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 (3)

Correspondence Date: August 13, 200 ITS **LAR 12/11/00**

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NMC
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Nuclear Management Company, LLC
Prairie Island Nuclear Generating Plant
1717 Wakonade Dr. East
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August 13, 2001

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.

By letter dated June 15, 2001, the NRC Staff sent NMC requests for additional information (RAIs) regarding our LAR dated December 11, 2000 to convert to Improved Technical Specifications. Attachment 1 to this letter contains the NRC RAIs for ITS Section 3.8, "Electrical Power Systems", and the Nuclear Management Company (NMC) answers to these RAIs.

NMC also proposes Review Change and Errata 11 changes to ITS 3.8.3 Bases for SR 3.8.3.2 regarding requirements for diesel fuel oil testing and storage. The NUREG-1431 clause, "conducting the tests," has been restored to the text and the NMC clause, "addition of new fuel oil to the safequards storage tank(s)," has been deleted. These changes make the Bases more consistent with the guidance of NUREG-1431 and allow Prairie Island to comply with the Prairie Island Diesel Fuel Oil Testing Program.

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

Attachment 3 to this letter contains Revision 3 change pages which implement answers to Section 3.8 RAIs. Changes to the Revision 3 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 dated 7/2/01. Change Pages from Parts C and E are marked as Revision 3 with a small textbox below the revision sideline which contains "R-3".

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 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.

Joel P. Sorensen
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
J E Silberg

(Attachments listed on page 3)

Attachments:
Affidavit

1. NRC RAIs for ITS Section 3.8, "Electrical Power Systems" and NMC Responses
2. Page List by RAI Q
3. Revision 3 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 August 13, 2001, 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 Joel P. Sorensen
Joel P. Sorensen
Site Vice President
Prairie Island Nuclear Generating Plant

State of Minnesota

County of Goodhue

On this 13th day of August 2001 before me a notary public acting in said County, personally appeared Joel P. Sorensen, 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.

Dale M. Vincent

DALE M. VINCENT
NOTARY PUBLIC-MINNESOTA
My Commission Expires Jan. 31, 2005

Prairie Island Nuclear Generating Plant

Attachment 1

to
Supplement dated August 13, 2001
to License Amendment Request dated December 11, 2000
Conversion to Improved Technical Specifications (ITS)

NRC RAIs for Section 3.8, "Electrical Power Systems" and NMC Responses

CTS Markup RAIs

3.8-01 CTS 3.7.A.5(a) DOC L3.8-12

The licensee is requested to provide details of the calculations on which the change in fuel oil storage requirements from 51,000 gallons to 42,000 gallons is based. The response should address any changes in the fuel consumption rate and how the values used were obtained.

NMC Response:
Sections affected by this change:
Part D DOC L3.8-12

DOC L3.8-12 has been revised providing additional detail for where the CTS 51,000 gallons of diesel fuel oil requirement came from and the reason for reducing 51,000 gallons to 42,000 gallons of diesel fuel oil. The original 51,000 gallons of fuel oil was an overly conservative value which was based on earlier D1 and D2 consumption rates, the requirement for having 14 days of fuel oil onsite, and taking into consideration the location of the closest fuel oil supply point at that time. Diesel Generator fuel oil requirements were reduced due to refining the diesel generator fuel oil consumption calculations, based on actual D1 and D2 consumption rates, and changing of some of the loads, while maintaining the 14 day fuel oil storage requirement.

3.8-03 CTS 3.8.A.7 DOC LR3.8-02

The CTS impose a limitation on the number of panels that can be powered from panel 117 (Unit 1) and panel 217 (Unit 2). This limitation is proposed to be relocated to the Technical Requirements Manual (TRM). However, the DOC not adequately explain why this relocation is acceptable. The licensee is requested to provide a discussion which includes an explanation of why this limitation is in the CTS as well as a justification for why it no longer needs to be retained in technical specification (TS).

NMC Response:
Sections affected by this change:
Part B ITS LCO 3.8.7, Required Actions A.1 and A.2
Part B ITS Bases Section 3.8.7 LCO and Actions A.1 and A.2
Part C CTS 3.7.A.7
Part F JFD CL-183

Based on further evaluation, ITS LCO 3.8.7 and associated Required Actions have been rewritten to incorporate CTS 3.7.A.7. The CTS allows one of the four Reactor Protection Instrument AC panels to be powered from either Panel 117 (Unit 2 Panel 217) or from its inverter bypass. Since the LCO was revised, Required Actions A.1 and A.2 have been added. These Required Actions verify that within 2 hours after one of the four Reactor Protection Instrument AC Inverters is declared inoperable, that the Reactor Protection Instrument AC panel is powered from either Panel 117 (Unit 2 Panel 217) or its inverter bypass breaker. In accordance with plant design, Panel 117 (Unit 2 Panel 217) can supply power to any one of the Reactor Protection Instrument AC panels. In addition, each of the Reactor Protection Instrument AC inverters is designed with an internal bypass switch which allows power to continue to be supplied to the panel thus maintaining it OPERABLE. In either case, the Required Actions only allow either Panel 117 (Unit 2 Panel 217) or the bypass switch to be used to meet the LCO. This is consistent with CTS requirements.

