



U.S. NUCLEAR REGULATORY COMMISSION

STANDARD REVIEW PLAN

OFFICE OF NUCLEAR REACTOR REGULATION

3.2.2 SYSTEM QUALITY GROUP CLASSIFICATION

REVIEW RESPONSIBILITIES

Primary - Mechanical Engineering Branch (EMEB)¹

Secondary - None

I. AREAS OF REVIEW

Nuclear power plant systems and components important to safety should be designed, fabricated, erected, and tested to quality standards commensurate with the importance of the safety function to be performed.

The EMEB² reviews the applicant's classification system for pressure-retaining components such as pressure vessels, heat exchangers, storage tanks, pumps, piping, and valves in fluid systems important to safety, and the assignment by the applicant of quality groups to those portions of systems required to perform safety functions. ~~Where required, specific information or assistance may be required from the ICSB to review electrical and instrumentation systems needed for functioning of plant features important to safety. This review which is coordinated with each branch that has primary review responsibility for these plant features is performed for both construction permit (CP) and operating license (OL) applications.~~³ Excluded from this review are: structures; internal parts of mechanical components such as shafts, seals, impellers, packing, and gaskets; fuel, electrical, and instrumentation systems, electrical valve actuation devices, and pump motors.

The applicant presents data in his⁴ safety analysis report (SAR) in the form of a table which identifies the fluid systems important to safety; the system components such as pressure vessels, heat exchangers, storage tanks, pumps, piping, and valves; the associated quality group

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Standard review plans are prepared for the guidance of the Office of Nuclear Reactor Regulation staff responsible for the review of applications to construct and operate nuclear power plants. These documents are made available to the public as part of the Commission's policy to inform the nuclear industry and the general public of regulatory procedures and policies. Standard review plans are not substitutes for regulatory guides or the Commission's regulations and compliance with them is not required. The standard review plan sections are keyed to the Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants. Not all sections of the Standard Format have a corresponding review plan.

Published standard review plans will be revised periodically, as appropriate, to accommodate comments and to reflect new information and experience.

Comments and suggestions for improvement will be considered and should be sent to the U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, Washington, D.C. 20555.

classification, applicable⁵ ASME Code and code class (see Reference 15)⁶; and the quality assurance requirements. In addition, the applicant presents, on suitable piping and instrumentation diagrams, the system quality group classifications.

Review Interfaces⁸

The EMEB⁹ also performs the following reviews ~~for~~ under¹⁰ the SRP sections indicated:

1. Determines the acceptability of the seismic classification of system components in accordance with SRP Section 3.2.1. The seismic classification information may be combined and/or cross-referenced with the quality group classification information reviewed in this SRP section ~~which may result in cross-referencing rather than repetition of the information,~~ to minimize repetition of similar information (e.g., tables or lists of components, system drawings, etc.).¹¹
2. Verifies that systems and components important to safety that are designated as Quality Groups A, B, C, or D items are constructed in accordance with the regulatory guides, industry codes and standards that are referenced in SRP Sections 3.2.1, 3.9.1 through 3.9.3., ~~and~~¹²
3. Determines the adequacy of the inservice testing program for pumps and valves in accordance with SRP Section 3.9.6.
4. Reviews the quality group classification of systems and components comprising the reactor coolant pressure boundary (RCPB) and determines the adequacy of proposed RCPB construction codes and code cases, as part of its primary review responsibility for SRP Sections 5.2.1.1 and 5.2.1.2.¹³

In addition, the EMEB will coordinate other branches' evaluations that interface with the overall review of system safety and quality group classification as follows:

1. Other branches have primary review responsibility for systems important to safety. These branches review system and component safety and quality group classifications, quality assurance program application, and codes and standards applicability in accordance with criteria and methods contained in the SRP sections corresponding to the review of the systems. The EMEB assists in reviews of such systems and coordinates the overall review to ensure that all fluid systems and components important to safety are acceptably classified and that appropriate quality assurance measures including construction codes and standards are applied with respect to the criteria presented in this SRP section.¹⁴
- 2.¹⁵ ~~Where required,~~ Specific¹⁶ information or assistance may be required from the ~~ICSB~~ Instrumentation & Controls Branch (HICB)¹⁷ or the Electrical Engineering Branch (EELB)¹⁸ to review electrical and instrumentation systems needed for functioning of plant features important to safety. This review ~~which~~ is coordinated with each branch

that has primary review responsibility for these plant features and is performed for both construction permit (CP) and operating license (OL) applications.¹⁹

3. The Civil Engineering and Geosciences Branch (ECGB) determines the adequacy of the inservice inspection programs for the RCPB and for ASME Code Class 2 and 3 components, as part of the primary review responsibilities for SRP Sections 5.2.4 and 6.6.²⁰
4. The Quality Assurance and Maintenance Branch (HQMB) verifies that all items are addressed under the QA program consistent with their importance to safety, as part of its primary review responsibilities for SRP Sections 17.1 through 17.3.²¹

For those areas of review identified above as being part of the review under other SRP sections, the acceptance criteria necessary for the review and the methods of their application are contained in the referenced SRP sections.²²

II. ACCEPTANCE CRITERIA

Acceptance criteria is based on meeting the relevant requirements of the following regulations:

10 CFR Part 50, Appendix A, General Design Criterion 1 and 10 CFR Part 50, §50.55a, as they relate to ~~the requirement that~~ structures, systems, and components important to safety ~~shall be~~²³ designed, fabricated, erected, and tested to quality standards commensurate with the importance of the safety function to be performed.

To meet the requirements of General Design Criterion 1 and 10 CFR Part 50, §50.55a, the following regulatory guide is used:

Regulatory Guide 1.26, "Quality Group Classification and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants."²⁴ This guide describes an acceptable method for determining quality standards for Quality Group B, C, and D water- and steam-containing components important to safety of water-cooled nuclear power plants.

Technical Rationale²⁵

The technical rationale for application of the above acceptance criteria to the review of system quality group classification is discussed in the following paragraph:

GDC 1 and 10 CFR 50.55a require that systems and components be designed, fabricated, erected, constructed, tested, and inspected to quality standards commensurate with the importance of the safety function to be performed. 10 CFR 50.55a also incorporates by reference the applicable editions and addenda of the ASME Boiler and Pressure Vessel Code. Regulatory Guide 1.26 establishes an acceptable method for complying with these requirements by classifying fluid systems and components important to safety and applying corresponding quality codes and standards to such systems and components. Fluid systems important to safety may perform any of the following functions: fission product containment, core cooling, reactor shutdown, reactivity control, post-accident

containment heat removal, post-accident containment atmosphere cleanup, post-accident fission product removal, residual heat removal from the reactor and/or from the spent fuel storage pool, and containment of radioactive materials. Portions of fluid systems which provide cooling or heating, sealing, lubrication, fuel, motive power, isolation, flood protection, or leakage detection necessary to support accomplishment of any of the above functions are also considered important to safety. Application of 10 CFR 50.55a and GDC 1 provides assurance that established standard practices of proven or demonstrated effectiveness are used to achieve a high likelihood that these safety functions will be performed and that the codes and standards applied are commensurate with the importance to safety of these functions.

III. REVIEW PROCEDURES

Selection and emphasis of various aspects of the areas covered by this SRP section will be made by the reviewer on each case. The judgement on the areas to be given attention during the review is to be based on an inspection of the material presented, the similarity of the material to that recently reviewed ~~on~~^{for}²⁶ other plants, and whether items of special safety significance are involved.

Section 50.55a of 10 CFR Part 50 identifies those ASME Section III, Code Class 1 components of light-water-cooled reactors important to safety which are part of the ~~reactor coolant pressure boundary~~^{RCPB}.²⁷ The detailed review of these components is conducted by EMEB under other SRP sections as described in subsection I.²⁸ These components are designated in Regulatory Guide 1.26 as Quality Group A. In addition, Regulatory Guide 1.26 identifies, on a functional basis, water- and steam-containing components of those systems important to safety that are Quality Groups B and C. Quality Group D applies to water- and steam-containing components of systems that are less important to safety. An applicant may use the NRC Group Classification system identified in Regulatory Guide 1.26 or, alternately, the corresponding ANS classification system of Safety Classes ~~which can be if they are~~²⁹ cross-referenced with the classification groups in Regulatory Guide 1.26. There are also systems of light-water-cooled reactors important to safety that are not identified in Regulatory Guide 1.26 for which there are established staff positions regarding quality group classification. These systems, and references establishing their acceptable classifications, are identified in Appendix C. ~~and which the staff considers should be classified Quality Group C. Examples of these systems are: diesel fuel oil storage and transfer system; diesel engine cooling water system; diesel engine lubrication system; diesel engine starting system; diesel engine combustion air intake and exhaust system; and instrument and service air systems required to perform a safety function; and certain ventilation plant systems. Gas treatment systems which are considered as engineered safeguards systems should be classified Quality Group B.~~³⁰

The information supplied in the application identifying fluid systems important to safety is reviewed for completeness, and the quality group classification, ASME Code and code class, and quality assurance requirements of each individual major component are checked for compliance with the above criteria. The various modes of system operation are checked to assure that the assigned NRC quality groups are acceptable.

The piping and instrumentation diagrams are reviewed to assure that the applicant has delineated in detail the system quality group classification boundaries for systems important to safety. Each individual line on a diagram is checked to assure the accuracy of the assigned quality group classification, including branch lines such as vent lines, drain lines, fill lines, test lines, and sample lines. Changes in quality group classification are permitted normally only at valve locations, with the valve assigned the higher classification. A change in quality group classification with no valve present is permitted only when it can be demonstrated that the safety function of the system is not impaired by a failure on the lower-classification side of the boundary.

The following fluid systems important to safety for pressurized water reactor (PWR) and boiling water reactor (BWR) plants are reviewed by the EMEB³¹ with regard to quality group classification.

FLUID SYSTEMS IMPORTANT TO SAFETY FOR PWR PLANTS³²

Auxiliary Feedwater System
 Boron Thermal Regeneration System^{1,2}
 Boron Recycle System^{1,2}
 Chemical and Volume Control System
 Combustible Gas Control System^{6 33}
 Compressed Air System^{1,2,6 34}
 Condensate Storage System^{1 35}
 Containment Cooling System
 Containment Isolation System^{6 36}
 Containment Purge System
 Containment Spray System
 Emergency Core Cooling System
 Emergency Diesel Engine Fuel Oil Storage and Transfer System^{6 37}
 Emergency Diesel Engine Cooling Water System
 Emergency Diesel Engine Starting System
 Emergency Diesel Engine Lubrication System
 Emergency Diesel Engine Combustion Air Intake and Exhaust System
 Equipment and Floor Drainage System^{2,6 38}
 Feedwater System³
 Main Steam System³
 Pressurizer Power-Operated Relief Valves (PORVs) (including associated components and block valves)^{6 39}
 Process and Post-Accident Sampling Systems^{3 40}
 Reactor Auxiliary Cooling Water Systems (e.g., Component Cooling Water and Essential Chilled Water Systems)^{2 41}
 Reactor Coolant System
 Refueling Water Storage System^{2 42}
 Residual Heat Removal System
 Spent Fuel Pool Cooling and Cleanup System^{2,4 43}
 Station Service Water System^{2 44}

Steam Generator Blowdown System³
 Ultimate Heat Sink and Supporting Systems^{6 45}
 Ventilation Systems for Areas such as Control Room and Engineered Safety Rooms^{6 46 47} Features

