

Secret File



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

March 28, 1994

Docket No. 52-002

APPLICANT: ABB-Combustion Engineering, Inc. (ABB-CE)
FACILITY: System 80+
SUBJECT: SUMMARY OF MEETING TO RESOLVE NUCLEAR REGULATORY COMMISSION (NRC)
STAFF COMMENTS ON THE TECHNICAL SPECIFICATIONS FOR THE ABB-CE
SYSTEM 80+ DESIGN

On March 16 and 17, 1994, representatives of the NRC and ABB-CE met in the NRC offices in Rockville, Maryland, to resolve staff comments on the technical specifications (TS) for the System 80+ design. Enclosure 1 contains a list of attendees.

During the meeting, it was determined that the following actions will be taken to resolve the remaining issues:

1. ABB-CE will modify the TS format to be consistent with standard technical specifications (STS).
2. Concerning the combustion turbine generator (CTG), ABB-CE will (1) modify TS 3.8.1 to take credit for the CTG, (2) provide sensitivity studies to justify the modifications, and (3) include surveillance requirements for the CTG in the SSAR.
3. ABB-CE will modify TS 3.6.11 (previously TS 3.10.5) to be consistent with TS 3.9.3.
4. ABB-CE will provide additional information in the TS Bases why the containment spray system is not required to be operable in Modes 5 and 6.
5. ABB-CE may perform a PRA sensitivity study to justify removal of the alternate protection system requirement from TS.
6. ABB-CE will add LCO action statements to TS 3.8.2.
7. ABB-CE will make editorial corrections as identified in the Bases for TS 3.8.1 (comments 14 and 15).
8. ABB-CE will reevaluate the staff comment on TS 3.8.2 for automatic diesel generator loading in Modes 5 and 6 (comment 3).
9. ABB-CE will reevaluate TS 3.8.4 to determine if battery values should be revised from 100% and 125% to 125% and 150%.
10. ABB-CE will explain the basis for the 6 hour vent path restoration time in the basis section for TS 3.4.19 (previously TS 3.10.3).

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- 11. ABB-CE will include Modes 5 and 6 in the applicability for TS 3.7.7.
- 12. ABB-CE will add the graph from STS to TS 3.4.15.
- 13. ABB-CE will reevaluate under what conditions the reactor vessel level instrumentation is required to be operable in Mode 5 and modify LCO 3.10.2 as necessary.
- 14. ABB-CE will make the editorial changes to TS 5.7.2.10 and TS 5.7.2.11 as described in the staff's comments.

As stated in action 1 above, ABB-CE will modify the TS format to be consistent with STS. The Technical Specifications Branch (OTSB) will meet with ABB-CE during the week of April 4, 1994 in Windsor, Connecticut to assist ABB-CE in their effort.

ABB-CE will provide OTSB with a copy of TS, containing the incorporated resolution of staff technical comments, by April 11, 1994. This copy of TS will be used as input for the staff's audit of the System 80+ TS.

Subsequent to the audit, ABB-CE will provide the staff with a final version of TS, in STS format, with inclusion of the audit comments. At this time, the staff will verify that the TS format is correct and the disposition of the audit comments were adequately incorporated.

Enclosure 2 contains the presentation material provided by ABB-CE during the meeting.

Original Signed By:

Kristine M. Shembarger, Project Manager
 Standardization Project Directorate
 Associate Directorate for Advanced Reactors
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Enclosures:
 As stated

cc w/enclosures:
 See next page

DISTRIBUTION w/enclosure:

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MFranovich	SMagruder	TWambach	MSnodderly, 8H7
BTjader, 11E22	ACHu, 11E22	OChopra, 7E4	CThomas, 10H5
MReinhart, 11E22	CHarback, 11E22	MReardon, 11E22	JSegala, 8D2
JRaval, 8D1	WBurton, 8D1	DThatcher, 7E4	KEccleston, 10D4
MWaterman, 8H3	SSun, 8E23	SAli, 7H15	YHuang, 7H15
WScott, 12G18	WDean, EDO	EJordan, MNBB3701	WRussell/FMiraglia
ACRS (11)	JMoore, 15B18	NRR Mailroom, 12G18	

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ABB-Combustion Engineering, Inc.

Docket No. 52-002

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ABB-CE SYSTEM 80+
MEETING TO RESOLVE STAFF COMMENTS ON THE TECHNICAL SPECIFICATIONS
FOR THE SYSTEM 80+ DESIGN
MEETING ATTENDEES
MARCH 16 AND 17, 1994

<u>Name</u>	<u>Organization</u>
B. Watson	ABB-CE
J. Rec	ABB-CE
S. Ritterbusch	ABB-CE
B. Resoorl	ABB-CE
T. Williams	Duke Engineering & Services
K. Shembarger	NRR/PDST
D. Diec	NRR/SRXB
M. Snodderly	NRR/SCSB
B. Tjader	NRR/OTSB
A. Chu	NRR/OTSB
O. Chopra	NRR/EELB
C. Thomas	NRR/EELB
M. Reinhart	NRR/OTSB
C. Harbuck	NRR/OTSB
M. Reardon	NRR/OTSB
J. Segala	NRR/DSSA
J. Raval	NRR/SPLB
W. Burton	NRR/SPLB
S. Magruder	NRR/PDST
M. Franovich	NRR/PDST
D. Thatcher	NRR/EELB
R. Architzel	NRR/PDST
K. Eccleston	NRR/PRPE
M. Waterman	NRR/DRCH
S. Sun	NRR/SRXB
S. Ali	NRR/ECGB
Y. Huang	NRR/ECGB

NRC Review & Comment CESSAR-DC Chap 16 (Tech Spec)

Section 3.0 LCD APPLICABILITY

- 3.0.1 Limiting Conditions For Operation (LCOs)
- 3.0.2 Surveillance Requirements (SRs) Applicability

Section 3.1 REACTIVITY CONTROL SYSTEMS

- 3.1.1 Shutdown Margin (SDM)
- 3.1.2 [Deleted]
- 3.1.3 Reactivity Balance
- 3.1.4 Moderator Temperature Coefficient (MTC)
- 3.1.5 Control Element Assembly (CEA) Alignment
- 3.1.6 Shutdown Control Element Assembly (CEA) Insertion Limits
- 3.1.7 Regulation CEA Insertion Limits
- 3.1.8 Part Strength Control Element Assembly (CEA) Insertion Limits
- 3.1.9 Special Test Exceptions (STE) -- SHUTDOWN MARGIN (SDM)
- 3.1.10 Special Test Exceptions (STE) -- MODES 1 and 2
- 3.1.11 Special Test Exceptions (STE) -- CEDMS Testing
- 3.1.12 Boron Dilution Alarms

Section 3.2 POWER DISTRIBUTION LIMITS

- 3.2.1 Linear Heat Rate (LHR)
- 3.2.2 Planar Radial Peaking Factors (Fxy)
- 3.2.3 Azimuthal Power Tilt (Tq)
- 3.2.4 Departure From Nucleate Boiling Ratio (DNBR)
- 3.2.5 Axial Shape Index (ASI)

Section 3.6 CONTAINMENT SYSTEMS

- 3.6.1 Containment
- 3.6.2 containment Air Locks
- 3.6.3 Containment Isolation Valves
- 3.6.4 Containment Pressure
- 3.6.5 Containment Air Temperature
- 3.6.6 Containment Spray Systems
- 3.6.7 Hydrogen Analyzers
- 3.6.8 Shield Building
- 3.6.9 Annulus Ventilation System
- 3.6.10 Hydrogen Mitigation System (HMS) Igniters

Section 3.7 PLANT SYSTEMS

- 3.7.1 Main Steam Safety Valves (MSSVs)
- 3.7.2 Main Steam Isolation Valves (MSIVs)
- 3.7.3 Main Feedwater Isolation Valves (MFIIVs)
- 3.7.4 Emergency Feedwater (EFW) System
- 3.7.5 Emergency Feedwater Storage Tank (EFWST)
- 3.7.6 Secondary Specific Activity
- 3.7.7 Component Cooling Water System (CCW)
- 3.7.8 Station Service Water System (SSWS)

- 3.7.9 Ultimate Heat Sink
- 3.7.10 Fuel Storage Pool Water Level
- 3.7.11 Atmospheric Dump Valves (ADVs)
- 3.7.12 Control Complex Ventilation System
- 3.7.13 Control Room Ventilation System (CRVS)
- 3.7.14 Subsphere Building Ventilation System (SBVS)
- 3.7.15 Fuel Building Ventilation Exhaust System (FBVES)
- 3.7.16 Diesel Building Ventilation System
- 3.7.17 Essential Chilled Water System (ECW)
- 3.7.18 Main Steam Line Operational LEAKAGE
- 3.7.19 Fuel Storage Pool Boron Concentration
- 3.7.20 Spent Fuel Assembly Storage

Section 3.10 REDUCED RCS INVENTORY

- 3.10.1 Reactor Trip Circuit Breakers (RTCB)
- 3.10.2 Reduced RCS Inventory Operations - Instrumentation
- 3.10.3 Reduced RCS Inventory Operations - Vent Paths
- 3.10.4 Reduced RCS Inventory Operations - Heat Removal
- 3.10.5 Reduced RCS Inventory Operations - Containment Integrity
- 3.10.6 Reduced RCS Inventory Operations - AC Power Availability
- 3.10.7 Reduced RCS Inventory Operations - DC Distribution

Section 4.0 DESIGN FEATURES

- 4.1 Site
 - 4.1.1 Site and Exclusion Area Boundaries
 - 4.1.2 Low Population Zone
- 4.2 Reactor Core
 - 4.2.1 Fuel Assemblies
 - 4.2.2 [Control Rod] Assemblies
- 4.3 Fuel Storage
 - 4.3.1 Criticality
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Section 5.0 DESIGN FEATURES

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- 5.2 Organization
- 5.3 Unit Staff Qualifications
- 5.4 Training
- 5.5 Reviews and Audits
- 5.6 Technical Specifications (TS) Bases Control
- 5.7 Procedures, Programs, and Manuals
- 5.8 Safety Function Determination Program (SFDP)
- 5.9 Reporting Requirements
- 5.10 Record Retention
- 5.11 High Radiation Area

=====

Key: B = Bases, as in "B 3.4.1"

1.1

Definitions

NRC Comment

ABB-CE Response

None

Definitions will be revised as noted in LCO specific comments.

1.2

Logical Connectors

NRC Comment

ABB-CE Response

None

CE comment: Revise logical connector example #2 per STS (use Tabs to indent logical connectors)

1.3

Completion Times

NRC Comment

ABB-CE Response

None

None

1.4

Frequency

NRC Comment

ABB-CE Response

None

None

=====

Key: B = Bases, as in "8 3.4.1"

1.5

Legal Considerations

NRC Comment

ABB-CE Response

None

CE comment: Delete this section per 515

=====

Key: B = Bases, as in "B 3.4.1"

=====

2.1 Safety Limits

NRC Comment	ABB-CE Response
None	None

=====

2.1.1 Reactor Core Safety Limits

NRC Comment	ABB-CE Response
None	None

=====

2.1.2 Reactor Coolant System (RCS) Pressure Safety Limits

NRC Comment	ABB-CE Response
None	None

=====

2.2 Safety Limit Violations

NRC Comment	ABB-CE Response
None	None

Key: B = Bases, as in "B 3.4.1"

=====

3.0.1 Limiting Conditions For Operation (LCOs)

NRC Comment	ABB-CE Response
-----	-----
None	None

=====

3.0.2 Surveillance Requirements (SRs) Applicability

NRC Comment	ABB-CE Response
-----	-----
None	None

=====

3.0.3 ACTION

NRC Comment	ABB-CE Response
-----	-----
None	None

=====

3.1.1 Shutdown Margin (SDM)

NRC Comment	ABB-CE Response
-----	-----
None	None

=====

3.1.2 [Deleted] See ABB comment

NRC Comment	ABB-CE Response
-----	-----
None	This LCO position/number will be used for "Reactor Trip Circuit Breakers," MODE 5 (formally 3.10.1 amendment U)

Key: B = Bases, as in "B 3.4.1"

3.1.3 Reactivity Balance

NRC Comment

ABB-CE Response

None

None

3.1.4 Moderator Temperature Coefficient (MTC)

NRC Comment

ABB-CE Response

1. B 3.1.4 Move heading to top of page (prior to SR 3.1.4.2).

1. Comment accepted. Make the indicated change.

3.1.5 Control Element Assembly (CEA) Alignment

NRC Comment

ABB-CE Response

None

CE comment: Change note (B 3.1.5) to read same as 3.1.6

3.1.6 Shutdown Control Element Assembly (CEA) Insertion Limits

NRC Comment

ABB-CE Response

1. B 3.1.6 Under surveillance requirements, the first paragraph of the CEDG STS is not contained in S 80+. Why not? It adds information on the purpose of SR 3.1.6.1.

1. The first paragraph referenced in the previous comment will be added at the beginning of SYS80+ SR 3.1.6.1 bases.

2. B 3.1.6 Under Applicable Safety Analyses, last section. Why not reorganize as done in B 3.1.5?

2. Disagree, this note is correct. Bases note B 3.1.5 will be changed to agree with wording in B 3.1.6.

Key: B = Bases, as in "B 3.4.1"

3.1.7

Regulating CEA Insertion Limits

NRC Comment

ABB-CE Response

None

None

3.1.8

Part Strength Control Element Assembly (CEA) Insertion Limits

NRC Comment

ABB-CE Response

None

None

3.1.9

Special Test Exceptions (STE)-SHUTDOWN MARGIN (SDM)

NRC Comment

ABB-CE Response

None

None

3.1.10

Special Test Exceptions (STE)-MODES 1 and 2

NRC Comment

ABB-CE Response

None

None

3.1.11

Special Test Exceptions (STE)-CEDMS Testing

NRC Comment

ABB-CE Response

1. B 3.1.11 Under Applicable Safety Analyses, include description of acronym CEDMCS.

1. Control Element Drive Mechanism Control System (CEDMCS) will be inserted.

Key: B = Bases, as in '8 3.4.1⁰

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Boron Dilution Alarms

3.1.12

NRC Comment

ABB-CE Response

None

None

=====

Linear Heat Rate (LHR)

3.2.1

NRC Comment

ABB-CE Response

None

None

=====

Planar Radial Peaking Factors (Fxy)

3.2.2

NRC Comment

ABB-CE Response

None

None

=====

Azimuthal Power Tilt (Tq)

3.2.3

NRC Comment

ABB-CE Response

None

None

=====

Departure From Nucleate Boiling Ratio (DNBR)

3.2.4

NRC Comment

ABB-CE Response

None

None

=====

Key: B = Bases, as in "B 3.4.1"

3.2.5

Axial Shape Index (ASI)

NRC Comment

ABB-CE Response

None

None

3.3.1

Reactor Protective System (RPS) Instrumentation - Operating

NRC Comment

ABB-CE Response

Re: LCO 3.3.1

NRC#6)

NRC#6) Remove "operating bypass removal CHANNELS" ON LCO 3.3.1, page 3.3-1

LCO 3.3.1 and other LCOs with operating bypasses (3.3.2 and 3.3.5) is a function of a channel, not a channel. Wording of these LCOs was changed to be consistent with wording agreed to during a telephone conference with C. Schulten, M. Waterman, A. Chu of the NRC and R. Rescorl and S. Wilkosz of ABB-CE therefore, no change is required LCO 3.3.1, 3.3.2, and 3.3.5 changed to read "...associated operating bypass removal functions..."

