



NUREG-0847
Supplement 21

Safety Evaluation Report

**Related to the Operation of
Watts Bar Nuclear Plant, Unit 2**

Docket No. 50-391

Tennessee Valley Authority

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ABSTRACT

This report supplements the safety evaluation report (SER), NUREG-0847 (June 1982), Supplement No. 1 (September 1982), Supplement No. 2 (January 1984), Supplement No. 3 (January 1985), Supplement No. 4 (March 1985), Supplement No. 5 (November 1990), Supplement No. 6 (April 1991), Supplement No. 7 (September 1991), Supplement No. 8 (January 1992), Supplement No. 9 (June 1992), Supplement No. 10 (October 1992), Supplement No. 11 (April 1993), Supplement No. 12 (October 1993), Supplement No. 13 (April 1994), Supplement No. 14 (December 1994), Supplement No. 15 (June 1995), Supplement No. 16 (September 1995), Supplement No. 17 (October 1995), Supplement No. 18 (October 1995), Supplement No. 19 (November 1995) and Supplement No. 20 (February 1996) issued by the Office of Nuclear Reactor Regulation of the U.S. Nuclear Regulatory Commission (NRC) with respect to the application filed by the Tennessee Valley Authority (TVA), as applicant and owner, for licenses to operate the Watts Bar Nuclear Plant (WBN) Units 1 and 2 (Docket Nos. 50-390 and 50-391).

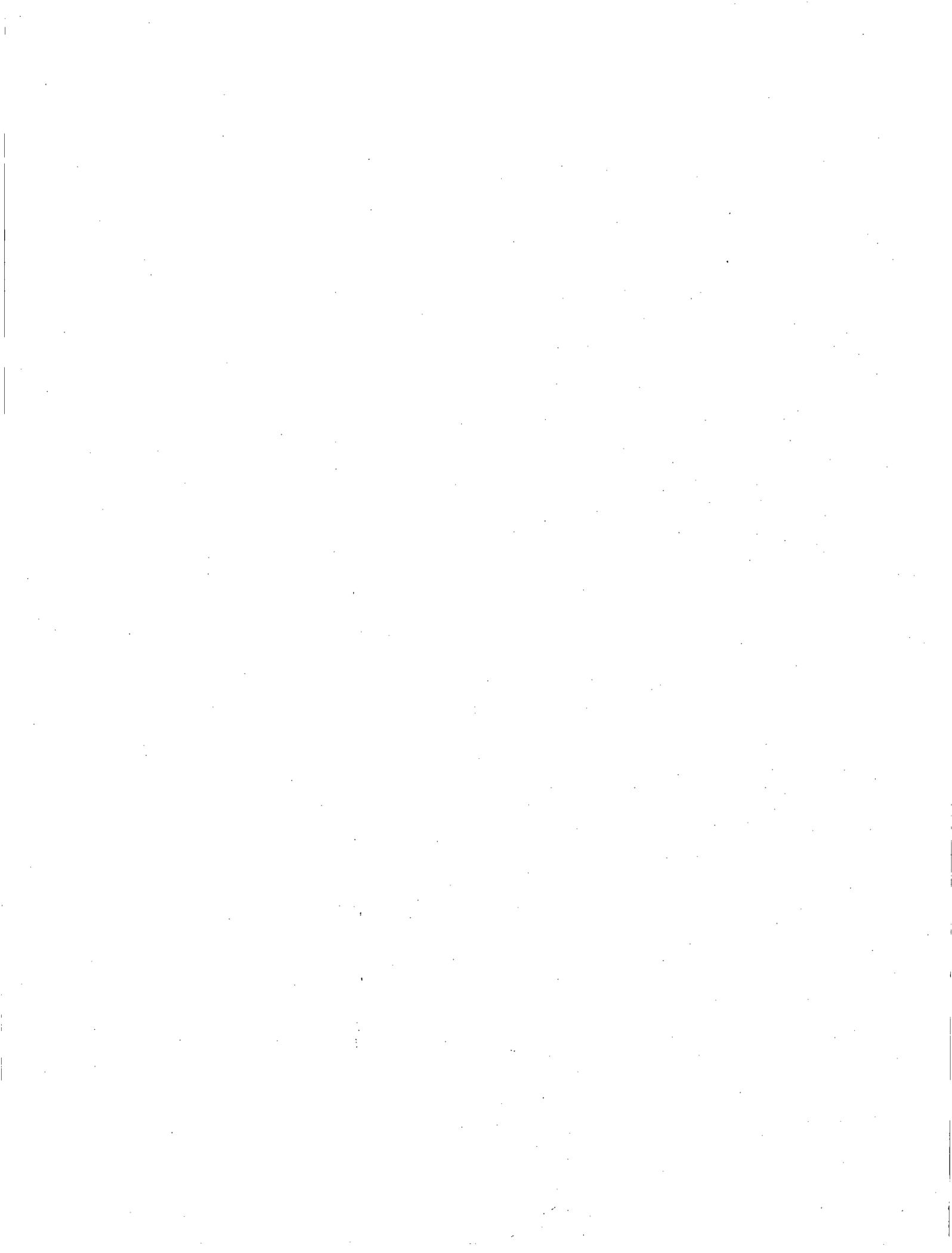
In Supplement No. 20 the NRC staff concluded that WBN Unit 1 met all applicable regulations and guidance as stated in the SER and supplements. Based on satisfactory findings from all applicable inspections, on February 7, 1996, the NRC issued a full-power operating license to WBN Unit 1 to authorize operation up to 100-percent power.

In this and future Supplements to the SER, the staff will document its evaluation of TVA's application for a license to operate WBN Unit 2.

This supplement provides information specific to the operating license review for WBN Unit 2 regarding the status of the items remaining for resolution, which were outstanding at the time that TVA deferred construction of Unit 2 and were not evaluated and resolved as part of the licensing of WBN Unit 1.

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NUCLEAR PLANT, UNIT 2, OPERATING LICENSE REVIEW	



ABBREVIATIONS

AC	alternating current
ADAMS	Agencywide Documents Access and Management System
AMSAC	anticipated transient without scram mitigation system actuation circuitry
ASME	American Society of Mechanical Engineers
ATWS	anticipated transient without scram
BL	Bulletin
BWR	boiling-water reactor
CAP	corrective action program
CFR	Code of Federal Regulations
DC	direct current
ECCS	emergency core cooling system
ESF	engineered safety feature
FSAR	final safety analysis report
GDC	general design criterion
GL	generic letter
IE	Office of Inspection and Enforcement
IEB	Office of Inspection and Enforcement Bulletin
LOCA	loss-of-coolant accident
LTOP	low-temperature overpressure protection
NPP	Nuclear Performance Plan
NRC	Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
NUREG	report prepared by NRC staff
OL	operating license
PORV	power-operated relief valve
PWR	pressurized-water reactor
QA	quality assurance
RPV	reactor pressure vessel
RV	relief valve
SER	safety evaluation report
SG	steam generator
SP	special program
SRP	Standard Review Plan
SSER	Supplement to the SER
SV	safety valve
TMI	Three Mile Island
TS	technical specification
TVA	Tennessee Valley Authority
WBN	Watts Bar Nuclear Plant
WBNPP	Watts Bar Nuclear Performance Plan



1 INTRODUCTION AND DISCUSSION

1.1 Introduction

The Watts Bar Nuclear Plant (WBN or Watts Bar) is owned by the Tennessee Valley Authority (TVA) and is located in southeastern Tennessee approximately 50 miles northeast of Chattanooga. The facility consists of two Westinghouse-designed four-loop pressurized-water reactors (PWRs) within ice condenser containments.

In June 1982, the Nuclear Regulatory Commission staff (NRC staff or staff) issued a safety evaluation report (SER), NUREG-0847, "Safety Evaluation Report related to the operation of Watts Bar Nuclear Plant Units 1 and 2," regarding the application by the TVA for licenses to operate WBN Units 1 and 2. The SER was followed by SER Supplement No. 1 (SSER 1, September 1982), Supplement No. 2 (SSER 2, January 1984), Supplement No. 3 (SSER 3, January 1985), and Supplement No. 4 (SSER 4, March 1985). After Supplement No. 4 (SSER 4) was issued, Watts Bar licensing activities were put on hold because of problems identified at TVA plants.

A large number of deficiencies were identified shortly before the WBN Unit 1 operating license (OL) was expected to be issued. As a result, the NRC sent a letter to TVA on September 17, 1985, requesting information under Section 50.54(f) of Part 50 of Title 10 of the *Code of Federal Regulations* (10 CFR) on TVA's plans to address the deficiencies for its operating and construction activities at Watts Bar and TVA's other nuclear facilities. In response to this letter, TVA developed a nuclear performance plan (NPP) to address corporate and site-specific issues relating to a wide variety of material, design, and programmatic deficiencies. At about the same time, TVA suspended construction of WBN Unit 2, with major structures in place and equipment installed, while it focused on completing WBN Unit 1.

TVA submitted its NPP to the NRC on November 1, 1985. The NRC staff issued its safety evaluation of the revised NPP, through Revision 4, in July 1987 as NUREG-1232, Volume 1, "Safety Evaluation Report on Tennessee Valley Authority: Revised Corporate Nuclear Performance Plan." In addition to its corporate NPP, TVA prepared separate plans to address site-specific problems at each of its nuclear plants.

The NRC staff reviewed components of the NPP for WBN Unit 1 and, as documented in NUREG-1232, Volume 4, "Safety Evaluation Report on Tennessee Valley Authority: Watts Bar Nuclear Performance Plan, Watts Bar Unit 1" (January 1990), endorsed the general approaches of various corrective actions. The NRC staff determined that when fully implemented, the proposed corrective actions should address the identified deficiencies for Unit 1.

The NRC staff documented the satisfactory resolution of NPP topics for WBN Unit 1 in the later supplements to NUREG-0847 (Supplements 5 through 20). In Supplement No. 20, the staff concluded that WBN Unit 1 met all applicable regulations and guidance as stated in the SER and supplements, and based on satisfactory findings from all applicable inspections, the NRC issued an OL to WBN Unit 1 on February 7, 1996, authorizing operation up to 100-percent power (full-power OL).

On August 3, 2007, TVA notified the Director of the Office of Nuclear Reactor Regulation (NRR) of its intention to complete construction activities at WBN Unit 2. On December 3, 2007, TVA informed the NRC that it was resuming unrestricted construction activities under the existing construction permit and would request an OL, pursuant to 10 CFR Part 50, "Domestic Licensing

of Production and Utilization Facilities.” To ensure operational fidelity between the units and, at the same time, demonstrate that WBN Unit 2 complies with applicable NRC regulatory requirements. TVA will align the licensing and design bases of WBN Units 1 and 2 to the fullest extent practicable. Recognizing the benefit of operational fidelity between the two WBN units and safe operation of WBN unit 1 since 1996, the Commission in staff requirements memorandum SECY-07-0096, “Staff Requirements - Possible Reactivation of Construction and Licensing Activities for the Watts Bar Nuclear Plant Unit 2,” dated July 25, 2007, directed the staff to use the current licensing basis for Unit 1 as the reference basis for the review and licensing of Unit 2.