FLUID SYSTEMS IMPORTANT TO SAFETY FOR BWR PLANTS⁴⁸

Combustible Gas Control System^{6 49}
 Compressed Air System^{1,2,6 50}
 Condensate and Refueling Water Storage System^{2 51}
 Control Rod Drive Hydraulic System²
 Containment Cooling System
 Containment Isolation System^{6 52}
~~High Pressure Core Spray System~~
~~Low Pressure Core Spray System~~
 Emergency Core Cooling Systems⁵³
 Emergency Diesel Engine Fuel Oil Storage and Transfer System^{6 54}
 Emergency Diesel Engine Cooling Water System
 Emergency Diesel Engine Starting System
 Emergency Diesel Engine Lubrication System
 Emergency Diesel Engine Combustion Air Intake and Exhaust System
 Equipment and Floor Drainage System^{2,6 55}
 Feedwater System (up to outermost containment isolation valve or shutoff valve, as applicable)
 Fuel Pool Cooling and Cleanup System^{2,4 56}
 Main Steam System (up to but not including the turbine)
 Main Steam Isolation Valve Leakage Control System^{6 57}
 Nuclear Boiler System⁵⁸
 Process and Post-Accident Sampling Systems^{3 59}
 Reactor Auxiliary Cooling Water Systems (e.g., Essential Cooling Water and Chilled Water Systems)^{2 60}
 Reactor Core Isolation Cooling System
 Reactor Recirculation System
 Reactor Water Cleanup System
 Relief Valve Discharge Piping^{5 61}
 Residual Heat Removal (RHR) System⁶²
 RHR Service Water System
 Standby Gas Treatment System^{6 63}
 Standby Liquid Control System
 Station Service Water System²~~Emergency Equipment Service Water System~~⁶⁴
 Ultimate Heat Sink and Supporting Systems^{6 65}
 Ventilation Systems for Areas such as Control Room and Engineered Safety Rooms^{6 66 67} Features

Clarification of the Quality Group Classification⁶⁸ provided in Regulatory Guide 1.26 and applicable to those portions of BWR main steam and feedwater systems (other than the reactor

coolant pressure boundary) on the turbine side of the containment isolation valves, are given in Appendices A and B, attached to this SRP section.

Additional guidance on the quality group classification of systems and components important to safety for a typical PWR plant designs is given in Appendix C attached to this SRP section.⁶⁹ Similarly, additional guidance on the quality group classification of systems and components important to safety for a typical BWR plant is given in Appendix D attached to this SRP section.⁷⁰ Appendices Appendix C and D, in part, identifies individual system components quality group classifications and related references supplemental to the guidance of Regulatory Guide 1.26 for the classification of system components including appropriate interconnecting piping and valves, by quality group and the applicable code and code class.⁷¹

Table 3.2.2-1 attached to this SRP section provides a summary of the construction Codes and Standards for components of water-cooled nuclear power plants and is based on the NRC quality group classification system in Regulatory Guide 1.26. Appendix C identifies additional guidance regarding the construction of certain systems and components.⁷²

¹—On For some plants this system may be non-safety-related, providing it complies with the requirements is quality group classified consistent with the positions⁷³ of Regulatory Guide 1.26.

² Portions of the system that perform a safety-related function.

³ Portions of the system to outermost containment isolation valve.

⁴ Includes makeup water systems as described in SRP Section 9.1.3.⁷⁴

⁵ Refers to the relief valves providing RCPB overpressure protection.⁷⁵

⁶ See Appendix C for supplemental classification guidance.⁷⁶

In the event an applicant intends to take exception to Regulatory Guide 1.26 and has not provided adequate justification for his⁷⁷ the proposed quality group classification, questions are prepared by the staff which may require additional documentation or an analysis to establish an acceptable basis for his⁷⁸ the proposed quality group classification. Staff comments may also be prepared requesting clarification, in order to assure a clear understanding of the quality group classifications assigned to a system by the applicant.

Exceptions and alternatives to the specified quality group classifications of Regulatory Guide 1.26 or the guidance identified in Appendix C⁷⁹ are unacceptable unless application of an⁸⁰ "equivalent quality level" is justified. In such cases, justification can be demonstrated if: the component is classified to meet the requirements of a higher group classification than specified in Regulatory Guide 1.26 or alternative design rules are based on the use of a more conservative design; the extent of component nondestructive examination is equal to or greater than required by the specified code; and the quality assurance requirements of Appendix B, 10 CFR Part 50 are met.

If the staff's questions are not resolved in a satisfactory manner, a staff position is taken requiring conformance to Regulatory Guide 1.26.

For standard design certification reviews under 10 CFR Part 52, the procedures above should be followed, as modified by the procedures in SRP Section 14.3 (proposed), to verify that the design set forth in the standard safety analysis report, including inspections, tests, analysis, and acceptance criteria (ITAAC), site interface requirements and combined license action items, meet the acceptance criteria given in subsection II. SRP Section 14.3 (proposed) contains procedures for the review of certified design material (CDM) for the standard design, including the site parameters, interface criteria, and ITAAC.⁸¹

IV. EVALUATION FINDINGS

The staff's review should verify that adequate and sufficient information is contained in the SAR and amendments to arrive at a conclusion of the following type, which is to be included in the staff's safety evaluation report:

Pressure-retaining components of fluid systems important to safety such as pressure vessels, heat exchangers, storage tanks, pumps, piping and valves have been classified Quality Group A, B, C, or D and have been identified in an acceptable manner in Table 3.X.X and on system piping and instrumentation diagrams in the SAR. These components have been constructed to quality standards commensurate with the importance of the safety function to be performed. The review of Quality Group A and B (ASME Section III, Class 1 and 2) reactor coolant pressure boundary components is discussed in Section 5.2.1.1 of the SER. Other Quality Group B components of systems identified in Position C.1.a through C.1.e of Regulatory Guide 1.26 are constructed to ASME Section III, Class 2. Components in systems identified in Position C.2.a through C.2.d of Regulatory Guide 1.26 are constructed to Quality Group C standards, ASME Section III, Class 3. Components in systems identified in Position C.3 of Regulatory Guide 1.26 are constructed to Quality Group D standards such as,⁸² ASME Section VIII and ANSI B31.1.

The staff concludes that pressure-retaining components of fluid systems important to safety have been properly classified as Quality Group A, B, C, or D items and meets the requirements of General Design Criterion 1, "Quality Standards and Records." This conclusion is based on the applicant having met the requirements of General Design Criterion 1 by having properly classified these pressure-retaining components important to safety Quality Group A, B, C, or D in accordance with the positions of Regulatory Guide 1.26, "Quality Group Classifications and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants,"⁸³ and by our conclusion that the identified pressure-retaining components are those necessary (1) to prevent or mitigate the consequences of accidents and malfunctions originating within the reactor coolant pressure boundary, (2) to permit shutdown of the reactor and maintain it in a safe shutdown condition, and (3) to contain radioactive materials.

For design certification reviews, the findings will also summarize, to the extent that the review is not discussed in other safety evaluation report sections, the staff's evaluation of inspections,

tests, analyses, and acceptance criteria (ITAAC), including design acceptance criteria (DAC), site interface requirements, and combined license action items that are relevant to this SRP section.⁸⁴

V. IMPLEMENTATION

The following is intended to provide guidance to applicants and licensees regarding the NRC staff's plan for using this SRP section.

This SRP section will be used by the staff when performing safety evaluations of license applications submitted by applicants pursuant to 10 CFR 50 or 10 CFR 52.⁸⁵ Except in those cases in which the applicant proposes an acceptable alternative method for complying with specified portions of the Commission's regulations, the method described herein will be used by the staff in its evaluation of conformance with Commission regulations.

The provisions of this SRP section apply to reviews of applications docketed six months or more after the date of issuance of this SRP section.⁸⁶

Implementation schedules for conformance to parts of the method discussed herein are contained in the referenced regulations, Regulatory Guides, Appendices attached to this SRP section, and in documents referenced therein.⁸⁷

VI. REFERENCES⁸⁸

1. 10 CFR Part 50, §50.55a, "Codes and Standards."⁸⁹
12. 10 CFR Part 50, Appendix A, General Design Criterion 1, "Quality Standards and Records."
3. 10 CFR Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants."⁹⁰
24. Regulatory Guide 1.26, "Quality Group Classifications and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants."⁹¹
5. Regulatory Guide 1.84, "Design and Fabrication Code Case Acceptability ASME Section III Division 1."⁹²
6. Regulatory Guide 1.85, "Materials Code Case Acceptability ASME Section III Division 1."⁹³
107. Appendix A, "Classification of Main Steam Components Other Than the Reactor Coolant Pressure Boundary for BWR Plants," attached to this SRP section.
118. Appendix B, "Classification of BWR/6 Main Steam and Feedwater Components Other Than the Reactor Coolant Pressure Boundary," attached to this SRP section.

9. Appendix C, "Additional Guidance for Classification of Systems and Components and Application of Quality Standards," attached to this SRP section.⁹⁴
10. ANSI/ASME B16.34, "Valves - Flanged, Threaded, and Welding End," American National Standards Institute.⁹⁵
511. ANSI/ASME B31.1-1980, "Power Piping," American National Standards Institute (1980).⁹⁶
912. ANSI B96.1-1980, "Specification for Welded Aluminum-Alloy Field-Erected Storage Tanks," American National Standards Institute (1980).⁹⁷
613. API Standard 620, Sixth Edition, "Recommended Rules for Design and Construction of Large, Welded, Low-Pressure Storage Tanks," American Petroleum Institute (1977).⁹⁸
714. API Standard 650, Sixth Edition, Revision 1, "Welded Steel Tanks for Oil Storage," American Petroleum Institute (1978).⁹⁹
315. ASME Boiler and Pressure Vessel Code, ~~1980 Edition~~, Section III, "Nuclear Power Plant Components," American Society of Mechanical Engineers ~~(1980)~~.¹⁰⁰
416. ASME Boiler and Pressure Vessel Code, 1980 Edition, Section VIII, Division 1, "Pressure Vessels," American Society of Mechanical Engineers (1980).¹⁰¹
817. AWWA D100-79, "AWWA Standard for Steel Tanks-Standpipes, Reservoirs, and Elevated Tanks for Water Storage," American Water Works Association (1979).¹⁰²

TABLE 3.2.2-1¹⁰³
SUMMARY OF CONSTRUCTION¹ CODES AND STANDARDS FOR COMPONENTS OF
WATER-COOLED
NUCLEAR POWER PLANTS BY NRC QUALITY CLASSIFICATION SYSTEM²

Component s	NRC Quality Classification System			
	Quality Group A	Quality Group B	Quality Group C	Quality Group D
Pressure Vessels	ASME Boiler and Pressure Vessel Code, Section III, Division 1, Subsection NB -Class 1, Nuclear Power Plant Components ^{3,4}	ASME Boiler and Pressure Vessel Code, Section III, Division 1, Subsection NC -Class 2, Nuclear Power Plant Components ^{3,4}	ASME Boiler and Pressure Vessel Code, Section III, Division 1, Subsection ND -Class 3, Nuclear Power Plant Components ^{3,4}	ASME Boiler and Pressure Vessel Code, Section VIII, Division 1.
Piping	As above	As above	As above	ANSI B31.1 Power Piping Manufacturers standards.
Pumps	As above	As above	As above	ANSI B31.1 Power Piping and ANSI B16.34
Valves	As above	As above	As above	API-650, AWWA D100, or ANSI B96.1
Atmospheric Storage Tanks	Not applicable	As above	As above	API-620
0-15 psig Storage Tanks	Not applicable	As above	As above	Manufacturers standards
Supports	As above except Subsection NF	As above except Subsection NF	As above except Subsection NF	Not applicable
Metal Containment Components	Not applicable	As above except Subsection NE, Class MC	Not applicable	Not applicable
Core Support Structures	Not applicable	As above except Subsection NG	Not applicable	Not applicable

NOTES:

¹ As defined in Sub-subarticle NCA-1110 of Section III, of the ASME Boiler and Pressure Vessel Code, construction is an all-inclusive term comprising materials, design, fabrication, examination, testing, inspection, and certification required in the manufacture and installation of components.

