NMC
Committed to Nuclear Excellence

Nuclear Management Company, LLC
Prairie Island Nuclear Generating Plant
1717 Wakonade Dr. East
Welch MN 55089

April 11, 2002

10 CFR Part 50
Section 50.90

U S Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

PRAIRIE ISLAND NUCLEAR GENERATING PLANT
Docket Nos. 50-282 License Nos. DPR-42
50-306 DPR-60

Supplement to License Amendment Request dated December 11, 2000
Conversion to Improved Technical Specifications (ITS)

By letter dated, December 11, 2000, Prairie Island submitted a License Amendment Request (LAR) to convert the current Technical Specifications (CTS) using the guidance of NUREG-1431, Revision 1 as amended by NRC and industry Technical Specification Task Force (TSTF) documents. This letter supplements the subject LAR.

The NRC Staff, in meetings and telephone calls, has requested changes in the proposed Technical Specifications and additional documentation in support of this LAR. Page changes have been designated as E28, E30, and E35 through E45. Definition of the changes associated with these change designators is included in Attachment 2.

Attachment 1 to this letter provides additional information in response to selected NRC requests for additional information (RAIs), RAI 3.1-2, RAI 3.3.M-7, RAI 3.6.8-3, RAI 3.7.11-3, and RAI 3.8.1-16.

Attachment 2, Page List by RAI Q, provides a cross-reference of change designators and other sources of page changes to the pages that they changed.

Attachment 3 to this letter contains Revision 12 change pages. Changes to the Revision 12 pages are sidelined in the right margin beside the line(s) which have been revised. Change Pages from Parts A, B, D, F, G or Cross-References are

A001

dated 4/1/02. Change Pages from Parts C and E are marked as Revision 12 with a small textbox below the revision sideline which contains "R-12".

The Significant Hazards Determinations and Environmental Assessments, as presented in the original December 11, 2000 submittal and as supplemented March 6, 2001, July 3, 2001, August 13, 2001, November 12, 2001, December 12, 2001, January 25, 2002, January 31, 2002, February 14, 2002, February 15, 2002, February 16, 2002, March 6, 2002 and by the Part G change pages in Attachment 3 of this letter, bound the proposed license amendment.

NMC is notifying the State of Minnesota of this LAR supplement by transmitting a copy of this letter and attachments to the designated State Official.

To the best of my knowledge and belief, the statements contained in this document are true and correct. In some respects these statements are not based on my personal knowledge, but on information furnished by other Prairie Island Nuclear Generating Plant (PINGP) and NMC employees, contractor employees, and/or consultants. Such information has been reviewed in accordance with company practice, and I believe it to be reliable.

In this letter NMC has not made any new or revised any Nuclear Regulatory Commission commitments. Please address any comments or questions regarding this matter to myself or Mr. Dale Vincent at 1-651-388-1121.

M. K. Nazar

Mano K. Nazar
Site Vice President
Prairie Island Nuclear Generating Plant

C: Regional Administrator - Region III, NRC
Senior Resident Inspector, NRC
NRR Project Manager, NRC
James Bernstein, State of Minnesota

Attachments:
Affidavit
1. Additional information in response to NRC RAIs
2. Page List by RAI Q
3. Revision 12 Change Pages

UNITED STATES NUCLEAR REGULATORY COMMISSION

NUCLEAR MANAGEMENT COMPANY, LLC

PRAIRIE ISLAND NUCLEAR GENERATING PLANT DOCKET NO. 50-282
50-306

REQUEST FOR AMENDMENT TO
OPERATING LICENSES DPR-42 & DPR-60

SUPPLEMENT TO LICENSE AMENDMENT REQUEST DATED DECEMBER 11, 2000
CONVERSION TO IMPROVED TECHNICAL SPECIFICATIONS (ITS)

By letter dated April 11, 2002, Nuclear Management Company, LLC, a Wisconsin corporation, is submitting additional information in support of the License Amendment Request originally submitted December 11, 2000.

This letter contains no restricted or other defense information.

NUCLEAR MANAGEMENT COMPANY, LLC

By M. K. Nazar
Mano K. Nazar
Site Vice President
Prairie Island Nuclear Generating Plant

State of Minnesota

County of Goodhue

On this 11th day of April 2002 before me a notary public acting in said County, personally appeared Mano K. Nazar, Site Vice President, Prairie Island Nuclear Generating Plant, and being first duly sworn acknowledged that he is authorized to execute this document on behalf of Nuclear Management Company, LLC, that he knows the contents thereof, and that to the best of his knowledge, information, and belief the statements made in it are true.

Marlys E. Davis

MARLYS E. DAVIS
NOTARY PUBLIC-MINNESOTA
My Commission Expires Jan. 31, 2005

TRANSMITTAL MANIFEST
Nuclear Management Company, LLC
PRAIRIE ISLAND NUCLEAR GENERATING PLANT

Supplement to License Amendment Request Dated December 11, 2000

Conversion to Improved Technical Specifications (ITS)

Correspondence Date: **4/11/2002** **ITS LAR 12/11/00**

USNRC:

- Document Control Desk
- Region III Administrator
- Sr. Resident Inspector
- Tae Kim

State of Minnesota:

- James Bernstein
- Linda Bruemmer(MDH)

Westinghouse:

- R. T. Pearce
- S. P. Swigart

NMC:

- Dave Jantosik
- Ed Weinkam
- Roy Anderson

Extra Distribution:

- TS History File

Off-Site Review Committee:

- Bill Beach
- Don Gillispie
- Joe Solymossy
- Mano Nazar
- Mark Warner
- Mike Werner
- Warren Fujimoto

NL Administrative:

- Gene Eckholt
- Bob Alexander
- Jack Leveille
- Jeff Kivi
- Dale Vincent
- NL File
- PI Records Management
- USAR File
- Commitment
- Design Change
- Fire Protection
- LA Related

- Al Cutter
- Bill Jefferson
- Chris Mundt
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- Jim Alders GO-5
- Ken Albrecht
- Larry Davis Duke Eng SG
- Lee Williams
- Licensing Library
- Mike Hall
- Mike Johnson
- PI OSRC File
- PITC Library
- Ronnie Lingle
- Ruth VanTassell orig. atta
- Scott Marty - Manifest Only
- Scott Northard RSQ-10
- Steve Frost
- Ted Amundson
- Tom Webb

Manifest Date: **4/11/2002** ***RMS - DOC Type:*** *3.113*

Comments: **Distributed as indicated on the attached ITS Submittal Copies sheet.**
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PITC				1
ITS Libr	1			1
Eng Libr				1
Lic Libr				1
NL File	1			
TS History	1			1
PI Records	1			1
Betty Underwood (OSRC)	1			
Totals	**45**	**4**	**45**	**17**

Prairie Island Nuclear Generating Plant

Attachment 1

to
Supplement dated April 11, 2002
to License Amendment Request dated December 11, 2000
Conversion to Improved Technical Specifications (ITS)

Additional information in response to NRC RAIs

Additional Selected RAIs, NRC issues raised in meetings and phone calls

NRC RAI 3.1-2

ITS 3.1.3 ISOTHERMAL TEMPERATURE COEFFICIENT (ITC)
ITS 3.1.3 Conditions C and D
ITS SR 3.1.3.3
STS 3.1.4 MODERATOR TEMPERATURE COEFFICIENT
STS 3.1.4 Conditions C and D
STS SR 3.1.4.3
JFD PA3.1-84
DOC M09

The ITS adopts the STS provisions to monitor the ITC lower limit during the operating cycle, with some modifications to the STS approach (and associated modifications to the Bases).

Comment: In adopting the modified STS approach to monitoring ITC, the ITS takes some of the periodic frequency requirements and puts them in Required Action C.1 and its associated Completion Time. Taking this approach results in having to add the otherwise unnecessary notes to the Condition C statement and Required Action C, and add an otherwise unnecessary Condition D. The new conditions and Required Actions are not consistent with NUREG-1431 as mistakenly stated in DOC M09. Recommend adopting the STS approach (in the ITS and associated Bases), modifying the SR notes only as necessary to maintain CTS requirements and current design limitations. Unnecessary preference changes are not acceptable in adopting the STS.

Revised NMC response to RAI 3.1-2

NUREG-1431 LCO 3.1.4, "Moderator Temperature Coefficient", does not work, as written, with the Prairie Island design limitations and practices. Deviations from the standard are required for an ITC Specification to apply to Prairie Island (PI). There may be many different approaches to modifying ISTS 3.1.4 to make it workable for PI. NMC has restored the proposed ITS LCO 3.1.3, "Isothermal Temperature Coefficient (ITC)" to the format and content originally proposed in the December 11, 2000 submittal. The PI ITS 3.1.3 Specifications and SRs are modeled after the Ginna ITS. The Ginna plant is similar in design and vintage to Prairie Island and ISTS LCO 3.1.4 as modified for Ginna also works for PI. Since there do not appear to be any technical difficulties with the proposed ITS 3.1.3, no changes have been made to the ITS submittal in response to this RAI except that "confirm" has been changed to "verify" in SRs 3.1.3.2 and 3.1.3.3.

NRC RAI 3.3.M-7

We have completed our review of the Prairie Island Nuclear Generating Plant's (PINGP) instrument setpoint methodology which was submitted with their letter dated March 6, 2001 and need following information to complete our review:

By letter dated March 6, 2001, Nuclear Management Company (the licensee) submitted supplement to license amendment request dated December 11, 2000, related to improved technical specification conversion. By attachment 1 to this letter, the licensee provided the Engineering Design Standard for instrument setpoint/uncertainty calculations and by attachments 2 and 3, the licensee provided two examples of the calculations. The licensee stated that their setpoint methodology is based on ISA Standard S67.04- 1987 and the two loop group setpoint methodology developed be Tenera, L. P. The licensee has not discussed any deviations from ISA Standard . S67.04-1987. Also; the NRC has not endorsed ISA S67.04-1987 by a regulatory guide. ISA S67.04-1982 and ISA S67.04-1994 versions have been endorsed by RG 1.105 rev.2 and rev. 3 respectively. The NRC staff do not recall approving the setpoint methodology developed by Tenera LP. Based on this, in order for the staff to determine the acceptability of your setpoint methodology, provide the discussion on how you meet the RG 1.105, rev. 2 or rev. 3. Also, the Engineering Design Standard rely on vendor information for most of the instrument uncertainties. Provide a discussion on the criteria used to determine the acceptability of the vendor data and what steps are taken if vendor data is not available.

Revised NMC response to RAI 3.3.M-7

Comparison of PINGP's Instrument Setpoint Methodology to NRC RG 1.105 Rev. 3

PINGP has not committed to being in compliance with RG 1.105 Rev. 3; we evaluate our setpoints for safety-related instrumentation in accordance with PINGP's Instrument Setpoint Methodology (PINGP Engineering Manual section 3.3.4.1 Rev. 0, "Engineering Design Standard for Instrument Setpoint/Uncertainty Calculations", hereafter referred to as PIISM).

NRC RG 1.105 Rev. 3 endorses ISA S67.04-1994 Part I, with four exceptions and clarifications listed in section C of the RG, "Regulatory Position". PIISM is based on ISA S67.04-1987 (which reflected current industry practice when PIISM was developed), but there are few differences between S67.04-1987 and S67.04-1994 Part I, and PIISM meets the requirements of the 1994 version.

PIISM can be compared with RG 1.105 Rev. 3 by evaluating the four exceptions and clarifications listed in the RG.

"1. Section 4 of ISA-S67.04-1994 specifies the methods, but not the criterion, for combining uncertainties in determining a trip setpoint and its allowable values. The 95/95 tolerance limit is an acceptable criterion for uncertainties. That is, there is a 95% probability that the constructed limits contain 95% of the population of interest for the surveillance interval selected."

PIISM addresses this topic in section 6.0, "Error Determination and Combination Methodology".

By using the square-root-sum-of-squares (SRSS) method to combine uncertainties that are random, normally distributed and independent, and algebraically combining those uncertainties that are non-random, not normally distributed, or are dependent, PINGP is using a method that is generally accepted as providing a 95% probability combined uncertainty value.

PINGP instrument setpoint calculations are performed with the tacit assumption that vendor reference accuracy values are provided with 95% probability and 95% confidence, unless specific information is available to indicate otherwise.

"2. Sections 7 and 8 of Part 1 of ISA-S67.04-1994 reference several industry codes and standards. If a referenced standard has been incorporated separately in to the NRC's regulations, licensees and applicants must comply with that standard as set forth in the regulation. If the referenced standard has been endorsed in a regulatory guide, the standard constitutes a method acceptable to the NRC staff of meeting a regulatory requirement as described in the regulatory guide. If a referenced standard has been neither incorporated into the NRC's regulations nor endorsed in a regulatory guide, licensees and applicants may consider and use the information in the referenced standard is appropriately justified, consistent with current regulatory practice."

To the best of our knowledge, PINGP is in compliance with this clarification.

"3. Section 4.3 of ISA-S67.04-1994 states that the limiting safety system setting (LSSS) may be maintained in technical specifications or appropriate plant procedures. However, 10 CFR 50.36 states that the technical specifications will include items in the categories of safety limits, limiting safety system settings, and limiting control settings. Thus, the LSSS may not be maintained in plant procedures. Rather, the LSSS must be specified as a technical-specification-defined limit in order to satisfy the

> requirements of 10 CFR 50.36. The LSSS should be developed in accordance with the setpoint methodology set forth in the standard, with the LSSS listed in the technical specifications."

PINGP's LSSS values (Allowable Values) are maintained in the site's Improved Standard Technical Specifications.

"4. ISA-S67.04-1994 provides a discussion on the purpose and application of an allowable value. The allowable value is the limiting value that the trip setpoint can have when tested periodically, beyond which the instrument channel is considered inoperable and corrective action must be taken in accordance with the technical specifications. The allowable value relationship to the setpoint methodology and testing requirements in the technical specifications must be documented."

At PINGP, this relationship is documented in Improved Standard Technical Specification section B3.3.1.

Conclusion:

Based on the comparison above, we believe that PIISM meets the intent of NRC RG 1.105 Rev. 3.

NMC RAI 3.6.8-3

JFD CL 3.6-172
CTS 3.6.C.3
CTS 3.6.B.2
ITS3.6.3 ACTIONS
ITS 3.6.8 ACTION A and Associated Bases

CTS 3.6.B.2 states the following: "With one vacuum breaker inoperable with respect to its containment isolation function, apply the requirements of Specification 3.6.C.3...". The corresponding ITS ACTION is ITS 3.6.8 ACTION A which states "Containment isolation function of one vacuum breaker train inoperable. Enter LCO 3.6.3 Condition A." A concern arises with regards to the transfer of the Required Action to ITS 3.6.3; in particular to the use and application of the Notes associated with the ACTIONS. Assuming the staff agrees with the proposed wording of ITS 3.6.8 Required Action A.1 which transfers the ACTIONS to ITS 3.6.3 Condition A, the Notes embodied in ACTION A would apply for ITS 3.6.8 ACTION A. However, the staff questions whether ITS 3.6.3 ACTION Notes 1 through 4 would also apply to ITS 3.6.8 ACTION A as a result of this transfer statement. The STS does not provide any guidance in this particular area. Definitely ITS 3.6.3 ACTION Note 4 has applicability to ITS 3.6.8 ACTION A, and

ACTION Note 3 does not. However, based on the wording of CTS 3.6.B.2, ITS 3.6.3 ACTION Notes 1 and 2 are not currently allowed by CTS 3.6.B, and appropriate justification would be needed to apply them in this case. In addition, insufficient information is provided in the CTS and ITS Bases to make a determination of whether the ACTIONS associated with an inoperability with respect to containment isolation will effect the vacuum relief function of the inoperable train. If it does affect its OPERABILITY then the use of ITS 3.6.3 ACTION Note 2 which allows separate condition entry for each penetration flow path cannot be used or applies for ITS 3.6.8. To avoid confusion and interpretation problems, it is recommended that ITS 3.6.3 ACTION Notes 1, 2 and 4 and their applicability be stated as Notes to ITS 3.6.8 ACTIONS. Also consideration should be given to rewriting ITS 3.6.8 Required Action A.1 to explicitly state the actions to be followed rather than transfer the ACTION to another specification. See Comment Number 3.6.3-16.

Comment: Revise the CTS/ITS markup in light of the above discussion and provide the appropriate discussions and justifications for the proposed changes. See Comment Number 3.6.3-16.

Revised NMC response to RAI 3.6.8-3

Included in changes designated as E39, are revisions to DOCs A3.6-19, L3.6-21 and A3.6-22. These are in response to RAI 3.6.8-3. Since the format of ITS Specification 3.6.8 has been changed since RAI 3.6.8-3 was originally answered, the following answer is provided: The Bases for ITS Specification 3.6.3 have been revised such that the vacuum breakers are NOT excluded from the Applicability of ITS Specification 3.6.3. Therefore, when a vacuum breaker train (VBT) valve is inoperable with respect to its containment isolation function, the operators will enter the applicable Conditions and Required Actions (RAs) of ITS Specification 3.6.3. Included in Specification 3.6.3 are four Action Table Notes which must also be applicable to the VBT valves. NMC has evaluated these four Notes and concluded that they are applicable to the VBT valves as discussed in the DOCs. Note 1 allows containment isolation valves to be open under administrative controls. VBT valves are comparable to other system valves and it is reasonable to allow them to be open under administrative controls. The VBT valves do not have unique features which would not allow them to be open. Note 2 allows separate Condition entry. The VBTs independently isolate containment and entry into 3.6.3 Conditions for each train separately does not cause any loss of function that is not addressed elsewhere in ITS. Note 3 directs the operators to enter the applicable Conditions and RAs for systems made inoperable by the containment isolation valves. This is appropriate for the VBT valves and will also assure that separate Condition entry does not cause a loss of function. Note 4 requires entry into LCO 3.6.1 when isolation valve leakage causes the overall containment leakage rate acceptance criteria to be exceeded. This is also appropriate since the VBT provide containment isolation functions and must contribute to containment leak tightness integrity. NMC concluded that Specification 3.6.3 Action Table Notes apply to the VBT valves.

NRC RAI 3.7.11-3

DOC M3.7-59

The SCWS supports unit coolers for a number of safeguards equipment rooms, as well as supporting the control room special ventilation system (for which ITS 3.7.10 specifies a 7-day Completion Time for one train); currently, degradation in the SCWS system must be evaluated to determine the effect on supported equipment operability. If operability is found to not be supported, the appropriate action requirements would apply. Hence, while 3.7.11 is a new explicit support system specification, its addition to TS is not necessarily entirely more restrictive; rather, it may be much less restrictive given the allowed outage times currently specified for the several systems it supports. In this light, the proposed 30-day Completion Time for restoring one inoperable train requires additional justification. Just because STS 3.7.11 ACTION A specifies 30 days to restore one CREATCS train to operable status does not necessarily transfer to the SCWS, which supports more things than keeping control room temperature within limits.

Revised NMC response to RAI 3.7.11-3

NMCs position is that adding LCO 3.7.11 is a more restrictive change. This change adds associated Required Actions, Completion Times, and associated SRs, which are not in the PI CTS. In addition, requiring a possible plant shutdown, if one SCWS cannot be restored to OPERABLE status within the 30 days, is a more restrictive change. The 30 days Completion Time for one Safeguards Chilled Water System (SCWS) train inoperable is consistent with Prairie Island design and operational intent. In the event that one SCWS loop is inoperable, the other OPERABLE loop is sufficient to provide adequate cooling capacity since each pump is 100% capacity. Although the overall reliability is reduced, based on a single failure in the OPERABLE loop, the low probability of an event requiring SCWS during this time is minimal. If an event did occur, the remaining SCWS loop would be assumed to be OPERABLE and would provide the required protection along with the alternate safety or non-safety related cooling means.

NRC RAI 3.8.1-16

NUREG Markup NUREG SR 3.8.1.20 CL3.8-133

The JFD appears to be incorrect. ITS SR3.8.1.6 addressed the DGs individually. The NUREG SR proposed for deletion requires simultaneous starting of all DGs. The licensee should provide an adequate justification for the proposed deletion, or retain the NUREG.

Revised NMC response to RAI 3.8.1-16:

PI CTS does not have a requirement to test both DGs at the same time. PI does perform an integrated Safety Injection (SI) test each refueling outage. This test does not differentiate between SI trains and therefore this SI test will send a start signal to both DGs. Therefore this SR which requires simultaneous start of both DGs every 10 years has not been included in ITS.

Prairie Island Nuclear Generating Plant

Attachment 2

to
Supplement dated April 11, 2002
to License Amendment Request dated December 11, 2000
Conversion to Improved Technical Specifications (ITS)

Page List by RAI Q

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E28	3.8	F	36
E28	3.8	F	37
E28	3.8	F	38
E28	3.8	F	39
E28	3.8	F	43
E28	3.8	F	49
E28	3.8	F	50
E28	3.8	F	51
E28	3.8	F	53
E28	3.8	G	4
E28	3.8	XRC	4.6-3
E28	3.8	XRI	3.8-3
E30	3.8	B	3.8.3-1
E30	3.8	B	3.8.3-2
E30	3.8	B	B 3.8.1-18
E30	3.8	B	B 3.8.2-4
E30	3.8	B	B 3.8.3-3
E30	3.8	C	5 of 12
E30	3.8	C	11 of 12
E30	3.8	D	14
E30	3.8	D	30
E30	3.8	E	3.8.3-2
E30	3.8	E	3.8.3-3
E30	3.8	E	B 3.8.1-25
E30	3.8	E	B 3.8.2-5
E30	3.8	E	B 3.8.3-6
E35	3.3	B	3.3.1-11
E35	3.3	B	3.3.1-16
E35	3.3	B	3.3.1-19
E35	3.3	B	3.3.1-20
E35	3.3	B	3.3.2-11
E35	3.3	B	B 3.3.1-52
E35	3.3	B	B 3.3.1-53
E35	3.3	B	B 3.3.1-56
E35	3.3	B	B 3.3.1-65
E35	3.3	C	3 of 72

RAI Q #	Package #	Part	Page #
E35	3.3	C	48 of 72
E35	3.3	C	49 of 72
E35	3.3	C	50 of 72
E35	3.3	C	54 of 72
E35	3.3	C	54 of 72
E35	3.3	C	56 of 72
E35	3.3	D	3
E35	3.3	D	7
E35	3.3	D	22
E35	3.3	D	39
E35	3.3	D	40
E35	3.3	D	41
E35	3.3	D	41
E35	3.3	D	43
E35	3.3	D	45
E35	3.3	D	48
E35	3.3	D	71
E35	3.3	D	73
E35	3.3	D	74
E35	3.3	D	75
E35	3.3	D	76
E35	3.3	D	77
E35	3.3	D	92
E35	3.3	E	3.3.1-15
E35	3.3	E	3.3.1-20
E35	3.3	E	3.3.1-25
E35	3.3	E	3.3.1-27
E35	3.3	E	3.3.2-23
E35	3.3	E	B 3.3.1-71
E35	3.3	E	B 3.3.1-73
E35	3.3	E	B 3.3.1-76
E35	3.3	E	B 3.3.1-77
E35	3.3	E	B 3.3.1-88
E35	3.3	F	7
E35	3.3	F	11
E35	3.3	F	16
E35	3.3	G	1
E35	3.3	G	1

RAI Q #	Package #	Part	Page #
E35	3.3	G	7
E35	3.3	G	40
E35	3.3	G	53
E35	3.3	G	61
E35	3.3	G	62
E36	1.0	D	3
E36	3.0	B	B 3.0-16
E36	3.0	D	9
E36	3.1	B	B 3.1.3-5
E36	3.1	B	B 3.1.3-6
E36	3.4	B	3.4.5-3
E36	3.4	B	3.4.7-2
E36	3.4	B	3.4.17-3
E36	3.4	B	B 3.4.5-6
E36	3.4	E	3.4.5-3
E36	3.4	E	B 3.4.5-7
E36	5.0	B	5.0-37
E36	5.0	C	35 of 41
E36	5.0	D	8
E36	5.0	E	5.0-42
E36	5.0	E	5.0-43
E38	3.5	C	3 of 10
E38	3.5	C	5 of 10
E38	3.5	D	6
E38	3.5	D	9
E38	3.5	D	22
E38	3.5	D	23
E38	3.5	G	3
E38	3.5	G	7
E38	3.5	G	25
E38	3.5	G	26
E38	3.5	G	27
E39	3.6	B	3.6.3-5
E39	3.6	B	3.6.3-6
E39	3.6	B	B 3.6.3-7
E39	3.6	B	B 3.6.3-7
E39	3.6	B	B 3.6.3-9
E39	3.6	B	B 3.6.3-11

RAI Q #	Package #	Part	Page #
E39	3.6	B	B 3.6.3-13
E39	3.6	B	B 3.6.3-14
E39	3.6	B	B 3.6.3-15
E39	3.6	C	5 of 24
E39	3.6	C	8 of 24
E39	3.6	C	10 of 24
E39	3.6	D	7
E39	3.6	D	7
E39	3.6	D	8
E39	3.6	D	9
E39	3.6	D	22
E39	3.6	D	26
E39	3.6	D	36
E39	3.6	D	37
E39	3.6	E	3.6.3-6
E39	3.6	E	3.6.3-8
E39	3.6	E	B 3.6.3-8
E39	3.6	E	B 3.6.3-9
E39	3.6	E	B 3.6.3-11
E39	3.6	E	B 3.6.3-13
E39	3.6	E	B 3.6.3-16
E39	3.6	E	B 3.6.3-17
E39	3.6	E	B 3.6.3-18
E39	3.6	E	B 3.6.3-19
E39	3.6	E	B 3.6.3-20
E39	3.6	E	B 3.6.3-21
E39	3.6	E	B 3.6.3-22
E39	3.6	F	8
E39	3.6	F	9
E39	3.6	G	1
E39	3.6	G	3
E39	3.6	G	29
E39	3.6	G	30
E39	3.6	G	39
E39	3.6	G	40
E40	3.3	B	3.3.2-5
E40	3.3	B	3.3.2-6
E40	3.3	B	3.3.2-10

RAI Q #	Package #	Part	Page #
E40	3.3	B	3.3.2-10
E40	3.3	B	3.3.2-11
E40	3.3	B	B 3.3.2-20
E40	3.3	B	B 3.3.2-24
E40	3.3	B	B 3.3.2-25
E40	3.3	B	B 3.3.2-28
E40	3.3	C	6 of 72
E40	3.3	C	29 of 72
E40	3.3	C	29 of 72
E40	3.3	C	61 of 72
E40	3.3	C	65 of 72
E40	3.3	D	26
E40	3.3	D	27
E40	3.3	D	90
E40	3.3	D	91
E40	3.3	D	92
E40	3.3	E	3.3.2-7
E40	3.3	E	3.3.2-8
E40	3.3	E	3.3.2-19
E40	3.3	E	3.3.2-22
E40	3.3	E	3.3.2-23
E40	3.3	E	B 3.3.2-39
E40	3.3	E	B 3.3.2-43
E40	3.3	E	B 3.3.2-44
E40	3.3	E	B 3.3.2-49
E40	3.3	E	B 3.3.2-50
E40	3.3	F	33
E40	3.3	G	7
E41	3.1	XRC	TABLE - 18
E41	3.1	XRC	TABLE - 19
E41	3.2	XRC	TABLE - 18
E41	3.2	XRC	TABLE - 19
E41	3.3	B	3.3.1-21
E41	3.3	B	3.3.3-1
E41	3.3	B	3.3.3-2
E41	3.3	B	3.3.4-2
E41	3.3	B	3.3.4-4
E41	3.3	B	3.3.5-1

RAI Q #	Package #	Part	Page #
E41	3.3	B	3.3.5-3
E41	3.3	B	3.3.5-5
E41	3.3	B	3.3.5-5
E41	3.3	B	B 3.3.4-7
E41	3.3	B	B 3.3.4-8
E41	3.3	B	B 3.3.4-9
E41	3.3	B	B 3.3.4-10
E41	3.3	B	B 3.3.5-1
E41	3.3	B	B 3.3.5-2
E41	3.3	B	B 3.3.5-3
E41	3.3	B	B 3.3.5-5
E41	3.3	B	B 3.3.5-6
E41	3.3	B	B 3.3.5-7
E41	3.3	C	26 of 72
E41	3.3	C	65 of 72
E41	3.3	C	68 of 72
E41	3.3	C	69 of 72
E41	3.3	D	54
E41	3.3	D	55
E41	3.3	D	62
E41	3.3	D	63
E41	3.3	D	64
E41	3.3	D	88
E41	3.3	D	89
E41	3.3	D	93
E41	3.3	D	94
E41	3.3	D	94
E41	3.3	E	3.3.1-28
E41	3.3	E	3.3.3-1
E41	3.3	E	3.3.3-2
E41	3.3	E	3.3.4-3
E41	3.3	E	3.3.4-5
E41	3.3	E	3.3.4-6
E41	3.3	E	3.3.5-1
E41	3.3	E	3.3.5-3
E41	3.3	E	3.3.5-6
E41	3.3	E	3.3.5-7
E41	3.3	E	3.3.5-7

RAI Q #	Package #	Part	Page #
E41	3.3	E	B 3.3.4-9
E41	3.3	E	B 3.3.4-10
E41	3.3	E	B 3.3.4-12
E41	3.3	E	B 3.3.4-13
E41	3.3	E	B 3.3.5-1
E41	3.3	E	B 3.3.5-2
E41	3.3	E	B 3.3.5-3
E41	3.3	E	B 3.3.5-5
E41	3.3	E	B 3.3.5-8
E41	3.3	F	41
E41	3.3	F	42
E41	3.3	F	45
E41	3.3	XRC	TABLE - 18
E41	3.3	XRC	TABLE - 19
E41	3.3	XRI	3.3-4
E41	3.4	XRC	TABLE - 18
E41	3.4	XRC	TABLE - 19
E41	3.5	XRC	TABLE - 18
E41	3.5	XRC	TABLE - 19
E41	3.6	B	B 3.6.1-6
E41	3.6	E	B 3.6.1-7
E41	3.6	XRC	TABLE - 18
E41	3.6	XRC	TABLE - 19
E41	3.7	XRC	TABLE - 18
E41	3.7	XRC	TABLE - 19
E41	3.9	B	3.9.4-2
E41	3.9	B	3.9.5-2
E41	3.9	B	B 3.9.4-2
E41	3.9	B	B 3.9.4-3
E41	3.9	B	B 3.9.4-6
E41	3.9	B	B 3.9.4-7
E41	3.9	B	B 3.9.4-8
E41	3.9	C	6 of 10
E41	3.9	D	8
E41	3.9	E	3.9.4-2
E41	3.9	E	3.9.5-3
E41	3.9	E	B 3.9.4-2
E41	3.9	E	B 3.9.4-3

RAI Q #	Package #	Part	Page #
E41	3.9	E	B 3.9.4-7
E41	3.9	E	B 3.9.4-8
E41	3.9	E	B 3.9.4-9
E41	3.9	F	5
E41	3.9	XRC	TABLE - 18
E41	3.9	XRC	TABLE - 19
E41	5.0	XRC	TABLE - 18
E41	5.0	XRC	TABLE - 19
E42	5.0	B	5.0-13
E42	5.0	B	5.0-14
E42	5.0	B	5.0-15
E42	5.0	B	5.0-16
E42	5.0	B	5.0-17
E42	5.0	B	5.0-18
E42	5.0	B	5.0-19
E42	5.0	B	5.0-20
E42	5.0	B	5.0-21
E42	5.0	B	5.0-22
E42	5.0	B	5.0-30
E42	5.0	B	5.0-31
E42	5.0	B	5.0-38
E42	5.0	B	5.0-39
E42	5.0	C	5 of 41
E42	5.0	C	6 of 41
E42	5.0	C	7 of 41
E42	5.0	C	8 of 41
E42	5.0	C	9 of 41
E42	5.0	C	10 of 41
E42	5.0	C	11 of 41
E42	5.0	C	12 of 41
E42	5.0	C	13 of 41
E42	5.0	D	2
E42	5.0	D	3
E42	5.0	E	5.0-16
E42	5.0	E	5.0-17
E42	5.0	E	5.0-18
E42	5.0	E	5.0-19
E42	5.0	E	5.0-20

RAI Q #	Package #	Part	Page #
E42	5.0	E	5.0-21
E42	5.0	E	5.0-22
E42	5.0	E	5.0-23
E42	5.0	E	5.0-24
E42	5.0	E	5.0-25
E42	5.0	E	5.0-26
E42	5.0	E	5.0-46
E42	5.0	E	5.0-47
E42	5.0	E	5.0-54
E42	5.0	E	5.0-55
E42	5.0	F	4
E42	5.0	F	6
E42	5.0	G	1
E42	5.0	G	7
E43	3.4	B	3.4.1-2
E43	3.4	B	3.4.12-1
E43	3.4	B	3.4.12-4
E43	3.4	B	3.4.13-4
E43	3.4	B	3.4.13-5
E43	3.4	B	B 3.4.1-5
E43	3.4	B	B 3.4.12-2
E43	3.4	B	B 3.4.12-9
E43	3.4	B	B 3.4.13-2
E43	3.4	B	B 3.4.13-11
E43	3.4	B	B 3.4.13-13
E43	3.4	C	1 of 30
E43	3.4	C	3 of 30
E43	3.4	C	6 of 30
E43	3.4	C	11 of 30
E43	3.4	C	12 of 30
E43	3.4	D	39
E43	3.4	D	45
E43	3.4	D	50
E43	3.4	E	3.4.1-3
E43	3.4	E	3.4.12-1
E43	3.4	E	3.4.12-6
E43	3.4	E	3.4.13-4
E43	3.4	E	3.4.13-5

RAI Q #	Package #	Part	Page #
E43	3.4	E	B 3.4.1-7
E43	3.4	E	B 3.4.12-3
E43	3.4	E	B 3.4.12-17
E43	3.4	E	B 3.4.13-2
E43	3.4	E	B 3.4.13-11
E43	3.4	E	B 3.4.13-13
E43	3.4	F	3
E43	3.4	G	3
E44	3.7	B	3.7.4-1
E44	3.7	B	B 3.7.4-1
E44	3.7	B	B 3.7.4-2
E44	3.7	B	B 3.7.4-3
E44	3.7	B	B 3.7.7-3
E44	3.7	B	B 3.7.9-4
E44	3.7	B	B 3.7.12-1
E44	3.7	B	B 3.7.12-3
E44	3.7	B	B 3.7.12-7
E44	3.7	C	1 of 50
E44	3.7	D	47
E44	3.7	D	58
E44	3.7	E	3.7.4-1
E44	3.7	E	B 3.7.4-1
E44	3.7	E	B 3.7.4-3
E44	3.7	E	B 3.7.4-4
E44	3.7	E	B 3.7.4-5
E44	3.7	E	B 3.7.7-4
E44	3.7	E	B 3.7.9-6
E44	3.7	E	B 3.7.12-2
E44	3.7	E	B 3.7.12-4
E44	3.7	E	B 3.7.12-9
E44	3.7	F	37
E44	3.7	G	3
E45	3.1	B	3.1.3-1
E45	3.1	B	3.1.3-2
E45	3.1	B	3.1.3-3
E45	3.1	B	B 3.1.3-2
E45	3.1	B	B 3.1.3-3
E45	3.1	B	B 3.1.3-4

RAI Q #	Package #	Part	Page #
E45	3.1	B	B 3.1.3-6
E45	3.1	B	B 3.1.3-7
E45	3.1	B	B 3.1.3-8
E45	3.1	C	1 of 14
E45	3.1	D	4
E45	3.1	D	5
E45	3.1	E	3.1.3-1
E45	3.1	E	3.1.3-2
E45	3.1	E	3.1.3-4
E45	3.1	E	B 3.1.3-3
E45	3.1	E	B 3.1.3-4
E45	3.1	E	B 3.1.3-5
E45	3.1	E	B 3.1.3-6
E45	3.1	E	B 3.1.3-7
E45	3.1	E	B 3.1.3-8
E45	3.1	E	B 3.1.3-9
E45	3.1	E	B 3.1.3-10
E45	3.1	F	3
E45	3.1	F	14
E45	3.1	F	15
E45	3.1	F	28
E45	3.1	G	3
Repagination	3.3	B	B 3.3.1-66
Repagination	3.3	B	B 3.3.2-29
Repagination	3.3	B	B 3.3.2-30
Repagination	3.3	B	B 3.3.2-31
Repagination	3.3	B	B 3.3.2-32
Repagination	3.3	B	B 3.3.2-33
Repagination	3.3	B	B 3.3.2-34
Repagination	3.3	B	B 3.3.2-35
Repagination	3.3	B	B 3.3.2-36
Repagination	3.3	B	B 3.3.2-37
Repagination	3.3	B	B 3.3.2-38
Repagination	3.3	B	B 3.3.2-39
Repagination	3.3	B	B 3.3.2-40
Repagination	3.3	B	B 3.3.2-41
Repagination	3.3	B	B 3.3.5-4
Repagination	3.3	B	B 3.3.5-8

