermined inspection instructions prior to installation or use.

4. Items accepted or released are identified as to their inspection status prior to forwarding them to a controlled storage area or releasing them for installation or further work.

5. Nonconforming items are clearly identified, controlled, and segregated where practical, until proper disposition is made.

17.2.8 IDENTIFICATION AND CONTROL OF MATERIALS, PARTS, AND COMPONENTS

Requirements are established for the identification and control of safety-related materials, parts, and components, including spare or replacement items, as well as expendable and consumable items. These requirements are consistent with the provisions of Regulatory Guides 1.33, and 1.38 as discussed in Appendix 1A(B).

Materials, parts, and components are identified and controlled to prevent the use of incorrect or defective items. Identification of items is maintained either on the item in a manner that does not affect the function or quality of the item, or on records traceable to the item.

Suppliers of safety-related materials, parts, or components are required by procurement documents to establish a system of identification and control which is consistent with the above requirements.

Procedures and instructions implementing these requirements provide for the following:

1. Verification that items received onsite are properly identified and can be traced to the appropriate documentation, such as drawings, specifications, purchase orders, manufacturing and inspection documents, nonconformance reports, or mill test reports.

2. Verification of item identification consistent with the inventory control system and traceable to documentation which identifies the proper uses or applications of the item.

17.2.9 CONTROL OF SPECIAL PROCESSES

Requirements are established for the control of special processes, which are those processes where direct inspection is impossible or disadvantageous such as welding, heat treating, nondestructive testing, and cleaning, which are consistent with the provisions of Regulatory Guides 1.30, 1.33, 1.37, 1.58, and 1.94 as discussed in Appendix 1A(B).

Special processes are performed by qualified personnel using proper equipment and in accordance with written qualified procedures and instructions. These personnel, procedures and instructions are to be qualified in accordance with applicable codes, standards, and specifications. Qualification records of special process procedures and instructions, and personnel performing special processes are filed, maintained, and available for verification.

Qualification of special processes, equipment, and personnel is the responsibility of the cognizant Managers or Supervisors.

Qualified test laboratories and consultants may be used in qualification of special processes. Procedures shall be developed which delineate the requirements for special process. These procedures shall be reviewed by Nuclear Oversight or other qualified personnel.

17.2.10 INSPECTION

Requirements are established for an inspection program to verify conformance of activities affecting quality with requirements specified for those activities. These requirements are consistent with the provisions of Regulatory Guides 1.30, 1.33, 1.39, 1.58, 1.94, 1.116, and 1.123 as discussed in Appendix 1A(B).

The Manager, Nuclear Oversight is responsible for administering and implementing an effective inspection program at CPNPP. Quality Control inspections are performed by personnel who are qualified and certified in accordance with ANSI N45.2.6-1978 and who are independent of the individuals performing or directly supervising the activity being inspected. Personnel performing these inspections may be from the same department but are not from the same group that performed the work. Personnel performing inspections may be selected from among any of the Nuclear Generation departments or may be contract personnel. Qualification criteria for inspection personnel are reviewed and approved by a Level III inspector and concurred with by the Manager, Nuclear Oversight. Inspection personnel have authority to stop unsatisfactory work and control further processing, delivery, or installation of nonconforming material, parts or components. The inspectors' qualification and certification records/documentations are maintained by the Nuclear Generation training program. The inspectors' qualifications and certifications are maintained current by actual performance of inspections on a periodic basis. Quality independent verifications are identified by designated inspection personnel and performed by personnel who did not perform the work as assigned by line management. These verifications are overviewed by the Nuclear Oversight to ensure compliance to requirements.

Inspections at CPNPP are performed in accordance with written procedures, instructions, or checklists, appropriate to the circumstances which provide for the following:

1. Identification of characteristics and activities to be inspected, including inspection hold points.

2. Acceptance and rejection criteria.

3. Method of inspection.

4. Recording the results of the inspection and identification of the quality control inspector.

5. Indirect control by monitoring of processing methods, equipment, and personnel when direct inspection is not possible.

6. Identification of any required procedures, drawings, or specifications.

Station administrative procedures controlling the Measuring and Test Equipment program contain criteria for determining the accuracy of M&TE to be used in performing inspections depending upon the accuracy requirements of the parameters being measured.

Maintenance, repair, and modification procedures and instructions containing inspection criteria shall be reviewed by a Level II or III inspector qualified in accordance with ANSI N45.2.6-1978 to ensure that adequate inspection hold points are included and that the inspection methods are adequate. Criteria contained in appropriate station administrative procedures and in applicable codes and standards shall be used in determining when inspections and tests are required.

In addition, administrative control procedures and instructions are reviewed by Nuclear Oversight to assure that required controls are included and to provide for the necessary reviews for the assignment of inspection hold points.

Inspection results are documented in accordance with procedures and instructions developed and approved for that activity. Inspection results are evaluated and then acceptability determined by individuals qualified to perform that function in accordance with the station training program. Records of the evaluations are documented and retained in the station quality records.

Contractors performing work at CPNPP and equipment and material suppliers are required to work under inspection programs consistent with applicable codes and standards. These contractors and suppliers are required to provide work plans or inspection and fabrication procedures or outlines, which are reviewed for adequacy by NP personnel.

17.2.11 TEST CONTROL

Requirements are established for the control of testing of safety-related systems, equipment, and structures. These requirements are consistent with the provisions of Regulatory Guides 1.30, 1.33, 1.58, 1.68, 1.68.2, 1.94, and 1.116 as discussed in Appendix 1A(B).

17.2.11.1 Test Program

Preoperational and initial startup testing is performed in accordance with Section 14.2 of the FSAR.

Surveillance testing is performed during the operational phase to verify continuing operational readiness and adequacy for those systems and components which are normally in a standby condition and to evaluate whether there has been any degradation of performance, or any departure from the prescribed operating conditions for the systems or components normally in service.

Tests are performed following station modifications or repairs to demonstrate satisfactory performance prior to placing affected items in service. When pressure boundaries are breached functional tests shall be conducted to the extent required to demonstrate acceptability of the repair or maintenance.

17.2.11.2 Test Procedures

Testing is identified, documented, and controlled in accordance with written administrative procedures. Each test is accomplished in accordance with written test procedures by qualified personnel.

The administrative procedures controlling the test program identify the necessary test procedures, the provisions to be included in those procedures, the method of reviewing and approving those procedures, and the methods for documenting and evaluating the results.

Test procedures include the following provisions as appropriate:

1. Prerequisites - those items of work which must be completed prior to establishing initial conditions for the test, including:

   a. Calibrated instrumentation;

   b. Adequate and appropriate equipment;

   c. Initial conditions and completeness of the item to be tested; and

   d. Suitable environmental conditions, if applicable.

2. Special precautions - items needed for safety of personnel or equipment. Special situations where caution or extraordinary attentiveness to operational circumstances is required.

3. Instructions for performing the test - steps required to conduct the test, observations to be made, data to be recorded.

4. Acceptance criteria - criteria against which the success or failure of the test can be determined.

5. Provisions for collecting, documenting, or recording test data and results.

6. Requirements and acceptance limits contained in the ISFSI or spent fuel storage cask license or Certificate of Compliance.

17.2.11.3 Test Results

Records of test results are reviewed by qualified personnel to assure acceptability. These records are retained as quality verification records in accordance with the controls described in Section 17.2.17.

17.2.12 CONTROL OF MEASURING AND TEST EQUIPMENT

Measuring and Test Equipment (M&TE) used for safety-related structures, systems and components are highly reliable, commercial grade items. The Luminant Power Quality Assurance Program provides measures for the control of M&TE used as the basis for acceptance in inspection, testing, and measurement activities which affect quality.

The Nuclear Generation organization is responsible for the development of procedures for the M&TE control program. These procedures delineate responsibilities for the implementation of this program and methods for the procurement, handling, storage, control, scheduling, and calibration of M&TE and reference standards. For the operations phase, these methods are consistent with the provisions of Regulatory Guide 1.33 as discussed in Appendix 1A(B).

Luminant Power Nuclear Oversight performs pre-award evaluations/surveys as well as periodic evaluations to assure adequacy and effective implementation of the M&TE program.

M&TE and reference standards are traceable to their calibration records. These devices are labeled or tagged to indicate the next calibration due date or otherwise controlled in accordance with approved procedures which ensure only M&TE and reference standards with current calibration are utilized.

Periodic calibration and adjustment of M&TE is performed and controlled to assure accuracy is maintained within limits necessary to verify that design and operating condition requirements have been met. M&TE is normally calibrated against reference standards which have an uncertainty of no more than one fourth (1/4) of the required uncertainty of the M&TE being calibrated. If this 4:1 accuracy requirement is not reasonably achievable, a documented evaluation of the adequacy of the calibration is performed and approved by the responsible Engineering group.

Calibrating standards have accuracy greater than or equal to reference standards being calibrated. If equal accuracy is used, the basis for calibration is documented and approved by the Luminant Power manager of the organization which is responsible for the calibration.

M&TE and reference standards are traceable to nationally or internationally recognized standards or natural physical constants. Where no nationally or internationally recognized standard or natural physical constant exists, the basis for calibration is documented and approved by the Luminant Power manager of the organization which is responsible for the calibration.

When M&TE or reference standards are lost or found to be out of calibration, a documented review is conducted to determine the validity of all inspection, test and/or measurement results gained through the use of the affected device since its last acceptable calibration. Corrective action is taken for items determined to be suspect.

Contractor and supplier organizations which provide engineering/calibration services to Luminant Power are responsible for implementing measures to ensure that M&TE accuracy is maintained within required limits. The M&TE programs of these organizations shall satisfy the Luminant Power M&TE program requirements.

17.2.13 HANDLING, STORAGE, AND SHIPPING

Requirements are established for the control, handling, storage, shipping, cleaning, and preservation of material and equipment in accordance with established instructions, procedures, or drawings. These requirements are consistent with the provisions of Regulatory Guides 1.33, 1.38, and 1.39 as discussed in Appendix 1A(B) and include the following provisions, as necessary:

1. For critical, sensitive, perishable, or high value items, specific written procedures and instructions for handling, storing, packing, shipping, and preserving are used. These procedures and instructions reflect design and specification requirements such as inert gas atmosphere, specific moisture content levels, and temperature levels, and reflect manufacturers recommendations in regards to special handling and storage requirements such as shelf life and environmental controls.

2. Personnel responsible for handling these special items are qualified to the extent required by these special handling instructions.

3. Special handling tools and equipment are inspected and tested in accordance with written procedures to verify that they are adequately maintained.

17.2.14 INSPECTION, TEST, AND OPERATION STATUS

Requirements are established for identification and control of the inspection, test, and operating status of safety-related structures, systems, and components. These requirements are consistent with the provisions of Regulatory Guide 1.33 as discussed in Appendix 1A(B).

Written procedures and instructions prescribe the use of tags, labels, and logs to indicate the inspection, test, and operating status of systems and equipment at CPNPP. These procedures and instructions also provide for tagging of nonconforming, inoperative, or malfunctioning equipment to prevent inadvertent use. In addition, these procedures and instructions identify those individuals who are authorized to apply or remove those tags and labels and provide for the use of logs to maintain the status of tags and labels in use at CPNPP.

CPNPP personnel and contractor personnel working onsite are instructed regarding the purpose of, and precautions associated with, the various tags and labels used at CPNPP. Proper use of tags and labels to indicate inspection, test, and operating status is verified through evaluations by the Nuclear Oversight.

17.2.15 NONCONFORMING MATERIALS, PARTS, OR COMPONENTS

Requirements are established for the control of nonconforming materials, parts or components. These requirements are consistent with the provisions of Regulatory Guides 1.33, 1.38, and 1.123 as discussed in Appendix 1A(B).

Material, parts, or components found nonconforming through review, inspection, or testing are controlled by administrative procedures. These procedures provide for the following:

1. Identification of nonconforming items, prior to installation, by use of nonconformance tags, and segregation of those items, if practical, to prevent inadvertent use pending proper disposition and reinspection.

2. Identification of those individuals or organizations responsible for disposition of nonconforming items.

3. Preparation of nonconformance documents which identify nonconforming items and describe the nonconformance, the disposition of the nonconformance, and the

reinspection or testing performed to determine the acceptability of the item after the disposition has been completed.

4. Review of nonconformance documents written on installed plant equipment to determine impact on operability. The administrative controls assure that nonconforming materials do not affect the operability of safety related equipment in violation of Technical Specification requirements.

5. Conditional releases allow issuance of nonconforming items from the warehouse for installation, testing, and operation, pending disposition of the nonconformance. For nonconforming items installed with a conditional release, and affecting Technical Specifications, credit may be taken for Technical Specification operability of the item, provided that: a) resolution of the nonconforming condition is tracked, and b) evaluation of the nonconforming condition supports operability of the component. Each conditional release also describes any limitations or special precautions required. Conditional releases are periodically evaluated as to their status and the results forwarded to management for their review.

6. Verification of the acceptability of rework/repair of items by reinspection or testing of the item as originally performed or by a method which is equivalent to the original inspection and testing method.

7. Nonconformance reports which are dispositioned “use as is” or “repair” are made part of the quality verification records associated with the items.

8. Periodic analysis of these reports to be performed and forwarded to management to show quality trends.

Responsibility for the implementation of activities related to nonconformance control including disposition and closeout is assigned to the cognizant manager of the area of concern. Nonconformances which are resolved by repair or use-as-is dispositions are reviewed and approved by Engineering.

Independent evaluation of activities related to nonconformance control are performed by appropriate Nuclear Oversight personnel or designee.

Marking and segregation of nonconforming items, when required, are addressed in station procedures. Compliance with these administrative requirements is verified through the station evaluation program.

17.2.16 CORRECTIVE ACTION

Requirements are established for the identification and correction of conditions adverse to quality. These requirements are consistent with the provisions of Regulatory Guide 1.33 as discussed in Appendix 1A(B). The Director, Performance Improvement is responsible for administrating and facilitating the corrective action program.

Conditions adverse to quality, such as failures, malfunctions, deficiencies and deviations, identified through review of documents, evaluations, or experience during operation, are documented and dispositioned. Significant conditions adverse to quality are evaluated to

determine the cause of the condition and the corrective action to be taken to preclude recurrence.

Reports of significant conditions adverse to quality are reviewed by the Operation Review Committee and that committee's decisions and/or recommendations regarding corrective action are forwarded to appropriate management personnel. Follow-up reviews to verify proper implementation of corrective action are conducted by Nuclear Oversight personnel.

17.2.17 QUALITY ASSURANCE RECORDS

Requirements are established for the identification, collection, and storage of quality assurance records. These requirements are consistent with the provisions of Regulatory Guides 1.33 and 1.88 as discussed in Appendix 1A(B).

Sufficient records are maintained to provide documentary evidence of the quality of items and of the accomplishment of activities affecting quality. Records to be maintained include such items as drawings, specifications, procurement documents, nonconformance reports, corrective action reports, operating logs, personnel and procedure qualifications, results of inspections and test, material certifications and test results, and audit reports.

Quality assurance records are maintained in accordance with procedures and instructions which assign responsibilities for the collection, maintenance, and protection of records. These procedures and instructions provide a system of record identification to assure retrievability and prescribe retention periods for various types of records.

The Vice President, Nuclear Engineering and Support is responsible for development of procedures and instructions to implement the management requirements related to QA records.

Quality assurance records are stored in specially constructed storage facilities at CPNPP to prevent their destruction, deterioration, or theft. These storage facilities are designed, constructed, and maintained in accordance with the applicable requirements of the regulatory guides referenced above. Access to the records facilities is controlled so that only authorized personnel have access to the records areas. As allowed by ANSI N45.2.9-1974, maintenance of duplicate records, stored in a remote location may be used as an alternative to the utilization of these storage facilities, and the appropriate administrative controls for the maintenance of duplicate records are prescribed by procedures and instructions. Quality Assurance records may be stored on optical disk. For those records, the optical disk imaging system used will meet the requirements of NRC Generic Letter 88-18. CPNPP will manage the storage of QA Records in electronic media consistent with the intent of RIS 2000-18 and associated NIRMA Guidelines TG11-1998, TG15-1998, TG16-1998, and TG21-1998.

17.2.17.1 Record Retention

In addition to the applicable record retention requirements of Title 10, Code of Federal Regulations, the following records shall be retained for at least the minimum period indicated.

The following records shall be retained for at least 5 years:

1. Records and logs of unit operation covering time interval at each power level;

2. Records and logs of principal maintenance activities, inspections, repair and replacement of principal items of equipment related to nuclear safety;

3. All events reported pursuant to 10CFR50.73;

4. Records of surveillance activities, inspections and calibrations required by the Technical Specifications, Technical Requirements Manual, and Fire Protection Report, except as explicitly covered in Section 17.2.17.1.2;

5. Records of changes made to the procedures required by Technical Specification 5.4.1;

6. Deleted

7. Records of sealed source and fission detector leak tests and results; and

8. Records of annual physical inventory of all sealed source material of record.

17.2.17.2 The following records shall be retained for the duration of the unit Operating License:

1. Records and drawing changes reflecting unit design modifications made to systems and equipment described in the Final Safety Analysis Report;

2. Records of new and irradiated fuel inventory, fuel transfers, and assembly burnup histories;

3. Records of doses received by all individuals for whom monitoring was required by 10CFR Part 20;

4. Records of gaseous and liquid radioactive material released to the environs;

5. Records of transient or operational cycles for those unit components identified in FSAR Table 3.9N-1A;

6. Records of reactor tests and experiments;

7. Records of training and qualification for current members of the unit staff;

8. Records of inservice inspections performed pursuant to the Technical Specifications;

9. Records of Nuclear Oversight activities required by the Quality Assurance Manual;

10. Records of reviews performed for changes made to procedures or equipment or reviews of tests and experiments pursuant to 10CFR50.59 to 10CFR50.59 and 10CFR72.48, as applicable;

11. Records of meetings of the SORC and the ORC;

12. Records of the service lives of all hydraulic and mechanical snubbers required by the Technical Requirements Manual including the date at which the service life commences and associated installation and maintenance records;

13. Records of secondary water sampling and water quality;

14. Records of analyses required by the Radiological Environmental Monitoring Program that would permit evaluation of the accuracy of the analysis at a later date. This should include procedures effective at specified times and QA records showing that these procedures were followed; and

15. Records of reviews performed for changes made to the OFFSITE DOSE CALCULATION MANUAL and the PROCESS CONTROL PROGRAM.