² As defined in Regulatory Guide 1.26, the NRC Quality Classification System identifies on a functional basis components of fluid systems by Quality Groups A, B, C, and D.

- ³ See Section 50.55a, "Codes and Standards," of 10 CFR Part 50 for guidance¹⁰⁴ requirements with regard to the Code Edition and Addenda to be applied.
- ⁴ The specific applicability of ASME Code Cases is covered separately in SRP Section 5.2.1.2, Regulatory Guides 1.84 and 1.85, or in Commission regulations, where appropriate. Applicants proposing the use of ASME Code Cases not covered by these SRP and Regulatory Guides should receive approval from the Commission prior to their use and should demonstrate that an acceptable level of quality and safety would be achieved.

CLASSIFICATION OF MAIN STEAM COMPONENTS OTHER THAN
THE REACTOR COOLANT PRESSURE BOUNDARY FOR BWR PLANTSA. BACKGROUND

A pipe classification of "D + QA" for main steam line components of BWR plants was proposed by the General Electric Company in 1971 as an alternative to Quality Group B and has been accepted by the staff in a number of licensing case reviews.

However, ~~we have recently identified~~ a number of potential problems which are applicable to main steam lines of BWR plants ~~have been identified~~.¹⁰⁶ These problems relate to postulated breaks in high-energy fluid-containing lines outside the containment. The criteria pertaining to protection required for structures, systems, and components outside containment from the effects of postulated pipe breaks, as ~~contained in the Director of Licensing's letter to utilities dated July 12, 1973,~~ described in Appendix C to Branch Technical Position SPLB 3-1 (attached to SRP Section 3.6.1),¹⁰⁷ reference ASME Section III, Class 2, which corresponds to NRC Quality Group B.

~~The recent~~ ASME Code Section XI ~~revision~~¹⁰⁸ contains in-service inspection requirements for Class 2 components. Steam lines classified as "D + QA" could be interpreted to be exempt from these inspection requirements. Such interpretations would be contrary to the intent of the code and inconsistent with requirements of the NRC Codes and Standards rule, Section 50.55a of 10 CFR Part 50.

Furthermore, the applicability of the following NRC Regulatory Guides, Standard Review Plan section, and Regulations, as they relate to ASME Section III, Class 2 components is not always clearly identified or implemented in case applications wherever "D + QA" classification is adopted:

1. SRP Section 3.9.3, "ASME Code Class 1, 2, and 3 Components, Component Supports, and Core Support Structures."
2. Regulatory Guide 1.26, "Quality Group Classifications and Standards."
3. 10 CFR Part 50, §50.55a, "Codes and Standards for Nuclear Power Plants."
4. 10 CFR Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants."

In view of the foregoing, we find it necessary to clarify the quality group classification criteria for main steam components for BWR plants.

* Formerly BTP RSB No. 3-1

B. BRANCH TECHNICAL POSITION

The main steam line components of BWR plants should conform to the criteria listed in items 1 through 5 of the attached Table A-1 ~~of SRP Section 3.2.2.~~ BWRs that do not include a main steam isolation valve leakage control system or main steam line shutoff valves and that credit fission product hold-up and retention in main steam piping and/or the condenser to address main steam isolation valve leakage in analyses of accident radiological consequences, should also conform to the criteria specified in item 6 of Table A-1 (Reference 5). Figure A-1 illustrates acceptable quality group and seismic classifications for BWR main steam piping and components.¹⁰⁹

C. REFERENCES

1. 10 CFR Part 50, Section 50.55a, "Codes and Standards."¹¹⁰
2. 10 CFR Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants."¹¹¹
3. Regulatory Guide 1.26, "Quality Group Classification and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants."¹¹²
4. Branch Technical Position SPLB 3-1, "Protection Against Postulated Piping Failures in Fluid Systems Outside Containment," attached to SRP Section 3.6.1.¹¹³
5. SECY 93-087, "Policy, Technical, and Licensing Issues Pertaining to Evolutionary and Advanced Light Water Reactor (ALWR) Designs," April 4, 1993.¹¹⁴
16. Letter of March 22, 1973, J. A. Hinds to J. M. Hendrie.¹¹⁵
27. Letters of August 13, 1973 and November 26, 1973, J. M. Hendrie to J. A. Hinds.¹¹⁶
8. ANSI/ASME B31.1-1973, "Power Piping," American National Standards Institute (1973).^{117 118}
9. ASME Boiler and Pressure Vessel Code, Section III, "Nuclear Power Plant Components," and Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," American Society of Mechanical Engineers.¹¹⁹
10. GEZ-4982A, "General Electric Large Steam Turbine - Generator Quality Control Program."¹²⁰

Table A-1¹²¹

CLASSIFICATION REQUIREMENTS FOR BWR¹²² MAIN STEAM COMPONENTS OTHER
THAN THE REACTOR COOLANT PRESSURE BOUNDARY

<u>Item</u>	<u>System or Component</u>	<u>Classification Quality Group</u>
1.	Main Steam Line from 2nd Isolation Valve to Turbine Stop Valve.	B ^{4,b,c}
2.	Main Steam Line Branch Lines to First Valve.	B ^{4,a,b,c}
3.	Main Turbine Bypass Line to Bypass Valve.	B ^{4,c}
4.	First Valve in Branch Lines Connected to Either Main Steam Lines or Turbine Bypass Lines.	B ^{4,b,c}
5.	a. Turbine Stop Valves, Turbine Control Valves, and Turbine Bypass Valves. ^{4,c}	D + QA ¹ or Certification ²
	b. Main Steam Leads from Turbine Control Valves to Turbine Casing. ^{4,c}	D + QA ^{1,3} or Certification ²
6. ⁴	a. Main Steam drain lines from 2nd containment isolation valve to the first normally closed valve.	B ^{4,c}
	b. First normally closed valve outside containment and Main Steam drain line piping to condenser hotwell.	D ^{4,c}
	c. Condenser anchorages and piping inlet nozzles to the condenser.	See Note 4.c
	d. Steam lines from auxiliary steam shutoff valves and power cycle auxiliary equipment.	D ^{4,d}

¹ The following requirements shall be met in addition to the Quality Group D requirements:

- 1a.¹²³ All cast¹²⁴ pressure-retaining parts of a size and configuration for which volumetric examination methods are effective shall be examined by radiographic methods by qualified personnel. Ultrasonic examination to equivalent standards may be used as alternate to radiographic methods.
- 2b. Examination procedures and acceptance standards shall be at least equivalent to those specified as supplementary types of examination in ANSI B31.1-1973, Par. 136.4.¹²⁵

² The following qualification shall be met with respect to the certification requirements:

- 1a.¹²⁶ The manufacturer of the turbine stop valves, turbine control valves, turbine bypass valves, and main steam leads from turbine control valves to the turbine casing shall utilize quality control procedures equivalent to those defined in General Electric Publication GEZ-4982A, "General Electric Large Steam Turbine - Generator Quality Control Program."
- 2b. A certification shall be obtained from the manufacturer of these valves and steam leads that the quality control program so defined has been accomplished.
- ³ The following requirements shall be met in addition to the Quality Group D requirements:
- 1a.¹²⁷ All longitudinal and circumferential butt weld joints shall be radiographed (or ultrasonically tested to equivalent standards). Where size or configuration does not permit effective volumetric examination, magnetic particle or liquid penetrant examination may be substituted. Examination procedures and acceptance standards shall be at least equivalent to those specified as supplementary types of examinations, Paragraph 136.4 in ANSI B31.1-1973.¹²⁸
- 2b. All fillet and socket welds shall be examined by either magnetic particle or liquid penetrant methods. All structural attachment welds to pressure retaining materials shall be examined by either magnetic particle or liquid penetrant methods. Examination procedures and acceptance standards shall be at least equivalent to those specified as supplementary types of examinations, Paragraph 136.4 in ANSI B31.1-1973.¹²⁹
- 3c. All inspection records shall be maintained for the life of the plant. These records shall include data pertaining to qualification of inspection personnel, examination procedures, and examination results.
- ⁴ Acceptable design and classifications for BWR main steam piping and components, including those comprising main steam isolation valve leakage hold-up and retention paths, as illustrated in Figure A-1, are as follows:
- a. The "First Valve" in Table A-1, Item 2 refers to the first normally closed valve.
- b. The main steam line piping from the outermost containment isolation valve up to the seismic interface restraint should be classified as seismic Category I, as should connecting branch lines up to the first normally closed valve. The seismic interface restraint must provide a structural barrier between the seismic Category I portions of main steam piping in the reactor building and non-seismic Category I portions of such piping in the turbine building. The seismic interface restraint must be located inside a seismic Category I building. Main steam line piping from the seismic interface restraint up to, but not including the turbine stop valve (including branch lines to the first normally closed valve) and steam drain line piping from the outermost containment isolation valve to the condenser hotwell should be classified and analyzed as described in 4.c below. All pertinent quality assurance requirements of Appendix B to 10 CFR Part 50 apply to the main steam line piping from the seismic interface restraint up to, but not

including, the turbine stop valve (including branch lines to the first normally closed valve).

- c. These components may be classified as nonsafety-related and non-seismic Category I but must be analyzed using a dynamic seismic analysis method to demonstrate structural integrity under safe shutdown earthquake (SSE) loading conditions. The dynamic input for such analyses should be derived from time history analyses of the buildings (e.g., turbine building). Alternate methods, other than a time history approach, used for generating floor response spectra should be submitted for review and approval on a case-by-case basis. The failure of non-seismic Category I components resulting from a seismic event must not cause failure of the main steam piping, main steam drain and bypass lines, or the condenser.
- d. These components need not be seismically analyzed as described above.¹³⁰