RAI Q #	Package #	Part	Page #
Repagination	3.3	B	B 3.3.5-9
Repagination	3.3	D	78
Repagination	3.3	D	79
Repagination	3.3	D	80
Repagination	3.3	D	81
Repagination	3.3	D	82
Repagination	3.3	D	83
Repagination	3.3	D	84
Repagination	3.3	D	85
Repagination	3.3	D	86
Repagination	3.3	D	87
Repagination	3.3	E	3.3.2-21
Repagination	3.3	E	3.3.2-24
Repagination	3.3	E	3.3.4-4
Repagination	3.3	E	B 3.3.4-11
Repagination	3.3	E	B 3.3.5-4
Repagination	3.5	G	28
Repagination	3.6	B	3.6.3-7
Repagination	3.6	B	B 3.6.3-16
Repagination	3.6	B	B 3.6.3-17
Repagination	3.6	B	B 3.6.3-18
Repagination	3.6	B	B 3.6.3-19
Repagination	3.6	D	35
Repagination	3.6	G	41
Repagination	3.7	B	B 3.7.4-4
Repagination	3.7	B	B 3.7.4-5
Repagination	3.7	B	B 3.7.9-5
Repagination	3.7	B	B 3.7.9-6
Repagination	3.8	B	3.8.5-2
Repagination	3.8	B	B 3.8.4-9
Repagination	3.8	B	B 3.8.6-6
Repagination	3.8	B	B 3.8.6-8
Repagination	3.8	B	B 3.8.6-10
Repagination	3.8	B	B 3.8.6-11
Repagination	3.8	B	B 3.8.8-5
Repagination	3.8	B	B 3.8.8-6
Repagination	3.8	B	B 3.8.9-12
Repagination	3.8	D	22

RAI Q #	Package #	Part	Page #
Repagination	3.8	D	23
Repagination	3.8	D	24
Repagination	3.8	D	25
Repagination	3.8	D	26
Repagination	3.8	D	27
Repagination	3.8	D	28
Repagination	3.8	D	29
Repagination	3.8	D	31
Repagination	3.8	D	32
Repagination	3.8	D	33
Repagination	3.8	D	34
Repagination	3.8	D	35
Repagination	3.8	D	36
Repagination	3.8	E	3.8.9-1
Repagination	3.8	E	3.8.9-5
Repagination	3.8	E	B 3.8.7-7
Repagination	3.8	E	B 3.8.8-6
Repagination	3.8	E	B 3.8.8-7
Repagination	3.8	E	B 3.8.9-14
Repagination	3.8	F	42
Repagination	3.8	F	44
Repagination	3.8	F	45
Repagination	3.8	F	46
Repagination	3.8	F	47
Repagination	3.8	F	48
Repagination	3.9	B	B 3.9.4-4
Repagination	3.9	B	B 3.9.4-5
Repagination	3.9	E	B 3.9.4-6
Repagination	5.0	B	5.0-23
Repagination	5.0	B	5.0-24
Repagination	5.0	B	5.0-25
Repagination	5.0	B	5.0-26
Repagination	5.0	B	5.0-27
Repagination	5.0	B	5.0-28
Repagination	5.0	B	5.0-29
Repagination	5.0	B	5.0-32
Repagination	5.0	B	5.0-33
Repagination	5.0	B	5.0-34

RAI Q #	Package #	Part	Page #
Repagination	5.0	B	5.0-35
Repagination	5.0	B	5.0-36
Repagination	5.0	B	5.0-40
Repagination	5.0	B	5.0-41
Repagination	5.0	B	5.0-42
Repagination	5.0	B	5.0-43
Repagination	5.0	B	5.0-44
Repagination	5.0	B	5.0-45
Repagination	5.0	E	5.0-27
Repagination	5.0	E	5.0-28
Repagination	5.0	E	5.0-29
Repagination	5.0	E	5.0-30
Repagination	5.0	E	5.0-31
Repagination	5.0	E	5.0-32
Repagination	5.0	E	5.0-33
Repagination	5.0	E	5.0-34
Repagination	5.0	E	5.0-35
Repagination	5.0	E	5.0-36
Repagination	5.0	E	5.0-37
Repagination	5.0	E	5.0-38
Repagination	5.0	E	5.0-39
Repagination	5.0	E	5.0-40
Repagination	5.0	E	5.0-41
Repagination	5.0	E	5.0-44
Repagination	5.0	E	5.0-45
Repagination	5.0	E	5.0-48
Repagination	5.0	E	5.0-49
Repagination	5.0	E	5.0-50
Repagination	5.0	E	5.0-51
Repagination	5.0	E	5.0-52
Repagination	5.0	E	5.0-53

Prairie Island Nuclear Generating Plant

Attachment 3

to

Supplement dated April 11, 2002
to License Amendment Request dated December 11, 2000
Conversion to Improved Technical Specifications (ITS)

Revision 12 Change Pages

Improved Technical Specifications
Supplement dated 4/11/02
Revision 12 Change Page List

UPDATING INSTRUCTIONS

Remove				Insert			
Chapter/ Section	Part	Page	Revision/ Date	Chapter/ Section	Part	Page	Revision/ Date
1.0	D	3	12/11/00	1.0	D	3	4/1/02
3.0	B	B 3.0-16	1/2/02	3.0	B	B 3.0-16	4/1/02
	D	9	12/11/00		D	9	4/1/02
3.1	B	3.1.3-1	1/2/02	3.1	B	3.1.3-1	4/1/02
		3.1.3-2	1/2/02			3.1.3-2	4/1/02
		3.1.3-3	12/11/00			3.1.3-3	4/1/02
		B 3.1.3-2	1/2/02			B 3.1.3-2	4/1/02
		B 3.1.3-3	1/2/02			B 3.1.3-3	4/1/02
		B 3.1.3-4	1/2/02			B 3.1.3-4	4/1/02
		B 3.1.3-5	1/2/02			B 3.1.3-5	12/11/00
		B 3.1.3-6	1/2/02			B 3.1.3-6	4/1/02
		---	---			B 3.1.3-7	4/1/02
		---	---			B 3.1.3-8	4/1/02
	C	1 of 14	8		C	1 of 14	12
	D	4	1/2/02		D	4	4/1/02
		5	1/2/02			5	4/1/02
	E	3.1.3-1	8		E	3.1.3-1	12
		3.1.3-2	8			3.1.3-2	12
		3.1.3-4	8			3.1.3-4	12
		B 3.1.3-3	8			B 3.1.3-3	12
		B 3.1.3-4	8			B 3.1.3-4	12
		B 3.1.3-5	8			B 3.1.3-5	12
		B 3.1.3-6	8			B 3.1.3-6	12
		B 3.1.3-7	8			B 3.1.3-7	12
		B 3.1.3-8	8			B 3.1.3-8	12

Remove Chapter/ Section	Remove Part	Remove Page	Remove Revision/ Date	Insert Chapter/ Section	Insert Part	Insert Page	Insert Revision/ Date
3.1	E	B 3.1.3-9	8	3.1	E	B 3.1.3-9	12
		B 3.1.3-10				B 3.1.3-10	12
	F	3	1/2/02		F	3	4/1/02
		14	1/2/02			14	4/1/02
		15	1/2/02			15	4/1/02
		28	1/2/02			28	4/1/02
	G	3	1/2/02		G	3	4/1/02
	XRC	TABLE - 18	2/20/01		XRC	TABLE - 18	4/1/02
		TABLE - 19	12/11/00			TABLE - 19	4/1/02
3.2	XRC	TABLE - 18	2/20/01	3.2	XRC	TABLE - 18	4/1/02
		TABLE - 19	12/11/00			TABLE - 19	4/1/02
3.3	B	3.3.1-11	9/4/01	3.3	B	3.3.1-11	4/1/02
		3.3.1-16	9/4/01			3.3.1-16	4/1/02
		3.3.1-19	9/4/01			3.3.1-19	4/1/02
		3.3.1-20	9/4/01			3.3.1-20	4/1/02
		3.3.1-21	9/4/01			3.3.1-21	4/1/02
		3.3.2-5	12/1/01			3.3.2-5	4/1/02
		3.3.2-6	12/1/01			3.3.2-6	4/1/02
		3.3.2-10	1/2/02			3.3.2-10	4/1/02
		3.3.2-11	9/4/01			3.3.2-11	4/1/02
		3.3.3-1	1/2/02			3.3.3-1	4/1/02
		3.3.3-2	1/2/02			3.3.3-2	4/1/02
		3.3.4-2	2/20/01			3.3.4-2	4/1/02
		3.3.4-4	2/20/01			3.3.4-4	4/1/02

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UPDATING INSTRUCTIONS

Remove Chapter/ Section	Remove Part	Remove Page	Remove Revision/ Date	Insert Chapter/ Section	Insert Part	Insert Page	Insert Revision/ Date
3.3	B	3.3.5-1	12/11/00	3.3	B	3.3.5-1	4/1/02
		3.3.5-3	1/2/02			3.3.5-3	4/1/02
		3.3.5-5	1/2/02			3.3.5-5	4/1/02
		B 3.3.1-52	9/4/01			B 3.3.1-52	4/1/02
		B 3.3.1-53	12/11/00			B 3.3.1-53	4/1/02
		B 3.3.1-56	9/4/01			B 3.3.1-56	4/1/02
		B 3.3.1-65	9/4/01			B 3.3.1-65	4/1/02
		---	---			B 3.3.1-66	12/11/00
		B 3.3.2-20	1/2/02			B 3.3.2-20	4/1/02
		B 3.3.2-24	12/11/00			B 3.3.2-24	4/1/02
		B 3.3.2-25	12/11/00			B 3.3.2-25	4/1/02
		B 3.3.2-28	9/4/01			B 3.3.2-28	4/1/02
		B 3.3.2-29	12/11/00			B 3.3.2-29	12/11/00
		B 3.3.2-30	12/11/00			B 3.3.2-30	12/11/00
		B 3.3.2-31	12/11/00			B 3.3.2-31	12/11/00
		B 3.3.2-32	12/11/00			B 3.3.2-32	12/11/00
		B 3.3.2-33	12/11/00			B 3.3.2-33	12/11/00
		B 3.3.2-34	12/11/00			B 3.3.2-34	12/11/00
		B 3.3.2-35	12/11/00			B 3.3.2-35	12/11/00
		B 3.3.2-36	12/1/01			B 3.3.2-36	12/11/00
		B 3.3.2-37	12/1/01			B 3.3.2-37	12/1/01
		B 3.3.2-38	12/11/00			B 3.3.2-38	12/11/00
		B 3.3.2-39	12/11/00			B 3.3.2-39	12/11/00
		B 3.3.2-40	12/11/00			B 3.3.2-40	12/11/00
		B 3.3.2-41	12/11/00			B 3.3.2-41	12/11/00
		B 3.3.2-42	12/11/00			---	---
		B 3.3.4-7	12/11/00			B 3.3.4-7	4/1/02

Remove				Insert			
Chapter/ Section	Part	Page	Revision/ Date	Chapter/ Section	Part	Page	Revision/ Date
3.3	B	B 3.3.4-8	2/20/01	3.3	B	B 3.3.4-8	4/1/02
		B 3.3.4-9	2/20/01			B 3.3.4-9	4/1/02
		---	---			B 3.3.4-10	4/1/02
		B 3.3.5-1	12/11/00			B 3.3.5-1	4/1/02
		B 3.3.5-2	12/11/00			B 3.3.5-2	4/1/02
		B 3.3.5-3	12/11/00			B 3.3.5-3	4/1/02
		B 3.3.5-4	12/11/00			B 3.3.5-4	12/11/00
		B 3.3.5-5	12/11/00			B 3.3.5-5	4/1/02
		B 3.3.5-6	1/2/02			B 3.3.5-6	4/1/02
		B 3.3.5-7	12/11/00			B 3.3.5-7	4/1/02
		B 3.3.5-8	12/11/00			B 3.3.5-8	5/1/01
		---	---			B 3.3.5-9	5/1/01
	C	3 of 72	4		C	3 of 72	12
		6 of 72	7			6 of 72	12
		26 of 72				26 of 72	12
		29 of 72				29 of 72	12
		48 of 72	4			48 of 72	12
		49 of 72	4			49 of 72	12
		50 of 72				50 of 72	12
		54 of 72	4			54 of 72	12
		56 of 72	4			56 of 72	12
		61 of 72	6			61 of 72	12
		65 of 72				65 of 72	12
		68 of 72	7			68 of 72	12
	C	69 of 72	7		C	69 of 72	12
	D	3	9/4/01		D	3	4/1/02
		7	9/4/01			7	4/1/02

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UPDATING INSTRUCTIONS

Remove				Insert			
Chapter/ Section	Part	Page	Revision/ Date	Chapter/ Section	Part	Page	Revision/ Date
3.3	D	22	9/4/01	3.3	D	22	4/1/02
		26	12/11/00			26	4/1/02
		27	12/11/00			27	4/1/02
		39	9/4/01			39	4/1/02
		40	9/4/01			40	4/1/02
		41	12/11/00			41	4/1/02
		43	9/4/01			43	4/1/02
		45	9/4/01			45	4/1/02
		48	9/4/01			48	4/1/02
		54	1/2/02			54	4/1/02
		55	1/2/02			55	4/1/02
		62	1/2/02			62	4/1/02
		63	1/2/02			63	4/1/02
		64	1/2/02			64	4/1/02
		71	9/4/01			71	4/1/02
		73	9/4/01			73	4/1/02
		74	9/4/01			74	4/1/02
		75	9/4/01			75	4/1/02
		76	9/4/01			76	4/1/02
		77	9/4/01			77	4/1/02
		78	12/1/01			78	9/4/01
		79	1/2/02			79	12/1/01
		80	1/2/02			80	1/2/02
		81	1/2/02			81	1/2/02
		82	1/2/02			82	1/2/02
		83	1/2/02			83	1/2/02
		84	1/2/02			84	1/2/02

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UPDATING INSTRUCTIONS

Remove				Insert			
Chapter/ Section	Part	Page	Revision/ Date	Chapter/ Section	Part	Page	Revision/ Date
3.3	D	85	1/2/02	3.3	D	85	1/2/02
		86	1/2/02			86	1/2/02
		87	1/2/02			87	1/2/02
		88	1/2/02			88	4/1/02
		---	---			89	4/1/02
		---	---			90	4/1/02
		---	---			91	4/1/02
		---	---			92	4/1/02
		---	---			93	4/1/02
		---	---			94	4/1/02
	E	3.3.1-15	4		E	3.3.1-15	12
		3.3.1-20	4			3.3.1-20	12
		3.3.1-25	4			3.3.1-25	12
		3.3.1-27	4			3.3.1-27	12
		3.3.1-28	4			3.3.1-28	12
		3.3.2-7	6			3.3.2-7	12
		3.3.2-8	6			3.3.2-8	12
		3.3.2-19	7			3.3.2-19	12
		3.3.2-21				3.3.2-21	None
		3.3.2-22				3.3.2-22	12
		3.3.2-23	4			3.3.2-23	12
		3.3.2-24				3.3.2-24	None
		3.3.3-1	7			3.3.3-1	12
		3.3.3-2	7			3.3.3-2	12
		3.3.4-3				3.3.4-3	12
		3.3.4-4	1			3.3.4-4	None
		3.3.4-5	2			3.3.4-5	12

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UPDATING INSTRUCTIONS

Remove				Insert			
Chapter/ Section	Part	Page	Revision/ Date	Chapter/ Section	Part	Page	Revision/ Date
3.3	E	---	---	3.3	E	3.3.4-6	12
		3.3.5-1				3.3.5-1	12
		3.3.5-3	7			3.3.5-3	12
		3.3.5-6	7			3.3.5-6	12
		3.3.5-7	7			3.3.5-7	12
		B 3.3.1-71	4			B 3.3.1-71	12
		B 3.3.1-73				B 3.3.1-73	12
		B 3.3.1-76	4			B 3.3.1-76	12
		B 3.3.1-77				B 3.3.1-77	12
		B 3.3.1-88	2			B 3.3.1-88	12
		B 3.3.2-39	7			B 3.3.2-39	12
		B 3.3.2-43				B 3.3.2-43	12
		B 3.3.2-44				B 3.3.2-44	12
		B 3.3.2-49	4			B 3.3.2-49	12
		B 3.3.2-50				B 3.3.2-50	12
		B 3.3.4-9				B 3.3.4-9	12
		B 3.3.4-10				B 3.3.4-10	12
		B 3.3.4-11	2			B 3.3.4-11	None
		B 3.3.4-12	2			B 3.3.4-12	12
		---	---			B 3.3.4-13	12
		B 3.3.5-1				B 3.3.5-1	12
		B 3.3.5-2				B 3.3.5-2	12
		B 3.3.5-3				B 3.3.5-3	12
		B 3.3.5-4				B 3.3.5-4	None
		B 3.3.5-5				B 3.3.5-5	12
		B 3.3.5-8	7			B 3.3.5-8	12
	F	7	12/11/00		F	7	4/1/02

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UPDATING INSTRUCTIONS

Remove				Insert			
Chapter/ Section	Part	Page	Revision/ Date	Chapter/ Section	Part	Page	Revision/ Date
3.3	F	11	9/4/01	3.3	F	11	4/1/02
		16	12/11/00			16	4/1/02
		33	12/11/00			33	4/1/02
		41	1/2/02			41	4/1/02
		42	1/2/02			42	4/1/02
		45	1/2/02			45	4/1/02
	G	1	1/2/02		G	1	4/1/02
		7	1/2/02			7	4/1/02
		40	12/11/00			40	4/1/02
		53	9/4/01			53	4/1/02
		61	9/4/01			61	4/1/02
		62	9/4/01			62	4/1/02
	XRC	TABLE - 18	2/20/01		XRC	TABLE - 18	4/1/02
	XRC	TABLE - 19	12/11/00		XRC	TABLE - 19	4/1/02
	XRI	3.3-4	12/11/00		XRI	3.3-4	4/1/02
3.4	B	3.4.1-2	1/2/02	3.4	B	3.4.1-2	4/1/02
		3.4.5-3	12/11/00			3.4.5-3	4/1/02
		3.4.7-2	1/2/02			3.4.7-2	4/1/02
		3.4.12-1	1/2/02			3.4.12-1	4/1/02
		3.4.12-4	1/2/02			3.4.12-4	4/1/02
		3.4.13-4	1/2/02			3.4.13-4	4/1/02
		3.4.13-5	1/2/02			3.4.13-5	4/1/02
		3.4.17-3	1/2/02			3.4.17-3	4/1/02
		B 3.4.1-5	1/2/02			B 3.4.1-5	4/1/02
		B 3.4.5-6	12/11/00			B 3.4.5-6	4/1/02
		B 3.4.12-2	1/2/02			B 3.4.12-2	4/1/02

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UPDATING INSTRUCTIONS

Remove				Insert			
Chapter/ Section	Part	Page	Revision/ Date	Chapter/ Section	Part	Page	Revision/ Date
3.4	B	B 3.4.12-9	1/2/02	3.4	B	B 3.4.12-9	4/1/02
		B 3.4.13-2	1/2/02			B 3.4.13-2	4/1/02
		B 3.4.13-11	1/2/02			B 3.4.13-11	4/1/02
		B 3.4.13-13	1/2/02			B 3.4.13-13	4/1/02
	C	1 of 30	9		C	1 of 30	12
		3 of 30	9			3 of 30	12
		6 of 30	9			6 of 30	12
		11 of 30	9			11 of 30	12
		12 of 30	9			12 of 30	12
	D	39	1/2/02		D	39	4/1/02
		45	1/2/02			45	4/1/02
		50	1/2/02			50	4/1/02
	E	3.4.1-3	9		E	3.4.1-3	12
		3.4.5-3				3.4.5-3	12
		3.4.12-1	9			3.4.12-1	12
		3.4.12-6	9			3.4.12-6	12
		3.4.13-4	9			3.4.13-4	12
		3.4.13-5	9			3.4.13-5	12
		B 3.4.1-7	9			B 3.4.1-7	12
		B 3.4.5-7				B 3.4.5-7	12
3.4	E	B 3.4.12-3	9		E	B 3.4.12-3	12
		B 3.4.12-17	9			B 3.4.12-17	12
		B 3.4.13-2	9			B 3.4.13-2	12
		B 3.4.13-11	9			B 3.4.13-11	12
		B 3.4.13-13	9			B 3.4.13-13	12
	F	3	1/2/02		F	3	4/1/02
	G	3	1/2/02		G	3	4/1/02

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UPDATING INSTRUCTIONS

Remove				Insert			
Chapter/ Section	Part	Page	Revision/ Date	Chapter/ Section	Part	Page	Revision/ Date
3.4	XRC	4.6-3	5/1/01	3.4	XRC	4.6-3	4/1/02
		TABLE - 18	2/20/01			TABLE - 18	4/1/02
		TABLE - 19	12/11/00			TABLE - 19	4/1/02
3.5	C	3 of 10	8	3.5	C	3 of 10	12
		5 of 10				5 of 10	12
	D	6	1/2/02		D	6	4/1/02
		9	1/2/02			9	4/1/02
		22	11/1/01			22	4/1/02
		---	---			23	4/1/02
	G	3	1/2/02		G	3	4/1/02
		7	1/2/02			7	4/1/02
		25	12/11/00			25	4/1/02
		---	---			26	4/1/02
		---	---			27	4/1/02
		---	---			28	12/11/00
	XRC	TABLE - 18	2/20/01		XRC	TABLE - 18	4/1/02
		TABLE - 19	12/11/00			TABLE - 19	4/1/02
3.6	B	3.6.3-5	12/1/01	3.6	B	3.6.3-5	4/1/02
		3.6.3-6	12/1/01			3.6.3-6	4/1/02
		3.6.3-7	5/1/01			3.6.3-7	5/1/01
		B 3.6.1-6	12/1/01			B 3.6.1-6	4/1/02
		B 3.6.3-4	12/1/01			B 3.6.3-4	12/1/01
		B 3.6.3-7	1/2/02			B 3.6.3-7	4/1/02
		B 3.6.3-9	1/2/02			B 3.6.3-9	4/1/02
		B 3.6.3-11	12/1/01			B 3.6.3-11	4/1/02

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UPDATING INSTRUCTIONS

Remove				Insert			
Chapter/ Section	Part	Page	Revision/ Date	Chapter/ Section	Part	Page	Revision/ Date
3.6	B	B 3.6.3-13	12/1/01	3.6	B	B 3.6.3-13	4/1/02
		B 3.6.3-14	5/1/01			B 3.6.3-14	4/1/02
		B 3.6.3-15	5/1/01			B 3.6.3-15	4/1/02
		B 3.6.3-16	5/1/01			B 3.6.3-16	5/1/01
		B 3.6.3-17	12/11/00			B 3.6.3-17	5/1/01
		B 3.6.3-18	5/1/01			B 3.6.3-18	12/11/00
		---	---			B 3.6.3-19	5/1/01
		B 3.6.8-6	5/1/01			---	---
	C	5 of 24	9		C	5 of 24	12
		8 of 24	2			8 of 24	12
		10 of 24	6			10 of 24	12
	D	7	12/11/00		D	7	4/1/02
		8	5/1/01			8	4/1/02
		9	5/1/01			9	4/1/02
		22	5/1/01			22	4/1/02
		26	5/1/01			26	4/1/02
		35	5/1/01			35	1/2/02
		36	5/1/01			36	4/1/02
		37	1/2/02			37	4/1/02
	E	3.6.3-6	6		E	3.6.3-6	12
		3.6.3-8	2			3.6.3-8	12
		3.6.3-9	6			3.6.3-9	12
		B 3.6.1-7	6			B 3.6.1-7	12
		B 3.6.3-8	9			B 3.6.3-8	12
		B 3.6.3-9	9			B 3.6.3-9	12
		B 3.6.3-11	9			B 3.6.3-11	12
		B 3.6.3-13	6			B 3.6.3-13	12

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Remove				**Insert**			
Chapter/ Section	**Part**	**Page**	**Revision/ Date**	**Chapter/ Section**	**Part**	**Page**	**Revision/ Date**
3.6	E	B 3.6.3-16	6	3.6	E	B 3.6.3-16	12
		B 3.6.3-17				B 3.6.3-17	12
		B 3.6.3-18				B 3.6.3-18	None
		B 3.6.3-19	2			B 3.6.3-19	12
		B 3.6.3-20				B 3.6.3-20	None
		B 3.6.3-21	2			B 3.6.3-21	2
		B 3.6.3-22	2			B 3.6.3-22	2
	F	8	12/11/00		F	8	4/1/02
		9	5/1/01			9	4/1/02
	G	1	1/2/02		G	1	4/1/02
		3	1/2/02			3	4/1/02
		29	5/1/01			29	4/1/02
		30	5/1/01			30	4/1/02
		39	12/11/00			39	4/1/02
		---	---			40	4/1/02
		---	---			41	12/11/00
	XRC	TABLE - 18	2/20/01		XRC	TABLE - 18	4/1/02
3.6	XRC	TABLE - 19	12/11/00	3.6	XRC	TABLE - 19	4/1/02
3.7	B	3.7.4-1	2/2/02	3.7	B	3.7.4-1	4/1/02
		B 3.7.4-1	12/11/00			B 3.7.4-1	4/1/02
		B 3.7.4-2	12/11/00			B 3.7.4-2	4/1/02
		B 3.7.4-3	2/2/02			B 3.7.4-3	4/1/02
		B 3.7.4-4	2/2/02			B 3.7.4-4	2/2/02
		---	---			B 3.7.4-5	12/11/00
		B 3.7.7-3	12/11/00			B 3.7.7-3	4/1/02
		B 3.7.9-4	2/2/02			B 3.7.9-4	4/1/02

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Remove				Insert			
Chapter/ Section	Part	Page	Revision/ Date	Chapter/ Section	Part	Page	Revision/ Date
3.7	B	B 3.7.9-5	2/2/02	3.7	B	B 3.7.9-5	2/2/02
		B 3.7.9-6	12/11/00			B 3.7.9-6	12/11/00
		B 3.7.12-1	12/11/00			B 3.7.12-1	4/1/02
		B 3.7.12-3	2/2/02			B 3.7.12-3	4/1/02
		B 3.7.12-7	12/11/00			B 3.7.12-7	4/1/02
	C	1 of 50	11		C	1 of 50	12
	D	47	12/11/00		D	47	4/1/02
	D	---	---			58	4/1/02
	E	3.7.4-1	11		E	3.7.4-1	12
		3.7.12-3				---	---
		B 3.7.4-1				B 3.7.4-1	12
		B 3.7.4-3				B 3.7.4-3	12
		B 3.7.4-4	11			B 3.7.4-4	12
		B 3.7.4-5				B 3.7.4-5	12
		B 3.7.7-4				B 3.7.7-4	12
		B 3.7.9-6	11			B 3.7.9-6	12
		B 3.7.12-2				B 3.7.12-2	12
		B 3.7.12-4	11			B 3.7.12-4	12
		B 3.7.12-9				B 3.7.12-9	12
	F	37	2/20/01		F	37	4/1/02
	G	3	2/20/02		G	3	4/1/02
	XRC	TABLE - 18	2/20/01		XRC	TABLE - 18	4/1/02
		TABLE - 19	12/11/00			TABLE - 19	4/1/02
3.8	B	3.8.3-1	12/11/00	3.8	B	3.8.3-1	4/1/02
		3.8.3-2	2/2/02			3.8.3-2	4/1/02
		3.8.4-2	5/1/01			3.8.4-2	4/1/02

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Remove Chapter/ Section	Remove Part	Remove Page	Remove Revision/ Date	Insert Chapter/ Section	Insert Part	Insert Page	Insert Revision/ Date
3.8	B	3.8.4-3	5/1/01	3.8	B	3.8.4-3	4/1/02
		3.8.5-1	5/1/01			3.8.5-1	4/1/02
		3.8.5-2	5/1/01			3.8.5-2	5/1/01
		3.8.5-3	5/1/01			3.8.5-3	4/1/02
		3.8.6-1	5/1/01			3.8.6-1	4/1/02
		3.8.6-2	5/1/01			3.8.6-2	4/1/02
		3.8.6-3	5/1/01			3.8.6-3	4/1/02
		3.8.7-1	7/2/01			3.8.7-1	4/1/02
		3.8.7-2	7/2/01			3.8.7-2	4/1/02
		3.8.7-3	12/11/00			3.8.7-3	4/1/02
		3.8.8-1	7/2/01			3.8.8-1	4/1/02
		3.8.9-1	9/4/01			3.8.9-1	4/1/02
		3.8.9-2	9/4/01			3.8.9-2	4/1/02
		3.8.9-3	9/4/01			3.8.9-3	4/1/02
		B 3.8.1-18	12/11/00			B 3.8.1-18	4/1/02
		B 3.8.2-4	7/2/01			B 3.8.2-4	4/1/02
		B 3.8.3-3	12/11/00			B 3.8.3-3	4/1/02
		B 3.8.4-6	5/1/01			B 3.8.4-6	4/1/02
		B 3.8.4-7	5/1/01			B 3.8.4-7	4/1/02
		B 3.8.4-8	5/1/01			B 3.8.4-8	4/1/02
		B 3.8.4-9	5/1/01			B 3.8.4-9	5/1/01
		---	---			B 3.8.4-10	4/1/02
		---	---			B 3.8.4-11	4/1/02
		B 3.8.5-4	5/1/01			B 3.8.5-4	4/1/02
		B 3.8.5-6	5/1/01			B 3.8.5-6	4/1/02
		B 3.8.5-7	5/1/01			B 3.8.5-7	4/1/02
		B 3.8.6-3	5/1/01			B 3.8.6-3	4/1/02

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Remove				Insert			
Chapter/ Section	Part	Page	Revision/ Date	Chapter/ Section	Part	Page	Revision/ Date
3.8	B	B 3.8.6-4	5/1/01	3.8	B	B 3.8.6-4	4/1/02
		B 3.8.6-5	5/1/01			B 3.8.6-5	4/1/02
		B 3.8.6-6	5/1/01			B 3.8.6-6	5/1/01
		B 3.8.6-7	5/1/01			B 3.8.6-7	4/1/02
		B 3.8.6-8	5/1/01			B 3.8.6-8	5/1/01
		B 3.8.6-9	5/1/01			B 3.8.6-9	4/1/02
		B 3.8.6-10	5/1/01			B 3.8.6-10	5/1/01
		---	---			B 3.8.6-11	5/1/01
		B 3.8.7-2	7/2/01			B 3.8.7-2	4/1/02
		B 3.8.7-3	7/2/01			B 3.8.7-3	4/1/02
		B 3.8.7-4	7/2/01			B 3.8.7-4	4/1/02
		B 3.8.7-5	12/11/00			B 3.8.7-5	4/1/02
		B 3.8.8-4	7/2/01			B 3.8.8-4	4/1/02
		B 3.8.8-5	12/11/00			B 3.8.8-5	12/11/00
		---	---			B 3.8.8-6	12/11/00
		B 3.8.9-1	12/11/00			B 3.8.9-1	4/1/02
		B 3.8.9-3	12/11/00			B 3.8.9-3	4/1/02
		B 3.8.9-4	9/4/01			B 3.8.9-4	4/1/02
		B 3.8.9-5	9/4/01			B 3.8.9-5	4/1/02
		B 3.8.9-6	9/4/01			B 3.8.9-6	4/1/02
		B 3.8.9-7	9/4/01		B	B 3.8.9-7	4/1/02
		B 3.8.9-8	9/4/01			B 3.8.9-8	4/1/02
		B 3.8.9-9	9/4/01			B 3.8.9-9	4/1/02
		B 3.8.9-10	9/4/01			B 3.8.9-10	4/1/02
		B 3.8.9-11	9/4/01			B 3.8.9-11	4/1/02
		B 3.8.9-12	9/4/01			B 3.8.9-12	12/11/00
		---	---			B 3.8.9-13	4/1/02

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Remove				Insert			
Chapter/ Section	Part	Page	Revision/ Date	Chapter/ Section	Part	Page	Revision/ Date
3.8	C	2 of 12	3	3.8	C	2 of 12	12
		3 of 12	8			3 of 12	12
		5 of 12	11			5 of 12	12
		6 of 12	4			6 of 12	12
		11 of 12	3			11 of 12	12
		12 of 12				12 of 12	12
	D	9	9/4/01		D	9	4/1/02
		14	12/11/00			14	4/1/02
		16	9/4/01			16	4/1/02
		18	9/4/01			18	4/1/02
		19	9/4/01			19	4/1/02
		20	5/1/01			20	4/1/02
		21	12/11/00			21	4/1/02
		22	12/11/00			22	5/1/01
		23	7/02/01			23	12/11/00
		24	12/11/00			24	12/11/00
		25	12/11/00			25	7/02/01
		26	12/11/00			26	12/11/00
		27	12/11/00			27	12/11/00
		28	7/02/01			28	12/11/00
		29	5/1/01			29	12/11/00
		30	7/02/01			30	4/1/02
		31	5/01/01			31	5/1/01
		32	7/02/01			32	7/02/01
		33	7/02/01			33	5/1/01
		34	7/02/01			34	7/02/01
		35	9/4/01			35	7/02/01

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Remove				Insert			
Chapter/ Section	Part	Page	Revision/ Date	Chapter/ Section	Part	Page	Revision/ Date
3.8	D	36	1/2/02	3.8	D	36	7/02/01
		37	2/2/02			37	4/1/02
		---	---			38	4/1/02
		---	---			39	4/1/02
		---	---			40	4/1/02
	E	3.8.3-2			E	3.8.3-2	12
		3.8.3-3	11			3.8.3-3	12
		3.8.4-2	2			3.8.4-2	12
		3.8.4-3	2			3.8.4-3	12
		3.8.5-1	2			3.8.5-1	12
		3.8.5-2	2			3.8.5-2	12
		3.8.5-3	2			3.8.5-3	12
		3.8.6-1	2			3.8.6-1	12
		3.8.6-2	2			3.8.6-2	12
		3.8.6-3	2			3.8.6-3	12
		3.8.7-1	3			3.8.7-1	12
		3.8.7-2	3			3.8.7-2	12
		3.8.7-3				3.8.7-3	12
		---	---			3.8.7-4	12
		3.8.8-1				3.8.8-1	12
		3.8.9-1	4			3.8.9-1	None
		3.8.9-2	4			3.8.9-2	12
		3.8.9-3	4			3.8.9-3	12
		3.8.9-4				3.8.9-4	12
		---				3.8.9-5	None
		B 3.8.1-25				B 3.8.1-25	12
		B 3.8.2-5				B 3.8.2-5	12

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Remove				Insert			
Chapter/ Section	Part	Page	Revision/ Date	Chapter/ Section	Part	Page	Revision/ Date
3.8	E	B 3.8.3-6		3.8	E	B 3.8.3-6	12
		B 3.8.4-6	2			B 3.8.4-6	12
		B 3.8.4-7	2			B 3.8.4-7	12
		B 3.8.4-9	2			B 3.8.4-9	12
		B 3.8.4-10	2			B 3.8.4-10	12
		B 3.8.5-3	2			B 3.8.5-3	12
		B 3.8.5-4	2			B 3.8.5-4	12
		B 3.8.5-5	2			B 3.8.5-5	12
		B 3.8.5-6	2			B 3.8.5-6	12
		B 3.8.5-7	2			B 3.8.5-7	12
		B 3.8.6-2	2			B 3.8.6-2	12
		B 3.8.6-3	2			B 3.8.6-3	12
		B 3.8.6-4	2			B 3.8.6-4	12
		B 3.8.6-5	2			B 3.8.6-5	12
		B 3.8.6-7	2			B 3.8.6-7	12
		B 3.8.7-2				B 3.8.7-2	12
		B 3.8.7-3	3			B 3.8.7-3	12
		B 3.8.7-4	3			B 3.8.7-4	12
		B 3.8.7-5	3			B 3.8.7-5	12
		B 3.8.7-6				B 3.8.7-6	12
		---	---			B 3.8.7-7	None
		B 3.8.8-5	3			B 3.8.8-5	12
		B 3.8.8-6				B 3.8.8-6	3
		B 3.8.8-7				B 3.8.8-7	None
		B 3.8.9-1				B 3.8.9-1	12
		B 3.8.9-2				B 3.8.9-2	12
		B 3.8.9-4				B 3.8.9-4	12

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Remove				Insert			
Chapter/ Section	Part	Page	Revision/ Date	Chapter/ Section	Part	Page	Revision/ Date
3.8	E	B 3.8.9-5	4	3.8	E	B 3.8.9-5	12
		B 3.8.9-6	4			B 3.8.9-6	12
		B 3.8.9-7	4			B 3.8.9-7	12
		B 3.8.9-8	4			B 3.8.9-8	12
		B 3.8.9-9	4			B 3.8.9-9	12
		B 3.8.9-10				B 3.8.9-10	12
		B 3.8.9-11	4			B 3.8.9-11	12
		B 3.8.9-12	4			B 3.8.9-12	12
		B 3.8.9-13	4			B 3.8.9-13	12
		B 3.8.9-14	4			B 3.8.9-14	None
		B 3.8.9-15				B 3.8.9-15	12
		B 3.8.9-16				---	---
		B 3.8.9-17	4			---	---
	F	28	1/2/02		F	28	4/1/02
		29	5/1/01			29	4/1/02
		30	5/1/01			30	4/1/02
		31	5/1/01			31	4/1/02
		32	12/11/00			32	4/1/02
		33	5/1/01			33	4/1/02
		34	5/1/01			34	4/1/02
		36	5/1/01			36	4/1/02
		37	7/2/01			37	4/1/02
		38	5/1/01			38	4/1/02
		39	5/1/01			39	4/1/02
		42	5/1/01			42	5/01/01
		43	5/1/01			43	4/1/02
		44	12/11/00			44	5/01/01