3.8-04 CTS 3.7.A.4, CTS 3.7.A.7, No DOC

The CTS require four AC instrument buses to be OPERABLE in each unit. The proposed ITS only requires three inverters to be OPERABLE. No discussion is provided in support of the proposed ITS. The licensee is requested to provide a discussion on why requiring only three inverters is acceptable, and how three inverters will power four buses.

NMC Response:
Sections affected by this change:
Part B ITS LCO 3.8.7, Required Actions A.1 and A.2
Part B ITS Bases Section 3.8.7 LCO and Actions A.1 and A.2
Part C CTS 3.7.A.7
Part F JFD CL-183

The ITS LCO has been revised to require four inverters to be OPERABLE. Reference RAI NMC Response 3.8-03 above for additional discussion.

3.8-05 CTS 3.7.B.1 DOC M3.8-06

The staff does not agree that this is a more restrictive change. The CTS requirement is to test the other diesel generator (DG). The ITS allows the option of establishing the absence of a common mode failure, thereby eliminating the requirement to test the OPERABLE DG. This change appears to be less restrictive. The licensee should consider changing the DOC.

NMC Response:
Sections affected by this change:
Part C CTS 3.7.B.1
Part D DOC L3.8-59
Part G NSHD L3.8-59

ITS Required Action B.3.1 requires that if one DG is inoperable, determine within 24 hours that the other DG is not inoperable due to common cause failure. This is a new requirement for PI CTS. DOC L3.8-59 and its associated No Significant Hazards Determination were added to justify the flexibility for determining that the other DG is not inoperable due to a common cause failure. Since the CTS does not have this requirement, a new Completion Time is introduced. Therefore, DOC M3.8-06 remains justifying the more restrictive time requirement to perform this determination. Under the CTS, if one DG is inoperable, one of the Actions is to demonstrate, by performance of an SR, that the other DG is OPERABLE. The performance of this SR would require the DG to be started and demonstrated OPERABLE unless the initial DG was inoperable due to preplanned maintenance or testing. The ITS allows some flexibility in that if the OPERABLE DG is not made inoperable due to a common cause with the inoperable DG, then the remaining DG is still considered OPERABLE.

3.8-06 CTS 3.7.B.3 DOC L3.8-09

The DOC paragraph dealing with changes to CTS 3.7.B.3 includes the sentence "While in this Plant Condition (ITS Condition D) and the inoperable path is restored to OPERABLE status, and the DG is still inoperable, then ITS Condition B is applicable". This seems to indicate that Condition B is not applicable while in Condition D. This is not correct. Condition B with its Required Actions and Completion Times are entered as soon as the DG is found to be inoperable, and continues to be applicable until the DG is restored to OPERABLE. Is the phrasing in this DOC just an improper choice of words, or does the licensee not fully understand how the ISTS work?

NMC Response:

Sections affected by this change:
Part D DOC L3.8-09

Condition B with its Required Actions and Completion Times are entered as soon as the DG is found to be inoperable, and continues to be applicable until the DG is restored to OPERABLE. In order to make it clearer, DOC M3.8-06 has been revised to state that Condition B remains applicable if the DG remains inoperable.

3.8-07 CTS Markup Page 4 of 12, footnote*

This CTS footnote is retained as a Note in the Required Actions of ITS LCO 3.8.1, Condition B. This Note is not required. The NUREG Actions are adequate since it can readily determined that the OPERABLE DG is not undergoing test or preventive maintenance, and the absence of a common mode failure clearly demonstrated. The staff suggests that the Note be deleted.

NMC Response:

Sections affected by this change:
Part B ITS 3.8.1, Required Action B
Part B ITS Bases 3.8.1, Action B
Part C CTS 3.7.B Footnote *
Part D DOC A3.8-57
Part E NUREG Markup 3.8.1, Required Action B
Part E NUREG Bases Markup Action B
Part F JFD CL3.8-107
Part G NSHD Administrative Change, Page 1

CTS Note stating that specific Required Actions are not applicable if the DG inoperability is due to preplanned preventative maintenance or testing has been deleted from the ITS. The associated CTS, DOC and NUREG-1431 markup pages have also been revised to show this deletion.

3.8-08 CTS 3.7.B.6 DOC L3.8-09

The licensee has proposed to add an option to ITS LCO 3.8.9. This option would allow declaring required features associated with a specific distribution subsystem inoperable if the subsystem is de-energized. This option is not part of the CTS or part of NUREG-1431. Therefore, it is beyond scope. A specific justification for beyond scope issues must be provided. No justification has been provided for this issue. Therefore, the proposed change is rejected.

NMC Response:

Sections affected by this change:
Part B 3.8.9
Part C
Part D
Part E
Part F
Part G

PI has re-drafted ITS 3.8.9 and submitted it for NRC review and comment. Part of that re-draft eliminated the Required Action of declaring the required features inoperable.