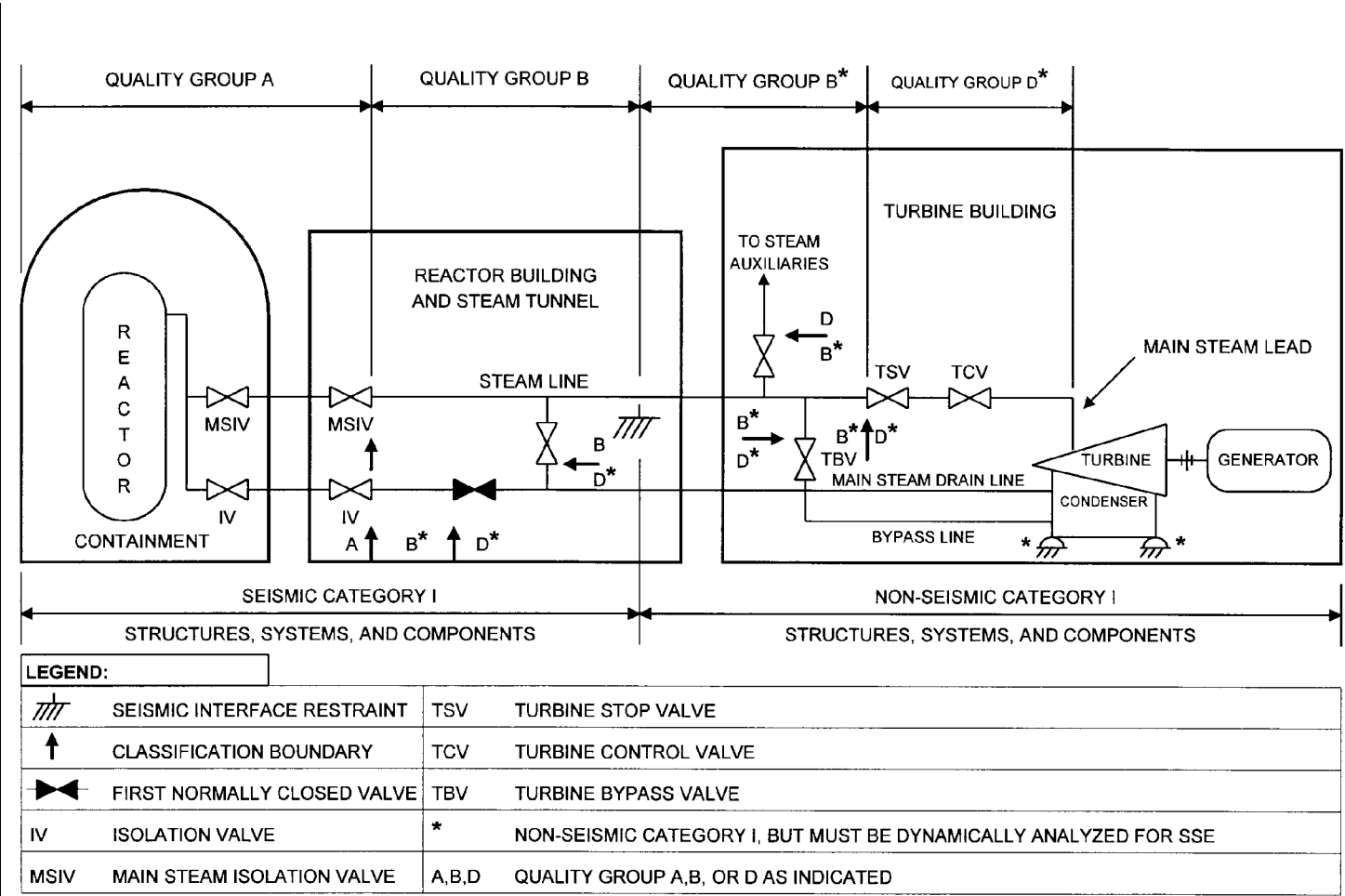


FIGURE A-1 EVOLUTIONARY BWR MAIN STEAM SYSTEM QUALITY GROUP AND SEISMIC CLASSIFICATION DIAGRAM

CLASSIFICATION OF BWR/6 MAIN STEAM AND FEEDWATER COMPONENTS
OTHER THAN THE REACTOR COOLANT PRESSURE BOUNDARYA. BACKGROUND

At various times the NRC staff has discussed with the General Electric Company the subject of appropriate classification requirements in boiling water reactor (BWR) plants for main steam system components. These discussions have included consideration of components that are (a) not classified as safety-related items but are located downstream of the isolation valves, (b) not specifically designed to seismic Category I standards, and (c) not housed in Seismic Category I structures.

To date, BWR plant reviews have resulted in various approaches for different individual applications. While these different approaches have resulted in acceptable levels of safety in each case, they have required time-consuming case-by-case reviews. The GESSAR (PDA) BWR/6 application which was reviewed as part of our standardization program, includes this portion of the BWR plant.

In the course of the GESSAR PDA review, we have identified a systematic basis for classification of such components that will result in an acceptable and uniform design basis for the main steam lines (MSL) and feedwater lines (MFL) in BWR/6 plants.

B. BRANCH TECHNICAL POSITION

The main steam and feedwater system components of BWR/6 plants should be classified in accordance with SRP Section 3.2.2, Appendix A, or alternately, in accordance with the attached Table B-1 of SRP Section 3.2.2. The classifications indicated are consistent with the guidelines currently specified in Regulatory Guide 1.26 and Regulatory Guide 1.29.

As an additional requirement, a suitable interface restraint should be provided at the point of departure from the Class I structure where the interface exists between the safety and nonsafety-related portions of the MSL and MFL.

A sketch is attached (Figure B-1) to clarify the specified alternate classification system.

C. REFERENCES

1. Regulatory Guide 1.26, "Quality Group Classification and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants."¹³²
2. Regulatory Guide 1.29, "Seismic Design Classification."¹³³

*Formerly BTP RSB No. 3-2

13. Letter of April 19, 1974, J. M. Hendrie to J. A. Hinds.¹³⁴
4. ANSI/ASME B31.1-1973, "Power Piping," American National Standards Institute (1973).^{135 136}
5. GEZ-4982A, "General Electric Large Steam Turbine - Generator Quality Control Program."¹³⁷

Table B-1

CLASSIFICATION REQUIREMENTS FOR BWR/6 MAIN STEAM AND FEEDWATER
SYSTEM COMPONENTS OTHER THAN THE REACTOR COOLANT PRESSURE
BOUNDARY

ITEM	SYSTEM OR COMPONENT	QUALITY GROUP CLASSIFICATION
1.	Main Steam Line (MSL) from second isolation valve to and including shutoff valve.	B
2.	Branch lines of MSL between the second isolation valve and the MSL shutoff valve, from branch point at MSL to and including the first valve in the branch line.	B
3.	Main feedwater line (MFL) from second isolation valve and including shutoff valve.	B
4.	Branch lines of MFL between the second isolation valve and the MFL shutoff valve, from the branch point at MFL to and including the first valve in the branch line.	B
5.	Main steam line piping between the MSL shutoff valve and the turbine main stop valve.	D (1)
6.	Turbine bypass piping.	D
7.	Branch lines of the MSL between the MSL shutoff valve and the turbine main stop valve.	D
8.	Turbine valves, turbine control valves, turbine bypass valves, and main steam leads from the turbine control valves to the turbine casing.	D (1,2) or Certification (3)
9.	Feedwater system components beyond the MFL shutoff valve.	D

Table B-1 (continued)

- (1) All inspection records shall be maintained for the life of the plant. These records shall include data pertaining to qualification of inspection personnel, examination procedures, and examination results.
- (2) All cast pressure-retaining parts of a size and configuration for which volumetric methods are effective shall be examined by radiographic methods by qualified personnel. Ultrasonic examination to equivalent standards may be used as an alternate to radiographic methods. Examination procedures and acceptance standards shall be at least equivalent to those defined in Paragraph 136.4, "Examination Methods of Welds - Non-Boiler External Piping," ANSI B31.1-1973.¹³⁸
- (3) The following qualifications shall be met with respect to the certification requirements:
 - ~~1~~a.¹³⁹ The manufacturer of the turbine stop valves, turbine control valves, turbine bypass valves, and main steam leads from turbine control valves to the turbine casing shall utilize quality control procedures equivalent to those defined in General Electric Publication GEZ-4982A, "General Electric Large Steam Turbine-Generator Quality Control Program."
 - ~~2~~b. A certification shall be obtained from the manufacturer of these valves and steam leads that the quality control program so defined has been accomplished.

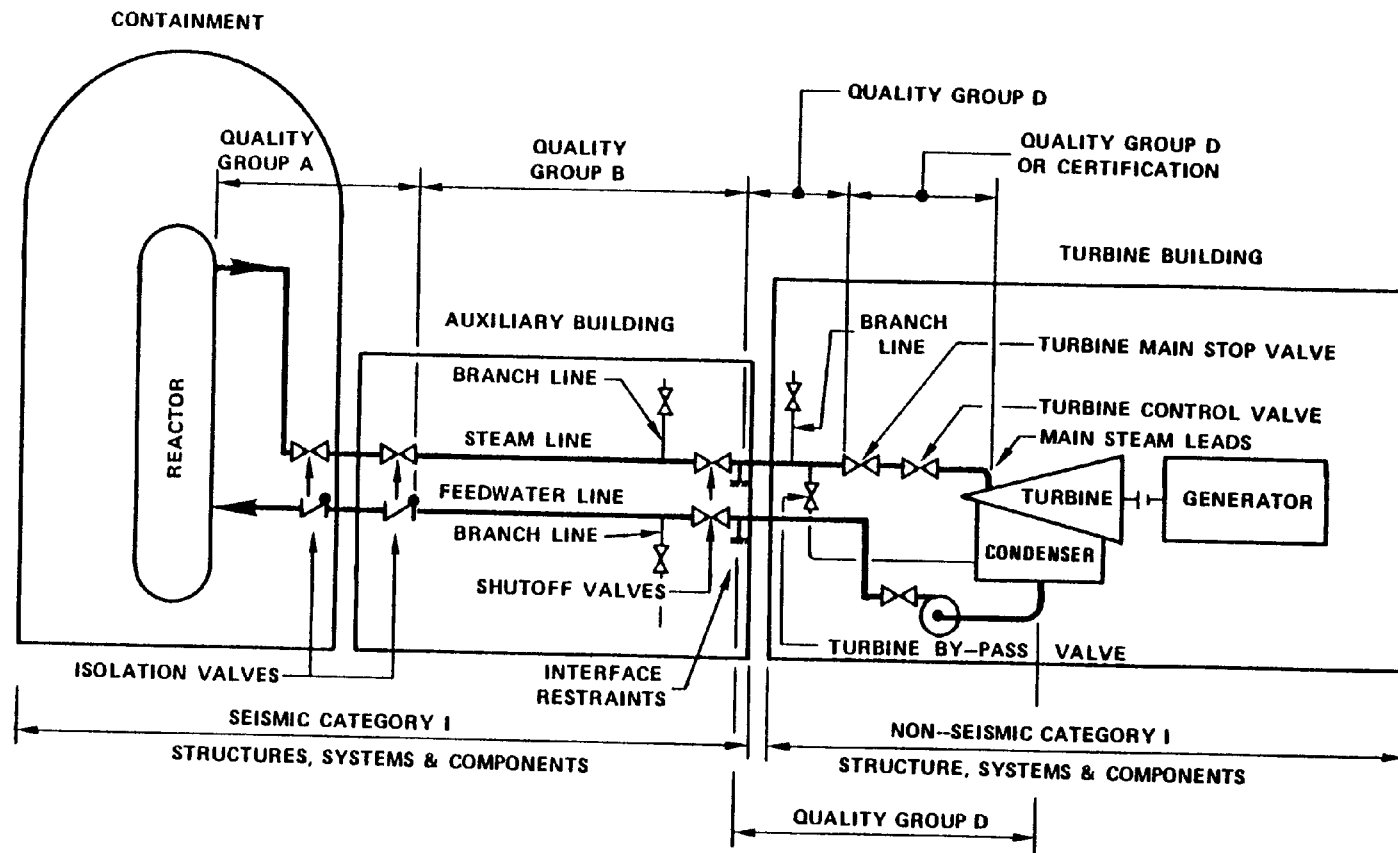


Figure B-1 NRC Quality Group and Seismic Category Classifications Applicable to Power Conversion System Components in BWR/6 Plants.