Re: Table 3.3.1-1, Sheet 1

NRC#4) Reconcile footnotes with STS Footnote b "When any RTCB is closed" and Pressurizer pressure operating bypass

NRC#4)

The footnotes for RTCBs closed and Pressurizer Pressure Operating Bypass were removed at the request of the NRC (identified during Nov 93 meeting). The following is a justification for the removal of the footnotes:

Re: Table 3.3.1-1, Sheet 3

NRC#5) Why is the footnote that the LPD-High and DNBR-Low trips may be bypassed when less than [1E-4] RTP and not in other places?

1. RTCB - RTCBs must be closed to be in MODE 1 or 2. This footnote did not provide and information not obvious.

*** MISCELLANEOUS COMMENTS ***

Re: Table 3.3.1-1, Sheet 1

NRC#14) Items 4,6,8,9 The available values are not conservative as compared to the values listed in Table 15.0-2 assumed for the transient analysis. They appear in the "High" side. The applicant needs to justify the adequacy of these values.

2. Press Press Op. Bypass - The operating bypass cannot be inserted during MODE 1 or 2 therefore, the footnote did not provide any information useful for the MODES that LCO 3.3.1 applies, 1 and 2.

No change

Re: Table 3.3.1-1, Sheet 1

NRC#15) In the Bases section, how these values (Items 4,6,8,8) are selected should be explained.

NRC#5)

LPD-High and DNBR-Low automatic bypass is in effect in MODE 1 and 2 therefore, it should be addressed here unlike the RTCB footnote and Press Press Op. Bypass footnote described in note 5 above.

=====

Key: B = Bases, as in "B 3.4.1"

Re: Table 3.3.1-1, Sheets 1 and 3

NRC#16) Item 12 The applicant needs to provide the allowable values established in the System 80+ design or provide reasons why these values should not be included in this TS.

Re: Generic Letter 93-08, Enclosure 2 Change TS 3.3.1

NRC#18) Change TS 3.3.1 to read "As a minimum, the Reactor Trip System instrumentation channels and interlocks of Table 3.3-1 shall be OPERABLE."

NRC#21) STS has no note related to low power.

No change

*** MISCELLANEOUS COMMENTS ***

NRC#14)

The allowable values in Table 3.3.1-1 are conservative with respect to Table 15.0-2 (values assumed in the transient analysis). The Table 3.3.1-1 values are a best estimate of when the function will be initiated based on experience. These values will be calculated during the detailed design phase after equipment selection and will be included with the plant specific Tech Specs from the COL Applicant.

No change

NRC#15)

The bases for the ALLOWABLE VALUES are described in the Bases section. See B 3.3-5, Bistable Processors. This explanation is consistent with the wording used in the CE Standard Tech Specs, NUREG 1432.

No change

NRC#16)

The ALLOWABLE VALUES for Item 12, Reactor Coolant Flow - Low of Table 3.3.1-1 (Sheet 2 of 3) are not provided because the allowable values for Reactor Coolant Flow - Low have not been calculated for System 80+ and no representative values are available. These values will be calculated during the detailed design phase after equipment selection and will be included with the plant specific Tech Specs from the COL Applicant.

No change

NRC#18)

LCO 3.3.1 wording changed to agree to the wording discussed in the 1/25/94 telephone conference with C. Schulten, M. Waterman, A. Chu of the NRC and R. Rescorl and S. Wilkosz of ABB-CE therefore, no change is required.

LCO 3.3.1 changed to read "Four RPS TRIP CHANNELS and associated operating bypass removal functions for each function in Table 3.3.1-1 shall be OPERABLE."

Re: B 3.3.1

=====

Key: B = Bases, as in "B 3.4.1"

ABB-CE Comment (No NRC comment):

The Pressurizer Pressure - High bases, p. B 3.3-10 incorrectly specifies CEA Withdrawal From Low Power as the limiting RCS pressure case. This is incorrect and has been removed.

Removed "limiting RCS pressure case" from Pressurizer Pressure - High bases CEA Withdrawal From Low Power Conditions on p. B.3.3-10.

NRC#21)

The System 80+ design is different than the STS. The present low power value for SG Level - Low and RCS Flow - Low is appropriate for System 80+. No change.

3.3.2

Reactor Protective System (RPS) Instrumentation - Shutdown

NRC Comment

Re: 3.3.2

NRC#1) Bases for 3.3.2 should explain that RTCBs are closed for channel functional tests

Re: Generic Letter 93-08, Enclosure 2 Change TS 4.3.1.2

NRC#19) Make addition of the following to TS 3.3.2 "Neutron detectors are exempt from response time testing"

Re: Generic Letter 93-08, Enclosure 2 Change TS 3.3.2

NRC#20) Change TS 3.3.2 to read "The Engineered Safety Features Actuation System (ESFAS) instrumentation channels and interlocks shown in Table 3.3-3 shall be OPERABLE with their Trip Setpoints et consistent with the values shown in the Trip Setpoint column of Table 3.3-4."

ABB-CE Response

NRC#1)

Explanation that RTCBs are closed for channel functional tests have been added to the bases on both B 3.3.1 and B 3.3.2 for consistency. Change made to B 3.3.1 and B 3.3.2

NRC#19)

The statement "Neutron detectors are exempt" is included in TS SR 3.3.1.5 and TS SR 3.3.2.8. This wording is identical to the CE Standard Tech Specs NUREG 1432. No change is required.

NRC#20)

LCO 3.3.2 wording changed to agree to the wording discussed in the 1/25/94 telephone conference with C. Schulten, M. Waterman, A. Chu of the NRC and R. Rescorl and S. Wilkosz of ABB-CE therefore, no change is required

LCO 3.3.2 changed to read "Four RPS TRIP CHANNELS and associated operating bypass removal functions for each Function in Table 3.3.2-1 shall be OPERABLE."

Key: B = Bases, as in "B 3.4.1"

3.3.3 Control Element Assembly Calculators (CEACs)

NRC Comment	ABB-CE Response
None	None

3.3.4 Reactor Protective System (RPS) Logic and Trip Initiation

NRC Comment	ABB-CE Response
None	None

3.3.5 Engineered Safety Features Actuation System (ESFAS) Instrumentation

NRC Comment	ABB-CE Response
Re: 3.3.5	NRC#3)
NRC#3) Explain in Bases reason for Conditions E&F in 3.3.5	Condition E is different form F because ESFAS-1 and ESFAS-2 are not required in MODE 4 where SIAS, CSAS, CIAS, and MSIS are required in MODE 4. This is explained in the bases for LCO 3.3.5. This explanation is in the Applicable Safety Analysis and LCO sections of LCO B 3.3.5.
	No change

3.3.6 ESFAS Logic and Manual Initiation

NRC Comment	ABB-CE Response
NRC#22)	NRC#22)
Define Manual Initiation Channel.	Manual Initiation Channel is defined in the definitions section 1.1 of the Tech Specs. No change.
NRC#23)	NRC#23)
Should a selective group test be performed to verify operability of a "TRIP LEG"?	

Key: B = Bases, as in "B 3.4.1"

No. SR 3.3.6.3 verifies that each selective group of mechanical components is functional. The TRIP LEG is tested in SR 3.3.6.1.

3.3.7 Diesel Generator (DG) - Loss of Voltage Start (LOVS)

NRC Comment

ABB-CE Response

None

None

3.3.8 Alternate Protection System (APS)

NRC Comment

ABB-CE Response

Re: 3.3.8

NRC#2)

NRC#2) APS is 2/2 - Change 3.3.8 to no channel in bypass, and 72 hours to repair (consistent with BWRs)

No changes are need for TS 3.3.8 based on the following considerations:
1. The probability that a transient to occur without an automatic trip is small. The addition of the Alternate Protection System (APS) changes this probability very little.

*** MISCELLANEOUS COMMENTS ***

Re: Table 3.3.8-1

NRC#17) The applicant should indicate what are the DBAs to determine the allowable values for items 1 and 4 and indicate the specific section of CESSAR-DC, which contains the analytical results to support these values.

2. The total core damage frequency is small. The addition of the APS changes this probability very little.
3. The 31 day repair time specified in Amendment U is a reasonable time to repair a non safety system considering its small impact on the probability of a transient without a reactor trip and total core damage frequency.

4. The 31 day repair time was agreed to previously by the USNRC and ABB-CE in the Nov and Dec 1994 Tech Spec meetings. Changing the repair time to 72 hours based on what BWRs did is not applicable to System 80+. The ATWS requirements in 10 CFR 50.62 for PWRs are substantially different than the requirements for BWRs. BWR requirements not applicable to PWRs are as follows: 1) BWRs are required to have redundant scram air header exhaust valves, 2) BWRs are required to have a standby liquid control system with the capability of injecting boron into the reactor, and 3) BWRs are required to have equipment to trip the Reactor Coolant Pumps automatically during an ATWS.

5. Not allowing a APS channel to be placed in bypass increases to

Key: B = Bases, as in "B 3.4.1"

probability of a reactor trip on a single additional APS failure therefore, a failed APS should be placed in bypass.
No change

*** MISCELLANEOUS COMMENTS ***
NRC#17)

The APS is designed to initiate a reactor trip for all AOOs with a concurrent failure of the RPS to trip the reactor which cause an overpressurization of the RCS. The five AOOs have been added to the Tech Spec Bases. Of the Listed AOOs, Loss of Condenser Vacuum is the limiting event. The ARTS setpoint is based on the following requirements: 1) Above PPS setpoint, 2) Below primary safety valve opening pressure, and 3) Instrument uncertainties are considered. The AFAS setpoint is based on the following requirements: 1) Less than ESFAS low level signal used in the PPS and 2) Instrument uncertainties are considered. The CEDMCS Bus Under Voltage -Turbine Trip allowable value is not based on an AOO. This Trip uses a two state device. When the CEDMCS bus loses voltage, a Turbine Trip is generated. An Allowable value cannot be specified at this time however, it will be specified during the detailed design phase.

The APS bases have been modified to include the information described in the ABB-CE Response for ARTS and AFAS. The Allowable Value for the CEDMCS bus voltage will be changed to a relay.

3.3.9 Control Room Intake/Filtration Signal (CRIFS)

NRC Comment

Re: Comment after SR 3.3.9.4
NRC#9) CRIFS CHANNEL not defined in Bases
ABB-CE:
CRIFS is an acronym for Control Room Intake/Filtration Signal. CHANNEL as defined in section 1.1 of the Tech Specs is applicable. No change is needed.
No change

ABB-CE Response

Re: Comment after SR 3.3.9.4
NRC#9) CRIFS CHANNEL not defined in Bases
ABB-CE:
CRIFS is an acronym for Control Room Intake/Filtration Signal. CHANNEL as defined in section 1.1 of the Tech Specs is applicable. No change is needed.
No change

=====

Key: B = Bases, as in "B 3.4.1"

Re: SR 3.3.9.3
NRC#10) OUTPUT DIVISION is not defined
ABB-CE:
OUTPUT DIVISION is not a defined term therefore it should be changed to be in lower case is SR 3.3.9.3.
Output Division changed to lower case is SR 3.3.9.3.

NRC#24
Change wording on applicability to be separate lines.

Re: SR 3.3.9.3
NRC#10) OUTPUT DIVISION is not defined
ABB-CE:
OUTPUT DIVISION is not a defined term therefore it should be changed to be in lower case is SR 3.3.9.3.
Output Division changed to lower case is SR 3.3.9.3.

NRC#24)
Applicability statements put on three lines however, CRIFS does not need to be OPERABLE in MODES 5 and 6 unless there are core alterations. This is consistent with ESFAS OPERABILITY in LCO 3.3.5.

The wording on conditions C and D is confusing, as written in Amendment U. MODES 5 and 6 taken fora condition because CRIFS only needs to be OPERATIONAL during core alterations.

3.3.10 Containment Bypass Instrumentation (Steam Generator Tube Rupture)

NRC Comment

ABB-CE Response

None

None

3.3.11 Post Accident Monitoring Instrumentation (PAMI)

NRC Comment

ABB-CE Response

Re: Table 3.3.11-1
NRC#11) Footnote b should include radial enthalpy distribution.

NRC#11)
The MEASUREMENT CHANNEL footnote is worded identically to the CE Standard Tech Specs, NUREG 1432 except for the addition of the word measurement that the NRC requested. There is no requirement to do enthalpy calculations during Post Accident Monitoring. The bases section explains that evaluations are performed to ensure radial distribution of the minimum number of detectors per quadrant. The Definition of MEASUREMENT CHANNEL in section 1.1 of the Tech Specs will

Key: B = Bases, as in "B 3.4.1"

be changed to accommodate instrumentation without a trip function (e.g. PAMI). The words "of a TRIP CHANNEL" will be removed for the definition of MEASUREMENT CHANNEL.

B 3.3.11 changed to indicate that an evaluation to determine the minimum number of CETs is performed.

MEASUREMENT CHANNEL definition changed.

3.3.12 Remote Shutdown Instrumentation and Controls

NRC Comment

Re: Table 3.3.12-1

NRC#12) Remove CVCS Charging Flow, CVCS Charging Pressure, Boric Acid Storage Tank Level, Pressurizer Auxiliary Spray Valve Controls, Charging Pump Control, and Letdown Isolation Valve Controls from Table 3.3.12-1.

Re: SR 3.3.12.1 and SR 3.3.12.3

NRC#13) SR 3.3.12.1 CHANNEL CHECK ? and SR 3.3.12.3 CHANNEL CALIBRATION ?

NRC#25)

Clarify use of "division" vs "channel".

NRC#26)

SR 3.3.12.1 ? SR 3.3.12.3 circled

ABB-CE Response

NRC#12)

Items removed in Amendment U therefore, no changes are required. No change

NRC#13)

SR 3.3.12.1 Changed instrumentation CHANNEL to MEASUREMENT CHANNEL therefore, a CHANNEL CHECK is appropriate.

SR 3.3.12.1 a CHANNEL CALIBRATION is needed on all MEASUREMENT CHANNELS, therefore no change is needed.

SR 3.3.12.1 Changed instrumentation CHANNEL to MEASUREMENT CHANNEL

SR 3.3.12.3 No change

NRC#25)

Use division at the recommendation of USNRC during 12/93 TS meeting. This is consistent with the ABWR wording. No change.

NRC#26)

SR 3.3.12.1 and SR 3.3.12.3 are appropriate, the NRC comment is not clear as to its purpose. No change.