3.8-09 CTS 3.7.B.7 DOC L3.8-09

The licensee has proposed to retain the CTS allowance of 8 hours for an inoperable battery charger, but has deleted other CTS requirements associated with an inoperable charger in favor of NUREG-1431 requirements. The staff is of the opinion that this is not acceptable. The NUREG Actions associated with an inoperable battery charger are limited to restoration of the charger because of the limited Completion Time (2 hours). If a longer Completion Time had been allowed, it would probably have been in conjunction with other requirements. It is the staff's view that retention of the CTS 8 hour Completion Time can only be allowed if the other CTS requirements are also adopted.

NMC Response:
Sections affected by this change:
Part B
Part C
Part D
Part E
Part F
Part G

PI has submitted a re-draft of ITS 3.8.4 by letter dated July 3, 2001. Part of that re-draft incorporated the other CTS requirements which included within 2 hours, verify that the other train battery charger is OPERABLE and to verify that the DG and safeguards equipment for the other train are OPERABLE.

3.8-14 CTS 4.6.A.2.a No DOC

The staff has allowed changes to surveillance requirements (SRs) such as this one. The change involves revising the SR to require achieving a minimum voltage and frequency in 10 seconds, and subsequently achieving steady state voltage and frequency within the stated band. Clarification of CTS markup is recommended.

NMC Response:
Sections affected by this change:

CTS 4.6.A.2.a, Page 9 of 12
Part D DOC A60
Part G NSHD

CTS markup has been revised to more explicitly separate the SR identifying two different requirements to achieve the minimum voltage and frequency within 10 seconds and to eventually achieve steady state voltage and frequency conditions. As a result of this clarification, DOC A3.8-60 was generated explaining this editorial change.

3.8-15 CTS 4.6.A.2.b DOC LR 3.8-34

The DOC states that the requirement to load the generator in less than or equal to 60 seconds is relocated to the TRM. It is the staff's position that the requirement to load a DG within 60 seconds is detrimental to DGs and should be deleted. If the requirement to load a DG in 60 seconds is retained in the TRM, it is still a requirement that must be met. The licensee might want to consider deleting this 60 second requirement completely.

NMC Response:
Sections affected by this change:
CTS Section 4.6.A.2.b
Part D A51
Part D L6
Part G NSHD L3.8-61

The CTS requirement to load the DG in less than 60 seconds was originally going to be relocated to the TRM. Upon further evaluation as a result of this RAI, PI is eliminating this requirement based on it being detrimental to the DG as noted by the NRC. In addition, the appropriate DOCs and NSHD have been revised accordingly.

3.8-17 CTS 4.6.B.4 DOC LR3.8-45

The CTS proposed for relocation seem to describe a performance discharge test (voltage measured as a function of time during a discharge). The staff questions whether this material is a candidate for relocation. It seems more appropriate to say the material is covered by the ITS requirement to conduct a performance discharge test and need not be retained in TS.

NMC Response:
Sections affected by this change:
Part C CTS 4.6.1.B.4
Part D DOC LR3.8-45 and A3.8-62
Part G NSHD Administrative A-62

PI has re-drafted ITS SR3.8.6.6 to comply with the NUREG. As such, the only part of the CTS SR to be relocated is the requirement to make sure that the electrical connections are tight. The portion of the CTS SR requiring the battery voltage shall be monitored as a function of time to establish that the battery performs as expected during heavy discharge is incorporated into ITS SR 3.8.6.6.

NUREG Markup RAIs

3.8.1-01 NUREG Markup LCO 3.8.1 CL3.8-110

The LCO requires two paths between the offsite transmission grid and the onsite 4KV Safeguards Distribution System. The Bases indicate there are four paths from the switchyard to the onsite distribution. Are all four paths fully qualified? Can each path handle an accident in one unit and a safe shutdown in the other unit? Are there any restrictions associated with these four paths? If restrictions exist, do they need to be addressed with these four paths? If restrictions exist, do they need to be addressed in TS? If restrictions exist, how do they affect Condition A and Condition C?

NMC Response:
Sections affected by this change:
Part B Bases 3.8.1, LCO Section
Part F JFD CL3.8-110
Part E NUREG Bases LCO 3.8.1 Markup

The Bases has been revised providing additional information that plant procedures provide an assessment for the various configurations and requirements (e.g., loading, grid conditions, generator MVAR load, and etc.) for a path to be declared OPERABLE. In addition, JFD CL3.8-110 has been revised providing additional justification and clarification stating that once the evaluation is performed per plant procedures, for the path being considered OPERABLE, the applicable Conditions and Required Actions of Specification 3.8.1 are applicable. This ensures that the path(s) being used are qualified and can handle an accident in one unit and a safe shutdown of the other. Based on the above, there are no restrictions on the OPERABLE paths.

3.8.1-02 NUREG Markup Conditions B Required Action Note CL 3.8-107

The proposed Note is not necessary. If a DG is inoperable for preplanned preventive maintenance or testing, it can easily be determined that the remaining DG is not undergoing maintenance or testing, thereby establishing the absence of a common mode failure. Required Action B.3.1 is met, and no further action is required.