Appendix C

PWR Plants

Additional Guidance for Classification of Systems and Components and Application of Quality Standards¹⁴⁰

In Course of Preparation

Classification of Structures
In Course of Preparation¹⁴¹

This appendix summarizes guidance supplemental to the guidance provided in Regulatory Guide 1.26 for the quality group classification of components of fluid systems important to safety.¹⁴²

REFERENCES

1. Regulatory Guide 1.7, "Control of Combustible Gas Concentrations in Containment Following a Loss-of-Coolant-Accident."¹⁴³
2. Regulatory Guide 1.11, "Instrument Lines Penetrating Primary Reactor Containment."¹⁴⁴
3. Regulatory Guide 1.26, "Quality Group Classification and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants."¹⁴⁵
4. Regulatory Guide 1.72, "Spray Pond Piping Made from Fiberglass- Reinforced Thermosetting Resin."¹⁴⁶
5. Regulatory Guide 1.96, "Design of Main Steam Isolation Valve Leakage Control Systems for Boiling Water Reactor Nuclear Power Plants."¹⁴⁷
6. Regulatory Guide 1.137, "Fuel Oil Systems for Standby Diesel Generators."¹⁴⁸
7. Regulatory Guide 1.141, "Containment Isolation Provisions for Fluid Systems."¹⁴⁹
8. Regulatory Guide 1.143, "Design Guidance for Radioactive Waste Management Systems, Structures, and Components Installed in Light-Water-Cooled Nuclear Power Plants."¹⁵⁰
9. Regulatory Guide 1.151, "Instrument Sensing Lines."¹⁵¹
10. Branch Technical Position CSB 6-3, "Determination of Bypass Leakage Paths in Dual Containment Plants," attached to SRP Section 6.2.3.¹⁵²
11. NRC Letter to All Pressurized Water Reactor Licensees and Construction Permit Holders, "Resolution of Generic Issue 70, "Power-Operated Relief-Valve and Block Valve Reliability," and Generic Issue 94, "Additional Low-Temperature Overpressure

Protection for Light-Water Reactors," (NRC Generic Letter No. 90-06)," June 25, 1990.¹⁵³

12. NRC Memorandum from E. S. Beckjord for F. P. Gillespie, "Resolutions of Generic Issue 70, "Power Operated Relief Valve and Block Valve Reliability," and Generic Issue 94, "Additional Low-Temperature Overpressure Protection for Light Water Reactors,"" November 16, 1989.¹⁵⁴
13. ASME Boiler and Pressure Vessel Code, Section III, "Nuclear Power Plant Components," and Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," American Society of Mechanical Engineers.¹⁵⁵

Table C-1¹⁵⁶

Added Guidance for Classification and Application of Quality Standards

System or Component	Quality Group	References
1. Combustible Gas Control System	B (1)	Reg. Guide 1.7 ¹⁵⁷
2. Compressed Air Systems required to perform a safety function	C	SRP 9.3.1 ¹⁵⁸
3. Containment Isolation System:	A/B (2)	SRP 6.2.4 ¹⁵⁹
a. Penetrations including associated piping and isolation valves	A/B (2)	Reg. Guide 1.141
b. Instrument lines penetrating containment	B (3)	Reg. Guide 1.11
c. Isolation barriers comprised of closed systems inside containment	B (2)	SRP 6.2.4
d. Isolation barriers comprised of closed systems outside containment	B (2)	SRP 6.2.4
e. Closed systems in secondary containment proposed as boundaries to preclude bypass leakage	B (4)	Branch Technical Position CSB 6-3

System or Component	Quality Group	References
4. Emergency Diesel Engine: ¹⁶⁰		
a. Fuel Oil Storage and Transfer System	C (5)	Reg. Guide 1.137
b. Cooling Water System	C	
c. Starting System	C	
d. Lubrication System	C	
e. Combustion Air Intake and Exhaust System	C	
5. Equipment and Floor Drainage System	C (6)	SRP 9.3.3 ¹⁶¹
6. Gas Treatment Systems which are considered as engineered safeguards systems	B ¹⁶²	
7. BWR Main Steam Isolation Valve Leakage Control System and necessary subsystems	B/A (7)	Reg. Guide 1.96 ¹⁶³
8. Plant Ventilation Systems for areas such as the control room and engineered safety features rooms	C ¹⁶⁴	
9. PWR Pressurizer PORVs, associated components, and Block Valves	(8)	Generic Letter 90-06 ¹⁶⁵
10. Radioactive Waste Management Systems	(9)	Reg. Guide 1.143 ¹⁶⁶
11. Safety-Related Instrument Sensing Lines	B,C (10)	Reg. Guide 1.151 ¹⁶⁷
12. Ultimate Heat Sink and Supporting Systems	C (11)	SRP 9.2.5, Reg. Guide 1.72 ¹⁶⁸

NOTES:

- (1) Reg. Guide 1.7 describes acceptable methods for the control of combustible gas in containment. Position C.3 of the Reg. Guide describes the appropriate classification of combustible gas control systems as Quality Group B.¹⁶⁹
- (2) SRP Section 6.2.4 contains guidance related to classification of containment isolation systems. Containment isolation system components (e.g., isolation barriers) are normally classified as Quality Group B unless their service function dictates that Quality Group A standards be applied. Reg. Guides 1.11 and 1.141 are cited in SRP Section 6.2.4 and

describe methods acceptable to the NRC staff for complying with the Commission's requirements with respect to containment isolation of fluid systems.¹⁷⁰

- (3) Reg. Guide 1.11 describes a suitable basis which may be used to implement containment isolation design requirements for instrument lines. Position C.1.c indicates that protection system sensing lines penetrating or connected to primary reactor containment should be provided with an isolation valve capable of automatic operation or remote operation, and located in the line outside the containment as close to the containment as practical. Position C.1.d indicates that such lines should be conservatively designed up to and including the isolation valve and of a quality at least equivalent to the containment [generally Group B per NOTE (2) above]. Position C.2 indicates that sensing lines for instruments that are not part of the protection system should meet the above provisions or should be provided with one automatic isolation valve inside and one automatic valve outside containment as close to containment as practical.¹⁷¹
- (4) Branch Technical Position CSB 6-3, attached to SRP Section 6.2.3, describes methods for determining bypass leakage paths in dual containment plants. Position B.9.b indicates that closed systems proposed as a leakage boundary to preclude bypass leakage should be designed in accordance with Quality Group B standards, as defined by Regulatory Guide 1.26, but that systems designed to Quality Group C or D standards that qualify as closed systems to preclude bypass leakage will be considered on a case-by-case basis.¹⁷²
- (5) Reg. Guide 1.137 describes a method acceptable for complying with regulations regarding fuel-oil systems for standby diesel generators. The Reg. Guide describes positions with respect to the design and fabrication of diesel fuel oil systems which are supplemental to those indicated by the Quality Group C classification including the application of additional standards.¹⁷³
- (6) SRP Section 9.3.3 provides criteria used to determine the safety-related portions of the equipment and floor drainage system and indicates that the safety-related portions of the system are verified to be classified Quality Group C or higher.¹⁷⁴
- (7) Reg. Guide 1.96 describes an acceptable basis for evaluating the need for, and design of, leakage control systems for BWR main steam isolation valves. Position C.1 of the Reg. Guide describes the appropriate classification for leakage control systems as Quality Group B, with the exception of the unisolable portion of the system connected to the RCPB, which should be classified as Quality Group A. Appendix A of the Reg. Guide describes measures supplemental to the ASME Code to be applied for Quality Group A portions of the system.¹⁷⁵
- (8) Components of the reactor coolant system, including those comprising the RCPB, should be quality group classified accordingly. PORVs and associated components should be classified as safety-related where required to perform a safety-related function (e.g., mitigation of a design-basis steam generator tube rupture accident, low temperature overpressure protection of the reactor vessel, and/or plant cooldown as described in Generic Letter 90-06). As described in Reference 12, the safety-related classification

should address redundant and diverse control systems designed to seismic Category I requirements and those improvements that were imposed subsequent to the TMI-2 accident, such as requirements to be powered from Class 1E buses and to provide valve position indication in the control room. The PORVs and block valves should be included within a quality assurance program that is in compliance with 10 CFR Part 50, Appendix B.

For PWR plants licensed prior to the revision date of this SRP section and whose PORVs were not constructed as safety-grade components, these components should be addressed in accordance with the positions specified in Generic Letter 90-06, Enclosure A, Section 3.1.¹⁷⁶

- (9) Reg. Guide 1.143 describes a method acceptable for complying with regulations regarding radwaste management systems, including guidance for classification and quality assurance measures. Position C.1.1 and Table 1 of the Reg. Guide describe codes and industry standards applicable to the design and fabrication of radwaste management systems. In addition, the Reg. Guide describes positions with regard to the design and fabrication of these systems that are supplemental to those established by the codes and standards cited. Reg. Guide 1.143 does not explicitly specify classifications for radwaste management system components in terms of the quality groups (A-D) described in Reg. Guide 1.26.¹⁷⁷
- (10) Reg. Guide 1.151 describes an acceptable method for the design and installation of safety-related instrument sensing lines including the application of another standard in addition to the ASME Code. The Reg. Guide describes an acceptable method for classifying instrument sensing lines by providing classification guidance for instrument sensing lines in terms of the ASME Boiler and Pressure Vessel Code, Section III code classes which correspond to Reg. Guide 1.26 Quality Groups.¹⁷⁸
- (11) SRP Section 9.2.5 provides review procedures and findings which verify that the ultimate heat sink and its supporting systems meet Quality Group C requirements. Reg. Guide 1.72 describes an acceptable method for the design, fabrication, and testing of fiberglass-reinforced thermosetting resin piping for spray pond applications which includes the application of a code case as supplemented by the regulatory positions. Reg. Guide 1.72 position C.7.b indicates that ASME Code, Section XI inservice inspection requirements for Class 3 systems should be applied for such piping.¹⁷⁹

~~Appendix D~~

~~BWR Plants~~

~~Classification of Systems and Components~~

~~In Course of Preparation~~

~~Classification of Structures~~

~~In Course of Preparation~~¹⁸⁰

SRP Draft Section 3.2.2
Attachment A - Proposed Changes in Order of Occurrence

Item numbers in the following table correspond to superscript numbers in the redline/strikeout copy of the draft SRP section.

Item	Source	Description
1.	Current PRB names and abbreviations	Editorial change made to reflect the current abbreviation for the Mechanical Engineering Branch.
2.	Current PRB names and abbreviations	Editorial change made to reflect the current abbreviation for the Mechanical Engineering Branch.
3.	Editorial, SRP-UDP format item	Relocated this information to the new Review Interfaces subsection as review interface (with other PRBs).
4.	Editorial	Revised to eliminate use of a gender-specific pronoun.
5.	SRP-UDP format item	Added "applicable" to provide clarification that major Code Sections III and/or VIII may apply depending upon the quality group classification.
6.	SRP-UDP format item	Added identification of the ASME Code by reference number for the first discussion of the ASME Code in this SRP section.
7.	Editorial	Added punctuation to improve grammar.
8.	SRP-UDP format item	Added Review Interface subsection of Areas of Review using numbered paragraphs consistent with SRP-UDP required format so that reviews performed in other SRP Sections which are relevant to the overall review of quality group classification are detailed in their own subsection.
9.	Current PRB names and abbreviations	Editorial change made to reflect the current abbreviation for the Mechanical Engineering Branch.
10.	Editorial, SRP-UDP format item	Revised to reflect standard SRP-UDP format/content for the introduction to review interfaces.
11.	Editorial	Revised to clarify the intent of the statement regarding combination of seismic and quality group classifications and to use more appropriate punctuation, consistent with the remainder of this subsection.
12.	Editorial	Revised to reflect addition of subsequent items.
13.	Integrated Impact 7	Added review interface reflecting review of the quality group classification of systems and components comprising the RCPB and the application of codes and code cases to the RCPB.