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Remove				Insert			
Chapter/ Section	Part	Page	Revision/ Date	Chapter/ Section	Part	Page	Revision/ Date
3.8	F	45	7/2/01	3.8	F	45	12/11/00
		46	12/11/00			46	7/02/01
		47	12/11/00			47	12/11/00
		48	5/1/01			48	12/11/00
		49	5/1/01			49	4/1/02
		50	9/4/01			50	4/1/02
		51	9/4/01			51	4/1/02
		53	2/2/02			53	4/1/02
	G	4	1/2/02		G	4	4/1/02
	XRC	4.6-3	5/1/01		XRC	4.6-3	4/1/02
	XRI	3.8-3	5/1/01		XRI	3.8-3	4/1/02
3.9	B	3.9.4-2	12/11/00	3.9	B	3.9.4-2	4/1/02
		3.9.5-2	12/11/00			3.9.5-2	4/1/02
		B 3.9.4-2	12/11/00			B 3.9.4-2	4/1/02
		B 3.9.4-3	12/11/00			B 3.9.4-3	4/1/02
		B 3.9.4-4	1/21/02			B 3.9.4-4	12/11/00
		B 3.9.4-5	1/21/02			B 3.9.4-5	1/21/02
		B 3.9.4-6	12/11/00			B 3.9.4-6	4/1/02
		B 3.9.4-7	12/11/00			B 3.9.4-7	4/1/02
		B 3.9.4-8	12/11/00			B 3.9.4-8	4/1/02
	C	6 of 10	10		C	6 of 10	12
	D	8	1/21/02		D	8	4/1/02
	E	3.9.4-2			E	3.9.4-2	12
		3.9.5-3				3.9.5-3	12
		B 3.9.4-2				B 3.9.4-2	12
		B 3.9.4-3				B 3.9.4-3	12

Remove				Insert			
Chapter/ Section	Part	Page	Revision/ Date	Chapter/ Section	Part	Page	Revision/ Date
3.9	E	B 3.9.4-6	10	3.9	E	B 3.9.4-6	10
		B 3.9.4-7	10			B 3.9.4-7	12
		B 3.9.4-8				B 3.9.4-8	12
		B 3.9.4-9				B 3.9.4-9	12
	F	5	1/21/02		F	5	4/1/02
	XRC	TABLE - 18	2/20/01		XRC	TABLE - 18	4/1/02
		TABLE - 19	12/11/00			TABLE - 19	4/1/02
5.0	B	5.0-13	12/11/00	5.0	B	5.0-13	4/1/02
		5.0-14	12/11/00			5.0-14	4/1/02
		5.0-15	11/1/01			5.0-15	4/1/02
		5.0-16	12/11/00			5.0-16	4/1/02
		5.0-17	5/1/01			5.0-17	4/1/02
		5.0-18	5/1/01			5.0-18	4/1/02
		5.0-19	12/11/00			5.0-19	4/1/02
		5.0-20	5/1/01			5.0-20	4/1/02
		5.0-21	12/11/00			5.0-21	4/1/02
		5.0-22	12/11/00			5.0-22	4/1/02
		5.0-23	12/11/00			5.0-23	11/1/01
		5.0-24	12/11/00			5.0-24	12/11/00
		5.0-25	12/11/00			5.0-25	5/1/01
		5.0-26	12/11/00			5.0-26	12/11/00
		5.0-27	1/2/02			5.0-27	5/1/01
		5.0-28	12/11/00			5.0-28	12/11/00
		5.0-29	12/11/00			5.0-29	5/1/01
		5.0-30	12/11/00			5.0-30	4/1/02
		5.0-31	12/11/00			5.0-31	4/1/02

Remove				Insert			
Chapter/ Section	Part	Page	Revision/ Date	Chapter/ Section	Part	Page	Revision/ Date
5.0	B	5.0-32	12/11/00	5.0	B	5.0-32	12/11/00
		---	---			5.0-33	12/11/00
		---	---			5.0-34	12/11/00
		---	---			5.0-35	12/11/00
		---	---			5.0-36	12/11/00
		---	---			5.0-37	4/1/02
		---	---			5.0-38	4/1/02
		---	---			5.0-39	4/1/02
		---	---			5.0-40	1/2/02
		---	---			5.0-41	12/11/00
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		8	12/11/00			8	4/1/02

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UPDATING INSTRUCTIONS

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5.0	E	5.0-16		5.0	E	5.0-16	12
		5.0-17				5.0-17	12
		5.0-18				5.0-18	12
		5.0-19				5.0-19	12
		5.0-20	5			5.0-20	12
		5.0-21				5.0-21	12
		5.0-22				5.0-22	12
		5.0-23				5.0-23	12
		5.0-24	2			5.0-24	12
		5.0-25	2			5.0-25	12
		5.0-26				5.0-26	12
		5.0-27	2			5.0-27	None
		5.0-28				5.0-28	None
		5.0-29				5.0-29	5
		5.0-30				5.0-30	None
		5.0-31				5.0-31	None
		5.0-32				5.0-32	None
		5.0-33				5.0-33	2
		5.0-34				5.0-34	2
		5.0-35				5.0-35	None
		5.0-36	7			5.0-36	2
		5.0-37				5.0-37	None
		5.0-38				5.0-38	None
		5.0-39				5.0-39	None
		5.0-40				5.0-40	None
		5.0-41				5.0-41	None
		5.0-42				5.0-42	12

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5.0	E	5.0-43		5.0	E	5.0-43	12
		5.0-44				5.0-44	None
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		---	---			5.0-46	12
		---	---			5.0-47	12
		---	---			5.0-48	None
		---	---			5.0-49	None
		---	---			5.0-50	None
		---	---			5.0-51	None
		---	---			5.0-52	None
		---	---			5.0-53	None
		---	---			5.0-54	12
		---	---			5.0-55	12
	F	4	11/1/01		F	4	4/1/02
		6	1/2/02			6	4/1/02
	G	1	1/2/02		G	1	4/1/02
		7	12/11/00			7	4/1/02
	XRC	TABLE - 18	2/20/01		XRC	TABLE - 18	4/1/02
		TABLE - 19	12/11/00			TABLE - 19	4/1/02

NSHD Category	Change Number 1.0-	Discussion of Change
A	04	CTS definition of CHANNEL CALIBRATION. The CHANNEL CALIBRATION definition has in general been conformed to NUREG-1431 as modified by approved TSTF-205 Revision 3. Specific reference to testing of resistance temperature detectors or thermocouple sensors has been added to the current Prairie Island definition for clarification. These changes are administrative since they do not substantively change the Prairie Island methodology for calibration of plant instrumentation.
A	05	CTS definition of COLR. The CTS reference within this definition has been revised to "6.6.E" to correct a CTS referencing error. Since the change corrects a referencing error, this is an administrative change.
A	06	CTS definition of CHANNEL FUNCTIONAL TEST. The current CHANNEL FUNCTIONAL TEST definition is re-titled CHANNEL OPERATIONAL TEST (COT) since much of the definition wording is the same. This definition has in general been conformed to NUREG-1431 as modified by approved TSTF-205 Revision 3. These changes are administrative since they do not substantively change the Prairie Island methodology for testing of these instruments.

BASES (continued)

SR 3.0.3

SR 3.0.3 establishes the flexibility to defer declaring affected equipment inoperable or an affected variable outside the specified limits when a Surveillance has not been completed within the specified Frequency. A delay period of up to 24 hours or up to the limit of the specified Frequency, whichever is greater, applies from the point in time that it is discovered that the Surveillance has not been performed in accordance with SR 3.0.2, and not at the time that the specified Frequency was not met.

This delay period provides adequate time to complete Surveillances that have been missed. This delay period permits the completion of a Surveillance before complying with Required Actions or other remedial measures that might preclude completion of the Surveillance.

The basis for this delay period includes consideration of unit conditions, adequate planning, availability of personnel, the time required to perform the Surveillance, the safety significance of the delay in completing the required Surveillance, and the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the requirements. When a Surveillance with a Frequency based not on time intervals, but upon specified unit conditions, operating situations, or requirements of regulations (e.g., prior to entering MODE 1 after each fuel loading, or in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions, etc.) is discovered to not have been performed when specified, SR 3.0.3 allows for the full delay period of up to the specified Frequency to perform the Surveillance. However, since there is not a time interval specified, the missed Surveillance should be performed at the first reasonable opportunity.

SR 3.0.3 provides a time limit for, and allowances for the performance of, Surveillances that become applicable as a consequence of MODE changes imposed by Required Actions.

NSHD category	Change number 3.0-	Discussion Of Change
A	17	CTS 4.0.B. (ITS SR 3.0.1) Specification SR 3.0.1 is included in conformance with NUREG-1431 and expands upon the current requirements in the first sentence of CTS 4.0.B. This Specification establishes the requirements and limitations that the SRs shall meet during the MODES or other specified conditions in the Applicability for which the requirements of the LCO apply. This Specification is administrative since it does not impose any new requirements and is consistent with current practice at the PI plant.
A	18	CTS 4.0.B. (ITS SR 3.0.3) Current TS language which establishes flexibility to defer declaring affected equipment inoperable or an affected variable outside the specified limits when a Surveillance has not been completed within the specified Frequency has been replaced by NUREG-1431 wording. The intent is substantially the same as the CTS except for the less restrictive provisions of TSTF-358 which are addressed in DOC L3.0-20. Since the intent remains the same, this change is considered administrative.

3.1 REACTIVITY CONTROL SYSTEMS

3.1.3 Isothermal Temperature Coefficient (ITC)

LCO 3.1.3 The ITC shall be maintained within the limits specified in the COLR. The maximum COLR upper limit shall be:

a. < 5 pcm/°F for power levels ≤ 70% RTP; and

b. < 0 pcm/°F for power levels > 70% RTP.

APPLICABILITY: MODE 1 and MODE 2 with $k_{eff} \geq 1.0$ for the upper ITC limit, MODES 1, 2, and 3 for the lower ITC limit.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ITC not within upper limit.	A.1 Establish administrative withdrawal limits for control banks to maintain ITC within limit.	24 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 2 with $k_{eff} < 1.0$.	6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. ----------NOTE---------- Required Action C.1 must be completed whenever Condition C is entered. ---------------------------- Projected end of cycle (EOC) ITC not within lower limit	---------------NOTE---------------- LCO 3.0.4 is not applicable. ------------------------------------- C.1 Re-evaluate core design and safety analysis, and determine that the reactor core is acceptable for continued operation.	Once prior to reaching the equivalent of an equilibrium RTP all rods out boron concentration of 300 ppm
D. Required Action and associated Completion Time of Condition C not met.	D.1 Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.3.1	Verify ITC is within upper limit.	Once prior to entering MODE 1 after each refueling
SR 3.1.3.2	Confirm ITC will be within limits at 70% RTP.	Once after each refueling prior to THERMAL POWER exceeding 70% RTP
SR 3.1.3.3	Verify that ITC will be within limits at EOC.	Once after each refueling prior to THERMAL POWER exceeding 70% RTP

BASES

BACKGROUND (continued)

distributed poisons to yield an ITC at BOC within the range analyzed in the plant accident analysis. The end of cycle (EOC) MTC is also limited by the requirements of the accident analysis. Fuel cycles are evaluated to ensure that the ITC does not exceed the limits.

The limitations on ITC are provided to ensure that the value of MTC remains within the limiting conditions assumed in the USAR accident and transient analyses.

APPLICABLE SAFETY ANALYSES

The acceptance criteria for the specified ITC are:

a. The MTC values must remain within the bounds of those used in the accident analysis (Ref. 2); and

b. The ITC must be such that inherently stable power operations result during normal operation and accidents, such as overheating and overcooling events.

The USAR (Ref. 2) contains analyses of accidents that result in both overheating and overcooling of the reactor core. MTC is one of the controlling parameters for core reactivity in these accidents. Both the most positive value and most negative value of the MTC are important to safety, and both values must be bounded. Values used in the analyses consider worst case conditions for the cycle exposure being evaluated to ensure that the accident results are bounding.

The consequences of accidents that cause core overheating must be evaluated when the MTC is positive (i.e., upper limit). Such accidents include the rod withdrawal transient from either zero or RTP, and loss of forced reactor coolant flow. The consequences of accidents that cause core overcooling must be evaluated when the MTC is negative. Such accidents include the main steam line break.

BASES

APPLICABLE SAFETY ANALYSES (continued)

In order to ensure a bounding accident analysis, the MTC is assumed to be its most limiting value for the analysis conditions appropriate to each accident. The bounding value is determined by considering rodded and unrodded conditions, whether the reactor is at full or zero power, and whether it is the BOC or EOC life. The most conservative combination appropriate to the accident is then used for the analysis (Ref. 2).

MTC satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii). Even though it is not directly observed and controlled from the control room, ITC is considered an initial condition process variable because of its dependence on boron concentration.

LCO

LCO 3.1.3 requires the ITC to be within specified limits of the COLR to ensure that the core operates within the assumptions of the accident analysis. During the reload core safety evaluation, the MTC is analyzed to determine that its values will remain within the bounds of the original accident analyses during operation.

Assumptions made in safety analyses require that the ITC be less positive than a given upper bound and more positive than a given lower bound. The ITC is most positive at BOC; this upper bound must not be exceeded. This maximum upper limit usually occurs at BOC, all rods out (ARO), hot zero power conditions. At EOC the ITC takes on its most negative value, when the lower bound becomes important. This LCO exists to ensure that both the upper and lower bounds are not exceeded.

During operation, therefore, the conditions of the LCO can only be ensured through measurement. The Surveillance check at BOC on ITC provides confirmation that the ITC is behaving as anticipated and will be within limits at 70% RTP, full power, and EOC so that the acceptance criteria are met.

The LCO establishes a maximum positive value that cannot be exceeded. The BOC positive limit and the EOC negative limit are

BASES

LCO (continued)	established in the COLR to allow specifying limits for each particular cycle. This permits the unit to take advantage of improved fuel management and changes in unit operating schedule. If the LCO limits are not met, the assumptions of the safety analysis may not be met. The core could violate criteria that prohibit a return to criticality, or the DNBR ratio criteria of the approved correlation may be violated, which could lead to a loss of the fuel cladding integrity.
APPLICABILITY	Technical Specifications place both LCO and SR values on ITC, based on the safety analysis assumptions described above. In MODE 1, the limits on ITC must be maintained to ensure that any accident initiated from THERMAL POWER operation will not violate the design assumptions of the accident analysis. In MODE 2 with the reactor critical, the upper limit must also be maintained to ensure that startup accidents (such as the uncontrolled rod cluster control withdrawal) will not violate the assumptions of the accident analysis. The lower ITC limit must be maintained in MODES 2 and 3, in addition to MODE 1, to ensure that cooldown accidents at EOC will not violate the assumptions of the accident analysis since ITC becomes more negative as the cycle burnup increases and the RCS boron concentration is reduced. In MODES 4, 5, and 6, this LCO is not applicable, since no Design Basis Accidents using the MTC as an analysis assumption are initiated from these MODES.
ACTIONS	<u>A.1</u> ITC must be kept within the upper limit specified in LCO 3.1.3 to ensure that assumptions made in the safety analysis remain valid. The upper limit of Condition A is the upper limit specified in the COLR since this value will always be less than or equal to the maximum upper limit specified in the LCO.

BASES

ACTIONS

A.1 (continued)

If the upper ITC limit is violated at BOC, administrative withdrawal limits for control banks must be established to maintain the MTC within its limits in the future. The ITC becomes more negative with control bank insertion and decreased boron concentration. A Completion Time of 24 hours provides enough time for evaluating the ITC measurement and computing the required bank withdrawal limits.

The control rods are maintained within the administrative withdrawal limits until a subsequent calculation verifies that ITC has been restored within its limit. As cycle burnup is increased, the RCS boron concentration will be reduced. The reduced boron concentration causes the ITC to become more negative. Using physics calculations, the time in cycle life at which the calculated ITC will meet the LCO requirement can be determined. At this point in core life Condition A no longer exists. The unit is no longer in the Required Action, so the administrative withdrawal limits are no longer in effect.

B.1

If the required administrative withdrawal limits at BOC are not established within 24 hours, the unit must be brought to MODE 2 with $k_{eff} < 1.0$ to prevent operation with an MTC that is more positive than that assumed in safety analyses.

The allowed Completion Time of 6 hours is reasonable, based on operating experience, for reaching the required MODE from full power conditions in an orderly manner and without challenging plant systems.

BASES

ACTIONS (continued)

C.1

Exceeding the EOC ITC limit means that the safety analysis assumptions for the EOC accidents that use a bounding negative MTC value may be invalid. If it is determined during PHYSICS TESTS that the EOC ITC value will exceed the most negative ITC limit specified in the COLR, the safety analysis and core design must be re-evaluated prior to reaching the equivalent of an equilibrium RTP all rods out (ARO) boron concentration of 300 ppm to ensure that operation near the EOC remains acceptable. The 300 ppm limit is sufficient to prevent EOC operation at or below the accident analysis MTC assumptions.

Condition C has been modified by a NOTE that requires Required Action C.1 to be completed whenever this Condition is entered. This is necessary to ensure that the plant does not operate at conditions where the ITC would be below the most negative limit specified in the COLR.

Required Action C.1 is modified by a Note which states that LCO 3.0.4 is not applicable. This Note is provided since the requirement to re-evaluate the core design and safety analysis prior to reaching an equivalent RTP ARO boron concentration of 300 ppm is adequate action without restricting entry into MODE 1.

D.1

If the re-evaluation of the safety analysis cannot support the predicted EOC ITC lower limit, or if the Required Actions of Condition C are not completed within the associated Completion Time the plant must be brought to a MODE or Condition in which the LCO requirements are not applicable. To achieve this status, the plant must be brought to MODE 4 within 12 hours. The allowed completion Time is reasonable, based on operating experience, for reaching the required MODE from full power conditions in an orderly manner and without challenging plant systems.

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.1.3.1

This SR requires measurement of the ITC at BOC prior to entering MODE 1 in order to demonstrate compliance with the most positive ITC LCO. Meeting the limit prior to entering MODE 1 ensures that the limit will also be met at higher power levels.

The BOC ITC value for ARO will be obtained from measurements during the physics tests after refueling. The ARO value can be directly compared to the BOC ITC limit of the LCO. If required, measurement results and predicted design values can be used to establish administrative withdrawal limits for control banks.

Measurement of the ITC at the beginning of the fuel cycle is adequate to confirm that the ITC remains within its upper limit.

SR 3.1.3.2

This SR requires measurement of ITC at BOC prior to exceeding 70% RTP after each refueling in order to confirm compliance with the 70% RTP ITC limit in the COLR. The Frequency of "Once after each refueling prior to THERMAL POWER exceeding 70% RTP" ensures the limit will be met prior to being applicable.

SR 3.1.3.3

This SR requires measurement of ITC at BOC prior to exceeding 70% RTP after each refueling in order to confirm compliance with the most negative ITC LCO. Meeting this limit prior to exceeding 70% RTP ensures that the limit will also be met at EOC.

The ITC value for EOC is derived from the ITC low power PHYSICS TESTS. The EOC value is calculated using the predicted EOC ITC from the core design report and the difference between the

BASES

SURVEILLANCE REQUIREMENTS

SR 3.1.3.3 (continued)

measured and predicted BOC ITC. The predicted EOC value is directly compared to the most negative EOC value established in the COLR to ensure that the predicted EOC negative ITC value is within the safety analysis assumptions.

REFERENCES

1. AEC "General Design Criteria for Nuclear Power Plant Construction Permits," Criterion 8, issued for comment July 10, 1967, as referenced in USAR Section 1.2.

2. USAR, Sections 14.4 and 14.5.

A3.1-00

R-2

3.1.F. ISOTHERMAL TEMPERATURE COEFFICIENT (ITC)

LCO3.1.3

1. When the reactor is in MODE 1 and 2 with $K_{eff} \geq 1.0$ ~~critical~~, the isothermal temperature coefficient shall be within the limits specified in the COLR, the maximum upper limit shall be A3.1-01 A3.1-02

less than 5 pcm/°F ~~with all rods withdrawn~~, except ~~during low power PHYSICS TESTS and~~ as specified in 3.1.F.2 and 3. LR3.1-03

When the reactor is in MODES 1, 2 and 3, the lower ITC limit shall be met. M3.1-04

LCO3.1.3

2. When the reactor is above 70 percent RATED THERMAL POWER ~~with all rods withdrawn~~, the isothermal temperature coefficient shall be negative, except as specified in 3.1.F.3. LR3.1-03

3. If the limits of 3.1.F.1 or 2 cannot be met, POWER OPERATION may continue provided the following actions are taken:

LCO3.1.3
Action A
Action B

a. Establish and maintain control rod withdrawal limits sufficient to restore the ITC to less than the upper limits specified in A3.1-02

the COLR ~~Specification 3.1.F.1 and 2 above~~ within 24 hours or be in MODE 2 with $K_{eff} < 1.0$ ~~HOT SHUTDOWN~~ within the next 6 hours. A3.1-01

~~These withdrawal limits shall be in addition to the insertion limits specified in the CORE OPERATING LIMITS REPORT.~~ A3.1-06

~~b. Maintain the control rods within the withdrawal limits established above until a subsequent calculation verifies that the ITC has been restored to within its limit for the all rods withdrawn condition.~~ LR3.1-07

A3.1-08

~~c. Submit a special report to the Commission within 30 days, describing the value of the measured ITC, the interim control rod withdrawal limits, and the predicted average core burnup necessary for restoring the ITC to within its limit for the all rods withdrawn condition.~~

M3.1-09

LCO3.1.3
Action C
Action D

If the projected EOC ITC is not within the lower limit, prior to reaching the equivalent of an equilibrium RTP all rods out boron concentration 300 ppm, re-evaluate the core design and safety analysis and determine that the reactor core is acceptable for continued operation. If this action or completion time are not met, be in MODE 4 within 12 hours.

SR3.1.3.1
SR3.1.3.2
SR3.1.3.3

M3.1-11

New SRs, Verify ITC within upper limit, confirm ITC will be within limits at 70% power, and confirm that ITC is within limits at EOC.

R-12

NSHD category	Change number 3.1-	Discussion Of Change
A	08	CTS 3.1.F.c. ITS Specification 3.1.3, in conformance with NUREG-1431, requires establishment of administrative withdrawal limits for control banks to maintain ITC within limits. Once these limits are established, the plant is in a safe operating configuration and further action is not necessary. ITS LCO 3.1.3 Required Actions do not require special reporting. This change is acceptable because the special reporting requirements of CTS 3.1.F.3.c are not necessary to assure operation in a safe manner. In development of NUREG-1431, TS reporting requirements that are redundant to regulations have been deleted from the TS. The NRC modified 10CFR50.72 and 10CFR50.73 to more clearly identify which plant conditions need to be reported to the NRC. These regulations currently would require a report if the TS are violated or if the condition is outside accident analysis. If a reactivity anomaly is identified which meets these conditions, a report to the NRC would be required by these revised regulations. Thus the CTS requirement to submit a report to the NRC within 30 days is not necessary to assure that a report is submitted to the NRC and thus is not included in the ITS. Since reporting of safety significant conditions is still required, this is an administrative change.
M	09	New Action Statements are included which provide requirements for the conditions if the projected EOC ITC is not within the lower limit. Since this change provides additional limitations on plant operation, this is a more restrictive change. This change is acceptable because it assures that plant operations maintain the reactor core in a safe operating configuration. This change is included to make the PI ITS complete.

NSHD category	Change number 3.1-	Discussion Of Change
	10	Not used.
M	11	New SRs, 3.1.3.1, 3.1.3.2, and 3.1.3.3 are included to verify that ITC is within the upper limit, verify it will be within limits at 70% power and verify that it will be within the limits at EOC. This change is consistent with the guidance of NUREG-1431. Since these SRs are new requirements, this change is more restrictive. This change is acceptable since the act of performing these SRs does not impact normal plant operations. This change is included to make the PI ITS complete.
A	12	CTS 3.10 and 4.9. The beginning of each CTS section contains general statements of Applicability and Objectives for that TS section which are not included in the ITS. This Applicability states the plant design features or systems to which the specifications apply which is a different meaning than the Applicability in NUREG-1431. Since the ITS clearly states within each specification, the plant design features or systems to which it applies, administratively these statements have been incorporated. Likewise, the CTS Objectives statement provides an overall purpose for the specifications within the section. These objectives are administratively incorporated in general through the statement of the ITS specification LCO and the supporting Bases. Since these general CTS statements do not establish any regulatory requirements and are incorporated in a broad sense in the ITS, these are considered administrative changes.
	13	Not used.

TA3.1-76

CL3.1-82

3.1 REACTIVITY CONTROL SYSTEMS

3.1.34 Isothermal~~Moderator~~ Temperature Coefficient (IMTC)

LCO 3.1.34 The IMTC shall be maintained within the limits specified in the COLR. The maximum COLR upper limit shall be:

CL3.1-83

a. < 5 pcm/~~[≤ [ ] Δk/k~~°F for~~at hot zero~~ power levels ≤ 70% RTP; and

b. < 0 pcm/°F for power levels > 70% RTP~~] [that specified in Figure 3.1.4-1]~~.

APPLICABILITY: MODE 1 and MODE 2 with $k_{eff} \geq 1.0$ for the upper IMTC limit, MODES 1, 2, and 3 for the lower IMTC limit.

R-12

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. IMTC not within upper limit.	A.1	Establish administrative withdrawal limits for control banks to maintain IMTC within limit.	24 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1	Be in MODE 2 with k_{eff} < 1.0.	6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. ---------NOTE------- Required Action C.1 must be completed whenever Condition C is entered. ------------------- Projected end of cycle (EOC) IMTC not within lower limit.	------------NOTE---------- LCO 3.0.4 is not applicable. ------------------------- C.1 Re-evaluate core design and safety analysis, and determine that the reactor core is acceptable for continued operation.~~Be in MODE 4.~~	PA3.1-84 Once prior to reaching the equivalent of an equilibrium RTP all rods out boron concentration of 300 ppm~~12 hours~~
D. Required Action and associated Completion Time of Condition C not met.	D.1 Be in MODE 4.	12 hours PA3.1-84 R-12

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.34.3	~~-----NOTES-----~~ ~~1. If the MTC is more negative than the 300 ppm Surveillance limit (not LCO limit) specified in the COLR, SR 3.1.4.3 shall be repeated once per 14 EFPD during the remainder of the fuel cycle.~~ ~~2. SR 3.1.4.3 need not be repeated if the MTC measured at the equivalent of equilibrium RTP-ARO boron concentration of ≤ 60 ppm is less negative than the 60 ppm Surveillance limit specified in the COLR.~~ ~~----------~~	~~-----NOTE-----~~ ~~Not required to be performed until 7 EFPD after reaching the equivalent of an equilibrium RTP-ARO boron concentration of 300 ppm~~ ~~----------~~ PA3.1-84
	Verify that IMTC will be~~is~~ within ~~lower~~ limits at EOC.	Once after each refueling ~~cycle~~ prior to THERMAL POWER exceeding 70% RTP

R-12

BASES

APPLICABLE SAFETY ANALYSES

The acceptance criteria for the specified IMTC are:

a. The MTC values must remain within the bounds of those used in the accident analysis (Ref. 2); and

b. The IMTC must be such that inherently stable power operations result during normal operation and accidents, such as overheating and overcooling events.

The UFSAR~~, Chapter 15~~ (Ref. 2)~~,~~ contains analyses of accidents that result in both overheating and overcooling of the reactor core. MTC is one of the controlling parameters for core reactivity in these accidents. Both the most positive value and most negative value of the MTC are important to safety, and both values must be bounded. Values used in the analyses consider worst case conditions for the cycle exposure being evaluated to ensure that the accident results are bounding~~(Ref. 3)~~. R-12

The consequences of accidents that cause core overheating must be evaluated when the MTC is positive (i.e., upper limit). Such accidents include the rod withdrawal transient from either zero~~(Ref. 4)~~ or RTP, ~~loss of main feedwater flow,~~ and loss of forced reactor coolant flow. The consequences of accidents that cause core overcooling must be evaluated when the MTC is negative. Such accidents include the main steam line break~~sudden feedwater flow increase and sudden decrease in feedwater temperature~~. CL3.1-151 R-12

In order to ensure a bounding accident analysis, the MTC is assumed to be its most limiting value for the analysis conditions appropriate to each accident. The bounding value is determined by considering rodded and unrodded conditions,

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

whether the reactor is at full or zero power, and whether it is the BOC or EOC life. The most conservative combination appropriate to the accident is then used for the analysis (Ref. 2).

~~MTC values are bounded in reload safety evaluations assuming steady state conditions at BOC and EOC. An EOC measurement is conducted at conditions when the RCS boron concentration reaches approximately 300 ppm. The measured value may be extrapolated to project the EOC value, in order to confirm reload design predictions.~~ CL3.1-153

MTC satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii) ~~the NRC Policy Statement~~. Even though it is not directly observed and controlled from the control room, IMTC is considered an initial condition process variable because of its dependence on boron concentration.

LCO

LCO 3.1.3~~4~~ requires the IMTC to be within specified limits of the COLR to ensure that the core operates within the assumptions of the accident analysis. During the reload core safety evaluation, the MTC is analyzed to determine that its values will remain within the bounds of the original accident analyse~~i~~s during operation.

Assumptions made in safety analyses require that the IMTC be less positive than a given upper bound and more positive than a given lower bound. The IMTC is most positive at BOC; this upper bound must not be exceeded. This maximum upper limit usually occurs at BOC, all rods out (ARO), hot zero power conditions. At EOC the IMTC takes on its most negative value, when the lower bound becomes important. This LCO exists to ensure that both the upper and lower bounds are not exceeded.

R-12

(continued)

BASES

During operation, therefore, the conditions of the LCO can only be ensured through measurement. The Surveillance check~~s~~ at BOC ~~and EOC~~ on IMTC provides confirmation that the IMTC is behaving as anticipated and will be within limits at 70% RTP, full power, and EOC so that the acceptance criteria are met. PA3.1-157 CL3.1-154 R-12

The LCO establishes a maximum positive value that cannot be exceeded. The BOC positive limit and the EOC negative limit are established in the COLR to allow specifying limits for each particular cycle. This permits the unit to take R-12

LCO (continued)

advantage of improved fuel management and changes in unit operating schedule.

If the LCO limits are not met, the assumptions of the safety analysis may not be met. The core could violate ~~criteria that prohibit a return to criticality, or the~~ DNBR criteria of the approved correlation may be violated, which could lead to a loss of the fuel cladding integrity. PA3.1-147

APPLICABILITY

Technical Specifications place both LCO and SR values on IMTC, based on the safety analysis assumptions described above.

In MODE 1, the limits on IMTC must be maintained to ensure that any accident initiated from THERMAL POWER operation will not violate the design assumptions of the accident analysis. In MODE 2 with the reactor critical, the upper limit must also be maintained to ensure that startup ~~and subcritical~~ accidents (such as the uncontrolled rod cluster control~~CONTROL ROD assembly or group~~ withdrawal) will not violate the assumptions of the accident analysis.

(continued)

BASES

The lower IMTC limit must be maintained in MODES 2 and 3, in addition to MODE 1, to ensure that cooldown accidents at EOC will not violate the assumptions of the accident analysis since ITC becomes more negative as the cycle burnup increases and the RCS boron concentration is reduced. In MODES 4, 5, and 6, this LCO is not applicable, since no Design Basis Accidents using the MTC as an analysis assumption are initiated from these MODES. R-12

ACTIONS

A.1

ITC must be kept within the upper limit specified in LCO 3.1.3 to ensure that assumptions made in the safety analysis remain valid. The upper limit of Condition A is the upper limit specified in the COLR since this value will always be less than or equal to the maximum upper limit specified in the LCO. PA3.1-158

If the upper ~~BOC~~ IMTC limit is violated at BOC, administrative withdrawal limits for control banks must be established to maintain the MTC within its limits in the future. The IMTC becomes more negative with control bank insertion and decreased boron concentration. A Completion Time of 24 hours provides enough time for evaluating the IMTC measurement and computing the required bank withdrawal limits. PA3.1-159

CL3.1-156

The control rods are maintained within the administrative withdrawal limits until a subsequent calculation verifies that ITC has been restored within its limit. As cycle burnup is increased, the RCS boron concentration will be reduced. The reduced boron concentration causes the IMTC to become more negative. Using physics calculations, the time in cycle life at which the calculated IMTC will meet the LCO requirement can be

(continued)

BASES

determined. At this point in core life Condition A no longer exists. The unit is no longer in the Required Action, so the administrative withdrawal limits are no longer in effect.

ACTIONS (continued)

B.1

If the required administrative withdrawal limits at BOC are not established within 24 hours, the unit must be brought to MODE 2 with k_{eff} < 1.0 to prevent operation with an MTC that is more positive than that assumed in safety analyses.

The allowed Completion Time of 6 hours is reasonable, based on operating experience, for reaching the required MODE from full power conditions in an orderly manner and without challenging plant systems.

C.1

Exceeding the EOC IMTC limit means that the safety analysis assumptions for the EOC accidents that use a bounding negative MTC value may be invalid. If it is determined during PHYSICS TESTS that the EOC IMTC value will exceed the most negative ITC limit specified in the COLR, the safety analysis and core design must be re-evaluated prior to reaching the equivalent of an equilibrium RTP all rods out (ARO) boron concentration of 300 ppm to ensure that operation near the EOC remains acceptable. The 300 ppm limit is sufficient to prevent EOC operation at or below the accident analysis MTC assumptions.~~limit is exceeded, the plant must be brought to a MODE or condition in which the LCO requirements are not applicable. To achieve this status, the unit must be brought to at least MODE 4 within 12 hours.~~

PA3.1-84

R-12

(continued)

BASES

~~The allowed Completion Time is reasonable, based on operating experience, for reaching the required MODE from full power conditions in an orderly manner and without challenging plant systems.~~

Condition C has been modified by a NOTE that requires Required Action C.1 to be completed whenever this Condition is entered. This is necessary to ensure that the plant does not operate at conditions where the ITC would be below the most negative limit specified in the COLR. PA3.1-84

Required Action C.1 is modified by a Note which states that LCO 3.0.4 is not applicable. This Note is provided since the requirement to re-evaluate the core design and safety analysis prior to reaching an equivalent RTP ARO boron concentration of 300 ppm is adequate action without restricting entry into MODE 1.

D.1

PA3.1-84

If the re-evaluation of the safety analysis cannot support the predicted EOC ITC lower limit, or if the Required Actions of Condition C are not completed within the associated Completion Time the plant must be brought to a MODE or Condition in which the LCO requirements are not applicable. To achieve this status, the plant must be brought to MODE 4 within 12 hours. The allowed Completion Time is reasonable, based on operating experience, for reaching the required MODE from full power conditions in an orderly manner and without challenging plant systems.

R-12

SURVEILLANCE REQUIREMENTS

SR 3.1.34.1

(continued)

BASES

This SR requires measurement of the IMTC at BOC prior to entering MODE 1 in order to demonstrate compliance with the most positive IMTC LCO. Meeting the limit prior to entering MODE 1 ensures that the limit will also be met at higher power levels.

The BOC IMTC value for ARO will be ~~inferred from isothermal temperature coefficient measurements~~ obtained from measurements during the physics tests after refueling. The ARO value can be directly compared to the BOC IMTC limit of the LCO. If required, measurement results and predicted design values can be used to establish administrative withdrawal limits for control banks. CL3.1-161

PA3.1-148

Measurement of the ITC at the beginning of the fuel cycle is adequate to confirm that the ITC remains within its upper limit.

SURVEILLANCE REQUIREMENTS (continued)

SR 3.1.34.2~~ and SR 3.1.4.3~~

This SR requires measurement of ITC at BOC prior to exceeding 70% RTP after each refueling in order to confirm compliance with the 70% RTP ITC limit in the COLR. The Frequency of "Once after each refueling prior to THERMAL POWER exceeding 70% RTP" ensures the limit will be met prior to being applicable.~~In similar fashion, the LCO demands that the MTC be less negative than the specified value for EOC full power conditions. This measurement may be performed at any THERMAL POWER, but its results must be extrapolated to the conditions of RTP and all banks withdrawn in order to make a proper comparison with the LCO value. Because the RTP MTC value will gradually become more negative with further core depletion and boron concentration reduction, a 300 ppm SR value of MTC should necessarily be less negative than the EOC LCO~~ CL3.1-161 R-12 R-8

(continued)

BASES

~~limit. The 300 ppm SR value is sufficiently less negative than the EOC LCO limit value to ensure that the LCO limit will be met when the 300 ppm Surveillance criterion is met.~~

~~SR 3.1.4.3 is modified by a Note that includes the following requirements:~~

~~a. If the 300 ppm Surveillance limit is exceeded, it is possible that the EOC limit on MTC could be reached before the planned EOC. Because the MTC changes slowly with core depletion, the Frequency of 14 effective full power days is sufficient to avoid exceeding the EOC limit.~~

~~b. The Surveillance limit for RTP boron concentration of 60 ppm is conservative. If the measured MTC at 60 ppm is more positive than the 60 ppm Surveillance limit, the EOC limit will not be exceeded because of the gradual manner in which MTC changes with core burnup.~~

SR 3.1.3.3

PA3.1-84

This SR requires measurement of ITC at BOC prior to exceeding 70% RTP after each refueling in order to confirm compliance with the most negative ITC LCO. Meeting this limit prior to exceeding 70% RTP ensures that the limit will also be met at EOC.

The ITC value for EOC is derived from the ITC low power PHYSICS TESTS. The EOC value is calculated using the predicted EOC ITC from the core design report and the difference between the measured and predicted BOC ITC. The predicted EOC value is directly compared to the most negative EOC value established in the COLR to ensure that the predicted EOC negative ITC value is within the safety analysis assumptions.

R-12

Difference Category	Difference Number 3.1-	Justification for Differences
PA	84	PI does not currently have TS requirements to monitor the ITC lower limit during the core operating cycle. The provisions of ISTS LCO 3.1.4 have been replaced by the proposed LCO 3.1.3 Action Statements C and D and SR 3.1.3.3 and their associated Bases which more closely address current plant practices of predicting EOC ITC. This change is consistent with the approved GITS.
PA	85	PI does not currently have TS requirements to verify ITS limits within 300 ppm as specified in ISTS SR 3.1.4.2. The provisions of ISTS 3.1.4.2 have been replaced by the proposed PI ITS SR 3.1.3.2 which more closely address current plant practices of confirming ITC will be within its limits at 70% RTP. This change is consistent with the approved GITS. Approved TSTF-13 has not been incorporated, since it is incompatible with the changes made to ISTS SR 3.1.4.2 to accommodate PI current practices.
TA	86	This change incorporates TSTF-107
CL	87	CTS only requires action when a control rod misalignment exceeds 24 steps. At the upper and lower limits of rod travel, the rod is misaligned when it deviates by 36 steps.