NMC Response:
Sections affected by this change:
Part B ITS 3.8.1, Required Action B
Part B ITS Bases 3.8.1, Action B
Part C CTS 3.7.B Footnote *
Part D DOC A3.8-57
Part E NUREG Markup 3.8.1, Required Action B
Part E NUREG Bases Markup Action B
Part F JFD CL3.8-107
Part G NSHD Administrative Change, Page 1

Reference response to RAI 3.8-07.

3.8.1-03 NUREG Markup SR 3.8.1.2 PA3.8-115

Standby conditions is defined in the Bases as meaning the DG is maintained with the jacket water and lube oil in a warmed condition and continuously circulated. This should adequately address the licensee's concerns about manufacturer's recommendations, and the term "standby conditions" can be retained.

NMC Response:
Sections affected by this change:
Part B ITS SR 3.8.1.2
Part C CTS 4.6.A.1.e
Part D DOC A3.8-58
Part E NUREG SR 3.8.1.2 Markup
Part F JFD PA3.8-115
Part G NSHD Administrative Change A3.8-58

The term "standby conditions" has been retained in the PI ITS. As a result, the above noted Sections have been revised.

3.8.1-04 NUREG Markup SR 3.8.1.3 CL3.8-116

The licensee is requested to verify that the DG loading values for Unit 1 are in excess of the maximum anticipated accident loading.

NMC Response:
Sections affected by this change:
Part B Bases 3.8.1 SR 3.8.1.3
Part E Bases 3.8.1 SR 3.8.1.3
Part F JFD CL3.8-116

PI has verified the DG loading values for both Unit 1 and Unit 2. The values used in the ITS SR 3.8.1.3 are the same values in CTS 4.6.A.1.e. As a result no changes in the values are being made. The Bases Sections for SR 3.8.1.3 have been revised providing additional information documenting the difference between the Units. In addition, JFD CL3.8-116 has been revised stating that the difference in the Unit loading, specifically since Unit 2 DGs provide emergency power to the cooling water pump, attributes to the difference in DG loading requirements.

3.8.1-05 NUREG Markup SR 3.8.1.4 CL3.8-118

The SR, as proposed, is without meaning. As proposed, this SR can be met if there is <u>any</u> fuel in the day tank. To make the SR meaningful, some minimum level to be verified must be included in the SR.

NMC Response:
Sections affected by this change:
Part F JFD CL3.8-118

Neither CLB nor the CTS have any requirements verifying that the day tank contains a specific volume of fuel oil. Therefore, PI is not adopting this part of NUREG 1431, Rev. 1, SR 3.8.1. 4 which identifies a specific day tank volume (in gallons) of fuel oil. In addition, PI design uses limit switches which sense low and high levels of fuel oil within the tank. These switches are set in order to supply fuel oil to the DGs in support of the USAR analysis.

3.8.1-09 NUREG Markup SR 3.8.1.7 X3.8-125

What is the problem associated with maintaining a Power Factor of 0.9 at a load of 680 or 860MW?

Note that the change in frequency for this SR from 18 months to 24 months is a beyond scope issue.

NMC Response:
Sections affected by this change:
None.

PI has reviewed the RAI and determined that since the CTS does not require maintaining a specific Power Factor, that it will not be incorporated into the ITS. In addition, changing the Frequency of the specific SRs has been justified to the NRC by letter dated July 3, 2001.

3.8.1-10 NUREG Markup NUREG SR3.8.1.11 CL3.8-128

The staff does not agree with the justification for deleting this SR. In the staff's view, a LOOP is a different test than a LOOP/LOCA. The plant response to the two conditions is different, and a LOOP/LOCA does not necessarily demonstrate the system response to a LOOP. The licensee is requested to demonstrate that performance of a LOOP/LOCA covers everything that would occur for a LOOP, alone, or retain the NUREG.

NMC Response:
Sections affected by this change:
Part F JFD CL3.8-128

The CTS requires a simulated loss of power in conjunction with a safety injection (SI) signal while verifying de-energization of the emergency buses, load shedding from the emergency buses, DG auto-start and re-energization of the emergency buses. In the PI design, both the LOOP and LOOP/LOCA test will verify de-energization of the safeguards buses, auto-start of the DG (from either an SI signal or the undervoltage signal), re-energization of the safeguards buses from the DG, load shedding and load restoration of the safeguards buses. There is no difference in the load shedding portion of the sequencer between the SI initiation and the undervoltage initiation. The DG loading on a LOOP/LOCA test is greater than the loading would be on a LOOP test. The LOOP/LOCA SR performed by ITS 3.8.1.10 encompasses the requirements of the LOOP SR in the ISTS SR 3.8.1.11. Therefore, no change is made to the ITS.

3.8.1-11 NUREG Markup NUREG SR3.8.1.12 PA3.8-102

JFD PA3.8-102 does not provide an adequate justification for deleting NUREG SR3.8.1.12. This SR is in brackets because not all DGs are designed to start on an ESF signal. For those plants with DGs that do not start on an ESF signal, the SR can be deleted. JFD PA3.8-102 does not address the PI design, and is therefore not adequate justification for deleting this SR.

NMC Response:

Sections affected by this change:
Part F JFD PA3.8-102

The subject JFD has been revised in accordance with discussions with the NRC.

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.