SRP Draft Section 3.2.2
Attachment A - Proposed Changes in Order of Occurrence

Item	Source	Description
14.	Integrated Impact 80 ; Potential Impacts, 25483, 25484,25492, 25496, 25499, 25519, and 25533	Added review interface reflecting that system safety/quality group classifications and corresponding application of quality codes and standards are reviewed by other branches under other SRP Sections.
15.	SRP-UDP format item	Relocated this review interface discussion from the body of Areas of Review. SRP-UDP format provides a separate subsection for discussion of review interfaces with other PRBs/SRP sections.
16.	Editorial	Revised to eliminate redundant use of the word "required" to improve clarity in this review interface.
17.	Current PRB names and abbreviations	Editorial change made to reflect the current name and abbreviation for the Instrumentation & Controls Branch.
18.	Editorial	Added reference to the Electrical Engineering Branch which reviews the electrical systems discussed.
19.	Editorial	Revised to improve grammar/clarity.
20.	Editorial	Added review interface similar to the existing interface for review of inservice testing to reflect reviews verifying appropriate application of the ASME Code, Section XI to Quality Group A, B, and C components, and any other components requiring inspection under the Code.
21.	Integrated Impacts 1058 and 1068 for SRP Sections 17.1 and 17.3	Integrated Impacts for SRP Sections 17.1 and 17.3 identify requirements for certain applicants to ensure that the quality assurance (QA) list of items includes all structures, systems, and components important to safety. The QA list is the list of items to which the QA program will be applied consistent with the importance to safety as required by 10 CFR 50, Appendix B, Criterion II. A review interface was thus added reflecting this review.
22.	SRP-UDP format item	Added standard SRP-UDP discussion of the criteria and reviews detailed in other SRP Sections.
23.	Editorial	Revised to improve grammar/clarity and style consistency with similar statements of acceptance criteria in other SRP sections.
24.	Reference Verification	Added current full title for RG 1.26.
25.	SRP-UDP format item	Technical Rationale were developed and added for the following Acceptance Criteria: GDC 1 and 10 CFR 50.55a. The SRP-UDP program requires that Technical Rationale be developed for the Acceptance Criteria.
26.	Editorial	Revised to improve grammar/clarity.

SRP Draft Section 3.2.2
Attachment A - Proposed Changes in Order of Occurrence

Item	Source	Description
27.	Editorial	Revised to use the abbreviation/acronym RCPB which is defined earlier in the section.
28.	Integrated Impact 7	Added reference to review interfaces reflecting review of the quality group classification of systems and components comprising the RCPB and the application of Codes and Code Cases to the RCPB.
29.	Potential Impacts 25477 and 25534	The standards describing the ANS classification system are ANSI/ANS-51.1, "Nuclear Safety Criteria for the Design of Stationary Pressurized Water Reactor Plants," and ANSI/ANS-52.1, "Nuclear Safety Criteria for the Design of Stationary Boiling Water Reactor Plants," American National Standards Institute. In the ABWR and CE System 80+ FSERs, the staff indicated that it does not fully endorse these standards. Although use of these standards are alluded to herein, to minimize the appearance of an endorsement of these standards, the sentence is revised to reflect that use of the ANS classification system is permitted only if cross-referenced with the NRC quality groups and these standards are not listed as references in subsection VI as is normal practice for documents discussed in the SRP section.
30.	Integrated Impact 1	Relocated listing of specific systems not identified in RG 1.26 and their acceptable classification to Appendix C.
31.	Current PRB names and abbreviations	Editorial change made to reflect the current abbreviation for the Mechanical Engineering Branch.
32.	Editorial	In addition to changes identified by redline/strikeout, the list of systems was reordered alphabetically.
33.	Integrated Impact 1	Added reference to a footnote indicating the existence of supplemental information for quality group classification of this system in Appendix C.
34.	Integrated Impact 1	Added reference to a footnote indicating the existence of supplemental information for quality group classification of this system in Appendix C.
35.	No change	It should be noted that in the evolutionary plant FSERs, the nomenclature "Condensate Storage and Transfer System" is used. This nomenclature is not generally used in the current SRP.
36.	Integrated Impacts 1 and 1324	Added identification of a fluid system important to safety using terminology consistent with SRP Section 6.2.4 to describe the system. Also added reference to a footnote indicating the existence of supplemental information for quality group classification of this system in Appendix C.

SRP Draft Section 3.2.2
Attachment A - Proposed Changes in Order of Occurrence

Item	Source	Description
37.	Integrated Impact 1	Added reference to a footnote indicating the existence of supplemental information for quality group classification of this system in Appendix C.
38.	Integrated Impacts 1 and 1324	Added identification of a fluid system important to safety using terminology consistent with SRP Section 9.3.3 to describe the system. Also added reference to footnotes clarifying the portions of the system important to safety and indicating the existence of supplemental information for quality group classification of this system in Appendix C.
39.	Integrated Impact 95	Added listing of PORVs as important to safety to address the staff's resolution of Generic Issue 70 which affects the safety classification of PORVs for recent PWRs as described in Generic Letter 90-06. Also added reference to a footnote indicating the existence of supplemental information related to classification of this system in Appendix C.
40.	Integrated Impact 1324	Revised identification of the sampling systems important to safety based upon terminology used in SRP Section 9.3.2 to describe these systems.
41.	Integrated Impact 1324	Added identification using SRP system terminology for a class of fluid systems important to safety covered in SRP Section 9.2.2. Also added that this class of systems includes essential chilled water systems based upon the staff's use of SRP Section 9.2.2 for review of such systems in the CE System 80+ FSER.
42.	Editorial, Reference verification, Potential Impact 25490	Relocated this system from the BWR to PWR list of systems. The refueling water storage tank in PWRs is commonly used as a water source to ESF systems. The SRP-UDP could not locate any other regulatory reference to a refueling water storage system that is important to safety for BWRs. In the CE System 80+ FSER, the staff reviewed a proposed in-containment water storage system, identified as important to safety by the applicant, which integrates the typical functions of refueling water storage systems in currently operating PWRs with other safety-related and severe accident mitigation functions.
43.	Integrated Impact 1324	Added reference to footnote clarifying that the makeup water system for fuel pool cooling is also important to safety as described in SRP Section 9.1.3. In the ABWR and CE System 80+ FSERs, the staff discussed the classification and application of the ASME Code for such makeup water systems.
44.	Integrated Impact 1324	Revised identification of the system based upon terminology used in SRP Section 9.2.1 to describe this type of system.

SRP Draft Section 3.2.2
Attachment A - Proposed Changes in Order of Occurrence

Item	Source	Description
45.	Integrated Impacts 1 and 1324	Added identification of the ultimate heat sink as important to safety. SRP Section 9.2.5 provides findings that the ultimate heat sink and its supporting systems meet Quality Group C requirements. Also added reference to a footnote indicating the existence of supplemental information for quality group classification of these systems in Appendix C.
46.	Integrated Impact 1	Added reference to a footnote indicating the existence of supplemental information for quality group classification of this system in Appendix C.
47.	No Change, see Potential Impacts 25499 and 25522	In the ABWR and CE System 80+ FSERs, the staff evaluated the safety classification of HVAC systems (or quality group classifications of associated cooling water systems) which do not appear to be covered by the existing nomenclature describing HVAC systems considered to be fluid systems important to safety in SRP Section 3.2.2. As an example, the safety classification of a system providing component cooling water equipment room (not an ESF equipment room) HVAC was evaluated by the staff in the CE System 80+ FSER. For lack of better terminology to describe the HVAC systems which are considered by the staff to be fluid systems important to safety, however, no change is proposed. The SRP-UDP has addressed the cooling/chilled water systems important to safety separately in other changes under this SRP Section draft revision.
48.	Editorial	In addition to changes identified by redline/strikeout, the list of systems was reordered alphabetically.
49.	Integrated Impact 1	Added reference to a footnote indicating the existence of supplemental information for quality group classification of this system in Appendix C.
50.	Integrated Impact 1	Added reference to a footnote indicating the existence of supplemental information for quality group classification of this system in Appendix C.
51.	Editorial	Revised for improved consistency with terminology used in SRP Section 9.2.6 to describe this system. Note that SRP Section 9.2.6 refers to this system as "Condensate Storage Facility (CSF)." Note also that the nomenclature "Condensate Storage and Transfer System" is commonly used. Also eliminated reference to a refueling water storage system for BWRs since the SRP-UDP could not locate any other regulatory reference to a refueling water storage system that is important to safety for BWRs. Reference to such a system is moved to the list of PWR systems.

SRP Draft Section 3.2.2
Attachment A - Proposed Changes in Order of Occurrence

Item	Source	Description
52.	Integrated Impacts 1 and 1324	Added identification of a fluid system important to safety using terminology consistent with SRP Section 6.2.4 to describe the system. Also added reference to a footnote indicating the existence of supplemental information for quality group classification of this system in Appendix C.
53.	Integrated Impact 1324	Revised listing of systems for consistency with terminology used to describe this class of systems in SRP Section 6.3. Deleted listing of specific ECCS system names noting that a variety of different individual system names have been used for different generations of BWRs (e.g. Low Pressure Core Spray, Low Pressure Coolant Injection, Low Pressure Flooder, High Pressure Core Spray, High Pressure Coolant Injection, High Pressure Core Flooder).
54.	Integrated Impact 1	Added reference to a footnote indicating the existence of supplemental information for quality group classification of this system in Appendix C.
55.	Integrated Impacts 1 and 1324	Added identification of a fluid system important to safety using terminology consistent with SRP Section 9.3.3 to describe the system. Also added reference to footnotes clarifying the portions of the system important to safety and indicating the existence of supplemental information for quality group classification of this system in Appendix C.
56.	Integrated Impact 1324	Added reference to footnote clarifying that the makeup water system for fuel pool cooling is also important to safety as described in SRP Section 9.1.3. In the ABWR and CE System 80+ FSERs, the staff discussed the classification and application of the ASME Code for such makeup water systems.
57.	Integrated Impact 1	Added reference to a footnote indicating the existence of supplemental information for quality group classification of this system in Appendix C.
58.	Integrated Impact 1324	Added a system which definitely includes the reactor itself and RCPB overpressure protection as important to safety since no combination of the listed systems (as they are scoped/covered in the SRP) appear to fully include the reactor and the RCPB overpressure protection. It should be noted that the nomenclature used to describe this system is not currently used in the SRP but has been used to describe this system for many years by the only US NSSS vendor for BWRs.
59.	Integrated Impact 1324	Revised identification of the sampling systems important to safety based upon terminology used in SRP Section 9.3.2 to describe these systems.

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Attachment A - Proposed Changes in Order of Occurrence

Item	Source	Description
60.	Integrated Impact 1324	Added identification using SRP system terminology for a class of fluid systems important to safety covered in SRP Section 9.2.2. Also added that this class of systems includes essential cooling and chilled water systems based upon the staff's use of SRP Section 9.2.2 for review of such systems in the ABWR FSER.
61.	Editorial	Added reference to a footnote clarifying which relief valves are addressed.
62.	Editorial	Established the abbreviation RHR to facilitate its subsequent use in describing another system.
63.	Integrated Impact 1	Added reference to a footnote indicating the existence of supplemental information for quality group classification of this system in Appendix C.
64.	Integrated Impact 1324	Revised identification of the system based upon terminology used in SRP Section 9.2.1 to describe this system. Also deleted reference to the listed system since the "Emergency Equipment Service Water System" nomenclature appears to be used far less frequently than other nomenclatures (e.g., "Emergency Service Water System") to describe this BWR system.
65.	Integrated Impacts 1 and 1324	Added identification of the ultimate heat sink as important to safety. SRP Section 9.2.5 provides findings that the ultimate heat sink and its supporting systems meet Quality Group C requirements. Also added reference to a footnote indicating the existence of supplemental information for quality group classification of these systems in Appendix C.
66.	Integrated Impact 1	Added reference to a footnote indicating the existence of supplemental information for quality group classification of this system in Appendix C.
67.	No Change, see Potential Impacts 25499 and 25522	In the ABWR and CE System 80+ FSERs, the staff evaluated the safety classification of HVAC systems (or quality group classifications of associated cooling water systems) which do not appear to be covered by the existing nomenclature describing HVAC systems considered to be fluid systems important to safety in SRP Section 3.2.2. As an example, the safety classification of a system providing component cooling water equipment room (not an ESF equipment room) HVAC was evaluated by the staff in the CE System 80+ FSER. For lack of better terminology to describe the HVAC systems which are considered by the staff to be fluid systems important to safety, however, no change is proposed. The SRP-UDP has addressed the cooling/chilled water systems important to safety separately in other changes under this SRP Section draft revision.