Difference Category	Difference Number 3.1-	Justification for Differences
PA	147	The next to last paragraph of the Bases Background discussion has been revised and relocated to the Bases LCO. This paragraph is better situated in the Bases LCO since it discusses the LCO limits and will help define the operability requirements.
PA	148	The last paragraph of the Bases Background is not included in the PI ITS since this discussion relates to the SRs. The essence of the paragraph is included in the Bases discussion for SR 3.1.3.1 as applicable to PI.
	149	Not used.
	150	Not used.
CL	151	LCO 3.1.3 Bases Applicability Safety Analyses discussion of core overheating accidents was modified to be accurate for PI. The "loss of main feedwater flow" accident was deleted and the applicable accidents list was clarified.
	152	Not used.

Difference Category	Difference Number 3.1-	Justification for Differences
CL	153	The next to last paragraph of B 3.1.3 Bases Applicable Safety Analyses discussion was not included since the SR is not included in the Specification and PI will not be making this measurement.
CL	154	The clause, "and will be within limits at 70% RTP and full power" has been included to make it clear when we intend to make our checks. This change supports the Specifications changes.
	155	Not used.
CL	156	This statement is a CTS requirement that is relocated to the ITS Bases.
PA	157	LCO 3.1.3 Bases Applicability discussion was modified to make it clearer as to how ITC changes as burnup increases and when the accidents are evaluated.
PA	158	A new paragraph was included in B 3.1.3 Bases Action A.1 to provide further clarification of the role of the ITC limits.
PA	159	Clarification is provided on which ITC limit applies, when it will be violated and the purpose of administrative withdrawal limits.

Difference Category	Difference Number 3.1-	Justification for Differences
PA	244	The purpose of this specification was elaborated to make it clear that it is for testing in MODE 2.
	245	Not used.
PA	246	Clarification was provided that the 1 hour in the specification applies.
CL	247	The discussion of the Bases for this SR was modified to be consistent with the reactivity effects considered at PI and the point in time at which the activities are performed. Since "Isothermal temperature coefficient (ITC)" has been removed from the list of items considered, approved TSTF-249, which elaborated on ITC, has not been incorporated.
	248	Not used.

M - More restrictive (GENERIC NSHD)
(M3.1-04, M3.1-09, M3.1-11, M3.1-17, M3.1-18, M3.1-19, M3.1-22, M3.1-24, M3.1-27, M3.1-29, M3.1-31, M3.1-32, M3.1-38, M3.1-42, M3.1-44, M3.1-47, M3.1-53, M3.1-62, M3.1-66)

This proposed Technical Specifications revision involves modifying the Current Technical Specifications to impose more stringent requirements upon plant operations to achieve consistency with the guidance of NUREG-1431, correct discrepancies or remove ambiguities from the specifications. These more restrictive Technical Specifications have been evaluated against the plant design, safety analyses, and other Technical Specifications requirements to ensure the plant will continue to operate safely with these more stringent specifications.

1. The proposed amendment will not involve a significant increase in the probability or consequences of an accident previously evaluated.

   The proposed changes provide more stringent requirements for operation of the plant. These more stringent requirements do not result in operation that will increase the probability of initiating an analyzed event and do not alter assumptions relative to mitigation of an accident or transient event.

   These more restrictive requirements continue to ensure process variables, structures, systems, and components are maintained consistent with the safety analyses and licensing basis. Therefore, these changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. The proposed amendment will not create the possibility of a new or different kind of accident from any accident previously analyzed.

   The proposed changes do not involve a physical alteration of the plant, that is, no new or different type of equipment will be installed, nor do they change the methods governing normal plant operation.

   These more stringent requirements do impose different operating restrictions. However, these operating restrictions are consistent with the boundaries established by the assumptions made in the plant safety analyses and licensing bases. Therefore, these changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

Current Technical Specification Cross-Reference

CTS Section	CTS Table Item Number	Section Type	ITS Section	ITS Table Item Number
Table 4.1-1C	11	SR	3.3.4.1	
Table 4.1-1C	11	SR	3.3.4.2	
Table 4.1-1C	12		Deleted - Boric Acid LAR	
Table 4.1-1C	13		Relocated - TRM	
Table 4.1-1C	14		CTS Deleted	
Table 4.1-1C	15	TABLE	3.3.1-1	16.b.2
Table 4.1-1C	15		Relocated - TRM	
Table 4.1-1C	16		Relocated - TRM	
Table 4.1-1C	17		Relocated - TRM	
Table 4.1-1C	18	SR	3.3.1.12	
Table 4.1-1C	19		Relocated - TRM	
Table 4.1-1C	20		Relocated - TRM	
Table 4.1-1C	21	SR	3.3.3.1	
Table 4.1-1C	21	SR	3.3.3.2	
Table 4.1-1C	21	SR	3.3.3.3	
Table 4.1-1C	22		CTS Deleted	
Table 4.1-1C	23		CTS Deleted	
Table 4.1-1C	24		Relocated - TRM	

Current Technical Specification Cross-Reference

CTS Section	CTS Table Item Number	Section Type	ITS Section	ITS Table Item Number
Table 4.1-1C	24	SR	3.3.6.5	
Table 4.1-1C	24	SR	3.3.6.2	
Table 4.1-1C	25	SR	3.4.12.4	
Table 4.1-1C	25	SR	3.4.12.5	
Table 4.1-1C	25	SR	3.4.13.5	
Table 4.1-1C	25	SR	3.4.13.6	
Table 4.1-1C	26		Relocated - TRM	
Table 4.1-1C	27		Relocated - TRM	
Table 4.1-1C	28		Relocated - TRM	
Table 4.1-1C	29	SR	3.3.3.1	
Table 4.1-1C	29	SR	3.3.3.2	
Table 4.1-1C	29	(Partial)	Relocated - TRM	
Table 4.1-1C	30		Relocated - Bases	
Table 4.1-1C	31		Relocated - TRM	
Table 4.1-1C	Note 30	SR	3.1.7.1	
Table 4.1-1C	Note 31		Deleted	
Table 4.1-1C	Note 32		Relocated - TRM	

Current Technical Specification Cross-Reference

CTS Section	CTS Table Item Number	Section Type	ITS Section	ITS Table Item Number
Table 4.1-1C	11	SR	3.3.4.1	
Table 4.1-1C	11	SR	3.3.4.2	
Table 4.1-1C	12		Deleted - Boric Acid LAR	
Table 4.1-1C	13		Relocated - TRM	
Table 4.1-1C	14		CTS Deleted	
Table 4.1-1C	15	TABLE	3.3.1-1	16.b.2
Table 4.1-1C	15		Relocated - TRM	
Table 4.1-1C	16		Relocated - TRM	
Table 4.1-1C	17		Relocated - TRM	
Table 4.1-1C	18	SR	3.3.1.12	
Table 4.1-1C	19		Relocated - TRM	
Table 4.1-1C	20		Relocated - TRM	
Table 4.1-1C	21	SR	3.3.3.1	
Table 4.1-1C	21	SR	3.3.3.2	
Table 4.1-1C	21	SR	3.3.3.3	
Table 4.1-1C	22		CTS Deleted	
Table 4.1-1C	23		CTS Deleted	
Table 4.1-1C	24		Relocated - TRM	

Current Technical Specification Cross-Reference

CTS Section	CTS Table Item Number	Section Type	ITS Section	ITS Table Item Number
Table 4.1-1C	24	SR	3.3.6.5	
Table 4.1-1C	24	SR	3.3.6.2	
Table 4.1-1C	25	SR	3.4.12.4	
Table 4.1-1C	25	SR	3.4.12.5	
Table 4.1-1C	25	SR	3.4.13.5	
Table 4.1-1C	25	SR	3.4.13.6	
Table 4.1-1C	26		Relocated - TRM	
Table 4.1-1C	27		Relocated - TRM	
Table 4.1-1C	28		Relocated - TRM	
Table 4.1-1C	29	SR	3.3.3.1	
Table 4.1-1C	29	SR	3.3.3.2	
Table 4.1-1C	29	(Partial)	Relocated - TRM	
Table 4.1-1C	30		Relocated - Bases	
Table 4.1-1C	31		Relocated - TRM	
Table 4.1-1C	Note 30	SR	3.1.7.1	
Table 4.1-1C	Note 31		Deleted	
Table 4.1-1C	Note 32		Relocated - TRM	

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.1.3	---NOTES--- 1. Adjust NIS channel if absolute difference is ≥ 2%. 2. Not required to be performed until 72 hours after THERMAL POWER is ≥ 15% RTP. --- Compare results of the incore detector measurements to NIS AFD.	31 effective full power days (EFPD)
SR 3.3.1.4	---NOTE--- This Surveillance must be performed on the reactor trip bypass breaker prior to placing the bypass breaker in service. --- Perform TADOT.	31 days on a STAGGERED TEST BASIS
SR 3.3.1.5	Perform ACTUATION LOGIC TEST.	31 days on a STAGGERED TEST BASIS

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.16	-----------------------------NOTE---------------------------- Neutron detectors are excluded from response time testing. --- Verify RTS RESPONSE TIME is within limits.	24 months

Table 3.3.1-1 (page 3 of 8)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
9. Pressurizer Water Level - High	1(e)	3	K	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	≤ 90%
10. Reactor Coolant Flow- Low	1(f)	3 per loop	K	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	≥ 91%
11. Loss of Reactor Coolant Pump (RCP)					
a. RCP Breaker Open	1(f)	1 per RCP	M	SR 3.3.1.14	NA
b. Under-frequency 4 kV Buses 11 and 12 (21 and 22)	1(f)	2 per bus	L	SR 3.3.1.9 SR 3.3.1.10	≥ 58.2 Hz
12. Undervoltage on 4 kV Buses 11 and 12 (21 and 22)	1(e)	2 per bus	L	SR 3.3.1.9 SR 3.3.1.10	≥ 76% rated bus voltage
13. Steam Generator (SG) Water Level - Low Low	1, 2	3 per SG	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	≥ 5%

(e) Above the P-7 (Low Power Reactor Trips Block) interlock.
(f) Above the P-8 (Power Range Neutron Flux) or P-7 (Low Power Reactor Trips Block) interlocks.

Table 3.3.1-1 (page 4 of 8)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
14. Turbine Trip					
a. Low Autostop Oil Pressure	$1^{(g)}$	3	N	SR 3.3.1.10 SR 3.3.1.15	≥ 45 psig
b. Turbine Stop Valve Closure	$1^{(g)}$	2	N	SR 3.3.1.15	Closed
15. Safety Injection (SI) Input from Engineered Safety Feature Actuation System (ESFAS)	1, 2	2 trains	O	SR 3.3.1.14	NA

(g) Above the P-9 (Power Range Neutron Flux) interlock.

Table 3.3.1-1 (page 5 of 8)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
16. Reactor Trip System Interlocks					
a. Intermediate Range Neutron Flux, P-6	2(d)	2	Q	SR 3.3.1.11 SR 3.3.1.13	≥ 1.0E-10 amp
b. Low Power Reactor Trips Block, P-7					
1. Power Range Neutron Flux	1	4	R	SR 3.3.1.11 SR 3.3.1.13	≤ 12% RTP
2. Turbine Impulse Pressure	1	2	R	SR 3.3.1.7 SR 3.3.1.10	≤ 12% Full Load
c. Power Range Neutron Flux, P-8	1	4	R	SR 3.3.1.11 SR 3.3.1.13	≤ 11% RTP
d. Power Range Neutron Flux, P-9	1	4	R	SR 3.3.1.11 SR 3.3.1.13	≤ 12% RTP
e. Power Range Neutron Flux, P-10	1, 2	4	Q	SR 3.3.1.11 SR 3.3.1.13	≥ 9% RTP
17. Reactor Trip Breakers(h) (RTBs)	1, 2	2 trains	P	SR 3.3.1.4	NA
	3(a), 4(a), 5(a)	2 trains	C	SR 3.3.1.4	NA

(a) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.
(d) Below the P-6 (Intermediate Range Neutron Flux) interlocks.
(h) Including any reactor trip bypass breakers that are racked in and closed for bypassing an RTB.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
H. One or both channel(s) inoperable on one bus.	----------------NOTE---------------- One inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels. --------------------------------------	
	H.1 Place channel(s) in trip.	6 hours
	<u>OR</u>	
	H.2 Be in MODE 3.	12 hours
I. One train inoperable.	I.1 ------------NOTE------------ One train may be bypassed for up to 8 hours for surveillance testing provided the other train is OPERABLE. --------------------------------	
	Enter applicable Condition(s) and Required Action(s) for Auxiliary Feedwater (AFW) train made inoperable by ESFAS instrumentation.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
J. One channel inoperable.	J.1	Enter applicable Condition(s) and Required Action(s) for Auxiliary Feedwater (AFW) pump made inoperable by ESFAS instrumentation.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTE-----
Refer to Table 3.3.2-1 to determine which SRs apply for each ESFAS Function.

SURVEILLANCE		FREQUENCY
SR 3.3.2.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.2.2	Perform ACTUATION LOGIC TEST.	31 days on a STAGGERED TEST BASIS
SR 3.3.2.3	Perform COT.	92 days

Table 3.3.2-1 (page 3 of 4)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
4. Steam Line Isolation (continued)					
c. High Steam Flow	1, 2(c), 3(c)(d)	2 per steam line	D	SR 3.3.2.1 SR 3.3.2.3 SR 3.3.2.6	≤ 9.18E5 lb/hr at 1005 psig
Coincident with Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.				
and					
Coincident with Low-Low T_{avg}.	1, 2(c), 3(c)(d)	4	D	SR 3.3.2.1 SR 3.3.2.3 SR 3.3.2.6	≥ 536°F
d. High High Steam Flow	1, 2(c), 3(c)	2 per steam line	D	SR 3.3.2.1 SR 3.3.2.3 SR 3.3.2.6	≤ 4.5E6 lb/hr at 735 psig
Coincident with Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.				
5. Feedwater Isolation					
a. Automatic Actuation Relay Logic	1,2(e), 3(e)	2 trains	F	SR 3.3.2.2	NA
b. High- High Steam Generator (SG) Water Level	1, 2(e)	3 per SG	G	SR 3.3.2.1 SR 3.3.2.3 SR 3.3.2.6	≤ 90%

(c) Except when both MSIVs are closed.
(d) Reactor Coolant System (RCS) $T_{avg} \geq 520°F$.
(e) Except when all Main Feedwater Regulation Valves (MFRVs), and MFRV bypass valves are closed and de-activated or isolated by a closed manual valve.

Table 3.3.2-1 (page 4 of 4)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. Feedwater Isolation (continued)					
c. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.				
6. Auxiliary Feedwater					
a. Automatic Actuation Relay Logic	1, 2, 3	2 trains	I	SR 3.3.2.2	NA
b. Low-Low SG Water Level	1, 2, 3	3 per SG	D	SR 3.3.2.1 SR 3.3.2.3 SR 3.3.2.6	≥ 5%
c. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.				
d. Undervoltage on 4 kV Buses 11 and 12 (21 and 22)(f)	1, 2	2 per bus	H	SR 3.3.2.4 SR 3.3.2.6	≥ 76% rated bus voltage
e. Trip of both Main Feedwater Pumps	1, 2(g)	2 per pump	J	SR 3.3.2.4	NA

(f) Start of Turbine Driven Pump only.
(g) This function may be bypassed during alignment and operation of the AFW System for SG level control.

3.3 INSTRUMENTATION

3.3.3 Event Monitoring (EM) Instrumentation

LCO 3.3.3 The EM instrumentation for each Function in Table 3.3.3-1 shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

---NOTES---

1. LCO 3.0.4 is not applicable.

2. Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. -----------NOTE----------- Not applicable to core exit temperature Function. ------------------------------ One or more Functions with one required channel inoperable.	A.1 Restore required channel to OPERABLE status.	30 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. One or more required Core Exit Thermocouple (CET) channel(s) inoperable. AND At least 4 CET channels OPERABLE in the center region of the core. AND At least one CET channel OPERABLE in each quadrant of the outside core region.	B.1	Restore required CET channel(s) to OPERABLE status.	30 days
C. Required Action and associated Completion Time of Condition A or B not met.	C.1	Initiate action in accordance with Specification 5.6.8.	Immediately
D. ----------NOTE------------ Not applicable to hydrogen monitor or CET channels. ------------------------------ One or more Functions with two required channels inoperable.	D.1	Restore one channel to OPERABLE status.	7 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. ------------NOTE---------- Only applicable in MODE 1, 2, 3, or 4. ------------------------------ Required Action and associated Completion Time of Condition A not met. OR Function a or b or both with two channels per bus inoperable. OR One required automatic load sequencer inoperable.	B.1 Perform SR 3.3.4.2 for OPERABLE automatic load sequencer.	6 hours AND Once per 24 hours thereafter
	AND B.2 Establish offsite paths block loading capability for associated 4 kV safeguards bus.	8 hours
	AND B.3 Verify operability of offsite paths for associated 4kV safeguards bus.	8 hours AND Once per 8 hours thereafter.
	AND B.4 Declare required feature(s) supported by the affected inoperable DG inoperable when its required redundant feature(s) is inoperable.	4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)
	AND B.5 Restore automatic load sequencer to OPERABLE status.	7 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.4.1	Perform COT on undervoltage and degraded voltage channels.	31 days
SR 3.3.4.2	Perform ACTUATION LOGIC TEST on the automatic load sequencer.	31 days
SR 3.3.4.3	Perform CHANNEL CALIBRATION on undervoltage and degraded voltage channels with Allowable Value as follows: a. Undervoltage Allowable Value $\geq$ 3016 V and $\leq$ 3224 V with an undervoltage time delay of 4 $\pm$ 1.5 seconds. b. Degraded voltage Allowable Value $\geq$ 3944 V and $\leq$ 4002 V with a degraded voltage time delay of 8 $\pm$ 0.5 seconds and degraded voltage DG start time delay of 60 $\pm$ 3 seconds.	24 months

3.3 INSTRUMENTATION

3.3.5 Containment Ventilation Isolation Instrumentation

LCO 3.3.5 The Containment Ventilation Isolation instrumentation for each Function in Table 3.3.5-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5-1.

ACTIONS

---NOTE---
Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One radiation monitoring train inoperable.	A.1 Place and maintain containment purge (high flow) and inservice (low flow) purge valves in closed position.	4 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. -----------NOTE----------- Only applicable during CORE ALTERATIONS or movement of irradiated fuel assemblies within containment when the Containment Purge or Inservice Purge Systems are not isolated. ------------------------------ One or more Functions (except radiation monitors) with one or more manual or automatic actuation trains inoperable. <u>OR</u> Two radiation monitoring trains inoperable. <u>OR</u> Required Action and associated Completion Time for Condition A not met.	C.1	Place and maintain containment purge (high flow) and inservice (low flow) purge valves in closed position.	Immediately
	<u>OR</u>		
	C.2	Enter applicable Conditions and Required Actions of LCO 3.9.4, "Containment Penetrations," for containment purge (high flow) and inservice (low flow) purge valves made inoperable by isolation instrumentation.	Immediately

Table 3.3.5-1 (page 1 of 1)
Containment Ventilation Isolation Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1.	Manual Initiation	$1^{(a)}, 2^{(a)}, 3^{(a)}, 4^{(a)}$, (b)	2	SR 3.3.5.4	NA
2.	Automatic Actuation Relay Logic	$1^{(a)}, 2^{(a)}, 3^{(a)}, 4^{(a)}$, (b)	2 trains	SR 3.3.5.2	NA
3.	High Radiation in Exhaust Air	$1^{(a)}, 2^{(a)}, 3^{(a)}, 4^{(a)}$, (b)	2 trains	SR 3.3.5.1 SR 3.3.5.3 SR 3.3.5.5	(c)
4.	Manual Containment Isolation	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 3.a., for initiation functions and requirements.			
5.	Safety Injection	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 1, for initiation functions and requirements.			
6.	Manual Containment Spray	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 2, for initiation functions and requirements.			

(a) When the Containment Inservice Purge System is not isolated.
(b) During CORE ALTERATIONS or movement of irradiated fuel assemblies within containment when the Containment Purge or Inservice Purge System is not isolated.
(c) ≤ count rate corresponding to 500 mrem/year whole body and 3000 mrem/year skin due to noble gases at the site boundary.

BASES

ACTIONS

P.1 and P.2 (continued)

The Required Actions have been modified by two Notes. Note 1 allows one train to be bypassed for up to 4 hours for surveillance testing, provided the other train is OPERABLE. Note 2 allows one RTB to be bypassed for up to 6 hours for maintenance on undervoltage or shunt trip mechanisms if the other train is OPERABLE. The 6 hour time limit is justified in Reference 6.

Q.1 and Q.2

Condition Q applies to the P-6 and P-10 interlocks. With one or more channel(s) inoperable for one-out-of-two or two-out-of-four coincidence logic, the associated interlock must be verified to be in its required state for the existing unit condition within 1 hour or the unit must be placed in MODE 3 within the next 6 hours. Verifying the interlock status ensures the interlock's Function. The Completion Time of 1 hour is based on operating experience and the minimum amount of time allowed for manual operator actions. The Completion Time of an additional 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems. The 1 hour and 7 hour Completion Times are equal to the time allowed by LCO 3.0.3 for shutdown actions in the event of a complete loss of RTS Function.

R.1 and R.2

Condition R applies to the P-7, P-8, and P-9 interlocks. With one or more channel(s) inoperable for one-out-of-two or two-out-of-four coincidence logic, the associated interlock must be verified to be in its required state for the existing unit condition within 1 hour or the unit must be placed in MODE 2 within the next 6 hours. These actions are conservative for the case where power level is being

BASES

ACTIONS

R.1 and R.2 (continued)

raised. Verifying the interlock status ensures the interlock's Function. The Completion Time of 1 hour is based on operating experience and the minimum amount of time allowed for manual operator actions. The Completion Time of an additional 6 hours is reasonable, based on operating experience, to reach MODE 2 from full power in an orderly manner and without challenging unit systems.

S.1 and S.2

Condition S applies to the RTB Undervoltage and Shunt Trip Mechanisms, or diverse trip features, in MODES 1 and 2. With one of the diverse trip features inoperable, it must be restored to an OPERABLE status within 48 hours or the unit must be placed in a MODE where the requirement does not apply. This is accomplished by placing the unit in MODE 3 within the next 6 hours (54 hours total time). The Completion Time of an additional 6 hours is a reasonable time, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems.

With the unit in MODE 3, Action C would apply to any inoperable RTB Trip mechanism. The affected RTB shall not be bypassed while one of the diverse features is inoperable except for the time required to perform maintenance to one of the diverse features. The allowable time for performing maintenance of the diverse features is 6 hours, per Condition P.

The Completion Time of 48 hours for Required Action S.1 is reasonable considering that in this Condition there is one remaining diverse feature for the affected RTB, and one OPERABLE RTB capable of performing the safety function and given the low probability of an event occurring during this interval.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.3

SR 3.3.1.3 compares the incore system to the NIS channel output every 31 Effective Full Power Days (EFPD). If the absolute difference is ≥ 2%, the NIS channel is still OPERABLE, but must be readjusted.

If the NIS channel cannot be properly readjusted, the channel is declared inoperable. This Surveillance is performed to verify the f(ΔI) input to the overtemperature and overpower ΔT Functions.

Two Notes modify SR 3.3.1.3. Note 1 indicates that the excore NIS channel shall be adjusted if the absolute difference between the incore and excore AFD is ≥ 2%. Note 2 clarifies that the Surveillance is required only if reactor power is ≥ 15% RTP and that 72 hours is allowed for performing the first Surveillance after reaching 15% RTP.

The Frequency of every 31 EFPD is adequate. It is based on unit operating experience, considering instrument reliability and operating history data for instrument drift. Also, the slow changes in neutron flux during the fuel cycle can be detected during this interval.

SR 3.3.1.4

SR 3.3.1.4 is the performance of a TADOT every 31 days on a STAGGERED TEST BASIS. This test shall verify OPERABILITY

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.16 (continued)

Response time test is performed with the time constants set to their nominal value, provided the required response time is analytically calculated assuming the time constants are set at their nominal values. The response time may be measured by a series of overlapping tests such that the entire response time is measured.

Testing of the final actuation devices is included in the testing. Response times cannot be determined during unit operation because equipment operation is required to measure response times. Experience has shown that these components usually pass this surveillance when performed at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

SR 3.3.1.16 is modified by a Note stating that neutron detectors are excluded from RTS RESPONSE TIME testing. This Note is necessary because of the difficulty in generating an appropriate detector input signal. Excluding the detectors is acceptable because the principles of detector operation ensure a virtually instantaneous response.

BASES (continued)

REFERENCES

1. AEC "General Design Criteria for Nuclear Power Plant Construction Permits," Criterion 14, issued for comment July 10, 1967, as referenced in USAR Section 1.2.

2. Regulatory Guide 1.105, Revision 3, "Setpoints for Safety-Related Instrumentation."

3. USAR, Section 14.

4. USAR, Section 7.

5. "Engineering Manual Section 3.3.4.1,Engineering Design Standard for Instrument Setpoint/Uncertainty Calculations".

6. WCAP-10271-P-A, Supplement 2, Rev. 1, June 1990.

BASES

APPLICABLE SAFETY ANALYSES, LCO, AND APPLICABILITY

c. Steam Line Isolation- High Steam Flow Coincident With Safety Injection and Coincident With Low Low T_{avg} (continued)

Two steam line flow channels per steam line are required OPERABLE for this Function. These are combined in a one-out-of-two logic to indicate high steam flow in one steam line. The steam flow transmitters provide control inputs, but the control function cannot cause the events that the function must protect against. Therefore, two channels are sufficient to satisfy redundancy requirements. The one-out-of-two configuration allows online testing because trip of one high steam flow channel is not sufficient to cause initiation.

The High Steam Flow Allowable Value is a ΔP corresponding to ≤ 9.18E5 lb/hr at 1005 psig.

The main steam line isolates if the High Steam Flow signal occurs coincident with an SI signal and Low Low RCS average temperature. The Main Steam Line Isolation Function requirements for the SI Functions are the same as the requirements for their SI function. Therefore, the requirements are not repeated in Table 3.3.2-1. Instead, Function 1, SI, is referenced for all initiating functions and requirements.

BASES

APPLICABLE SAFETY ANALYSES, LCO, AND APPLICABILITY

5. Feedwater Isolation (continued)

This Function is actuated by High High SG Water Level, or by an SI signal. In the event of SI, the unit is taken off line. The MFW System is also taken out of operation and the AFW System is automatically started. The SI signal was discussed previously.

a. Feedwater Isolation-Automatic Actuation Relay Logic

The feedwater isolation actuation logic consists of all circuitry housed within the ESF relay logic cabinets for the feedwater isolation subsystem, in the same manner as described for ESFAS Function 1.b.

This Function must be OPERABLE in MODES 1, 2, and 3, except when all MFRV's and associated bypass valves are closed and de-activated or isolated by a closed manual valve, when a secondary side break could result in significant containment pressurization. This Function is not required to be OPERABLE in MODES 4, 5, and 6 because there is insufficient energy in the secondary side of the unit to cause an accident.

b. Feedwater Isolation-High High Steam Generator Water Level

This signal provides protection against excessive feedwater flow. The SG water level instruments provide input to the Feedwater Control System. Therefore, the actuation logic must be able to withstand both an input failure to the control system (which may then require the protection function actuation) and a single failure in the other channels providing the protection function actuation. Median signal selection

BASES

APPLICABLE SAFETY ANALYSES, LCO, AND APPLICABILITY

b. Feedwater Isolation-High High Steam Generator Water Level (continued)

is used in the Feedwater Control System. Thus, three OPERABLE channels are sufficient to satisfy the requirements with a two-out-of-three logic. The transmitters (d/p cells) are located inside containment. However, the events that this Function protects against cannot cause a severe environment in containment. Therefore, the Allowable Value reflects only steady state instrument uncertainties.

This Function must be OPERABLE in MODES 1 and 2, except when all MFRV's and associated bypass valves are closed and de-activated or isolated by a closed manual valve. In MODES 3, 4, 5, and 6, the MFW System and the turbine generator are normally not in service and this Function is not required to be OPERABLE.

c. Feedwater Isolation-Safety Injection

Feedwater Isolation is also initiated by all Functions that initiate SI via the SI signal. The Feedwater Isolation Function requirements for these Functions are the same as the requirements for their SI function. Therefore, the requirements are not repeated in Table 3.3.2-1. Instead Function 1, SI, is referenced for all initiating functions and requirements.

BASES

APPLICABLE SAFETY ANALYSES, LCO, AND APPLICABILITY (continued)

d. Auxiliary Feedwater-Undervoltage on 4kV Buses 11 and 12 (21 and 22)

A loss of power on the buses that provide power to the MFW pumps provides indication of a pending loss of MFW flow. The undervoltage Function senses the voltage upstream of each MFW pump breaker. A loss of power for both MFW pumps will start the turbine driven AFW pump to ensure that at least one SG contains enough water to serve as the heat sink for reactor decay heat and sensible heat removal following the reactor trip.

e. Auxiliary Feedwater-Trip of Both Main Feedwater Pumps

A trip of both MFW pumps is an indication of a loss of MFW and the subsequent need for some method of decay heat and sensible heat removal to bring the reactor back to no load temperature and pressure. Motor driven MFW pumps are equipped with a breaker position sensing device. An open supply breaker indicates that the MFW pump is not running. Two OPERABLE channels per AFW pump provide a start signal to each AFW pump in two-out-of-two taken once logic. A trip of both MFW pumps starts the motor driven and turbine driven AFW pumps to ensure that at least one SG is available with water to act as the heat sink for the reactor.

Functions 6.d and 6.e must be OPERABLE in MODES 1 and 2. This ensures that at least one SG is provided with water to serve as the heat sink to remove reactor decay heat and sensible heat in the event of an accident. In MODES 3, 4, and 5, the MFW pumps may be normally shut down, and thus neither the pump

BASES

APPLICABLE SAFETY ANALYSES, LCO, AND APPLICABILITY (continued)

trip or bus undervoltage are indicative of a condition requiring automatic AFW initiation. Also, in MODE 2 the AFW system may be used for SG level control. The MFW trip is bypassed by placing the AFW pump CS in shutdown auto when AFW is aligned for this purpose. Low low SG level provides protection during this operation.

The ESFAS instrumentation satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

ACTIONS

A Note has been added in the ACTIONS to clarify the application of Completion Time rules. The Conditions of this Specification may be entered independently for each Function listed on Table 3.3.2-1.

In the event a channel's setpoint is found nonconservative with respect to the Allowable Value, or the transmitter, instrument loop, or bistable is found inoperable, then all affected Functions provided by that channel must be declared inoperable and the LCO Condition(s) entered for the protection Function(s) affected. When the Required Channels in Table 3.3.2-1 are specified (e.g., on a per steam line, per loop, per SG, etc., basis), then the Condition may be entered separately for each steam line, loop, SG, etc., as appropriate.

When the number of inoperable channels in a trip function exceed those specified in one or other related Conditions associated with a trip function, then the unit may be outside the safety analysis. Therefore, LCO 3.0.3 should be immediately entered if applicable in the current MODE of operation.

A.1

Condition A applies to all ESFAS protection functions.

BASES

ACTIONS

A.1 (continued)

Condition A addresses the situation where one or more channels or trains for one or more Functions are inoperable at the same time. The Required Action is to refer to Table 3.3.2-1 and to take the Required Actions for the protection functions affected. The Completion Times are those from the referenced Conditions and Required Actions.

B.1, B.2.1 and B.2.2

Condition B applies to manual initiation of:

- SI;
- Containment Spray (CS); and
- Containment Isolation (CI).

This action addresses the train orientation of the ESF relay logic for the functions listed above. If a channel or train is inoperable, 48 hours is allowed to return it to an OPERABLE status. The specified Completion Time is reasonable considering that there are two automatic actuation trains and another manual initiation channel OPERABLE for each Function (except for CS), and the low probability of an event occurring during this interval. If the channel cannot be restored to OPERABLE status, the unit must be placed in a MODE in which the LCO does not apply. This is done by placing the unit in at least MODE 3 within an additional 6 hours (54 hours total time) and in MODE 5 within an additional 30 hours (84 hours total time). The allowable Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

BASES

ACTIONS (continued)

C.1, C.2.1 and C.2.2

Condition C applies to the automatic actuation relay logic for the following functions:

- SI;
- CS; and
- CI.

This action addresses the train orientation of the ESF relay logic. If one train is inoperable, 6 hours are allowed to restore the train to OPERABLE status. The specified Completion Time is reasonable considering that there is another train OPERABLE, and the low probability of an event occurring during this interval. If the train cannot be restored to OPERABLE status, the unit must be placed in a MODE in which the LCO does not apply. This is done by placing the unit in at least MODE 3 within an additional 6 hours (12 hours total time) and in MODE 5 within an additional 30 hours (42 hours total time). The Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

The Required Actions are modified by a Note that allows one train to be bypassed for up to 8 hours for surveillance testing, provided the other train is OPERABLE. This allowance is based on the reliability analysis assumption of WCAP-10271-P-A (Ref. 5) that 8 hours is the average time required to perform relay logic train surveillance.

BASES

ACTIONS (continued)

D.1, D.2.1, and D.2.2

Condition D applies to:

- High Containment Pressure;
- Pressurizer Low Pressure;
- Steam Line Low Pressure;
- CS High High Containment Pressure;
- Steam Line Isolation High High Containment Pressure ;
- Low Low T_{avg} Coincident With Safety Injection;
- High High Steam Flow Coincident With Safety Injection; and
- Low Low SG Water level.

If one channel is inoperable, 6 hours are allowed to restore the channel to OPERABLE status or to place it in the tripped condition. Generally this Condition applies to functions that operate on two-out-of-three logic. Therefore, failure of one channel places the Function in a two-out-of-two configuration. One channel must be tripped to place the Function in a one-out-of-three configuration that satisfies redundancy requirements.

Failure to restore the inoperable channel to OPERABLE status or place it in the tripped condition within 6 hours requires the unit be placed in MODE 3 within the following 6 hours and MODE 4 within the next 6 hours.

BASES

ACTIONS

D.1, D.2.1, and D.2.2 (continued)

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. In MODE 4, these Functions are no longer required OPERABLE.

The Required Actions are modified by a Note that allows the inoperable channel to be bypassed for up to 4 hours for surveillance testing of other channels. The 6 hours allowed to restore the channel to OPERABLE status or to place the inoperable channel in the tripped condition, and the 4 hours allowed for testing, are justified in Reference 5.

E.1.1, E.1.2, E.2.1, and E.2.2

Condition E applies to CS High High Containment Pressure. Condition E addresses the situation where two of the six containment pressure channels are inoperable at the same time. With one channel tripped per Condition D, one of the three sets is actuated. Tripping the second channel could actuate the second set. This is undesirable because a single failure would then cause spurious containment spray initiation. Spurious spray actuation is undesirable because of the cleanup problems presented. With one channel bypassed, one OPERABLE channel remains available to actuate the second set and two OPERABLE channels are available to provide the one of two logic for the third set to actuate CS. Furthermore, with one channel bypassed, a single instrumentation channel failure will not spuriously initiate containment spray.

BASES

ACTIONS

E.1.1, E.1.2, E.2.1, and E.2.2 (continued)

To avoid the inadvertent actuation of containment spray, both inoperable channels should not be placed in the tripped condition. Instead one is bypassed. Restoring the channel(s) to OPERABLE status, or placing the other inoperable channel in the bypass condition within 6 hours, is sufficient to assure that the Function remains OPERABLE and minimizes the time that the Function may be in a partial trip condition (assuming the inoperable channel has failed high). The Completion Time is further justified based on the low probability of an event occurring during this interval. Failure to restore the inoperable channel(s) to OPERABLE status, or place one in the bypassed condition within 6 hours, requires the unit be placed in MODE 3 within the following 6 hours and MODE 4 within the next 6 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. In MODE 4, this Function is a no longer required OPERABLE.

The Required Actions are modified by a Note that allows the tripped channel to be bypassed for up to 4 hours for surveillance testing. Placing a second channel in the bypass condition for up to 4 hours for testing purposes is acceptable based on the results of Reference 5.

F.1, F.2.1, and F.2.2

Condition F applies to the automatic actuation relay logic for the Steam Line Isolation and Feedwater Isolation Functions.

BASES

ACTIONS (continued)

F.1, F.2.1, and F.2.2

The action addresses the train orientation of the ESF relay logic for these functions. If one train is inoperable, 6 hours are allowed to restore the train to OPERABLE status. The Completion Time for restoring a train to OPERABLE status is reasonable considering that there is another train OPERABLE, and the low probability of an event occurring during this interval. If the train cannot be returned to OPERABLE status, the unit must be brought to MODE 3 within the next 6 hours and MODE 4 within the following 6 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. Placing the unit in MODE 4 removes all requirements for OPERABILITY of the actuation function. In this MODE, the unit does not have analyzed transients or conditions that require the explicit use of the Functions noted above.

The Required Actions are modified by a Note that allows one train to be bypassed for up to 8 hours for surveillance testing provided the other train is OPERABLE. This allowance is based on the reliability analysis (Ref. 5) assumption that 8 hours is the average time required to perform relay logic train surveillance.