Key: B = Bases, as in "B 3.4.1"

3.3.13

Logarithmic Power Monitoring CHANNELS

NRC Comment

ABB-CE Response

None

None

3.3.14

Reactor Coolant Monitoring Instrumentation

NRC Comment

ABB-CE Response

None

RESTRUCTURE

This LCO will be added per restructure (formally LCO 3.10.2, with revisions).

3.4.1

RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits

NRC Comment

ABB-CE Response

None

None

3.4.2

RCS Minimum Temperature for Criticality

NRC Comment

ABB-CE Response

None

None

3.4.3

RCS Pressure and Temperature (P/T) Limits

NRC Comment

ABB-CE Response

None

None

Key: B = Bases, as in "B 3.4.1"

=====

3.4.4 RCS Loops - MODES 1 and 2

NRC Comment	ABB-CE Response
-----	-----
None	None

=====

3.4.5 RCS Loops - MODE 3

NRC Comment	ABB-CE Response
-----	-----
None	None

=====

3.4.6 RCS Loops - MODE 4

NRC Comment	ABB-CE Response
-----	-----
1. Condition B Completion Times. Change B.2 to 24 hours instead of 25 hours.	1 -- 5 Agree, incorporated Amendment U.
2. Condition C. add: " or required RCS Loop or SCS Division inoperable".	
3. LCO statement. Change "Two RCS loops/Shutdown Cooling Sytem (SCS) divisions..." to "Two RCS loops or Shutdown Cooling Systems (SCSs).	
4. Required Action B.1. Preface with "Initiate action to" or delete B.1.	
5. Completion Time B.1. Change 1 hour to Immediately.	

Key: B = Bases, as in "B 3.4.1"

3.4.7

RCS Loops - MODE 5 (Loops Filled)

NRC Comment

ABB-CE Response

1. LCO statement b. Add ", and a Containment Spray Pump can be manually realigned to meet the requirement of a SCS pump."
2. LCO NOTE 2. Why no limit on Prssurizer Level?
3. Condition B. Change "No SCS division OPERABLE" to "Required SCS division INOPERABLE".
4. B 3.4.7 Change second paragraph on page B 3.4-31 so that it is consistent with the LCO.
5. B 3.4.7 Change the wording of the third paragraph.
6. B 3.4.7 under BACKGROUND, top of page B 3.4-32, change "load" to "to increase".
7. B 3.4.7 LCO bases. Change wording as per markup.
8. B 3.4.7, page B 3.4-33, second paragraph. Delete reference to MODES 3 AND 4.
9. B 3.4.7, page B 3.4-34, ACTION B.2 and B.2. Add: "Preventing Boron dilution requires forced circulation for proper mixing, and the margin to criticality must not be reduced in this type of operation."
10. B 3.4.7, page B 3.4-35, SR 3.4.7.2. Change: "number of loops/division" to "SCS division or RCS loops".
11. B 3.4.7, page B 3.4-35, SR 3.4.7.2. Add: ", or pump status".

1. Incorporate comment by putting statement in NOTES not as part of the LCO. See 3.4.8 NOTE 3.
2. Agree, incorporated Amendment U.
3. Agree, incorporated Amendment U.
4. Agree, incorporated Amendment U.
5. Agree, incorporated Amendment U.
6. Agree, incorporated Amendment U.
7. Agree, incorporated Amendment U.
8. Agree, incorporated Amendment U.
9. Agree, incorporated Amendment U.
10. Agree, incorporated Amendment U.
11. Agree, incorporated Amendment U.
12. Agree, will revise per comment.

=====

Key: B = Bases, as in "B 3.4.1"

12. B 3.4.7, page B 3.4-29. Change the bases for NOTE 3 to be consistent with LCO 3.4.7, NOTE 3.

3.4.8 RCS Loops - MODE 5 (Loops Not Filled)

NRC Comment

ABB-CE Response

1,2,3. LCO NOTE 2, add, "provided: a) T exit is maintained > 10 degrees F below T sat. b) No operations that would cause a reduction of RCS boron concentration are permitted. c) No draining operations that further reduce the RCS water volume are permitted.

1,2,3 Agree, incorporated Amendment U.

4. Agree, will revise per comment

CE comment: 3.4.8 will be revised to incorporate requirements for Containment Spray Pump during REDUCED INVENTORY. See mark-up.

4. 3. Condition B. Change "No SCS division OPERABLE" to "Required SCS division INOPERABLE".

3.4.9 Pressurizer

NRC Comment

ABB-CE Response

None

None

3.4.10 Pressurizer Safety Valves

NRC Comment

ABB-CE Response

None

None

Key: B = Bases, as in "B 3.4.1"

3.4.11 Low Temperature Overpressure Protection (LOTP) System

NRC Comment	ABB-CE Response
-----	-----
None	None

3.4.12 RCS Operational Leakage

NRC Comment	ABB-CE Response
-----	-----
None	None

3.4.13 RCS Pressure Isolation Valve (PIV) Leakage

NRC Comment	ABB-CE Response
-----	-----
None	None

3.4.14 RCS Leakage Detection Instrumentation

NRC Comment	ABB-CE Response
-----	-----
None	None

3.4.15 RCS Specific Activity

NRC Comment	ABB-CE Response
-----	-----
1. REQUIRED ACTION A.1. This parameter is power dependent. Should refer to STS figure 3.4.16.1.	1. 60 uci/gm is correct based on CESSAR DC chapter 15A 2.2 and 2.3. It states that the TS limit on primary activity is 1 uci/gm I-131 and that the pre-accident iodine spiking concentrations are determined by increasing the primary coolant iodine concentrations to 60 times the
2. REQUIRED ACTION B.1. What limits? 60 uci/gm or 1.0	

=====

Key: B = Bases, as in "B 3.4.1"

uc/gm?

3. REQUIRED ACTION B.1. 3.4.15.2 only refers to DE I-131, not gross activity.

4. In general the TSs proposed by CE with respect to RCS Specific Activity are unacceptable. Some specific comments are noted with markers. In general, the TS should follow the CEOG STS (attached). What CE has proposed is not acceptable.

5. For example, Action Conditions C, specifies that if Dose Equivalent I-131 is ≤ 60 uci/gm, shutdown with T avg < 500 degrees F is required within 6 hours. In general, the proposed TSs are unacceptable.

6. In general, these TSs are unacceptable. They need to be made consistent with CEOG STS. They are presently not at all in keeping with the STS. (see attached CEOGSTS pages) K.Eiclestan 504-1081.

maximum value described in the TSs. This is more restrictive than STS.

2. "Within limit" refers to ≤ 1.0 uci/gm, which is the LCO. This is consistent with STS.

3. Reorder ACTIONS per STS.

4. Reformat per STS.

5. Agree, CONDITION B and C will be swithed. Change \leq sign prior to 60 uci/gm to $>$.

6. Reorder per STS.

3.4.16 RCS Loops - Test Exception

NRC Comment

None

ABB-CE Response

None

3.4.17 Reactor Coolant Gas Vent System

NRC Comment

None

ABB-CE Response

None

Key: B = Bases, as in "B 3.4.1"

3.4.1B Rapid Depressurization Function

NRC Comment

ABB-CE Response

None

None

3.4.1B Vent Paths -- Reduced Inventory Operations

NRC Comment

ABB-CE Response

RESTRUCTURE
LCO 3.4.19 add (formally 3.10.3).

3.5.1 Safety Injection Tanks (SITs)

NRC Comment

ABB-CE Response

1. SR 3.5.1.1, page 3.5.2. The comment states that, "The numbers are different here." The numbers in question are SIT volume and pressure surveillance limits. The meaning of the comment is not clear. Reviewer should clarify.

1. Numbers are correct as stated per CESSAR.

3.5.2 Safety Injection System (SIT) - Operating

NRC Comment

ABB-CE Response

None

None

Key: B = Bases, as in "B 3.4.1"

3.5.3 Safety Injection Tanks (SIS) - Shutdown

NRC Comment

ABB-CE Response

- 1. Under APPLICABILITY, MODE 6. When RCS level < [120' - 0"] should be ≤ [120' - 0"].
- 2. Need reference on Shutdown Risk Evaluation Report CESSAR - DC Section 19.8A.

- 1. Disagree, 120' is acceptable and consistent with other system operability requirements.
- 2. Incorporated Amendment U.

3.5.4 In-containment Refueling Water Storage Tank (IRWST)

NRC Comment

ABB-CE Response

- 1. Under APPLICABILITY, MODE 6. When RCS level < [120' - 0"] should be ≤ [120' - 0"].
- 2. Add REQUIRED ACTION C.3, "Restore IRWST to operable status".
- 3. Add COMPLETION TIME for C.3, "Prior to any operations that would reduce water level in the RCS."

- 1. Disagree, 120' is acceptable and consistent with other system operability requirements.
- 2. Incorporated Amendment U.

3.5.5 Trisodium Phosphate (TSP)

NRC Comment

ABB-CE Response

- 1. BASES BACKGROUND, page B 3.5-22. In reference to TSP, should this be "trisodium phosphate" or trisodium phosphate dodecahydrate?"
- 2. BASES BACKGROUND, page B 3.5-22, third paragraph. Add "Stress Corrosion Cracking" prior to acronym (SCC).

- 1. Dodecahydrate will be incorporated throughout.
- 2. Description of SSC will be added.
- 3. Revise per comment.
- 4. Revise per comment.

=====

Key: B = Bases, as in "B 3.4.1"

3. BASES ACTIONS, page B 3.5-24, A.1., end of first paragraph. Change "corrections" to "corrective actions".

5. Revise per comment.

4. BASES ACTIONS, page B 3.5-24, A.1., end of second paragraph. Change "components" to "variables".

5. BASES LCO, page B 3.5-23, following first paragraph. Insert, "The minimum required amount of TSP is the amount which when dissolved would produce pH >= 7.0, assuming the highest volume of borated water in the HVT and the lowest initial pH. For TSP..."

3.5.6

Cavity Flooding System (CFS)

NRC Comment

ABB-CE Response

None

None

3.6.1

Containment

NRC Comment

ABB-CE Response

None

None

3.6.2

Containment Air Locks

NRC Comment

ABB-CE Response

None

None

Key: B = Bases, as in "B 3.4.1"

3.6.3

Containment Isolation Valves

NRC Comment

ABB-CE Response

None

None

3.6.4

Containment Pressure

NRC Comment

ABB-CE Response

None

None

3.6.5

Containment Air Temperature

NRC Comment

ABB-CE Response

None

None

3.6.6

Containment Spray System

NRC Comment

ABB-CE Response

1. BASES APPLICABILITY, page B 3.6-29, second paragraph. SCSB feels at least one Containment Spray Train should be available during MODES 5 and 6.

1. Analysis shows that System 80+ does not require CS in MODE 5 and 6. Reference Appendix 19.8A Shutdown Risk Evaluation Report - Section 2.5 Primary/Secondary Containment Capability and Source Term.

3.6.7

Hydrogen Analyzers

NRC Comment

ABB-CE Response

None

None

=====

Key: B = Bases, as in "B 3.4.1"

3.6.8 Shield Building

NRC Comment

ABB-CE Response

None

None

3.6.9 Annulus Ventilation System

NRC Comment

ABB-CE Response

None

None

3.6.10 Hydrogen Mitigation System (HMS)

NRC Comment

ABB-CE Response

None

None

3.6.11 Containment Penetrations

NRC Comment

ABB-CE Response

RESTRUCTURE

This LCO added per restructure (formally 3.10.5).

3.7 Nuclear Annex Ventilation System

NRC Comment

ABB-CE Response

1. The Nuclear Annex Ventilation System serves safety-related areas. Therefore, provide your rationale for not providing the TS for the system.

1. The Nuclear Annex Ventilation System does not perform any safety-related function. The Air Handling Units (AHUs) for the Safety-related pump rooms and the electrical areas are 1E powered and perform safety-

Key: B = Bases, as in "B 3.4.1"

functions. Those AHUs are part of the Essential Cooling Water System (ECWS).

3.7.1 Main Steam Safety Valves (MSSVs)

NRC Comment

ABB-CE Response

1. BASES BACKGROUND, page B 3.7-1, second paragraph. Add the following, "The maximum system overpressure is calculated based on maximum allowable tolerance on the MSSV setpoints."

1. Agree, incorporate per comment.

3.7.2 Main Steam Isolation Valves (MSIVs)

NRC Comment

ABB-CE Response

None

None

3.7.3 Main Feedwater Isolation Valves (MFIVs)

NRC Comment

ABB-CE Response

None

None

3.7.4 Emergency Feedwater (EFW) System

NRC Comment

ABB-CE Response

None

None

Key: B = Bases, as in "B 3.4.1"

3.7.5 Emergency Feedwater Storage Tank (EFWST)

NRC Comment

1. Provide justification for how 350,000 gallons in the LCO section of the System 80+ TS can maintain the plant in Mode 3 for 8 hours when 350,000 gallons in the STS can only maintain the plant in MODE 3 for 4 hours. See markup page B 3.7-23.

2. In the LCO section, provide the EFWST tank level that equates to a usable volume of 350,000 gallons.

ABB-CE Response

1. System 80+ analysis have shown that there is actually sufficient usable EFWST volume to maintain hot standby for at least 8 hours.

2. Wording is consistent with STS (NUREG 1432).

3.7.6 Secondary Specific Activity

NRC Comment

1. BASES BACKGROUND, page B 3.7-25, third paragraph, second sentence. Insert; "failure" after "The steam line".

2. LCO BACKGROUND, page B 3.7-26, first paragraph, second line. Change "contain" to "limit".

3. APPLICABILITY BACKGROUND, page B 3.7-26, first paragraph. Applicability in Modes 1,2,3 and 4 should not be qualified by saying "whenever using the SGs for RCS heat removal".

ABB-CE Response

1. Agree, revise per comment.

2. Agree, revise per comment.

3. Agree, revise per comment.

3.7.7 Component Cooling Water (CCW) System

NRC Comment

1. Verify the information contained in the Basis is consistent with the latest version of CESSAR Section 9.2.2.

ABB-CE Response

1. The requested verification has been performed. The information in the two documents is in agreement. Therefore, no changes are

=====

Key: B = Bases, as in "B 3.4.1"

2. Section 3.7.7, "Component Cooling Water System," is only applicable during Modes 1, 2, 3, and 4. Therefore, Section 3.7.x, "Component Cooling Water System - Refueling" should be added to the System 80+ Technical Specifications to cover Modes 5 and 6 with water level in the refueling cavity >= 23 ft above the reactor pressure vessel flange. A copy of the draft STS version of this section is provided in the attachment. Also, provide the BASES for this section.

3. Section 3.7.7, "Component Cooling Water System," is only applicable during Modes 1, 2, 3, and 4. Therefore, Section 3.7.x, "Component Cooling Water System - Shutdown" should be added to the System 80+ Technical Specifications to cover Modes 5 and 6 with water level in the refueling cavity < 23 ft above the reactor pressure vessel flange. A copy of the draft STS version of this section is provided in the attachment. Also, provide the BASES for this section.

necessary.