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Attachment A - Proposed Changes in Order of Occurrence

Item	Source	Description
68.	Editorial	Removed capitalization for consistency with the remainder of the section.
69.	Integrated Impact 1	Revised the characterization of the content of Appendix C based upon the actual Appendix developed under the SRP-UDP.
70.	Integrated Impact 1	Deleted discussion of Appendix D since separate Appendices for PWRs and BWRs were not developed. PNL determined that only one Appendix is necessary because most of the affected systems are provided in both PWRs and BWRs and the classification guidance identified is applicable to both types of plants.
71.	Integrated Impact 1	Revised the characterization of the content of Appendix C while reflecting the deletion of Appendix D based upon the actual Appendix C developed under the SRP-UDP.
72.	Integrated Impact 1	Added discussion of Appendix C. Appendix C identifies additional guidance regarding construction codes and standards for certain systems and components.
73.	Editorial	Revised terminology used to refer to the content of RG 1.26. Regulatory Guides provide positions which are not necessarily requirements.
74.	Integrated Impact 1324	Added footnote clarifying that the makeup water system for fuel pool cooling is also important to safety as described in SRP Section 9.1.3. In the ABWR and CE System 80+ FSERs, the staff discussed the classification and application of the ASME Code for such makeup water systems.
75.	Editorial	Added footnote to clarify the reference to relief valves in the BWR list of systems important to safety.
76.	Integrated Impact 1	Added table note reference to Appendix C for clarification of portions of systems important to safety, where applicable, and to indicate the existence of applicable supplemental classification guidance for affected systems.
77.	Editorial	Eliminated use of a gender-specific pronoun.
78.	Editorial	Eliminated use of a gender-specific pronoun.
79.	Integrated Impact 1	Added discussion of Appendix C. Appendix C identifies additional guidance for classification of certain systems and components.
80.	Editorial	Revised to improve clarity and grammar.
81.	SRP-UDP Guidance, Implementation of 10 CFR 52	Added standard paragraph to address application of Review Procedures in design certification reviews.

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Attachment A - Proposed Changes in Order of Occurrence

Item	Source	Description
82.	Editorial	Deleted unnecessary punctuation.
83.	Reference Verification	Added current full title for RG 1.26.
84.	SRP-UDP format Item, 10 CFR 52 implementation	Standard change made to Evaluation Findings to address design certification reviews.
85.	SRP-UDP Guidance, Implementation of 10 CFR 52	Added standard sentence to address application of the SRP section to reviews of applications filed under 10 CFR Part 52, as well as Part 50.
86.	SRP-UDP Guidance	Added standard paragraph to indicate applicability of this section to reviews of future applications.
87.	SRP-UDP format item, Integrated Impact 95	Added plural to reflect that more than one RG provides implementation information and allusion to 10 CFR 50.55a which identifies required editions and addenda of the ASME Code. Also revised to reflect that other documents referenced in Appendices (e.g., Generic Letter 90-06) contain implementation information and schedules.
88.	SRP-UDP format item	Reordered references and renumbered so that regulatory documents and NRC publications precede non-NRC publications.
89.	SRP-UDP format item, Reformat reference citations	Added 10 CFR 50.55a as a reference since it is cited as Acceptance Criteria in subsection II.
90.	SRP-UDP format item, Reference verification	Added 10 CFR 50, Appendix B as a reference since it is cited in subsection III.
91.	Reference Verification	Added current full title for RG 1.26.
92.	SRP-UDP format item, Reference verification	Since this RG is cited in Table 3.2.2-1 notes, reference listing of the RG was added.
93.	SRP-UDP format item, Reference verification	Since this RG is cited in Table 3.2.2-1 notes, reference listing of the RG was added.
94.	Integrated Impact 1 , SRP-UDP format item	Added Appendix C to the list of references since it is discussed in subsection III.
95.	SRP-UDP format item, Reference verification	Since this standard is cited in Table 3.2.2-1, reference listing of the standard was added. It should also be noted that Integrated Impact 41 suggests this change.
96.	Integrated Impact 39	Consideration should be given to revising the citation of ANSI/ASME B31.1-1980 to address the latest version evaluated under the SRP-UDP (ANSI/ASME B31.1-1992).
97.	Integrated Impact 40	Consideration should be given to revising the citation of ANSI/ASME B96.1-1980 to address the latest version evaluated under the SRP-UDP (ANSI/ASME B96.1-1989).

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Item	Source	Description
98.	Integrated Impact 42	Consideration should be given to revising the citation of API 620, sixth edition, 1977 to address address the latest version evaluated under the SRP-UDP (API 620-1990).
99.	Integrated Impact 43	Consideration should be given to revising the citation of API 650, sixth edition, Revision 1, 1978 to address address the latest version evaluated under the SRP-UDP (API 650 -1988).
100.	Integrated Impact 44 , SRP-UDP format item, Reference verification	The current edition of the ASME Code is the 1995 edition. The latest edition acceptable per 10 CFR 50.55a is the 1989 edition. 10 CFR 50.55a specifies which editions and addenda of the Code, Sections III and XI, are to be used. Reference to the 1980 edition was thus deleted.
101.	Integrated Impact 45	Consideration should be given to revising the citation of the ASME B&PVC, Section VIII, 1980 edition to address address the latest version evaluated under the SRP-UDP (1995 edition).
102.	Integrated Impact 60	Consideration should be given to revising the citation of AWWA D100-1979 to address address the latest version evaluated under the SRP-UDP (AWWA D100-1984).
103.	Editorial	Although no redline strikeout changes are indicated, the page orientation for this table was revised from "landscape" to "portrait" to facilitate orientation consistency with the associated table notes.
104.	Editorial	Revised to reflect that regulations are generally regarded as requirements, not optional guidance.
105.	Editorial	Corrected spelling in the associated footnote at the bottom of the page.
106.	Editorial	Updated to reflect that problems have been identified for more than one generation of BWRs, some recently, others several years ago.
107.	Reference verification	The letter cited herein is reprinted in the SRP, therefore the citation of the letter is replaced by citation of its location in the SRP to eliminate citation of an external (with respect to NUREG-0800) reference.
108.	Editorial, Reference verification	Revised statement to eliminate an outdated allusion to a "recent revision" and to reflect current code editions considered under the SRP-UDP.
109.	Integrated Impact 1323	Added reference to classification criteria for BWRs without an MSIVLCS that take credit for fission product hold-up in the main steam lines. Also included new Figure A-1 at the end of Appendix A.

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Item	Source	Description
110.	SRP-UDP format item, Reference verification	Added 10 CFR 50.55a as a reference since it is cited in this Appendix.
111.	SRP-UDP format item, Reference verification	Added 10 CFR 50, Appendix B as a reference since it is cited in this Appendix.
112.	SRP-UDP format item, reference verification	Added RG 1.26 to list of references since the RG is cited in this Appendix.
113.	SRP-UDP format item, Reference verification	Added reference listing of Branch Technical Position SPLB 3-1 as it is cited in this Appendix.
114.	Integrated Impact 1323	Added reference to source of staff positions affecting the quality group and seismic classification of main steam components for certain new BWRs (e.g., those referencing the ABWR certified design).
115.	SRP-UDP format item, Reference verification	Arranged the order of references so that NRC correspondence follows regulations, Regulatory Guides, NUREG reports, etc., consistent with SRP-UDP format for reference lists. Since this letter does not appear to be under revision control, the SRP-UDP did not verify the latest version for this reference. It should be noted that this letter is not cited or explicitly discussed in the Appendix but was not removed from the list of references.
116.	SRP-UDP format item, Reference verification	Arranged the order of references so that NRC correspondence follows regulations, Regulatory Guides, NUREG reports, etc., consistent with SRP-UDP format for reference lists. Since this letter does not appear to be under revision control, the SRP-UDP did not verify the latest version for this reference. It should be noted that this letter is not cited or explicitly discussed in the Appendix but was not removed from the list of references.
117.	SRP-UDP format item, reference verification	Added reference listing of this version of the B31.1 standard as it is cited in this Appendix.
118.	Integrated Impact 38	Pending NRC review and authorization, consideration should be given to revising the citation of ANSI/ASME B31.1-1973 to address the latest version evaluated under the SRP-UDP (ANSI/ASME B31.1-1992).
119.	SRP-UDP format item, reference verification	Added reference listing of the ASME Code, Sections III and XI as they are cited in this Appendix.
120.	SRP-UDP format item, reference verification	Added reference listing of this GE publication as it is cited in this Appendix. SRP-UDP did not verify the latest version of this reference.

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Attachment A - Proposed Changes in Order of Occurrence

Item	Source	Description
121.	Integrated Impact 1323	Added classification criteria for BWRs without an MSIVLCS that take credit for fission product hold-up in the main steam lines in Table item 6 and modified table note references to reflect related revisions of table notes. Note that all changes to this table indicated by redline are covered by this note.
122.	Editorial	Added clarification in the title that the Appendix Table only applies to BWRs.
123.	Editorial	Renumbered/lettered to improve the clarity of the "subnote" numbering scheme.
124.	Editorial	Corrected spelling error.
125.	Integrated Impact 38	Pending NRC review and authorization, consideration should be given to revising the citation of ANSI/ASME B31.1-1973 to address the latest version evaluated under the SRP-UDP (ANSI/ASME B31.1-1992).
126.	Editorial	Renumbered/lettered to improve the clarity of the "subnote" numbering scheme.
127.	Editorial	Renumbered/lettered to improve the clarity of the "subnote" numbering scheme.
128.	Integrated Impact 38	Pending NRC review and authorization, consideration should be given to revising the citation of ANSI/ASME B31.1-1973 to address the latest version evaluated under the SRP-UDP (ANSI/ASME B31.1-1992).
129.	Integrated Impact 38	Pending NRC review and authorization, consideration should be given to revising the citation of ANSI/ASME B31.1-1973 to address the latest version evaluated under the SRP-UDP (ANSI/ASME B31.1-1992).
130.	Integrated Impact 1323	Added new staff positions described in SECY 93-087 and the ABWR FSER for quality group and seismic classification of main steam system components for BWRs that do not include a main steam isolation valve leakage control system or main steam line shutoff valves and that take credit for fission product hold-up in the main steam lines. Also added a new Figure (A-1) showing these positions on the following page.
131.	Editorial	Corrected spelling in the associated footnote at the bottom of the page.
132.	SRP-UDP format item, reference verification	Added RG 1.26 to list of references and provided its current title since the RG is cited in this Appendix.
133.	SRP-UDP format item, reference verification	Added RG 1.29 to list of references and provided its current title since the RG is cited in this Appendix.