In its review of TVA’s operating licensing application, the NRC staff will use the set of topics covered in (1) SER (NUREG-0847) and its supplements through No. 20, (2) NPP issues in NUREG-1232, Volume 4, (3) the WBN Final Safety Analysis Report (FSAR) through amendment No. 91 (FSAR version approved for both Units 1 and 2), and (4) NUREG-0800, “Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants” (SRP). The NRC staff based its numbering for the review topics is based on NUREG-0847, adding new subsections as needed to incorporate additional topics from the NPP, SRP, and generic issues. For convenience of tracking and reporting, it numbered the topics at the subsection level (i.e., X.Y.Z, where X is the chapter number, Y is the section number, and Z is the subsection number). For example, the “Residual Heat Removal” review topic is subsection 5.4.3 in the table of contents.

In addition to the guidance in the SRP, the NRC staff issues generic requirements or recommendations in the form of technical reports, bulletins, and generic letters (GLs). Each of these documents carries its own applicability, work scope, and acceptance criteria; some of which are applicable to Watts Bar Unit 2. This SSER also addresses the review and implementation status of applicable generic issues.

As noted above, the NRC staff wrote this SER and its supplements to agree with the format and scope outlined in the SRP (NUREG-0800). Issues raised during the SRP review that were not closed out when the SER was published were categorized as outstanding issues, confirmatory issues, and proposed license conditions (see Sections 1.7, 1.8, and 1.9, respectively).

Each of the following sections and appendices of this supplement is numbered the same as the section or appendix of the SER that is being updated, and the discussions are supplementary to, and not in lieu of, the discussion in the SER, unless otherwise noted. For example, Appendix A continues the chronology of the safety review and Appendix E continues to list the principal contributors to this supplement. New appendices will be added as necessary.

Chapters 1 through 23 were assigned from NUREG-0847 (SER). The staff has added chapters addressing the overall assessment of the facility, NPP, generic issues, action items from NUREG-0737, “Clarification of TMI [Three Mile Island] Action Review Standard Requirements,” issued November 1980, and other regulatory topics. These items appear in the SER table of contents as chapters 24 through 27. Additional chapters may be included later.

In this and future SSERs, the staff will document its evaluation of TVA’s application for a license to operate WBN Unit 2.

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1.7 Summary of Outstanding Issues

By letters dated January 29 and March 13, 2008, TVA submitted its framework for the completion of construction and licensing activities for WBN Unit 2. TVA identified the Unit 2 licensing basis that was reviewed and approved concurrent with the WBN Unit 1 OL review process. The NRC staff documented its previous review of WBN Unit 1, and a portion for Unit 2, in NUREG-0847, through Supplement No. 20.

The NRC staff made an initial assessment of the status presented by TVA and reviewed the information in the SER and its supplements to independently determine whether the topic sections had been previously approved and resolved for WBN Unit 2. By letter dated May 8, 2008, to TVA, the staff forwarded the results of its initial assessment and identified the topics that it considered as remaining open and to be completed within the OL review scope. The NRC staff found that many of the existing licensing review topics had already been addressed. The staff also identified certain differences between the NRC and TVA scoping assessments. On June 16, 2008, TVA provided additional information to address these differences and revised the overall status summary of the regulatory framework originally provided in the March 13, 2008, letter.

The NRC staff reviewed the revised regulatory framework and completed its assessment of the regulatory framework for WBN Unit 2 OL review. The staff documented the detailed results of its overall assessment of the regulatory framework in a letter dated October 10, 2008.

The staff's overall assessment of the regulatory framework is summarized below with the relevant document in which the issue was last addressed shown in parentheses. In its future submittals or amendments to the FSAR, TVA should address the topics identified as open. The staff will review the open topics using the WBN Unit 1 current licensing basis as its reference. The staff will document the results of its review in future SER supplements.

It should be noted that, although many of the topic areas may have been adequately documented and are considered closed, the NRC staff recognizes that there may be circumstances that could result in the need to reopen a previously closed topic.

	<u>Issue</u>	<u>Status</u>	<u>Section</u>
(1)	Site Envelope		2.0.0
(2)	Geography and Demography		2.1.0
(3)	Site Location and Description	Resolved (SER)	2.1.1
(4)	Exclusion Area Authority and Control	Resolved (SER)	2.1.2
(5)	Population Distribution	Open (NRR) (SER)	2.1.3
(6)	Conclusions	Open (NRR) (SER)	2.1.4
(7)	Nearby Industrial, Transportation, and Military Facilities		2.2.0

	<u>Issue</u>	<u>Status</u>		<u>Section</u>
(8)	Transportation Routes	Open (NRR)	(SER)	2.2.1
(9)	Nearby Facilities	Open (NRR)	(SER)	2.2.2
(10)	Conclusions	Open (NRR)	(SER)	2.2.3
(11)	Meteorology			2.3.0
(12)	Regional Climatology	Resolved	(SER)	2.3.1
(13)	Local Meteorology	Resolved	(SER)	2.3.2
(14)	Onsite Meteorological Measurements Program	Resolved	(SER)	2.3.3
(15)	Short-Term (Accident) Atmospheric Diffusion Estimates	Resolved	(SER) (SSER 14)	2.3.4
(16)	Long-Term (Routine) Diffusion Estimates	Resolved	(SER) (SSER 14)	2.3.5
(17)	Hydrologic Engineering			2.4.0
(18)	Introduction	Resolved	(SER)	2.4.1
(19)	Hydrologic Description	Resolved	(SER)	2.4.2
(20)	Flood Potential	Resolved	(SER)	2.4.3
(21)	Local Intense Precipitation in Plant Area	Resolved	(SER)	2.4.4
(22)	Roof Drainage	Resolved	(SER)	2.4.5
(23)	Ultimate Heat Sink	Resolved	(SER)	2.4.6
(24)	Groundwater	Resolved	(SER)	2.4.7
(25)	Design Basis for Subsurface Hydrostatic Loading	Open (NRR)	(SER) (SSER 3)	2.4.8
(26)	Transport of Liquid Releases	Open (NRR)	(SER)	2.4.9
(27)	Flooding Protection Requirements	Open (Inspection)	(SER)	2.4.10
(28)	Geological, Seismological, and Geotechnical Engineering	Resolved	(SER)	2.5.0
(29)	Geology	Resolved	(SER)	2.5.1
(30)	Seismology	Resolved	(SER)	2.5.2
(31)	Surface Faulting	Resolved	(SER)	2.5.3
(32)	Stability of Subsurface Materials and Foundations	Resolved	(SER) (SSER 3) (SSER 9) (SSER 11)	2.5.4
(33)	Stability of Slopes	Resolved	(SER)	2.5.5
(34)	Embankments and Dams	Resolved	(SER)	2.5.6
(35)	References			2.6.0
(36)	Design of Structures, Components, Equipment, and Systems			3.0.0
(37)	Introduction			3.1.0
(38)	Conformance With General Design Criteria	Resolved	(SER)	3.1.1
(39)	Conformance With Industry Codes and Standards	Resolved	(SER)	3.1.2
(40)	Classification of Structures, Systems and Components	Resolved	(SSER 14)	3.2.0

	<u>Issue</u>	<u>Status</u>		<u>Section</u>
(41)	Seismic Classifications	Resolved	(SER) (SSER 3) (SSER 5) (SSER 6) (SSER 8)	3.2.1
(42)	System Quality Group Classification	Open (NRR)	(SER) (SSER 3) (SSER 7) (SSER 9)	3.2.2
(43)	Wind and Tornado Loadings			3.3.0
(44)	Wind Loading	Resolved	(SER)	3.3.1
(45)	Tornado Loading	Resolved	(SER)	3.3.2
(46)	Flood Level (Flood) Design			3.4.0
(47)	Flood Protection	Resolved	(SER)	3.4.1
(48)	Missile Protection			3.5.0
(49)	Missile Selection and Description	Resolved	(SER) (SSER 9) (SSER 14)	3.5.1
(50)	Structures, Systems, and Components to be Protected from Externally Generated Missiles	Resolved	(SER) (SSER 2)	3.5.2
(51)	Barrier Design Procedures	Resolved	(SER)	3.5.3
(52)	Protection Against the Dynamic Effects Associated with the Postulated Rupture of Piping	Open (NRR)	(SER) (SSER 6) (SSER 11)	3.6.0
(53)	Plant Design for Protection Against Postulated Piping Failures in Fluid System Outside Containment	Open (NRR)	(SER) (SSER 14)	3.6.1
(54)	Determination of Break Locations and Dynamic Effects Associated with the Postulated Rupture of Piping	Resolved	(SER) (SSER 14)	3.6.2
(55)	Leak-Before-Break Evaluation Procedures	Resolved	(SSER 5) (SSER 12)	3.6.3
(56)	Seismic Design	Open (NRR)	(SER) (SSER 6)	3.7.0
(57)	Seismic Input	Open (NRR)	(SER) (SSER 6) (SSER 9) (SSER 16)	3.7.1
(58)	Seismic Analysis	Open (NRR)	(SER) (SSER 6) (SSER 8) (SSER 11) (SSER 16)	3.7.2

	<u>Issue</u>	<u>Status</u>		<u>Section</u>
(59)	Seismic Subsystem Analysis	Open (NRR)	(SER) (SSER 6) (SSER 7) (SSER 8) (SSER 9) (SSER 12)	3.7.3
(60)	Seismic Instrumentation	Resolved	(SER)	3.7.4
(61)	Design of Seismic Category I Structures	Open (NRR)	(SER) (SSER 9)	3.8.0
(62)	Steel Containment	Resolved	(SER) (SSER 3)	3.8.1
(63)	Concrete and Structural Steel Internal Structures	Resolved	(SER) (SSER 7)	3.8.2
(64)	Other Seismic Category I Structures	Open (NRR)	(SER) (SSER 14) (SSER 16)	3.8.3
(65)	Foundations	Resolved	(SER)	3.8.4
(66)	Mechanical Systems and Components			3.9.0
(67)	Special Topics for Mechanical Components	Open (NRR)	(SER) (SSER 6) (SSER 13)	3.9.1
(68)	Dynamic Testing and Analysis of Systems, Components, and Equipment	Resolved	(SER) (SSER 14)	3.9.2
(69)	ASME Code Class 1, 2, and 3 Components, Component Structures, and Core Support Structures	Open (NRR)	(SER) (SSER 3) (SSER 4) (SSER 6) (SSER 7) (SSER 8) (SSER 15)	3.9.3
(70)	Control Rod Drive Systems	Resolved	(SER)	3.9.4
(71)	Reactor Pressure Vessel Internals	Resolved	(SER)	3.9.5
(72)	Inservice Testing of Pumps and Valves	Open (NRR)	(SER) (SSER 5) (SSER 12) (SSER 14) (SSER 18) (SSER 20)	3.9.6
(73)	Seismic and Dynamic Qualification of Seismic Category I Mechanical and Electrical Equipment	Open (NRR)	(SER) (SSER 1) (SSER 3) (SSER 4) (SSER 5) (SSER 6) (SSER 8) (SSER 9)	3.10.0
(74)	Environmental Qualification of Mechanical and Electrical Equipment	Open (NRR)	(SSER 15)	3.11.0