16. Records of radioactive shipments.

17.2.17.3 The following additional record retention requirements apply to the Dry Cask Storage System structures, systems, and components that are classified as important to safety in accordance with 10CFR72 and NUREG/CR-6407, "Classification of Transportation Packaging and Dry Spent Fuel Storage System Components According to Importance to Safety":

1. Documentary evidence that material and equipment conform to procurement specifications shall be retained for the life of the ISFSI or spent fuel storage cask as defined in the applicable appendix to the CPNPP QA Manual.

2. Records pertaining to the design, fabrication, erection, testing, maintenance, and use of structures, systems, and components important to safety shall be retained until the NRC terminates the license or Certificate of Compliance (CoC).

3. Records showing the receipt, inventory (including location), disposal, acquisition, and transfer of special nuclear material including spent fuel must be retained for as long as the material is stored and for a period of 5 years after the material is disposed of or transferred out of the ISFSI. These records must include, as a minimum, the name of the shipper of the material to the ISFSI, the estimated quantity of radioactive material per item (including special nuclear material in spent fuel), item identification and seal number, storage location, onsite movements of each fuel assembly or storage canister, and ultimate disposal. These records must be kept in duplicate at separate locations sufficiently remote from the original records that a single event would not destroy both sets of records.

17.2.18 AUDITS

Requirements are established for an Audit program. The Audit program is consistent with the applicable portions of Regulatory Guides 1.33, 1.144, and 1.146 as discussed in Appendix 1A(B).

Planned and periodic audits are performed in accordance with written procedures to verify compliance with all aspects of the quality assurance program. Audit reports shall be forwarded to the Senior Vice President & Chief Nuclear Officer and to the management positions

responsible for the areas audited within 30 days after completion of the audit by the auditing organization. Responsibility for the evaluation program has been assigned to the Manager, Nuclear Oversight. Audits are conducted or coordinated by Nuclear Oversight personnel and shall include evaluation and examination of the following quality-related activities:

1. The conformance of unit operation to provisions contained within the Technical Specifications and applicable license conditions at least once per 24 months;

2. The performance, training and qualifications of the entire unit staff at least once per 24 months;

3. The results of actions taken to correct deficiencies occurring in unit equipment, structures, systems or method of operation that affect nuclear safety, at least once per 24 months;

4. The performance of activities required by the Operational Quality Assurance Program to meet the criteria of Appendix B, 10CFR50, at least once per 24 months;

5. The fire protection programmatic controls, including the implementing procedures, program implementation, and fire protection equipment at least once per 24 months by qualified licensee Nuclear Oversight personnel and qualified offsite fire protection engineers;

6. The fire protection equipment and program implementation at least once per 36 months utilizing an outside independent fire protection consultant.

7. The Radiological Environmental Monitoring Program and the results thereof at least once per 24 months;

8. The OFFSITE DOSE CALCULATION MANUAL and implementing procedures at least once per 24 months;

9. The PROCESS CONTROL PROGRAM and implementing procedures for processing and packaging of radioactive wastes at least once per 24 months;

10. The performance of activities required by the Quality Assurance Program for effluent and environmental monitoring at least once per 24 months.

11. Any other area of unit operation considered appropriate by the ORC or the Senior Vice President & Chief Nuclear Officer; and

12. The performance of activities required by the Technical Requirements Manual at least once per 24 months.

13. The performance of activities required by the Operational Quality Assurance Program to meet the criteria of subpart G, 10CFR72, at least once per 24 months.

17.2.18.1 Audit Organizations

Organizations performing activities affecting quality that are subject to evaluation include the following:

1. The nuclear engineering and support, operations, regulatory affairs and Nuclear Oversight organizations for CPNPP.

2. Contractors, consultants, and suppliers of quality related items or service. NVLAP and A2LA accredited commercial grade calibration suppliers do not require audit when evaluated in accordance with Section 17.2.7.

17.2.18.2 Nuclear Oversight

As part of the Quality Assurance Program Nuclear Oversight:

1. Utilizes an audit planning document which defines the organizations and activities to be evaluated and the frequency of the audits. The audit schedule is performance-based and additional audits may be scheduled based upon program or functional area performance or other factors that indicate the need for increased assessment. For audits, other than those audit areas with a maximum frequency specified by regulation (Security and Emergency Plan), a grace period of up to 90-days may be used for the scheduled commencement date when conditions, such as plant operational considerations or to accommodate performance-based observations of activities related to the audit area, make meeting the specified schedule date impractical. For audit activities deferred by using this grace period, the next scheduled due date shall be based on the original schedule date.

2. Requires auditors to be familiar with the type of activities to be evaluated and have no direct responsibilities in the area being evaluated.

3. Provide audit checklists or other objective guidelines to identify those activities which affect quality.

4. Requires examination of the essential characteristics of the quality activity examined.

5. Requires an audit report be prepared that notes the extent of examination and deficiencies found.

6. Requires the audit report be sent to management responsible for the area evaluated for review and corrective action for deficiencies.

7. Requires corrective action taken as result of the audit be reported.

8. Requires re-audit of deficient areas when it is considered necessary to verify implementation of required corrective actions.

9. Requires vendors/subcontractors to comply with items 1-8 above to the extent necessary.

Documentation of audits performed by participating contractors is made available to Nuclear Generation for evaluation.

17.2.18.2.1 Nuclear Generation Verification

In summary, Nuclear Generation verifies conformance of the regulatory audit requirements by three methods:

1. Review of contractor's/vendors' quality assurance methods for auditing.

2. Review of documentation of the audit report performed by these contractors/vendors.

3. Internal and external evaluations performed by Nuclear Oversight personnel.

TABLE 17.2-1
CPNPP QA MANUAL COMPLIANCE MATRIX

(Sheet 1 of 2)

COMANCHE PEAK QUALITY ASSURANCE MANUAL		APPENDIX B QUALITY ASSURANCE CRITERIA																	
		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII
1.0	Organization	X																	
2.0	Quality Assurance Plan		X																
3.0	Design Control			X															
4.0	Procurement Document Control				X														
5.0	Instructions, Procedures and Drawings					X													
6.0	Document Control						X												
7.0	Control of Purchased Items and Services							X											
8.0	Identification and Control Items								X										
9.0	Control of Construction Processes									X									

TABLE 17.2-1
CPNPP QA MANUAL COMPLIANCE MATRIX

(Sheet 2 of 2)

COMANCHE PEAK QUALITY ASSURANCE MANUAL		APPENDIX B QUALITY ASSURANCE CRITERIA																	
		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII
10.0	Examinations, Tests and Inspections										X								
11.0	Test Control											X							
12.0	Control of Measuring and Test Equipment												X						
13.0	Handling, Storage, and Preservation													X					
14.0	Examination or Test Status														X				
15.0	Nonconforming Items															X			
16.0	Corrective Action																X		
17.0	Quality Assurance Records																	X	
18.0	Audits																		X

TABLE 17.2-2
REGULATORY GUIDES AND INDUSTRY STANDARDS

(Sheet 1 of 2)

The CPNPP quality assurance program is consistent with the applicable guidance of the NRC Regulatory Guides and industry standards listed below. Luminant Power will commit to comply with the respective regulatory positions as discussed in Appendix 1A(B).

Regulatory Guide	Title
1.8	Personnel Selection and Training (endorses ANSI N18.1-1971)
1.26	Quality Group Classifications and Standards for Water-, Steam-, and Radioactive- Waste-Containing Components of Nuclear Power Plants (see Appendix 1A(B) for CPNPP position and compliance)
1.29	Seismic Design Classification
1.30	Quality Assurance Requirements for Installation, Inspection, and Testing of Instrumentation and Electric Equipment (endorses ANSI N45.2.4-1972)
1.33	Quality Assurance Program Requirements (Operations) (endorses ANSI N18.7-1976)
1.37	Quality Assurance Requirements for Cleaning of Fluid Systems and Associated Components of Water-Cooled Nuclear Power Plants (endorses ANSI N45.2.1-1973)
1.38	Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage, and Handling of Items for Water-Cooled Nuclear Power Plants (endorses ANSI N45.2.2-1972)
1.39	Housekeeping Requirements for Watercooled Nuclear Power Plants (endorses ANSI N45.2.3-1973)
1.58	Qualification of Nuclear Power Plant Inspection. Examination, and Testing Personnel (endorses ANSI N45.2.6-1978)
1.64	Quality Assurance Requirements for Design of Nuclear Power Plants (endorses ANSI N45.2.11-1974)
1.74	Quality Assurance Terms and Definitions (endorses ANSI N45.2.10-1973)

TABLE 17.2-2
REGULATORY GUIDES AND INDUSTRY STANDARDS

(Sheet 2 of 2)

Regulatory Guide	Title
1.88	Collection, Storage and Maintenance of Nuclear Power Plant Quality Assurance Records (endorses ANSI N45.2.9-1974)
1.94	Quality Assurance Requirements for Installation, Inspection, and Testing of Structural Concrete and Structural Steel During the Construction Phase of Nuclear Power Plants (endorses ANSI N45.2.5-1974)
1.116	Quality Assurance Requirements for Installation, Inspection, and Testing of Mechanical Equipment and Systems (endorses ANSI N45.2.8-1975)
1.123	Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants (endorses ANSI N45.2.13-1976)
1.144	Auditing of Quality Assurance Programs for Nuclear Power Plants (endorses ANSI N45.2.12 - see Appendix 1A(B) for CPNPP position and compliance)
1.146	Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants (endorses ANSI N45.2.23-1978)

17A LIST OF QUALITY ASSURED ITEMS

17A.1 SCOPE OF QA APPLICABILITY

This appendix identifies major safety-related items for Comanche Peak Nuclear Power Plant (CPNPP) within the scope of the nuclear quality assurance (QA) programs established to meet the requirements of Appendix B to 10 CFR Part 50. Safety-related items listed require special consideration during design, purchasing, fabrication, handling, shipment, storage, cleaning, erection, installation, inspection, testing, operation, maintenance, repair, refueling, and modification. These items include structures, systems, and components or portions thereof that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public.

This appendix also identifies major non-safety related items for CPNPP and the appropriate level of quality assurance where applicable.

Table 17A-1 (the Q-List) identifies the systems and components and their applicable quality assurance requirements for the operation of CPNPP.

The quality assurance applied to the safety related structures, systems, and components as identified in Table 17A-1 are consistent with the safety function that a structure, system, or component is to perform and are determined by engineering as a design function. Table 17A-2 provides the quality assurance notes applicable to Table 17A-1 and the classification of equipment to which they are applied.

Respective descriptions of the quality assurance related activities of these organizations (Criteria I through XVIII of the Appendix B to 10 CFR Part 50) are presented in Sections 17.1 and 17.2. As a minimum, Table 17A-1 includes all safety-related structures, systems, and components discussed in Section 3.2.1.1 (Seismic Category I) and Section 3.2.1.2 (Seismic Category II).

Table 17A-1 also includes other items of the plant not classified as safety-related but for which some degree of quality assurance applies. These items augment reliable performance of safety-related items. In order to ensure that appropriate quality assurance measures are applied to these items and other programmatic activities during the operations phase, Luminant Power has established a specifically structured non-Appendix B quality assurance program to augment the Appendix B quality assurance program for safety-related systems and activities described in Section 17.2. This specifically structured program is defined in an Appendix to the CPNPP QA Manual.

The existing quality program controls established to meet 10CFR50 Appendix B may be applied to the Dry Cask Storage System structures, systems and components that are important to safety. The applicability of existing quality assurance program requirements for the Dry Cask Storage System are defined in an Appendix to the CPNPP QA Manual.

Changes to FSAR Table 17A-1 are reviewed and accepted by the Manager, Nuclear Oversight. The FSAR amendment promulgating the change is approved and submitted by the Senior Vice President & Chief Nuclear Officer.

17A.2 CRITERIA FOR APPLICATION OF QA

Because the Table 17A-1 serves as a basis for identifying safety- related structures, systems, and components which require consideration in accordance with the QA programs, the following criteria were applied for establishment of the list:

1. Safety Classification

   Systems and components, consistent with their function, were designated as Safety Class 1, 2, 3, 1E, Non-1E, N/A or non-nuclear safety (NNS) (see Section 3.2.2). Safety-related components or their portions designed to the ASME B&PV Code, Section III, are subject to QA programs, and are listed in Table 17A-1.

2. Seismic Category Classification

   a. Seismic Category I

      Structures, systems, and components designated as seismic Category I in accordance with Reg.Guide 1.29 are subject to QA and are listed in the Table 17A-1.

   b. Seismic Category II

      Systems and components which require some seismic design requirements in accordance with Reg.Guide 1.29, but not to the extent of seismic Category I, are listed as seismic Category II.

   c. Seismic Category NONE

      Those systems and components which have no seismic design requirements are listed as seismic Category “NONE”.

3. Additional Classification of Mechanical Components

   All NNS piping and plumbing designated as Class 5 are listed. See Section 3.2.2 for a discussion of the Class 5 categorization.

4. Fire Protection

   Systems and components provided for fire protection for safety- related areas and subject to quality assurance requirements as described in Section 9.5.1 are listed.

5. Radioactive Waste Management Systems (RWMS)

   Systems and components which process radioactive waste are included. The boundaries of RWMS are shown on the flow diagrams.

6. Other

Those systems and components which are given some QA because of criteria not discussed above are also listed. Some components which have no QA requirements are also listed to satisfy information requirements of FSAR Section 3.2 and to provide clarification on QA applicability.

17A.3 INDEX

Table 17A-1 is divided into the following systems:

SYSTEM NO.	SYSTEM
1.	Reactor Coolant System (RCS)
2.	Chemical and Volume Control System (CVCS)
3.	Boron Thermal Regeneration Subsystem (BTRS)
4.	Safety Injection System (SIS)
5.	Residual Heat Removal (RHR) System
6.	Boron Recycle System (BRS)
7.	Containment Spray System (CSS)
8.	Containment Isolation System
9.	Combustible Gas Control System
10.	Component Cooling Water System (CCWS)
11.	Station Service Water System (SSWS)
12.	Main Steam, Reheat and Steam Dump System
13.	Auxiliary Feedwater System
14.	Steam Generator Feedwater System
15.	Diesel Generator, Fuel Oil, and Auxiliary Systems
16.	Spent Fuel Pool Cooling and Cleanup System
17	Liquid Waste Processing System (LWPS)
18.	Gaseous Waste Processing System (GWPS)
19.	Solid Waste Management System (SWMS)
20.	Demineralized and Reactor Makeup Water System
21.	Vents and Drains System

SYSTEM NO.	SYSTEM
22.	Containment Ventilation Systems
23.	Control Room Air-Conditioning System
24.	Safeguards Building HVAC System
25.	Fuel Building Ventilation System
26.	Diesel Generator Building Ventilation System
27.	Uncontrolled Access Area Ventilation System
28.	Primary Plant Ventilation System
29.	Auxiliary Building HVAC System
30.	Service Water Intake Structure Ventilation System
31.	Chilled Water Systems
32.	Process Sampling System
32.a	Post Accident Sampling System
32.b	Secondary Sampling System
33.	Fuel Handling Equipment
34.	Containment Building Miscellaneous Equipment
35.	Miscellaneous Handling Equipment
36.	Structures
37.	Electrical Equipment
38.	Radiation Monitoring System
39.	Fire Protection System
40.	Plant Gas System
41.	Instrumentation and Control Equipment
42.	Tornado Venting Components
43.	Compressed Air Systems
44.	Protective Coatings
45.	Potable and Sanitary Water System

SYSTEM NO.	SYSTEM
46.	Condensate System
47.	Auxiliary Steam System
48.	Steam Generator Blowdown & Cleanup System
49.	Pipe Whip Restraints
50.	Meteorological Instrumentation
51.	Uninterruptible Power Supply (UPS) Area Air-Conditioning System
52.	Turbine Plant Cooling Water System
53.	Condensate Polishing System
54.	Condenser Vacuum and Waterbox Primary System
55.	Heater Drains System
56.	Chemical Feed System
57.	Security Systems
58.	Chlorination Systems

TABLE 17A-1
LIST OF QUALITY ASSURED STRUCTURES, SYSTEMS AND COMPONENTS

(Sheet 1 of 58)