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Item	Source	Description
134.	SRP-UDP format item, Reference verification	Arranged the order of references so that NRC correspondence follows regulations, Regulatory Guides, NUREG reports, etc., consistent with SRP-UDP format for reference lists. Since this letter does not appear to be under revision control, the SRP-UDP did not verify the latest version for this reference. It should be noted that this letter is not cited or explicitly discussed in the Appendix but was not removed from the list of references.
135.	SRP-UDP format item, reference verification	Added reference listing of this version of the B31.1 standard as it is cited in this Appendix.
136.	Integrated Impact 38	Pending NRC review and authorization, consideration should be given to revising the citation of ANSI/ASME B31.1-1973 to address the latest version evaluated under the SRP-UDP (ANSI/ASME B31.1-1992).
137.	SRP-UDP format item, reference verification	Added reference listing of this GE publication as it is cited in this Appendix. SRP-UDP did not verify the latest version of this reference.
138.	Integrated Impact 38	Pending NRC review and authorization, consideration should be given to revising the citation of ANSI/ASME B31.1-1973 to address the latest version evaluated under the SRP-UDP (ANSI/ASME B31.1-1992).
139.	Editorial	Renumbered/lettered to improve the clarity of the "subnote" numbering scheme.
140.	Integrated Impact 1	Revised title to reflect that guidance presented in the Appendix applies to both PWRs and BWRs except where otherwise indicated and adds to the guidance for quality group classification of systems and components contained in RG 1.26.
141.	Integrated Impact 1	Deleted discussion of later work to prepare this Appendix since the Appendix is developed under this draft revision.
142.	Integrated Impact 1	Added an introduction describing the Appendix as developed under this draft revision.
143.	Integrated Impact 3 , SRP-UDP format item	Added reference listing for Reg. Guide 1.7.
144.	Integrated Impact 1329 , SRP-UDP format item	Added reference listing for Reg. Guide 1.11.
145.	Integrated Impacts 4 and 31 , SRP-UDP format item	Added reference listing for Reg. Guide 1.26.
146.	Integrated Impact 1330 , SRP-UDP format item	Added reference listing for Reg. Guide 1.72.

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Item	Source	Description
147.	Integrated Impact 2 , SRP-UDP format item	Added reference listing for Reg. Guide 1.96.
148.	Integrated Impact 5 , SRP-UDP format item	Added reference listing for Reg. Guide 1.137.
149.	Integrated Impact 1329	Added reference listing for RG 1.141.
150.	Integrated Impact 4	Added reference listing for Reg. Guide 1.143.
151.	Integrated Impact 31 , SRP-UDP format item	Added reference listing for Reg. Guide 1.151.
152.	Integrated Impact 1329 , SRP-UDP format item	Added reference listing for BTP CSB 6-3.
153.	Integrated Impact 95 , SRP-UDP format item	Added reference listing for Generic Letter 90-06.
154.	Integrated Impact 95	Added reference for implementation of Generic Letter 90-06.
155.	SRP-UDP format item, reference verification	Added reference listing of the ASME Code, Sections III and XI as they are cited or alluded to in this Appendix.
156.	Integrated Impact 1	Added a tabulation of systems and components, their quality group classification, references establishing these classifications and positions related to the application of additional quality standards, and notes providing further information with respect to the table.
157.	Integrated Impact 3	Added guidance for classification of combustible gas control systems and reference to the Reg. Guide which describes positions for classification of the system.
158.	Integrated Impact 1	Added guidance for classification of safety-related portions of compressed air systems and added reference to the SRP section which describes positions for classification of the system.
159.	Integrated Impact 1329	Added guidance for classification of containment isolation systems and references to the SRP section, Branch Technical Position, and Reg. Guides which provide guidance for classification of the system and added standards to be applied to the design and construction of the system.
160.	Integrated Impacts 1 and 5	Relocated guidance for classification of emergency diesel engine systems from SRP Section 3.2.2 Review Procedures and added reference to a Reg. Guide which describes positions for added standards which are applied to the design and construction of the fuel oil system.

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Item	Source	Description
161.	Integrated Impact 1331	Added guidance for classification of equipment and floor drainage systems and reference to the SRP section which describes positions for identification of essential portions of the system and classification of the system.
162.	Integrated Impact 1	Relocated guidance for classification of engineered safeguards gas treatment systems from SRP Section 3.2.2 Review Procedures.
163.	Integrated Impact 2	Added guidance for classification of BWR main steam isolation valve leakage control systems and reference to the Reg. Guide which describes positions for classification of the system and added quality assurance measures for the design and construction of the system.
164.	Integrated Impact 1	Relocated guidance for classification of certain plant ventilation systems from SRP Section 3.2.2 Review Procedures.
165.	Integrated Impact 95	Added guidance for classification of PORVs and associated components and references to the Generic Letter which describe positions related to classification of the system and added quality assurance to be applied to the design and construction of PORVs and associated components which perform the safety functions described in the Generic Letter. A new SRP section is in development which will address issues in Generic Letter 90-06 as well as related reference 12 for this Appendix.
166.	Integrated Impact 4	Added guidance for classification of radioactive waste management systems and reference to the Reg. Guide which describes positions for standards to be applied to the design and construction of the systems.
167.	Integrated Impact 31	Added guidance for classification of safety-related instrument lines and references to the Reg. Guide which describes positions for classification of the system and added standards which are applied to the design and construction of the system.
168.	Integrated Impact 1330	Added guidance for classification of the ultimate heat sink and supporting systems and references to the SRP section and Reg. Guide which describe positions for classification of the system and an added code case and related guidance applicable to the design and construction of the system.
169.	Integrated Impact 3	Added note associated with classification of combustible gas control systems discussing the Reg. Guide which describes positions for classification of the system.

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Item	Source	Description
170.	Integrated Impact 1329	Added note related to classification of containment isolation systems discussing SRP Section 6.2.4 and Reg. Guides which provide guidance related to classification of the system.
171.	Integrated Impact 1329	Added note related to Reg. Guide 1.11 which describes positions for classification of instrument lines penetrating containment.
172.	Integrated Impact 1329	Added note related to Branch Technical Position CSB 6-3 which describes positions for classification of closed systems proposed as bypass leakage boundaries.
173.	Integrated Impact 5	Added note related to classification of emergency diesel engine fuel oil storage and transfer systems and Reg. Guide 1.137 which describes positions for classification of the systems and added standards which are applied to the design and construction of the system.
174.	Integrated Impact 1331	Added note related to classification of equipment and floor drainage systems and SRP Section 9.3.3 which provides criteria for identifying essential portions of the system and describes positions for classification of these portions of the system.
175.	Integrated Impact 2	Added note related to classification of BWR main steam isolation valve leakage control systems and Reg. Guide 1.96 which describes positions for classification of the system and added standards/measures which are applied to the design and construction of portions of the system.
176.	Integrated Impact 95	Added note related to Generic Letter 90-06 which describes positions and implementation information related to classification of PORVs and added quality assurance measures which are to be applied to the design and construction of PORVs and associated components which perform the safety functions described in the Generic Letter.
177.	Integrated Impact 4	Added note related to classification of radioactive waste management systems and Reg. Guide 1.143 which describe positions for standards which are applied to the design and construction of the systems.
178.	Integrated Impact 31	Added note related to classification of safety-related instrument lines and Reg. Guide 1.151 which describes positions for classification of the system and added standards which are applied to the design and construction of instrument lines.

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Item	Source	Description
179.	Integrated Impact 1330	Added note related to SRP Section 9.2.5 and Reg. Guide 1.72 which provide guidance for classification of ultimate heat sink systems and an added code case and guidance which are applied to the design and construction of specified spray pond piping.
180.	Integrated Impact 1	Deleted the Appendix and discussion of later work to develop the Appendix since an Appendix covering BWRs separately is not needed.

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SRP Draft Section 3.2.2
Attachment B - Cross Reference of Integrated Impacts

Integrated Impact No.	Issue	SRP Subsections Affected
1	Revise the SRP to cover quality group classification of additional fluid systems and pressure-retaining components.	Review Procedures, subsection III; References, subsection VI.9; and Appendices C and D.
2	Revise the SRP to cover quality group classification of BWR Main Steam Isolation Valve Leakage Control Systems and incorporate related RG 1.96 guidance.	Appendix C.
3	Revise the SRP to cover quality group classification of Combustible Gas Control Systems and incorporate related RG 1.7 guidance.	Appendix C.
4	Revise the SRP to cover classification of Radioactive Waste Management Systems and incorporate related RG 1.143 guidance.	Appendix C.
5	Revise the SRP to incorporate RG 1.137 guidance for diesel generator fuel oil systems.	Appendix C.
6	Cover Generic Letter 90-06 positions related to PORVs, superseded by Integrated Impact 95.	No changes in this proposed draft revision.
7	Revise the SRP to acknowledge related RCPB reviews performed in SRP Section 5.2.1.1.	Areas of Review, subsection I, Review Interface 4 with other EMEB SRP sections; and Review Procedures, subsection III.
31	Revise the SRP to cover quality group classification of instrument sensing lines and incorporate related RG 1.151 guidance.	Appendix C.
32	Revise Reg. Guide 1.26 as future work, to cover additional fluid systems covered in the SRP.	No changes in this proposed draft revision.
38	Revise citation of ANSI/ASME B31.1-1973 to reflect the latest version.	No changes in this proposed draft revision.
39	Revise citation of ANSI/ASME B31.1-1980 to reflect the latest version.	No changes in this proposed draft revision.
40	Revise citation of ANSI/ASME B96.1-1980 to reflect the latest version.	No changes in this proposed draft revision.
41	Revise References to include ANSI/ASME B16.34.	References are listed and updated where appropriate via the SRP-UDP reference verification process. References, subsection VI.10.
42	Revise citation of API 620 to cite no specific version.	No changes in this proposed draft revision.
43	Revise citation of API 650 to reflect cite no specific version.	No changes in this proposed draft revision.

SRP Draft Section 3.2.2
Attachment B - Cross Reference of Integrated Impacts

Integrated Impact No.	Issue	SRP Subsections Affected
44	Revise citation of the ASME B&PV Code to cite no specific version.	References, subsection VI.15.
45	Revise citation of Section VIII of the ASME Code to cite no specific version.	No changes in this proposed draft revision.
46	No change recommended, discusses the citation of the ASME Code, Section XI in SRP Section 3.2.2.	No changes in this proposed draft revision.
60	Revise citation of AWWA D100 to cite no specific version.	No changes in this proposed draft revision.
80	Revise the SRP to address classification of non-pressure retaining components and structures.	Areas of Review, subsection I, Review Interface 1 with other PRBs.
81	Revise RG 1.70 to provide additional application content guidance related to classification of SSCs.	No changes in this proposed draft revision.
95	Revise the SRP to address Generic Letter 90-06 guidance and implementation recommendations for classification and QA for PORVs.	Review Procedures, subsection III; and Appendix C.
689	Revise RG 1.26 to address the latest version of ANSI B31.1.	No changes in this proposed draft revision.
1323	Revise the SRP to address classification differences for BWR main steam systems and components related to design using no MSIV leakage control system or main steam line shutoff valves.	Appendix A.
1324	Update the listing of fluid systems important to safety, based upon systems and positions covered in other sections of the SRP and systems reviewed and identified as such in evolutionary plant FSERs.	Review Procedures, subsection III.
1329	Revise the SRP to cover guidance for quality group classification of containment isolation systems.	Appendix C.
1330	Revise the SRP to cover guidance for quality group classification of the ultimate heat sink and supporting systems.	Appendix C.
1331	Revise the SRP to cover guidance for quality group classification of essential portions of equipment and floor drainage systems.	Appendix C.