	<u>Issue</u>	<u>Status</u>	<u>Section</u>
(75)	Threaded Fasteners — ASME Code Class 1, 2, and 3		3.13.0
(76)	Reactor		4.0.0
(77)	Introduction		4.1.0
(78)	Fuel System Design		4.2.0
(79)	Description	Open (NRR) (SER) (SSER 13)	4.2.1
(80)	Thermal Performance	Open (NRR) (SER) (SSER 2)	4.2.2
(81)	Mechanical Performance	Open (NRR) (SER) (SSER 2) (SSER 10) (SSER 13)	4.2.3
(82)	Surveillance	Resolved (SER) (SSER 2)	4.2.4
(83)	Fuel Design Considerations	Open (NRR) (SER)	4.2.5
(84)	Nuclear Design		4.3.0
(85)	Design Basis	Open (NRR) (SER) (SSER 13)	4.3.1
(86)	Design Description	Open (NRR) (SER) (SSER 13) (SSER 15)	4.3.2
(87)	Analytical Methods	Open (NRR) (SER) (SSER 13)	4.3.3
(88)	Summary of Evaluation Findings	Open (NRR) (SER) (SSER 13)	4.3.4
(89)	Thermal-Hydraulic Design		4.4.0
(90)	Performance in Safety Criteria	Resolved (SER)	4.4.1
(91)	Design Bases	Open (NRR) (SER) (SSER 12)	4.4.2
(92)	Thermal-Hydraulic Design Methodology	Open (NRR) (SER) (SSER 6) (SSER 8) (SSER 12) (SSER 13) (SSER 16) SER dated 6/13/89	4.4.3
(93)	Operating Abnormalities	Open (NRR) (SER) (SSER 13)	4.4.4
(94)	Loose Parts Monitoring System	Open (NRR) (SER) (SSER 3) (SSER 5) (SSER 16)	4.4.5
(95)	Thermal-Hydraulic Comparison	Resolved (SER)	4.4.6
(96)	N-1 Loop Operation	Open (SER) (Inspection)	4.4.7
(97)	Instrumentation for Inadequate Core Cooling Detection (TMI Action Item II.F.2)	Open (NRR) (SER) (SSER 10)	4.4.8

	<u>Issue</u>	<u>Status</u>		<u>Section</u>
(98)	Summary and Conclusion	Open (NRR)	(SER)	4.4.9
(99)	Reactor Materials			4.5.0
(100)	Control Rod Drive Structural Materials	Resolved	(SER)	4.5.1
(101)	Reactor Internals and Core Support Materials	Resolved	(SER)	4.5.2
(102)	Functional Design of Reactivity Control Systems	Resolved	(SER)	4.6.0
(103)	Reactor Coolant System and Connected Systems			5.0.0
(104)	Summary Description	Open (NRR)	(SER) (SSER 5) (SSER 6)	5.1.0
(105)	Integrity of Reactor Coolant Pressure Boundary			5.2.0
(106)	Compliance with Codes and Code Cases	Resolved	(SER)	5.2.1
(107)	Overpressurization Protection	Resolved	(SER) (SSER 2) (SSER 15)	5.2.2
(108)	Reactor Coolant Pressure Boundary Materials	Resolved	(SER)	5.2.3
(109)	Reactor Coolant System Pressure Boundary Inservice Inspection and Testing	Open (NRR)	(SER) (SSER 10) (SSER 12) (SSER 16)	5.2.4
(110)	Reactor Coolant Pressure Boundary Leakage Detection	Open (NRR)	(SER) (SSER 9) (SSER 11) (SSER 12)	5.2.5
(111)	Reactor Vessel and Internals Modeling			5.2.6
(112)	Reactor Vessel			5.3.0
(113)	Reactor Vessel Materials	Open (NRR)	(SER) (SSER 11) (SSER 14)	5.3.1
(114)	Pressure-Temperature Limits	Open (NRR)	(SER) (SSER 16)	5.3.2
(115)	Reactor Vessel Integrity	Open (NRR)	(SER)	5.3.3
(116)	Component and Subsystem Design			5.4.0
(117)	Reactor Coolant Pumps	Resolved	(SER)	5.4.1
(118)	Steam Generators	Resolved	(SER) (SSER 1) (SSER 4)	5.4.2
(119)	Residual Heat Removal System	Open (NRR)	(SER) (SSER 2) (SSER 5) (SSER 10) (SSER 11)	5.4.3
(120)	Pressurizer Relief Tank	Resolved	(SER)	5.4.4

	<u>Issue</u>	<u>Status</u>		<u>Section</u>
(121)	Reactor Coolant System Vents (TMI Action Item II.B.1)	Open (Inspection)	(SER) (SSER 2) (SSER 12)	5.4.5
(122)	Engineered Safety Features			6.0.0
(123)	Engineered Safety Feature Materials			6.1.0
(124)	Metallic Materials	Resolved	(SER)	6.1.1
(125)	Organic Materials	Resolved	(SER)	6.1.2
(126)	Postaccident Emergency Cooling Water Chemistry	Resolved	(SER)	6.1.3
(127)	Containment Systems			6.2.0
(128)	Containment Functional Design	Open (NRR)	(SER) (SSER 3) (SSER 5) (SSER 7) (SSER 12) (SSER 14) (SSER 15)	6.2.1
(129)	Containment Heat Removal Systems	Open (NRR)	(SER) (SSER 7)	6.2.2
(130)	Secondary Containment Functional Design	Resolved	(SER) (SSER 16)	6.2.3
(131)	Containment Isolation Systems	Open (Inspection)	(SER) (SSER 3) (SSER 5) (SSER 7) (SSER 12)	6.2.4
(132)	Combustible Gas Control Systems	Open (NRR)	(SER) (SSER 4) (SSER 5) (SSER 8)	6.2.5
(133)	Containment Leakage Testing	Open (NRR)	(SER) (SSER 4) (SSER 5) (SSER 19)	6.2.6
(134)	Fracture Prevention of Containment Pressure Boundary	Resolved	(SER) (SSER 4)	6.2.7
(135)	Emergency Core Cooling System	Resolved	(SER)	6.3.0
(136)	System Design	Open (NRR)	(SER) (SSER 6) (SSER 7) (SSER 11)	6.3.1
(137)	Evaluation	Open (NRR)	(SER) (SSER 5)	6.3.2
(138)	Testing	Open (NRR)	(SER) (SSER 2) (SSER 9)	6.3.3
(139)	Performance Evaluation	Resolved	(SER)	6.3.4
(140)	Conclusions	Open (NRR)	(SER)	6.3.5

	<u>Issue</u>	<u>Status</u>		<u>Section</u>
(141)	Control Room Habitability	Open (NRR)	(SER) (SSER 5) (SSER 11) (SSER 16) (SSER 18)	6.4.0
(142)	Engineered Safety Feature (ESF) Filter Systems			6.5.0
(143)	ESF Atmosphere Cleanup Systems	Open (NRR)	(SER) (SSER 5)	6.5.1
(144)	Fission Product Cleanup System	Resolved	(SER)	6.5.2
(145)	Fission Product Control System	Resolved	(SER)	6.5.3
(146)	Ice Condenser as a Fission Product Cleanup System	Resolved	(SER)	6.5.4
(147)	Inservice Inspection of Class 2 and 3 Components	Open (NRR)	(SER) (SSER 10) (SSER 15)	6.6.0
(148)	Instrumentation and Controls			7.0.0
(149)	Introduction			7.1.0
(150)	General	Open (NRR)	(SER) (SSER 13) (SSER 16)	7.1.1
(151)	Comparison with Other Plants	Resolved	(SER)	7.1.2
(152)	Design Criteria	Open (NRR)	(SER) (SSER 4) (SSER 15)	7.1.3
(153)	Reactor Trip System	Resolved	(SER)	7.2.0
(154)	System Description	Open (NRR)	(SER) (SSER 13) (SSER 15)	7.2.1
(155)	Manual Trip Switches	Resolved	(SER)	7.2.2
(156)	Testing of Reactor Trip Breaker Shunt Coils	Resolved	(SER)	7.2.3
(157)	Anticipatory Trips	Resolved	(SER)	7.2.4
(158)	Steam Generator Water Level Trip	Open (NRR)	(SER) (SSER 2) (SSER 14)	7.2.5
(159)	Conclusions	Open (NRR)	(SER) (SSER 13)	7.2.6
(160)	Engineered Safety Features System	Open (NRR)	(SER) (SSER 13)	7.3.0
(161)	System Description	Open (NRR)	(SER) (SSER 13) (SSER 14)	7.3.1
(162)	Containment Sump Level Measurement	Resolved	(SER) (SSER 2)	7.3.2
(163)	Auxiliary Feedwater Initiation and Control	Resolved	(SER)	7.3.3
(164)	Failure Modes and Effects Analysis	Resolved	(SER)	7.3.4
(165)	IE Bulletin 80-06	Open (Inspection)	(SER) (SSER 3)	7.3.5