NMC Response:

Sections affected by this change:
Part F CL3.8-133

PI CTS does not have a requirement to test both DGs at the same time. ISTS SR 3.8.1.20 requires that both DGs be verified to simultaneously start upon receipt of an SI signal, achieve a specific voltage and frequency range within 10 seconds every 10 years. PI CTS does require that every 184 days that the DGs start upon receipt of an SI signal and achieve a specific voltage and frequency range within the 10 seconds, however, this SR is only performed on one DG at a time. When PI tests a DG it is considered to be inoperable. If PI were to adopt ISTS SR 3.7.1.20, then during that testing, PI would have 2 DGs inoperable which is less conservative than the PI CTS.

3.8.1-17 Bases Page B3.8.1-2 PA3.8-135

The last sentence in the first paragraph on this page addresses transformer capability. What is the purpose of including this statement in the Bases? How does it factor into the LCO requirement, if at all?

NMC Response:
Sections affected by this change:
Part B ITS Bases 3.8.1 Background Section
Part E NUREG Bases 3.8.1 Background Section Markup
Part F JFD PA3.8-135

This sentence explains that the offsite source can be OPERABLE while the sequencer is inoperable provided selected loads are disabled. This ties to the LCO in that the sequencer is required to be OPERABLE in order for the offsite source to be OPERABLE with the exception that the plant can be aligned with a sequencer inoperable such that the offsite source remains OPERABLE. In addition, the Bases has been revised by adding a reference tie to the sequencer Technical Specification 3.3.4, "4kV Safeguards Bus Voltage Instrumentation" for additional actions prescribed for an inoperable load sequencer.

3.8.1-21 Bases Page B3.8.1-13 Action B.3.1 CL3.8-107

See RAI 3.8.1-02

NMC Response:
Sections affected by this change:
Part B ITS 3.8.1, Required Action B
Part B ITS Bases 3.8.1, Action B
Part C CTS 3.7.B Footnote *
Part D DOC A3.8-57
Part E NUREG Markup 3.8.1, Required Action B
Part E NUREG Bases Markup Action B
Part F JFD CL3.8-107
Part G NSHD Administrative Change, Page 1

Reference response to RAI 3.8-07.

3.8.1-24 Bases Page B3.8.1-22 SR 3.8.1.1 PA3.8-204

Offsite power is the preferred power source for any nuclear power plant, regardless of whether or not it is specifically addressed in the plant design. The NUREG language should be retained, including the additional material regarding independence in the deletion of which has not been justified.

NMC Response:
Sections affected by this change:
Part B ITS Bases SR3.8.1.1
Part E NUREG Bases SR3.8.1.1
Part F JFD PA3.8-204

The Bases has been revised maintaining the part of the sentence, " ... and the appropriate independence of offsite circuits is maintained." This statement does reflect PI design and will be retained. PI will maintain the word "offsite" instead of keeping the word "preferred". This is consistent with PI language and does not change any intent of the entire statement. In addition, JFD PA3.8-204 has been revised accordingly.

3.8.1-25 Bases Page B3.8.1-23 SR 3.8.1.2 PA3.8-115

See RAI 3.8.1-03

NMC Response:
Sections affected by this change:
Part B ITS SR 3.8.1.2
Part C CTS 4.6.A.1.e
Part D DOC A3.8-58
Part E NUREG SR 3.8.1.2 Markup
Part F JFD PA3.8-115
Part G NSHD Administrative Change A3.8-58

Reference response to RAI 3.8.1-01.

3.8.1-26 Bases Page B3.8.1-24 SR3.8.1.3 CL3.8-116

The licensee is requested to provide details of the accident loading requirements and to demonstrate that these loading requirements are exceeded by the manufacturer's recommended loads. The licensee is also requested to verify that the loads suggested by the manufacturer are maximum loads, not minimum loads.

NMC Response:
Sections affected by this change:
Part B Bases 3.8.1 SR 3.8.1.3
Part E Bases 3.8.1 SR 3.8.1.3
Part F JFD CL3.8-116

Reference response to RAI 3.8.01-04.

3.8.1-27 Bases Page B3.8.1-25 SR 3.8.1.4 CL3.8-118

See RAI 3.8.1-05

NMC Response:
Sections affected by this change:
Part F JFD CL3.8-118

Reference response to RAI 3.8.1-05.

3.8.1-29 Bases Page B3.8.1-30 SR3.8.1.7 CL3.8-125

See RAI 3.8.1-09

NMC Response:
Sections affected by this change:
None

Reference response to RAI 3.8.1-09

3.8.1-31 Bases Page B3.8.1-32 NUREG SR3.8.1.11 CL3.8-128

See RAI 3.8.1-10

NMC Response:
Sections affected by this change:
Part F JFD CL3.8-128

Reference response to RAI 3.8.1-10.

3.8.1-32 Bases Page B3.8.1-34 NUREG SR 3.8.1-12 No JFD

See RAI 3.8.1-11

NMC Response:
Sections affected by this change:
Part F JFD PA3.8-102.

Reference response to RAI 3.8.01-11.