G.1 and G.2

Condition G applies to High High SG Water Level.

If one channel is inoperable, 6 hours are allowed to restore one channel to OPERABLE status or to place it in the tripped condition. If placed in the tripped condition, the Function is then in a partial trip condition where one-out-of-two logic will result in actuation.

BASES

ACTIONS

G.1 and G.2 (continued)

The 6 hour Completion Time is justified in Reference 5. Failure to restore the inoperable channel to OPERABLE status or place it in the tripped condition within 6 hours requires the unit to be placed in MODE 3 within the following 6 hours. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging unit systems. In MODE 3, this Function is no longer required OPERABLE.

The Required Actions are modified by a Note that allows the inoperable channel to be bypassed for up to 4 hours for surveillance testing of other channels. The 6 hours allowed to place the inoperable channel in the tripped condition, and the 4 hours allowed for a second channel to be in the bypassed condition for testing, are justified in Reference 5.

H.1 and H.2

Condition H applies to Undervoltage on Buses 11 and 12 (21 and 22).

If one or both channel(s) on one bus is inoperable, 6 hours are allowed to restore the channel(s) to OPERABLE status or to place it in the tripped condition. If placed in the tripped condition, the Function is then in a partial trip condition where one-out-of-two channels on the other bus will result in actuation. The 6 hour Completion Time is justified in Reference 5. Failure to restore the inoperable channel(s) to OPERABLE status or place it in the tripped

BASES

ACTIONS

H.1 and H.2 (continued)

condition within 6 hours requires the unit to be placed in MODE 3 within the following 6 hours. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging unit systems. In MODE 3, this Function is no longer required OPERABLE.

The Required Actions are modified by a Note that allows the inoperable channel to be bypassed for up to 4 hours for surveillance testing of other channels. The 6 hours allowed to place the inoperable channel in the tripped condition, and the 4 hours allowed for a second channel to be in the bypassed condition for testing, are justified in Reference 5.

I.1 and J.2

Conditions I and J apply to the AFW automatic actuation relay logic function and to the AFW pump start on trip of both MFW pumps function.

The OPERABILITY of the AFW System must be assured by allowing automatic start of the AFW System pumps. If a logic train or channel is inoperable, the applicable Condition(s) and Required Action(s) of LCO 3.7.5, "Auxiliary Feedwater (AFW) System," are entered for the associated AFW Train.

Required Action I.1 is modified by a note that allows placing a train in the bypass condition for up to 8 hours for surveillance testing provided the other train is OPERABLE. This is necessary to allow testing reactor trip system logic which is in the same cabinet with AFW logic. This is acceptable since the other AFW system train is OPERABLE and the probability for an event requiring AFW during this time is low.

BASES (continued)

SURVEILLANCE REQUIREMENTS

The SRs for each ESFAS Function are identified by the SRs column of Table 3.3.2-1.

A Note has been added to the SR Table to clarify that Table 3.3.2-1 determines which SRs apply to which ESFAS Functions.

Note that each channel of reactor protection analog system supplies both trains of the ESFAS. When testing Channel I, Train A and Train B must be examined. Similarly, Train A and Train B must be examined when testing Channel II, Channel III, and Channel IV (if applicable). The CHANNEL CALIBRATION and COTs are performed in a manner that is consistent with the assumptions used in analytically calculating the required channel accuracies.

SR 3.3.2.1

Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value.

Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the unit staff, based on a combination of the channel instrument uncertainties, including

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.2.1 (continued)

indication and reliability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit.

The Frequency is based on operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels.

SR 3.3.2.2

SR 3.3.2.2 is the performance of an ACTUATION LOGIC TEST. The ESF relay logic is tested every 31 days on a STAGGERED TEST BASIS. The train being tested is placed in the test condition, thus preventing inadvertent actuation. All possible logic combinations are tested for each ESFAS function. The test includes actuation of master and slave relays whose contact outputs remain within the relay logic. The test condition inhibits actuation of the master and slave relays whose contact outputs provide direct ESF equipment actuation. Where the relays are not actuated, the test circuitry provides a continuity check of the relay coil. This verifies that the logic is OPERABLE and that there is a signal path to the output relay coils. The Frequency of every 31 days on a STAGGERED TEST BASIS is adequate. It is based on industry operating experience, considering instrument reliability and operating history data.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.2.5 (continued)

The SR is modified by a Note that excludes verification of setpoints during the TADOT. The manual initiation Function has no associated setpoints.

SR 3.3.2.6

SR 3.3.2.6 is the performance of a CHANNEL CALIBRATION.

A CHANNEL CALIBRATION is performed every 24 months, or approximately at every refueling. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to measured parameter within the necessary range and accuracy.

CHANNEL CALIBRATIONS must be performed consistent with the assumptions of the unit specific setpoint methodology. The difference between the current "as found" values and the previous test "as left" values must be consistent with the drift allowance used in the setpoint methodology.

The Frequency of 24 months is based on the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint methodology.

This SR is modified by a Note stating that this test should include verification that the time constants are adjusted to the prescribed values where applicable.

BASES (continued)

REFERENCES

1. AEC "General Design Criteria for Nuclear Power Plant Construction Permits," Criterion 15, issued for comment July 10, 1967, as referenced in USAR Section 1.2.

2. USAR, Section 7.

3. USAR, Section 14.

4. "Engineering Manual Section 3.3.4.1,Engineering Design Standard for Instrument Setpoint/Uncertainty Calculations".

5. WCAP-10271-P-A, Supplement 2, Rev. 1, June 1990.

BASES

ACTIONS

B.2 and B.3 (continued)

Offsite power block loading capability is established by administrative control of selected distribution system loads to reduce potential starting inrush.

B.4

Required Action B.4 is intended to provide assurance that a loss of offsite power, during the period that a load sequencer is inoperable and the associated DG is inoperable for automatic start, does not result in a complete loss of safety function of critical systems. These features are designed with redundant safety related trains. Redundant required feature failures consist of inoperable features associated with a train, redundant to the train that has an inoperable DG.

The Completion Time for Required Action B.4 is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." In this Required Action, the Completion Time only begins on discovery that both:

a. An inoperable DG exists; and

b. A required feature on the other train (Train A or Train B) is inoperable.

If at any time during the existence of this Condition (one DG inoperable) a required feature subsequently becomes inoperable, this Completion Time would begin to be tracked.

Discovering one required DG inoperable coincident with one or more inoperable required support or supported features, or both, that are associated with the OPERABLE DG, results

BASES

ACTIONS

B.4 (continued)

in starting the Completion Time for the Required Action. Four hours from the discovery of these events existing concurrently is acceptable because it minimizes risk while allowing time for restoration before subjecting the unit to transients associated with shutdown.

In this Condition, the remaining OPERABLE DG and paths are adequate to supply electrical power to the onsite Safeguards Distribution System. Thus, on a component basis, single failure protection for the required feature's function may have been lost; however, function has not been lost. The 4 hour Completion Time takes into account the OPERABILITY of the redundant counterpart to the inoperable required feature. Additionally, the 4 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

B.5

Required Action B.5 requires that the automatic load sequencer be restored to OPERABLE status. The 7 day Completion Time allows a reasonable time to repair the inoperable load sequencer. The Completion Time is consistent with the Completion Time to restore an inoperable DG, as required in LCO 3.8.1, "AC Sources - Operating."

C.1

Condition C applies when the Required Action and associated Completion Time of Condition B are not met. The unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours.

BASES

ACTIONS (continued)

D.1

Required Action D.1 requires that LCO 3.8.2 "AC Sources-Shutdown" Condition(s) and Required Action(s) for the associated DG be entered immediately when Required Action and Completion Time of Condition A is not met, or Functions a and b or both with two channels per bus inoperable, or when one required automatic load sequencer is inoperable in MODE 5 or 6. The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required AC electrical power sources should be completed as quickly as possible in order to minimize the time during which the unit safety systems may be without sufficient power.

SURVEILLANCE REQUIREMENTS

SR 3.3.4.1

SR 3.3.4.1 is the performance of a COT every 31 days.

A COT is performed on each required undervoltage and degraded voltage relay channel to ensure they will perform the intended function. For these tests, the relay trip setpoints are verified and adjusted as necessary. The Frequency is based on the known reliability of the relays and load sequencers and the multichannel redundancy available, and has been shown to be acceptable through operating experience.

SR 3.3.4.2

SR 3.3.4.2 is the performance of an ACTUATION LOGIC TEST on each required load sequencer every 31 days.

The test verifies that the logic functions provided by the load sequencer for voltage and load restoration are OPERABLE. The Frequency is based on the known reliability of the load sequencers and has been shown to be acceptable through operating experience.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.4.3

SR 3.3.4.3 is the performance of a CHANNEL CALIBRATION on the undervoltage and degraded voltage channels.

The setpoints, as well as the response to a UV and a DV test, shall include a single point verification that an actuation occurs within the required time delay, as shown in Reference 1.

A CHANNEL CALIBRATION is performed every 24 months, or approximately at every refueling. CHANNEL CALIBRATION is a complete check of the voltage relay channel. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy.

The Frequency of 24 months is based on operating experience and consistency with the typical PI refueling cycle and is justified by the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

REFERENCES

1. USAR, Section 8.4.
2. "Engineering Manual Section 3.3.4.1,Engineering Design Standard for Instrument Setpoint/Uncertainty Calculations".
3. USAR, Section 14.

B 3.3 INSTRUMENTATION

B 3.3.5 Containment Ventilation Isolation Instrumentation

BASES

BACKGROUND

Containment ventilation isolation (CVI) instrumentation closes the containment isolation valves in the Containment Purge (high flow) and Inservice (low flow) Purge System. This action isolates the containment atmosphere from the environment to minimize releases of radioactivity in the event of an accident. The Containment Inservice (low flow) Purge System may be in use during reactor operation and with the reactor shutdown. The Containment Purge (high flow) System may be in use with the reactor shutdown.

Containment ventilation isolation initiates on a safety injection (SI) signal, by manual actuation of containment isolation , or by manual actuation of containment spray. The Bases for LCO 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation," discuss these modes of initiation.

Three radiation monitoring channels are also provided as input to CVI. One channel measures gaseous radiation in containment exhaust air. This channel provides an input to one train of CVI actuation relay logic. The other two channels measure either gaseous or particulate containment exhaust air radiation. These two channels provide inputs to the other train of CVI actuation relay logic where either channel will actuate the train. These three detectors will respond to most events that release radiation to containment. Since the monitors constitute a sampling system, various components such as sample line valves and sample pumps are required to support monitor OPERABILITY.

BASES

BACKGROUND (continued)	The Containment Purge System (high flow) has an outer containment isolation valve in its supply and exhaust ducts. The Containment Inservice (low flow) Purge System has two containment isolation valves on each supply and exhaust line. A high radiation signal from any one of the three channels initiates one train of CVI logic, which closes one supply and one exhaust containment isolation valve in the Containment Purge (high flow) System and Inservice (low flow) Purge System. These systems are described in the Bases for LCO 3.6.3, "Containment Isolation Valves."
APPLICABLE SAFETY ANALYSES	The safety analyses assume that the containment remains intact with penetrations unnecessary for core cooling isolated early in the event. The isolation of the purge valves has not been analyzed mechanistically in the dose calculations, although its rapid isolation is assumed. The containment exhaust air radiation monitors act as backup to the SI signal to ensure closing of the purge and exhaust valves. They are also the primary means for automatically isolating containment in the event of a fuel handling accident during shutdown. Containment isolation in turn ensures meeting the containment leakage rate assumptions of the safety analyses, and ensures that the calculated accidental offsite radiological doses are below 10 CFR 100 (Ref. 1) limits. The CVI instrumentation satisfies Criterion 3 of 10 CFR 50.36 (c)(2)(ii).
LCO	The LCO requirements ensure that the instrumentation necessary to initiate CVI, listed in Table 3.3.5-1, is OPERABLE. 1. <u>Manual Initiation</u> The LCO requires two channels OPERABLE. The operator can initiate CVI at any time by using either of two switches in

BASES

LCO (continued)

the control room. This action will cause actuation of one train of Containment Purge and Inservice Purge System containment isolation valves in the same manner as any of the automatic actuation signals.

The LCO for Manual Initiation ensures the proper amount of redundancy is maintained in the manual actuation circuitry to ensure the operator has manual initiation capability.

Each channel consists of one switch and the interconnecting wiring to the valves.

2. Automatic Actuation Relay Logic

The LCO requires two trains of CVI relay logic OPERABLE to ensure that no single random failure can prevent automatic actuation.

The CVI Automatic Actuation Relay Logic consists of the same features and operate in the same manner as described for ESFAS Function 1.b, SI, and ESFAS Function 3.b, Containment Isolation. The applicable MODES and specified conditions for the CVI portion of these Functions are different and less restrictive than those for their containment isolation and SI roles. If one or more of the SI or containment isolation Functions becomes inoperable in such a manner that only the CVI Function is affected, the Conditions applicable to their SI and containment isolation Functions need not be entered. The less restrictive Actions specified for inoperability of the CVI Functions specify sufficient compensatory measures for this case.

BASES

LCO (continued)

3. High Radiation in Exhaust Air

The LCO specifies two required trains of radiation monitors to ensure that the radiation monitoring instrumentation necessary to initiate CVI remains OPERABLE.

For sampling systems, channel OPERABILITY involves more than OPERABILITY of the channel electronics. OPERABILITY may also require correct valve lineups, and sample pump operation as well as detector OPERABILITY, if these supporting features are necessary for trip to occur under the conditions assumed by the safety analyses.

4. Manual Containment Isolation

Refer to LCO 3.3.2, Function 3.a., for all initiating Functions and requirements.

5. Safety Injection

Refer to LCO 3.3.2, Function 1, for all initiating Functions and requirements.

6. Manual Containment Spray

Refer to LCO 3.3.2, Function 2, for all initiating Functions and requirements.

APPLICABILITY

All Functions in Table 3.3.5-1 are required to be OPERABLE in MODES 1, 2, 3, and 4 when the Containment Inservice (low flow) Purge System is not isolated. In addition, the Manual Initiation,

BASES

APPLICABILITY (continued)

Automatic Actuation Relay Logic, and High Radiation in Exhaust Air Functions are required OPERABLE during CORE ALTERATIONS or movement of irradiated fuel assemblies within containment, when the Containment Purge (high flow) and Inservice (low flow) Purge Systems are not isolated. Under these conditions, the potential exists for an accident that could release fission product radioactivity into containment. Therefore, the CVI instrumentation must be OPERABLE in these MODES.

While in MODES 5 and 6 without CORE ALTERATIONS or irradiated fuel handling in progress, the CVI instrumentation need not be OPERABLE since the potential for radioactive releases is minimized and operator action is sufficient to ensure post accident offsite doses are maintained within the limits of Reference 1.

ACTIONS

The most common cause of channel inoperability is outright failure or drift of the process module sufficient to exceed the tolerance allowed by unit specific calibration procedures. Typically, the drift is found to be small and results in a delay of actuation rather than a total loss of function. This determination is generally made during the performance of a COT, when the process instrumentation is set up for adjustment to bring it within specification. If the trip setpoint is less conservative than the Allowable Value, the channel must be declared inoperable immediately and the appropriate Condition entered.

A Note has been added to the ACTIONS to clarify the application of Completion Time rules. The Conditions of this Specification may be entered independently for each Function listed in Table 3.3.5-1. The Completion Time(s) of the inoperable channel(s)/train(s) of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function.

BASES

ACTIONS (continued)

A.1

Condition A applies to the failure of one CVI radiation monitor train. The 4 hours allowed to restore the affected train is justified by the low likelihood of events occurring during this interval, and recognition that the remaining train will respond to events.

B.1 and B.2

Condition B applies to all CVI Functions and addresses the train orientation for these Functions.

If a train is inoperable, or the Required Action and associated Completion Time of Condition A are not met, operation may continue as long as the Required Action to place and maintain containment inservice (low flow) purge valves in the closed position is met, or the Required Action for the applicable Conditions of LCO 3.6.3 is met for each valve made inoperable by failure of isolation instrumentation.

A Note is added stating that Condition B is only applicable in MODE 1, 2, 3, or 4 when the Containment Inservice Purge System is not isolated.

C.1 and C.2

Condition C applies to all CVI Functions and addresses the train orientation for these Functions. If a train is inoperable, or the Required Action and associated Completion Time of Condition A are not met, operation may continue as long as the Required Action to place and maintain containment purge (high flow) and inservice (low flow) purge and exhaust isolation valves in their closed position

BASES

ACTIONS

C.1 and C.2 (continued)

is met or the applicable Conditions of LCO 3.9.4, "Containment Penetrations," are met for each valve made inoperable by failure of isolation instrumentation. The Completion Time for these Required Actions is Immediately.

A Note states that Condition C is only applicable during CORE ALTERATIONS or during movement of irradiated fuel assemblies within containment when the Containment Purge and Inservice Purge Systems are not isolated.

SURVEILLANCE REQUIREMENTS

A Note has been added to the SR Table to clarify that Table 3.3.5-1 determines which SRs apply to which CVI Functions.

SR 3.3.5.1

Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.5.1 (continued)

Agreement criteria are determined by the unit staff, based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit.

The Frequency is based on operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels.

SR 3.3.5.2

SR 3.3.5.2 is the performance of an ACTUATION LOGIC TEST. This test is performed every 31 days on a STAGGERED TEST BASIS. The Surveillance interval is acceptable based on instrument reliability and industry operating experience.

SR 3.3.5.3

A COT is performed every 31 days on each required channel to ensure the entire channel will perform the intended Function. The setpoint shall be left consistent with the current unit specific procedure tolerance.

SR 3.3.5.4

SR 3.3.5.4 is the performance of a TADOT. This test is a check of the Manual Initiation Function and is performed every 24 months.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.5.4 (continued)

The SR is modified by a Note that excludes verification of setpoints during the TADOT. The Functions tested have no setpoints associated with them.

The Frequency is based on the known reliability of the Function and the redundancy available, and has been shown to be acceptable through operating experience.

SR 3.3.5.5

A CHANNEL CALIBRATION is performed every 24 months, or approximately at every refueling. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy.

The Frequency is based on operating experience and is consistent with the typical PI refueling cycle.

REFERENCES

1. 10 CFR 100.11.

Tbl 3.3.1-1
Function 12
Tbl 3.3.2-1
Function 6d

2.3.A.2.g. Reactor coolant pump bus undervoltage - ≥ 76~~75~~% of rated bus ~~normal~~ voltage. L3.3-31 R-12

Tbl 3.3.1-1
Function 11a

h. Open reactor coolant pump motor breaker. A3.3-133 R-4

Tbl 3.3.1-1
Function 11b

Reactor coolant pump bus underfrequency - ≥58.2 Hz

i. Power range neutron flux rate.

Tbl 3.3.1-1
Function 3a

1. Positive rate - ≤6~~15~~% of RATED THERMAL POWER with a time constant ≥2 seconds L3.3-31

Tbl 3.3.1-1
Function 3b

2. Negative rate - ≤8~~7~~% of RATED THERMAL POWER with a time constant ≥2 seconds L3.3-31

3. Other reactor trips

Tbl 3.3.1-1
Function 9

a. High pressurizer water level - ≤90% ~~of narrow range instrument span~~. A3.3-134

Tbl 3.3.1-1
Function 13
Tbl 3.3.2-1
Function 6b

b. Low-low steam generator water level - ≥5% ~~of narrow range instrument span~~. A3.3-134 R-4

c. Turbine Generator trip

Tbl 3.3.1-1
Function 14b

1. Turbine stop valve indicators - closed

Tbl 3.3.1-1
Function 14a

2. Low auto stop oil pressure - ≥45 psig

~~d. Safety injection - See Specification 3.5~~ A3.3-02

TABLE TS.3.5-1

R-2

ENGINEERED SAFETY FEATURES INITIATION INSTRUMENT LIMITING SET POINTS

	No.	FUNCTIONAL UNIT	CHANNEL	LIMITING SET POINTS*
Table 3.3.2-1 Funct 1c	1	High Containment Pressure (Hi)	Safety Injection*	≤4 psig
Table 3.3.2-1 Funct 2c	2	High Containment Pressure (Hi-Hi)	a. Containment Spray	≤23 psig
Table 3.3.2-1 Funct 4b			b. Steam Line Isolation of Both Lines	≤17 psig
Table 3.3.2-1 Funct 1d	3	Pressurizer Low Pressure	Safety Injection*	≥1760~~1815~~ psig L3.3-31
Table 3.3.2-1 Funct 1e and Note b	4	Low Steam Line Pressure	Safety Injection* Lead Time Constant Lag Time Constant	≥500 psig ≥12 seconds ≤2 seconds
Table 3.3.2-1 Funct 4c	5	High Steam Flow in a Steam Line Coincident with Safety Injection and Low T_{avg}	Steam Line Isolation of Affected Line	L3.3-31 d/p corresponding to ≤0.918~~0.745~~ x 10^6 lb/hr at 1005 psig ≥536~~540~~ F L3.3-31

R-12

R-7

R-2

~~TABLE TS.3.5-1A~~
~~Page 1 of 2~~

	~~4.~~ CONTAINMENT VENTILATION ISOLATION					
Table 3.3.5-1	5~~a~~. Safety Injection	See Functional Unit 1 above for all Safety Injection initiating functions and requirements.				
Table 3.3.5-1	1~~b~~. Manual	2	~~1~~	~~2~~	(b)	22
Table 3.3.5-1	6~~c~~. Manual Containment Spray	See Functional Unit 2a above for Manual Containment Spray requirements.				
Table 3.3.5-1	4~~d~~. Manual Containment Isolation	See Functional Unit 3b above for Manual Containment Isolation requirements.				
Table 3.3.5-1	3~~e~~. High Radiation in Exhaust Air	2	~~1~~	~~2~~	(b)	22
Table 3.3.5-1	2~~f~~. Automatic Actuation Relay Logic ~~and Actuation Relays~~	2	~~1~~	~~2~~	(b)	22

A3.3-35

Table 3.3.5-1

(a,b) Whenever in MODES 1, 2, 3, 4 or during CORE ALTERATIONS or movement of irradiated fuel assemblies within containment when ~~CONTAINMENT INTEGRITY is required and either of~~ the containment purge or inservice purge systems are not isolated ~~in operation~~.

A3.3-39

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~~TABLE TS 3.5-2B~~ Page 2 of 9 (Overflow) Rev 111 8/10/94

TABLE TS.3.5-2~~B~~ (Page 4 of 9)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

	FUNCTIONAL UNIT	REQUIRED ~~TOTAL NO. OF~~ CHANNELS	~~CHANNELS TO TRIP~~	~~MINIMUM CHANNELS OPERABLE~~	APPLICABLE MODES	ACTION	
Table 3.3.2-1	4~~5~~. STEAM LINE ISOLATION (continued)						A3.3-35 L3.3-42
	a~~e~~. Automatic Actuation Relay Logic ~~and Actuation Relays~~	2	~~1~~	~~2~~	1, $2^{(c)}$, $3^{(c)}$	F~~25~~	
	5~~6~~. FEEDWATER ISOLATION						L3.3-45
Table 3.3.2-1	b~~a~~. Hi-Hi Steam Generator Level	3/SG	~~2/SG in any SG~~	~~2/SG in each SG~~	1, $2^{(x)}$	G~~24~~	
Table 3.3.2-1	c~~b~~. Safety Injection	See Functional Unit 1 above for all Safety Injection initiating functions and requirements.					
	~~c. Reactor Trip with 2 of 4 Low T_{avg} (Main Valves only):~~						
	~~1. Reactor Trip~~	~~2~~	~~1~~	~~2~~	~~1, 2~~	~~28~~	LR3.3-154 R-12
	~~2. Low T_{avg}~~	~~4~~	~~2~~	~~3~~	~~1, 2~~	~~24~~	A3.3-35 L3.3-45 M3.3-49
Table 3.3.2-1	a~~d~~. Automatic Actuation Relay Logic ~~and Actuation Relays~~	2	~~1~~	~~2~~	1, $2^{(x)}$, $3^{(x)}$	F~~28~~	

Table 3.3.2-1

(c) Except when both MSIVs are closed~~When either main steam isolation valve is open~~ A3.3-43

Table 3.3.2-1

(x) Except when all MFRVs and MFRV bypass valves are closed and de-activated or isolated by a closed manual valve. L3.3-45

~~TABLE TS.3.5-2B~~
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A3.3-00

R-2

TABLE TS.4.1-1A (Page 1 of 5)

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

A3.3-72

	FUNCTIONAL UNIT	CHANNEL CHECK	CALIBRATE	~~FUNCTIONAL TEST~~	RESPONSE TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
Table 3.3.1-1 Funct 1	1. Manual Reactor Trip	N.A.	N.A.	R[13] SR3.3.1.14	N.A.	1, 2, 3[1], 4[1], 5[1]
Table 3.3.1-1 Funct 2a Funct 6 Funct 7	2. Power Range, Neutron Flux a) High Setpoint	S SR3.3.1.1	D[5, 7] SR3.3.1.2 M~~[6, 7]~~ Q~~[7, 8]~~ R[7] SR3.3.1.11	Q~~[10]~~ SR3.3.1.7	R[EE] SR3.3.1.16	1, 2
Table 3.3.1-1 Funct 2b	b) Low Setpoint	S SR3.3.1.1	R[7] SR3.3.1.11	S/U[17,10] SR3.3.1.8	R[EE] SR3.3.1.16	1[3], 2
Table 3.3.1-1 Funct 3a	3a. Power Range, Neutron Flux, High Positive Rate	N.A.	R[7] SR3.3.1.11	Q SR3.3.1.7	R[EE] SR3.3.1.16	1, 2
Table 3.3.1-1 Funct 3b	3b~~4~~. Power Range, Neutron Flux, High Negative Rate	N.A.	R[7] SR3.3.1.11	Q SR3.3.1.7	R[EE] SR3.3.1.16	1, 2
Table 3.3.1-1 Funct 4	4~~5~~. Intermediate Range, Neutron Flux	S SR3.3.1.1	R[7] SR3.3.1.11	S/U[4,10] SR3.3.1.8	R	1[3], 2[YY]

A3.3-155

A3.3-75

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M3.3-73

R-12

A3.3-155

R-12

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M3.3-73

L3.3-129

L3.3-74

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~~TABLE TS.4.1-1A (Page 1 of 5)~~
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~~TABLE TS.4.1-1A (Page 1 of 5) (Overflow)~~

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M3.3-73

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Table	Function					
Table 3.3.1-1 Funct 5	5~~6~~. Source Range, Neutron Flux ~~a. Startup~~	S SR3.3.1.1	R(7) SR3.3.1.11	S/U(4)(10) SR3.3.1.8	R(EE) SR3.3.1.16	2(2)
	~~b. Shutdown~~	S SR3.3.1.1	R(7) SR3.3.1.11	Q~~(10)~~ SR3.3.1.7	R(EE) SR3.3.1.16	3(1), 4(1), 5(1)
Table 3.3.1-1 Funct 6	6~~7~~. Overtemperature ΔT	S SR3.3.1.1	R SR3.3.1.12 SR3.3.1.6 SR3.3.1.3	Q SR3.3.1.7	R(EE) SR3.3.1.16	1, 2
Table 3.3.1-1 Funct 7	7~~8~~. Overpower ΔT	S SR3.3.1.1	R SR3.3.1.12 SR3.3.1.6 SR3.3.1.3	Q SR3.3.1.7	R(EE) SR3.3.1.16	1, 2

L3.3-138

A3.3-155

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A3.3-75

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~~TABLE TS.4.1-1A (Page 1 of 5) Overflow REV 111 8/10/94~~

TABLE TS.4.1-1A (Page 2 of 5)

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

A3.3-72

	FUNCTIONAL UNIT	CHECK	CALIBRATE	~~FUNCTIONAL TEST~~	RESPONSE TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED	
Table 3.3.1-1 Funct 8a	8a~~9~~. Low Pressurizer Pressure	S SR3.3.1.1	R[AA] SR3.3.1.10	Q SR3.3.1.7	N.A.	1[BB]	L3.3-13
Table 3.3.1-1 Funct 8b	8b~~10~~. High Pressurizer Pressure	S SR3.3.1.1	R[AA] SR3.3.1.10	Q SR3.3.1.7	N.A.	1, 2	
Table 3.3.1-1 Funct 9	9~~11~~. Pressurizer High Water Level	S SR3.3.1.1	R[AA] SR3.3.1.10	Q SR3.3.1.7	N.A.	1[BB]	L3.3-13
Table 3.3.1-1 Funct 10	10~~2~~. Reactor Coolant Flow Low	S SR3.3.1.1	R[AA] SR3.3.1.10	Q SR3.3.1.7	N.A.	1[CC]	L3.3-13
	14~~3~~. Turbine Trip						
Table 3.3.1-1 Funct 14	a. Low AST Oil Pressure	N.A.	R[AA] SR3.3.1.10	S/U[4a, 11] SR3.3.1.15	N.A.	1[DD]	L3.3-13
	b. Turbine Stop Valve Closure	N.A.	R[AA] SR3.3.1.10	S/U[4a, 11] SR3.3.1.15	N.A.	1[DD]	L3.3-13
Table 3.3.1-1 Funct 13	13~~4~~. Lo-Lo Steam Generator Water Level	S SR3.3.1.1	R[AA] SR3.3.1.10	Q SR3.3.1.7	N.A.	1, 2	R-12
Table 3.3.1-1 Funct 12	12~~5~~. Undervoltage 4KV RCP Bus	N.A.	R[AA] SR3.3.1.10	Q[11] SR3.3.1.9	N.A.	1[BB]	A3.3-81 L3.3-13

~~TABLE TS.4.1-1A (Page 2 of 5)~~
~~REV 111 8/10/94~~

~~TABLE TS.4.1-1A (Page 4 of 5) (Overflow)~~

M3.3-91

SR3.3.1.2 (5) Comparison of calorimetric to excore power indication within 12 hours after above 15% of RATED THERMAL POWER. Adjust excore channel gains consistent with calorimetric power if absolute difference is greater than 2%.

LR3.3-139

M3.3-88

R-4

R-12

SR3.3.1.3 (6) ~~Single point~~ compare~~ison~~ ~~of~~ incore to excore for axial off-set Note: not required to be performed until 72 hours after above 15% of RATED THERMAL POWER and every 31 EFPD. Recalibrate if the absolute difference is greater than 2%.

R-4

A3.3-94

SR3.3.1.11 Note (7) Neutron detectors are~~may be~~ excluded from CHANNEL CALIBRATION.

M3.3-92

SR3.3.1.6 (8) Incore - Excore Calibration, within 24 hours after above 75% of RATED THERMAL POWER.

A3.3-95

SR3.3.1.4 SR3.3.1.5 (9) Each train shall be tested at least ~~every two~~ monthly~~s~~ on a STAGGERED TEST BASIS.

TABLE TS.4.1-1A (Page 4 of 5) (Overflow) REV 111 8/10/94

~~TABLE TS.4.1-1A (Page 5 of 5)(Overflow)~~

Table 3.3.1-1 Func 17 — (15) Automatic undervoltage trip. — A3.3-14

Table 3.3.1-1 Note h — (16) Including any~~Whenever the~~ Reactor Trip Bypass Breakers that are racked in and closed for bypassing a Reactor Trip Breaker~~ and the Control Rod Drive System is capable of rod withdrawal~~. — A3.3-14, M3.3-17

SR3.3.1.4 Note — Test Reactor Trip Bypass Breaker prior to placing in service. — M3.3-108

SR3.3.1.8 Frequency — (17) Prior to each startup if not done previous 92 days and every 92 thereafter~~week~~. — L3.3-86

R-4

~~(18) Including quadrant power tilt monitor.~~ — LR3.3-102

(19) Not Used

Table 3.3.1-1 Note c — (yy) Above P-6. — L3.3-129

SR3.3.1.10 Note — (AA) This Surveillance shall include verification that the time constants are adjusted to the prescribed values. — M3.3-105

R-4

Table 3.3.1-1 Note e — (BB) Above P-7. — L3.3-13

Table 3.3.1-1 Note f — (CC) Above P-7 or P-8. — L3.3-13

Table 3.3.1-1 Note g — (DD) Above P-9. — L3.3-13

R-4

SR3.3.1.16 Note — (EE) Neutron detectors are excluded from response time testing. — A3.3-155

R-12

~~TABLE TS.4.1-1A (Page 5 of 5) (Overflow)~~

TABLE TS.4.1-1B (Page 4 of 7)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

A3.3-72

FUNCTIONAL UNIT	CHECK	CALIBRATE	~~FUNCTIONAL TEST~~	RESPONSE TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED	
5~~6~~. FEEDWATER ISOLATION						
Table 3.3.2-1 Func 5b — b~~a~~. Hi-Hi Steam Generator Level	S SR3.3.2.1	R[27] SR3.3.2.6	Q SR3.3.2.3	N.A.	1, 2[29]	L3.3-45 R-6
Table 3.3.2-1 Func 5c — c~~b~~. Safety Injection	See Functional Unit 1 above for all Safety Injection Surveillance Requirements					
~~c. Reactor Trip with 2 of 4 Low T_{avg} (Main Valves Only)~~						
~~1. Reactor Trip~~	~~N.A.~~	~~N.A.~~	~~R~~	~~N.A.~~	~~1, 2~~	LR3.3-154 R-12
~~2. Low T_{avg}~~	~~S~~	~~R~~	~~Q~~	~~N.A.~~	~~1, 2~~	
Table 3.3.2-1 Func 5a — a~~d~~. Automatic Actuation Relay Logic ~~and Actuation Relays~~	N.A.	N.A.	M[22] SR3.3.2.2	N.A.	1, 2[29], 3[29]	M3.3-106 A3.3-35

~~TABLE TS.4.1-1B (Page 4 of 7) REV 111 8/10/94~~

~~TABLE TS.4.1-1B (Page 7 of 7) (Overflow)~~

Table 3.3.2-1

(24) When reactor coolant system average temperature is greater than 520°F and either main steam isolation valve is open.

A3.3-107

~~(25) See Table 4.17-2.~~

A3.3-39

Table 3.3.5-1 Applicability

(26) MODES 1, 2, 3, 4 and during irradiated fuel movement Whenever ~~CONTAINMENT INTEGRITY is required and either of~~ the containment ~~inservice~~ purge systems ~~is not isolated~~~~are in operation~~. During CORE ALTERATIONS or movement of irradiated fuel assemblies within containment when the containment purge or inservice purge systems are not isolated.

R-12

SR3.3.2.6 Note

(27) ~~Not Used~~ This surveillance shall include verification that the time constants are adjusted to the prescribed values.

M3.3-105

SR3.3.2.4 Note

(28) ~~Not Used~~ Verification of setpoint not required.

A3.3-109

Table 3.3.2-1

(29) ~~Not Used~~ Except when all MFRVs and MFRV bypass valves are closed and de-activated or isolated by a closed manual valve.

L3.3-45

R-12

Table 3.3.2-1

(EE) This function may be bypassed during alignment and operation of the AFW System for SG level control.