System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
1. Reactor Coolant System (RCS)							
Reactor vessel	1	ASME III	1	I	Note A	5.3	
CRDM housings	1	ASME III	1	I	Note A		
CRDM head adapter plugs	1	ASME III	1	I	Note A		
Reactor vessel supports	1	ASME III	1	I	Note A	5.4.14	
Steam generator							
Tube side 1	1	ASME III	1	I	Note A	5.4.2	
Shell side 1	2	ASME III	1	I	Note A		Note 8
Steam generators supports	1	ASME III	1	I	Note A	5.4.14	
Steam generator restraints	1	ASME III	1	I	Note A		
Pressurizer	1	ASME III	1	I	Note A	5.4.10, II.E.3.1	Note 1b
Pressurizer support skirt	1	ASME III	1	I	Note A	5.4.14	
Reactor coolant hot- and cold-leg piping and fittings, and fabrication	1	ASME III	1	I	Note A	5.4.3	
Surge pipe & fittings and fabrication	1	ASME III	1	I	Note A	5.4.10	
Piping and Valves (including RCS vents)	2	ASME III	2	I	Note A	II.B.1	Note 79
Piping and valves (including RCS vents)	1	ASME III	1	I	Note A	3.9N, II.B.1	Note 79
Crossover leg piping & fittings and fabrication	1	ASME III	1	I	Note A	5.4.3	
Pressurizer safety valves	1	ASME III	1	I	Note A	5.4.13	Note 79
Power-operated relief valves	1	ASME III	1	I	Note A	5.4.13	Note 79
PORV accumulators	3	ASME III	3	I	Note A		

TABLE 17A-1
LIST OF QUALITY ASSURED STRUCTURES, SYSTEMS AND COMPONENTS

(Sheet 2 of 58)

System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Check valves for PORV Accumulators	3	ASME III	3	I	Note A		Note 79
Tubing between piping and PORV Accumulators (Unit 1 Only)	3	ASME III	-	I	Note A	3.9B	Note 41
Pressurizer PORV Block Valves	1	ASME III	1	I	Note A	5.4.12	Note 79
PORV and Safety Valve Limit Switches	1E	IEEE-323	-	I	Note A	II.D.3	
Valves of Safety Class 1 to Safety Class 2 interface	1	ASME III	1	I	Note A	5.4.12	Note 79
High Point vent valves	2	ASME III	2	I	Note A	5.1	Note 79
Pressurizer relief tank	NNS	ASME VIII	-	NONE	Note E	5.4.11	
Reactor Coolant Pump							
Casing	1	ASME III	1	I	Note A	5.4.1	
Main flange	1	ASME III	1	I	Note A		
Thermal barrier	1	ASME III	1	I	Note A		
Thermal barrier heat exchanger	1	ASME III	1	I	Note A		
No. 1 seal housing	1	ASME III	1	I	Note A		
No. 2 seal housing	2	ASME III	1	I	Note A		Note 8
Pump Shaft	2	-	-	I	Note A	5.4.1	
Pump Impeller	2	-	-	I	Note A	5.4.1	
Pressure-retaining bolting	1	ASME III	1	I	Note A		
Vertical and lateral supports	1	ASME III	1	I	Note A	5.4.14	
Reactor Coolant Pump Motor							
Motor rotor	2	-	-	I	Note A		Note 9
Motor shaft	2	-	-	I	Note A		Note 9
Shaft coupling	2	-	-	I	Note A		Note 9

TABLE 17A-1
LIST OF QUALITY ASSURED STRUCTURES, SYSTEMS AND COMPONENTS

(Sheet 3 of 58)

System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Spool piece	2	-	-	I	Note A		Note 9
Flywheel	2	-	-	I	Note A		Note 9
Bearing (Motor upper thrust)	2	-	-	I	Note A		Note 9
Motor bolting	2	-	-	I	Note A		Note 9, 30
Motor stand	2	-	-	I	Note A		Note 9
Motor frame	2	-	-	I	Note A		Note 9
Upper oil reservoir	3	Mfrs Stds	-	I	Note A		
Cooling coil	3	ASME III	3	I	Note A		
Lower oil reservoir	3	Mfrs Stds	-	I	Note A		
Cooling coil	3	ASME III	3	I	Note A		
Lube-oil piping	3	Mfrs Stds	-	I	Note A		
Motor-air coolers	3	ASME III	3	I	Note A		Note 2
Reflective insulation assemblies (except for the portions installed on the RCS cold leg and hot leg pipes which are located inside the biological shield tunnels)	N/A	Mfrs Stds	-	II	Note B	6.1B, 6.2.2	
Reactor vessel nozzles non-crushable insulation	N/A	Mfrs Stds	-	II	Note B	3.9N.1.4.6	Note 64
Reflective insulation assemblies on RCS cold leg and hot leg pipes and located in biological shield tunnels	N/A	Mfrs Stds	-	NONE	Note E	6.1B	
Supports for Class 1 piping	1	ASME III	1	I	Note A	3.9N	
Supports for Class 2 piping	2	ASME III	2	I	Note A	3.9B	
Class 5 piping and supports	NNS	ANSI B31.1	-	II/NONE	Note B	3.7B	Note 44

TABLE 17A-1
LIST OF QUALITY ASSURED STRUCTURES, SYSTEMS AND COMPONENTS

(Sheet 4 of 58)

System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
2. Chemical and Volume Control System (CVCS)							
Regenerative heat exchanger	2	ASME III	2	I	Note A	9.3.4	
Letdown Heat Exchanger							
Tube side	2	ASME III	2	I	Note A	9.3.4	
Shell side	3	ASME III	3	I	Note A	9.3.4	Note 1c, 2
Mixed-bed demineralizers	3	ASME III	3	NONE	Note A	9.3.4	Note 11
Cation-bed demineralizer	3	ASME III	3	NONE	Note A	9.3.4	Note 11
Reactor coolant filter	2	ASME III	2	I	Note A	9.3.4	
Volume control tank	2	ASME III	2	I	Note A	9.3.4	
Centrifugal charging pump	2	ASME III	2	I	Note A	9.3.4	Note 1a, 1d, 2
Centrifugal charging pump lube oil system piping and valves	3	Mfrs Stds	-	I	Note A	9.3.4	
Positives displacement pump	2	ASME III	2	I	Note A	9.3.4	Note 1a, 1c, 2
Positive displacement pump discharge dampener	2	ASME III	2	I	Note A	9.3.4	
Positive displacement pump suction stabilizer tank	2	ASME III	2	I	Note A	9.3.4	
Seal water injection filter	2	ASME III	2	I	Note A	9.3.4	
Letdown orifices	2	ASME III	2	I	Note A	9.3.4	
Excess letdown heat exchanger							
Tube side	2	ASME III	2	I	Note A	9.3.4	
Shell side	2	ASME III	2	I	Note A	9.3.4	Note 1c
Seal water return filter	2	ASME III	2	I	Note A	9.3.4	

TABLE 17A-1
LIST OF QUALITY ASSURED STRUCTURES, SYSTEMS AND COMPONENTS

(Sheet 5 of 58)

System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Seal Water Heat Exchanger							
Tube side	2	ASME III	2	I	Note A	9.3.4	
Shell side	3	ASME III	3	I	Note A	9.3.4	Note 1c, 2
Boric acid transfer pump	3	ASME III	3	I	Note A	9.3.4	Note 1b
Boric acid filter	3	ASME III	3	I	Note A	9.3.4	
Boric acid batching tank	NNS	ASME VIII	-	NONE	Note E	9.3.4	
Chemical mixing tank	NNS	ASME VIII	-	NONE	Note E	9.3.4	
Reactor coolant pump seal bypass orifice	1	ASME III	1	I	Note A	9.3.4	
R.C. Pump standpipe	NNS	ASME VIII	-	NONE	Note E		
Boric acid tanks	3	ASME III	3	I	Note A	9.3.4	
Boric acid blender	3	ASME III	3	I	Note A	9.3.4	
Piping and valves	2	ASME III	2	I	Note A	9.3.4	Note 34, 79
Piping and valves	3	ASME III	3	I	Note A	9.3.4	Note 34, 79
Supports for Class 2 piping	2	ASME III	2	I	Note A	3.9B	
Supports for Class 3 piping	3	ASME III	3	I	Note A	3.9B	
Class 5 piping and supports	NNS	ANSI B31.1	-	II/NONE	Note B	3.7B	Note 44
Reflective insulation assemblies	NNS	Mfrs Stds	-	II	Note B	6.1, 6.2.2	
3. Boron Thermal Regeneration Sub-system (BTRS)							
Moderating Heat Exchanger							
Tube side	3	ASME III	3	NONE	Note A	9.3.4	Note 11
Shell side	3	ASME III	3	NONE	Note A	9.3.4	Note 11

TABLE 17A-1
LIST OF QUALITY ASSURED STRUCTURES, SYSTEMS AND COMPONENTS

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Letdown Chiller Heat Exchanger							
Tube side	3	ASME III	3	NONE	Note A	9.3.4	Note 11
Shell side	NNS	ASME VIII	-	NONE	Note E	9.3.4	
Letdown Reheat Heat Exchanger							
Tube side	2	ASME III	2	I	Note A	9.3.4	
Shell side	3	ASME III	3	NONE	Note A	9.3.4	Note 11
Thermal regeneration demineralizers	3	ASME III	3	NONE	Note A	9.3.4	Note 11
Chiller pump	NNS	Mfrs Stds	-	NONE	Note E	9.3.4	
Chiller surge tank	NNS	ASME VIII	-	NONE	Note E	9.3.4	
Chiller Unit							
Evaporator	NNS	ASME VIII	-	NONE	Note E	9.3.4	
Condenser	NNS	ASME VIII	-	NONE	Note E	9.3.4	
Compressor	NNS	Mfrs Stds	-	NONE	Note E	9.3.4	
Piping and valves	2	ASME III	2	I	Note A	9.3.4	Note 79
Piping and valves	3	ASME III	3	I	Note A	9.3.4	Note 79
Supports for Class 2 piping	2	ASME III	2	I	Note A	3.9B	
Supports for Class 3 piping	3	ASME III	3	I	Note A	3.9B	
Class 5 piping and supports	NNS	ANSI B31.1	-	II/NONE	Note B	3.7B	Note 44
4. Safety Injection System (SIS)							
Accumulators	2	ASME III	2	I	Note A	6.3	
Intermediate-head SIS pumps	2	ASME III	2	I	Note A	6.3	Note 1a, 1d, 2

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Intermediate-head SIS pumps lube oil system piping and valves	3	Mfrs Stds	-	I	Note A	6.3	
Valve isolation tanks	NNS	ASME VIII	-	II	Note B	6.2, 6.3	
Valve isolation tank expansion joints	NNS	ASME VIII	-	II	Note B	6.2, 6.3	
Valve isolation tank piping	NNS	ANSI B31.1	-	II	Note B	6.3	Note 57
Piping and valves	2	ASME III	2	I	Note A	6.3	Note 79
Piping and valves	1	ASME III	1	I	Note A	6.3	Note 79
Supports for Class 2 piping	2	ASME III	2	I	Note A	3.9B	
Supports for Class 1 piping	1	ASME III	1	I	Note A	3.9B	
Class 5 piping and supports	NNS	ANSI B31.1	-	II/NONE	Note B	3.7B	Note 44
Reflective insulation assemblies	NNS	Mfrs Stds	-	II	Note B	6.1, 6.2.2	
Piping (Injection Header Alternate Relief Path)	NNS	ANSI B31.1	-	II	Note B	6.3.5	Note 44, 57
5. Residual Heat Removal (RHR) System							
RHR pump	2	ASME III	2	I	Note A	5.4.7	Note 1a, 1c, 2
Residual Heat Exchanger							
Tube side	2	ASME III	2	I	Note A	5.4.7	
Shell side	3	ASME III	3	I	Note A	5.4.7	Note 1c
Piping and valves	1	ASME III	1	I	Note A	5.4.7	Note 79
Piping and valves	2	ASME III	2	I	Note A	5.4.7	Note 79
Process tubing	2	ASME III	2	I	Note A	5.4.7.2.2	
Supports for Class 1 piping	1	ASME III	2	I	Note A	3.9B	

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Supports for Class 2 piping	2	ASME III	2	I	Note A	3.9B	
Class 5 piping and supports	NNS	ANSI B31.1	-	II/NONE	Note B	3.7B	Note 44
Reflective insulation assemblies	NNS	Mfrs Stds	-	II	Note B	6.1, 6.2.2	
Relief Valves	2	ASME III	2	I	Note A	5.4.7	Note 79
6. Boron Recycle System (BRS)							
Recycle evaporator feed pump	NNS	Mfrs Stds	-	NONE	Note C	9.3.4	Note 34
Recycle evaporator feed demineralizer	NNS	ASME VIII	-	NONE	Note C	9.3.4	Note 34
Recycle evaporator feed filter	NNS	ASME VIII	-	NONE	Note C	9.3.4	Note 34
Recycle evaporator condensate demineralizer	NNS	ASME VIII	-	NONE	Note E	9.3.4	
Recycle evaporator condensate filter	NNS	ASME VIII	-	NONE	Note E	9.3.4	
Recycle holdup tank	NNS	API 650 or AWWA D-100	-	NONE	Note C	9.3.4	Note 34
Recycle holdup tank vent ejector	NNS	ANSI B31.1 or ASME VIII	-	NONE	Note C	9.3.4	Note 34
Recycle evaporator concentrate filter	NNS	ASME VIII	-	NONE	Note E	9.3.4	
Recycle evaporator reagent tank	NNS	ASME VIII	-	NONE	Note E	9.3.4	
Recycle evaporator package							
Feed preheater							
a. feed side	NNS	ASME VIII	-	NONE	Note C	9.3.4	Note 34
b. steam side	NNS	ASME VIII	-	NONE	Note E	9.3.4	
Gas stripper	NNS	ASME VIII	-	NONE	Note C	9.3.4	Note 34
Submerged tube Evaporator							
a. feed side	NNS	ASME VIII	-	NONE	Note C	9.3.4	Note 34

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
b. steam side	NNS	ASME VIII	-	NONE	Note E	9.3.4	
Evaporator condenser							
a. Distillate water side	NNS	ASME VIII	-	NONE	Note C	9.3.4	Note 34, 72
b. Cooling water side	3	ASME III	3	I	Note A	9.3.4	
Distillate Cooler							
a. Distillate side	NNS	ASME VIII	-	NONE	Note C	9.3.4	Note 34, 72
b. Cooling water side	3	ASME III	3	I	Note A	9.3.4	
Absorption tower Vent Condenser	NNS	ASME VIII	-	NONE	Note C	9.3.4	Note 34
a. Gas side	NNS	ASME VIII	-	NONE	Note C	9.3.4	Note 34, 72
b. Cooling water side	3	ASME III	3	I	Note A	9.3.4	
Distillate pump	NNS	Mfrs Stds	-	NONE	Note C	9.3.4	Note 34
Concentrate pump	NNS	Mfrs Stds	-	NONE	Note C	9.3.4	Note 34
Piping and valves							
a. Feed	NNS	ANSI B31.1	-	NONE	Note C	9.3.4	Note 34
b. Distillate	NNS	ANSI B31.1	-	NONE	Note C	9.3.4	Note 34
c. Concentrate	NNS	ANSI B31.1	-	NONE	Note C	9.3.4	Note 34
d. Cooling	3	ASME II	3	I	Note A	9.3.4	Note 79
e. Vent	NNS	ANSI B31.1	-	NONE	Note C	9.3.4	Note 34
Class 5 piping and supports	NNS	ANSI B31.1	-	II/NONE	Note B	3.7B	Note 44
Valves	NNS	ANSI B31.1	-	NONE	Note C		Note 34
7. Containment Spray System (CSS)							
Chemical additive tank	3	ASME III	3	I	Note A	6.2.2, 6.5	

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Containment spray pumps	2	ASME III	2	I	Note A	6.2.2	Note 1a, 1c, 2
Chemical Eductor	2	ASME III	2	I	Note A	6.5	
Containment Spray Heat Exchanger							
Tube side	2	ASME III	2	I	Note A	6.2.2	
Shell side	3	ASME III	3	I	Note A	6.2.2	Note 1c
Spray nozzles	2	Mfrs Stds	-	I	Note A	6.2.2	
Ring header line orifices	2	ASME III	2	I	Note A	6.2.2	
Emergency Sump Suction Strainers	N/A	AISC	-	I	Note A	6.2.2	
Debris Interceptors	N/A	AISC	-	I	Note A	6.2.2	
Trash Racks	N/A	AISC	-	II	Note B	6.2.2	
Piping and Valves	2	ASME III	2	I	Note A	6.2.2	Note 79
Piping and Valves	3	ASME III	3	I	Note A	6.2.5, 6.5	Note 79
Valve isolation tanks	NNS	ASME VIII	-	II	Note B	6.2	
Valve isolation tank expansion joints	NNS	ANSI B31.1	-	II	Note B	6.2	
Valve isolation tank piping	NNS	ANSI B31.1	-	II	Note B	6.2	Note 57
Supports for Class 2 piping	2	ASME III	2	I	Note A	3.9B	
Supports for Class 3 piping	3	ASME III	3	I	Note A	3.9B	
Class 5 piping and supports	NNS	ANSI B31.1	-	II/NONE	Note B	3.7B	Note 44
Refueling water storage tank	2	ACI 318-71 AISC	-	I	Note A	3.8.4, 6.2.2	Note 55
Refueling water storage tank vents	NNS	B31.1	-	II	Note B	6.3.3.7	