	<u>Issue</u>	<u>Status</u>		<u>Section</u>
(166)	Conclusions	Open (NRR)	(SER) (SSER 13)	7.3.6
(167)	Systems Required for Safe Shutdown			7.4.0
(168)	System Description	Resolved	(SER)	7.4.1
(169)	Safe Shutdown from Auxiliary Control Room	Open (NRR)	(SER) (SSER 7)	7.4.2
(170)	Conclusions	Resolved	(SER)	7.4.3
(171)	Safety-Related Display Instrumentation			7.5.0
(172)	System Description	Resolved	(SER)	7.5.1
(173)	Post-accident Monitoring System	Open (NRR)	(SER) (SSER 7) (SSER 9) (SSER 14) (SSER 15)	7.5.2
(174)	IE Bulletin 79-27	Open (Inspection)	(SER)	7.5.3
(175)	Conclusions	Open (Inspection)	(SER)	7.5.4
(176)	All Other Systems Required for Safety			7.6.0
(177)	System Description	Resolved	(SER)	7.6.1
(178)	Residual Heat Removal System Bypass Valves	Resolved	(SER)	7.6.2
(179)	Upper Head Injection Manual Control	Resolved	(SER)	7.6.3
(180)	Protection Against Spurious Actuation of Motor-Operated Valves	Resolved	(SER)	7.6.4
(181)	Overpressure Protection during Low Temperature Operation	Resolved	(SER) (SSER 4)	7.6.5
(182)	Valve Power Lockout	Resolved	(SER)	7.6.6
(183)	Cold Leg Accumulator Valve Interlocks and Position Indication	Resolved	(SER)	7.6.7
(184)	Automatic Switchover From Injection to Recirculation Mode	Resolved	(SER)	7.6.8
(185)	Conclusions	Resolved	(SER) (SSER 4)	7.6.9
(186)	Control Systems Not Required for Safety			7.7.0
(187)	System Description	Resolved	(SER)	7.7.1
(188)	Safety System Status Monitoring System	Resolved	(SER) (SSER 7) (SSER 13)	7.7.2
(189)	Volume Control Tank Level Control System	Resolved	(SER)	7.7.3
(190)	Pressurizer and Steam Generator Overfill	Resolved	(SER)	7.7.4
(191)	IE Information Notice 79-22	Resolved	(SER)	7.7.5
(192)	Multiple Control System Failures	Resolved	(SER)	7.7.6
(193)	Conclusions	Resolved	(SER)	7.7.7
(194)	Anticipated Transient Without Scram Mitigation System Actuation Circuitry (AMSAC)	Open (NRR)	(SSER 9) (SSER 14)	7.7.8
(195)	NUREG-0737 Items	Resolved	(SER)	7.8.0

	<u>Issue</u>	<u>Status</u>		<u>Section</u>
(196)	Relief and Safety Valve Position Indication (TMI Action Item II.D.3)	Open (NRR)	(SER) (SSER 5) (SSER 14)	7.8.1
(197)	Auxiliary Feedwater System Initiation and Flow Indication (TMI Action Item II.E.1.2)	Open (Inspection)	(SER)	7.8.2
(198)	Proportional Integral Derivative Control Modification (TMI Action Item II.K.3.9)	Open (Inspection)	(SER)	7.8.3
(199)	Proposed Anticipatory Trip Modification (TMI Action Item II.K.3.10)	Open (Inspection)	(SER) (SSER 4)	7.8.4
(200)	Confirm Existence of Anticipatory Reactor Trip Upon Turbine Trip (TMI Action Item II.K.3.12)	Resolved	(SER)	7.8.5
(201)	Data Communication Systems			7.9.0
(202)	Electric Power Systems			8.0.0
(203)	General	Resolved	(SER)	8.1.0
(204)	Offsite Power System			8.2.0
(205)	Compliance with GDC 5	Resolved	(SER) (SSER 13)	8.2.1
(206)	Compliance with GDC 17	Open (NRR)	(SER) (SSER 2) (SSER 3) (SSER 13) (SSER 14) (SSER 15)	8.2.2
(207)	Compliance with GDC 18	Resolved	(SER)	8.2.3
(208)	Evaluation Findings	Resolved	(SER)	8.2.4
(209)	Onsite Power Systems	Resolved	(SER)	8.3.0
(210)	Onsite AC Power System Compliance with GDC 17	Open (NRR)	(SER) (SSER 2) (SSER 7) (SSER 9) (SSER 10) (SSER 13) (SSER 14) (SSER 18) (SSER 20)	8.3.1
(211)	Onsite DC System Compliance with GDC 17	Resolved	(SER) (SSER 2) (SSER 3) (SSER 13) (SSER 14)	8.3.2
(212)	Evaluation Findings	Open (NRR)	(SER) (SSER 2) (SSER 3) (SSER 7) (SSER 13) (SSER 14) (SSER 15) (SSER 16)	8.3.3

	<u>Issue</u>	<u>Status</u>		<u>Section</u>
(213)	Station Blackout			8.4.0
(214)	Auxiliary Systems	Resolved	(SER) (SSER 10)	9.0.0
(215)	Fuel Storage Facility			9.1.0
(216)	New-Fuel Storage	Resolved	(SER)	9.1.1
(217)	Spent-Fuel Storage	Open (NRR)	(SER) (SSER 5) (SSER 15) (SSER 16)	9.1.2
(218)	Spent Fuel Pool Cooling and Cleanup System	Open (NRR)	(SER) (SSER 11) (SSER 15)	9.1.3
(219)	Fuel-Handling System	Open (NRR)	(SER) (SSER 3) (SSER 13)	9.1.4
(220)	Water Systems			9.2.0
(221)	Essential Raw Cooling Water and Raw Cooling Water System	Open (NRR)	(SER) (SSER 9) (SSER 10) (SSER 18)	9.2.1
(222)	Component Cooling System (Reactor Auxiliaries Cooling Water System)	Open (NRR)	(SER) (SSER 5)	9.2.2
(223)	Demineralized Water Makeup System	Resolved	(SER)	9.2.3
(224)	Potable and Sanitary Water Systems	Resolved	(SER) (SSER 9)	9.2.4
(225)	Ultimate Heat Sink	Resolved	(SER)	9.2.5
(226)	Condensate Storage Facilities	Resolved	(SER) (SSER 12)	9.2.6
(227)	Process Auxiliaries			9.3.0
(228)	Compressed Air System	Resolved	(SER)	9.3.1
(229)	Process Sampling System	Open (NRR)	(SER) (SSER 3) (SSER 5) (SSER 14) (SSER 16)	9.3.2
(230)	Equipment and Floor Drainage System	Resolved	(SER)	9.3.3
(231)	Chemical and Volume Control System	Resolved	(SER)	9.3.4
(232)	Heating, Ventilation, and Air Conditioning Systems			9.4.0
(233)	Control Room Area Ventilation System	Resolved	(SER) (SSER 9)	9.4.1
(234)	Fuel-Handling Area Ventilation System	Resolved	(SER)	9.4.2
(235)	Auxiliary Building and Radwaste Area Ventilation System	Resolved	(SER)	9.4.3
(236)	Turbine Building Area Ventilation System	Resolved	(SER)	9.4.4

	<u>Issue</u>	<u>Status</u>		<u>Section</u>
(237)	Engineered Safety Features Ventilation System	Open (NRR)	(SER) (SSER 9) (SSER 10) (SSER 11) (SSER 14) (SSER 16) (SSER 19)	9.4.5
(238)	Other Auxiliary Systems			9.5.0
(239)	Fire Protection	Resolved	(SER) (SSER 10) (SSER 18) (SSER 19)	9.5.1
(240)	Communications System	Open (NRR)	(SER) (SSER 5)	9.5.2
(241)	Lighting System	Resolved	(SER)	9.5.3
(242)	Emergency Diesel Engine Fuel Oil Storage and Transfer System	Open (NRR)	(SER) (SSER 5) (SSER 9) (SSER 10) (SSER 11) (SSER 12)	9.5.4
(243)	Emergency Diesel Engine Cooling Water System	Resolved	(SER) (SSER 5) (SSER 11)	9.5.5
(244)	Emergency Diesel Engine Starting Systems	Open (NRR)	(SER) (SSER 5) (SSER 10)	9.5.6
(245)	Emergency Diesel Engine Lubricating Oil System	Open (NRR)	(SER) (SSER 3) (SSER 5) (SSER 10)	9.5.7
(246)	Emergency Diesel Engine Combustion Air Intake and Exhaust System	Open (NRR)	(SER) (SSER 5) (SSER 10)	9.5.8
(247)	Steam and Power Conversion System			10.0.0
(248)	Summary Description	Resolved	(SER)	10.1.0
(249)	Turbine Generator	Open (NRR)	(SER) (SSER 5)	10.2.0
(250)	Turbine Generator Design	Resolved	(SER) (SSER 12)	10.2.1
(251)	Turbine Disc Integrity	Resolved	(SER)	10.2.2
(252)	Main Steam Supply System	Resolved	(SER)	10.3.0
(253)	Main Steam Supply System (Up to and Including the Main Steam Isolation Valves)	Open (NRR)	(SER) (SSER 19)	10.3.1
(254)	Main Steam Supply System	Resolved	(SER)	10.3.2
(255)	Steam and Feedwater System Materials	Resolved	(SER)	10.3.3
(256)	Secondary Water Chemistry	Open (NRR)	(SER) (SSER 5)	10.3.4
(257)	Other Features			10.4.0

	<u>Issue</u>	<u>Status</u>		<u>Section</u>
(258)	Main Condenser	Resolved	(SER) (SSER 9)	10.4.1
(259)	Main Condenser Evacuation System	Resolved	(SER)	10.4.2
(260)	Turbine Gland Sealing System	Resolved	(SER)	10.4.3
(261)	Turbine Bypass System	Open (NRR)	(SER) (SSER 5)	10.4.4
(262)	Condenser Circulating Water System	Resolved	(SER)	10.4.5
(263)	Condensate Cleanup System	Resolved	(SER)	10.4.6
(264)	Condensate and Feedwater Systems	Resolved	(SER) (SSER 14)	10.4.7
(265)	Steam Generator Blowdown System	Resolved	(SER)	10.4.8
(266)	Auxiliary Feedwater System	Resolved	(SER) (SSER 14)	10.4.9
(267)	Radioactive Waste Management			11.0.0
(268)	Summary Description	Open (NRR)	(SER) (SSER 16)	11.1.0
(269)	Liquid Waste Management	Resolved	(SER) (SSER 4) (SSER 16)	11.2.0
(270)	Gaseous Waste Management	Resolved	(SER) (SSER 8) (SSER 16)	11.3.0
(271)	Solid Waste Management System	Open (NRR)	(SER) (SSER 16)	11.4.0
(272)	Process and Effluent Radiological Monitoring and Sampling Systems	Open (NRR)	(SER) (SSER 16) (SSER 20)	11.5.0
(273)	Evaluation Findings	Open (NRR)	(SER) (SSER 8) (SSER 16)	11.6.0
(274)	NUREG-0737 Items	Open (NRR)	(SER)	11.7.0
(275)	Wide-Range Noble Gas, Iodine, and Particulate Effluent Monitors (TMI Action Items II.F.1(1) and II.F.1(2))	Open (Inspection)	(SER) (SSER 5) (SSER 6)	11.7.1
(276)	Primary Coolant Outside Containment (TMI Action item III.D.1.1)	Open (NRR)	(SER) (SSER 5) (SSER 6) (SSER 10) (SSER 16)	11.7.2
(277)	Radiation Protection			12.0.0
(278)	General	Open (NRR)	(SER) (SSER 10) (SSER 14)	12.1.0
(279)	Ensuring that Occupational Radiation Doses Are As Low As Reasonably Achievable (ALARA)	Open (NRR)	(SER) (SSER 14)	12.2.0
(280)	Radiation Sources	Open (NRR)	(SER) (SSER 14)	12.3.0