3.8.1-35 Bases Page B3.8.1-37 SR 3.8.1.9 CL3.8-125

The Bases for this SR have been revised to state that the test must be conducted at > 90% of voltage and frequency. This is not acceptable. The voltage and frequency requirements are stated in the SR, and the frequency tolerance is considered less than 10% of the 60 Hz. The Bases should be revised to delete reference to voltage and frequency, as shown.

Also, see staff comments for SR3.8.1.9 in LCO 3.8.1 markup regarding power factor.

NMC Response:
Sections affected by this change:
Part B ITS 3.8.1 Bases SR 3.8.1.9
Part E NUREG Bases 3.8.1 SR 3.8.1.14

The Bases have been revised deleting "> 90% of" and the verbiage "voltage, and Frequency".

3.8.1-37 Bases Page B3.8.1-43 NUREG SR3.8.1.20 CL3.8-133

See RAI 3.8.1-16

NMC Response:
Sections affected by this change:
Part F CL3.8-133

Reference response to RAI 3.8.1-16.

3.8.2-02 Bases Page B3.8.2-3 LCO PA3.8-102

The Bases discussion proposed for deletion is in brackets because it was understood when the NUREG was developed that the language would not be applicable to all plants. The intent is for the licensee to insert the information for his plant, not to delete the Bases discussion. The licensee should retain this Bases using information that describes the PI design.

NMC Response:
Sections affected by this change:
Part B ITS Bases 3.8.2 LCO Section
Part E NUREG Bases 3.8.2 LCO Markup

The Bases has been revised by replacing the bracketed information with PI specific information briefly describing the four separate external power sources which have multiple offsite network connections. Per PI design the four connections consist of:
1. A reserve transformer from the 161 kV portion of the plant substation;
2. A second reserve transformer from the 345 kV portion of the plant substation;
3. A cooling tower transformer supplied from the 345 kV portion of the plant substation; and
4. A cooling tower transformer supplied from a tertiary winding on the substation auto transformer.

3.8.2-03 Bases Page B3.8.2-4 LCO CL3.8-202

Part of the Bases in the second paragraph is proposed for deletion. This Bases, as worded, means that the DGs are capable of being loaded within 10 seconds. It does not mean they are loaded in 10 seconds as the JFD appears to indicate. The Bases material should be retained.

NMC Response:
Sections affected by this change:
Part B ITS Bases 3.8.2 LCO Section
Part E NUREG Bases 3.8.2 LCO Markup

The Bases has been revised to state that the DG will be ready to load within 10 seconds of receiving a start signal.

3.8.2-04 Bases Page B3.8.2-4 LCO CL3.8-110

The JFD does not discuss deletion of the Bases wording in the third paragraph regarding tripping on nonessential loads. The licensee should justify this deletion, or retain the NUREG. In the fourth paragraph, what is the justification for deleting the bracketed Bases information regarding sequencer operation and offsite circuit OPERABILITY?

NMC Response:
Sections affected by this change:
Part F JFD CL3.8-110

PI does not have any non-essential loads, by design, that are tripped and not restored by sequencer action. The subject JFD has been revised to reflect this statement.

3.8.2-06 Bases Page B3.8.2-6 Action A.1 CL3.8-157

The Bases and the LCO are not consistent. Some revision appears to be necessary. If the Bases are to remain as proposed, Action A.1 should be deleted. The option described in A.1 is only applicable if more than one safeguards bus was required to be OPERABLE. This applies to the option discussion for Action A.2 and B, as well.

NMC Response:
Sections affected by this change:
Part B ITS LCO 3.8.2 Required Action A.1
Part B ITS Bases 3.8.2 Actions Section
Part E NUREG LCO 3.8.2 Required Action A Markup
Part E NUREG Bases 3.8.3 Actions Section
Part F JFD PA3.8-215

Since ITS Condition A does not contain the "one or more" phrase, Required Action A.1 has been deleted and the Bases revised accordingly.

Section 3.8.3

3.8.3-02 NUREG Markup NUREG SR 3.8.3.5 CL3.8-147

The JFD does not provide an adequate justification for deletion of this SR. The testing for water as part of the fuel oil program is for suspended water. This SR addresses water that may have accumulated at the bottom of the tank.

NMC Response:
Sections affected by this change:
Part F JFD CL3.8-147

The subject JFD was revised to state that neither the CLB or CTS require this SR and therefore; it is not included in the ITS.

3.8.3-03 NUREG Markup NUREG SR3.8.3.6 TA3.8-156

TSTF 2 calls for relocating this requirement to a licensee controlled document. It does not address total deletion. The licensee should provide information on where this requirement will be relocated and what controls will be associated with that document.

NMC Response:
Sections affected by this change:
Part E SR 3.8.3.6
Part F CL3.8-156

ISTS SR 3.8.3.6 was not incorporated into the ITS since this surveillance is not required by PI CLB or CTS. Therefore; TSTF 2 was not incorporated.

3.8.3-04 Bases Page B3.8.3-1 Background CL3.8-143

The Bases should describe the TS requirement without a reference to the updated safety analysis report. The Bases material proposed for deletion should be retained, with revisions as necessary to reflect the PI design.