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
8. Containment Isolation System							
Piping and valves of all process systems penetrating Containment; from isolation inside Containment to isolation outside Containment	2	ASME III	2	I	Note A	6.2.4, II.E.4.2	Note 79
Penetration assemblies (Mechanical and electrical)	2	ASME III	2 & MC	I	Note A	6.2.4, 8.3.1	
Process Sampling Tubing, Fittings, Valves, and Supports	2	ASME III	-	I	Note A	6.2.4	Note 41
Airlock control, instrument and testing tubing, fittings and components	2	-		I	Note A		Note 41
Airlock instrumentation (pressure gauges)	2	-	-	I	Note A	-	Note 95
Personnel Airlock Hydraulic System (Unit 1)	2	Mfrs Stds/ASME	-	I	Note A	6.2.4	Note 86
Alternate Penetration Insert	NNS	-	-	NONE	Note E	Figure 9.4-6	Note 94
9. Combustible Gas Control System							
a. Hydrogen Recombiner System							
Electric hydrogen recombiner	NA	NA	-	II	Note B	6.2.5	
b. Hydrogen Purge System							
Exhaust filter units	NNS	Mfrs Stds	-	II	Note B		
Exhaust ductwork, supports & dampers (outside Containment)	NNS	Mfrs Stds	-	II	Note B		Note 71
Exhaust Fans	NNS	Mfrs Stds	-	NONE	Note E		Note 70
Supply ductwork, supports & dampers (outside Containment)	NNS	Mfrs Stds	-	II	Note B		Note 71
Supply blowers	NNS	Mfrs Stds	-	NONE	Note E		Note 70
Piping & valves	2	ASME III	2	I	Note A		Note 79

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Class 5 Piping and supports	NNS	ANSI B31.1	-	II/NONE	Note B		Note 44
Supports for Class 2 piping	2	ASME III	2	I	Note A		
10. Component Cooling Water System (CCWS)							
Heat exchangers	3	ASME III	3	I	Note A	9.2.2	Note 1d
Pumps	3	ASME III	3	I	Note A	9.2.2	Note 1a
Surge tank	3	ASME III	3	I	Note A	9.2.2	
Piping and valves	2	ASME III	2	I	Note A	9.2.2	Note 79
Piping and valves	3	ASME III	3	I	Note A	9.2.2	Note 79
Piping (Rad. Monitor Sample lines, safeguards loops)	NNS	ANSI B31.1	-	II	Note B	9.2.2	Note 44, 57
Recirculation loop orifice	3	ASME III	3	I	Note A	9.2.2	
Supports for Class 2 piping	2	ASME III	2	I	Note A	3.9B	
Supports for Class 3 piping	3	ASME III	3	I	Note A	3.9B	
Class 5 piping and supports	NNS	ANSI B31.1	-	II/NONE	Note B	3.7B	Note 44
Air accumulators (Flow Control Valves)	3	ASME III	-	I	Note A	9.3.1	
Check valves for accumulators	3	ASME III	-	I	Note A	9.3.1	Note 79
Tubing and supports (between check valves upstream of air accumulator and AOV)	3	ASME III	-	I	Note A	3.9B	Note 41
11. Station Service Water System (SSWS)							
Service Water Pumps	3	ASME III	3	I	Note A	9.2.1	Note 1a
Piping and valves	3	ASME III	3	I	Note A	9.2.1	Note 79
Screen wash pumps	NNS	Mfrs Stds	-	NONE	Note E	9.2.1	Note 72

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Traveling screens	N/A	Mfrs Stds	-	I	Note A	9.2.1	Note 23, 46
Recirculation loop orifice	3	ASME III	3	I	Note A	9.2.1	
Supports for Class 3 piping	3	ASME III	3	I	Note A	3.9B	
Class 5 piping and supports	NNS	ANSI B31.1	-	II/NONE	Note B	3.7b	Note 44
SWIS Debris and Fish Barrier System	**N/A**	**Mfrs Stds**	**-**	**II**	**Note B**		**Note 23 [SWIS: SW Intake Structure]**
12. Main Steam, Reheat and Steam Dump System							
Main steam piping	2	ASME III	2	I	Note A	10.3	
Piping, valves, and drain pots	2	ASME III	2	I	Note A	10.3	Note 79
Piping, valves, and drain pots	3	ASME III	3	I	Note A	10.3	Note 79
Main steam safety valves	2	ASME III	2	I	Note A	10.3	Note 79
Main steam relief valves	2	ASME III	2	I	Note A	10.3	Note 79
Steam generator PORV air accumulator	3	ASME III	-	I	Note A	Appendix 5A, 9.3.1	
Turbine driven auxiliary feedwater pump steam supply isolation valve accumulator tanks	3	ASME III	-	I	Note A	9.3.1	
Check valves for accumulator tanks	3	ASME III	-	I	Note A	9.3.1	Note 79
Tubing and supports (between check valves upstream of air accumulator and AOV)	3	ASME III	-	I	Note A	3.9B	Note 41
Steam generator blowdown system piping	2	ASME III	2	I	Note A	10.3	
Steam flow restrictor (integral to steam generator)	2	ASME III	2	I	Note A	10.3, 5.4.4	
Main steam isolation valves	2	ASME III	2	I	Note A	10.3	Note 8, 79

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Main steam isolation bypass valves and bypass valve piping	2	ASME III	2	I	Note A	10.3	Note 8, 79
Reflective insulation assemblies	NNS	Mfrs Stds	-	II	Note B	6.2.2	
Piping and valves	2	ASME III	2	I	Note A	10.3	Note 79
Piping and valves	3	ASME III	3	I	Note A	10.3	Note 79
Orifices	3	ASME III	3	I	Note A	10.3	
Supports for Class 2 Piping	2	ASME III	2	I	Note A	3.9B	
Supports for Class 3 Piping	3	ASME III	3	I	Note A	3.9B	
Class 5 Piping and supports	NNS	ANSI B31.1	-	II/NONE	Note B	3.7B	Note 44, 81
13. Auxiliary Feedwater System							
Motor-driven auxiliary feedwater pumps	3	ASME III	3	I	Note A	10.4.9	Note 1a
Turbine-driven auxiliary feedwater pump	3	ASME III	3	I	Note A	10.4.9	Note 1e
Auxiliary feedwater pump turbine driver and associated equipment	3	Mfrs Stds	-	I	Note A	10.4.9, 10.3	
Piping and valves	2	ASME III	2	I	Note A	10.4.9	Note 79
Piping and valves	3	ASME III	3	I	Note A	10.4.9	Note 79
Air accumulators (AFW Flow and Miniflow Control Valves)	3	ASME III	-	I	Note A	9.3.1	
Check valves for accumulators	3	ASME III	-	I	Note A	9.3.1	Note 79
Tubing and supports (between check valves upstream of accumulator and AOV)	3	ASME III	-	I	Note A	3.9B	Note 41
Supports for Class 2 piping	2	ASME III	2	I	Note A	3.9B	
Supports for Class 3 piping	3	ASME III	3	I	Note A	3.9B	

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Class 5 piping and supports	NNS	ANSI B31.1	-	II/NONE	Note B	3.7B	Note 44
Condensate storage tank	3	ACI 318-71 AISC	-	I	Note A	3.8.4, 10.4.9	Note 55
Condensate storage tank vents	NNS	B31.1	-	II	Note B	9.2.6	
Breakdown orifices	3	ASME III	3	I	Note A	10.4.9	
Orifices	2/3	ASME III	2/3	I	Note A	10.4.9	
14. Steam Generator Feedwater System							
Piping and valves	2	ASME III	2	I	Note A	10.4.7	Note 79
Feedwater isolation valves	2	ASME III	2	I	Note A	10.4.7	Note 79
Orifices	2	ASME III	2	I	Note A	10.4.7	
Reflective insulation assemblies	NNS	Mfrs Stds	-	II	Note B	6.2.2	
Supports for Class 2 Piping	2	ASME III	2	I	Note A	3.9B	
Class 5 Piping and supports	NNS	ANSI B31.1	-	II/NONE	Note B	3.7B	Note 44
Feedwater Pump Turbine Speed Control	N1E	Mfrs Stds	-	NONE	Note C	10.4.7.5	
15. Diesel Generator, Fuel Oil, and Auxiliary Systems						8.3.1, 9.5.4, 9.5.5, 9.5.6, 9.5.7, 9.5.8	
Diesel Generator Set (including voltage regulator and excitation system)	1E	Mfrs Stds	-	I	Note A		Note 22
Diesel generator Fuel Oil Storage & Transfer System						9.5-52	
Fuel Oil Storage Tank	3	ASME III	3	I	Note A		
Fuel Oil Transfer Pumps	3	Mfrs Stds	-	I	Note A		Note 21

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Y-Strainers	3	ASME III	3	I	Note A		
Fuel Oil Day Tank	3	ASME III	3	I	Note A		
Piping and Valves	3	ASME III	3	I	Note A		Note 79
Supports for piping and components	3	ASME III	3	I	Note A		Note 25
Vacuum Relief Valves	NNS	Mfrs Stds	-	NONE	Note C	9.5.4	
Flame Arrestors	NNS	Mfrs Stds	-	NONE	Note C	9.5.4	
Class 5 Piping and supports	NNS	ANSI B31.1	-	II/NONE	Note B	3.7B	Note 44
Fuel Oil System on Diesel Engine and on Aux. module							
a. Duplex Strainers w/change valves	N/A	Mfrs Stds	-	I	Note A		Note 22, 79
b. Fuel Oil Pump	N/A	Mfrs Stds	-	I	Note A		Note 22
c. Fuel Oil Booster (Feed) Pump	N/A	Mfrs Stds	-	I	Note A		Note 22
d. Duplex Filter w/change valves	N/A	Mfrs Stds	-	I	Note A		Note 22, 79
e. Injection Pump	N/A	Mfrs Stds	-	I	Note A		Note 22
f. Piping and valves							
On engine	N/A	Mfrs Stds	-	I	Note A		Note 22, 79
On Aux. module	3	ASME III	-	I	Note A		Note 79
g. Supports for piping and components							
On engine	N/A	Mfrs Stds	-	I	Note A		Note 22
On Aux. module	3	ASME III/AISC	-	I	Note A	9.5.4.3	Note 25
h. Drip Waste Tank	N/A	Mfrs Stds	-	I	Note A		Note 22
i. Drip Waste Pump	N/A	Mfrs Stds	-	I	Note A		Note 22

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Diesel Generator Starting Air System						9.5-55	
Compressors	N/A	Mfrs Stds	-	NONE	Note E		Note 22, 72
After Coolers	N/A	Mfrs Stds	-	NONE	Note E		Note 22, 72
Air Dryers	N/A	Mfrs Stds	-	NONE	Note E		Note 22, 72
Starting Air Receivers	3	ASME III	3	I	Note A		
Piping and Valves							
On Engine	N/A	Mfrs Stds	-	I	Note A		Note 22, 79
Off Engine	3	ASME III	3	I	Note A		Note 79
Supports for piping and components							
On engine	N/A	Mfrs Stds	-	I	Note A		Note 22
Off Engine	3	ASME III	3	I	Note A	3.9B	
Class 5 Piping and supports	NNS	ANSI B31.1	-	II/NONE	Note B		Note 44
Diesel Generator Jacket Water System						9.5-54	
Jacket Water Cooler	3	ASME III	-	I	Note A		
Standpipe	3	ASME III	-	I	Note A		
Jacket Water Heater	N/A	Mfrs Stds	-	I	Note A		Note 22
Engine Jacket Water Pump	N/A	Mfrs Stds	-	I	Note A		Note 22
Auxiliary Jacket Water Pumps	3	ASME III	-	I	Note A		
Keep Warm Pump	3	ASME III	-	I	Note A		
Thermostatically Controlled Valve	3	ASME III	-	I	Note A		Note 79
Piping and Valves							
On Engine	N/A	Mfrs Stds	-	I	Note A		Note 22, 79

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
On Aux. Module	3	ASME III	-	I	Note A		Note 79
Supports for piping and components							
On engine	N/A	Mfrs Stds	-	I	Note A		Note 22
On Aux. module	3	ASME III/AISC	-	I	Note A	9.5.5.3	Note 25
Diesel Generator Lube Oil System						9.5-56	
Lube Oil Sump Tank	3	ASME III	-	I	Note A		
Engine Lube Oil Pump	N/A	Mfrs Stds	-	I	Note A		Note 22
Auxiliary Lube Oil Pump	N/A	Mfrs Stds	-	I	Note A		Note 22
Lube Oil Cooler	3	ASME III	-	I	Note A		
Duplex Filter	3	ASME III	-	I	Note A		
Strainer	N/A	Mfrs Stds	-	I	Note A		Note 22
Lube Oil Heater	N/A	Mfrs Stds	-	I	Note A		Note 22
Prelube Pump	N/A	Mfrs Stds	-	I	Note A		Note 22
Prelube Filter	3	ASME III	-	I	Note A		
Prelube Strainer	N/A	Mfrs Stds	-	I	Note A		Note 22
Piping and Valves							
On Engine	N/A	Mfrs Stds	-	I	Note A		Note 22, 79
On Aux. Module	3	ASME III	-	I	Note A		Note 79
Foot Valves (in tank)	3	Mfrs Stds	-	I	Note A		Note 22, 79
Supports for piping and components							
On engine	N/A	Mfrs Stds	-	I	Note A		Note 22
On Aux. module	3	ASME III/AISC	-	I	Note A	9.5.7.3	Note 25

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Diesel Generator Combustion Air Intake & Exhaust System						9.5-57	
Intake Air Filter	3	Mfrs Stds	-	I	Note A		Note 22
Intake Air Silencers	N/A	Mfrs Stds	-	I	Note A		Note 22
Intake Air Flexible Connectors	3	Mfrs Stds	-	I	Note A		
Intake Air Piping and supports	3	ASME III	3	I	Note A	3.9B	
Exhaust Air Silencers	N/A	Mfrs Stds	-	I	Note A		Note 22
Exhaust Air Flexible Connectors	3	Mfrs Stds	-	I	Note A		
Exhaust Relief Valve	NNS	Mfrs Stds	-	NONE	Note E		Note 75
Exhaust Piping and supports							
In Bldg	3	ASME III	-	I	Note A		Note 82
On Roof	NNS	ANSI B31.1	-	II	Note B	3.7B	Note 44
Flexible Connectors	NNS	Mfrs Stds	-	NONE	Note E		Note 70
Diesel Generator Control Panels (local)	1E	IEEE 323	-	I	Note A	8.3.1	
16. Spent Fuel Pool Cooling and Cleanup System							
Spent fuel pool cooling water pumps	3	ASME III	3	I	Note A	9.1.3	Note 1b
Spent fuel pool heat exchangers	3	ASME III	3	I	Note A	9.1.3	Note 1c
Spent fuel pool demineralizers	3	ASME III	3	I	Note A	9.1.3	
Spent fuel pool suction screens	3	Mfrs Stds	-	I	Note A	9.1.3	Note 21
Resin traps	3	ASME III	3	I	Note A	9.1.3	
Piping and valves	2	ASME III	2	I	Note A	9.1.3	Note 79
Stilling Wells Level	3	ASME III	-	I	Note A	9.1.3	Note 68

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Refueling Cavity Drain Strainers	N/A	AISC	-	I	Note A	6.2.2	
Refueling Cavity Debris Screens	N/A	AISC	-	I	Note A	6.2.2	
Piping and valves	3	ASME III	3	I	Note A		Note 34, 79
Flow restricting orifice	3	ASME III	3	I	Note A	9.1.3	
Supports for Class 2 Piping	2	ASME III	2	I	Note A	3.9B	
Supports for Class 3 Piping	3	ASME III	3	I	Note A	3.9B	
Class 5 Piping and supports	NNS	ANSI B31.1	-	II/NONE	Note B	3.7B	Note 44
17. Liquid Waste Processing System (LWPS)							
Reactor coolant drain tank	NNS	ASME VIII	-	NONE	Note E	11.2	
Reactor coolant drain tank pump	NNS	Mfrs Stds	-	NONE	Note E	11.2	
Reactor coolant drain tank heat exchanger							
Tube side	NNS	ASME VIII	-	NONE	Note E	11.2	
Shell side	2	ASME III	2	I	Note A	11.2	
Waste holdup tank	NNS	ASME VIII	-	NONE	Note C	11.2	Note 34, 72
Waste evaporator feed pump	NNS	Mfrs Stds	-	NONE	Note C	11.2	Note 34, 72
Waste evaporator feed filter	NNS	ASME VIII	-	NONE	Note C	11.2	Note 34, 72
Waste evaporator package							
a. Feed preheater							
Feed side	NNS	ASME VIII	-	NONE	Note C	11.2	Note 34, 72
Steam side	NNS	ASME VIII	-	NONE	Note E	11.2	Note 72
b. Gas Stripper	NNS	ASME VIII	-	NONE	Note C	11.2	Note 34, 72

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
c. Submerged Tube evaporator							
Feed side	NNS	ASME VIII	-	NONE	Note C	11.2	Note 34, 72
Steam side	NNS	ASME VIII	-	NONE	Note E	11.2	Note 72
d. Evaporator Condenser							
Distillate side	NNS	ASME VIII	-	NONE	Note C	11.2	Note 34, 72
Cooling water side	3	ASME III	3	I	Note A	11.2	
e. Distillate Cooler							
Distillate side	NNS	ASME VIII	-	NONE	Note C	11.2	Note 34, 72
Cooling water side	3	ASME III	3	I	Note A	11.2	
f. Absorption Tower	NNS	ASME VIII	-	NONE	Note C	11.2	Note 34, 72
g. Vent Condenser							
Gas side	NNS	ASME VIII	-	NONE	Note C	11.2	Note 34, 72
Cooling water side	3	ASME III	3	I	Note A	11.2	
h. Distillate Pump	NNS	Mfrs Stds	-	NONE	Note C	11.2	Note 34, 72
i. Concentrate Pump	NNS	Mfrs Stds	-	NONE	Note C	11.2	Note 34, 72
j. Piping and Valves							
Feed	NNS	ANSI B31.1	-	NONE	Note C	11.2	Note 34, 72
Distillate	NNS	ANSI B31.1	-	NONE	Note C	11.2	Note 34, 72
Concentrate	NNS	ANSI B31.1	-	NONE	Note C	11.2	Note 34, 72
Cooling	3	ASME III	3	I	Note A	11.2	Note 79
Vent	NNS	ANSI B31.1	-	NONE	Note C	11.2	Note 34, 72
Waste evaporator condensate demineralizer	NNS	ASME VIII	-	NONE	Note C	11.2	Note 34