2. Under APPLICABILITY, the following will be added, "In MODE 5 and 6 the requirements for Component Cooling Water (CCW) are determined by the system(s) it supports." Derived from CEQG STS Bases for 3.7.7 BASES, APPLICABILITY, page B 3.7-30.

3. Under APPLICABILITY, the following will be added, "In MODE 5 and 6 the requirements for Component Cooling Water (CCW) are determined by the system(s) it supports." Derived from CEQG STS Bases for 3.7.7 BASES, APPLICABILITY, page B 3.7-30.

3.7.8 Station Service Water System (SSWS)

NRC Comment

1. Justify the omission of the SR for verifying each SSWS automatic valve in the flow path actuates to the correct position on an actual or simulated actuation signal with a frequency of [18] months.

2. Section 3.7.8, "Station Service Water System," is only applicable during Modes 1, 2, 3, and 4. Therefore, Section 3.7.x, "Station Service Water System - Refueling" should be added to the System 80+ Technical Specifications to cover Modes 5 and 6 with water level in the refueling cavity >= 23 ft above the reactor pressure vessel flange. A copy of the draft STS version of this section is provided in the attachment. Also, provide the BASES for this section.

ABB-CE Response

1. SR 3.7.8.1 Verify each SWS automatic valve in the flow path actuates to the correct position on an actual or simulated actuation signal...every [18] months, and the associated bases will be added to 3.7.8.

2. Under APPLICABILITY, the following will be added, "In MODE 5 and 6 the requirements for Station Service Water System (SSW) are determined by the system(s) it supports." Derived from CEQG STS Bases for 3.7.8 BASES, APPLICABILITY, page B 3.7-41.

3. Under APPLICABILITY, the following will be added, "In MODE 5 and 6 the requirements for Station Service Water System (SSW) are determined by the system(s) it supports." Derived from CEQG STS Bases for 3.7.8

Key: B = Bases, as in "B 3.4.1"

BASES, APPLICABILITY, page B 3.7-41.

3. Section 3.7.8, "Station Service Water System," is only applicable during Modes 1, 2, 3, and 4. Therefore, Section 3.7.x, "Station Service Water System - Shutdown" should be added to the System 80+ Technical Specifications to cover Modes 5 and 6 with water level in the refueling cavity < 23 ft above the reactor pressure vessel flange. A copy of the draft STS version of this section is provided in the attachment. Also, provide the BASES for this section.

3.7.9 Ultimate Heat Sink

NRC Comment

- 1. Provide data for UHS water level i. SR 3.7.9.1, the LCO, and the Basis.
- 2. In the APPLICABILITY section, include the note that states "In Modes 5 and 6, the operability requirements of the UHS are determined by the system(s) it supports."

ABB-CE Response

- 1. UHS level is a site specific design detail that will be provided by COL applicant.
- 2. Under APPLICABILITY, the following will be added, "In MODE 5 and 6 the requirements for Ultimate Heat Sink (UHS) are determined by the system(s) it supports." Derived from CEOG STS Bases for 3.7.9 BASES, APPLICABILITY.

3.7.10 Fuel Storage Pool Water Level

NRC Comment

- 1. BASES, SURVEILLANCE REQUIREMENTS, page B 3.7-41, first paragraph, third line. The 7 day Frequency "is" (instead of "in" appropriate....

ABB-CE Response

- 1. Agree, incorporate per comment.

Key: B = Bases, as in "B 3.4.1"

3.7.11 Atmospheric Dump Valves (ADVs)

NRC Comment

ABB-CE Response

None

None

3.7.12 Control Complex Ventilation System

NRC Comment

ABB-CE Response

1. The fourth paragraph in the "BACKGROUND" should state "radioactive iodines from all of the return air and delivers..." See markup page B 3.7-45.
2. Provide rationale for deleting the last four original paragraphs from the "BACKGROUND" or reinstate those as applicable. See markup page B 3.7-46.
3. The Control complex emergency operation temperature in the "APPLICABLE SAFETY ANALYSES" should be between 73 degrees F and 78 degrees F (not 65 degrees F and 85 degrees F). See markup page B 3.7-46.

1. Agree, revise per comment.
2. Agree, revise per comment.
3. Agree, revise per comment using brackets, [].

3.7.13 Control Room Ventilation System (CRVS)

NRC Comment

ABB-CE Response

None

None

Key: B = Bases, as in "B 3.4.1"

3.7.14 Subsphere Building Ventilation Exhaust System (SBVS)

NRC Comment

- 1. You have stated that RCS level and reactor vessel level as equal to or greater than 120 feet - 0 inches. Explain the proposed reference. See markup page 3.7-24.
- 2. "SURVEILLANCE REQUIREMENTS" under Bases should state that the system is designed to maintain a slight negative pressure with respect to atmosphere. See markup page B 3.7-55.

ABB-CE Response

- 1. SBVS operability requirements are consistent with S.I. pump operability.
- 2. The SBVS is designed to maintain a slight negative pressure in the SIS Pump Room with respect to adjacent areas to prevent unfiltered leakage, not with respect to the atmosphere (assuming the outside atmosphere).

3.7.15 Fuel Building Ventilation Exhaust System (FBVES)

NRC Comment

- 1. Provide your rationale for deleting the "CEOG STS Actions Condition B." See markup page 3.7-26.
- 2. Revise CESSAR-DC Section 9.4.2.2, last paragraph, to reflect the "SURVEILLANCE REQUIREMENT 3.7.15.4" data (0.1 inches WG) concerning the negative pressure. See markup page 3.7-27.

ABB-CE Response

- 1. FBVES is not required in MODE 1 - 4, therefore Condition B of STS was deleted. STS required operability in MODES 1 - 4 to provide fission product removal associated with ECCS leaks due to LOCA for plants that use this system as part of their ECCS pump room exhaust air cleanup system. System 80+ does not use FBVES for ECCS pump room cleanup. Therefore, this condition is not required.
- 2. The CESSAR states "maintain a negative pressure". It does not include a specific value for surveillance purposes. The value will be determined in the detailed system design phase. The Tech Spec SR will be modified to indicate that the value will be supplied as part of the detailed design.

Key: B = Bases, as in "B 3.4.1"

=====

3.7.16 Diesel Building Ventilation Sytem.

NRC Comment

ABB-CE Response

None

None

=====

3.7.17 Essential Chilled Water System (ECW)

NRC Comment

ABB-CE Response

See comment on Nuclear Annex Ventilation System.

CE comment: The Nuclear Annex Ventilation System does not perform any safety-related function. The Air Handling Units (AHUs) for the Safety-related pump rooms and the electrical areas are 1E powered and perform safety-functions. Those AHUs are part of the Essential Cooling Water System (ECWS).

=====

3.7.18 Main Steam Line Operational LEAKAGE

NRC Comment

ABB-CE Response

None

None

=====

3.7.19 Fuel Storage Pool Boron Concentration

NRC Comment

ABB-CE Response

None

None

Key: B = Bases, as in "B 3.4.1"

3.7.20

Spent Fuel Assembly Storage

NRC Comment

ABB-CE Response

1. BASES Surveillance Requirements, page B 3.7-73. Include reference to TS section 9.3 (fuel Storage).

1. Disagree, references are reserved for supporting documentation outside of Tech Specs.

3.8.1

AC Sources - Operating

NRC Comment

ABB-CE Response

- 1. Editorial - SR 3.8.1.2, last paragraph. Delete "the following".
- 2. SR 3.8.1.6 Frequency. Change 31 days to 92 days.
- 3. Editorial - SR 3.8.1.11, c.5. Move "shutdown" to before "loads". Should read: "supplies permanently connected and auto-connected shutdown loads for >= [5] minutes."
- 4. SR 3.8.1.15, Note #1. Remove "not".
- 5. Editorial - SR 3.8.1.17. Remove the brackets.
- 6. Editorial - SR 3.8.1.20. Change [4756] volts to [4576] volts.
- 7. BASES, page B 3.8-1. Include reference to 10CFR50, Appendix A prior to General Design Criterion.
- 8. BASES BACKGROUND, page B 3.8-2, following first paragraph. Add the following: "Following the trip of offsite power, [a sequencer/an undervoltage signal] strips nonpermanent loads from the ESF bus. When the DG is connected to the ESF bus, loads are then sequentially

- 1. Agree, revise per comment.
- 2. Agree, revise to be consistent with STS.
- 3. Agree, revise per comment.
- 4. Agree, revise per comment.
- 5. Agree, revise per comment.
- 6. Agree, revise per comment.
- 7. Agree, revise per comment.
- 8. Agree, revise per comment.
- 9. Agree, revise per comment.
- 10. Agree, revise per comment.
- 11. Agree, revise per comment.
- 12. Agree, revise per comment.

=====

Key: B = Bases, as in "B 3.4.1"

connected to its respective ESF bus by the automatic load sequencer. The sequencing logic controls the permissive and starting signals to motor breakers to prevent overloading the DG by automatic load application.

9. BASES, APPLICABLE SAFETY ANALYSES, page B 3.8-3, third paragraph, second line. Add "division" between "one and of". Should read, "...at least one division of the AC and DC...."

10. BASES, LCO, page B 3.8-3, following the first paragraph add: "Qualified offsite circuits are those that are described in CESSAR-DC and are part of the licensing basis for the unit. Each offsite circuit must be capable of maintaining rated frequency and voltage, and accepting required loads during an accident, while connected to the ESF buses."

11. BASES, LCO, page B 3.8-3, following the second paragraph add: "Therefore, the AC Power system has a total of four (4) qualified circuits between the offsite transmission network and the onsite Class 1E AC Distribution System. Two circuits per division."

12. EDITORIAL - BASES, SR 3.8.1.2 and SR 3.8.1.7, page B 3.8-13, first paragraph, second line. Switch "transients" and "accidents".

13. BASES, SR 3.8.1.2 and SR 3.8.1.7, page B 3.8-14, following first paragraph insert: "If a modified start is not used, 20 second start requirement of SR 3.8.1.7 applies. Since SR 3.8.1.7 requires a 20 second start, it is more restrictive than SR 3.8.1.2, and it may be performed in lieu of SR 3.8.1.2. This is the intent of note 1 of SR 3.8.1.2."

14. EDITORIAL - BASES, page B 3.8-18, Change SR 3.8.1.11 to

13. Agree, revise per comment.

14. Disagree, present numbering appears to be correct.

15. Disagree, present numbering appears to be correct.

16. Agree, revise per comment.

=====

Key: B = Bases, as in "B 3.4.1"

SR 3.8.1.12.

15. EDITORIAL - BASES, page B 3.8-19, Change SR 3.8.1.11 to SR 3.8.1.11.

16. BASES SR 3.8.1.14, page B 3.8-21, first paragraph, third line, insert "110%" prior to "the continuous". Should read, ".....at a load equivalent to 110% the continuous rating of the diesel....".

=====

3.8.2 AC Sources - Shutdown

NRC Comment

RESTRUCTURED, see CE comments for 1, 2, 4, 5 and 10

3. Revise SR 3.8.2.1 per NRC note

6. Bases -- revise LCO, change "train" to "division"

7. Bases -- revise LCO, add "and loss of decay heat removal"

8. Bases -- revise LCO, change "10" to "20" seconds

9. Bases -- revise LCO, add NRC insert "A"

11. Bases -- revise APPLICABILITY, add NRC note "5"

12. Bases -- revise ACTIONS, change "train" to "division"

13. Bases -- revise ACTIONS, change "train" to "division"

14. Bases -- revise AC Sources - Shutdown, same as REFUELING

ABB-CE Response

RESTRUCTURED

NRC comments: 1, 2, 4, 5, 10 (see new LCO 3.8.2 and Bases)

3. Disagree, DG is not sequenced on the bus automatically in MODES 5 and 6.

NRC comments: 6, 7, 8, 9, 11, 12, 13, 14, 15. Agree, revise per comment.z

Key: B = Bases, as in "B 3.4.1"

15. Bases -- revise AC Sources - Shutdown, same as REFUELING

3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

NRC Comment

ABB-CE Response

1,2. EDITORIAL - LCO title, add, "Oil" following "Fuel". Should read, " Diesel Fuel Oil, Lube Oil, and Starting Air".

1. Agree, revise per comment.

3. BASES, BACKGROUND, page B 3.8-32, third paragraph, line 8, change "three" to "[7]" days.

2. Agree, revise per comment.

3. Agree, revise per comment.

4. BASES, SURVEILLANCE REQUIREMENTS, SR 3.8.3.3, following c. add, " These tests are required to be performed within 31 days prior to adding fuel to the storage tanks. The frequency is established by regulatory Guide 1.137.

4. Disagree, these subjects are addressed in the next paragraph. Bases SR 3.8.3.3 also address Reg G 1.137.

. Agree, revise per comment.

5. BASES, SURVEILLANCE REQUIREMENTS, SR 3.8.3.3, second paragraph from the bottom, change, "ASTM D975-(82)" to ASTM D2622-()

6. Agree, revise per comment.

6. BASES, REFERENCES, 1. Change, "Section 9.5.4.2" to "Section 9". 4. Change, "D4175" to "D4176" and "S2276, Method A" to "D2276, Method A"

3.8.4 DC Sources - Operating

NRC Comment

ABB-CE Response

1. Bases -- add "4160 kv," to BACKGROUND

1. Agree, will be added after 1st sentence in parenthesis, thus (4160 KV)

2. Bases -- add "are designed to have sufficient" to BACKGROUND

2. Agree, will revise per STS

3. Bases -- add "...and testability to perform its safety

3. Agree, will revise per STS

=====

Key: B = Bases, as in "B 3.4.1"

functions assuming a single failure. The DC Power System also conforms to the.."

4. Bases -- add NRC insert "F" to BACKGROUND

5. Bases -- revise BACKGROUND battery size from 100%, 125% to 125%, 150%

6. Bases -- add to LCO "...and corresponding control equipment and cabling.."

7. Bases -- add to REFERENCES, "Appendix A," after 10 CFR 50

4. Agree, will use wording similar to STS

5. Disagree, values are correct as stated

6. Agree, will use wording similar to STS

7. Agree, will revise per comment

3.8.5

DC Sources - Shutdown

NRC Comment

- 1. Change LCO title from "- Shutdown" to "- Refueling"
- 2. Add to Applicability, "with water level in the refueling cavity >[23ft] above the reactor vessel flange and..."

ABB-CE Response

- 1. Applicability changed to MODES 5 and 6, thus one Tech Spec will cover all shutdown operations.
- 2. Disagree, see #1 immediatly above.

3.8.6

Battery Cell Parameters

NRC Comment

- 1. Add "temperature" to bases text

ABB-CE Response

- 1. Disagree, there are no requirements for temperature in Table 3.8.6-1. Temperature is only an adjusting factor in some of the measurements, NOT a limiting parameter.