NMC Response:
Sections affected by this change:
Part B ITS Bases 3.8.3 Background Section
Part E NUREG Bases 3.8.3 Background Section Markup

The Bases has been revised to be consistent with the NUREG and describe the TS requirement in more detail, in addition, to referencing the USAR.

3.8.3-06 Bases Page B3.8.3-4 Action A.1 CL3.8-152

In this Bases discussion, should the reference to DG not be plural; i.e., DG<u>s</u> ? If the design of the fuel oil system is one tank for both DGs, then plural (DGs) would be correct.

NMC Response:
Sections affected by this change:
Part B ITS Bases 3.8.3 Actions Section
Part E NUREG Bases 3.8.3 Actions Section Markup

The Bases have been revised to make DG plural as noted in the RAI.

3.8.3-08 Bases Page B3.8.3-11 NUREG SR3.8.3.5 CL3.8-147

See RAI 3.8.3-02

NMC Response:
Sections affected by this change:
Part F JFD CL3.8-147

Reference response to RAI 3.8.3-02

3.8.3-09 Bases Page B3.8.3-12 NUREG SR3.8.3-6 TA3.8-156

See RAI 3.8.3-03

NMC Response:
Sections affected by this change:
Part E SR 3.8.3.6
Part F CL3.8-156

Reference response to RAI 3.8.3-03.

3.8.7-02 Bases Page B3.8.7-4 Action A.1 No JFD

The staff does not understand use of the term "may" in the first paragraph with regard to Reactor Protection Instrument AC Panel OPERABILITY. If the inverter becomes inoperable, the AC panel will be de-energized until power is restored. De-energized is inoperable. There is no question of "may". This should be corrected. Also, the Bases should identify the alternate safety related source. The Bases should identify the alternate safety related source. The Bases should be revised to include this identification.

NMC Response:
Sections affected by this change:
Part B ITS Bases 3.8.7 Actions Section
Part E NUREG Bases 3.8.7 Actions Section

The Bases have been revised deleting the word "may " and to provide additional clarification by specifically stating that with the Reactor Protection Instrument AC inverter inoperable, its associated Reactor Protection Instrument AC Panel is also considered to be inoperable unless it is automatically re-energized by its static transfer switch.

3.8.7-03 Bases Page B3.8.7-5 SR3.8.7.1 PA3.8-102

See RAI 3.8.7-01

NMC Response:
Sections affected by this change:
None.

RAI 3.8.7-01 is the same issue as this RAI. RAI 3.8.7-01 has been closed by the NRC with no licensee response required. PI believes this RAI should also be closed with no licensee response required.

3.8.8-01 NUREG Markup LCO 3.8.8 TA3.8-175

The LCO should be revised to retain the wording "to support the onsite Class 1E AC vital bus electrical power distribution subsystem required by LCO 3.8.10." Without this wording, the LCO is not consistent with the NUREG organization.

NMC Response:
Sections affected by this change:
None.

LCO 3.8.8 was submitted in accordance with TSTF 204, Rev. 3. The subject TSTF provides two options for the LCO statement. The ITS has been revised to be consistent with option 2 which is applicable to PI.

3.8.8-02 NUREG Markup Required Action A.1 TA3.8-175

The rationale for Required Action A.1 was based on Rev. 1 to the NUREG which would, in certain conditions, require more than one inverter to be OPERABLE. With one of two or more required subsystems inoperable, the remaining subsystem(s) might be able to power all necessary loads. In such a case, it was acceptable to declare inoperable the required features associated with the inoperable subsystem. However, with only one subsystem required, the above conditions do not exist, and the option to declare required features inoperable is not appropriate. Required Action A.1 should be deleted.

NMC Response:
Sections affected by this change:
Part B ITS LCO 3.8.8 Required Action A.1
Part B ITS Bases 3.8.8 Required Actions
Part E NUREG LCO 3.8.8 Required Action A.1 Markup
Part E NUREG Bases 3.8.8 Required Action Markup
Part F JFD 3.8-215

Since ITS Condition A does not contain the "one or more" phrase, Required Action A.1 has been deleted. This change is consistent with RAI 3.8.2-06. In addition, the appropriate JFD has also been revised providing justification for deleting Required Action A.1.

3.8.8-04 Bases Page B3.8.8-3 Applicable Safety Analysis PA3.8-192

The licensee has proposed to use the Bases discussion from LCO 3.8.2 in this Bases. However, the last paragraph of the Applicable Safety Analysis from LCO 3.8.2 has not been included. If the LCO 3.8.2 Bases are to be used, the entire Bases should be included, not just a part of it.

NMC Response:
Sections affected by this change:
None.

The last paragraph of ITS Bases 3.8.2 Applicable Safety Analysis Section provides information specific to the offsite and onsite AC sources - shutdown and is not applicable to ITS Bases 3.8.8 for inverters - shutdown. Therefore; the subject information was not incorporated into ITS Bases 3.8.8. No changes have been made to PI ITS in response this RAI.

3.8.8-05 Bases Page 3.8.8-3 Applicable Safety Analysis TA3.8-175

See RAI 3.8.5-05

NMC Response:
Sections affected by this change:
None

The changes made to ITS Bases 3.8.8 Applicable Safety Analysis were made consistent with TSTF 204, Rev. 3. That specific TSTF did not revise LCO Bases 3.8.2 adding the paragraph that is subject to this RAI.