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Waste evaporator condensate filter	NNS	ASME VIII	-	NONE	Note C	11.2	Note 34
Waste evaporator condensate tank	NNS	ASME VIII	-	NONE	Note C	11.2	Note 34
Waste evaporator condensate tank pump	NNS	Mfrs Stds	-	NONE	Note C	11.2	Note 34
Chemical drain tank pump	NNS	Mfrs Stds	-	NONE	Note E		
Chemical drain tank	NNS	ASME VIII	-	NONE	Note E	11.2	
Spent resin storage tank	NNS	ASME VIII	-	NONE	Note C	11.2	Note 34
Spent resin sluice pump	NNS	Mfrs Stds	-	NONE	Note C	11.2	Note 34
Spent resin sluice filter	NNS	ASME VIII	-	NONE	Note C	11.2	Note 34
Laundry and hot shower tank	NNS	ASME VIII	-	NONE	Note E	11.2	
Laundry and hot shower tank pump	NNS	Mfrs Stds	-	NONE	Note E	11.2	
Laundry and hot shower filter	NNS	ASME VIII	-	NONE	Note C	11.2	Note 34
Floor drain tanks I and II	NNS	ASME VIII	-	NONE	Note E	11.2	
Floor drain tank III	NNS	API 620	-	NONE	Note E	11.2	
Floor drain tank pumps	NNS	Mfrs Stds	-	NONE	Note E	11.2	
Waste monitor tanks	NNS	ASME VIII	-	NONE	Note C	11.2	Note 34
Waste Monitor Tank Pumps	NNS	Mfrs Stds	-	NONE	Note C	11.2	Note 34
Waste Monitor tank demineralizer	NNS	ASME VIII	-	NONE	Note C	11.2	Note 34
Waste monitor tank filter	NNS	ASME VIII	-	NONE	Note C	11.2	Note 34
Floor drain tank filter	NNS	ASME VIII	-	NONE	Note C	11.2	Note 34
Floor drain tank strainer	NNS	Mfrs Stds	-	NONE	Note C	11.2	Note 34
Floor Drain Waste Evaporator Package						11.2	
a. Feed preheater							

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System and Components (45)		Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
	Feed side	NNS	ASME VIII	-	NONE	Note C		Note 34
	Steam side	NNS	ASME VIII	-	NONE	Note E		
b.	Gas stripper	NNS	ASME VIII	-	NONE	Note C		Note 34
c.	Submerged tube evaporator							
	Feed side	NNS	ASME VIII	-	NONE	Note C		Note 34
	Steam side	NNS	ASME VIII	-	NONE	Note E		
d.	Evaporator condenser							
	Distillate side	NNS	ASME VIII	-	NONE	Note C		Note 34, 72
	Cooling water side	3	ASME III	3	I	Note A		
e.	Distillate cooler							
	Distillate side	NNS	ASME VIII	-	NONE	Note C		Note 34, 72
	Cooling water side	3	ASME III	3	I	Note A		
f.	Absorption tower	NNS	ASME VIII	-	NONE	Note C		Note 34
g.	Vent condenser							
	Gas side	NNS	ASME VIII	-	NONE	Note C		Note 34, 72
	Cooling water side	3	ASME III	3	I	Note A		
h.	Distillate pump	NNS	Mfrs Stds	-	NONE	Note C		Note 34
I.	Concentrate pump	NNS	Mfrs Stds	-	NONE	Note C		Note 34
j.	Piping and valves							
	Feed	NNS	ANSI B31.1	-	NONE	Note C		Note 34
	Distillate	NNS	ANSI B31.1	-	NONE	Note C		Note 34
	Concentrate	NNS	ANSI B31.1	-	NONE	Note C		Note 34

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Cooling	3	ASME III	3	I	Note A		Note 79
Vent	NNS	ANSI B31.1	-	NONE	Note C		Note 34
Laundry and hot shower tank strainers	NNS	Mfrs Stds	-	NONE	Note C	11.2	Note 34
Waste evaporator reagent tank	NNS	ASME VIII	-	NONE	Note E	11.2	
Laundry holdup and monitor tanks	NNS	API 650	-	NONE	Note C	11.2	Note 34
Laundry holdup and monitor tank pump	NNS	Mfrs Stds	-	NONE	Note C	11.2	Note 34
Laundry water head tank	NNS	API 620	-	NONE	Note E	11.2	
Plant effluent holdup and monitor tanks (2)	NNS	ACI 318-71 AISC, 7th ed.	-	II	Note B, C	11.2	Note 34
Piping and valves	3	ASME III	3	I	Note A	11.2	Note 34, 79
Supports for Class 3 piping	3	ASME III	3	I	Note A	3.9B	
Piping & valves	NNS	ANSI B31.1	-	NONE	Note C	11.2	Note 34
Pumps	NNS	Mfrs Stds	-	NONE	Note C	11.2	Note 34
18. Gaseous Waste Processing System (GWPS)							
Gas compressors	NNS	Mfrs Stds	-	NONE	Note C	11.3	Note 34
Gas decay tanks (numbers 1-8)	3	ASME III	3	I	Note A	11.3	Note 34
Gas decay tanks (numbers 9 & 10)	NNS	ASME VIII	-	NONE	Note C	11.3	Note 34, 72
Hydrogen recombiner (catalytic)	NNS	ASME VIII	-	NONE	Note C	11.3	Note 34
Waste gas drain filter	NNS	Mfrs Stds	-	NONE	Note C	11.3	Note 34
Gas decay tank drain pump	NNS	Mfrs Stds	-	NONE	Note C	11.3	Note 34
Piping and valves	3	ASME III	3	I	Note A	11.3	Note 34, 79
Valves	NNS	ANSI B31.1	-	NONE	Note E	11.3	Note 34

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Supports for Class 3 piping	3	ASME III	3	I	Note A	3.9B	
Class 5 piping and supports	NNS	ANSI B31.1	-	II/NONE	Note B	3.7B	Note 44
Gas Trap	NNS	Mfrs Stds	-	NONE	Note C	11.3	Note 34
19. Solid Waste Management System (SWMS)							
Solidification System	NNS	Mfrs Stds	-	NONE	Note C	11.4	Note 34
Valves	NNS	ANSI B31.1	-	NONE	Note C		Note 34
Class 5 piping and supports	NNS	ANSI B31.1	-	II/NONE	Note B	3.7B	Note 44
Handling Equipment							
Filter transfer cask	NNS	Mfrs Stds	-	NONE	Note E	11.4	
Flat bed trailer	NNS	Mfrs Stds	-	NONE	Note E	11.4	
Remote handling tools	NNS	Mfrs Stds	-	NONE	Note E	11.4	
20. Demineralized and Reactor Makeup Water System							
Reactor makeup water pumps	3	ASME III	3	I	Note A	9.2.3	
Reactor makeup water storage tank	3	ACI 318-71 AISC	-	i	Note A	9.2.3	Note 55
Piping and valves	2	ASME III	2	I	Note A	3.9B	Note 79
Piping and valves	3	ASME III	3	I	Note A	3.9B	Note 79
Supports for Class 2 piping	2	ASME III	2	I	Note A	3.9B	
Supports for Class 3 piping	3	ASME III	3	I	Note A	3.9B	
Class 5 piping and supports	NNS	ANSI B31.1	-	II/NONE	Note B	3.7B	Note 44

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
21. Vents and Drains System							
Safeguards building sump pumps	3	ASME III	3	I	Note A	9.3.3	
Piping and valves	2	ASME III	2	I	Note A	9.3.3	Note 79
Piping and valves (pump discharge)	3	ASME III	3	I	Note A	9.3.3	Note 79
Supports for Class 2 piping	2	ASME III	2	I	Note A	3.9B	
Supports for Class 3 piping	3	ASME III	3	I	Note A	3.9B	
Class 5 piping and supports	NNS	ANSI B31.1	-	II/NONE	Note B	3.7B	Note 44
Containment Sump Flow Monitor	1E	IEEE-323	-	I	Note A	5.2.5	
22. Containment Ventilation Systems							
a. Containment recirculation							
ductwork and supports	NNS	Mfrs Stds	-	II	Note B	9.4A	
dampers	NNS	Mfrs Stds	-	NONE	Note E	9.4A	Note 71
b. CRDM cooling system							
ductwork and supports	NNS	Mfrs Stds	-	II	Note B	9.4A	
dampers	NNS	Mfrs Stds	-	NONE	Note E	9.4A	Note 71
c. Neutron detector well cooling							
ductwork and supports	NNS	Mfrs Stds	-	II	Note B	9.4A	
dampers	NNS	Mfrs Stds	-	NONE	Note E	9.4A	Note 71
d. Reactor coolant sleeve cooling							
ductwork and supports	NNS	Mfrs Stds	-	II	Note B	9.4A	
dampers	NNS	Mfrs Stds	-	NONE	Note E	9.4A	Note 71

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
e. Containment preaccess filtration							
ductwork and supports	NNS	Mfrs Stds	-	II	Note B	9.4A	
dampers	NNS	Mfrs Stds	-	NONE	Note E	9.4A	Note 71
filtration unit	NNS	Mfrs Stds	-	II	Note B	9.4A	Note 23
f. Containment purge supply and exhaust							
ductwork and supports	3	Mfrs Stds	-	I	Note A	9.4A	
ductwork and supports	NNS	Mfrs Stds	-	II	Note B	9.4A	
dampers	3	Mfrs Stds	-	I	Note A	9.4A	
dampers	NNS	Mfrs Stds	-	NONE	Note E	9.4A	Note 71
containment isolation valves and piping	2	ASME III	2	I	Note A	9.4A	Note 79
g. Containment pressure relief							
ductwork and supports	3	Mfrs Stds	-	I	Note A	9.4A	
containment isolation valves and piping	2	ASME III	2	I	Note A	9.4A	Note 79
Suction pipe	NNS	ANSI B31.1	N/A	II	Note B	9.4A	Note 62
Debris screen	NNS	Mfrs Stds	N/A	II	Note B	9.4A	Note 62
Flow Orifice Plate (Restrictive)	NNS	Mfrs Stds	N/A	II	Note B	9.4A	Note 62
HVAC panels (control room)	1E	IEEE-344	-	I	Note A	9.4	

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
23. Control Room Air-Conditioning System							
Air-conditioning units							
Roughing filter, fan, heating and direct-expansion refrigerant type coils	3	Mfrs Stds	-	I	Note A	9.4.1	Note 21
Refrigerant piping & tubes	3	ASME B42 or ASTM B88	-	I	Note A	9.4.1	Note 21
Water side	3	ASME III	3	I	Note A	9.4.1	
Fans	3	Mfrs Stds	-	I	Note A	9.4.1	
Emergency pressurization and filtration units (roughing, charcoal, and HEPA filters and fans)	3	Mfrs Stds	-	I	Note A	9.4.1	Note 21
Deluge and drain piping for filtration units	3	ASME III	-	I	Note A	9.4.1	Note 68
Piping and valves	3	ASME III	3	I	Note A	9.4.1	Note 79
Dampers and supports	3	Mfrs Stds	-	I	Note A	9.4.1	Note 21
Ductwork and supports	3	Mfrs Stds	-	I	Note A	9.4.1	Note 21
Air accumulators (intake dampers)	3	ASME III	-	I	Note A	9.4.1, 9.3.1	
Tubing and supports (between check valves upstream of accumulators and intake dampers)	3	ASME III	-	I	Note A	3.9B	Note 41
Check valves for accumulators	3	ASME III	-	I	Note A	9.3.1	Note 79
HVAC panels (control room)	1E	IEEE-344	-	I	Note A	9.4	

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
24. Safeguard Building HVAC System							
a. Safeguards area							
dampers	3	Mfrs Stds	-	I	Note A	9.4.5	Note 21
ductwork and supports	3	Mfrs Stds	-	I	Note A	9.4.5	Note 21
dampers	NNS	Mfrs Stds	-	NONE	Note E	9.4.5	Note 71
ductwork and supports	NNS	Mfrs Stds	-	II	Note B	9.4.5	
Emergency Fan Coil Units							
fans and housing	3	Mfrs Stds	-	I	Note A	9.4.5	Note 21
cooling coils	3	ASME III	3	I	Note A	9.4.5	
b. Electrical area							
dampers	3	Mfrs Stds	-	I	Note A	9.4C.3	Note 21
dampers	NNS	Mfrs Stds	-	NONE	Note E		Note 71
ductwork and supports	3	Mfrs Stds	-	I	Note A	9.4C.3	Note 21
ductwork and supports	NNS	Mfrs Stds	-	II	Note B		
thermostats	1E	IEEE-344	-	I	Note A	9.4C.3	
supply units/fans	NNS	Mfrs Stds	-	NONE	Note E	9.4C.3	Note 70
Emergency Fan Coil Units							
fans and housing	3	Mfrs Stds	-	I	Note A	9.4C.3	Note 21
cooling coils	3	ASME III	3	I	Note A	9.4C.3	
HVAC panels (control room)	1E	IEEE-344	-	I	Note A	9.4	

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
25. Fuel Building Ventilation System							
Dampers	3	Mfrs Stds	-	I	Note A	9.4.2	Note 21
Ductwork and supports	3	Mfrs Stds	-	I	Note A	9.4.2	Note 21
Dampers	NNS	Mfrs Stds	-	NONE	Note E	9.4.2	Note 71
Ductwork and supports	NNS	Mfrs Stds	-	II	Note B	9.4.2	
Demister in fuel pool exhaust	NNS	Mfrs Stds	-	NONE	Note E	9.4.2	
Emergency Fan Coil Units							
Cooling coils	3	ASME III	3	I	Note A	9.4.2	
Fans and housing	3	Mfrs Stds	-	I	Note A	9.4.2	
HVAC panels (control room)	1E	IEEE-344	-	I	Note A	9.4	
26. Diesel Generator Building Ventilation System							
Fans	3	Mfrs Stds	-	I	Note A	9.4C.1	Note 21
Dampers	3	Mfrs Stds	-	I	Note A	9.4C.1	Note 21
Ductwork and supports	3	Mfrs Stds	-	I	Note A	9.4C.1	Note 21
HVAC panels (control room)	1E	IEEE-344	-	I	Note A	9.4	
27. Uncontrolled Access Area Ventilation System							
Battery room exhaust system							
Fans	3	Mfrs Stds	-	I	Note A	9.4C.4	Note 21
Ductwork and supports	3	Mfrs Stds	-	I	Note A	9.4C.4	Note 21
Dampers	3	Mfrs Stds	-	I	Note A	9.4C.4	Note 21

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Balance of system							
Supply unit/fan	NNS	Mfrs Stds	-	NONE	Note E	9.4.3	Note 70
Ductwork and supports	3	Mfrs Stds	-	I	Note A	9.4.3	
Ductwork and supports	NNS	Mfrs Stds	-	II	Note B	9.4.3	
Ductwork and supports	NNS	Mfrs Stds	-	NONE	Note E	9.4.3	
Dampers	NNS	Mfrs Stds	-	NONE	Note E	9.4.3	Note 71
Electric Unit Heaters For Train A & B Battery Rooms	1E	IEEE-344	-	I	Note A	9.4C.4	
HVAC panels (control room)	1E	IEEE-344	-	I	Note A	9.4	
28. Primary Plant Ventilation System							
a. Exhaust							
Modular exhaust filtration units (ESF)	3	Mfrs Stds	-	I	Note A	9.4.3	Note 21
Modular exhaust filtration units (non-ESF)	3	Mfrs Stds	-	I	Note A	9.4.3	
Fans	3	Mfrs Stds	-	I	Note A	9.4.3	Note 21
Ductwork and supports	3	Mfrs Stds	-	I	Note A	9.4.3	Note 21
Dampers	3	Mfrs Stds	-	I	Note A	9.4.3	Note 21
Supports	3	Mfrs Stds	-	I	Note A	9.4.3	
Deluge and drain piping for filtration units	3	ASME III	-	I	Note A	9.4.3	Note 68
Plant Vent Stack and Supports	NNS	Mfrs Stds	-	II	Note B	9.4D	
b. Supply							
Units/fans	NNS	Mfrs Stds	-	NONE	Note E	9.4.3	Note 70
Ductwork and supports	NNS	Mfrs Stds	-	II	Note B	9.4.3	

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Dampers	NNS	Mfrs Stds	-	NONE	Note E	9.4.3	Note 71
Fans discharge gravity dampers	3	Mfrs Stds	-	I	Note A	9.4.3	Note 21
HVAC panels (control room)	1E	IEEE-344	-	I	Note A	9.4	
29. Auxiliary Building HVAC System							
Dampers	3	Mfrs Stds	-	I	Note A	9.4.3	Note 21
Dampers	NNS	Mfrs Stds	-	NONE	Note E	9.4.3	Note 71
Ductwork and supports	3	Mfrs Stds	-	I	Note A	9.4.3	Note 21
Ductwork and supports	NNS	Mfrs Stds	-	II	Note B	9.4.3	
Emergency fan coil units							
Fans and housing	3	Mfrs Stds	-	I	Note A	9.4.3	Note 21
Cooling coils	3	ASME III	3	I	Note A	9.4.3	
Emergency Fans for High Pressure Chemical Feed Room Ventilation System	3	Mfrs Stds	-	I	Note A	9.4C	
HVAC panels (control room)	1E	IEEE-344	-	I	Note A	9.4	
30. Service Water Intake Structure Ventilation System							
Fans (pump room exhaust)	3	Mfrs Stds	-	I	Note A	9.4B	
Ductwork and supports	3	Mfrs Stds	-	I	Note A	9.4B	
Dampers	3	Mfrs Stds	-	I	Note A	9.4B	
Outside Air Intake Screens	NNS	AISC	-	II	Note B	9.4B	