	<u>Issue</u>	<u>Status</u>		<u>Section</u>
(281)	Radiation Protection Design Features	Open (NRR)	(SER) (SSER 10) (SSER 14) (SSER 18)	12.4.0
(282)	Dose Assessment	Open (NRR)	(SER) (SSER 14)	12.5.0
(283)	Health Physics Program	Open (NRR)	(SER) (SSER 10) (SSER 14)	12.6.0
(284)	NUREG-0737 Items			12.7.0
(285)	Plant Shielding	Open (NRR)	(SER) (SSER 14) (SSER 16)	12.7.1
(286)	High Range In-Containment Monitor (TMI Action Item II.F.1.(3))	Open (NRR)	(SER) (SSER 5)	12.7.2
(287)	In-Plant Radioiodine Monitor (TMI Action Item II.D.3.3)	Open (NRR)	(SER) (SSER 16)	12.7.3
(288)	Conduct of Operations			13.0.0
(289)	Organization Structure of the Applicant	Resolved	(SER) (SSER 16)	13.1.0
(290)	Management and Technical Organization	Resolved	(SER)	13.1.1
(291)	Corporate Organization and Technical Support	Resolved	(SER)	13.1.2
(292)	Plant Staff Organization	Open (NRR)	(SER) (SSER 8)	13.1.3
(293)	Training			13.2.0
(294)	Licensed Operator Training Program	Resolved	(SER) (SSER 9) (SSER 10)	13.2.1
(295)	Training for Nonlicensed Personnel	Resolved	(SER)	13.2.2
(296)	Emergency Preparedness Evaluation			13.3.0
(297)	Introduction	Open (NRR)	(SER) (SSER 13) (SSER 20)	13.3.1
(298)	Evaluations of the Emergency Plan	Open (NRR)	(SER) (SSER 13) (SSER 20)	13.3.2
(299)	Conclusions	Open (NRR)	(SER) (SSER 13) (SSER 20)	13.3.3
(300)	Review and Audit	Open (NRR)	(SER) (SSER 8)	13.4.0
(301)	Plant Procedures			13.5.0
(302)	Administrative Procedures	Open (NRR)	(SER)	13.5.1
(303)	Operating and Maintenance Procedures	Open (Inspection)	(SER) (SSER 9) (SSER 10)	13.5.2

	<u>Issue</u>	<u>Status</u>		<u>Section</u>
(304)	NUREG-0737 Items	Open (Inspection)	(SER) (SSER 3) (SSER 16)	13.5.3
(305)	Physical Security Plan	Open (NRR)	(SER) (SSER 1) (SSER 10) (SSER 15) (SSER 20)	13.6.0
(306)	Physical Security Organization			13.6.1
(307)	Physical Barriers			13.6.2
(308)	Access Requirements			13.6.3
(309)	Detection Aids			13.6.4
(310)	Communications			13.6.5
(311)	Test and Maintenance Requirements			13.6.6
(312)	Response Requirements			13.6.7
(313)	Personnel Reliability			13.6.8
(314)	Land Vehicle Bomb Control Program			13.6.9
(315)	Initial Test Program	Open (Inspection)	(SER) (SSER 3) (SSER 5) (SSER 7) (SSER 9) (SSER 10) (SSER 12) (SSER 14) (SSER 16) (SSER 18) (SSER 19)	14.0.0
(316)	Accident Analyses			15.0.0
(317)	General Discussion	Resolved	(SER)	15.1.0
(318)	Normal Operation and Anticipated Transients	Open (NRR)	(SER)	15.2.0
(319)	Loss-of-Cooling Transients	Open (NRR)	(SER) (SSER 13) (SSER 14)	15.2.1
(320)	Increased Cooling Inventory Transients	Resolved	(SER)	15.2.2
(321)	Change in Inventory Transients	Open (NRR)	(SER) (SSER 18)	15.2.3
(322)	Reactivity and Power Distribution Anomalies	Open (NRR)	(SER) (SSER 4) (SSER 7) (SSER 13) (SSER 14)	15.2.4
(323)	Conclusions	Resolved	(SER) (SSER 4)	15.2.5
(324)	Limiting Accidents	Resolved	(SER)	15.3.0
(325)	Loss-of-Coolant Accident (LOCA)	Open (NRR)	(SER) (SSER 12) (SSER 15)	15.3.1

	<u>Issue</u>	<u>Status</u>		<u>Section</u>
(326)	Steamline Break	Open (NRR)	(SER) (SSER 3) (SSER 14)	15.3.2
(327)	Feedwater System Pipe Break	Open (NRR)	(SER) (SSER 14)	15.3.3
(328)	Reactor Coolant Pump Rotor Seizure	Open (NRR)	(SER) (SSER 14)	15.3.4
(329)	Reactor Coolant Pump Shaft Break	Open (NRR)	(SER) (SSER 14)	15.3.5
(330)	Anticipated Transients Without Scram	Open (Inspection)	(SER) (SSER 3) (SSER 5) (SSER 6) (SSER 10) (SSER 11) (SSER 12)	15.3.6
(331)	Conclusions	Resolved	(SER)	15.3.7
(332)	Radiological Consequences of Accidents	Resolved	(SER)	15.4.0
(333)	Loss-of-Coolant Accident	Open (NRR)	(SER) (SSER 5) (SSER 9) (SSER 15) (SSER 18)	15.4.1
(334)	Main Steamline Break Outside of Containment	Open (NRR)	(SER) (SSER 15)	15.4.2
(335)	Steam Generator Tube Rupture	Open (NRR)	(SER) (SSER 2) (SSER 5) (SSER 12) (SSER 14) (SSER 15)	15.4.3
(336)	Control Rod Ejection Accident	Open (NRR)	(SER) (SSER 15)	15.4.4
(337)	Fuel-Handling Accident	Open (NRR)	(SER) (SSER 4) (SSER 15)	15.4.5
(338)	Failure of Small Line Carrying Coolant Outside Containment	Open (NRR)	(SER)	15.4.6
(339)	Postulated Radioactive Releases as a Result of Liquid Tank Failures	Open (NRR)	(SER)	15.4.7
(340)	NUREG-0737 Items			15.5.0
(341)	Thermal Mechanical Report (TMI Action Item II.K.2.13)	Resolved	(SER) (SSER 4)	15.5.1
(342)	Voiding in the Reactor Coolant System during Transients (TMI Action Item II.K.2.17)	Resolved	(SER) (SSER 4)	15.5.2

	<u>Issue</u>	<u>Status</u>		<u>Section</u>
(343)	Installation and Testing of Automatic Power-Operated Relief Valve Isolation System (TMI Action Item II.K.3.1) Report on Overall Safety Effect of Power-Operated Relief Valve Isolation System (TMI Action Item II.K.3.2)	Resolved	(SER) (SSER 5)	15.5.3
(344)	Automatic Trip of Reactor Coolant Pumps (TMI Action Item II.K.3.5)	Open (Inspection)	(SER) (SSER 4) (SSER 16)	15.5.4
(345)	Small-Break LOCA Methods (II.K.3.30) and Plant-Specific Calculations (II.K.3.31)	Open (Inspection)	(SER) (SSER 4) (SSER 5) (SSER 16)	15.5.5
(346)	Relative Risk of Low-Power Operation	Resolved	(SER)	15.6.0
(347)	Technical Specification	Open (NRR)		16.0.0
(348)	Quality Assurance			17.0.0
(349)	General	Resolved	(SER)	17.1.0
(350)	Organization	Resolved	(SER)	17.2.0
(351)	Quality Assurance Program	Resolved	(SER) (SSER 2) (SSER 5) (SSER 10) (SSER 13) (SSER 15)	17.3.0
(352)	Conclusions	Resolved	(SER)	17.4.0
(353)	Maintenance Rule			17.6.0
(354)	Control Room Design Review			18.0.0
(355)	General	Open (NRR)	(SER) (SSER 5) (SSER 6) (SSER 15) (SSER 16)	18.1.0
(356)	Conclusions	Open (NRR)	(SER) (SSER 16)	18.2.0

1.13 Implementation of Corrective Action Programs and Special Programs

On September 17, 1985, the NRC sent a letter to the applicant, pursuant to 10 CFR 50.54(f), requesting that the applicant submit information on its plans for correcting problems concerning the overall management of its nuclear program and for correcting plant-specific problems. In response to this letter, TVA prepared a corporate NPP that identified and proposed corrections to problems concerning the overall management of its nuclear program and a site-specific plan for Watts Bar entitled, "Watts Bar Nuclear Performance Plan" (WBNPP). TVA established 18 corrective action programs (CAPs) and 11 special programs (SPs) to address these concerns.

The NRC staff documented its review and findings concerning the WBNPP in NUREG-1232, Volumes 1 and 4. Based on its review, the staff found the general approaches of various

corrective actions to be adequate and determined that, when fully implemented, the proposed corrective actions should address the identified deficiencies for Unit 1 and should be acceptable for Unit 2, if there are no changes. However, during its evaluation, the NRC staff found that several issues required additional information before the staff could complete its review. The NRC staff stated that it would continue to review and monitor these programs and would issue a revised evaluation in a supplement to NUREG-0847. Starting in Supplement No. 5 to NUREG-0847, the NRC added a section on CAPs and SPs to provide the status of its review and TVA's implementation.

Supplements No. 5 through 20 of NUREG-0847 documented the satisfactory resolution and implementation of NPP topics for WBN Unit 1; however, no conclusions were stated for WBN Unit 2. Thus, this and future supplements will address the resolution of these NPP topics for WBN Unit 2.

In its letter dated August 3, 2007, TVA stated its intention to resolve the Unit 2 CAPs and SPs using NUREG-1232 (Volume 4), NUREG-0847, and applicable regulations. TVA also stated that, if it is necessary to modify the criteria, it will submit those changes to the NRC for review and approval.

In a letter dated January 29, 2008, TVA gave the status of these CAPs and SPs and its commitments for WBN Unit 2. TVA also provided a separate listing of those CAP and SP items requiring NRC review and approval. In this regard, TVA stated that it had evaluated these CAPs and SPs and determined that, with two exceptions (cable issues and electrical issues); they will be resolved using the methodology employed for Unit 1. In a letter dated May 29, 2008, as supplemented on January 14, 2009, TVA provided the program methods that it proposed to use to resolve these issues, which are different from the resolution used for WBN Unit 1. In this regard, TVA provided the differences and its justification for five subissues of the CAP cable issue. TVA also stated that, upon further consideration, it had decided to use the same approach as was used on Unit 1 for the electrical subissue pertaining to physical cable separation and electrical isolation.

Based on subsequent discussions with the staff, TVA has supplemented the CAP and SP summaries to provide additional information on the status of these programs, the basis for its proposed action, and the impact of these programs on other aspects of the licensing framework. In a letter dated September 26, 2008, TVA provided the summaries of the CAPs and SPs describing proposed actions, current status of licensing review, analysis of conformance, effect on the FSAR, effect on the technical specifications and technical requirements manual, items requiring verification and inspection, and the interdependencies of these issues.