Key: B = Bases, as in "B 3.4.1"

3.8.7 Inverters - Operating

NRC Comment

ABB-CE Response

- 1. editorial
- 2. Add paragraph to bases describing the Note for Action A.1

- 1. Agree, revise per comment.
- 2. Agree, a note will be added to required Action A.1 and the associated bases which states that LCO 3.8.9 Action must be entered as well.

3.8.8 Inverters - Shutdown

NRC Comment

ABB-CE Response

- 1. Change LCO title from "- Shutdown" to "- Refueling"
- 2. Add to Applicability, "with water level in the refueling cavity >(23ft) above the reactor vessel flange and..."

- 1. Applicability changed to MODES 5 and 6, thus one Tech Spec will cover all shutdown operations.
- 2. Disagree, see #1 immediatly above.

3.8.9 Distribution Systems - Operating

NRC Comment

ABB-CE Response

- 1. Editorial
- 2. Change "train" to "division"
- 3. Change "train" to "division"

- 1. Agree, revise per comment.
- 2. Agree, revise per comment.
- 3. Agree, revise per comment.

Key: B = Bases, as in "B 3.4.1"

3.8.10 Distribution Systems - Shutdown

NRC Comment

ABB-CE Response

- 1. editorial, change "train" to "division"
- 2. Change LCO title from "- Shutdown" to "- Refueling"
- 3. Add to Applicability, "with water level in the refueling cavity >[23ft] above the reactor vessel flange and..."

- 1. Agree, revise per comment.
- 2. Applicability changed to MODES 5 and 6, thus one Tech Spec will cover all shutdown operations.
- 3. Disagree, see #2 immediatly above.

3.9.1 Boron Concentration

NRC Comment

ABB-CE Response

- 1. NRC requests CE to provide a sample COLR (Core Operating Limits Report).
- 2. Editorial

- 1. COLR is defined in Section 1.0 (Defs). It is further specified in Tech Spec. 5.9.1.6. COLR is developed prior to initial operation (post fuel load) and is updated each cycle. References to COLR are consistent with CE STS (NUREG 1432). A COLR specific to SYS80+ will be developed on a plant specific basis because the parameters are fuel cycle dependent.
- 2. Agree, revise per comment.

3.9.2 Nuclear Instrumentation

NRC Comment

ABB-CE Response

None

None

Key: B = Bases, as in "B 3.4.1"

3.9.3

Containment Penetrations

NRC Comment

ABB-CE Response

None

None

3.9.4

Shutdown Cooling System (SCS) and Coolant Circulation - High Water Level

NRC Comment

ABB-CE Response

1. Revise LCO note from 2 hrs to 8 hrs

1. Incorporated Amendment U.

2. Revise REQUIRED ACTIONS per NRC insert "A"

2. Per NRC agreement, these items are addressed in Emergency Operating Guides (App B)

3. Revise SR per NRC insert "B"

3. Not required - Surveillance is result of the Action statement.

4. Add to bases reference sect., CESSAR-DC, sect 19.8A

4. Agree, revise per comment

5. Revise bases Applicability sect per NRC insert "C"

5. Revise per STS (insert "D")

6. Revise bases LCO sect per NRC insert "D"

6. Revise per STS (insert "D")

7. Editorial - bases Actions sect, change ", actions shall be taken..." to "immediate actions shall be taken..."

7. Agree, revise per comment

8. Revise bases Action sect., per NRC insert "E"

8. Not required - Bases are results of Action Statement. See #2 above.

3.9.5

Shutdown Cooling System (SCS) and Coolant Circulation - Low Water Level

NRC Comment

ABB-CE Response

1. Insert required actions, NRC insert "F"

1. Per NRC agreement, these items are addressed in Emergency Operating Guides (App B)

2. Revise SR 3.9.5.1 to include "SCS divisions are

=====

Key: B = Bases, as in "B 3.4.1"

operable"

- 3. Revise SR 3.9.5.1 to include NRC insert "G"
- 4. Revise bases Applicable Safety Analyses per NRC insert "C"
- 5. Revise bases sect. LCD to include "SDC & high water level" discussion
- 6. Revise bases sect. B.2.1 and B.2.2 per NRC insert "H"
- 7. Revise bases sect. SR 3.9.5.1 per NRC insert "I"
- 8. same as 6 above, change per NRC insert "H"
- 9. same as 7 above, change per NRC insert "I"
- 10. Add to REFERENCE sect, ref on shutdown risk evaluation report, CESSAR-DC, section 19.8A

- 2. Not Applicable, fixed in amendment U
- 3. Not required - Surveillance is result of the Action statement
- 4. Revise per STS (insert "C")
- 5. Revise per STS (insert "D")
- 6. Per NRC agreement, these items are addressed in Emergency Operating Guides (App B)
- 7. Not required - Surveillance is result of the Action statement, same as 3 above.
- 8. Per NRC agreement, these items are addressed in Emergency Operating Guides (App B)
- 9. Not required - Surveillance is result of the Action statement, same as LCD 3.9.4
- 10. Agree, revise per comment.

3.9.6

Refueling Water Level

NRC Comment

- 1. Address "Latching and Unlatching" CEA shafts in bases.

ABB-CE Response

- 1. Revised per LCD for Refueling Water Level during CEA movements (3.9.10.2), see attached markup. And modify bases B.3.9.6 accordingly. Disagree, treatment of latching and unlatching is per STS.

Key: B = Bases, as in "B 3.4.1"

=====

3.10.1 Reactor Trip Circuit Breakers (RTCB)

NRC Comment	ABB-CE Response
-----	-----
None.	RESTRUCTURE Relocated to 3.1.2.

=====

3.10.2 Reduced RCS Inventory Operations - Instrumentation

NRC Comment	ABB-CE Response
-----	-----
None	RESTRUCTURE Relocated to 3.3.14.

=====

3.10.3 Reduced RCS Inventory Operations - Vent Paths

NRC Comment	ABB-CE Response
-----	-----
1. Include bases for "6 hrs" vent path restoration time.	RESTRUCTURE Relocated to 3.4.19.
	1. This is a reasonable amount of time to remove the manway from the PZR. Monitoring the RCS parameters during this time is required.

=====

3.10.4 Reduced RCS Inventory Operations - Heat Removal

NRC Comment	ABB-CE Response
-----	-----
None	RESTRUCTURE Relocated to 3.4.8.

Key: B = Bases, as in "B 3.4.1"

3.10.5 Reduced RCS Inventory Operations - Containment Integrity

NRC Comment

see CE comment regarding, RESTRUCTURE

ABB-CE Response

RESTRUCTURE: See new Tech Spec 3.6.11, Containment Penetrations --
Reduced RCS Inventory
[Reference, Appendix 19.8A - Shutdown Risk Evaluation Report, sect. 2.5]

3.10.6 Reduced RCS Inventory Operations - AC Power Availability

NRC Comment

see CE comment RESTRUCTURED

ABB-CE Response

RESTRUCTURED: Deleted Tech Spec 3.10.6, see Tech Spec 3.8.2

3.10.7 Reduced RCS Inventory Operations - DC Distribution

NRC Comment

see CE comment RESTRUCTURED

ABB-CE Response

RESTRUCTURED
Deleted Tech Spec 3.10.6, see Tech Spec 3.8.5.

Key: B = Bases, as in "B 3.4.1"

=====
4.1 Site

NRC Comment
None
ABB-CE Response
None

=====
4.1.1 Site and Exclusion Area Boundaries

NRC Comment
None
ABB-CE Response
None

=====
4.1.2 Low Population Zone (LPZ)

NRC Comment
None
ABB-CE Response
None

=====
4.2 Reactor Core

NRC Comment
1. Add change "zirconium alloy" to "zirconium alloy clad"
ABB-CE Response
1. Agree, revise per comment.

=====
4.2.1 Fuel Assemblies

NRC Comment
None
ABB-CE Response
None

Key: B = Bases, as in "B 3.4.1"

4.2.2 [Control Rod] Assemblies

NRC Comment

ABB-CE Response

None

None

4.3 Fuel Storage

NRC Comment

ABB-CE Response

1. Add to Criticality design features (4.3.1 f), "NRC approved procedure, specific approved document, configuration, figure, etc."

1. Agree, revise per comment.

4.3.1 Criticality

NRC Comment

ABB-CE Response

None

None

4.3.2 Drainage

NRC Comment

ABB-CE Response

None

None

4.3.3 Capacity

NRC Comment

ABB-CE Response

None

None

March 11, 1994

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Key: B = Bases, as in "B 3.4.1"

Key: B = Bases, as in "B 3.4.1"

5.1 Responsibility

NRC Comment	ABB-CE Response
None	None

5.2 Organization

NRC Comment	ABB-CE Response
1. editorial, add "(continued)" per markup to ensure explicit notice of continuation. Add "(page 1 of 1)" to Table 5.2.2-1 header.	1. Agree, revise per comment.

5.3 Unit Staff Qualifications

NRC Comment	ABB-CE Response
None	None

5.4 Training

NRC Comment	ABB-CE Response
None	None

5.5 Reviews and Audits

NRC Comment	ABB-CE Response
1. Format - use long brackets in margin verse small front and end bracket	1. Agree, revise per comment.

=====

Key: B = Bases, as in "B 3.4.1"

- | | |
|--|-------------------------------|
| 2. comment retracted | 2. no action |
| 3. comment retracted | 3. no action |
| 4. editorial - add "continued" for explicit notice of continuation | 4. Agree, revise per comment. |

=====

5.6 Technical Specifications (TS) Bases Control

NRC Comment

ABB-CE Response

None

None

=====

5.7 Procedures, Programs, and Manuals

NRC Comment

ABB-CE Response

1. editorial - sect. 5.7.2.3, change "semiannual" to "Annual"

1. Agree, revise per comment.

2. Revise sect. 5.7.2.4 to include "Emergency Feedwater Sys"

2. Replaced with: "SI, CCW, CVCS, Cont Spray, Main Steam, RDT." Will not include Emergency Feedwater.

3. Revise sect. 5.7.2.6 to include "in conformance with 10CFR 50.34 (f)(2)(viii)"

3. Agree, revise per comment.

4. Revise sect. 5.7.2.16 to include " ≤ 10 mg/l" for diesel fuel oil particulate spec.

4. Agree, revise per comment, except make it a [bracketed] value.

5. editorial - add "continued", add reg. guide rev and date

5. Editorial - add "continued" per comment; - no change needed for reg guide rev and date, CESSAR table 1.8-1 has this information

Key: B = Bases, as in "B 3.4.1"

5.8 Safety Function Determination Program (SFDP)

NRC Comment

ABB-CE Response

1. editorial - Add "continued" per markup to ensure explicit notice of continuation

1. Agree, revise per comment.

5.9 Reporting Requirements

NRC Comment

ABB-CE Response

1. Change section, 5.9.1.3 from "...submitted by May of each year.", to, "...submitted prior to May of each year."

1. Agree, revise per comment.

2. Add insert to 5.9.2 regarding special reports.

2. Agree, revise per comment.

3. editorial - Add "continued" per markup to ensure explicit notice of continuation

3. Agree, revise per comment.

5.10 Record Retention

NRC Comment

ABB-CE Response

1. editorial - Add "continued" per markup to ensure explicit notice of continuation

1. Agree, revise per comment.

5.11 High Radiation Area

NRC Comment

ABB-CE Response

1. editorial - change "cumulative dose" to "cumulative dose information"

1. Agree, revise per comment.

2. Agree, revise per comment.

Key: B = Bases, as in "B 3.4.1"

2. editorial - Add "continued" per markup to ensure explicit notice of continuation

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Delete the entire section

<u>Term</u>	<u>Definition</u>
LOGIC CHANNEL	LOGIC CHANNEL is defined as a set of interconnected hardware and software components that process inputs from the TRIP CHANNELS to produce an identifiable trip initiation signal or ESF initiation signal within a division. This includes the initiation signal's associated LCD two-out-of-four voters, data transmission, software, trip channel bypass, and MANUAL TRIP CHANNEL function for RPS and MANUAL INITIATION CHANNEL function for ESF.
MAIN STEAM LINE LEAKAGE	MAIN STEAM LINE LEAKAGE shall be leakage inside containment in any portion of the four (4) 28" I.D. main steam line pipe walls.
MANUAL INITIATION CHANNEL	MANUAL INITIATION CHANNEL is defined as a channelized manual initiation switch and CHANNEL related signal wiring which is used to provide system level manual initiation of an ESF function.
MANUAL TRIP CHANNEL	MANUAL TRIP CHANNEL is defined as a channelized manual actuation switch and related signal wiring which is used to provide system level RPS manual trip of a channelized reactor trip circuit breaker.
MEASUREMENT CHANNEL	MEASUREMENT CHANNEL is defined as the equipment required to detect input signal information including sensor, transmitter, signal conditioning and communication device(s). A MEASUREMENT CHANNEL is comprised of the sensor, transmitter, and signal conditioning devices, of a TRIP CHANNEL.
MID-LOOP	Plant condition with fuel in the reactor vessel and reactor coolant level below the top of the hot legs at their junction with the reactor vessel.
MODE	A MODE shall correspond to any one inclusive combination of core reactivity condition, power level, average reactor coolant temperature, and reactor vessel head closure bolt tensioning specified in Table 1.1-1 with fuel in reactor vessel.
OPERABLE - OPERABILITY	A system, subsystem, division, train, component or device shall be OPERABLE when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water; lubrication, and other auxiliary equipment that are required for the system, subsystem, division, train, component or device to perform its specified function(s) are also capable of performing their related support function(s).

REDUCED RCS INVENTORY is the plant condition when the reactor coolant system level is below the 117' elevation and fuel is in the reactor vessel. (The ^{Definitions 1.1} 117' elevation corresponds to three feet below the reactor vessel flange.)

<u>Term</u>	<u>Definition</u>
PHYSICS TESTS	<p>PHYSICS TESTS shall be those tests performed to measure the fundamental nuclear characteristics of the reactor core and related information. These tests are:</p> <ol style="list-style-type: none"> Described in Chapter [14, Initial Test Program] of the CESSAR-DC; Authorized under the provisions of 10 CFR 50.59; or Otherwise approved by the Nuclear Regulatory Commission.
PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR)	<p>The PTLR is the unit specific document that provides the reactor pressure and temperature limits, including heatup and cooldown rates, for the current reactor vessel fluence period. These pressure and temperature limits shall be determined for each fluence period in accordance with Specification 5.9.1.7. Plant operation within these operating limits is addressed in individual Specifications.</p>
RATED THERMAL POWER (RTP)	<p>RTP shall be a total reactor core heat transfer rate to the reactor coolant of [3914] MWt.</p>
REACTOR PROTECTION SYSTEM (RPS) RESPONSE TIME	<p>The RPS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RPS trip setpoint at the channel sensor until electrical power to the control element assemblies (CEAs) drive mechanism is interrupted. The response time may be measured by means of any series of sequential, overlapping, or total steps so the entire response time is measured.</p>
REDUCED RCS INVENTORY	<p>Plant condition with fuel in the reactor vessel and reactor coolant level lower than three feet below the reactor vessel flange [Elevation +117'0"].</p>
SHUTDOWN MARGIN (SDM)	<p>SDM shall be the instantaneous amount of reactivity by which the reactor is subcritical or would be subcritical from its present condition assuming:</p> <ol style="list-style-type: none"> All full length Control Element Assemblies (CEAs) (shutdown and regulating) are fully inserted except for the single CEA of highest reactivity worth which is assumed to be fully withdrawn. However, with all CEAs verified fully inserted by two independent means, it is not necessary to account for a stuck CEA in the SDM calculation.