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
31. Chilled Water Systems							
a. Plant Ventilation chilled water system							
Class 5 Piping and supports	NNS	ANSI B31.1	-	II/NONE	Note B	9.4E, 3.6B	Note 44
b. Safety chilled water system							
Chillers	1E	Mfrs Stds	-	I	Note A	9.4F	
Water side of chillers	3	ASME III	3	I	Note A	9.4	
Piping and valves	3	ASME III	3	I	Note A	9.4F	Note 79
Surge Tank	3	ASME III	3	I	Note A	9.4F	
Pumps	3	ASME III	3	I	Note A	9.4F	
Supports for Class 3 Piping	3	ASME III	3	I	Note A	3.9B	
32. Process Sampling System							
Sample Panels	NNS	Mfrs Stds	-	NONE	Note E	9.3.2	
Delay coil	2	ASME III	2	I		9.3.2	
Piping and valves	2	ASME III	2	I	Note A	9.3.2	Note 79
Reflective insulation	NNS	Mfrs Stds	-	II	Note B	6.1B	
Supports for Class 2 Piping	2	ASME III	2	I	Note A	3.9B	
Class 5 Piping and supports	NNS	ANSI B31.1	-	II/NONE	Note B	3.7B	Note 44
Process Sampling Tubing, Fittings, Valves, and Supports	2	ASME III	-	I	Note A	6.2.4	Note 41

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
32a. Post Accident Sampling System							
Sample heat exchanger	NNS	Mfrs Stds	-	NONE	Note E	II.B.3	
Sample panel	NNS	Mfrs Stds	-	NONE	Note E	II.B.3	
Piping and Valve (containment isolation portion)	2	ASME III	2	I	Note A	9.3.2, II.B.3	Note 79
Supports for Class 2 Piping	2	ASME III	2	I	Note A	3.9B	
Class 5 Piping and supports	NNS	ANSI B31.1	-	II/NONE	Note B	3.7B	Note 44
Isolation valve Control Panel	1E	IEEE-344	-	I	Note A	9.3.2, II.B.3	
32b. Secondary Sampling System							
Sample Panel	NNS	Mfrs Stds	-	NONE	Note E	10.4.16, 3.7B.2.8	
Class 5 Piping and Supports	NNS	ANSI B31.1	-	II/NONE	Note B	3.7B	Note 44
33. Fuel Handling Equipment							
Refueling machine	N/A	Mfrs Stds	-	II	Note B	9.1	Note 16
Refueling machine interlocks	N/A	Mfrs Stds	-	NONE	Note C	7.6	
Containment Fuel Handling Bridge Crane	N/A	CMAA 74	-	II	Note B		Note 23, 24
Fuel Handling Bridge Crane	N/A	ASME NUM - 1 (TYPE B) ASME NOG - 1 (TYPE II)	-	II	Note B		Note 9, 23, 24
Rod cluster control changing fixture	N/A	Mfrs Stds	-	NONE	Note E		Note 16
Reactor vessel stud tensioner	N/A	Mfrs Stds	-	NONE	Note E		Note 15
Spent fuel handling tool	N/A	Mfrs Stds	-	NONE	Note C		Note 10

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Fuel Transfer System							
Fuel Transfer Tube & Flange	2	ASME III	MC	I	Note A		(also evaluated as part of containment structure)
Conveyer System & Controls	N/A	Mfrs Stds	-	NONE	Note E		
Remainder of System	N/A	Mfrs Stds	-	NONE	Note E		
Interlocks	N/A	Mfrs Stds	-	NONE	Note C	7.6	
Refueling gates	N/A	AISC	-	I	Note A		
Fuel transfer tube expansion joint	2	ASME III	MC	I	Note A		
Stud hole plug handling fixture	N/A	Mfrs Stds	-	NONE	Note E		Note 10
Stud hole plugs	N/A	Mfrs Stds	-	NONE	Note E		Note 10
Lower internals storage stand	N/A	Mfrs Stds	-	NONE	Note E		Note 10
Upper internals storage stand	N/A	Mfrs Stds	-	NONE	Note E		Note 10
Rod cluster control thimble plug tool	N/A	Mfrs Stds	-	NONE	Note E		Note 10
Source installation guide	N/A	Mfrs Stds	-	NONE	Note E		Note 10
Crane scales	N/A	Mfrs Stds	-	NONE	Note E		Note 10
Control rod drive shaft handling fixture	N/A	Mfrs Stds	-	NONE	Note E		Note 10
Radial Arm Hoist Assembly	N/A	Mfrs Stds	-	NONE	Note E		Note 93
Irradiation tube end plug seat jack	N/A	Mfrs Stds	-	NONE	Note E		Note 10
New fuel elevator	N/A	Mfrs Stds	-	NONE	Note E		Note 10
Portable underwater lights	N/A	Mfrs Stds	-	NONE	Note C		Note 90
Load cells	N/A	Mfrs Stds	-	NONE	Note E		

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Burnable Poison Rod handling tool	N/A	Mfrs Stds	-	NONE	Note E		Note 10
Irradiation sample handling tool	N/A	Mfrs Stds	-	NONE	Note E		Note 10
Burnable poison assembly rack inserts	N/A	Mfrs Stds	-	NONE	Note E		Note 10
Control rod drive shaft unlatching tool, full length	N/A	Mfrs Stds	-	NONE	Note E		Note 10
New fuel elevator winch	N/A	Mfrs. Stds.	-	NONE	Note E		Note 10
New fuel storage racks	3	ASME III	-	I	Note A	9.1	Note 14, 68
Spent fuel storage racks	3	ASME III	-	I	Note A	9.1	Note 14, 68
Refueling cavity seal ring	N/A	Mfrs Stds	-	NONE	Note E		Note 10
New fuel handling tool	N/A	Mfrs Stds	-	NONE	Note E		Note 10
Rod control cluster assembly handling fixture	N/A	Mfrs Stds	-	NONE	Note E		Note 10
Fuel Assemblies	2	N/A	-	I	Note A	4.2	
34. Containment Building Miscellaneous Equipment							
Containment polar crane	N/A	CMAA 70	-	I	Note A	9.1, 3.8	Note 53
Telescopic Jib Crane	N/A	ASME NOG-1 ASME NUM-1 API Spec 2C	-	II	Note B	3.8	Notes 23,24,89
Reactor vessel head lifting device	1	Mfrs Stds	-	I	Note A	9.1	Note 48
Upper internals lifting device	N/A	Mfrs Stds	-	NONE	Note E	9.1	
Containment dome access rotating platform	N/A	CMAA 70	-	II	Note B		Note 23, 24
Neutron detector positioner	2	Mfrs Stds	-	I	Note A		Note 23
Reactor vessel or core related components							
Reactor vessel shoes and shims	1	Mfrs Stds	-	I	Note A		

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Irradiation Sample holder	2	Mfrs Stds	-	I	Note A		Note 18
Irradiation Samples	N/A	Mfrs Stds	-	NONE	Note E		
Full length control rod cluster	2	Mfrs Stds	-	I	Note A		
Control rod drive mechanism (CRDM) dummy can assemblies	NNS	Mfrs Stds	-	NONE	Note E		Note 10
CRDM air cooling shroud assemblies (Unit 1 only)	NNS	Mfrs Stds	-	II	Note E		Note 10
CRDM air cool baffle assemblies (Unit 2 only)	NNS	Mfrs Stds	-	NONE	Note E		Note 10
CRDM seismic support platform	2	Mfrs Stds	-	I	Note A		Note 19
CRDM seismic support spacer plate	2	Mfrs Stds	-	I	Note A		Note 19
CRDM seismic support tie rod assemblies	2	Mfrs Stds	-	I	Note A		Note 19
Burnable poison rod assemblies	3	Mfrs Stds	-	NONE	Note A		Note 10
Reactor vessel insulation	NNS	Mfrs Stds	-	NONE	Note E		Note 10
Reactor vessel internals	2	Mfrs Stds	-	I	Note A		
Primary source rods	3	Mfrs Stds	-	NONE	Note A		
Incore Instrumentation							
Seal table assembly	1	Mfrs Stds	-	I	Note A		Provides support for safety class 1 pressure boundary tubing
Flux thimble tubing	2	ASME III	2	I	Note A		Note 20
Flux thimble tubing fittings	2	ASME III	2	I	Note A		Note 20
Roll-away missile shield (Unit 2 only)							
critical parts	2	CMAA 70	-	I	Note A		Note 23
non-critical parts	NNS	CMAA 70	-	NONE	Note E		Note 70

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Sump Screen	2	AISC Code	-	I	Note A	6.2.2	Frame structure supports recirculation piping moment restraint
Sump vortex suppression device	2	AISC Code	-	I	Note A		
35. Miscellaneous Handling Equipment							
Drumming storage area crane	N/A	CMAA 70	-	II	Note B	9.1	Note 23, 24, 78
Fuel Building Overhead Crane	N/A	CMAA 70	-	I	Note A	9.1, 3.8	Note 53, 78
SWIS Crane	N/A	CMAA 70	-	II	Note B	9.1	Note 23, 24, 78
Auxiliary Filter Hoist	N/A	CMAA 70	-	I	Note A		Note 53, 78
Safety Chiller Hoist	N/A	CMAA 70	-	I	Note A		Note 53, 78
Misc. Cranes and Hoists	N/A	CMAA 70	-	NONE	Note C		Note 78
36. Structures							
Containment Building	N/A	Note 36	-	I			
Containment internal structure (including containment sump)	N/A	ACI 318-71 & AISC Code	-	I	Note A	3.8.3	
Safeguards buildings (including diesel generator room and emergency SWGR room)	N/A	ACI 318-71 & AISC Code	-	I	Note A	3.8.4	
Auxiliary Building	N/A	ACI 318-71 & AISC Code	-	I	Note A	3.8.4	
Electrical and Control Bldg.	N/A	ACI 318-71 & AISC Code	-	I	Note A	3.8.4	
Fuel Building	N/A	ACI 318-71 & AISC Code	-	I	Note A	3.8.4	
Service Water Intake Structure	N/A	ACI 318-71 & AISC Code	-	I	Note A	3.8.4	

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Safe Shutdown Impoundment Dam	N/A	-	-	I	Note A	2.4 & 2.5	
Containment Personnel Airlock	2	ASME III	MC	I	Note A	3.8.1.1.6	
Containment Equipment Hatch	2	ASME III	MC	I	Note A	3.8.1.1.6	
Containment Emergency Airlock	2	ASME III	MC	I	Note A	3.8.1.1.6	
Masonry Walls	N/A	-	-	NONE	Note E	3.8.4	Note 52
Removable Precast Block Walls	N/A	-	-	II	Note B	3.8.4	Note 63, 70
Gypsum Walls	N/A	-	-	II	Note B		Note 63, 70
Missile Barriers (concrete)	N/A	-	-	I	Note A	3.3	
Missile Resisting Doors and Hatches	N/A	Mfrs Stds	-	II	Note B		Note 23
Watertight Doors	N/A	Mfrs Stds	-	I	Note A		
Handrails in Seismic Category I Buildings	N/A	ACI 318-71& AISC Specification	-	II	Note B		
Scaffold Pole Framework	N/A	OSHA	-	II	Note B		Note 23
37. Electrical Equipment							
6900-V Switchgear (safety related)	1E	IEEE-344	-	I	Note A	8.3.1	
6900-V to 480-VAC transformers (safety related)	1E	IEEE-344	-	I	Note A	8.3.1	
480-VAC switchgear (safety related (safety related)	1E	IEEE-344	-	I	Note A	8.3.1	
480-VAC motor local control stations (safety related)	1E	IEEE-344	-	I	Note A	8.3.1	
Low voltage AC distribution panels (safety related)	1E	IEEE-344	-	I	Note A	8.3.1	
118-V uninterruptible AC instrument distribution panels and subpanels (safety related)	1E	IEEE-344	-	I	Note A	8.3.1	
480 to 208/120-VAC transformers (safety related)	1E	IEEE-344	-	I	Note A	8.3.1	

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
125-VDC station batteries (safety related)	1E	IEEE-344	-	I	Note A	8.3.2	
125-VDC switchboards and distribution panels (safety related)	1E	IEEE-344	-	I	Note A	8.3.2	
125-VDC Battery Chargers (safety related)	1E	IEEE-344	-	I	Note A	8.3.2	
118-VAC static uninterruptible power systems (BOP safety related)	1E	IEEE-344	-	I	Note A	8.3.1	
125-V station battery racks and supports (safety related)	1E	IEEE-344	-	I	Note A	8.3.2	
Auxiliary relay racks safety related (BOP)	1E	IEEE-344	-	I	Note A	8.3.1	
Solid-state safeguard sequencer	1E	IEEE-344	-	I	Note A	8.3.1	
Solid-state isolation equipment	1E	IEEE-344	-	I	Note A	8.3.1	
Containment electrical penetration assemblies	1E	IEEE-344	-	I	Note A	8.3.1	
Electrical equipment supports (associated with safety related equipment)	N/A	AISC Code	-	I	Note A	8.3.1	
Motors (safety related)	1E	IEEE-323	-	I	Note A	8.3.1	
Power cables (associated with safety related equipment)	1E	IEEE-323	-	N/A	Note A	8.3.1	Note 80
Instrumentation and control cable (associated with safety related equipment)	1E	IEEE-323	-	N/A	Note A	8.3.1	Note 80
Wire and Cable Raceway System (in Seismic Category I Buildings)							
Cable trays (Containing Class 1E wires or cables)	N/A	-	-	I	Note A	8.3	
Cable trays (Not containing Class 1E wires or cables)	N/A	-	-	II	Note B		
Conduit (Containing Class 1E wires or cables)	N/A	-	-	I	Note A		
Conduit (Not containing Class 1E wires or cables)	N/A	-	-	NONE	Note E		Note 67
Supports (For cable trays or conduit that contain Class 1E wires or cables)	N/A	AISC	-	I	Note A	3.10B.3	

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Supports (For cable trays that do not contain Class 1E wires or cables)	N/A	AISC	-	II	Note B		
Supports (For conduit that does not contain Class 1E wires or cables	N/A	AISC	-	II/NONE	Note B		Note 67
480/120V Bypass transformers	1E	IEEE-344	-	I	Note A	8.3.1	
480/208-120V isolation transformers	1E	IEEE-344	-	I	Note A	8.3.1	
Priority Panels	N/A	-	-	I	Note A	8.3.1	
Prefabricated Cables and Connectors (associated with Safety Related equipment)	1E	IEEE-323	-	I	Note A	8.3.1	
8KV Cable termination and transition joints	1E	IEEE-323	-	N/A	Note A	8.3.1	
Terminal blocks	1E	IEEE-323	-	I	Note A	8.3.1	
Conduit Seals	1E	IEEE-323	-	I	Note A	8.3.1	
Heat Shrinkable cable insulation sleeves	1E	IEEE-323	-	N/A	Note A	8.3.1	Note 80
Spent Fuel Pool and Transfer Canal Underwater lights	N/A	Mfrs Stds	-	NONE	Note C	9.5.3	Note 72, 90
38. Radiation Monitoring System							
Containment High Range Radiation Monitors	1E	IEEE-323	-	I	Note A	12.3, 7.5, II.F.1	
Containment Air Monitors (including Particulate and Gas Channels)	3,N1E	Mfrs Stds, IEEE-344	-	I	Note A	11.5, 5.2.5	Note 88
Plant Vent Stack Gas Monitors (including Particulate and Iodine Samplers)	NNS,N1E	Mfrs Stds	-	NONE	Note C	11.5, 7.5, II.F.1	Note 56
Main Steam Line Monitors	N1E	Mfrs Stds	-	NONE	Note C	11.5, 7.5, II.F.1	Note 23, 56, 73
High Range Area Monitors	N1E	Mfrs Stds	-	NONE	Note C	12.3, 7.5	Note 56
Low Range Area Monitors	N1E	Mfrs Stds	-	NONE	Note C	12.3, 7.5	Note 56

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Component Cooling Water Monitors	N1E	Mfrs Stds	-	NONE	Note C	11.5, 9.2	Note 23, 74, 83
Waste Gas Monitor	N1E	Mfrs Stds	-	NONE	Note C	11.5, 11.3	Note 23, 73
Condenser Off-gas Monitor	N1E	Mfrs Stds	-	NONE	Note C	11.5, 7.5	Note 56
Ventilation Duct Monitors	N1E	Mfrs Stds	-	NONE	Note C	11.5, 7.5	Note 56
Liquid Waste Effluent Monitors	N1E	Mfrs Stds	-	NONE	Note C	11.5, 7.5	Note 34, 83
Turbine Building Drains Monitors	N1E	Mfrs Stds	-	NONE	Note C	11.5, 7.5	Note 56, 83
Failed Fuel Monitors	N1E	Mfrs Stds	-	NONE	Note C	11.5, 7.5	Note 83
Service Water Monitors	N1E	Mfrs Stds	-	NONE	Note C	11.5, 9.2	Note 83
Steam Generator Blowdown Sample Monitors	NNS, N1E	Mfrs Stds	-	NONE	Note C	11.5, 9.3	Note 83
Control Room Equipment Rack (seismic)	N1E	Mfrs Stds, IEEE-344	-	I	Note A	11.5	Note 88
Control Room Equipment Rack (1E)	1E	IEEE-344	-	I	Note A	11.5	
Control Room Ventilation Monitors	1E	IEEE-344	-	I	Note A	11.5, 9.4	
39. Fire Protection System							
Fire Suppression Systems	NNS	NFPA	-	NONE	Note D	9.5	Note 42, 58, 72
Class 5 Piping and supports	NNS	NFPA	-	II/NONE	Note B	3.6B	Note 44
Portable Fire Extinguishers	N/A	NFPA	-	NONE	Note D	9.5	Note 42, 59
Fire Extinguisher Brackets	N/A	NFPA	-	NONE	Note D	9.5	Note 42, 72
Fire Stops and Seals	N/A	ASTM E119	NONE	NONE	Note D	9.5.1.5	Note 42
Fire Rated Coating Systems	N/A	ASTM E119	-	NONE	Note D	9.5	Note 42, 72
RCP Lube Oil Collection System						9.5.1.3.6 (1)	