A3.3-48

~~TABLE TS.4.1-1B (Page 7 of 7) (Overflow) REV 111 8/10/94~~

TABLE TS.4.1-1C (Page 2 of 4)

MISCELLANEOUS INSTRUMENTATION SURVEILLANCE REQUIREMENTS

A3.3-72

FUNCTIONAL UNIT	CHECK	CALIBRATE	~~FUNCTIONAL TEST~~	RESPONSE TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
~~13. Containment Sump A, B and C Level~~	~~N.A.~~	~~R~~	~~R~~	~~N.A.~~	~~1, 2, 3, 4~~
~~14. Deleted~~					
15. Turbine First Stage Pressure	~~S~~	R SR3.3.1.10	Q SR3.3.1.7	N.A.	1
~~16. Emergency Plan Radiation Instruments~~ ~~(35)~~	~~M~~	~~R~~	~~M~~	~~N.A.~~	~~1, 2, 3, 4, 5, 6~~
~~17. Seismic Monitors~~	~~R~~	~~R~~	~~N.A.~~	~~N.A.~~	~~1, 2, 3, 4, 5, 6~~
18. Coolant Flow - RTD Bypass Flowmeter	~~S~~	R SR3.3.1.12	~~M~~	N.A.	1, 2, 3~~(34)~~
~~19. CRDM Cooling Shroud Exhaust Air Temperature~~	~~S~~	~~N.A.~~	~~R~~	~~N.A.~~	~~1, 2, 3(31), 4(31), 5(31)~~
~~20. Reactor Gap Exhaust Air Temperature~~	~~S~~	~~N.A.~~	~~R~~	~~N.A.~~	~~1, 2, 3, 4~~
21. Post-Accident Monitoring Instruments (Table TS.3.15-1) ~~(36)~~	M SR3.3.3.1	R(41) SR3.3.3.2	~~N.A.~~ R(40) SR3.3.3.3	N.A.	1, 2
~~22. Deleted~~					

Tbl3.3.1-1 F. 16.b.2

SR3.3.1.12

SR3.3.3.1
SR3.3.3.2
SR3.3.3.3

R3.3-115

LR3.3-156

R3.3-115

R3.3-115

LR3.3-116

L3.3-117

R3.3-115

R3.3-115

A3.3-121

A3.3-143

R-7

R-12

R-7

R-7

R-7

R-7

R-7

~~TABLE TS.4.1-1C~~
~~(Page 2 of 4)~~
~~REV 121 11/9/95~~

TABLE TS.4.1-1C (Page 3 of 4)

MISCELLANEOUS INSTRUMENTATION SURVEILLANCE REQUIREMENTS

A3.3-72

FUNCTIONAL UNIT	CHECK	CALIBRATE	~~FUNCTIONAL TEST~~	RESPONSE TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
~~23. Deleted~~					
~~24. Steam Exclusion Actuation~~	~~W~~	~~Y~~	~~M~~	~~N.A.~~	~~1, 2, 3~~
25. Overpressure Mitigation	N.A.	R	R	N.A.	4[38], 5
~~26. Auxiliary Feedwater Pump Suction Pressure~~	~~N.A.~~	~~R~~	~~R~~	~~N.A.~~	~~1, 2, 3~~
~~27. Auxiliary Feedwater Pump Discharge Pressure~~	~~N.A.~~	~~R~~	~~R~~	~~N.A.~~	~~1, 2, 3~~
~~28. NaOH Caustic Stand Pipe Level~~	~~W~~	~~R~~	~~M~~	~~N.A.~~	~~1, 2, 3, 4~~
29. Hydrogen Monitors	M~~S~~ SR3.3.3.1	R~~Q~~ SR3.3.3.2	M	N.A.	1, 2
~~30. Containment Temperature Monitors~~	~~M~~	~~R~~	~~N.A.~~	~~N.A.~~	~~1, 2, 3, 4~~
~~31. Turbine Overspeed Protection Trip Channel~~	~~N.A.~~	~~R~~	~~M~~	~~N.A.~~	~~1~~

R3.3-152

R-7

Addressed Elsewhere

LR3.3-156

R-12

LR3.3-118

R-12

SR3.3.3.1
SR3.3.3.2

LR3.3-157

R-12

R3.3-115

~~TABLE TS.4.1-1C (Page 3 of 4)~~
~~REV 121 11/9/95~~

R-7

NSHD category	Change number 3.3-	Discussion of Change
R	003	2.3.C. Control Rod Stops are provided to prevent movement of rods using automatic rod control. When the plant power level is less than 15% RTP the turbine impulse pressure (PT-485) input to the rod control system is blocked, preventing automatic rod withdrawal. This interlock enables automatic rod control when the power reaches 15%. These automatic stops do not meet the Technical Specification Selection Criteria of 10CFR50.36 for inclusion in ITS since they do not meet: Criterion 1, instrumentation used to detect RCS leakage; Criterion 2, a design feature that assumes the failure of or presents a challenge to the integrity of a fission product barrier; Criterion 3, a system that is part of the primary success path to mitigate a design basis accident; or Criterion 4, shown to be significant to public health and safety. Since the control rod stops do not meet the TS Selection Criteria of 10CFR50.36, they have been relocated to the TRM. This is acceptable since the TRM is under the regulatory controls of 10CFR50.59. Since the TRM is under licensee control this is a less restrictive change. This change conforms to the guidance of NUREG-1431.
A	004	3.5.A, 3.5.B, 3.15.B, 4.1.A, 4.1.B, and 4.1.C. The CTS introductory statements which direct the TS user to the Tables which contain the Specification limits are not included. These statements are not necessary in the ITS format which contains all required references for internal guidance and consistency. This is an administrative change since these statements are not substantive and the ITS is complete without them.

NSHD category	Change number 3.3-	Discussion of Change
L	013	Table 3.5-2A and Table 4.1-1A, Functions 9, 11, 12, 13, 15, 16 and applicable Required Actions, new notes. The Applicable Modes for these functions are modified by notes which limit the Mode of Applicability of the specification consistent with the guidance of NUREG-1431. The Required Actions are modified to place the plant in the out-of-limit portion of the Mode of Applicability as remedial action. These changes are less restrictive since they further limit the applicability of the specification and may allow the plant to remain at a higher power level. These changes are acceptable since these functions are not assumed for the mitigation of any accident in the out-of-limit portion of the Mode of Applicability. Placing the plant in the out-of-limit portion of the Mode of Applicability removes the plant from the Mode or other conditions of Applicability. Thus these functions, in the out-of-limit portion of the Mode of Applicability, are not required and do not meet the TS Selection Criteria.
A	014	Table 3.5-2A, Functions 19 and 20, Note (d), and Table 4.1-1A, Functions 19 and 20 and Notes (15) and (16). In conformance with the guidance of NUREG-1431, the Reactor Trip Bypass Breakers (RTBBs) have been included with the Reactor Trip Breaker, ITS Table 3.3.1-1, Function 17, rather than listed as a separate function. All facets of the RTBBs, including testing of the automatic undervoltage trip (Note 15), are included in ITS Table 3.3.1-1, Function 17 and Function 18. Since all specification requirements have been retained in the TS this is an administrative change.

NSHD category	Change number 3.3-	Discussion of Change
M	032	Table 3.5-2A, Action 9. The Required Actions of Part a. of this Action Statement has been modified to be consistent ITS LCO 3.3.1 Condition S, which conforms with the guidance of NUREG-1431. The maintenance exception of Part a. of this Required Action is included with Note 2 in Condition P. CTS Action 9a allows 48 hours for repair of an inoperable diverse trip feature or declare the reactor trip breaker (RTB) inoperable. CTS also allows the breaker to be bypassed to perform maintenance and testing to restore the diverse trip feature to operable status without any stated time limit. As ITS Condition P Note 2, the time the breaker may be bypassed is limited to 6 hours, thus this is a more restrictive change. The 6 hours is acceptable based on WCAP-10271, Section 4.1.2 "Increased Test and Maintenance" which states, " ... instrumentation and breakers be extended from 2 hours to 4 hours and that maintenance times be extended to 12 hours." The 6 hours in the ITS is well within the limits allowed by the WCAP. In addition, the 6 hours is acceptable based on the redundancy capabilities afforded by the OPERABLE RTB, and the low probability of an abnormal event occurring during this period. Providing a specific time limit is acceptable and does not cause an unsafe plant condition since most maintenance and testing would normally be performed in this time frame.

NSHD category	Change number 3.3-	Discussion of Change
L	042	Table 3.5-2B and Table 4.1-1B, Function 5. Applicability in MODE 2 for each element of this Function is modified by a note which does not require this specification to be applicable when both MSIVs are closed. Since this change limits the applicability of this specification, this is a less restrictive change. This change is acceptable since the steam line isolation safety function is met passively without this instrumentation operable in accordance with the Specification when both MSIVs are closed. This change conforms to the guidance of NUREG-1431.
A	043	Table 3.5-2B, Note c and Table 4.1-1B, Note 23. The format of this note has been revised to conform to the guidance of NUREG-1431. The note has been restated but has the same meaning, therefore this is an administrative change.
	044	Not used.

NSHD category	Change number 3.3-	Discussion of Change
L	045	Table 3.5-2B and Table 4.1-1B, Function 6. Applicability in MODE 2 for each element of this function is modified by a new note which does not require this specification to be applicable when all MFRVs and MFRV bypass valves are closed and de-activated or isolated by a closed manual valve. Since this change limits the applicability of this specification, this is a less restrictive change. This change is acceptable since the feedwater line isolation safety function is met passively without this instrumentation operable in accordance with the Specification when the conditions of the new note are met. This change conforms to the guidance of NUREG-1431.
LR	046	Table 3.5-2B and Table 4.1-1B, Function 7a. The AFW manual initiation function is not included in the ITS which is consistent with the guidance of NUREG-1431. This change is acceptable since the manual AFW pump switch only starts the pump as opposed to actuating the system and manual operations of the pumps to support plant startup and cooldown will verify operability of the switches. This function will be relocated to the TRM where it will be under the regulatory controls of 10CFR50.59. Since this function will be under licensee control, this is a less restrictive change.
A	047	Table 3.5-2B, Function 7. The title for this function is changed to delete "4.16 kV" since this is unnecessary redundant information in the title. Since this is only a title change, this is an administrative change.

NSHD category	Change number 3.3-	Discussion of Change
	076	Not used.
	077	Not used.

NSHD category	Change number 3.3-	Discussion of Change
	78	Not used.
	79	Not used.
	80	Not used.
A	081	Table 4.1-1A, Functions 15, 16b. The ITS surveillance requirement for the quarterly test of the 4 kV RCP Bus undervoltage and underfrequency relays (SR 3.3.1.9) includes a Note which states “setpoint verification is not required”. CTS requires a quarterly functional test of the 4 kV RCP Bus undervoltage and under frequency relays which is equivalent to the ITS required quarterly TADOT on Buses 11 and 12 (Unit 2: 21 and 22) which are the 4 kV RCP Buses. Addition of this Note in ITS is an administrative change. The ITS requirement for this test, SR 3.3.1.9, includes a Note which states "setpoint verification is not required". The relays in question have inherently stable setpoints and are fully calibrated, including verification of setpoints, each refueling outage in accordance with CTS and ITS requirements. The calibration data from January 1996 through June 2001 was reviewed for the 24 relays involved (12 for each unit). During this five and one-half year period, none of the relays were found to be set outside their calibration tolerances. The CTS definition of Channel Functional Test states, "A CHANNEL FUNCTIONAL TEST consists of injecting a simulated signal into the channel as close to the primary sensor as practicable to verify that it is OPERABLE, including alarm and/or trip initiating action." Unlike the definition for TADOT, the CTS definition for Channel Functional Test does not require setpoint verification; thus this note is simply a clarification and no substantive changes are involved. Therefore, this is an administrative change.

NSHD category	Change number 3.3-	Discussion of Change
L	082	Table 4.1-1A, Function 16. The CTS requirement to calibrate the RCP Breaker Open function every refueling outage has not been included. Since there is no method of actually calibrating a breaker, PI considered the calibration to be part of the RCP undervoltage and underfrequency relay testing and calibration process. The requirements for testing and calibrating the RCP undervoltage and underfrequency relays remain in the ITS. This change is acceptable since the RCP Breaker is either open or closed and therefore there is not any instrumentation which requires calibration.
L	083	Table 4.1-1A, Function 16. The CTS requires the RCP Breaker Open trip instrumentation to be functionally tested prior to each startup after the reactor has been shutdown for more than 2 days if not tested in the previous 30 days. ITS SR 3.3.1.14 requires that a TADOT be performed every 24 months instead of every shutdown in excess of 2 days. In the event the plant does not shutdown during a cycle or if a shutdown less than 2 days during a cycle would occur, a functional test would not be required to be performed until the plant did shutdown for refueling or the 24 month test interval becomes due. Therefore the RCP breakers would be considered to be OPERABLE for the entire operating cycle. Performances of this surveillance have confirmed the reliability of RCP breakers by verifying they are OPERABLE. Therefore, extending the interval does not result in a reduction in the reliability of these instruments. Since less testing may be required this is a less restrictive change.

NSHD category	Change number 3.3-	Discussion of Change
L	086	Table 4.1-1A, Notes 4 and 17. The frequency for this SR has been modified to be consistent with the guidance of NUREG-1431. CTS Note 4 applies to the Intermediate Range, Source Range, and Turbine Trip Functions. The Turbine Trip Functions are discussed in DOC M3.3-87. Note 4 requires this SR to be performed prior to each startup following shutdown in excess of 2 days if not done in previous 30 days. This requirement has been revised to require this SR to be performed prior to each startup if not done in previous 92 days and every 92 days thereafter. A Note has been added not requiring the performance of this SR prior to reactor startup following shutdown ≤ 48 hours. This Note is discussed in DOC A3.3-141. Adding the requirement for performing this SR every 92 days thereafter is not required by the CTS and is therefore, a more restrictive change. Increasing the CTS SR Frequency from 30 days to 92 days is considered to be a less restrictive change. Since this change contains both a more and less restrictive change, its overall category is a less restrictive change. Past performance of these surveillances at Prairie Island and in the industry has shown that the interval can be extended to 92 days without reducing their reliability. This change is also acceptable since the 92 days is consistent with the frequency of performance for this type of surveillance on similar instrumentation. Note 17 applies to the Power Range Instrumentation and requires this SR to be performed each startup if not done the previous week. This SR has been changed to be consistent with the NUREG by requiring this SR to be performed prior to startup if not done in the previous 92 days and every 92 days thereafter. Again, requiring this SR to be performed every 92 days thereafter is not required by the CTS and is therefore, a more restrictive change. Past performance of these surveillances at Prairie Island and in the industry has shown that the interval can be extended to 92 days without reducing their reliability. This change is also extended to 92 days without reducing their reliability. This change is also acceptable since the 92 days is consistent with the frequency of performance for this type of surveillance on similar instrumentation.

NSHD category	Change number 3.3-	Discussion of Change
M	088	Table 4.1-1A, Note 6 . This note has been modified to require performance of the SR within 72 hours after THERMAL POWER exceeds 15 % RTP and every 31 EFPD. CTS does not require the SR to be performed within any specific time, thus this is a more restrictive change. The Frequency of within 72 hours after exceeding 15% RTP considers that the core, and therefore the neutron leakage characteristics, has been changed during a refueling outage such that the previous comparison is no longer valid. The Frequency also recognizes the importance of obtaining accurate excore NIS detector initial response data at high power level prior to NIS channel adjustment in accordance with SR 3.3.1.6. This time limit allows some time for power to be increased prior to performance of this SR. This change is acceptable since this time may allow comparisons to be performed at 70% power level consistent with current plant practices and performance of this SR within 72 hours does not cause the plant to be operated in an unsafe manner. The 31 EFPD is based on unit operating experience, considering instrument reliability and operating history data for drift. In addition, the slow changes in neutron flux during the fuel cycle can be detected during this interval.
	89	Not used.
	90	Not used.

NSHD category	Change number 3.3-	Discussion of Change
LR	101	Table 4.1-1A, Notes 13 and 14. These CTS notes have been relocated to the Bases. These notes provide details of "what and how" SRs are performed on the undervoltage and shunt trip mechanisms. These notes are not necessary in the specification for the proper performance of these SRs, and consistent with the guidance of NUREG-1431, these notes are relocated to the Bases. Since less information is provided in the specifications, this is a less restrictive change.
LR	102	Table 4.1-1A, Note 18. CTS SR requirements for the quadrant power tilt monitor have been relocated to the TRM. ITS does not include any LCO requirements for the quadrant power tilt monitor and there are no SRs for this monitor. This monitor only provides an alarm function in the control room and does not affect nor provide any trip functions for the monitor. ITS requires the power range neutron flux instrumentation, which provides the input data for QPTR determination, to be OPERABLE. The ITS also requires the operators to check QPTR in accordance with SR 3.2.4.1. These QPTR monitors are not required for performance of SR 3.2.4.1. Since Note 18 in Table 4.1-1A is an SR on equipment, which only provides an alarm function and does not have any CTS or ITS LCO requirements, this SR can be relocated to the TRM. This change is also consistent with approved TSTF-110, which relocated core monitoring equipment from other NUREG-1431 Specifications. Since this change removes equipment from the TS, this is a less restrictive change. This change is acceptable since it will still be under the regulatory controls of 10CFR50.59 in the TRM.
	103	Not used.
	104	Not used.

NSHD category	Change number 3.3-	Discussion of Change
R	115	(continued) The containment sump level instrumentation does not meet the 10 CFR 50.36 criteria for inclusion in the Technical Specifications. Since containment sump level instruments are not required in ITS, the SRs on this instrumentation can be relocated to the TRM

NSHD category	Change number 3.3-	Discussion of Change
R	115	(continued)

Table 4.1-1C, Function 16, Emergency Plan Radiation Instruments

Criterion 1: Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.

The emergency plan radiation instruments are used to gather environmental information following an accident which requires entry into the emergency plan. These instruments do not detect degradation of the reactor coolant pressure boundary; therefore they do not meet Criterion 1.

NSHD category	Change number 3.3-	Discussion of Change
R	115	(continued)

Criterion 4: A structure, system, or component which operating experience or probabilistic risk assessment has shown to be significant to public health and safety.

The reactor gap exhaust air temperature instrumentation is not considered in the plant IPE and it is not a structure, system or component which operating experience or probabilistic risk assessment has shown to be significant to public health and safety. Therefore reactor gap exhaust air temperature instrumentation does not meet 10 CFR 50.36 (c)(2)(ii) Criterion 4.

The reactor gap exhaust air temperature instrumentation does not meet the 10 CFR 50.36 criteria for inclusion in the Technical Specifications. Since reactor gap exhaust air temperature instruments are not required in ITS, the SRs on this instrumentation can be relocated to the TRM.

NSHD category	Change number 3.3-	Discussion of Change
R	115	(continued)
		Not used.

NSHD category	Change number 3.3-	Discussion of Change
R	115	(continued)
		Not used.

NSHD category	Change number 3.3-	Discussion of Change
L	129	Table 3.5-2A and Table 4.1-1A, Function 5, new note. The Applicable Modes is modified by a note which limits the applicability in Mode 2 to above P-6. Since this change limits the Mode of Applicability for the Intermediate Range Neutron Flux Instrumentation (IRNFI), this is a less restrictive change. This change is acceptable since the IRNFI is backup instrumentation, which is not credited in the safety analyses to trip the reactor. In Mode 2 below P-6, the Source Range Neutron Instrumentation provides core protection for reactivity events and the IRNI does not need to be OPERABLE. This change is consistent with the guidance of NUREG-1431.
A	130	CTS 2.3A.2.d and 2.3.A.2.e. These CTS sections provide the equations and define the nomenclature for OTΔT and OPΔT respectively. The definitions of the nomenclature and the values for f(ΔI) have been marked up to be consistent with the presentation in NUREG-1431. This markup does not change any values of any parameters or change the meaning or use of any variables and does not change in any manner the plant operations. Since this change is only a markup which changes the presentation of the information and does not change any TS requirements or plant operation, this is an administrative change.

NSHD category	Change number 3.3-	Discussion of Change
A	133	CTS 2.3.A.2.g. CTS specifies RCP bus undervoltage as a percent of "normal voltage". ITS specifies RCP bus (Unit 1 buses 11 and 12; Unit 2 buses 21 and 22) as the percent of "rated bus voltage" in Table 3.3.1-1, Function 12 and Table 3.3.2-1, Function 6d. Both of these functions monitor the large motor buses, Bus 11 and 12 (Unit 2 Buses 21 and 22). This change is made to be consistent with the guidance of NUREG-1431, Table 3.3.2-1, Function 6d and clarify the required voltage. This is an administrative change since "rated bus voltage" is equivalent to "normal bus voltage" and both of these terms are understood as the nominal voltage, 4160 V, of these buses. This discussion of change addresses the change of terminology since L3.3-31 addresses the change from 75% to 76%.
A	134	CTS 2.3.A.3.a and 2.3.A.3.b The CTS limits for high pressurizer water level and low-low steam generator water level are specified as a percentage "of narrow range instrument span". ITS does not include the phrase "of narrow range instrument span" as a modifier of the limit. For the pressurizer, there is only narrow range instrumentation, therefore it is unnecessary to specify "narrow range instrument span". For the steam generator there is narrow range and wide range instrumentation. However, since only the narrow range instrumentation provides input to the reactor trip and engineered safety features systems, it is not possible to have confusion on which instrumentation is providing input and therefore unnecessary to specify "of narrow range instrument span". Since this change does not change plant operations, this is an administrative change.

NSHD category	Change number 3.3-	Discussion of Change
L	135	Table 3.5-2A, New Action I. CTS does not provide any specific guidance for the condition when two source range neutron (SRN) flux channels are inoperable during the applicable Modes or other conditions of applicability. ITS provides a new action to address this condition when two source range neutron flux channels are inoperable. SRN instrumentation is required to be OPERABLE in MODES 3, 4, and 5 when the Control Rod Drive System is capable of rod withdrawal or one or more rods are not fully inserted. ITS Action I requires the Reactor Trip Breakers (RTBs) to be opened immediately. Since CTS does not provide any specific guidance for this condition, LCO 3.0.C would be entered which would allow one hour to evaluate and plan for plant shutdown, an additional 6 hours to be in MODE 3 and another 30 hours to be in MODE 5. If the plant is in MODE 3, 4, or 5 with the Control Rod Drive System capable of rod withdrawal or one or more rods are not fully inserted when both SRN instrumentation channels become inoperable, ITS requires the reactor trip breakers to be immediately opened which would immediately take the plant to MODE 3. In these MODES this is a less restrictive change since the ITS Required Action will allow the plant to remain in MODE 3 indefinitely while CTS would require shutdown to MODE 5. This action assures the plant is operated in a safe manner. This change is acceptable since core reactivity cannot be increased through the use of the control rods and the plant is maintained in a safe condition in which the reactor cannot be made critical when the plant is in MODE 3 with the RTBs open and therefore source range criticality monitors are not needed.

NSHD category	Change number 3.3-	Discussion of Change
L	136	Table 3.5-2A, Actions 5 and 8. When one manual trip channel or one source range neutron flux (SRNF) channel is inoperable in MODES 3, 4, and 5 (with the rod control system capable of rod withdrawal or one or more rods not fully inserted), CTS Table 3.5-2A, Actions 5 and 8, respectively, require the plant to "open the reactor trip breakers". ITS LCO 3.3.1 Conditions C and J will require the plant to "initiate action to fully insert all rods" and "place the rod control system in a condition incapable of rod withdrawal" in lieu of opening the reactor trip breakers (RTBs). These alternative methods are provided since there may be activities, which are necessary to perform (e.g., COTs on certain channels) with the RTBs closed. This change is acceptable since placing the rod control system in a condition incapable of rod withdrawal is functionally equivalent to opening the RTBs. Under both requirements, core reactivity cannot be increased through the use of the control rods and the plant is maintained in a safe condition in which the reactor cannot be made critical. When the reactor cannot be made critical, the manual reactor trip function is not required and it is not necessary to have two SRNF channels monitoring core reactivity. These changes are consistent with the guidance of NUREG-1431 as modified by approved traveler, TSTF-135.

NSHD category	Change number 3.3-	Discussion of Change
L	137	Table 3.5-2A, Action 2c. CTS requires a core quadrant power balance to be performed when a Power Range Neutron Flux (PRNF) channel (Functions 2a, 2b, 3 or 4) is inoperable and the THERMAL POWER is above 85%. ITS further limits this requirement, to determine the core quadrant power balance when the PRNF input to QPTR is inoperable. There are various component failures that could make a PRNF channel inoperable while the four required inputs to the QPTR function remain operable. CTS is unnecessarily restrictive in that it requires a core quadrant power balance to be performed even though the QPRT function may remain fully operable when a PRNF channel is inoperable. ITS in conformance with NUREG-1431, correctly, only requires a core quadrant power balance to be performed when an input to QPTR is inoperable. Since this change may require less determinations of core quadrant power balance, this is a less restrictive change. This change is acceptable since it is unnecessary to determine core quadrant power balance in accordance with SR 3.2.4.2 when the four required PRNF inputs to QPTR are OPERABLE and there is no loss of function.

NSHD category	Change number 3.3-	Discussion of Change
L	138	CTS Table 4.1-1A, Function 6b. CTS requires quarterly verification in MODES 3, 4 and 5 that P-6 and P-10 are in their required state for existing plant conditions associated with a COT on the source range neutron flux (Modes 3, 4 and 5 with the reactor trip breakers closed and control rods capable of withdrawal) instrumentation . ITS requires verification that P-6 and P-10 are in their required state for existing plant conditions associated with the COT on power range, flux low, intermediate range and source range (MODE 2 below P-6). This change is consistent with the guidance of NUREG-1431. Since this change does not require verification of interlocks associated with the source range instrumentation in Modes 3, 4, and 5, this is a less restrictive change. This change is acceptable because these interlocks do not function in Modes 3, 4, and 5 and, per the requirements of ITS SR 3.3.1.8, the verification will be performed prior to or soon after entry into Modes 1 and 2 when the interlocks are required to perform their function. See M3.3-73.
LR	139	Table 4.1-1A, Note 6. CTS requires, "Single point comparison . . ." of incore to excore nuclear instrumentation for axial off-set. ITS does not include this descriptive clause in the SR requirement statement. This method is discussed in detail in USAR Section 7.3.4.8. Since the USAR is under the regulatory controls of 10 CFR 50.59, changes in methodology are controlled and thus, this clause is unnecessary in the TS description. Since this change is not included in ITS and is described in the USAR, this change is a less restrictive change, relocation. This change is consistent with the guidance of NUREG-1431.
	140	Not used.

NSHD category	Change number 3.3-	Discussion of Change
A	141	CTS Table 4.1-1A, Table Notation 4. CTS requires a COT to be performed on intermediate and source range neutron instrumentation prior to reactor startup following each shutdown in excess of 2 days if not done in the previous 30 days. The exception for shutdown less than 2 days has been retained in ITS by rewording it as a Note in ITS SR 3.3.1.8 which states, "Not required to be performed for intermediate and source range instrumentation prior to reactor startup following shutdown ≤ 48 hours." This ITS exception has the same meaning and limitations as CTS, therefore this is an administrative change. This exception is important to Prairie Island because the COT on these instruments often is critical path during startup from a short shutdown. Since this exception Note applies to 6 channels of instrumentation which are in the same cabinet, performance of this SR may require 12 hours to perform. A typical day of one unit outage costs approximately $250,000 depending on the season, weather conditions and availability of other generating units on the Xcel Energy electrical system. Removal of the 2 day exception to perform this SR could be a significant hardship on Prairie Island operations typically costing $125,000 each occurrence. For example, as the answers to Section 3.3.1 RAIs were being written on August 2, 2001, Unit 1 was in the process of starting up from a unit trip. Due to hot, humid weather at the time, the cost of an outage was in excess of $250,000 per day. Thus, if the plant had to perform these SRs, a cost in excess of $125,000 could have been incurred. For these reasons, NMC has retained the 2 day exception as a Note in ITS SR 3.3.1.8.

NSHD category	Change number 3.3-	Discussion of Change
A	142	CTS Table 3.5-2B, Action 25. Action 25 requires an inoperable channel to be restored to OPERABLE status in 6 hours or be in MODE 3 in 12 hours. Continued operation in MODE 3 is permitted if the main steam isolation valves are closed or the plant must be in MODE 4 in 18 hours. ITS LCO 3.3.2 Condition F requires the inoperable train to be restored to OPERABLE status within 6 hours or the plant must be in MODE 3 in 12 hours and MODE 4 in 18 hours. However, the Applicable Mode or Other Specified Conditions for ITS Table 3.3.2-1 Function 4a is MODE 3 as modified by Note c. Note c exempts the plant from the operability requirements of Function 4a when the both main steam isolation valves (MSIVs) are closed. Thus, if the plant was unable to restore Function 4a to OPERABLE status within 6 hours, entry into MODE 3 would be required. Once the plant is in MODE 3, the plant could shut the MSIVs which would exit the plant from the Applicable Mode or Other Specified Conditions for Function 4a and operation in MODE 3 could continue, that is, further shutdown to MODE 4 in accordance with Condition F would not be required. Therefore, CTS Table 3.5-2B Action 25 and ITS 3.3.2 Condition F in conjunction with Table 3.3.2-1 Function 4a are functionally equivalent. Since there are no substantive changes this is considered an administrative change.

NSHD category	Change number 3.3-	Discussion of Change
A	143	CTS Table 4.1-1C. Footnote 41 has been added to CTS Post Accident Monitoring Instruments (Table 3.15-1). The Footnote is applicable when the CHANNEL CALIBRATION surveillance is required. The Footnote states, "Neutron detectors are excluded from CHANNEL CALIBRATION".PI CTS does not contain any requirements for specific NIS DETECTOR CALIBRATIONS. Therefore, this Footnote is applicable and consistent with both PI CTS and the ITS.
A	144	CTS Table 3.15-1 Action Statements (a)1. and 3. CTS Action Statements require a report be submitted to the Commission within the following 14 days in the condition where one or two required channels of event monitoring instrumentation is inoperable. This wording has been revised to require initiation of action in accordance with Specification 5.6.8. Specification 5.6.8 requires that a report is required to be submitted within the following 14 days as required by LCO 3.3.3 Condition C and J. This is an Administrative change since the Frequency and report initiating conditions are the same in both the CTS and ITS. The ITS is more specific on the contents of the subject report, however, they are still the same as the CTS. This change is consistent with NUREG-1431 and is considered to be an Administrative change.

NSHD category	Change number 3.3-	Discussion of Change
M	145	CTS Table 4.1-1B Function 4.e. CTS Function 4.e CHANNEL CHECK has been revised from daily (24 hours) to 12 hours in accordance with NUREG-1431. Performance of the CHANNEL CHECK every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on the other channels. The 12 hour Frequency is based on operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels. This is a more restrictive change since it reduces the SR Frequency from daily (24 hours) to 12 hours.

NSHD category	Change number 3.3-	Discussion of Change
A	146	CTS Table 3.5-2B, Action 22. CTS Action 22 states that "With the number of OPERABLE channels less than the Total Number of Channels, operation may continue provided the containment purge supply and exhaust valves are maintained closed." This Action applies to CTS Function 4.a Containment Ventilation Isolation - manual, 4.4 High Radiation in Exhaust Air, and 4.f Automatic Actuation Logic and Actuation Relays. CTS Action Statement 22 was revised as follows to be consistent with ISTS Condition A: with one radiation monitoring train inoperable, place and maintain inservice purge valves closed within 4 hours. Operation may continue provided the containment inservice purge supply and exhaust valves are maintained closed. Condition A only refers to the radiation monitors, CTS Table 3.5-2B, Function 4e. This is justified by DOC L3.3-53. CTS Action Statement 22 has further been revised to incorporate ISTS LCO 3.3.5, Condition B and Condition C by stating, "With one or more manual or automatic actuation trains inoperable or two radiation monitoring trains inoperable or Required Actions and Completion Time of Condition A not met, operation may continue provided the containment inservice purge supply and exhaust valves are maintained closed (as required by ITS LCO 3.6.3 and 3.9.4)." This Condition covers the rest of the Containment Ventilation Isolation instrumentation in CTS Table 3.5-2B, including the Manual and Automatic Actuation Relay Logic Containment Ventilation Isolation instrumentation functions. This change is considered to be an Administrative change since the Conditions in the ITS are essentially the same as the intent of the CTS and consistent with current plant operating practices.

NSHD category	Change number 3.3-	Discussion of Change
A	147	CTS 3.6.D. CTS 3.6.D.2.c requires that two automatic primary containment isolation instrumentation valves and the automatic shield building ventilation damper in each duct that penetrates containment shall be OPERABLE including instruments and controls associated with them. This has been revised to state, "The Containment Ventilation Isolation instrumentation for each Function in Table 3.3.5-1 shall be OPERABLE." This is now LCO 3.3.5. The CTS refers to the automatic primary containment isolation valves and the automatic shield building ventilation damper which are part or the Containment Inservice Purge System as discussed in the ITS Bases. The Containment Ventilation Isolation instrumentation closes the containment isolation valves in the Containment Inservice Purge System upon a Safety Injection signal, manual actuation of Containment Isolation, or by manual actuation of containment spray. The Bases for LCO 3.3.2, "Engineered Safety Features Actuation System (ESFAS) Instrumentation," discuss these modes of initiation. CTS 3.6.D.2.c also specifies the number of valves and dampers in each duct that penetrates containment for OPERABILITY. The number of channels, trains, or valves for Function OPERABILITY are contained in ITS Table 3.3.5-1 with Conditions A and B providing Required Actions and Completions Times associated with the LCO not being met. Since the ITS provides the same requirements as CTS, there are administrative changes involving format and presentation of requirements.

NSHD category	Change number 3.3-	Discussion of Change
A	148	CTS 3.6.D.2.d. CTS states, "If an inservice purge system automatic primary containment isolation valve or automatic shield building ventilation damper becomes inoperable, apply the requirements of Specification 3.6.C.3." This CTS action statement was revised, as ITS Condition B, requiring that with one or more inservice purge Functions inoperable, enter applicable Conditions and Required Actions of LCO 3.6.3 for containment inservice purge valves made inoperable by isolation instrumentation." The CTS specifically states the inservice purge system automatic primary containment isolation valve or automatic shield building ventilation damper. Actually, the automatic primary containment isolation valve and the automatic shield building ventilation damper are part (components) of the inservice purge system. The ITS does not distinguish between the parts of the inservice purge system; thus Condition B only identifies the System itself. In accordance with the definition of OPERABILITY, all parts of a System are required to be OPERABLE in order to declare the System OPERABLE. Therefore it is not necessary to specifically identify the parts or components making up the System. This is considered to be an Administrative change since it only involves combining several components within a specific System instead of specifying the components themselves. The CTS provided a requirement to apply the requirements of Specification 3.6.C.3 in the event the inservice purge system automatic primary containment isolation valve or automatic shield building ventilation damper becomes inoperable. This was replaced with ITS Required Action B.2 requiring entry into applicable

NSHD category	Change number 3.3-	Discussion of Change
A	148	(continued)
		Conditions and Required Actions of LCO 3.6.3, "Containment Isolation Valves." for containment inservice (low flow) purge valves made inoperable by isolation instrumentation. LCO 3.6.3 contains essentially the same actions as CTS 3.6.C.3. Therefore; this change is considered to be Administrative since it primarily involves editorial issues and does not change any technical content of the CTS.
		Based on the above evaluation, the changes associated with this DOC are considered to be Administrative and consistent with NUREG-1431.

NSHD category	Change number 3.3-	Discussion of Change
A	149	CTS 3.8.A.1.j. CTS 3.8.A.1.j states the radiation monitors which initiate isolation of the Containment Purge System shall be tested and verified to be OPERABLE prior to CORE ALTERATIONS. The ITS has revised this statement to say that the Containment Ventilation Isolation Instrumentation for each Function, including the High Radiation in Exhaust Air monitors Function 3, shall be OPERABLE in accordance with Table 3.3.5-1. This is an Administrative change since there are no technical changes made to this Specification. The only changes provide clarification to the CTS and utilizes wording and format consistent with NUREG-1431. The CTS refers to the radiation monitors which initiate isolation of the Containment Purge System. This is more accurately defined as the High Radiation in Exhaust Air monitors listed in Table 3.3.5-1, Function 3. In addition, the CTS requires this Function to be tested and verified to be OPERABLE prior to CORE ALTERATIONS. This statement has been revised to clearly state that the Functions shall be OPERABLE in accordance with Table 3.3.5-1. Based on the definition of OPERABLITY, the Function must successfully complete and meet its SR requirements in order to be declared OPERABLE. The SR testing and Frequency required in the CTS is the same as required by the ITS. Based on the above, this change is considered to be Administrative.

NSHD category	Change number 3.3-	Discussion of Change
A	150	CTS Table 3.5-2B, Function 8. CTS does not explicitly state that separate Condition entry is allowed for each Function. In conformance with the guidance of NUREG-1431, a Note is included in ITS LCO 3.3.4 does explicitly state that separate Condition entry is allowed for each Function. This change is an administrative change since the CTS sub-Functions, Degraded Voltage and Undervoltage, independently perform their functions and, in CTS, the action statements could be entered for each sub-Function.
A	151	CTS Table 3.5-2B, Function 8. A new Function 8c, Automatic Load Sequencers, is included in ITS LCO 3.3.4. Although this Function is not explicitly included in CTS, certain TS action would be required by the plant if a load sequencer becomes inoperable. These actions would be necessary to assure the plant is operated in a safe manner. These same actions have been included in ITS. Since the ITS Required Actions are nominally the same as current plant practices, this is an administrative change. This change is acceptable because ITS and CTS actions are equivalent.
R	152	The Steam Exclusion System (SES) actuation instrumentation and the associated setpoint have been relocated to the TRM since the system and associated instrumentation do not meet the criteria of 10 CR 50.36 for inclusion in the Technical Specifications. **Criterion 1: Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.**

NSHD category	Change number 3.3-	Discussion of Change
R	152	(continued)

The Steam Exclusion System (SES) is an installed system which monitors Auxiliary Building and Turbine Building ventilation duct temperatures and, upon a high temperature condition due to a high energy line break, isolates the ducts and prevents steam from reaching safeguards equipment. This system does not detect degradation of the reactor coolant pressure boundary; therefore SES does not meet Criterion 1.

Criterion 2: A process variable, design feature, or operating restriction that is an initial condition of a design basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

The SES is not a variable, design feature or operating restriction; it is an installed system. This system is not an initial condition of a design basis accident or transient; therefore SES does not meet Criterion 2.

Criterion 3: A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

The SES is a plant system. However, it does not mitigate accidents and thus is not a primary success path for mitigating accidents. Therefore, the SES does not meet 10 CFR 50.36 (c)(2)(ii) Criterion 3.

Criterion 4: A structure, system, or component which operating experience or probabilistic risk assessment has shown to be significant to public health and safety.

NSHD category	Change number 3.3-	Discussion of Change
R	152	(continued) The SES is not considered in the plant IPE and it is not a system which operating experience or probabilistic risk assessment has shown to be significant to public health and safety. Therefore this system does not meet 10 CFR 50.36 (c)(2)(ii) Criterion 4. Based on this evaluation, the SES instrumentation and associated setpoint are proposed to be relocated to the TRM.
	153	Not used.

NSHD category	Change number 3.3-	Discussion of Change
LR	154	Table 3.5-2B, Function 6c and Table 4.1-1B, Function 6c. The feedwater isolation on a reactor trip with 2 of 4 low Tave function is not included in the ITS since it does not meet the criteria of 10 CFR 50.36 for inclusion in the Technical Specifications. Since this function does not meet the criteria for a TS as defined in 10CFR50.36 it will be relocated to the TRM where it will be under the regulatory controls of 10CFR50.59. Since this function will be relocated under licensee control, this is a less restrictive , relocated, change. This change is consistent with the guidance of NUREG-1431. This change is acceptable since this function does not meet the 10 CFR 50.36 criteria for inclusion in the Technical Specifications as follows: **Criterion 1: Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.** The feedwater isolation on a reactor trip with 2 of 4 low Tave function is used to isolate the feedwater lines following a reactor trip if the reactor coolant system temperature drops below a predetermined temperature. This function does not detect degradation of the reactor coolant pressure boundary; therefore it does not meet Criterion 1.