Term

Definition

TRIP CHANNEL (Continued)

3) Computer TRIP CHANNEL

A Computer TRIP CHANNEL is defined as the equipment required to detect and digitize input signal information including sensor (e.g., neutron flux detector), signal conditioning device, multiplexer, A/D convertor, software, and communication device(s).

TRIP TEST

A TRIP TEST is defined as the selective opening of two (2) reactor trip circuit breakers to verify that initiation of MANUAL TRIP CHANNELS removes power from the control rod drives. The TRIP TEST is initiated by means of MANUAL TRIP CHANNEL manual actuation switches.

ADD THE FOLLOWING DEFINITION TO SYSTEM 80+ TECH SPECS

TRIP LEG

A TRIP LEG is defined as the "logical or" combination of channel states which represent half of a Selective two-out-of-four Logic function. When both TRIP LEGS of a Selective two-out-of-four Logic function assume a true state, the output of the Selective two-out-of-four Logic function assumes a true state (e.g., in a Selective two-out-of-four Logic [(A "or" C) "and" (B "or" D) = N]; the term (A "or" C) is a TRIP LEG, the term (B "or" D) is a TRIP LEG, and N is the output).

TABLE 1.1-1

MODES

MODE	TITLE	REACTIVITY CONDITION, (K _{eff})	% RATED THERMAL POWER ^(a)	AVERAGE REACTOR COOLANT TEMPERATURE (°F)
1	Power Operation	≥ 0.99	> 5	NA
2	Startup	≥ 0.99	≤ 5	NA
3	Hot Standby	< 0.99	NA	≥ [350]
4	Hot Shutdown ^(b)	< 0.99	NA	[350] > T _{avg} > [210]
5	Cold Shutdown ^(b)	< 0.99	NA	≤ [210]
6	Refueling ^(c)	NA	NA	NA

≤ 0.95

≤ [35]

^(a)Excluding decay heat.

^(b)All reactor vessel head closure bolts fully tensioned.

^(c)One or more reactor vessel head closure bolts less than fully tensioned.

1.0 USE AND APPLICATION

1.5 Legal Considerations

DELETE

INTRODUCTION

The Atomic Energy Act of 1954 requires that technical specifications be a part of operating licenses. As such, they are enforceable under federal statute as well as Title 10 of the Code of Federal Regulations (CFR). When an applicant receives a license from the Nuclear Regulatory Commission to operate a commercial nuclear power plant, the technical specifications are included as Appendix A to the license. Consequently, whenever a change is made to a plant's technical specifications, an amendment to the operating license is required.

There are, however, certain sections and additional items included with these Technical Specifications that are for information or convenience and are not legally a part of the Technical Specifications or Operating License. This section identifies the legal parts (i.e., the items that require a license amendment to change) of these Technical Specifications, and those additional parts that do not require a license amendment.

LEGAL PARTS

10 CFR 50.36 delineates those items which are to be included in technical specifications. These items to be included are:

- Safety Limits,
- Limiting Safety System Settings,
- Limiting Conditions for Operation,
- Surveillance Requirements,
- Design Features, and
- Administrative Controls.

In addition, the Use and Applications Division, comprised of Definitions, Logical Connectors, Completion Times, Frequency, and Legal Considerations, is also a legal part of the technical specifications.

Since the technical specifications are issued as Appendix A to the Operating License, any change to the legal parts of the technical specifications constitutes a license amendment. As such, the requirements of 10 CFR 50.90, 50.91, and 50.92 apply.

FRONT MATTER

Front Matter is all the material in the front of the technical specifications used to identify and locate specific information. It includes:

- Preface
- Title Page
- Table of Contents
- List of Tables
- List of Figures
- List of effective pages

None of this material is required by 10 CFR 50.36, and the Front Matter does not include any requirements on the safe operation of the plant. Therefore, the front matter is not a legal part of the technical specifications or operating license.

DELETE

CROSS-
REFERENCES

Cross-references are included in the body of the technical specifications to assist the user in determining applicable requirements for a common system or component. This section is not required by 10 CFR 50.36, and is included in the technical specifications to assist the user. As such, they are not a legal part of the technical specifications or operating license.

BASES

10 CFR 50.36 includes the following statement, "A summary statement of the bases or reasons for such specifications, other than those covering administrative controls, shall be included in the application, but shall not become part of the technical specifications." Therefore, the bases are not a legal part of the technical specifications nor the operating license. Changes to the bases shall be controlled in accordance with the requirements in Specification 5.8.4.f of the Administrative Controls.

Reactor Trip Circuit Breakers

3.1 REACTIVITY CONTROL SYSTEMS
~~3.10~~ ~~REDUCED RCS INVENTORY OPERATIONS~~
 3.1.2
~~3.10.1~~ Reactor Trip Circuit Breakers (RTCB)

~~3.10.1~~
 3.1.2

3.1.2
 LCO ~~3.10.1~~ The RTCBs shall be open.

APPLICABILITY: MODE 5 with REDUCED RCS INVENTORY

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
RTCBs not in required status.	Open RTCB's	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
3.1.2.1 SR 3.10.1.1 Verify RTCBs open.	[12 hours]

Reactor Coolant Monitoring - Instrumentation
~~Reduced RCS Inventory Operations - Instrumentation~~
~~3.10.2~~
 3.3.14

- 3 INSTRUMENTATION
- 3.10 ~~REDUCED RCS INVENTORY OPERATIONS~~
- 3.3.14 *Reactor Coolant Monitoring - Instrumentation*
- 3.10.2 ~~Reduced RCS Inventory Operations - Instrumentation~~

3.3.14 LCO ~~3.10.2~~ The following reactor coolant system instrumentation shall be OPERABLE.

- a. Two independent ^{MEASUREMENT CHANNELS for} ~~means of monitoring~~ RCS level ~~indications~~; one narrow range (NR) and one wide range (WR) ~~instrument~~; and
- b. Two independent ^{MEASUREMENT CHANNELS for} ~~means of monitoring~~ RCS temperature; and
- c. Two independent ^{MEASUREMENT CHANNELS for} ~~indications available to monitor~~ Shutdown Cooling System (SCS) performance in the loop on service for decay heat removal.

APPLICABILITY: MODE 5 with ^{loops not filled} ~~REDUCED RCS INVENTORY~~

and
 the RCS water level \leq [120'] elevation
 MODE 6 with ~~REDUCED RCS INVENTORY~~

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. All WR RCS level instrumentation inoperable. { MEASUREMENT CHANNELS	A.1 Initiate action to restore ^{channel} instrument to OPERABLE status.	[Immediately]
	<u>AND</u>	
	A.2 Monitor RCS temp.	[Every 30 minutes]
	<u>AND</u>	
	A.3 Monitor SCS performance.	[Every 30 minutes]
	<u>AND</u>	
	A.4 Monitor NR RCS level.	[Every 10 minutes]

(Continued)

ACTIONS (Continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. All NR RCS level instrumentation inoperable. MEASUREMENT CHANNELS	B.1 Initiate action to restore ^{channel} instrument to OPERABLE status.	[Immediately]
	AND	
	B.2 Monitor RCS temp.	[Every 30 minutes]
	AND	
	B.3 Monitor SCS performance.	[Every 30 minutes]
C. One of the required RCS temperature indications inoperable. MEASUREMENT CHANNELS	B.4 Monitor WR level.	[Every 10 minutes]
	AND	
	B.5 Initiate action to restore RCS level to > [EL-117'0"] [120'].	[Immediately]
	C.1 Initiate action to restore ^{channel} instrument indications to OPERABLE status.	[Immediately]
	AND	
C.2 Monitor RCS level.	AND	
	C.3 Monitor SCS performance.	[Every 30 minutes]
	AND	
	C.4 Monitor OPERABLE temperature ^{channel} instrument.	[Every 30 minutes]

(Continued)

ACTIONS (Continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two of the required RCS temperature indications inoperable. <i>MEASUREMENT CHANNELS</i>	D.1 Initiate action to restore one instrument to OPERABLE status. <i>channel</i>	[Immediately]
	<u>AND</u>	
	D.2 Monitor RCS level.	[Every 10 minutes]
	<u>AND</u>	
E. SCS performance indications inoperable. <i>MEASUREMENT CHANNELS</i>	D.3 Monitor SCS performance.	[Every 10 minutes]
	<u>AND</u>	
	D.4 Initiate action to restore RCS level to > [EL-1170*] [120].	[Immediately]
	<u>AND</u>	
E. SCS performance indications inoperable. <i>MEASUREMENT CHANNELS</i>	E.1 Initiate action to restore <i>channel</i> instrument to OPERABLE status.	[Immediately]
	<u>AND</u>	
	E.2 Monitor RCS temp.	[Every 10 minutes]
	<u>AND</u>	
E. SCS performance indications inoperable. <i>MEASUREMENT CHANNELS</i>	E.3 Monitor RCS level.	[Every 10 minutes]
	<u>AND</u>	
E.4 Initiate action to place other division of SCS in service.	[2 hours]	

Reactor Coolant Monitoring
 Reduced RCS Inventory Operations - Instrumentation
 3.10.2
 3.3.14

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
3.10.1 SR 3.10.2.1	Perform a CHANNEL CHECK of RCS level. (One WR and one NR).	[6 hours]
3.10.2 SR 3.10.2.2	Perform a CHANNEL CHECK of RCS temperature.	[6 hours]
3.10.3 SR 3.10.2.3	Perform a CHANNEL CHECK of SCS performance in the loop removing decay heat.	[6 hours]
3.10.4 SR 3.10.2.4	Perform a CHANNEL CALIBRATION of the applicable RCS level, temperature and SCS performance.	[60 days]

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.7 RCS Loops - MODE 5 (Loops Filled)

LCO 3.4.7 One Shutdown Cooling System (SCS) division shall be OPERABLE and in operation, and either:

- a. One additional SCS division shall be OPERABLE; or
- b. The secondary side water level of each Steam Generator (SG) shall be \geq [25% wide range indication].

NOTES

- 1. The SCS pump of the division in operation may be de-energized for \leq 1 hour per 8-hour period provided:
 - a. No operations are permitted that would cause reduction of the RCS boron concentration; and
 - b. Core outlet temperature is maintained at least 10°F below saturation temperature.
- 2. One required SCS division may be inoperable for up to 2 hours for surveillance testing provided that the other SCS division is OPERABLE and in operation.
- 3. No RCP shall be started with ~~one or~~ more of the RCS cold leg temperatures \leq [259°F] during cooldown or \leq [290°F] during heatup (the heatup rate is limited to [40°F/hr or less]) unless:
 - a. Pressurizer water level is $<$ [60%]; or
 - b. Secondary water temperature of each SG is $<$ [100°F] above each of the RCS cold leg temperatures.
- 4. All SCS trains may be removed from operation during planned heatup to MODE 4 when at least one RCS loop is in operation.

APPLICABILITY: MODE 5 with RCS loops filled.

5. A Containment Spray Pump ^{may} ~~can~~ be manually realigned to meet the requirement of an SCS pump.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required SCS division inoperable.	A.1 Initiate action to restore a second SCS division to OPERABLE status.	Immediately
<u>AND</u>	<u>OR</u>	
Any SG with secondary side water level not within limit.	A.2 Initiate action to restore SG secondary side water level to within limits.	Immediately
B. Required SCS division inoperable.	B.1 Suspend all operations involving reduction in RCS boron concentration.	Immediately
<u>OR</u>	<u>AND</u>	
No SCS division in operation.	B.2 Initiate action to restore one SCS division to OPERABLE status and operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.7.1 Verify one SCS division is in operation.	12 hours
SR 3.4.7.2 Verify required Steam Generator secondary side water level is \geq [25% wide range indication].	12 hours
SR 3.4.7.3 Verify correct breaker alignment and indicated power available to the required SCS pump that is not in operation.	7 days

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 RCS Loops - MODE 5 (Loops Not Filled)

LCO 3.4.8 ^{The heat removal system shall be in the following status} a. Two Shutdown Cooling (SCS) divisions shall be OPERABLE, and ^{SCS} at least one division shall be in operation, and
b. With REDUCED RCS INVENTORY ^{(RCS TEST UNIT) the Containment Spray pump} NOTES

1. All SCS pumps may be de-energized for ≤ 15 minutes when switching from one division to another provided:
 - a. [The core outlet temperature is maintained to $> 10^\circ\text{F}$ below saturation temperature.]
 - b. No operations are permitted that would cause a reduction of the RCS boron concentration; and
 - c. No draining operations to further reduce the RCS water volume are permitted.
2. One SCS division may be inoperable for ≤ 2 hours for surveillance testing provided the other SCS division is OPERABLE and in operation.
3. A Containment Spray Pump can be manually realigned to meet the requirement of an SCS pump.

the operating SCS division shall be OPERABLE.

APPLICABILITY: MODE 5 with RCS loops not filled.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SCS division inoperable.	A.1 Initiate action to restore division to OPERABLE status.	Immediately
B. Required SCS division inoperable.	B.1 Suspend all operations involving reduction of RCS boron concentration.	Immediately
<u>OR</u> → No SCS division in operation.	<u>AND</u> B.2 Initiate action to restore one SCS division to OPERABLE status and operation.	Immediately

See attached
SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.8.1 Verify one SCS division is in operation.	12 hours
SR 3.4.8.2 Verify correct breaker alignment and indicated power available to the required SCS pump that is not in operation.	7 days
SR 3.4.8.3 Verify correct breaker alignment and indicated power available to the required CS pump.	[24 hours] ^{with when is REDUCED RCS INVENTORY.}

	<p><u>AND</u> B C.3 Initiate action to raise RCS level to >[EL-117'0"].</p>	[Immediately]
<p>D C Containment Spray pump in operating division inoperable.</p>	<p>D.1 If the Containment Spray pump in the alternate division is OPERABLE, initiate action to place that division in operation.</p> <p><u>AND</u> C D.2 Monitor SCS performance.</p> <p><u>AND</u> C D.3 Restore inoperable Containment Spray pumps to OPERABLE status.</p>	<p>[6 hours] Immediately</p> <p>[Every 30 minutes]</p> <p>[48 hours]</p>
<p>E D Required Action and Completion time of Item D.3 not met. C</p>	<p>D E.1 Raise RCS Level >[EL-117'0].</p> <p><u>AND</u> D E.2 Initiate action to align alternate decay heat removal system.</p>	<p>[6 hours]</p> <p>[6 hours] [Immediately]</p>

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.15 RCS Specific Activity

LCO 3.4.15 The specific iodine activity of the reactor coolant shall be limited to:

- a. DOSE EQUIVALENT I-131 specific activity $\leq 1.0 \mu\text{Ci/gm}$; and
- b. Gross specific activity $\leq 100/\bar{E} \mu\text{Ci/gm}$.