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
RCP Cowlings	NNS	Mfrs Stds	-	II	Note B		
Piping	NNS	ANSI B31.1	-	II	Note B		Note 44, 57
Tanks	NNS	ASME III	-	II	Note D,B		Note 42
Fire Detection System	N1E	NFPA-72D	-	NONE	Note D	9.5.1.4.2 (1)	Note 42, 72
Fire Dampers	N/A	Mfrs Stds	-	II/NONE	Note D,B	9.5	Note 42, 54
Fire Doors	N/A	Mfrs Stds	-	NONE	Note D	9.5	Note 42, 72
Fire Rated Barriers	N/A	ASTM E119	-	NONE	Note D	3.8, 9.5	Note 42, 72
40. Plant Gas System							
a) Nitrogen system							
piping and valves	2	ASME III	2	I	Note A	3.9B	
Valves	NNS	ANSI B31.1	-	NONE	Note C		Note 34
supports for Class 2 piping	2	ASME III	2	I	Note A	3.9B	
Class 5 piping and supports	NNS	ANSI B31.1	-	II/NONE	Note B	3.7B	Note 44
b) Hydrogen system							
piping and valves	2	ASME III	2	I	Note A	3.9B	
supports for Class 2 piping	2	ASME III	2	I	Note A	3.7B	
Class 5 piping and supports	NNS	ANSI B31.1	-	II	Note B	3.6B	Note 44, 57
41. Instrumentation and Control							
Electronic transmitters (pressure and differential pressure)	1E	IEEE-323	-	I	Note A	7.0	
Electronic transmitters (pressure, flow)	N1E	IEEE-323	-	NONE	Note C	7.5, II.F.1	Note 56

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Electronic transmitters (flow)	1E	IEEE-323	-	I	Note A	7.0	
Pressure switches	1E	IEEE-323	-	I	Note A	7.0	Note 39
Level Switches	2,3	ASME III	2,3	I	Note A	7.0	Note 85a
Level Switches	2,3	Mfrs Stds	-	I	Note A	7.0	Note 85b
Limit Switches	1E	IEEE-323	-	I	Note A	7.0	
Electronic transmitters (pressure and differential pressure)	1E	IEEE-323	-	NONE	Note A	7.0	Note 77
Pressure switches	1E	IEEE-323	-	NONE	Note A	7.0	Note 77
Limit Switches	1E	IEEE-323	-	NONE	Note A	7.0	Note 77
Level Transmitters	1E	IEEE-323	-	I	Note A	7.0, II.F.1	Functional Integrity only
Thermowells	2,3	ASME III	2,3	I	Note A	3.2	Pressure Integrity only
Resistance Temperature Detectors	1E	IEEE-323	-	I	Note A	7.0	
Temperature Elements	N1E	IEEE-323	-	NONE	Note C	7.5	Note 56
Source and Intermediate Range Neutron Detectors	1E	IEEE-323	-	I	Note A	7.2	
Power Range neutron detectors	1E	IEEE-323	-	I	Note A	7.2	
Thermowells (RWMS)	NNS	ANSI B31.1	-	NONE	Note C		Note 34
Neutron Flux Monitors	1E	IEEE-323	-	I	Note A	7.0	
Flow elements (RWMS)	NNS	ANSI B31.1	-	NONE	Note C		Note 34
Containment hydrogen analyzers	1E	IEEE-323	-	I	Note A	7.5, II.F.1	
Differential Pressure Switches	1E	IEEE-323	-	I	Note A	7.0	
Rotameters	3	ASME III	3	I	Note A	7.0	Pressure Integrity only

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Rotameters (RWMS)	NNS	Mfrs Stds	-	NONE	Note C	11.3	Note 34
Acoustic Sensors	N1E	IEEE-323	-	NONE	Note C	7.5	Note 56
Orifice Plates (Flow Metering)	2, 3	Mfrs Stds		I	Note A	7.0	
Impulse tubing, fittings, valves and supports	2, 3	ASME III	-	I	Note A	3.9B.3.4.3	Note 31, 41, 65
Impulse tubing, fittings, valves and supports	3	Mfrs Stds	-	I	Note A	9.4	Note 92
Supports for impulse tubing, fittings and valves	NNS	-	-	II/NONE	Note B	7.0	Note 51
Instrument supports	N/A	-	-	I	Note A	7.0	Note 38a
Instrument supports	N/A	-	-	II	Note B	7.0	Note 38b
Nuclear instrument racks (NIS)	1E	IEEE-344	-	I	Note A	7.0	
Process instrumentation and control racks (NSSS)	N1E		-	NONE	Note E	7.0	
Rod control equipment	N/A	-	-	NONE	Note C	7.0	
Rod position indication containment cabinets	N/A	-	-	NONE	Note C	7.0	
I & C Power supply inverters (NSSS)	1E	IEEE-344	-	I	Note A	7.0	
Solid-state protection system cabinet	1E	IEEE-344	-	I	Note A	7.0	
Control board demultiplexer	N1E	-	-	NONE	Note C	7.0	
Hot shutdown panel	1E	IEEE-344	-	I	Note A	7.0	
Shutdown Transfer Panel	1E	IEEE-344	-	I	Note A	7.0	
Process instrumentation protection racks	1E	IEEE-344	-	I	Note A	7.0	
Reactor trip switchgear	1E	IEEE-344	-	I	Note A	7.0	
Protective relay rack (6.9-kv bus UV/UF)	1E	IEEE-344	-	I	Note A	7.0	
Cable termination racks	1E	IEEE-344	-	I	Note A	7.0	
Local instrument racks	N/A	IEEE-344	-	I	Note A	7.0	Note 31, 38a

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Local instrument racks	N/A	-	-	II	Note B	7.0	Note 31, 38b
Control Room Benchboards, Vertical Panels or Hot Shutdown Panel Mounted Equipment Classified 1E	1E	IEEE-344	-	I	Note A	7.0	
Proportional Integral Derivative (PID) Controller PC-455A	N1E	-	-	NONE	Note C	II.K.3.9	
Control Room Benchboards, Vertical Panels or Hot Shutdown Panel Mounted Equipment Classified as Non-1E	NNS	Mfrs Stds	-	NONE	Note E	7.0	Note 70
Analog Instrumentation Cabinets (BOP Safety Related)	1E	IEEE-344	-	I	Note A	7.0	
Auxiliary Relay Rack (NSSS)	N/A	Mfrs Stds	-	I	Note A	7.0	Note 69
Auxiliary Relay Rack Isolation Relays (NSSS)	1E	IEEE-344	-	I	Note A	7.0	Note 69
Upgrade Protection and Surveillance Cabinet (NSSS)	1E	IEEE-344	-	I	Note A	7.0	
AMSAC Cabinet	N/A	Mfrs Stds	-	I	Note A	7.8	
AMSAC Isolation Relays	1E	IEEE-344	-	I	Note A	7.8	
AMSAC Actuation Circuit (Logic)	N1E	Mfrs Stds	-	NONE	Note C	7.8	Note 66
Core Cooling Monitor	1E	IEEE-344	-	I	Note A	II.F.2	
Reactor Vessel Level Indicating System (RVLIS)	1E	IEEE-344	-	I	Note A	II.F.2	
Safety Parameter Display System (SPDS)/ERF Computer	N1E	Mfrs Stds	-	NONE	Note C	III.A.1.2, I.D.2	
Main Steam Isolation Valve (MSIV) Train C Solenoids	N1E	IEEE 323	-	NONE	Note C	3.6B.2.5.2, Table 3.6B-4, Table 3.6B-5	
Turbine Overspeed Protection System	N1E	Mfrs Stds	-	NONE	Note C	10.2.2	
Explosive Gas Monitoring	N1E	Mfrs Stds	-	NONE	Note C	11.3	
Area Temperature Monitoring	N1E	Mfrs Stds	-	NONE	Note C	3.11B	
Movable Incore Detection Systems	N1E	Mfrs Stds	-	NONE	Note C	7.7	

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Seismic Instrumentation	N1E	IEEE 344	-	NONE	Note C	3.7B.4	
Loose Parts Monitoring Systems	N1E	Mfrs Stds	-	NONE	Note C	4.4.6.4	
Feedwater Isolation Valve (FWIV) Temperature Monitoring	N1E	Mfrs Stds	-	NONE	Note C		
Feedwater Flow Measurement (LEFM)	N1E	Mfrs Stds	-	NONE	Note C	10.4-9	
Safety Related Digital System Upgrade	1E	IEEE-344	-	I	Note A	7.0	
Non-Safety Related Digital System Upgrade	N1E	Mfrs Stds	-	II/NONE	Note C	7.0	
Spent Fuel Pool Instrumentation (NRC Order EA-12-051)	N1E	Mfrs Stds	-	NONE	Note F	1.2.5	Note 96
42. Tornado Venting Components							
Dampers	NNS	Mfrs Stds	-	II/NONE	Note B	3.3.2	Note 24
Blowout Panels	NNS	Mfrs Stds	-	II/NONE	Note B	3.3.2	Note 24, 76
43. Compressed Air Systems							
Class 5 piping and supports	NNS	ANSI B31.1	-	II/NONE	Note B	9.3.1	Note 44, 51
SFP Swing Gate Seal Pressures Gauges	3	ASME GRADE 1A	N/A	I	Note A	9.3.1	
SFP Swing Gate Seal Isolation Valves	3	ASME CLASS 2080	N/A	I	Note A	9.3.1	
SFP Swing Gate Seal Check Valves	NNS	Mfrs Stds	-	I	Note A	9.3.1	
44. Protective Coatings						6.1B	
Coatings inside the Containment	N/A	ASTM D 5144-00	-	NONE	Note C		Note 33
Coatings outside the Containment	N/A	NONE	-	NONE	Note C		Note 33

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
45. Potable and Sanitary Water System							
Domestic water storage tank	NNS	ASME VIII	-	II	Note B	9.2.4	Note 23, 91
46. Condensate System							
Class 5 piping and supports	NNS	ANSI B31.1	-	II/NONE	Note B	10.4.7	Note 44
47. Auxiliary Steam System							
Class 5 piping and supports	NNS	ANSI B31.1	-	II/NONE	Note B	10.4.13	Note 44
48. Steam Generator Blowdown & Cleanup System							
Steam Generator Blowdown Heat Exchanger	NNS	ASME VIII	-	NONE	Note C	10.4.8	Note 34
Blowdown Cation Demineralizers	NNS	ASME VIII	-	NONE	Note C	10.4.8	Note 34
Blowdown Mixed Bed Demineralizers	NNS	ASME VIII	-	NONE	Note C	10.4.8	Note 34
Mixed Bed Resin Trap	NNS	ANSI B31.1	-	NONE	Note C	10.4.8	Note 34
Cation Resin Trap	NNS	ANSI B31.1	-	NONE	Note C	10.4.8	Note 34
Steam Generator Spent Resin Sluice Pump	NNS	Mfrs Stds	-	NONE	Note C	10.4.8	Note 34
Filter	NNS	ANSI B31.1	-	NONE	Note C	10.4.8	Note 34
Steam Generator Blowdown Spent Resin Storage Tank	NNS	ASME VIII	-	NONE	Note C	10.4.8	Note 34
Valves	NNS	ANSI B31.1	-	NONE	Note C	10.4.8	Note 34
Class 5 piping and supports	NNS	ANSI B31.1	-	II/NONE	Note B	3.7B	Note 44
Steam generator blowdown filter	NNS	ANSI B31.1		NONE	Note C	10.4.8	Note 34

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
49. Pipe Whip Restraints	N/A	Mfrs Stds	-	I	Note A	3.6B	Note 43
50. Meteorological Instrumentation							
Meteorological Tower	N/A	Mfrs Stds	-	NONE	Note C	2.3	
Sensors	N/A	Mfrs Stds	-	NONE	Note C	2.3	
Signal Conditioners							
Power Supplies	N/A	Mfrs Stds	-	NONE	Note C	2.3	
Data Logging and Computational Devices	N/A	Mfrs Stds	-	NONE	Note C	2.3	
METSYS Computer	N/A	Mfrs Stds	-	NONE	Note C	2.3	
51. Uninterruptible Power Supply (UPS) and Distribution Rooms System							
Air-conditioning units							
Roughing filter, fan, and direct-expansion refrigerant coils	3	Mfrs Stds	-	I	Note A	9.4C.8	Note 21
Refrigerant piping & tubes	3	ASTM B42 ASTM B88	-	I	Note A	9.4-15	Note 21
Water Side	3	ASME III	3	I	Note A	9.4-15	
Dampers and supports	3	Mfrs Stds	-	I	Note A	9.4-15	Note 21
Ductwork and supports	3	Mfrs Stds	-	I	Note A	9.4-15	Note 21
Booster Return Fans	3	Mfrs Stds	-	I	Note A	9.4-15	Note 21
52. Turbine Plant Cooling Water System							

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Class 5 piping and supports	NNS	ANSI B31.1		II/None	Note B	10.4.12	Note 44
53. Condensate Polishing System							
Class 5 piping and supports	NNS	ANSI B31.1		II/None	Note B	10.4.6	Note 44
54. Condenser Vacuum and Waterbox Priming System	NNS	ANSI B31.1		II/None	Note B	10.4.2	Note 44
Class 5 piping and supports							
55. Heater Drains System							
Class 5 piping and supports	NNS	ANSI B31.1		II/None	Note B	10.4.11	Note 44, 81
56. Chemical Feed System							
Class 5 piping and supports	NNS	ANSI B31.1		II/None	Note B	10.3-1	Note 44
57. Security Systems							
Barriers	N/A	Mfrs Stds	-	II/NONE	Note B, C	13.6	
Doors	N/A	Mfrs Stds	-	NONE	Note C	13.6	
Intrusion Detection/Monitoring	N1E	Mfrs Stds	-	NONE	Note C	13.6	
Lighting	N1E	Mfrs Stds	-	NONE	Note C	13.6	
Access Control System	N1E	Mfrs Stds		NONE	Note C	13.6	
58. Chlorination Systems							

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System and Components (45)	Safety Class (7)	Applicable Code or Standard (12)	Code Class (40)	Seismic Category	Quality Assurance (87)	Reference Section	Remarks
Class 5 Piping and Supports	NSSS	ANSI B31.1	-	II/NONE	Note B	9.2-1	Note 44

Notes

1. Services provided to support a safety or other necessary function:
   a. Emergency power - automatic loading
   b. Emergency power - manual loading
   c. Component cooling water
   d. Service water
   c. Steam
2. Portions of equipment containing component cooling or service water are Safety Class 3, Code Class 3.
3. Deleted.

3a Deleted.

4. Deleted.
5. Deleted.

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6. Deleted.
7. Safety classes for fluid system components are defined by the engineering flow diagrams and are in accordance with ANSI N18.2, Nuclear Safety Criteria for the Design of Stationary Pressurized Water Reactor Plants except as described in Section 3.2.2. Safety classes for electrical, instrumentation and control components are defined by the one-line diagrams, electrical wiring diagrams, and instrumentation and control diagrams. Safety classes for reactor containment pressure boundary components are in accordance with ANSI N18.2.
8. The Main Steam Isolation and Bypass Valves were originally procured to ASME Class 1 as permitted by paragraph NA-2134 of the ASME Code, Section III. Procurement of ASME Code components to classifications higher than their end use is common (and acceptable); however; the application shown is the required classification for system and for ASME XI activities.
9. Parts must meet the structural integrity requirements of the specification and applicable quality assurance requirements of 10 CFR Part 50, Appendix B.
10. Failure can cause no nuclear safety problem, although an economic loss may result.
11. This component is Safety Class 3 under the definition 2.2.3(1), (3), or (4) of ANSI N18.2-1973 and qualifies for no special seismic design by meeting the four following conditions. Portions of systems in which this component is located that perform the same safety function likewise qualify for no special seismic design.

    Conditions to be met for exemption are the following:

    a. Failure would not directly cause a Condition III or IV event (as defined in ANSI N18.2-1973, Nuclear Safety Criteria for the Design of Stationary Pressurized Water Reactor Plants).

    b. There is not safety function to mitigate nor could failure prevent mitigation of the consequences of a Condition III or IV event.

    c. Failure during or following any Condition II event would result in consequences no more severe than allowed for a Condition III event.

    d. Routine post seismic procedures would disclose loss of the safety function.
12. The applicable code or standard provided is the primary ASME code or industry standard which applies to the given component. Additional information about the design requirements is provided in the referenced FSAR Sections. IEEE 323 applies to harsh equipment only. ASME: American Society of Mechanical Engineers. III stands for Section III of the ASME Boiler and Pressure Vessel (B&PV) Code. VIII stands for Section VIII of the ASME B&PV Code. Pressure vessels which are part of the RCPB meet the requirements of 1971 Version, with application of all Addenda through and including the Summer 1972 Addenda. Pumps, valves, and piping which are part of the RCPB meet the requirements of the 1971 Version, with application of all Addenda through and including the Winter 1972 Addenda. Later Code versions may be used optionally.
13. Not Used
14. Must maintain fuel array to prevent criticality under adverse conditions including occurrences of the SSE.
15. To be safety classified, failure of the tool must be directly a nuclear safety problem. If a nuclear safety problem arises from tool failures combined with a procedural failure thereafter, the tool is Non-Nuclear Safety.
16. Failure inside isolable reactor Containment prevents substantial release to the environment of radioactive gases from damaged spent fuel.
17. Deleted.