NSHD category	Change number 3.3-	Discussion of Change

(continued)

Criterion 2: A process variable, design feature, or operating restriction that is an initial condition of a design basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

The feedwater isolation on a reactor trip with 2 of 4 low Tave function is not a variable, design feature or operating restriction that is an initial condition of a design basis accident or transient; therefore this function does not meet Criterion 2.

Criterion 3: A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

The feedwater isolation on a reactor trip with 2 of 4 low Tave function includes components. The feedwater isolation on a reactor trip with 2 of 4 low Tave function is used to isolate the feedwater lines following a reactor trip if the reactor coolant system temperature drops below a predetermined temperature. This function may prevent an unnecessary actuation of Safety Injection, but it does not provide a safety function. This function is not credited in any safety analyses and it is not a primary success path for mitigating accidents. Therefore, this function does not meet 10 CFR 50.36 (c)(2)(ii) Criterion 3.

NSHD category	Change number 3.3-	Discussion of Change
		(continued) **Criterion 4: A structure, system, or component which operating experience or probabilistic risk assessment has shown to be significant to public health and safety.** The feedwater isolation on a reactor trip with 2 of 4 low Tave function is not modeled in the current plant probabilistic risk assessment and is not a structure, system or component which operating experience or probabilistic risk assessment has shown to be significant to public health and safety. Therefore this instrumentation function does not meet 10 CFR 50.36 (c)(2)(ii) Criterion 4. The feedwater isolation on a reactor trip with 2 of 4 low Tave function does not meet the 10 CFR 50.36 criteria for inclusion in the Technical Specifications. Since the feedwater isolation on a reactor trip with 2 of 4 low Tave function is not required in ITS, the operability and testing requirements for this instrumentation function can be relocated to the TRM.
A	155	CTS Table 4.1-1A, Functions 2a, 2b, 3a, 5, 6, and 7. A new Note is included which excludes the neutron detectors from the response time testing. CTS does not include this Note since it is understood from the design and CTS definition of response time testing that the neutron detectors are not included. Since there are no changes to testing requirements, this is an administrative change.

NSHD category	Change number 3.3-	Discussion of Change
LR	156	CTS Table 4.1-1C, Functions 15, 26, 27, and 28. Table 4.1-1C, Function 15 requires a channel check each shift of the turbine first stage pressure. This instrumentation shift check has been relocated to the TRM. This change is consistent with the guidance of NUREG-1431. This change is acceptable since this instrumentation usually passes this SR when performed. Table 4.1-1C, Functions 26 and 27, Auxiliary Feedwater Pump Suction and Discharge Pressures The auxiliary feedwater (AFW) pump suction and discharge pressure instruments are part of the AFW system. In accordance with the definition of OPERABILITY and the Bases 3.7.5 LCO discussion, the system instrumentation must be OPERABLE for an AFW train to be OPERABLE. These CTS surveillance requirements are proposed to be relocated to the TRM. Since the AFW trains are required by ITS to be OPERABLE, including system instrumentation, the AFW pump suction and discharge pressure instruments are required by ITS to be calibrated and tested for functionality. Therefore the SRs on this instrumentation can be relocated to the TRM. Table 4.1-1C, Function 28, NaOH Caustic Stand Pipe Level The NaOH caustic stand pipe level instrumentation is part of the spray additive system. In accordance with the definition of OPERABILITY and the Bases 3.6.6 LCO discussion, the system instrumentation must be OPERABLE for the spray additive system to be OPERABLE. The NaOH caustic stand pipe level instrumentation surveillance requirements are proposed to

NSHD category	Change number 3.3-	Discussion of Change
LR	156	(continued) be relocated to the TRM. Since the spray additive system is required by ITS to be OPERABLE, including system instrumentation, the NaOH caustic stand pipe level instrumentation is required by ITS to be checked, calibrated and tested for functionality. Therefore the SRs on this instrumentation can be relocated to the TRM. Even though this instrumentation is removed from the TS and relocated to the TRM, it will continue to be under the regulatory controls of 10CFR50.59. Since this SR is relocated from the TS, this is a less restrictive change.
LR	157	CTS Table 4.1-1C, Function 30. Table 4.1-1C, Function 30, Containment Temperature Monitors CTS does not have any LCOs for containment temperature monitoring in MODES 1, 2, 3 and 4 which means there are no specifications for the number of operable instruments, action statements, nor temperature limits. The containment temperature monitors do not provide indication on the control board; these are only available as computer data points. ITS SRs 3.6.1.2 and 3.6.1.3 requires containment shell temperatures and air temperatures to be determined. These CTS containment temperature monitor surveillance requirements (SRs) will be relocated to the Bases since these insturments must be OPERABLE to perform these surveillances. Even though this instrumentation is removed from the TS and relocated to the Bases, it will continue to be under the regulatory controls of the Bases Control Program required by ITS 5.5.12 and 10CFR50.59. Since this SR is relocated from the TS, this is a less restrictive change.

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.1.3	-------------------NOTES------------------- 1. Adjust NIS channel if absolute difference is ≥ 2~~3~~%. 2. Not required to be performed until 72 ~~[24]~~ hours after THERMAL POWER is ≥ ~~[~~15~~]~~% RTP. --- Compare results of the incore detector measurements to NIS AFD.	CL3.3-187 R-4 PA3.3-168 31 effective full power days (EFPD) R-12

(continued)

SR 3.3.1.4	-------------------NOTE------------------- This Surveillance must be performed on the reactor trip bypass breaker prior to placing the bypass breaker in service. --- Perform TADOT.	31 days on a STAGGERED TEST BASIS R-4

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.15	-------------------NOTE------------------- Verification of setpoint is not required. -- Perform TADOT.	~~-----NOTE------~~ ~~Only required when not performed within previous 31 days~~ ~~---------------~~ TA3.3-175 Prior to exceeding the P-9 interlock whenever the unit has been in MODE 3, if not performed within the previous 31 days~~reactor startup~~ R-4
SR 3.3.1.16	-------------------NOTE------------------- Neutron detectors are excluded from response time testing. -- Verify RTS RESPONSE TIME is within limits.	CL3.3-172 R-12 24~~[18]~~ months ~~on a STAGGERED TEST BASIS~~ CL3.3-179 R-2 R-4

Table 3.3.1-1 (page 4 of 8)
Reactor Trip System Instrumentation

TA3.3-176

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	~~TRIP SETPOINT (a)~~
11. Loss of Reactor Coolant Pump (RCP) ~~Breaker Position~~ CL3.3-195						
a. RCP Breaker Open~~Single Loop~~	1(~~f~~h)	1 per RCP	M~~O~~	SR 3.3.1.14	NA	~~NA~~
b. Underfrequency 4 kV Buses 11 and 12 (21 and 22) ~~Two Loops~~ CL3.3-196	1(~~f~~i)	2 per bus~~1 per RCP~~	CL3.3-156 LM	SR 3.3.1.9 SR 3.3.1.10 ~~SR 3.3.1.14~~	CL3.3-197 ≥ 58.2 Hz~~NA~~	~~NA~~
12. Undervoltage on 4 kV Buses 11 and 12 (21 and 22) ~~RCPs~~ CL3.3-201	1(~~e~~g)	CL3.3-202 2~~[3]~~ per bus	CL3.3-156 LM	SR 3.3.1.9 SR 3.3.1.10 CL3.3-186 ~~SR 3.3.1.16~~	X3.3-177 ≥ 76% rated bus voltage~~[4760] V~~	~~≥ [4830] V~~
~~13. Underfrequency RCPs~~ CL3.3-195	~~1(g)~~	~~[3] per bus~~	M	~~SR 3.3.1.9~~ ~~SR 3.3.1.10~~ ~~SR 3.3.1.16~~	~~≥ [57.1] Hz~~	~~≥ [57.5] Hz~~
13~~4~~. Steam Generator (SG) Water Level - Low Low	1,2	~~[~~3~~4~~ per SG~~]~~	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 CL3.3-186 ~~SR 3.3.1.16~~	CL3.3-203 ≥ 5~~[30.4]~~%	~~≥ [32.3]%~~
~~15. SG Water Level - Low~~	~~1,2~~	~~2 per SG~~	~~E~~	~~SR 3.3.1.1~~ ~~SR 3.3.1.7~~ ~~SR 3.3.1.10~~ ~~SR 3.3.1.16~~	CL3.3-204 ~~≥ [30.4]%~~	~~≥ [32.3]%~~
~~Coincident with Steam Flow/ Feedwater Flow Mismatch~~	~~1,2~~	~~2 per SG~~	~~E~~	~~SR 3.3.1.1~~ ~~SR 3.3.1.7~~ ~~SR 3.3.1.10~~ ~~SR 3.3.1.16~~	~~≤ [42.5]% full steam flow at RTP~~	~~≤ [40]% full steam flow at RTP~~

R-4

R-4

R-12

(continued)

~~(a) Reviewer's Note. Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.~~ TA3.3-176

(~~e~~g) Above the P-7 (Low Power Reactor Trips Block) interlock.

Table 3.3.1-1 (page 5 of 8)
Reactor Trip System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	TA3.3-176 ~~TRIP SETPOINT~~ ~~(a)~~
14~~6~~.	Turbine Trip						
	a. Low PA3.3-205 Autostop~~Fluid~~ Oil Pressure	1(g~~j~~)	3	N~~P~~	SR 3.3.1.10 SR 3.3.1.15	CL3.3-206 ≥ 45~~[750]~~ psig	~~≥ [800] psig~~
	b. Turbine Stop Valve Closure	1(g~~j~~)	2~~4~~	CL3.3-167 N~~P~~	CL3.3-207 SR 3.3.1.10 SR 3.3.1.15	Closed~~≥ [1]% open~~	~~≥ [1]% open~~
15~~7~~.	Safety Injection (SI) Input from Engineered Safety Feature Actuation System (ESFAS)	1,2	2 trains	O~~Q~~	SR 3.3.1.14	NA	~~NA~~

R-4

R-12

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	TA3.3-176 ~~TRIP SETPOINT~~ ~~(a)~~
16~~8~~. Reactor Trip System Interlocks						
a. Intermediate Range Neutron Flux, P-6	2(d~~e~~)	2	Q~~S~~	SR 3.3.1.11 SR 3.3.1.13	CL3.3-211 ≥ 1.0E-10~~[6E-11]~~ amp	~~≥ [1E-10] amp~~
b. Low Power Reactor Trips Block, P-7						R-4
1. Power Range Neutron Flux	1	~~41 per train~~	R~~T~~	SR 3.3.1.11 SR 3.3.1.13	≤ 12% RTP~~NA~~	~~NA~~ CL3.3-212
2. Turbine Impulse Pressure	1	2	R	SR 3.3.1.7 SR 3.3.1.10	X3.3-177 ≤ 12% Full Load	PA3.3-476 R-12
c. Power Range Neutron Flux, P-8	1	4	R~~T~~	SR 3.3.1.11 SR 3.3.1.13	X3.3-177 ≤ 11~~[50.2]~~ % RTP	~~≤ [48]% RTP~~
d. Power Range Neutron Flux, P-9	1	4	R~~T~~	SR 3.3.1.11 SR 3.3.1.13	X3.3-177 ≤ 12~~[52.2]~~ % RTP	~~≤ [50]% RTP~~
e. Power Range Neutron Flux, P-10	1,2	4	Q~~S~~	SR 3.3.1.11 SR 3.3.1.13	≥ 9~~[7.8]~~% RTP ~~and ≤ [12.2]% RTP~~	~~≥ [10]% RTP~~
~~f. Turbine Impulse Pressure, P-13~~	~~1~~	~~2~~	~~T~~	~~[SR 3.3.1.1]~~ ~~SR 3.3.1.10~~ ~~SR 3.3.1.13~~	~~≤ [12.2]% turbine power~~	CL3.3-213 ~~≤ [10]% turbine power~~ R-4

(continued)

~~(a) Reviewer's Note: Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.~~ TA3.3-176

(d~~e~~) Below the P-6 (Intermediate Range Neutron Flux) interlocks.

(g~~j~~) Above the P-9 (Power Range Neutron Flux) interlock.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
H~~J~~. One or both~~Main Feedwater Pumps trip~~ channel(s) inoperable on one bus.	-------------NOTE------------- One inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels. ----------------------------- H~~J~~.1 Place channel(s) in trip~~Restore channel to OPERABLE status~~. <u>OR</u> H~~J~~.2 Be in MODE 3.	**CL3.3-226** 6~~48~~ hours 12~~54~~ hours
I~~K~~. One ~~channel~~train inoperable.	I~~K~~.1 ---------NOTE--------- One ~~additional channel~~train may be bypassed for up to 8~~[4]~~ hours for surveillance testing provided the other train is OPERABLE. --------------------- Enter applicable Condition(s) and Required Action(s) for Auxiliary Feedwater (AFW) train made inoperable by ESFAS instrumentation ~~Place channel in bypass~~. ~~<u>OR</u>~~	**CL3.3-227** Immediately ~~6 hours~~ R-6 (continued) R-12

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~K. (continued)~~	~~K.2.1 Be in MODE 3.~~	~~12 hours~~
	~~AND~~	
	~~K.2.2 Be in MODE 5.~~	~~42 hours~~
J~~L~~. One channel inoperable.	J~~L~~.1 Enter applicable Condition(s) and Required Action(s) for Auxiliary Feedwater (AFW) pump made inoperable by ESFAS instrumentation ~~Verify interlock is in required state for existing unit condition~~.	**CL3.3-228** Immediately ~~1 hour~~ **R-12** ~~7 hours~~
	~~OR~~	
	~~L.2.1 Be in MODE 3.~~	~~13 hours~~
	~~AND~~	
	~~L.2.2 Be in MODE 4.~~	

Table 3.3.2-1 (page 5 of 8)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	TA3.3-176 ~~TRIP SETPOINT (a)~~
4. Steam Line Isolation (continued)						
~~f. High Steam Flow in Two Steam Lines~~	~~1,2(i),~~ ~~3(i)~~	~~2 per steam line~~	~~D~~	~~SR 3.3.2.1~~ ~~SR 3.3.2.5~~ ~~SR 3.3.2.9~~ ~~SR 3.3.2.10~~	~~(e)~~	~~(f)~~
~~Coincident with Steam Line Pressure – Low~~	~~1,2,(i)~~ ~~3(i)~~	~~1 per steam line~~	~~D~~	~~SR 3.3.2.1~~ ~~SR 3.3.2.5~~ ~~SR 3.3.2.9~~ ~~SR 3.3.2.10~~	~~≥ [635] (e) psig~~	~~≥ [675] (e) psig~~
c~~g~~. High Steam Flow	CL3.3-256 1,2(c~~i~~), 3(c~~i~~)(d)	2 per steam line	D	SR 3.3.2.1 SR 3.3.2.3~~5~~ SR 3.3.2.6~~9~~ CL3.3-237 ~~SR 3.3.2.10~~	X3.3-177 ≤ 9.18E5 lb/hr at 1005 psig ~~[25]% of full steam flow at no load steam pressure~~	~~≤ [ ] full steam flow at no load steam pressure~~ R-12 R-7
Coincident with Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					
and						
Coincident with Low-Low T_{avg} – ~~Low Low~~	1,2(c~~i~~), 3(c)(d)~~(i)~~ CL3.3-256	4 ~~[2]~~ ~~per loop~~ CL3.3-253	D	SR 3.3.2.1 SR 3.3.2.3~~5~~ SR 3.3.2.6~~9~~ CL3.3-237 ~~SR 3.3.2.10~~	X3.3-177 ≥ 536 ~~[550.6]~~°F	~~≥ [553]°F~~ R-7

Table 3.3.2-1 (page 6 of 8)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	TA3.3-176 ~~TRIP SETPOINT (a)~~
5. ~~Turbine Trip and~~ CL3.3-257 Feedwater Isolation a. Automatic CL3.3-238 Actuation Relay Logic ~~and Actuation Relays~~	1,2(e~~j~~), ~~[3]~~(e~~j~~)	2 trains	CL3.3-225 ~~F~~H ~~[G]~~	SR 3.3.2.2 CL3.3-233 ~~SR 3.3.2.4~~ ~~SR 3.3.2.6~~	NA	~~NA~~
b. High-High CL3.3-241 Steam Generator (SG) Water Level ~~– High High (P-14)~~	1,2(e~~j~~), CL3.3-258 ~~[3](j)~~	~~[3]~~ per SG	CL3.3-225 ~~G~~I ~~[D]~~	SR 3.3.2.1 SR 3.3.2.3~~5~~ SR 3.3.2.6~~9~~ CL3.3-237 ~~SR 3.3.2.10~~	X3.3-261 ≤ 90 ~~[84.2]%~~	~~≤ [82.4]%~~
c. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					
6. Auxiliary Feedwater						
~~a. Automatic Actuation Logic and Actuation Relays (Solid State Protection System)~~	~~1,2,3~~	~~2 trains~~	~~G~~	~~SR 3.3.2.2~~ ~~SR 3.3.2.4~~ ~~SR 3.3.2.6~~	CL3.3-262 ~~NA~~	~~NA~~
a~~b~~. Automatic CL3.3-238 Actuation Relay Logic ~~and Actuation Relays (Balance of Plant ESFAS)~~	1,2,3	2 trains	CL3.3-227 I~~G~~	CL3.3-232 SR 3.3.2.2~~3~~	NA	~~NA~~

FUNCTION		APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	TA3.3-176 ~~TRIP SETPOINT (a)~~
~~b~~e.	Low-Low SG Water Level – ~~Low Low~~ CL3.3-241	1,2,3	~~[~~3~~]~~ per SG	D	SR 3.3.2.1 SR 3.3.2.3~~5~~ SR 3.3.2.6~~9~~ CL3.3-237 ~~SR 3.3.2.10~~	CL3.3-203 ≥ 5~~[30.4]~~ %	~~≥ [32.2] %~~

(continued)

~~(a) Reviewer's Note. Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.~~ TA3.3-176

CL3.3-273

(e~~j~~) Except when all ~~MFIVs,~~ Main Feedwater Regulation Valves (MFRVs)~~,~~ ~~[~~and MFRV~~associated~~ bypass valves~~]~~ are closed and ~~[~~de-activated~~]~~ ~~[~~or isolated by a closed manual valve~~]~~.

R-12

Table 3.3.2-1 (page 7 of 8)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	TA3.3-176 ~~TRIP SETPOINT~~ ~~(a)~~
6. Auxiliary Feedwater (continued)						
~~c~~d. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					
~~e. Loss of Offsite Power~~	~~1,2,3~~	~~[3] per bus~~	~~F~~	~~SR 3.3.2.7~~ ~~SR 3.3.2.9~~ ~~SR 3.3.2.10~~	CL3.3-263 ~~≥ [2912] V with ≤ 0.8 sec time delay~~	~~≥ [2975] V with ≤ 0.8 sec time delay~~
d~~f~~. Undervoltage on 4 kV Buses 11 and 12 (21 and 22) ~~Reactor Coolant Pump~~ (f) CL3.3-241	1,2	CL3.3-202 2 ~~[3]~~ per bus	CL3.3-226 ~~H~~I	CL3.3-237 SR 3.3.2.4~~7~~ SR 3.3.2.6~~9~~ ~~SR 3.3.2.10~~	X3.3-177 ≥ 76 ~~[69]~~ % rated bus voltage	~~≥ [70] % bus voltage~~ R-12 R-4
e~~g~~. Trip of both ~~all~~ Main Feedwater Pumps CL3.3-241	1,2 (g)	~~[~~2~~]~~ per pump	CL3.3-227 J	SR 3.3.2.4~~8~~ CL3.3-265 ~~SR 3.3.2.9~~ ~~SR 3.3.2.10~~	CL3.3-265 NA ~~≥ [ ] psig~~	~~≥ [ ] psig~~ R-12
~~h. Auxiliary Feedwater Pump Suction Transfer on Suction Pressure – Low~~	~~1,2,3~~	~~[2]~~	~~F~~	~~SR 3.3.2.1~~ ~~SR 3.3.2.7~~ ~~SR 3.3.2.9~~	CL3.3-266 ~~≥ [20.53] [psia]~~	~~≥ [ ] [psia]~~
~~7. Automatic Switchover to Containment Sump~~						
~~a. Automatic Actuation Logic and Actuation Relays~~	~~1,2,3,4~~	~~2 trains~~	~~C~~	~~SR 3.3.2.2~~ ~~SR 3.3.2.4~~ ~~SR 3.3.2.6~~	CL3.3-267 ~~NA~~	~~NA~~

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	TA3.3-176 ~~TRIP SETPOINT~~ ~~(a)~~
~~b. Refueling Water Storage Tank (RWST) Level - Low Low~~	~~1,2,3,4~~	~~4~~	~~K~~	~~SR 3.3.2.1~~ ~~SR 3.3.2.5~~ ~~SR 3.3.2.9~~ ~~SR 3.3.2.10~~	~~≥ [15]% and ≤ [ ]%~~	~~≥ [ ] and ≤ [ ]~~
~~Coincident with Safety Injection~~	~~Refer to Function 1 (Safety Injection) for all initiation functions and requirements.~~					

(continued)

~~(a) Reviewer's Note. Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.~~ TA3.3-176 CL3.3-271

(f) Start of Turbine Driven Pump only.

(g) This Function may be bypassed during alignment and operation of the AFW System for SG level control. CL3.3-272

3.3 INSTRUMENTATION

3.3.3 Event~~Post Accident~~ Monitoring (EPAM) Instrumentation

CL3.3-281

LCO 3.3.3 The EPAM instrumentation for each Function in Table 3.3.3-1 shall be OPERABLE.

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

CL3.3-282

ACTIONS

------------------------------------NOTES------------------------------------

1. LCO 3.0.4 is not applicable.

2. Separate Condition entry is allowed for each Function.

R-7

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ---------NOTE--------- Not applicable to core exit temperature Function. --------------------- One or more Functions with one required channel inoperable.	A.1 Restore required channel to OPERABLE status.	30 days

R-12

CL3.3-283

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One or more required Core Exit Thermocouple (CET) channel(s) inoperable. AND At least 4 CET channels OPERABLE in the center region of the core. AND At least one CET channel OPERABLE in each quadrant of the outside core region.	B.1 Restore required CET channel(s) to OPERABLE status.	30 days CL3.3-283 R-12 R-12 R-12
CB. Required Action and associated Completion Time of Condition A or B not met.	CB.1 Initiate action in accordance with Specification 5.6.8.	Immediately R-7
DC. -------NOTE------- Not applicable to hydrogen monitor or CET channels. --------------------- One or more Functions with two required channels inoperable.	DC.1 Restore one channel to OPERABLE status.	7 days CL3.3-283

X3.3-312

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued) OR One required automatic load sequencer inoperable.	AND		
	B.2	Establish offsite paths block loading capability for associated 4 kV safeguards bus.	8 hours
	AND		
	B.3	Verify operability of offsite paths for associated 4kV safeguards bus.	8 hours AND Once per 8 hours thereafter
	AND		
	B.4	Declare required feature(s) supported by the affected inoperable DG inoperable when its required redundant feature(s) is inoperable.	4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)
	B.5	Restore automatic load sequencer to OPERABLE status.	7 days

R-12

ACTIONS CONDITION (continued)	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition B not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours X3.3-312 36 hours
D. ---------NOTE--------- Only applicable in MODES 5 or 6. ---------------------- Required Action and associated Completion Time of Condition A not met. OR Function a or b or both with two channels per bus inoperable. OR One required automatic load sequencer inoperable.	D.1 Enter applicable LCO 3.8.2 Condition(s) and Required Action(s) for the associated DG.	Immediately X3.3-312

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
~~SR 3.3.5.1 Perform CHANNEL CHECK.~~	~~12 hours~~ CL3.3-321

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.4~~5~~.1~~2~~	Perform C~~TA~~DOT on undervoltage and degraded voltage channels.	CL3.3-322 [31 days] R-12
SR 3.3.4.2	Perform ACTUATION LOGIC TEST on the automatic load sequencer.	CL3.3-322 31 days R-12

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
		(continued) CL3.3-172
SR 3.3.4~~5~~.3	Perform CHANNEL CALIBRATION on undervoltage and degraded voltage channels with ~~[setpoint~~ Allowable Value~~] [Trip Setpoint and Allowable Value]~~ as follows: a. Under~~Loss of~~ voltage Allowable Value ≥ 3016~~[2912]~~ V and ≤ 3224 V with an undervoltage time delay of 4~~[0.8]~~ ± 1.5~~[ ]~~ seconds. b. ~~Loss of voltage Trip Setpoint ≥ [2975] V with a time delay of [0.8] ± [ ] second.~~ Degraded voltage Allowable Value ≥ 3944~~[3683]~~ V and ≤ 4002 V with a degraded voltage time delay of 8~~[20]~~ ± 0.5~~[ ]~~ seconds and degraded voltage DG start time delay of 60 ± 3 seconds. ~~Degraded voltage Trip Setpoint ≥ [3746] V with a time delay of [20] ± [ ] seconds.~~	24 ~~[18]~~ months R-2 R-12 CL3.3-323

3.3 INSTRUMENTATION

3.3.5~~6~~ Containment Ventilation~~Purge and Exhaust~~Isolation Instrumentation CL3.3-331

LCO 3.3.5~~6~~ The Containment Ventilation~~Purge and Exhaust~~ Isolation instrumentation for each Function in Table 3.3.5~~6~~-1 shall be OPERABLE. CL3.3-331

APPLICABILITY: According to Table 3.3.5-1~~MODES 1, 2, 3, and 4,~~ TA3.3-332
~~During CORE ALTERATIONS,~~
~~During movement of irradiated fuel assemblies within containment~~.

ACTIONS

------------------------------------NOTE------------------------------------
Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One radiation monitoring train ~~channel~~ inoperable.	A.1 Place and maintain containment purge (high flow) and inservice (low flow) purge valves in closed position ~~Restore the affected channel to OPERABLE status~~.	4 hours CL3.3-333 R-12

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. ---------NOTE--------- Only applicable during CORE ALTERATIONS or movement of irradiated fuel assemblies within containment when the Containment Purge or Inservice Purge Systems are not isolated. ---------------------	C.1	Place and maintain containment purge (high flow) and inservice (low flow) purge ~~and exhaust~~ valves in closed position.	Immediately CL3.3-331 R-12 CL3.3-344 R-7 R-12
One or more Functions (except radiation monitors) with one or more manual or automatic actuation trains inoperable. OR Two ~~or more~~ radiation monitoring trains ~~channels~~ inoperable. OR Required Action and associated Completion Time for Condition A not met.	OR		
	C.2	Enter applicable Conditions and Required Actions of LCO 3.9.4, "Containment Penetrations," for containment purge (high flow) and inservice (low flow) purge ~~and exhaust~~ ~~isolation~~ valves made inoperable by isolation instrumentation.	Immediately CL3.3-333 R-12

Table 3.3.5~~6~~-1 (page 1 of 1)
Containment Ventilation ~~Purge and Exhaust~~ Isolation Instrumentation

FUNCTION	TA3.3-332 APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE ~~TRIP SETPOINT~~ TA3.3-176
1. Manual Initiation	1(a), 2(a), 3(a), 4(a), (b)	2	SR 3.3.5.4 ~~6.6~~	NA
2. Autom CL3.3-337 atic Actuation Relay Logic ~~and Actuation Relays~~	1(a), 2(a), 3(a), 4(a), (b)	2 trains	SR 3.3.5~~6~~.2 CL3.3-233 ~~SR 3.3.6.3~~ ~~SR 3.3.6.5~~	NA
3. High Radiation in Exhaust Air ~~Containment Radiation~~	1(a), 2(a), 3(a), 4(a), (b)	CL3.3-333 2 trains	SR 3.3.5.1 SR 3.3.5.3 SR 3.3.5.5	(c) CL3.3-341
~~a. Gaseous~~		~~[1]~~	~~SR 3.3.6.1~~ ~~SR 3.3.6.4~~ ~~SR 3.3.6.7~~	~~≤ [2 x background]~~
~~b. Particulate~~		~~[1]~~	~~SR 3.3.6.1~~ ~~SR 3.3.6.4~~ ~~SR 3.3.6.7~~	~~≤ [2 x background]~~
~~c. Iodine~~		~~[1]~~	~~SR 3.3.6.1~~ ~~SR 3.3.6.4~~ ~~SR 3.3.6.7~~	~~≤ [2 x background]~~
~~d. Area Radiation~~		~~[1]~~	~~SR 3.3.6.1~~ ~~SR 3.3.6.4~~ ~~SR 3.3.6.7~~	~~≤ [2 x background]~~
4. Manual Containment Isolation — ~~Phase A~~	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 3.a., for ~~all~~ initiation functions and requirements.			TA3.3-332 CL3.3-342
5. Safety Injection	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 1, for initiation functions and requirements.			CL3.3-343

R-12

6.	Manual Containment Spray	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 2, for initiation functions and requirements.

CL3.3-343 R-12 R-7

(a) When the Containment Inservice Purge System is not isolated. CL3.3-344

(b) During CORE ALTERATIONS or movement of irradiated fuel assemblies within containment when the Containment Purge or Inservice Purge Systems are not isolated. R-7

(c) ≤ count rate corresponding to 500 mrem/year whole body and 3000 mrem/year skin due to noble gases at the site boundary. R-12

CL3.3-341

PA3.3-356

and opening the associated RTB. The RTB remains OPERABLE under these conditions so that entry into Condition P is not required while performing testing allowed by this Note.

~~R~~P.1 and ~~R~~P.2

Condition ~~R~~P applies to the RTBs in MODES 1 and 2. These actions address the train orientation of the RTS for the RTBs. With one RTB train inoperable, 1 hour is allowed to restore the train to OPERABLE status or the unit must be placed in MODE 3 within the next 6 hours. The Completion Time of an additional 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems. The 1 hour and 7~~6~~ hour Completion Times are equal to the time allowed by LCO 3.0.3 for shutdown actions in the event of a complete loss of RTS Function. Placing the unit in MODE 3 ~~removes the requirement for this particular Function.~~results in Action C entry while RTB(s) are inoperable. TA3.3-151 R-4 TA3.3-151

The Required Actions have been modified by two Notes. Note 1 allows one ~~channel~~train to be bypassed for up to ~~2~~4 hours for surveillance testing, provided the other ~~channel~~train is OPERABLE. Note 2 allows one RTB to be bypassed for up to 6~~2~~ hours for maintenance on undervoltage or shunt trip mechanisms if the other ~~RTB~~ train is OPERABLE. The 6~~2~~ hour time limit is justified in Reference 6~~7~~. CL3.3-162 CL3.3-163 R-4

R-12 ~~TA3~~.3-151

~~S~~Q.1 and ~~S~~Q.2

Condition ~~S~~Q applies to the P-6 and P-10 interlocks. With one or more channel(s) inoperable for one-out-of-two or two-out-of-four coincidence logic, the associated interlock must be verified to be in its required state for the existing unit condition

(continued)

PA3.3-356

BASES

~~U~~S.1~~,~~ ~~U.2.1,~~ and S.2~~U.2.2~~

TA3.3-151

Condition ~~U~~S applies to the RTB Undervoltage and Shunt Trip Mechanisms, or diverse trip features, in MODES 1 and 2. With one of the diverse trip features inoperable, it must be restored to an OPERABLE status within 48 hours or the unit must be placed in a MODE where the requirement does not apply. This is accomplished by placing the unit in MODE 3 within the next 6 hours (54 hours total time) ~~followed by opening the RTBs in 1 additional hour (55 hours total time)~~. The Completion Time of an additional 6 hours is a reasonable time, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems.

~~ACTIONS~~ ~~U.1, U.2.1, and U.2.2 (continued)~~

With ~~the RTBs open and~~ the unit in MODE 3, Action C would apply to any inoperable RTB Trip mechanism.~~this trip Function is no longer required to be OPERABLE.~~ The affected RTB shall not be bypassed while one of the diverse features is inoperable except for the time required to perform maintenance to one of the diverse features. The allowable time for performing maintenance of the diverse features is 6~~2~~ hours, per ~~for the reasons stated under~~ Condition P~~R~~. TA3.3-151

CL3.3-163

The Completion Time of 48 hours for Required Action ~~U~~S.1 is reasonable considering that in this Condition there is one remaining diverse feature for the affected RTB, and one OPERABLE RTB capable of performing the safety function and given the low probability of an event occurring during this interval. R-12

~~V.1~~

TA3.3-151

(continued)

BASES

PA3.3-356

SURVEILLANCE REQUIREMENTS

SR 3.3.1.2 (continued)

allowed for performing the first Surveillance after reaching 15% RTP. At lower power levels, calorimetric data are inaccurate.

The Frequency of every 24 hours is adequate. It is based on unit operating experience, considering instrument reliability and operating history data for instrument drift. Together these factors demonstrate the change in the absolute difference between NIS and heat balance calculated powers rarely exceeds 2% in any 24 hour period.

In addition, control room operators periodically monitor redundant indications and alarms to detect deviations in channel outputs.

PA3.3-168

SR 3.3.1.3

SR 3.3.1.3 compares the incore system to the NIS channel output every 31 Effective Full Power Days (EFPD). If the absolute difference is ≥ 2~~3~~%, the NIS channel is still OPERABLE, but must be readjusted.

CL3.3-187

R-12

R-4

If the NIS channel cannot be properly readjusted, the channel is declared inoperable. This Surveillance is performed to verify the f(ΔI) input to the overtemperature and overpower ΔT Functions.

CL3.3-214

Two Notes modify SR 3.3.1.3. Note 1 indicates that the excore NIS channel shall be adjusted if the absolute difference between the incore and excore AFD is ≥ 2~~3~~%. Note 2 clarifies that the Surveillance is required only if reactor power is ≥ ~~[~~15%~~]~~ RTP and that 72~~24~~ hours is

R-4

R-12

(continued)

PA3.3-356

BASES

allowed for performing the first Surveillance after reaching ~~[15%]~~ RTP.

PA3.3-168

R-12

The Frequency of every 31 EFPD is adequate. It is based on unit operating experience, considering instrument reliability and operating history data for instrument drift. Also, the slow changes in neutron flux during the fuel cycle can be detected during this interval.

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.4

SR 3.3.1.4 is the performance of a TADOT every 31 days on a STAGGERED TEST BASIS. This test shall verify OPERABILITY by actuation of the end devices. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable TADOT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specification tests at least once per refueling interval with applicable extensions. TA3.3-395

The RTB test shall include separate verification of the undervoltage and shunt trip mechanisms. ~~Independent~~ ~~V~~verification of ~~RTB undervoltage and~~the shunt trip Function is not required for the bypass breakers. No capability is CL3.3-396

(continued)

PA3.3-356

BASES

Testing of the final actuation devices is included in the testing. Response times cannot be determined during unit operation because equipment operation is required to measure response times. Experience has shown that these components usually pass this surveillance when performed at the 24~~18~~ month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint. CL3.3-172 R-2

SR 3.3.1.16 is modified by a Note stating that neutron detectors are excluded from RTS RESPONSE TIME testing. This Note is necessary because of the difficulty in generating an appropriate detector input signal. Excluding the detectors is acceptable because the principles of detector operation ensure a virtually instantaneous response. R-12

REFERENCES

1. AEC "General Design Criteria for Nuclear Power Plant Construction Permits," Criterion 14, issued for comment July 10, 1967, as referenced in USAR Section 1.2~~ FSAR, Chapter [7]~~. PA3.3-357

2. Regulatory Guide 1.105, Revision 3, "Setpoints for Safety-Related Instrumentation." TA3.3-176

3. UFSAR, Section 14~~Chapter [6]~~. CL3.3-392

4~~3~~. UFSAR, Section 7~~Chapter [15]~~.

5~~4~~. "Engineering Manual Section 3.3.4.1,Engineering Design Standard for Instrument Setpoint/Uncertainty Calculations".~~IEEE-279-1971.~~

~~REFERENCES (continued)~~

~~5. 10 CFR 50.49.~~

~~6. RTS/ESFAS Setpoint Methodology Study.~~

PA3.3-356

BASES

X3.3-177

R-12

The High Steam Flow Allowable Value is a ΔP corresponding to ≤ 9.18E5 lb/hr~~25% of full steam flow~~ at 1005 psig~~no load steam pressure. The Trip Setpoint is similarly calculated~~.

TA3.3-176

~~With the transmitters (d/p cells) typically located inside the steam tunnels, it is possible for them to experience adverse environmental conditions during an SLB event. Therefore, the Trip Setpointsreflect both steady state and adverse environmental instrument uncertainties.~~

CL3.3-477

The main steam line isolates ~~only~~ if the H~~H~~igh S~~s~~team F~~f~~low signal occurs coincident with an SI signal and L~~l~~ow L~~l~~ow RCS average temperature. The Main Steam Line Isolation Function requirements for the SI Functions are the same as the requirements for their SI function. Therefore, the requirements are not repeated in Table 3.3.2-1. Instead, Function 1, SI, is referenced for all initiating functions and requirements.

R-7

Two channels of T_{avg} per loop are required to be OPERABLE. The T_{avg} channels are combined in a logic such that two channels tripped cause a trip for the parameter. The accidents that this Function protects against cause reduction of T_{avg} in the entire primary system. Therefore, the provision of two OPERABLE channels per loop in a

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

~~g. Steam Line Isolation - High Steam Flow Coincident With Safety Injection and Coincident With T_{avg} - Low Low (Two Loop Units) (continued)~~

(continued)

PA3.3-356

BASES

- Shuts the MFW regulating valves (MFRVs) and the MFRV bypass ~~feedwater regulating~~ valves.