The NRC staff reviewed the information provided by TVA and determined that, based on the TVA description and the staff's review (documented in NUREG-1232, Volume 4, and the applicable supplements of NUREG-0847), there is reasonable assurance that, when implemented as described, certain CAP and SP issues can be designated as acceptable for implementation at WBN Unit 2. In the September 26, 2008, letter, TVA identified and provided the bases for changes to the implementation of several CAP and SP issues. The NRC staff documented its conclusions regarding the status of the CAPs and SPs in a letter to TVA dated February 11, 2009. Section 1.13.1 provides a summary of the status.

1.13.1 Corrective Action Programs

<u>No.</u>	<u>Title</u>	<u>Program Review Status</u>
(1)	Cable Issues	Open (NRR)
	a. Silicon Rubber Insulated Cable	
	b. Cable Jamming	
	c. Cable Support in Vertical Conduit	
	d. Cable Support in Vertical Trays	
	e. Cable Proximity to Hot Pipes	
	f. Cable Pull-Bys	
	g. Cable Bend Radius	
	h. Cable Splices	
	i. Cable Sidewall Bearing Pressure	
	j. Pulling Cables Through 90° Condulet and Flexible Conduit	
	k. Computer Cable Routing System Software and Database Verification and Validation	
(2)	Cable Tray and Tray Supports	Resolved
(3)	Design Baseline and Verification Program	Resolved
(4)	Electrical Conduit and Conduit Support	Resolved
(5)	Electrical Issues	
	a. Flexible Conduit Installations	Open (NRR)
	b. Physical Cable Separation and Electrical Isolation	Open (NRR)
	c. Contact and Coil Rating of Electrical Devices	Resolved
	d. Torque Switch and Overload Relay Bypass Capability for Active Safety-Related Valves	Open (NRR)
	e. Adhesive-Backed Cable Support Mount	Resolved
(6)	Equipment Seismic Qualification	Resolved
(7)	Fire protection	Resolved
(8)	Hanger and Analysis Update Program	Resolved
(9)	Heat Code Traceability	Resolved
(10)	Heating, Ventilation, and Air-Conditioning Duct and Duct Supports	Resolved
(11)	Instrument Lines	Resolved
(12)	Prestart Test Program Plan	Resolved
(13)	Quality Assurance (QA) Records	Open (NRR)
(14)	Quality-List (Q-List)	Resolved

<u>No.</u>	<u>Title</u>	<u>Program Review Status</u>
(15)	Replacement Items Program (Piece Parts)	Open (NRR)
(16)	Seismic Analysis	Resolved
(17)	Vendor Information Program	Resolved
(18)	Welding	Resolved

1.13.2 Special Programs

<u>No.</u>	<u>Title</u>	<u>Program Review Status</u>
(1)	Concrete Quality Program	Resolved
(2)	Containment Cooling	Resolved
(3)	Detailed Control Room Design Review	Resolved
(4)	Environmental Qualifications Program	Resolved
(5)	Master Fuse List	Resolved
(6)	Mechanical Equipment Qualification	Resolved
(7)	Microbiologically Induced Corrosion	Resolved
(8)	Moderate Energy Line Break Flooding	Resolved
(9)	Radiation Monitoring System	Resolved
(10)	Soil Liquefaction	Resolved
(11)	Use-As-Is Condition Adverse to Quality	Resolved

1.14 Implementation of Applicable Bulletin and Generic Letter Requirements

From time to time, the NRC staff issues generic requirements or recommendations in the form of orders, bulletins, generic letters, regulatory issue summaries, and other documents to address certain safety and regulatory issues. These are generally termed "generic communications." The documents specify actions that should be taken by construction permit holders, applicants, or licensees, as delineated in the document. The NRC staff evaluates responses to required actions in these generic communications to determine whether safety issues are resolved or if additional actions need to be taken. The staff will also evaluate the appropriateness of implementation schedules and will complete these evaluations before issuing an OL.

By letter dated September 7, 2007, and supplemented by letters on March 20, 2008, and July 29, 2008, TVA provided a summary of the status of its responses to NRC generic communications issued before 1995 for WBN Unit 2 and its initial responses to other bulletins and generic letters issued after WBN Unit 1 was licensed, including action items under NUREG-0737 and Supplement No. 1.

The NRC staff has assessed the information presented by TVA and documented its results in letters to TVA dated May 28, 2008, and August 25, 2008. The staff's assessment categorized all generic communications as (1) already documented or otherwise resolved, (2) open because either further review is needed or inspection verification of completion or implementation needs to be conducted, and (3) "not applicable" because the technical specifications, equipment, design, specific circumstances, or special exemptions are clearly and undeniably not applicable (e.g., boiling-water reactor, Babcock and Wilcox design), or are items that apply or relate to WBN Unit 2 but do not require any further action or response.

The table below identifies open issues that should be resolved. It should be noted that, although many of the generic communications have been documented or otherwise resolved, the NRC staff has determined that there may be circumstances that could result in the need to reopen a previously closed topic.

	<u>Correspondence No.</u>	<u>Title</u>
(1)	GL 80-14	Light-Water Reactor Primary Coolant System Pressure Isolation Valves
	TVA Action:	Submit Technical Specifications for NRC Review.
	NRC Action:	Review Technical Specifications
(2)	GL 80-77	Refueling Water Level - Technical Specifications Changes
	TVA Action:	Submit Technical Specifications for NRC Review.
	NRC Action:	Review Technical Specifications
(3)	GL 82-28	Inadequate Core Cooling Instrumentation System
	TVA Action:	Open
	NRC Action:	Open
(4)	GL 83-28	Required Actions Based on Generic Implications of Salem Anticipated Transient without Scram Events (Screened into the Items 4 through 7)
(4.a)	GL 83-28 (item 3.1)	Post-Maintenance Testing (reactor trip system components)
	TVA Action:	Submit Technical Specifications for NRC Review
	NRC Action:	Review Technical Specifications

	<u>Correspondence No.</u>	<u>Title</u>
(4.b)	GL 83-28 (3.2)	Post-Maintenance Testing (All Surveillance Requirement Components)
	TVA Action	Submit Technical Specifications and NRC Review
	NRC Action	Review Technical Specifications
(4.c)	GL 83-28 (4.2)	Reactor Trip System Reliability (Preventive Maintenance and Surveillance Program for Reactor Trip Breakers)
	TVA Action	Submit Technical Specifications and NRC Review
	NRC Action	Review Technical Specifications
(4.d)	GL 83-28 (4.5)	Reactor Trip System Reliability (Automatic Actuation of Shunt Trip Attachment)
	TVA Action	Submit Technical Specifications and NRC Review
	NRC Action	Review Technical Specifications
(8)	GL 86-09	Technical Resolution of Generic Issue B-59, (N-1) Loop Operation in BWRs and PWRs
	TVA Action	Submit Technical Specifications for NRC Review.
	NRC Action	Review Technical Specifications
(9)	GL 88-20	Individual Plant Examination for Severe Accident Vulnerability
	TVA Action	Open
	NRC Action	Open
(10)	GL 88-20s1	Initiation of the Individual Plant Examination for Severe Accident Vulnerabilities — 10 CFR 50.54
	TVA Action	Open
	NRC Action	Open
(11)	GL 88-20s2	Individual Plant Examination for Severe Accident Vulnerability. Accident Management Strategies for Consideration in the Individual Plant Examination Process
	TVA Action	Open
	NRC Action	Open

	<u>Correspondence No.</u>	<u>Title</u>
(12)	GL 88-20s3	Individual Plant Examination for Severe Accident Vulnerability. Completion of Containment Performance Improvement Program and Forwarding of Insights for Use in the IPE for Severe Accident Vulnerabilities
	TVA Action	Open
	NRC Action	Open
(13)	GL 88-20s4	Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities
	TVA Action	Open
	NRC Action	Open
(14)	GL 88-20s5	Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities — 10 CFR 50.54(f)
	TVA Action	Open
	NRC Action	Open
(15)	GL 89-04	Guidelines on Developing Acceptable In-service Testing Programs
	TVA Action	The proposed approach has been approved for WBN Unit 1; the same approach will be proposed for use on WBN Unit 2 without change.
	NRC Action	Open
(16)	GL 89-21	Request for Information Concerning Status of Implementation of Unresolved Safety Issue Requirements
	TVA Action	TVA provided status of unresolved safety issues on September 26, 2008.
	NRC Action	Open
(17)	GL 90-06	Resolution of Generic Issues 70, "PORV [power-operated relief valve] and Block Valve Reliability," and 94, "Additional LTOP [low-temperature overpressure] Protection for PWRs"
	TVA Action	Submit Technical Specifications for NRC Review
	NRC Action	Review Technical Specifications

	<u>Correspondence No.</u>	<u>Title</u>
(18)	GL 92-08	Thermo-Lag 330-1 Fire Barriers
	TVA Action	The proposed approach has been approved for WBN Unit 1; the same approach will be proposed for use on WBN Unit 2 without change
	NRC Action	Open
(19)	GL 95-03	Circumferential cracking of Steam Generator (SG) Tubes
	TVA Action	The proposed approach has been approved for WBN Unit 1; the same approach will be proposed for use on WBN Unit 2 without change
	NRC Action	Open
(20)	GL 96-06	Assurance of Equipment Operability and Containment Integrity During Design-Basis Accident Conditions
	TVA Action	The proposed approach has been approved for WBN Unit 1; the same approach will be proposed for use on WBN Unit 2 without change
	NRC Action	Open
(21)	GL 97-01	Degradation of Control Rod Drive Mechanism Nozzle and Other Vessel Closure Head Penetrations
	TVA Action	The proposed approach has been approved for WBN Unit 1; the same approach will be proposed for use on WBN Unit 2 without change
	NRC Action	Open
(22)	GL 97-04	Assurance of Sufficient Net Positive Suction Head for Emergency Core Cooling and Containment Heat Removal Pumps Integrity During Design-Basis Accident Conditions
	TVA Action	The proposed approach has been approved for WBN Unit 1; the same approach will be proposed for use on WBN Unit 2 without change.
	NRC Action	Open

	<u>Correspondence No.</u>	<u>Title</u>
(23)	GL 97-05	SG Tube Inspection Techniques
	TVA Action	The proposed approach has been approved for WBN Unit 1; the same approach will be proposed for use on WBN Unit 2 without change
	NRC Action	Open
(24)	GL 97-06	Degradation of SG Internals
	TVA Action	The proposed approach has been approved for WBN Unit 1; the same approach will be proposed for use on WBN Unit 2 without change.
	NRC Action	Open
(25)	GL 98-02	Loss of Reactor Coolant Inventory and Associated Potential for Loss of Emergency Mitigation Functions While in a Shutdown Condition
	TVA Action	The proposed approach has been approved for WBN Unit 1; the same approach will be proposed for use on WBN Unit 2 without change.
	NRC Action	Open
(26)	GL 98-04	Potential for Degradation of the ECCS and the Containment Spray System after a LOCA because of Construction and Protective Coating Deficiencies and Foreign Material in Containment
	TVA Action	The proposed approach has been approved for WBN Unit 1; the same approach will be proposed for use on WBN Unit 2 without change.
	NRC Action	Open
(27)	GL 2003-01	Control Room Habitability
	TVA Action	No action or documentation is provided to show the staff has reviewed the item for WBN Unit 2, and the resolution is through submittal of a technical specification.
	NRC Action	Open