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18. Any reactor vessel internal, the single failure of which could cause release of a mechanical piece having potential for direct damage (as to the vessel cladding) or flow blockage, shall be classified to a minimum of Safety Class 2.
19. These items are not required as mechanical supports for CRDM housings, but are required to ensure functioning of the control rods.
20. Failure could cause a LOCA, but less than a Condition III loss-of-coolant.
21. This equipment is not commercially available as ASME Code, Section III, Class 3.
22. This equipment is included in the scope of IEEE 387; in that, ANSI N18.2 endorses IEEE-308 which in turn endorses IEEE-387, for diesel generators. IEEE-387 provides principal design criteria, etc., for individual diesel generator units which enable them to meet their functional requirements as part of the standby power supply.
23. Critical parts required to maintain structural integrity during a seismic event are subjected to QA program.
24. These devices will remain in place following a SSE.
25. Component supports are designed in accordance with ASME B&PV Code, Section III, Class 3 but fabricated to AISC -1970.
26. Deleted.
27. Deleted.
28. Deleted.
29. Deleted.
30. Applies only to that bolting involved with coastdown function.
31. Tubing, valves and fittings connected to ASME Class 2 and 3 systems are procured to ASME Section III Class 2 and 3 requirements. Instruments and racks are not covered by ASME Code. Also see Note 41.
32. Deleted.
33. The requirements of FSAR Section 6.1B.2 for Containment and Section 12.3.1.2 for radiation areas outside Containment are implemented by approved procedures. These procedures will establish the requirements necessary to ensure a good quality coating system. The fire protection requirements for protective coatings are in FSAR Section 9.5.1.5.3. The quality assurance requirements for the protective coatings program for Service Level I are in accordance with EPRI Report 1003102, “Guideline on Nuclear Safety-Related Coatings”, Revision 1 (formerly TR-109937) and ASTM D 5144-00, Standard Guide for Use of Protective Coating Standards in Nuclear Power Plants.
34. The quality requirements of Branch Technical Position ETSB 11-1, Rev. 1, are satisfied. Specifically, codes and standards required in the design, fabrication, inspection and testing of pressure vessels, tanks, heat exchangers, piping and valves, and pumps for the liquid and solid radwaste systems, and the steam generator blowdown processing system comply as a minimum with Table 1 of Branch Technical Position ESTB 11-1, Revision 1, except for the instance stated in Note 83 to this Table. Note: This is not within the scope of FSAR Section 17.2. Where “Note 34” is used for safety-related equipment (Safety Class 1, 2, or 3, or Seismic Category I), the QA provisions of Appendix B envelope and satisfy the requirements of ETSB 11-1. The scope of ESTB 11-1 is defined in the engineering flow diagrams by "RWMS" boundary demarcation.
35. ATCOR topical report no. 132A gives a breakdown of system components and applicable design codes.

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36. The applicable code for the Containment is the proposed Standard Code for Concrete Reactor Vessels and Containment (April 1973) issued for trial use and comments. It was developed by the Joint ACI-ASME Technical Committee on Concrete Pressure Components for Nuclear Service (see Section 3.8.1.2.1).

37. Deleted.

38a. This applies to safety-related and non-safety related instruments which are connected to nuclear safety related piping or ducting with seismic Category I tubing and supports.

38b. This applies to non-safety related instruments connected to NNS piping or ducting by NNS tubing and supports.

39. All pressure switches are differential pressure switches with the low side open to atmosphere.

40. Code Class 1, 2 or 3 indicates item within ASME Code Boundary. Code Class "-" indicates item not within ASME Code Boundary.

41. The ASME III Code (excluding NA-4000, NA-5000, and NA-8000) shall apply to all tubing, valves and fittings. Tubing, valves and fittings are procured as ASME material but will not be installed with Third Party Inspection, Code Stamping, and Code Data Reports as specified in ASME Subsection NA-5000 and NA-8000. Site fabrication and installation of tubing, valves and fittings will be in accordance with an NRC approved QA program governing non-ASME work which meets the requirements of Appendix-B to 10 CFR part 50 (excluding ASME III Subsection NA-4000). Piping installed between root valves and instruments is subject to the same requirements as stated previously in this note for instrument tubing, valves and fittings. Tubing and valve supports shall be installed as Seismic Category I but shall not comply with ASME III Subsection NF requirements. See Section 3.9B.3.4.3 for details.

42. The quality assurance requirements of Appendix A of the Branch Technical Position APCSB 9.5-1 of Standard Review Plan, Section 9.5.1, Revision 1, are satisfied.

43. The quality assurance requirements of Branch Technical Position MEB 3-1 and APCSB 3-1 are satisfied.

44. Process piping meets quality assurance requirements as set forth in mechanical specification 2323-MS-46B, "Non-Nuclear Pipe Hanger and Supports" and mechanical specification 2323-MS-100, "Piping Erection". Tubing and tubing supports used in NNS process piping, control piping, and sampling piping meets the qualify assurance requirements as set forth in specification CPES-I-1018, Installation of Piping/Tubing and Instrumentation Class 5 piping and its supports are designated Seismic Category II or None. Seismic Category II is utilized for piping included in ASME Section III stress analyses, high energy lines, and other special cases indicated by engineering evaluation. Seismic Category None is normally utilized for 2 inch and under piping, and 4 inch and under air filled copper tubing/pipe, unless otherwise indicated by engineering evaluation. Seismic Category II piping has Seismic Category II supports. Seismic Category NONE piping has Seismic Category NONE supports. In Category I Buildings, all Class 5 piping has been evaluated to show that seismic failure is not credible and therefore, the safety function of nuclear safety-related items is not adversely affected.

45. See system No. 40 for instrument piping (tubing). Piping includes pipe, tubing, fittings and valves.

46. Safety function is achieved by remaining in place. Component safety function is non-active.

47. Applicable codes and standards for concrete radiation shielding are listed in Section 3.8.4.2.

48. Only portions that furnish support to CRDMs, are Safety Class 1.

49. Deleted.

50. Deleted.

51. Supports for NNS instrumentation lines, instrument air lines, and pneumatic signal lines installed in Seismic Category I areas shall be Seismic Category II or NONE. Seismic Category NONE supports shall only be used if engineering evaluation shows that a seismic failure would not adversely affect the safety function of nuclear safety related items.

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52. Masonry walls have been evaluated for seismic interactions (remained non-seismic), removed, or replaced with seismically designed walls of other material.
53. This load handling equipment satisfies NUREG-0554 single-failure-proof requirements. Seismic Category I denotes the capability to retain control of the lifted load and to maintain structural integrity during and after a seismic event. The loading combinations include OBE and SSE with lifted load except for the polar crane due to the low probability of SSE with lifted load (less than 1×10^{-7} per year). The polar crane criteria is discussed in FSAR Section 9.1.4.3.2.
54. Fire dampers are functionally part of fire barriers but are physically located in ventilation ducts and penetrations. The safety class designation on ventilation diagrams does not apply to the fire dampers. Fire dampers which are required to remain open after an SSE have thermal links that are designated seismic Category II and are qualified to keep the damper open.
55. The tank boundary extends to the first weld connecting the penetration nozzles to system piping outside the tank. The tank and associated piping inside the tank is not N-stamped.
56. The application of R.G. 1.97 is applied to those channels identified in FSAR Section 7.5.
57. The Class 5 piping and valves in these 2" and under seismic Category II lines are seismically analyzed and are supported by seismic Category II supports. Installation requirements are the same as other Class 5, seismic Category II pipes.
58. Excluding existing buried yard piping. QA requirements of Appendix A to BTP APCSB 9.5-1 of Standard Review Plan Section 9.5.1 Revision 1 are to be satisfied for future activities associated with buried yard piping that supplies fire protection water to safety related buildings.
59. QA for water extinguishers limited to UL listing.
60. Deleted.
61. Deleted.
62. This component has been qualified as seismic category I by analysis.
63. Applicable where wall is supported by structural steel specified seismically, e.g., all access blockouts that have removable block closures have seismically designed steel supports to prevent collapse of the blocks.
64. Application of modified GDC-4 (leak-before-break) removes the need for non-crushable insulation. The non-crushable insulation may be replaced.
65. The leak testing of the instrument tubing between the instrument isolation valve and the instrument will be accomplished during normal instrument calibration. Tubing systems previously pressure tested as being satisfactory, which were later repaired or replaced, shall not require an additional pressure test prior to initial plant startup but shall be evaluated under an in-service leak test program.
66. For the Non-1E portion of the AMSAC, the requirements of Generic Letter 85-06 will be implemented through application of a quality assurance program that satisfies applicable requirements of Regulatory Guide 1.33, Revision 2.
67. Seismic Category II conduit supports are subject to Operations Quality Assurance Note B.
68. ASME III is the primary code for design and/or fabrication. This item is not within the ASME III, jurisdictional boundary.
69. This applies to auxiliary relay racks 1 and 2 only. The only 1E function of the Auxiliary Relay Racks is to provide isolation.
70. Seismic Category II anchor bolts, structural steel and/or mounting are subject to Operations Quality Assurance Note B.

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71. NNS HVAC dampers are Seismic Category NONE. Operations Quality Assurance Note B applies to mounting and supports in Seismic Category II ductwork.
72. Seismic Category II mounting, anchors, and/or supports are subject to Operations Quality Assurance Note B.
73. Critical parts of these radiation monitors subject to Operations Quality Assurance Note B are the lead shielding for the detectors and the supports and anchors for those shields.
74. Critical parts of these radiation monitors subject to Operations Quality Assurance Note B are the lead shielding and fluid system pressure boundary and the supports and anchors for these items.
75. Valve required during and after a tornado.
76. Only Control Room Blowout Panels are Seismic Category II (to remain closed) and subject to Operations Quality Assurance Note B.
77. Certain non-safety related (Seismic Category NONE) instrumentation and controls located outside Seismic Category I areas are denoted as Class 1E. These devices are fully Class 1E except for seismic qualification. Seismic qualification and installation are provided to the extent practical considering that the specific location (e.g. building) is not seismically qualified. See Figure 7.1-3 (Sht. 16), Section 7.2.1.1.6, Section 8.3.1.4.1, and Section 10.4.7 for descriptions of these items.
78. Includes the design features and administrative measures to assure the safe handling of heavy loads.

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79. Valve operators for safety related valves are classified and have QA applicability as follows:

Valve Operator Type	Applicable Safety Class	Code/ Standard	Code Class	Seismic Category	Quality Assurance	Remarks
Self Actuated (e.g. check valve, relief valve, etc.): Included in table listing because "operator" is integral to valve						
Manual: Included in the table listing because the classification of a manual “Operator” is included in the valve classification. Table 3.9B-10 identifies where handwheels are credited for manual operation of active valves.						
Extension Stems (Active)	N/A	Mfrs Stds	-	I	Note A	
Extension Stems (Passive)	N/A	Mfrs Stds	-	NONE	Note C	Note 72
Solenoid: Included in table listing because "operator” is integral to valve; however, Safety Class may be 1E or N1E with applicable corresponding standards in addition to the ANSI safety class.						
Motor (Active Vlv)	1E	IEEE 323	-	I	Note A	
Motor (Passive Vlv)	N1E	Mfrs Stds	-	NONE	Note C	
Air/hydraulic (Active Vlv*)	3, N/A**	Mfrs Std	-	I	Note A	
Air/hydraulic (Passive Vlv)	N/A	Mfrs Stds	-	I#	Note A	
Air/hydraulic (Passive Vlv)	N/A	Mfrs Stds	-	NONE##	Note C	

* Active valves for each system are identified in Tables 3.9N-10 and 3.9B-10.

** Safety Class 3 is applicable to the air/hydraulic valve operator when an air accumulator is required for the valve to perform a safety function. Otherwise, Safety Class is "N/A".

\# Operator with Class 1E Appurtenances.

Operator with non-1E Appurtenances.

80. Cables and heat shrinkable cable insulation sleeves are not seismically qualified. However, the basic standards to which cables and heat shrinkable cable insulation sleeves are procured and their associated installation requirements assure their functioning following a seismic event.

81. High energy line piping segments which are listed in FSAR Section 3.7B.2.8 as located in the Turbine Building are designated class 5 piping and classified as Seismic Category II even though the locations are in a non-seismic building. Additional analyses are performed to demonstrate that unacceptable interactions of these piping segments with Non-Category I structures and components will not occur during a seismic event. These piping segments are seismically analyzed for break postulation and seismic qualification.

TABLE 17A-1
LIST OF QUALITY ASSURED STRUCTURES, SYSTEMS AND COMPONENTS

82. Piping and supports for the Diesel Generator exhaust piping the building, from the flexible connectors to just upstream of the exhaust relief valve, are designed, analyzed, installed and inspected to the requirements of ASME Section III, including Code Case N-253-2. In some of the pipe support qualifications, part of the material stress allowables are extracted from ANSI B31.1. In all cases, the requirements of Code Case N-253-2 were met or exceeded. The piping and associated supports are exempt from Code Stamping.
83. Radiation monitors are not designed to ASME VIII, Division 1; however, manufacturer's design standards include hydrotesting to 1.5 times design pressure and compliance with ASME IX welding requirements.
84. Steam Generator nozzle dams are used during shutdown and refueling. ANSI N18.2 is not applicable. Seismic and QA requirements apply to critical components of the nozzle dam and support frame and to the diaphragm seal.
85. Non-1E level switches installed in ASME piping are safety related for pressure boundary integrity only. There are two types:
    a. Displacement Type (ASME).
    b. Thermal Dispersion Type (Non-ASME).
86. The Safety Class 2 (containment isolation) portion of the Unit 1 personnel airlock hydraulic system contains both ASME and non-ASME components as denoted on Figure 3.8-22. The ASME code is not applicable to the tubing and hydraulic system components.
87. See Table 17A-2 for the Operations Quality Assurance Notes.
88. The Containment Air Radiation Monitor is classified as N1E because it is not required to function during or following a LOCA and is not environmentally qualified for that event. It is electrically isolated from the 1E bus during and after a LOCA; therefore, IEEE-323 does not apply. The monitor's Nuclear Safety Function is performed in normal operation and after seismic events in accordance with RG 1.45 [FSAR Section 5.2.5]. The monitor is classified as seismic Category I and is seismically qualified in accordance with IEEE-244.
89. Requirements of applicable codes meet or exceed those of CMAA 70 in applicable areas.
90. Underwater lights containing mercury (such as high pressure sodium lights) are subject to inspections and precautions and limitations that assure nuclear safety is not compromised.
91. Abandoned in place.
92. ANSI Safety Class 3 tubing, valves and fittings connected to HVAC systems may be procured to ASME Section III Class 3 requirements; however, the ASME Code is not applicable to the design or installation. ANSI Safety Class 3 tubing, valves, and fittings are designed and installed to seismic Category I requirements.
93. The Radial Arm Hoist Assembly (RAHA) is used during Modes 5 and 6 to aid in reactor vessel head stud removal and other refueling activities. Because the Mode 5 and 6 configuration does not meet RG 1.29, Seismic Category II requirements, the hoists and their trolleys are removed during Modes 1 through 4 and the radial arms are secured in a Seismic Category II configuration that meet the requirements of Reg. Guide 1.29, Rev. 2, Position C.2 and QA Note B.
94. Alternate penetration insert is for use in Modes 5 and 6.
95. The airlock instrumentation is a special case as described in FSAR Section 6.2.4.1.3.
96. The SFP level instrument mounting brackets and anchorages were designed in accordance with the CPNPP requirements as a Seismic Category I component support. Other evaluations provided in letters TXX-15084 and TXX-15122 demonstrate that adequate and reasonable designs have been provided to support the other SFP level instrument channel components for the site's SSE.

TABLE 17A-2
QUALITY ASSURANCE SUMMARY

SAFETY CLASS	SEISMIC CATEGORY	SAFETY RELATED	OPERATIONS QA APPLIED
1	I	YES	YES, A
2	I	YES	YES, A
3	I	YES	YES, A
3, 1E	NONE	NO	YES, A
1E	I, N/A	YES	YES, A
N/A, N1E	I	YES	YES, A
NNS, N/A	II	NO	YES, B
NNS, N/A, N1E	NONE	NO	YES, C or D
NNS, N/A, N1E	NONE	NO	NO, E

Operations Quality Assurance Notes:

A. An Operations QA Program will be implemented which satisfies applicable requirements of Regulatory Guide 1.33, Rev. 2, “Quality Assurance Program Requirements” (Operations).

B. Critical parts required to maintain structural integrity during a seismic event are subjected to an Operations QA Program which satisfies applicable requirements of Regulatory Guide 1.33, Rev. 2.

C. Full QA requirements were not imposed for manufacture and/or installation; however, a specifically structured non-Appendix B QA program will be instituted during operation of equipment.

D. An Operations QA Program will be implemented which satisfies applicable requirements of Appendix A of the Branch Technical Position APCSB 9.5-1 of Standard Review Plan, Section 9.5.1, Rev. 1.

E. No formal quality assurance program is required. Normal applications of administrative controls for non-safety related items is applied.

F. Appropriate quality assurance measures are in accordance with Appendix A-1 of NEI 12-02, Revision 1, “Industry Guidance for Compliance with NRC Order EA-12-051, “To Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation.”