APPLICABILITY: MODES 1, 2 and, MODE 3 with RCS average temperature (T_{avg}) $\geq 500^\circ\text{F}$.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. DOSE EQUIVALENT I-131 $> 1.0 \mu\text{Ci/gm}$.	A.1 Verify DOSE EQUIVALENT I-131 $\leq 60 \mu\text{Ci/gm}$. <u>AND</u> A.2 Restore DOSE EQUIVALENT I-131 to within limit.	Once per 4 hours 48 hours
B. C. Gross specific activity of the reactor coolant not within limit.	B.1 Perform SR 3.4.15.2. <u>AND</u> B.2 Be in MODE 3 with $T_{avg} < 500^\circ\text{F}$.	4 hours 6 hours
C. B. Required Action and associated Completion Time of Condition B not met. <u>A</u>	C.1 Be in MODE 3 with $T_{avg} < 500^\circ\text{F}$.	6 hours
<u>OR</u> DOSE EQUIVALENT I-131 $> \leq 60 \mu\text{Ci/gm}$.		

Vent Paths - Reduced RCS Inventory Operations
~~Reduced RCS Inventory Operations - Vent Paths~~
~~3.10.5~~
 3.4.19

4
 3.10⁴ ~~REACTOR COOLANT SYSTEM (RCS)~~
~~REDUCED RCS INVENTORY OPERATIONS~~
 3.4.19 *Vent Paths - Reduced Inventory RCS Inventory Operations*
 3.10.3 ~~Reduced RCS Inventory Operations - Vent Paths~~

4.19
 LCO 3.10.5 A RCS vent path of \geq [pressurizer manway] is established and maintained.

APPLICABILITY: MODE 5 with REDUCED RCS INVENTORY

and

MODE 6 REDUCED RCS INVENTORY with reactor vessel head in place.*

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RCS vent path requirement not met.	A.1 Initiate action to restore vent path.	[Immediately]
	AND	
	A.2 Complete restoration of vent path.	[6 hours]
B. Required Action and completion time not met.	AND	
	A.3 Monitor RCS temperature, level, and SCS performance.	[Hourly] [Once per hour]
	B.1 Restore RCS level to $>$ [EL - 117'0"].	[6 hours]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.10.3.1 3.4.19.1 Verify pressurizer manway is removed and unobstructed or an equivalent vent path is established.	[12 hours]

*One or more head bolts tensioned.

3.5 EMERGENCY CORE COOLING SYSTEM (ECCS)

3.5.3 Safety Injection System (SIS) - Shutdown

LCO 3.5.3 Two trains of SIS, one in each division, shall be OPERABLE.

APPLICABILITY: MODE 4, 5, and
MODE 6 when RCS level \geq [120' - 0"]

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required SIS train inoperable.	A.1 Restore required SIS train to OPERABLE status.	1 hour
B. Required Action and associated Completion Time not met.	B.1.1 Verify RCS level \geq [120' - 0"].	1 hour
	<u>OR</u>	
	B.1.2 Restore RCS level to \geq [120' - 0"].	24 hours
	<u>AND</u>	
	B.2 Reduce RCS temperature to $<$ 135° F.	24 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.5.3.1 The following SRs are applicable: [SR 3.5.2.1] SR 3.5.2.6 SR 3.5.2.5 SR 3.5.2.2 SR 3.5.2.7 [SR 3.5.2.3] SR 3.5.2.8 SR 3.5.2.4	In accordance with applicable SRs

Reduced RCS Inventory Operations - Containment ^{Penetration} Integrity

3.6
3.10 CONTAINMENT SYSTEMS
REDUCED RCS INVENTORY OPERATIONS

3.10.5
3.6.11

3.6.11
3.10.5 Reduced RCS Inventory Operations - Containment ^{Penetration} Integrity

3.6.11
LCO 3.10.5 The containment building penetrations shall be in the following status:

- a. The equipment hatch closed and held in place by [a minimum of four bolts,]
- b. One door in each airlock closed,
- c. Each penetration providing direct access from the containment atmosphere to the outside atmosphere is either:
 - 1. Closed by an isolation valve, blind flange, manual valve, water, or equivalent; or
 - 2. Exhausting through OPERABLE Reactor Building Containment Purge Exhaust System HEPA filters and charcoal absorbers, and is capable of being closed by an OPERABLE Containment Purge and Exhaust Isolation System.

APPLICABILITY: MODE 5 with REDUCED RCS INVENTORY

and

MODE 6 with REDUCED RCS INVENTORY

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more containment penetrations not in required status.	A.1 Restore containment penetration to required status.	[6 hours]
B. Required Action and Completion Time not met.	B.1 Restore RCS level to >[EL -117'0"].	[6 hours]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
3.6.11.1 SR 3.10.5.1 Verify each required containment building penetration is in its required status.	[12 hours]
3.6.11.2 SR 3.10.5.2 Verify the Surveillance Requirements of SR 3.9.3.2 are met.	[18 months]

3.7 PLANT SYSTEMS

3.7.7 Component Cooling Water (CCW) System

LCO 3.7.7 Two CCW divisions shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

In MODES 5 and 6 the requirements on the CCW system are determined by the system it supports.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CCW division inoperable.	<p style="text-align: center;">-----NOTE-----</p> <p>Enter applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops - MODE 4" for shutdown cooling made inoperable by CCW.</p> <hr/> <p>A.1 Restore CCW division to OPERABLE status.</p>	72 hours
B. Required Action and associated Completion Time If Condition A not met.	<p>B.1 Be in MODE 3.</p> <p>AND</p> <p>B.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>

3.7 PLANT SYSTEMS

3.7.8 Station Service Water System (SSWS)

LCO 3.7.8 Two SSWS divisions shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

In MODES 5 and 6 the requirements on the SSWS system are determined by the system it supports.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SSWS division inoperable.	NOTES	
	1. Enter applicable Conditions and Required Actions of LCO 3.8.1 "AC Sources - Operating," for emergency diesel generator made inoperable by SSWS. 2. Enter applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops - Mode 4" for shutdown cooling made inoperable by SSWS.	
	A.1 Restore SSWS division to OPERABLE status.	72 hours
B. Required Action and associated Completion Time if Condition A is not met.	B.1 Be in MODE 3.	6 hours
	AND B.2 Be in MODE 5.	36 hours

3.7 PLANT SYSTEMS

3.7.9 Ultimate Heat Sink

LCO 3.7.9 The Ultimate Heat Sink (UHS) shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

In MODES 5 and 6 the requirements on the UHS are determined by the system it supports.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. <input type="checkbox"/> One or more cooling towers with one cooling tower fan inoperable. <input type="checkbox"/>	A.1 <input type="checkbox"/> Restore cooling tower fan(s) to OPERABLE status. <input type="checkbox"/>	7 days <input type="checkbox"/>
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3.	6 hours
<u>OR</u>	<u>AND</u>	
UHS inoperable (for reasons other than Condition A).	B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<input type="checkbox"/> SR 3.7.9.1 Verify water level of the Ultimate Heat Sink is \geq [*] [mean sea level]. <input type="checkbox"/>	24 hours <input type="checkbox"/>
<input type="checkbox"/> SR 3.7.9.2 Verify average water temperature of the Ultimate Heat Sink is \leq [95°F]. <input type="checkbox"/>	24 hours <input type="checkbox"/>
<input type="checkbox"/> SR 3.7.9.3 Operate each cooling tower fan for \geq [15] minutes. <input type="checkbox"/>	31 days <input type="checkbox"/>

*Value to be determined by system detail design.

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources - Shutdown

LCO 3.8.2 The following AC Electrical Power Sources shall be OPERABLE:

- a. ~~One~~ ^{The} qualified circuit^(s) between the offsite transmission network and the onsite Class 1E AC Electrical Power Distribution System ~~required by LCO 3.8.10, "Distribution System - Shutdown", and~~
- b. ~~One~~ ^{Emergency power source(s)*} diesel generator (DG) capable of supplying the ~~one~~ ^{division} ~~train~~ of the onsite Class 1E AC Electrical Power Distribution System ~~required by LCO 3.8.10,~~

Required by LCO 3.8.10, "Distribution Systems - Shutdown".

APPLICABILITY: MODES 5 and 6_x ~~during movement of irradiated fuel assemblies.~~

NOTE

~~Refer to LCO 3.10.6 (Reduced RCS Inventory Operations - AC Power Availability) for applicability of AC power sources during reduced inventory operations.~~

* The combustion turbine can replace a Diesel Generator as an emergency power source provided the combustion turbine has been demonstrated to be operational within the past seven (7) days.

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources - Shutdown

LCO 3.8.5 DC electrical power subsystem shall be OPERABLE to support the DC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems - Shutdown."

APPLICABILITY: MODES 5 and 6 ~~during movement of irradiated fuel assemblies:~~

~~NOTE~~

~~Refer to LCO 3.10.6 (Reduced RCS Inventory Operation - AC Power Availability) for applicability of AC power sources during reduced inventory operations.~~

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required DC electrical power subsystems inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	<u>OR</u>	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	A.2.2 Suspend movement of irradiated fuel assemblies.	Immediately
	<u>AND</u>	
	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately
	<u>AND</u>	
	A.2.4 Initiate action to suspend operations involving positive reactivity additions.	Immediately
	<u>AND</u>	
	A.2.5 Initiate action to restore required DC electrical power subsystems to OPERABLE status.	Immediately

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Inverters - Shutdown

LCO 3.8.8 Inverter(s) shall be OPERABLE to support the onsite Class 1E AC vital bus electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems - Shutdown."

APPLICABILITY: MODES 5 and 6 ~~during movement of irradiated fuel assemblies.~~

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more [required] inverters within a division inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	<u>OR</u>	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	A.2.2 Suspend movement of irradiated fuel assemblies.	Immediately
	<u>AND</u>	
	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately
	<u>AND</u>	
	A.2.4 Initiate action to suspend operations involving positive reactivity additions.	Immediately
	<u>AND</u>	
	A.2.5 Initiate action to restore required inverters to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.8.1 Verify correct inverter voltage, [frequency,] and alignments to required AC vital buses.	7 days

3.8 ELECTRICAL POWER SYSTEMS

3.8.10 Distribution Systems - Shutdown

LCO 3.8.10 The necessary portion of AC, DC, and AC vital bus electrical subsystems shall be OPERABLE to support equipment required to be OPERABLE.

APPLICABILITY: MODES 5 and 6, ~~during movement of irradiated fuel assemblies.~~

NOTE

~~Refer to LCO 3.10.6 (Reduced RCS Inventory Operations - AC Power Availability) for applicability of AC power sources during reduced inventory operations.~~

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required AC, DC, or AC vital bus electrical power distribution subsystem inoperable.	A.1 Declare associated supported required feature(s) inoperable.	Immediately
	<u>AND</u>	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	A.2.2 Suspend movement of irradiated fuel assemblies.	Immediately
	<u>AND</u>	
	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately
	<u>AND</u>	
	A.2.4 Initiate actions to suspend operations involving positive reactivity additions.	Immediately
	<u>AND</u>	

(Continued)

3.9 REFUELING OPERATIONS

3.9.5 Shutdown Cooling System (SCS) and Coolant Circulation - Low Water Level

→ The heat removal system shall be in the following status:

LCO 3.9.5 a Two SCS division shall be OPERABLE, and one SCS division shall be in operation, and

b. With REDUCED RCS INVENTORY, the Containment Spray pump in the operating SCS
APPLICABILITY: MODE 6 with the water level < 23 feet above the top of reactor vessel flange.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SCS division inoperable.	A.1.1 Initiate action to restore ^{SCS} inoperable loop to OPERABLE status. <i>2.4.15.2.4</i>	Immediately
	<u>OR</u>	
	A.1.2 Initiate actions to establish ≥ 23 feet of water above the top of reactor vessel flange.	Immediately
	<u>AND</u>	
	A.3 Establish alternate decay heat removal capabilities.	7 days
B. No SCS division is OPERABLE or in operation.	B.1 Suspend operations involving a reduction in reactor coolant boron concentration.	Suspend operations involving a reduction in reactor coolant boron concentration. <i>Immediately</i>
	<u>AND</u>	
	B.2 Initiate action to restore one SCS division to OPERABLE status and to operation.	Initiate action to restore one SCS division to OPERABLE status and to operation. <i>Immediately</i>
	<u>AND</u>	
	B.3 Initiate action to implement alternate decay heat removal.	Immediately
	B.3 If in REDUCED RCS INVENTORY, initiate action to raise RCS level to $> [117]$.	<i>Immediately</i>

Division shall be OPERABLE

3.9.5

<p>D C Containment Spray pump in operating division inoperable.</p>	<p>D.1 If the Containment Spray pump in the alternate division is OPERABLE, initiate action to place that division in operation.</p>	<p>[6 hours] Immediately</p>
	<p>AND</p>	
	<p>D.2 Monitor SCS performance.</p>	<p>[Every 30 minutes]</p>
	<p>AND</p>	
	<p>D.3 Restore inoperable Containment Spray pump_A to OPERABLE status.</p>	<p>[48 hours]</p>
<p>E O Required Action and Completion time of Item D3 not met. C</p>	<p>D.1 Raise RCS Level > [EL-117'0"].</p>	<p>[6 hours]</p>
	<p>AND</p>	
	<p>D.2 Initiate action to align alternate decay heat removal system.</p>	<p>[6 hours] [Immediately]</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.9.5.1 Verify required SCS divisions are operable and one SCS division is in operation.	12 hours
<i>OR 3.9.5.2 Verify correct breaker alignment and indicated power available to the required SCS pump that is not in operation</i>	7 days
<i>OR 3.9.5.3 Verify correct breaker alignment and indicated power available to the required CS pumps.</i>	[24 hours] when in REDUCED RCS INVENTORY

RESPONSES TO USNRC COMMENTS ON I&C TECHNICAL SPECIFICATIONS

All USNRC comments related to the System 80+ Instrumentation and Control Technical Specifications Section 3.3 have been resolved. The attached markup of the Amendment U Technical Specifications incorporate the NRC comments. Tables 1-5 provide the ABB-CE response to 20 of the NRC comments. These responses describe how NRC comments were incorporated, if required and provide justification for not incorporating other NRC comments. Many NRC comments were incorporated in the Tech Specs exactly as written therefore, no additional response is required.