	<u>Correspondence No.</u>	<u>Title</u>
(28)	GL 2004-01	Requirements for SG Tube Inspection
	TVA Action	The proposed approach has been approved for WBN Unit 1; the same approach will be proposed for use on WBN Unit 2 without change.
	NRC Action	Open
(29)	GL 2004-02	Potential Impact of Debris Blockage on Emergency Recirculation during Design-Basis Accidents at PWRs
	TVA Action	The proposed approach has been approved for WBN Unit 1; the same approach will be proposed for use on WBN Unit 2 without change.
	NRC Action	Open
(30)	GL 2006-01	SG Tube Integrity and Associated Technical Specifications
	TVA Action	No action or documentation is provided to show the staff has reviewed the item for WBN Unit 2, and the resolution is through submittal of a technical specification.
	NRC Action	Open
(31)	GL 2006-02	Grid Reliability and the Impact on Plant Risk and the Operability of Offsite Power
	TVA Action	The proposed approach has been approved for WBN Unit 1; the same approach will be proposed for use on WBN Unit 2 without change.
	NRC Action	Open
(32)	GL 2006-03	Potentially Nonconforming Hemyc and MT Fire Barrier Configurations
	TVA Action	The proposed approach has been approved for WBN Unit 1; the same approach will be proposed for use on WBN Unit 2 without change.
	NRC Action	Open

	<u>Correspondence No.</u>	<u>Title</u>
(34)	GL 2007-01	Inaccessible or Underground Power Cable Failures that Disable Accident Mitigation Systems or Cause Plant Transients
	TVA Action	Open; Complete testing of four additional cables
	NRC Action	Open
(35)	GL 2008-01	Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems
	TVA Action	Open
	NRC Action	Open
(36)	BL 92-01 and Supplement 1	Failure of Thermo-Lag 330 Fire Barrier System to Perform its Specified Fire Endurance Function
	TVA Action	The proposed approach has been approved for WBN Unit 1; the same approach will be proposed for use on WBN Unit 2 without change.
	NRC Action	Open
(37)	BL 96-01	Control Rod Insertion Problems (PWR)
	TVA Action	The proposed approach has been approved for WBN Unit 1; the same approach will be proposed for use on WBN Unit 2 without change.
	NRC Action	Open
(38)	BL 01-01	Circumferential Cracking of Reactor Pressure Vessel (RPV) Head Penetration Nozzles
	TVA Action	The proposed approach has been approved for WBN Unit 1; the same approach will be proposed for use on WBN Unit 2 without change.
	NRC Action	Open
(39)	BL 02-01	RPV Head Degradation and Reactor Coolant Pressure Boundary Integrity
	TVA Action	The proposed approach has been approved for WBN Unit 1; the same approach will be proposed for use on WBN Unit 2 without change.
	NRC Action	Open

	<u>Correspondence No.</u>	<u>Title</u>
(40)	BL 02-02	RPV Head and Vessel Head Penetration Nozzle Inspection Program
	TVA Action	The proposed approach has been approved for WBN Unit 1; the same approach will be proposed for use on WBN Unit 2 without change.
	NRC Action	Open
(41)	BL 03-02	Leakage from RPV Lower Head Penetrations and Reactor Coolant Pressure Boundary Integrity
	TVA Action	The proposed approach has been approved for WBN Unit 1; the same approach will be proposed for use on WBN Unit 2 without change.
	NRC Action	Open
(42)	BL 04-01	Inspection of Alloy 82/182/600 Materials Used in the Fabrication of Pressurizer Penetrations and Steam Space Piping Connections at PWRs
	TVA Action	The proposed approach has been approved for WBN Unit 1; the same approach will be proposed for use on WBN Unit 2 without change.
	NRC Action	Open
(43)	BL 07-01	Security Officer Attentiveness
	TVA Action	The proposed approach has been approved for WBN Unit 1; the same approach will be proposed for use on WBN Unit 2 without change.
	NRC Action	Open
	NUREG 0737 TMI Action Items (TVA letter dated September 14, 1981 applies to all of the following NUREG 0737 issues)	
(44)	NUREG 0737 Item I.B.1.2	Independent Safety Engineering Group
	TVA Action	The proposed approach has been approved for WBN Unit 1; the same approach will be proposed for use on WBN Unit 2 without change.
	NRC Action	Open

	<u>Correspondence No.</u>	<u>Title</u>
(45)	NUREG 0737 Item I.D.1	Control Room Design Review (CRDR)
	TVA Action	The proposed approach has been approved for WBN Unit 1; the same approach will be proposed for use on WBN Unit 2 without change.
	NRC Action	Open
(46)	NUREG 0737 Item II.B.3	Post-accident Sampling
	TVA Action	Submit Technical Specifications for NRC Review
	NRC Action	Review Technical Specifications
(47)	NUREG 0737 Item II.E.4.2	Containment Isolation Dependability
	TVA Action	Submit Technical Specifications for NRC Review
	NRC Action	Review Technical Specifications
(48)	NUREG 0737 Item II.F.2	Instrumentation for Detection of Inadequate Core-Cooling
	TVA Action	Open
	NRC Action	Open
(49)	NUREG 0737 Item II.K.3.3	Reporting SV/RV Failures/Challenges
	TVA Action	Submit Technical Specifications for NRC Review
	NRC Action	Review Technical Specifications
(50)	NUREG 0737 Item II.K.3.10	Anticipatory Trip at High Power
	TVA Action	Submit Technical Specifications for NRC Review
	NRC Action	Review Technical Specifications

	<u>Correspondence No.</u>	<u>Title</u>
(51)	NUREG 0737 Item II.D.1.1	Primary Coolant Outside Containment
	TVA Action	No action or documentation is provided to show the staff has reviewed the item for WBN Unit 2, and the resolution is through submittal of a technical specification.
	NRC Action	Open
(52)	NUREG 0737 Item III.D.3.4	Control-Room Habitability
	TVA Action	The proposed approach has been approved for WBN Unit 1; the same approach will be proposed for use on WBN Unit 2 without change.
	NRC Action	Open
(53)	IEB 75-08	PWR Pressure Instrumentation
	TVA Action	The item has been approved either for both units at WBN or explicitly for WBN Unit 2; however, a change to the original approval requires submittal of the technical specifications and staff review.
	NRC Action	Review Technical Specifications
(54)	IEB 77-04	Calculation Error Affecting Performance of a System for Controlling pH of Containment Sump Water Following a LOCA
	TVA Action	The item has been approved either for both units at WBN or explicitly for WBN Unit 2; however, a change to the original approval requires submittal of the Technical Specifications and staff review
	NRC Action	Review Technical Specifications

17 QUALITY ASSURANCE

17.3 Quality Assurance Program

17.3.1 Authorization to Transfer Code Symbol Stamps

The regulations at Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to 10 CFR Part 50 require that all nuclear construction activities be conducted in accordance with established quality assurance (QA) programs. In 10 CFR 50.55a, "Codes and Standards," the NRC requires that systems and components of nuclear power reactors meet the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code). The ASME Code provides rules for the construction of boilers, pressure vessels, and nuclear components. This includes requirements for materials, design, fabrication, examination, inspection, and stamping. Items constructed in accordance with all of the applicable rules of the ASME Code are identified with the official ASME Code Symbol Stamp described in the governing section of the ASME Code. ASME has established procedures to authorize qualified organizations to perform various activities in accordance with the requirements of the ASME Code. Organizations that are authorized to use ASME Code Symbols for marking items or constructions that have been constructed and inspected in compliance with the ASME Code receive Certificates of Authorization. ASME maintains the standing of the ASME Code Symbols for the benefit of the users, the enforcement jurisdictions, and the holders of the symbols, who comply with all requirements.

Construction activities are conducted in accordance with the requirements of the ASME Code Section III, "Rules for Construction of Nuclear Facility Components." ASME Code Section III includes requirements and guidance for establishing and executing QA programs for the design, construction, operation, and decommissioning of nuclear facilities. Paragraph NCA-8110, "General," of ASME Code Section III, Subsection 8100, "Authorization to Perform Code Activities," states that "[a]uthorization to use the official Code Symbol Stamps or to certify work by other means provided in this Section (see Table NCA-8100-1) will be granted by the Society for a 3-year period pursuant to the provisions set forth in this Subarticle." Paragraph NCA-8180 provides requirements for renewal of these certificates.

Through an accreditation program, ASME awards N-stamps and Certificates of Authorization to contractors for performing nuclear construction activities. The Certificate of Authorization is recognized by the NRC as evidence that the N-stamp holder has a documented QA program that meets the requirements of Appendix B to 10 CFR Part 50. The nuclear plant constructor holding an N-stamp is required to complete N-5 Code Data Reports to certify that the required portions of the plant were constructed in accordance with ASME Code Section III and allow the applicant to document completion of the plant as part of the Owner's Section III requirements.

TVA's N-Certificate for construction of WBN Unit 2 expired in October, 1996. By letter dated February 1, 2008, as supplemented on July 2, 2008, TVA submitted a request for relief from certain requirements of the ASME Code for WBN Unit 2. TVA requested authorization to use, as an alternative, the provisions in ASME Code Case N-520-2, "Alternative Rules for Renewal of Active or Expired N-type Certificates for Plants Not in Active Construction, Section III, Division 1." Use of ASME Code Case N-520-2 would allow TVA to obtain a temporary Certificate of Authorization from ASME to complete and transfer documentation of the partially completed ASME Code Section III systems and components to the jurisdiction of a subcontractor who would be an ASME Code Section III N-Certificate Holder. The subcontractor

would complete the construction of the WBN Unit 2 systems and complete the associated N-5 Code Data Reports to certify that the required portions of the plant were constructed in accordance with ASME Code Section III and allow the applicant to document completion of the plant as part of the Owner's Section III requirements.

In its supporting safety evaluation, dated October 2, 2008, the NRC concluded that ASME Code Case N-520-2 provides an acceptable level of quality and safety to the requirements of ASME Code Section III, Subsection NCA-8100. Thus, the NRC staff authorized the use of the proposed alternative at WBN Unit 2.