This Function is actuated by High High SG Water Level – ~~High High~~, or by an SI signal. ~~The RTS also initiates a turbine trip signal whenever a reactor trip (P-4) is generated~~. In the event of SI, the unit is taken off line ~~and the turbine generator must be tripped~~. The MFW System is also taken out of operation and the AFW System is automatically started. The SI signal was discussed previously. CL3.3-257

a. ~~Turbine Trip and~~ Feedwater Isolation – Automatic Actuation Relay Logic ~~and Actuation Relays~~ CL3.3-257 CL3.3-238

The feedwater isolation ~~Automatic A~~actuation l~~L~~ogic ~~and Actuation Relays~~ consists of all circuitry housed within the ESF relay logic cabinets for the feedwater isolation subsystem, ~~the same features and operate~~ in the same manner as described for ESFAS Function 1.b. PA3.3-403 CL3.3-423

This Function must be OPERABLE in MODES 1, 2, and 3, except when all MFRV's and associated bypass valves are closed and de-activated or isolated by a closed manual valve, when a secondary side break could result in significant containment pressurization. This Function is not required to be OPERABLE in MODES 4, 5, and 6 because there is insufficient energy in the secondary side of the unit to cause an accident. CL3.3-405 R-12

b. ~~Turbine Trip and~~ Feedwater Isolation – High High Steam Generator Water Level – ~~High High (P-14)~~ CL3.3-257

This signal provides protection against excessive feedwater flow. The ~~ESFAS~~ SG water level

(continued)

PA3.3-356

BASES

~~APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY~~

~~b. Turbine Trip and Feedwater Isolation~~ – ~~Steam Generator Water Level~~ – ~~High High (P-14)~~ ~~(continued)~~

instruments provide input to the Feedwater~~SG Water Level~~ Control System. Therefore, the actuation logic must be able to withstand both an input failure to the control system (which may then require the protection function actuation) and a single failure in the other channels providing the protection function actuation. Median signal selection is used in the Feedwater Control System. Thus, three~~four~~ OPERABLE channels are sufficient~~required~~ to satisfy the requirements with a two-out-of-~~four~~three logic. ~~For units that have dedicated protection and control channels, o nly three protection channels are necessary to satisfy the protective requirements. For other units that have only three channels, a median signal selector is provided or justification is provided in NUREG-1218 (Ref. 7).~~ CL3.3-377

The transmitters (d/p cells) are located inside containment. However, the events that this Function protects against cannot cause a severe environment in containment. Therefore, the ~~Trip Setpoint~~Allowable Value reflects only steady state instrument uncertainties. TA3.3-176

This Function must be OPERABLE in MODES 1 and 2, except when all MFRV's and associated bypass valves are closed and de-activated or isolated by a closed manual valve. In MODES 3, 4, 5, and 6, the MFW System and the turbine generator are normally not in service and this Function is not required to be OPERABLE. CL3.3-423 R-12

(continued)

PA3.3-356

d~~f~~. Auxiliary Feedwater – Undervoltage on 4 kV Buses 11 and 12 (21 and 22)~~Reactor Coolant Pump~~ R-4

A loss of power on the buses that provide power to the MFW pumps~~RCPs~~ provides indication of a pending loss of MFW~~RCP forced~~ flow~~ in the RCS~~. The u~~U~~ndervoltage ~~RCP~~ Function senses the voltage up~~down~~stream of each MFW pump~~RCP~~ breaker. A loss of power~~, or an open RCP breaker, on~~ for both~~two or more RCPs,~~ MFW pumps will start the turbine driven AFW pump to ensure that at least one SG contains enough water to serve as the heat sink for reactor decay heat and sensible heat removal following the reactor trip. CL3.3-402

e~~g~~. Auxiliary Feedwater – Trip of ~~All~~Both Main Feedwater Pumps

A t~~T~~rip of ~~all~~both MFW pumps is an indication of a loss of MFW and the subsequent need for some method of decay heat and sensible heat removal to bring the reactor back to no load temperature and pressure.~~ A turbine driven MFW pump is equipped with two pressure switches on the control air/oil~~ CL3.3-402

~~APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY~~

~~g. Auxiliary Feedwater-Trip of All Main Feedwater Pumps (continued)~~

~~line for the speed control system. A low pressure signal from either of these pressure switches indicates a trip of that pump.~~ Motor driven MFW pumps are equipped with a breaker position sensing device. An open supply breaker indicates that the MFW pump is not running.

R-12

(continued)

PA3.3-356

BASES

Two-OPERABLE channels per AFW pump provide a start signal to each AFW pump in two-out-of-two taken once logic~~satisfy redundancy requirements with one-out-of-two taken twice logic~~. A trip of both~~all~~ MFW pumps starts the motor driven and turbine driven AFW pumps to ensure that at least one SG is available with water to act as the heat sink for the reactor. R-12

Functions 6.~~f~~d and 6.~~g~~e must be OPERABLE in MODES 1 and 2. This ensures that at least one SG is provided with water to serve as the heat sink to remove reactor decay heat and sensible heat in the event of an accident. In MODES 3, 4, and 5, the ~~RCPs and~~ MFW pumps may be normally shut down, and thus neither the pump trip ~~is~~or bus undervoltage are indicative of a condition requiring automatic AFW initiation. Also, in MODE 2 the AFW system may be used for SG level control. The MFW trip is bypassed by placing the AFW pump CS in shutdown auto when AFW is aligned for this purpose. Low low SG level provides protection during this operation. CL3.3-402 CL3.3-272

~~h. Auxiliary Feedwater~~ - ~~Pump Suction Transfer on Suction Pressure~~ - ~~Low~~

~~A low pressure signal in the AFW pump suction line protects the AFW pumps against a loss of the normal supply of water for the pumps, the CST. Two pressure switches are located on the AFW pump suction line from the CST. A low pressure signal sensed by any one of the switches will cause the emergency supply of water for both pumps to be aligned, or cause the AFW pumps to stop until the emergency source of water is aligned. ESW (safety grade) is then lined up to supply the AFW pumps to ensure an adequate supply of water for the AFW System to maintain at least one of the~~ CL3.3-266

(continued)

BASES

Offsite power block loading capability is established by administrative control of selected distribution system loads to reduce potential starting inrush.

B.4

Required Action B.4 is intended to provide assurance that a loss of offsite power, during the period that a load sequencer is inoperable and the associated DG is inoperable for automatic start, does not result in a complete loss of safety function of critical systems. These features are designed with redundant safety related trains. Redundant required feature failures consist of inoperable features associated with a train, redundant to the train that has an inoperable DG.

The Completion Time for Required Action B.4 is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." In this Required Action, the Completion Time only begins on discovery that both:

a. An inoperable DG exists; and

b. A required feature on the other train (Train A or Train B) is inoperable.

If at any time during the existence of this Condition (one DG inoperable) a required feature subsequently becomes inoperable, this Completion Time would begin to be tracked.

R-12

(continued)

BASES

Discovering one required DG inoperable coincident with one or more inoperable required support or supported features, or both, that are associated with the OPERABLE DG, results in starting the Completion Time for the Required Action. Four hours from the discovery of these events existing concurrently is acceptable because it minimizes risk while allowing time for restoration before subjecting the unit to transients associated with shutdown.

In this Condition, the remaining OPERABLE DG and paths are adequate to supply electrical power to the onsite Safeguards Distribution System. Thus, on a component basis, single failure protection for the required feature's function may have been lost; however, function has not been lost. The 4 hour Completion Time takes into account the OPERABILITY of the redundant counterpart to the inoperable required feature. Additionally, the 4 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

B.5

Required Action B.5 requires that the automatic load sequencer be restored to OPERABLE status. The 7 day Completion Time allows a reasonable time to repair the inoperable load sequencer. The Completion Time is consistent with the Completion Time to restore an inoperable DG, as required in LCO 3.8.1, "AC Sources - Operating." R-12

~~In these circumstances the Conditions specified in LCO 3.8.1, "AC Sources - Operating," or LCO 3.8.2, "AC Sources - Shutdown," for the DG made inoperable by failure of the LOP DG start instrumentation are required to be entered~~

(continued)

PA3.3-356 PA3.3-311 X3.3-312

BASES

~~immediately. The actions of those LCOs provide for adequate compensatory actions to assure unit safety.~~

D.1

Required Action D.1 requires that LCO 3.8.2, "AC Sources - Shutdown" Condition(s) and Required Action(s) for the associated DG be entered immediately when Required Action and Completion Time of Condition A is not met, or Functions a and b or both with two channels per bus inoperable, or when one required automatic load sequencer is inoperable in MODE 5 or 6. The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required AC electrical power sources should be completed as quickly as possible in order to minimize the time during which the unit safety systems may be without sufficient power.

SURVEILLANCE REQUIREMENTS

SR 3.3.4~~5~~.1

CL3.3-321

~~Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying that the instrumentation continues to operate properly between each CHANNEL CALIBRATION.~~

(continued)

PA3.3-356 PA3.3-311 X3.3-312

BASES

~~Agreement criteria are determined by the unit staff, based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit.~~

~~The Frequency is based on operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels.~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SR 3.3.5.2~~

CL3.3-322

SR 3.3.4~~5~~.1~~2~~ is the performance of a ~~TAD~~COT~~. This test is performed~~ every ~~[~~31 days~~]~~.

A COT is performed on each required undervoltage and degraded voltage relay channel to ensure they will perform the intended function.~~ The test checks trip devices that provide actuation signals directly, bypassing the analog process control equipment.~~ For these tests, the relay t~~T~~rip s~~S~~etpoints are verified and adjusted as necessary. The Frequency is based on the known reliability of the relays and load sequencers~~controls~~ and the multichannel redundancy available, and has been shown to be acceptable through operating experience.

R-12

CL3.3-322

SR 3.3.4.2

SR 3.3.4.2 is the performance of an ACTUATION LOGIC TEST on each required load sequencer every 31 days.

R-12

The test verifies that the logic functions provided by the load sequencer for voltage and load restoration are

BASES

OPERABLE. The Frequency is based on the known reliability of the load sequencers and has been shown to be acceptable through operating experience.

SR 3.3.4 ~~5~~.3

CL3.3-172

R-2

SR 3.3.4~~5~~.3 is the performance of a CHANNEL CALIBRATION on the undervoltage and degraded voltage channels.

R-12

The setpoints, as well as the response to a UV~~loss of voltage~~ and a DV~~degraded voltage~~ test, shall include a single point verification that an actuation~~the trip~~ occurs within the required time delay, as shown in Reference 1.

A CHANNEL CALIBRATION is performed every 24~~[18]~~ months, or approximately at every refueling. CHANNEL CALIBRATION is a complete check of the voltage relay channel~~instrument loop, including the sensor~~. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy.

CL3.3-172

The Frequency of 24~~[18]~~ months is based on operating experience and consistency with the typical PI~~industry~~ refueling cycle and is justified by the assumption of a~~n~~ 24~~[18]~~ month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

REFERENCES

1. UFSAR, Section ~~[8.4~~3~~]~~.
2. "Engineering Manual Section 3.3.4.1,Engineering Design Standard for Instrument Setpoint/Uncertainty Calculations".~~FSAR, Chapter [15]~~.
3. USAR, Section 14.~~Unit Specific RTS/ESFAS Setpoint Methodology Study.~~

R-2

PA3.3-356 CL3.3-331

B 3.3 INSTRUMENTATION

B 3.3.~~6~~5 Containment Ventilation~~Purge and Exhaust~~ Isolation Instrumentation

BASES

BACKGROUND

Containment ventilation~~purge and exhaust~~ isolation (CVI) instrumentation closes the containment isolation valves in the Containment Purge (high flow) and Inservice (low flow)~~Mini~~ Purge Systems ~~and the Shutdown Purge System~~. This action isolates the containment atmosphere from the environment to minimize releases of radioactivity in the event of an accident. The Containment Inservice (low flow)~~Mini~~ Purge System may be in use during reactor operation and~~ the Shutdown Purge System will be in use~~ with the reactor shutdown. The Containment Purge (high flow) System may be in use with the reactor shutdown. R-12 R-12

Containment ventilation~~purge and exhaust~~ isolation initiates on a ~~automatic~~ safety injection (SI) signal, ~~through the~~by manual actuation of c~~C~~ontainment i~~I~~solation~~- Phase A Function~~, or by manual actuation of containment spray~~Phase A Isolation~~. The Bases for LCO 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation," discuss these modes of initiation. CL3.3-252 CL3.3-343

~~Four~~Three radiation monitoring channels are also provided as input to CVI~~the containment purge and exhaust isolation~~. One~~The four~~ channel~~s~~ measures gaseous radiation in containment exhaust air~~radiation at two locations~~. This channel provides an input to one train of CVI actuation relay logic. The other two channels measure either gaseous or particulate containment exhaust air radiation. These two channels provide inputs to the other train of CVI actuation relay logic where either channel will actuate the train.~~One channel is a containment area gamma monitor, and the other three measure radiation in a sample of the containment purge~~ CL3.3-333

(continued)

PA3.3-356 CL3.3-331

BASES

~~exhaust. The three purge exhaust radiation detectors are of three different types: gaseous, particulate, and iodine monitors. All~~ These three ~~four~~ detectors will respond to most events that release radiation to containment.~~ However, analyses have not been conducted to demonstrate that all credible events will be detected by more than one monitor. Therefore, for the purposes of this LCO the four channels are not considered redundant. Instead, they are treated as four one-out-of-one Functions.~~ Since the~~ purge exhaust~~ monitors constitute a sampling system, various components such as sample line valves~~, sample line heaters,~~ and sample pumps~~, and filter motors~~ are required to support monitor OPERABILITY.

~~BACKGROUND~~ ~~(Continued)~~

The Containment ~~Each of the P~~purge ~~S~~systems~~s~~ (high flow) has an~~inner and~~ outer containment-isolation valve~~s~~ in its supply and exhaust ducts. The Containment Inservice (low flow) Purge System has two containment isolation valves on each supply and exhaust line. A high radiation signal from any one of the ~~four~~three channels initiates one train of CVI logic~~containment purge isolation~~, which closes one ~~both~~ supply ~~inner~~ and one~~outer~~ exhaust containment isolation valve~~s~~ in the ~~Mini Purge System and the Shutdown~~ Containment Purge (high flow) System and Inservice (low flow) Purge System. These systems are described in the Bases for LCO 3.6.3, "Containment Isolation Valves." R-12 R-12

APPLICABLE SAFETY ANALYSES

The safety analyses assume that the containment remains intact with penetrations unnecessary for core cooling isolated early in the event~~, within approximately 60 seconds~~. The isolation of the purge valves has not been analyzed mechanistically in the dose calculations, although its rapid isolation is assumed. The containment ~~purge and~~ exhaust air~~isolation~~ radiation monitors act as backup to the SI signal to ensure closing of the purge and exhaust valves. They are also the primary means for automatically isolating

(continued)

PA3.3-356 CL3.3-331

BASES

containment in the event of a fuel handling accident during shutdown. Containment isolation in turn ensures meeting the containment leakage rate assumptions of the safety analyses, and ensures that the calculated accidental offsite radiological doses are below 10 CFR 100 (Ref. 1) limits.

The CVI~~containment purge and exhaust isolation~~ instrumentation satisfies Criterion 3 of 10 CFR 50.36 (c)(2)(ii)~~the NRC Policy Statement~~.

LCO

The LCO requirements ensure that the instrumentation necessary to initiate CVI~~Containment Purge and Exhaust Isolation~~, listed in Table 3.3.5~~6~~-1, is OPERABLE.

1. Manual Initiation

The LCO requires two channels OPERABLE. The operator can initiate ~~Containment Purge Isolation~~CVI at any time by using either of two switches in the control room. ~~Either switch actuates both trains.~~

~~LCO (continued)~~

This action will cause actuation of ~~all components in~~ one train of Containment Purge and Inservice Purge System containment isolation valves in the same manner as any of the automatic actuation signals. R-12

The LCO for Manual Initiation ensures the proper amount of redundancy is maintained in the manual actuation circuitry to ensure the operator has manual initiation capability.

Each channel consists of one switch~~push button~~ and the interconnecting wiring to the valves. ~~actuation logic cabinet.~~

(continued)

PA3.3-356 CL3.3-331

BASES

2. Automatic Actuation Relay Logic~~and Actuation Relays~~

The LCO requires two trains of CVI relay~~Automatic Actuation L~~logic~~and Actuation Relays~~ OPERABLE to ensure that no single random failure can prevent automatic actuation. CL3.3-337

The CVI Automatic Actuation Relay Logic ~~and Actuation Relays~~ consists of the same features and operate in the same manner as described for ESFAS Function 1.b, SI, and ESFAS Function 3.~~a~~b, Containment~~ Phase A~~ Isolation. The applicable MODES and specified conditions for the CVI~~containment purge isolation~~ portion of these Functions are different and less restrictive than those for their~~ Phase A~~ containment isolation and SI roles. If one or more of the SI or ~~Phase A~~ containment isolation Functions becomes inoperable in such a manner that only the CVI~~Containment Purge Isolation~~ Function is affected, the Conditions applicable to their SI and ~~Phase A~~containment isolation Functions need not be entered. The less restrictive Actions specified for inoperability of the CVI~~Containment Purge Isolation~~ Functions specify sufficient compensatory measures for this case. CL3.3-252

3. ~~Containment Radiation~~High Radiation in Exhaust Air

The LCO specifies ~~four~~two required trains~~channels~~ of radiation monitors to ensure that the radiation monitoring instrumentation necessary to initiate CVI~~Containment Purge Isolation~~ remains OPERABLE. CL3.3-333

~~LCO (continued)~~

For sampling systems, channel OPERABILITY involves more than OPERABILITY of the channel electronics. OPERABILITY may also require correct valve lineups,

(continued)

PA3.3-356 CL3.3-331

BASES

and sample pump operation~~, and filter motor operation,~~ as well as detector OPERABILITY, if these supporting features are necessary for trip to occur under the conditions assumed by the safety analyses.

CL3.3-342

4. Manual Containment Isolation ~~- Phase A~~

Refer to LCO 3.3.2, Function 3.a., for all initiating Functions and requirements.

5. Safety Injection CL3.3-343

Refer to LCO 3.3.2, Function 1, for all initiating Functions and requirements.

6. Manual Containment Spray CL3.3-343

Refer to LCO 3.3.2, Function 2, for all initiating Functions and requirements.

APPLICABILITY

All Functions in Table 3.3.5-1 are required to be OPERABLE in MODES 1, 2, 3, and 4 when the Containment Inservice (low flow) Purge System is not isolated. In addition, TA3.3-332 CL3.3-337

~~T~~the Manual Initiation, Automatic Actuation Relay Logic ~~and Actuation Relays, Containment Isolation - Phase A~~, and High ~~Containment~~ Radiation in Exhaust Air Functions are required OPERABLE ~~in MODES 1, 2, 3, and 4, and~~ during CORE ALTERATIONS or movement of irradiated fuel assemblies within containment, when the Containment Purge (high flow) and Inservice (low flow) Purge Systems are not isolated. Under these conditions, the potential exists for an accident that could release fission product radioactivity into containment. Therefore, CL3.3-333 CL3.3-252 CL3.3-344 R-12

(continued)

PA3.3-356 CL3.3-331

BASES (continued)

~~B.1~~

CL3.3-344

A Note is added stating that Condition B is only applicable in MODE 1, 2, 3, or 4 when the Containment Inservice Purge System is not isolated.

R-12

C.1 and C.2

CL3.3-359

Condition C applies to all CVI~~Containment Purge and Exhaust Isolation~~ Functions and addresses the train orientation ~~of the SSPS and the master and slave relays~~ for these Functions. ~~It also addresses the failure of multiple radiation monitoring channels, or the inability to restore a single failed channel to OPERABLE status in the time allowed for Required Action A.1.~~ If a train is inoperable,~~ multiple channels are inoperable,~~ or the Required Action and associated Completion Time of Condition A are not met, operation may continue as long as the Required Action to place and maintain containment purge (high flow) and inservice (low flow) purge and exhaust isolation valves in their closed position is met or the applicable Conditions of LCO 3.9.4, "Containment Penetrations," are met for each valve made inoperable by failure of isolation instrumentation. The Completion Time for these Required Actions is Immediately.

CL3.3-333

R-12

A Note states that Condition C is only applicable during CORE ALTERATIONS ~~and~~or during movement of irradiated fuel assemblies within containment when the Containment Purge and Inservice Purge Systems are not isolated.

CL3.3-344

R-12

SURVEILLANCE REQUIREMENTS

A Note has been added to the SR Table to clarify that Table 3.3.~~5~~6-1 determines which SRs apply to which CVI ~~Containment Purge and Exhaust Isolation~~ Functions.

(continued)

Difference Category	Difference Number 3.3-	Justification for Differences
PA	168	NUREG-1431 SR 3.3.1.3, Note 2 has been revised to perform the SR within 72 hours in lieu of the 24 hour time limit. Since the 24 hours limit is a bracketed limit, it has been changed to a time limit consistent with current plant practices. The core is modified during a refueling outage such that the comparison of incore to excore AFD may no longer be valid. In accordance with the guidance of Westinghouse Technical Bulletin ESBU-TB-92-14-R1, "Decalibration Effects Of Calorimetric Power Measurements On The NIS High Power Reactor Trip At Power Levels Less Than 70% RTP." this comparison should be performed at higher power levels. This Bulletin identified potential effects of decalibrating the NIS Power Range channels at part power operation. The decalibration can occur due to the increased uncertainty of the secondary side power calorimetric when performed at part power (less than approximately 70% RTP). Thus allowing the plant to perform the calibration within 72 hours after reaching 15% RTP allows more time to reach higher power levels and therefore is appropriate. These changes will provide a meaningful evaluation at the appropriate time.

Difference Category	Difference Number 3.3-	Justification for Differences
	178	Not used.
CL	179	The PI ITS SR 3.3.1.16 and associated Bases have been modified by deletion of the clause "on a STAGGERED TEST BASIS". CTS does not allow these instrument RTS RESPONSE TIMEs to be verified on a STAGGERED TEST BASIS; therefore, this flexibility has not been included in the PI ITS.
	180	Not used.
CL	181	The PI allowable value from CTS 2.3.A.1b is provided.
CL	182	SR 3.3.1.16 has been included for the power range neutron flux high positive rate. This change retains a CTS requirement.
CL	183	ITS Table 3.3.1-1 does not include Technical Specification requirements for the Source Range Neutron Flux (SRNF) instrumentation in MODES 3, 4 and 5 with the RTBs open. CTS does not require the SRNF instrumentation to be operable in these Modes with the RTBs open since Prairie Island does not have automatic protection against inadvertent boron dilution of the RCS during plant shutdown. Thus, these SRNF requirements are not included.

Difference Category	Difference Number 3.3-	Justification for Differences
CL	203	The number of required channels is provided consistent with the plant design and CTS. The Allowable Value for steam generator low-low level from CTS 2.3.A.3.b is included.
CL	204	The steam generator low level coincident with steam-feedwater flow mismatch is not included in the PI ITS or Bases since PI does not have this reactor trip.
PA	205	The name for this function has been modified to "Autostop" Oil Pressure to be consistent with PI system name.
CL	206	The PI allowable value from CTS 2.3.A.3.c.2 is provided.
CL	207	The allowable value for Turbine Stop Valve Closure is specified as "Closed". When these valves are closed, the reactor will trip. The input to the reactor trip system relay logic is based on limit switches which indicate that the valve is closed. If the valve is open, then there is no trip signal and the plant is allowed to operate.

Difference Category	Difference Number 3.3-	Justification for Differences
CL	271	This function only applies to the turbine driven pump; therefore a new note, Table 3.3.2-1, Note f, is included to indicate the function applicability.
CL	272	The AFW actuation on trip of both main feedwater pumps is bypassed during plant shutdown and startup to allow proper operation of the AFW system and the main feedwater pumps. A new note, Table 3.3.2-1 Note g, is included to retain this operational flexibility which is in the CTS.
CL	273	Table 3.3.2-1 Note e is modified to be consistent with the PI plant design and ITS LCO 3.7.3. Once all the MFRVs and bypass valves are closed and de-activated or isolated by a closed manual valve, the isolation function has been met and further functioning of the system instrumentation is not required.
	274-280	Not used.

Difference Category	Difference Number 3.3-	Justification for Differences
CL	323	ITS SR 3.3.4.3 is modified to include the appropriate terminology and Allowable Values for the PI instrumentation. These values are taken from CTS Table 3.5-1 except that the degraded voltage time delays have been modified based on test experience since these were first included in the CTS.
TA	324	This change incorporates TSTF-365. The traveller has been modified to be consistent with the PI Specification title and the PI system design.
	325-330	Not used.
CL	331	The system which performs the functions in this specification is the Containment Ventilation Isolation system; thus this change has been made in the title and throughout the specification and Bases. The systems that this containment isolation ventilation isolation system isolates are the Containment Purge and Inservice Purge Systems. In accordance with ITS 3.6.3, Containment Purge must be blind flanged in MODES 1, 2, 3, and 4; thus, containment purge is only referenced in Required Actions (RAs) C.1 and C.2. Containment inservice purge may be OPERABLE in any MODE and is referenced in RAs B.1, C.1 and C.2. The Bases is further edited to clarify how the isolation function occurs.

Difference Category	Difference Number 3.3-	Justification for Differences
TA	332	This change incorporates TSTF-161, Rev. 1 in that the Applicable Modes or Other Specified Conditions are specified in the Table. However, for PI the Containment Ventilation Isolation Instrumentation is not required to be operable when the Containment Purge and Inservice Purge Systems are blind flanged. Thus, the Manual Containment Isolation, Safety Injection and Manual Containment Spray Function input to Containment Ventilation Isolation is not required when the Containment Purge and Inservice Purge Systems are blind flanged. Therefore the "all" has been removed from the note referencing to LCO 3.3.2 and the appropriate Applicable Modes or Other Specified Conditions are specified in the Table. Approved TSTF-51, Rev. 2 has NOT been incorporated, since plant evaluations and commitments require the Containment Ventilation Isolation Instrumentation to be operable during CORE ALTERATIONS.

Difference Category	Difference Number 3.3-	Justification for Differences
CL	343	New functions, Table 3.3.5-1 Function 5, Safety Injection, and Function 6, Manual Containment Spray, are included to be consistent with the plant design and CTS requirements.
CL	344	New notes, Note a and Note b, are included in ITS Table 3.3.5-1 and modify the modes of applicability to agree with CTS requirements. This isolation function is only required to be operable when containment integrity is required or during movement of irradiated fuel assemblies within containment and the Containment Purge and Inservice Purge Systems are not isolated with blind flanges.
	345-349	Not used.
PA	350	NUREG 1431 Bases 3.3.1 Background Section states "...DNBR shall be maintained above the SL value to prevent DNB". The DNBR limits are fuel design acceptance limits used in developing the safety analysis. The SL's are prescribed in the NUREG and ITS Section 2. Satisfying the SL's ensures the fuel design DNBR limit is not exceeded. The SL value statement is deleted to avoid confusion with the terminology. This is considered an editorial change.

Part G

PACKAGE 3.3

INSTRUMENTATION

NO SIGNIFICANT HAZARDS DETERMINATION AND ENVIRONMENTAL ASSESSMENT

NO SIGNIFICANT HAZARDS DETERMINATION

The proposed changes to the Operating License have been evaluated to determine whether they constitute a significant hazards consideration as required by 10CFR Part 50, Section 50.91 using the standards provided in Section 50.92.

For ease of review, the changes are evaluated in groupings according to the type of change involved. A single generic evaluation may suffice for some of the changes while others may require specific evaluation in which case the appropriate reference change numbers are provided.

A - Administrative (GENERIC NSHD)
(A3.3-01, A3.3-02, A3.3-04, A3.3-05, A3.3-07, A3.3-08, A3.3-14, A3.3-18, A3.3-19, A3.3-21, A3.3-23, A3.3-28, A3.3-29, A3.3-34, A3.3-35, A3.3-38, A3.3-39, A3.3-43, A3.3-47, A3.3-48, A3.3-50, A3.3-51, A3.3-54, A3.3-55, A3.3-56, A3.3-62, A3.3-63, A3.3-65, A3.3-66, A3.3-72, A3.3-75, A3.3-81, A3.3-84, A3.3-85, A3.3-94, A3.3-95, A3.3-107, A3.3-109, A3.3-114, A3.3-121, A3.3-123, A3.3-124, A3.3-126, A3.3-128, A3.3-130, A3.3-133, A3.3-134, A3.3-141, A3.3-142, A3.3-143, A3.3-144, A3.3-146, A3.3-147, A3.3-148, A3.3-149, A3.3-150, A3.3-151, A3.3-155)

Most administrative changes have not been marked-up in the Current Technical Specifications, and may not be specifically referenced to a discussion of change. This No Significant Hazards Determination (NSHD) may be referenced in a discussion of change by the prefix "A" if the change is not obviously an administrative change and requires an explanation.

LR - Less restrictive, Relocated details **(GENERIC NSHD)**
(LR3.3-03, LR3.3-46, LR3.3-96, LR3.3-101, LR3.3-102, LR3.3-112, LR3.3-116, LR3.3-118, LR3.3-127, LR3.3-131, LR3.3-139, LR3.3-154)

Some information in the Prairie Island Current Technical Specifications that is descriptive in nature regarding the equipment, system(s), actions or surveillances identified by the specification has been removed from the proposed specification and relocated to the proposed Bases, Updated Safety Analysis Report or licensee controlled procedures. The relocation of this descriptive information to the Bases of the Improved Technical Specifications, Updated Safety Analysis Report or licensee controlled procedures is acceptable because these documents will be controlled by the Improved Technical Specifications required programs, procedures or 10CFR50.59. Therefore, the descriptive information that has been moved continues to be maintained in an appropriately controlled manner.

1. The proposed amendment will not involve a significant increase in the probability or consequences of an accident previously evaluated.

   The proposed changes relocate detailed, descriptive requirements from the Technical Specifications to the Bases, Updated Safety Analysis Report or licensee controlled procedures. These documents containing the relocated requirements will be maintained under the provisions of 10CFR50.59, a program or procedure based on 10CFR50.59 evaluation of changes, or NRC approved methodologies. Since these documents to which the Technical Specifications requirements have been relocated are evaluated under 10CFR50.59 or its guidance, or in accordance with NRC approved methodologies, no increase in the probability or consequences of an accident previously evaluate will be allowed without prior NRC approval. Therefore, these changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. The proposed amendment will not create the possibility of a new or different kind of accident from any accident previously analyzed.

   These proposed changes do not necessitate physical alteration of the plant, that is, no new or different type of equipment will be installed, or change parameters governing normal plant operation. The proposed changes will not impose any different requirements and adequate control of the information will be maintained. Thus, these changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

Specific NSHD for Change L3.3-77 Not used

Specific NSHD for Change L3.3-129

This change requires the intermediate range nuclear instrumentation (IRNI) to be OPERABLE in MODE 2 when the power level exceeds P-6. CTS requires IRNI to be OPERABLE for all of MODE 2. This change is acceptable since the IRNI is backup instrumentation which is not credited in the safety analyses to trip the reactor. The source range nuclear instrumentation (SRNI) provides core protection for reactivity events in MODE 2 up to P-6. This change is consistent with the guidance of NUREG-1431.

1. The proposed amendment will not involve a significant increase in the probability or consequences of an accident previously evaluated.

   This change removes MODE 2 below P-6 from the Mode or other conditions of Applicability for the IRNI. The IRNI is not an assumed accident initiator, therefore this change does not increase the probability of an accident. At power levels below P-6 in MODE 2, the SRNI is assumed to operate to protect the core from reactivity transients. At this power level the IRNI is not credited in any safety analyses. Therefore, this change does not involve a significant change in the consequences of an accident previously evaluated.

2. The proposed amendment will not create the possibility of a new or different kind of accident from any accident previously analyzed.

   The proposed change makes the PI ITS consistent with the guidance of NUREG-1431 and does not involve a physical alteration of the plant; that is, no new or different type of equipment will be installed. This proposed change does not introduce any new mode of plant operation or change the methods governing normal plant operation. Thus, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

Specific NSHD for Change L3.3-137

When a Power Range Neutron Flux channel is inoperable, CTS requires determining a core quadrant power balance in accordance with ITS SR 3.2.4.2 when the THERMAL POWER is above 85% RATED THERMAL POWER (RTP). This change further limits determining core quadrant power balance when the Power Range Neutron Flux (PRNF) input to QPTR is inoperable. There are various component failures that could make a PRNF channel inoperable while the four required inputs to the QPTR function remain operable. CTS is unnecessarily restrictive in that it requires a core quadrant power balance to be performed even though the QPTR function may remain fully operable when a PRNF channel is inoperable. This change is acceptable since it is unnecessary to determine the core quadrant power balance in accordance with SR 3.2.4.2 when the four required inputs to QPTR remain OPERABLE and there is no loss of function. This change conforms to the guidance of NUREG-1431.

1. The proposed amendment will not involve a significant increase in the probability or consequences of an accident previously evaluated.

   This change will not require determining the core quadrant power balance in accordance with SR 3.2.4.2 when a Power Range Neutron Flux channel is inoperable but the four inputs to QPTR remain fully OPERABLE. The Power Range Neutron Flux channels and QPTR are not assumed accident initiators, therefore this change does not involve a significant increase the probability of an accident previously evaluated. Since the QPTR remains fully OPERABLE when the requirement to perform SR 3.2.4.2 is waived, this change does not involve a significant increase in the consequences of an accident previously evaluated.

2. The proposed amendment will not create the possibility of a new or different kind of accident from any accident previously analyzed.

   The proposed change does not involve a physical alteration of the plant; that is, no new or different type of equipment will be installed. This proposed change does not introduce any new mode of plant operation or change the methods governing normal plant operation. Thus, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

<u>Specific NSHD for Change L3.3-137</u> (continued)

3. The proposed amendment will not involve a significant reduction in the margin of <u>safety.</u>

   This change waives the requirement to perform SR 3.2.4.2 when a Power Range Neutron Flux channel is inoperable but the four inputs to QPTR remain fully OPERABLE. Since the QPTR remains OPERABLE there is no loss or reduction in function. Therefore, this change does not involve a significant reduction in the plant margin of safety.

Therefore it is concluded this proposed change does not involve a significant hazards consideration.

Current Technical Specification Cross-Reference

CTS Section	CTS Table Item Number	Section Type	ITS Section	ITS Table Item Number
Table 4.1-1C	11	SR	3.3.4.1	
Table 4.1-1C	11	SR	3.3.4.2	
Table 4.1-1C	12		Deleted - Boric Acid LAR	
Table 4.1-1C	13		Relocated - TRM	
Table 4.1-1C	14		CTS Deleted	
Table 4.1-1C	15	TABLE	3.3.1-1	16.b.2
Table 4.1-1C	15		Relocated - TRM	
Table 4.1-1C	16		Relocated - TRM	
Table 4.1-1C	17		Relocated - TRM	
Table 4.1-1C	18	SR	3.3.1.12	
Table 4.1-1C	19		Relocated - TRM	
Table 4.1-1C	20		Relocated - TRM	
Table 4.1-1C	21	SR	3.3.3.1	
Table 4.1-1C	21	SR	3.3.3.2	
Table 4.1-1C	21	SR	3.3.3.3	
Table 4.1-1C	22		CTS Deleted	
Table 4.1-1C	23		CTS Deleted	
Table 4.1-1C	24		Relocated - TRM	

Current Technical Specification Cross-Reference

CTS Section	CTS Table Item Number	Section Type	ITS Section	ITS Table Item Number
Table 4.1-1C	24	SR	3.3.6.5	
Table 4.1-1C	24	SR	3.3.6.2	
Table 4.1-1C	25	SR	3.4.12.4	
Table 4.1-1C	25	SR	3.4.12.5	
Table 4.1-1C	25	SR	3.4.13.5	
Table 4.1-1C	25	SR	3.4.13.6	
Table 4.1-1C	26		Relocated - TRM	
Table 4.1-1C	27		Relocated - TRM	
Table 4.1-1C	28		Relocated - TRM	
Table 4.1-1C	29	SR	3.3.3.1	
Table 4.1-1C	29	SR	3.3.3.2	
Table 4.1-1C	29	(Partial)	Relocated - TRM	
Table 4.1-1C	30		Relocated - Bases	
Table 4.1-1C	31		Relocated - TRM	
Table 4.1-1C	Note 30	SR	3.1.7.1	
Table 4.1-1C	Note 31		Deleted	
Table 4.1-1C	Note 32		Relocated - TRM	

Improved Technical Specification Cross-Reference

ITS Section	ITS Table Item Number	Section Type	CTS Section	CTS Table Item Number
3.3.1-1	15	TABLE	Table 3.5-2A	17
3.3.1-1	15	TABLE	Table 4.1-1A	17
3.3.1-1	16	TABLE	Table 3.5-2A	New Func
3.3.1-1	16	TABLE	Table 4.1-1A	New Func
3.3.1-1	16a	TABLE	2.3.B.1	
3.3.1-1	16b	TABLE	2.3.B.2	
3.3.1-1	16.b.2	TABLE	Table 4.1-1C	15
3.3.1-1	16c	TABLE	2.3.B.3	
3.3.1-1	16d	TABLE	2.3.B.4	
3.3.1-1	16e	TABLE	2.3.B.5	
3.3.1-1	17	TABLE	Table 3.5-2A	19
3.3.1-1	17	TABLE	Table 4.1-1A	19
3.3.1-1	17	TABLE	Table 3.5-2A	20
3.3.1-1	17	TABLE	Table 4.1-1A	20
3.3.1-1	17	TABLE	Table 4.1-1A	Note 15
3.3.1-1	18	TABLE	Table 3.5-2A	New Func
3.3.1-1	18	TABLE	Table 4.1-1A	New Func
3.3.1-1	18	TABLE	Table 4.1-1A	Note 12
3.3.1-1	19	TABLE	Table 3.5-2A	18
3.3.1-1	19	TABLE	Table 4.1-1A	18