Table 1 Comments on Tech Specs (March 1, 1994)				
Tech Spec #	NRC Comment	ABB-CE Response	Description of Change	Resolution
3.3.2	1) Bases for 3.3.2 should explain that RTCBs are closed for channel functional tests	Explanation that RTCBs are closed for channel functional tests have been added to the bases on both B 3.3.1 and B 3.3.2 for consistency.	Change made to B 3.3.1 and B 3.3.2	

Table 1 Comments on Tech Specs (March 1, 1994)				
Tech Spec #	NRC Comment	ABB-CE Response	Description of Change	Resolution
3.3.8	2) APS is 2/2 - Change 3.3.8 to no channel in bypass, and 72 hours to repair (consistent with BWRs)	<p>No changes are need for TS 3.3.8 based on the following considerations:</p> <ol style="list-style-type: none"> 1. The probability that a transient to occur without an automatic trip is small. The addition of the Alternate Protection System (APS) changes this probability very little. 2. The total core damage frequency is small. The addition of the APS changes this probability very little. 3. The 31 day repair time specified in Amendment U is a reasonable time to repair a non safety system considering its small impact on the probability of a transient without a reactor trip and total core damage frequency. 4. The 31 day repair time was agreed to previously by the USNRC and ABB-CE in the Nov and Dec 1994 Tech Spec meetings. Changing the repair time to 72 hours based on what BWRs did is not applicable to System 80+. The ATWS requirements in 10 CFR 50.62 for PWRs are substantially different than the requirements for BWRs. BWR requirements not applicable to PWRs are as follows: 1) BWRS are required to have redundant scram air header exhaust valves, 2) BWRs are required to have a standby liquid control system with the capability of injecting boron into the reactor, and 3) BWRs are required to have equipment to trip the Reactor Coolant Pumps automatically during an ATWS. 5. Not allowing a APS channel to be placed in bypass increases to probability of a reactor trip on a single additional APS failure therefore, a failed APS should be placed in bypass. 	No change	

Table 1 Comments on Tech Specs (March 1, 1994)				
Tech Spec #	NRC Comment	ABB-CE Response	Description of Change	Resolution
3.3.5	3) Explain in Bases reason for Conditions E&F in 3.3.5	Condition E is different form F because ESFAS-1 and ESFAS-2 are not required in MODE 4 where SIAS, CSAS, CIAS, and MSIS are required in MODE 4. This is explained in the bases for LCO 3.3.5. This explanation is in the Applicable Safety Analysis and LCO sections of LCO B 3.3.5.	No change	
Table 3.3.1-1, Sheet 1	4) Reconcile footnotes with STS Footnote b "When any RTCB is closed" and Pressurizer pressure operating bypass	The footnotes for RTCBs closed and Pressurizer Pressure Operating Bypass were removed at the request of the NRC (identified during Nov 93 meeting). The following is a justification for the removal of the footnotes: 1. RTCB - RTCBs must be closed to be in MODE 1 or 2. This footnote did not provide and information not obvious. 2. Press Press Op. Bypass - The operating bypass cannot be inserted during MODE 1 or 2 therefore, the footnote did not provide any information useful for the MODES that LCO 3.3.1 applies, 1 and 2.	No change	
Table 3.3.1-1, Sheet 3	5) Why is the footnote that the LPD-High and DNBR-Low trips may be bypassed when less than [1E-4]% RTP and not in other places?	LPD-High and DNBR-Low automatic bypass is in effect in MODE 1 and 2 therefore, it should be addressed here unlike the RTCB footnote and Press Press Op. Bypass footnote described in note 5 above.	No change	

Table 1 Comments on Tech Specs (March 1, 1994)				
Tech Spec #	NRC Comment	ABB-CE Response	Description of Change	Resolution
LCO 3.3.1	6) Remove "operating bypass removal CHANNELS" ON LCO 3.3.1, page 3.3-1, LCO 3.3.2, page 3.3-11, and LCO 3.3.5 on page 3.3-22.	LCO 3.3.1 and other LCOs with operating bypasses (3.3.2 and 3.3.5) is a function of a channel, not a channel. Wording of these LCOs was changed to be consistent with wording agreed to during a telephone conference with C. Schulten, M. Waterman, A. Chu of the NRC and R. Rescorl and S. Wikosz of ABB-CE therefore, no change is required. The operating bypass removal function can't be disabled therefore, disabling it per STS is inappropriate. This was resolved during the 1/25/94 telephone conference discussed above.	LCO 3.3.1, 3.3.2, and 3.3.5 changed to read "...associated operating bypass removal functions..." No change	
	7)			
Table 3.3.6-1	8) Define "COMPONENT CONTROL LOGIC" and "MANUAL INITIATION CHANNEL"	COMPONENT CONTROL LOGIC and MANUAL INITIATION CHANNEL are defined in the definitions section 1.1 of the Tech Specs therefore, no change is required.	No change	
Comment after SR 3.3.9.4	9) CRIFS CHANNEL not defined in Bases	CRIFS is an acronym for Control Room Intake/Filtration Signal. CHANNEL as defined in section 1.1 of the Tech Specs is applicable. No change is needed.	No change	
SR 3.3.9.3	10) OUTPUT DIVISION is not defined	OUTPUT DIVISION is not a defined term therefore it should be changed to be in lower case is SR 3.3.9.3.	Output Division changed to lower case is SR 3.3.9.3.	

Table 1 Comments on Tech Specs (March 1, 1994)				
Tech Spec #	NRC Comment	ABB-CE Response	Description of Change	Resolution
Table 3.3.11-1	11) Footnote b should include radial enthalpy distribution.	The MEASUREMENT CHANNEL footnote is worded identically to the CE Standard Tech Specs, NUREG 1432 except for the addition of the word measurement that the NRC requested. There is no requirement to do enthalpy calculations during Post Accident Monitoring. The bases section explains that evaluations were performed to ensure radial distribution of the minimum number of detectors per quadrant. Additionally, the bases section has been modified to identify the source of the requirement of 2 CETs per quadrant, per Channel (i.e. NUREG 0737 and CE NPSD-212). The Definition of MEASUREMENT CHANNEL in section 1.1 of the Tech Specs will be changed to accommodate instrumentation without a trip function (e.g. PAMI). The words "of a TRIP CHANNEL" will be removed for the definition of MEASUREMENT CHANNEL.	B 3.3.11, page B 3.3-140,141 PAMI bases modified to identify the source of the requirement of 2 CETs per quadrant, per channel. MEASUREMENT CHANNEL definition changed.	
Table 3.3.12-1	12) Remove CVCS Charging Flow, CVCS Charging Pressure, Boric Acid Storage Tank Level, Pressurizer Auxiliary Spray Valve Controls, Charging Pump Control, and Letdown Isolation Valve Controls from Table 3.3.12-1.	Items removed in Amendment U therefore, no changes are required.	No change	

Table 1 Comments on Tech Specs (March 1, 1994)				
Tech Spec #	NRC Comment	ABB-CE Response	Description of Change	Resolution
SR 3.3.12.1 and SR 3.3.12.3	13) SR 3.3.12.1 CHANNEL CHECK ? SR 3.3.12.3 CHANNEL CALIBRATION ?	SR 3.3.12.1 Changed instrumentation CHANNEL to MEASUREMENT CHANNEL therefore, a CHANNEL CHECK is appropriate. SR 3.3.12.1 a CHANNEL CALIBRATION is needed on all MEASUREMENT CHANNELS, therefore no change is needed.	SR 3.3.12.1 Changed instrumentation CHANNEL to MEASUREMENT CHANNEL SR 3.3.12.3 No change	
(continued on Table 5)				

Table 2 Miscellaneous Comments on System 80+ Tech Specs (Tables)				
Tech Spec #	NRC Comment	ABB-CE Response	Description of Change	Resolution
Table 3.3.1-1, Sheet 1	14) Items 4,6,8,9 The available values are not conservative as compared to the values listed in Table 15.0-2 assumed for the transient analysis. They appear in the "High" side. The applicant needs to justify the adequacy of these values.	The allowable values in Table 3.3.1-1 are conservative with respect to Table 15.0-2 (values assumed in the transient analysis). The Table 3.3.1-1 values are a best estimate of when the function will be initiated based on experience. These values will be calculated during the detailed design phase after equipment selection and will be included with the plant specific Tech Specs from the COL Applicant.	No change	
Table 3.3.1-1, Sheet 1	15) In the Bases section, how these values (Items 4,6,8,8) are selected should be explained.	The bases for the ALLOWABLE VALUES are described in the Bases section. See B 3.3-5, <u>Bistable Processors</u> . This explanation is consistent with the wording used in the CE Standard Tech Specs, NUREG 1432.	No change	
Table 3.3.1-1, Sheets 1 and 3	16) Item 12 The applicant needs to provide the allowable values established in the System 80+ design or provide reasons why these values should not be included in this TS.	The ALLOWABLE VALUES for Item 12, Reactor Coolant Flow - Low of Table 3.3.1-1 (Sheet 2 of 3) are not provided because the allowable values for Reactor Coolant Flow - Low have not been calculated for System 80+ and no representative values are available. These values will be calculated during the detailed design phase after equipment selection and will be included with the plant specific Tech Specs from the COL Applicant.	No change	

Table 2 Miscellaneous Comments on System 80 + Tech Specs (Tables)				
Tech Spec #	NRC Comment	ABB-CE Response	Description of Change	Resolution
Table 3.3.8-1	17) The applicant should indicate what are the DBAs to determine the allowable values for items 1 and 4 and indicate the specific section of CESSAR-DC, which contains the analytical results to support these values.	The AFS is designed to initiate a reactor trip for all AOOs with a concurrent failure of the RPS to trip the reactor which cause an overpressurization of the RCS. The five AOOs have been added to the Tech Spec Bases. Of the Listed AOOs, Loss of Condenser Vacuum is the limiting event. The ARTS setpoint is based on the following requirements: 1) Above PPS setpoint, 2) Below primary safety valve opening pressure, and 3) Instrument uncertainties are considered. The AFAS setpoint is based on the following requirements: 1) Less than ESFAS low level signal used in the PPS and 2) Instrument uncertainties are considered. The CEDMCS Bus Under Voltage -Turbine Trip allowable value is not based on an AOO. This Trip uses a two state device. When the CEDMCS bus loses voltage, a Turbine Trip is generated. An Allowable value cannot be specified at this time however, it will be specified during the detailed design phase.	The APS bases have been modified to include the information described in the ABB-CE Response for ARTS and AFAS. The Allowable Value for the CEDMCS bus voltage will be changed to a relay.	

Table 3 Miscellaneous Comments on System 80+ Tech Specs (GL 93-08)				
Tech Spec #	NRC Comment	ABB-CE Response	Description of Change	Resolution
Generic Letter 93-08, Enclosure 2 Change TS 3.3.1	18) Change TS 3.3.1 to read "As a minimum, the Reactor Trip System instrumentation channels and interlocks of Table 3.3-1 shall be OPERABLE."	LCO 3.3.1 wording changed to agree to the wording discussed in the 1/25/94 telephone conference with C. Schulten, M. Waterman, A. Chu of the NRC and R. Rescorl and S. Wilkosz of ABB-CE therefore, no change is required.	LCO 3.3.1 changed to read "Four RPS TRIP CHANNELS and associated operating bypass removal functions for each Function in Table 3.3.1-1 shall be OPERABLE."	
Generic Letter 93-08, Enclosure 2 Change TS 4.3.1.2	19) Make addition of the following to TS 3.3.2 "Neutron detectors are exempt from response time testing"	The statement "Neutron detectors are exempt" is included in TS SR 3.3.1.5 and TS SR 3.3.2.8. This wording is identical to the CE Standard Tech Specs NUREG 1432. No change is required.	No change	

Table 3 Miscellaneous Comments on System 80 + Tech Specs (GL 93-08)				
Tech Spec #	NRC Comment	ABB-CE Response	Description of Change	Resolution
Generic Letter 93-08, Enclosure 2 Change TS 3.3.2	20) Change TS 3.3.2 to read "The Engineered Safety Features Actuation System (ESFAS) instrumentation channels and interlocks shown in Table 3.3-3 shall be OPERABLE with their Trip Setpoints et consistent with the values shown in the Trip Setpoint column of Table 3.3-4."	LCO 3.3.2 wording changed to agree to the wording discussed in the 1/25/94 telephone conference with C. Schulten, M. Waterman, A. Chu of the NRC and R. Rescorl and S. Wilkosz of ABB-CE therefore, no change is required	LCO 3.3.2 changed to read "Four RPS TRIP CHANNELS and associated operating bypass removal functions for each Function in Table 3.3.2-1 shall be OPERABLE."	

Table 4 Other System 80+ I&C Tech Spec Changes				
Tech Spec #	NRC Comment	ABB-CE Response	Description of Change	Resolution
B 3.3.1	No NRC comment	The Pressurizer Pressure - High bases, p. B 3.3-10 incorrectly specifies CEA Withdrawal From Low Power as the limiting RCS pressure case. This is incorrect and has been removed.	Removed "limiting RCS pressure case" form Pressurizer Pressure - High bases CEA Withdrawal From Low Power Conditions on p. B.3.3-10.	

Table 5 Comments on Tech Specs (cont'd) (March 1, 1994)				
Tech Spec #	NRC Comment	ABB-CE Response	Description of Change	Resolution
Table 3.3.1-1, Sheet 2 of 3	21) STS has no note related to low power	The System 80+ design is different than the STS. The preset low power value for SG Level - Low and RCS Flow - Low is appropriate for System 80+.	No change	
LCO 3.3.6, page 3.3-26	22) Define Manual Initiation Channel	Manual Initiation Channel is defined in the definitions section 1.1 of the Tech Specs.	No change	

Table 5 Comments on Tech Specs (cont'd) (March 1, 1994)				
Tech Spec #	NRC Comment	ABB-CE Response	Description of Change	Resolution
LCO 3.3.6, SR 3.3.6.3, page 3.3-28	23) Should a selective group test be performed to verify operability of a "TRIP LEG"	No, SR 3.3.6.3 verifies that each selective group of mechanical components is functional. The TRIP LEG is tested in SR 3.3.6.1.	No change	
LCO 3.3.9, page 3.3-34	24) Change wording on applicability to be separate lines.	Applicability statements put on three lines however, CRIFS does not need to be OPERABLE in MODES 5 or 6 unless there are core alterations. This is consistent with ESFAS OPERABILITY in LCO 3.3.5. The wording on Conditions C and D is confusing, as written in Amendment U. MODES 5 and 6 taken form condition because CRIFS only needs to be OPERATIONAL during core alterations.	Changes as described in ABB-CE response.	
LCO 3.3.12, page 3.3-42	25) Clarify use of "division" vs "channel"	Use division at the recommendation of USNRC during 12/93 TS meeting. This is consistent with the ABWR wording.	No change	
LCO 3.3.12, page 3.3-43	26) SR 3.3.12.1 ? SR 3.3.12.3 circled	SR 3.3.12.1 and SR 3.3.12.3 are appropriate, the NRC comment is not clear as to its purpose.	No changes	