APPENDIX A

CHRONOLOGY OF RADIOLOGICAL REVIEW OF WATTS BAR NUCLEAR PLANT, UNIT 2, OPERATING LICENSE REVIEW

In Supplement No. 20 to this safety evaluation report (SER), the staff of the U.S. Nuclear Regulatory Commission (NRC) provided a summary of the more significant correspondence exchanged between the NRC and the Tennessee Valley Authority (TVA or the applicant) during the review of the operating license application for Watts Bar Nuclear (WBN) Plant, Units 1 and 2.

The NRC has made these documents available through its Agencywide Documents Access and Management System (ADAMS) or the Public Document Room.

The following list of documents presents the correspondence that has occurred subsequent to the applicant's letter notifying the NRC of its decision to reactivate construction of WBN Unit 2, which had been in a deferred status under the Commission's Policy Statement on Deferred Plants. This appendix contains most of the documents that are referenced in this supplement. However, it is not a complete listing of all correspondence. The reader may obtain the complete list, along with these documents, through ADAMS.

NRC Letters and Summaries

October 22, 2007	Letter, J.E. Dyer to W.R. McCollum (TVA), regarding the NRC staff action related to resumption of plant construction and continuation of operating license application reviews. (ADAMS Accession No. ML072570319)
October 23, 2007	Letter, J. Williams to W. Campbell (TVA), requesting information the NRC staff will need for its own assessment of the status of the licensing review. (ADAMS Accession No. ML072840337)
May 8, 2008	Letter, L. Raghavan to A. Bhatnagar (TVA), providing the NRC's initial assessment of the remaining operating license review scope for WBN Unit 2. (ADAMS Accession No. ML080860026)
June 3, 2008	Letter, J. Williams to A. Bhatnagar (TVA), requesting supplemental information to support acceptance review for the Supplemental Environmental Statement. (ADAMS Accession No. ML081210270)
May 28, 2008	Letter, P. Milano to A. Bhatnagar (TVA), providing results of the staff's assessment of all generic communications items. (ADAMS Accession No. ML081490110)
June 20, 2008	Letter, J. Williams to A. Bhatnagar (TVA), forwarding environmental assessment and finding of no significant impact related to request for extension of latest construction completion date. (ADAMS Accession No. ML081500030)
July 7, 2008	Letter, J. Williams to A. Bhatnagar (TVA), forwarding Order extending construction completion date of construction permit. (ADAMS Accession No. ML081500115)
August 25, 2008	Letter, P. Milano to A. Bhatnagar (TVA), providing staff's assessment of status of TVA responses to the NRC generic communications issued before 1995. (ADAMS Accession No. ML082330421)
October 2, 2008	Letter, L. Raghavan to A. Bhatnagar (TVA), forwarding relief request authorizing use of ASME Code Case N-520. (ADAMS Accession No. ML082560373)

October 10, 2008 Letter, P. Milano to A. Bhatnagar (TVA), providing staff's assessment of status of regulatory framework for completion of construction and licensing activities. (ADAMS Accession No. ML082840361)

February 11, 2009 Letter, P. Milano to A. Bhatnagar (TVA), providing staff's assessment of regulatory framework for completion of corrective action and special programs. (ADAMS Accession No. ML090210107)

TVA Letters

August 3, 2007 Letter, W.R. McCollum, Jr., informing NRC staff of TVA's intention to reactivate and complete construction activities at WBN Unit 2. (ADAMS Accession No. ML072190047)

September 7, 2007 Letter, M. Bajestani to NRC, providing response to certain NRC bulletins and generic letters for Watts Bar Unit 2 (ADAMS Accession No. ML072570676)

September 7, 2007 Letter, M. Bajestani to NRC, providing a summary of generic communications with supplemental information on references to closure documentation where applicable. (ADAMS Accession No. ML072570678)

October 11, 2007 Letter, M. Bajestani to NRC, informing the NRC that TVA does not see the need for additional exemptions or relief, other than those discussed in the attachment to this letter and those associated with preservice and inservice inspection programs. (ADAMS Accession No. ML072910331)

December 5, 2007 Letter, M. Bajestani to NRC, notifying NRC that TVA will use the Westinghouse Eagle-21 process protection system on WBN Unit 2. (ADAMS Accession No. ML073440022)

January 29, 2008 Letter, M. Bajestani to NRC, describing the regulatory framework for the completion of construction and licensing activities for WBN Unit 2 as committed to in TVA's August 3, 2007, letter. (ADAMS Accession No. ML080320443)

February 1, 2008 Letter, M. Bajestani to NRC, requesting authorization to use ASME Code Case N-520-2 for expired N-type Certificates. (ADAMS Accession No. ML080370185)

February 15, 2008 Letter, M. Bajestani to NRC, providing Final Supplemental Environmental Impact Statement for completion and operation of WBN Unit 2, as committed to in TVA's January 29, 2008, letter. (ADAMS Accession No. ML080510469)

March 6, 2008 Letter, M. Bajestani to NRC, requests further extension of the construction permit to March 31, 2013. (ADAMS Accession No. ML080710489)

March 13, 2008 Letter, M. Bajestani to NRC, supplementing the January 29, 2008, letter on the regulatory framework tables for the SER and its supplements to allow ease of review and provide additional definitions for section status. (ADAMS Accession No. ML080770237)

March 20, 2008 Letter, M. Bajestani to NRC, providing a comprehensive list of generic communications for WBN Unit 2, reviewed and categorized by status. (ADAMS Accession No. ML080850253)

May 8, 2008 Letter, M. Bajestani to NRC, providing additional information and supersedes in its entirety TVA's March 6, 2008, request to extend the expiration date for the WBN Unit 2 Construction Permit. (ADAMS Accession No. ML081340309)

May 29, 2008 Letter, M. Bajestani to NRC, providing proposed program methods to resolve those subissues of the cable issues corrective action program that are different from those used for WBN Unit 1. (ADAMS Accession No. ML081560183)

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September 26, 2008 Letter, M. Bajestani to NRC, submitting regulatory framework for corrective action programs and special programs. (ADAMS Accession No. ML082750019)

October 30, 2008 Letter, M. Bajestani to NRC, submitting preservice inspection program plan. (ADAMS Accession No. ML083090046)

December 9, 2008 Letter, M. Bajestani to NRC, submits licensing basis preservation and construction refurbishment program plan. (ADAMS Accession No. ML083460177)

January 14, 2009 Letter, M. Bajestani to NRC, providing additional information regarding the cable issues corrective action program. (ADAMS Accession No. ML090210473)



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Supplement No. 21 to the Safety Evaluation Report for the application filed by the Tennessee Valley Authority for the license to operate Watts Bar Nuclear Plant Unit 2, Docket No. 50-391, located in Rhea County, Tennessee, has been prepared by the Office of Nuclear Reactor Regulation of the U.S. Nuclear Regulatory Commission (NRC). In Supplement No. 20, the NRC concluded that all applicable regulations and guidance as stated in the Safety Evaluation report and its Supplements were met for Watts Bar Nuclear Plant Unit 1. The purpose of this supplement is to provide information specific to the review for Watts Bar Nuclear Plant Unit 2 regarding the status of the matters remaining for resolution, which were outstanding at the time that the applicant deferred construction of Unit 2 and were not evaluated and resolved as part of the evaluation of Unit 1.

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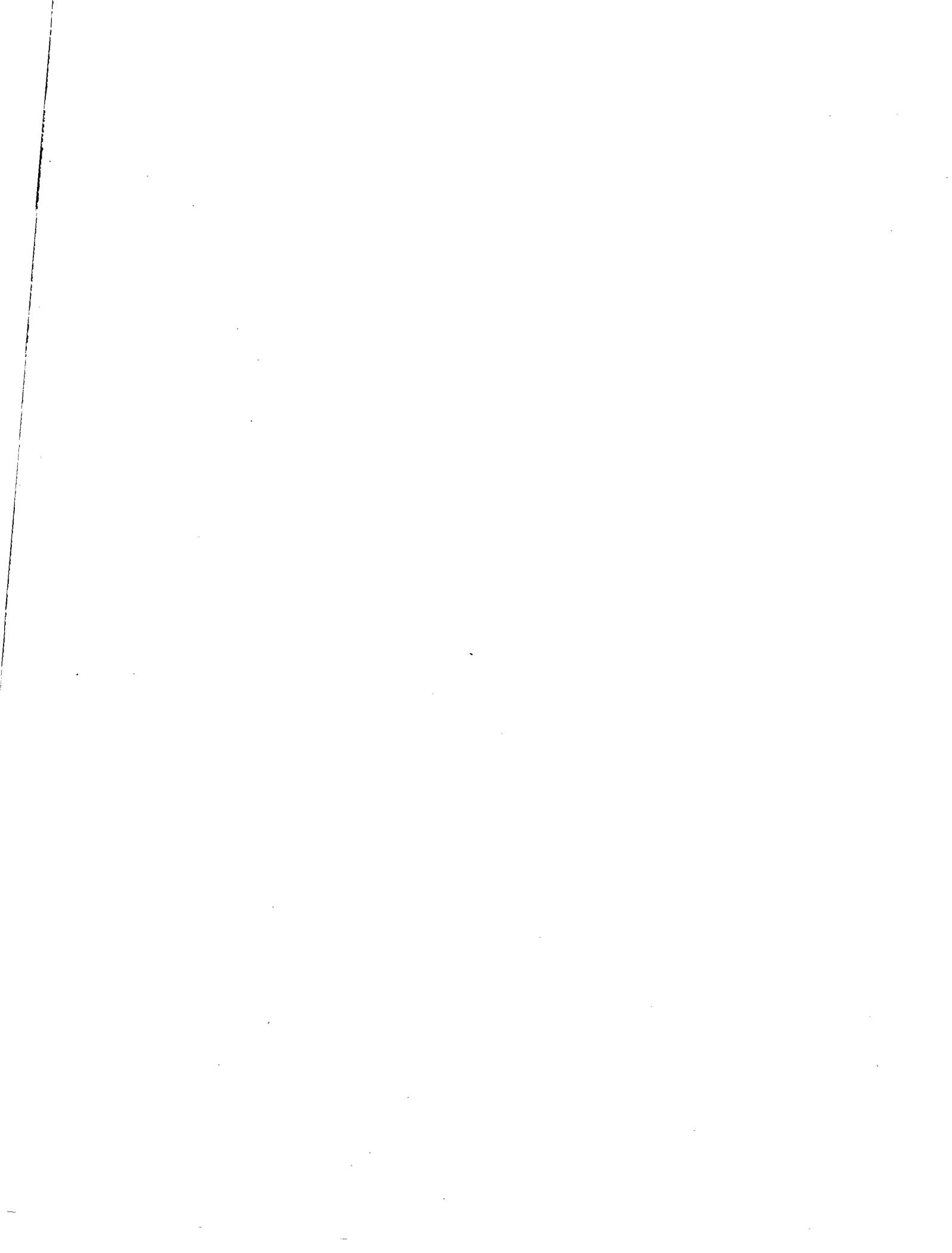
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