3.8.8-07 Bases Page B3.8.8-5 Action A.1 No JFD

See RAI 3.8.8-02

NMC Response:
Sections and Pages affected by this change:
Part B ITS LCO 3.8.8 Required Action A.1
Part B ITS Bases 3.8.8 Required Actions
Part E NUREG LCO 3.8.8 Required Action A.1 Markup
Part E NUREG Bases 3.8.8 Required Action Markup
Part F JFD 3.8-215

Reference response to RAI 3.8.8-02.

3.8.8-08 Bases Page B3.8.8-7 SR3.8.8.1 PA3.8-102

See RAI 3.8.8-03

NMC Response:
Sections affected by this change:
None

RAI 3.8.8-03 is the same issue as this RAI. RAI 3.8.8-03 has been closed by the NRC with no licensee response required. PI believes this RAI should also be closed with no licensee response required.

3.8.10-01 NUREG Markup Required Action A.2.5 PA3.8-190

In some cases, the residual heat removal (RHR) TS requires two RHR subsystems to be OPERABLE, with one in OPERATION. With problems in the distribution subsystems, the Required Actions must address the requirements of all affected systems. Since the RHR TS calls for "OPERABLE" and "in operation", both requirements must be addressed by LCO 3.8.10 Actions. For this reason, Require Action A.2.5 should remain as is. The proposed change is not acceptable.

NMC Response:
Sections affected by this change:
Part F JFD PA3.8-190

TS required equipment may be OPERABLE and not in operation and meet the TS requirements. At other times TS may require equipment to be OPERABLE and in operation. Plant procedures and practices are established to declare TS equipment OPERABLE or not OPERABLE (inoperable). When equipment is further required to be in operation, plant procedures and practices are also established to verify that the required equipment is in operation. However, Prairie Island (PI) does not have procedures or practices for declaring equipment "not in operation" and retaining this clause would require new procedures and practices. ISTS does not appear to have any Specification other than LCO 3.8.10 which requires declaring equipment "not in operation". The intent of Specification 3.8.10 is not to assure there is no flow. The Bases state, "Pursuant to LCO 3.0.6, the RHR ACTIONS would not be entered. Therefore, Required Action A.2.5 is provided to direct declaring the associated RHR inoperable, which results in taking the appropriate RHR actions." The clause "and not in operation" is redundant based on current PI operating practices. Once the RHR subsystem is declared inoperable in accordance with 3.8.10 R.A. A.2.5, the operators will take action to establish an acceptable source of core cooling. If for some reason the RHR subsystem continued to provide core cooling after the subsystem were declared inoperable, continued core cooling would be a harmless, but beneficial, consequence while operators establish an acceptable source of core cooling. For these reasons, NMC proposes not to include the clause "and not in operation" in the ITS. JFD PA3.8-190 has been revised to further clarify our position.

3.8.10-02 Bases Page B3.8.10-1 Background PA3.8-191

What is the purpose of adding the material about alternate power sources? Is the intent to allow these sources to be used in lieu of the AC, DC, and vital AC covered in LCO 3.8.2, LCO 3.8.5, and LCO 3.8.8? If so, this is not acceptable. These sources may be used in addition to the requirements of LCO 3.8.2, LCO 3.8.5, and LCO 3.8.8 as a means of complying with NUMARC 91-06, but they may not be used in lieu of Class 1E power requirements. The Bases should be revised to make this clear.

What is the basis of the statement that use of the above power sources is consistent with the CLB?

NMC Response:
Sections affected by this change:
Part B ITS Bases 3.8.10 Background Section
Part E NUREG Bases 3.8.10 Background Section

Upon further discussions with the NRC reviewer, it was decided that providing the following information in the Bases would be adequate to resolve this item, "This equipment, when used as an alternate source, comes from the safeguards systems or sources from the other unit. Use of these systems or sources has been evaluated and does not have a detrimental impact on the other operating unit."

Prairie Island Nuclear Generating Plant

Attachment 2

to

Supplement dated August 13, 2001
to License Amendment Request dated December 11, 2000
Conversion to Improved Technical Specifications (ITS)

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Repagination	3.8	E	B 3.8.8-6
Repagination	3.8	E	B 3.8.10-2

RAI Q #	Package #	Part	Page #
Repagination	3.8	E	B 3.8.10-3
Repagination	3.8	E	B 3.8.10-4
Repagination	3.8	E	B 3.8.10-5
Repagination	3.8	E	B 3.8.10-6
Repagination	3.8	E	B 3.8.10-7
Repagination	3.8	E	B 3.8.10-8
Repagination	3.8	F	5
Repagination	3.8	F	7
Repagination	3.8	F	8
Repagination	3.8	F	12
Repagination	3.8	F	13
Repagination	3.8	F	15
Repagination	3.8	F	18
Repagination	3.8	F	19
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Repagination	3.8	F	43
Repagination	3.8	F	44
Repagination	3.8	F	46
Repagination	3.8	F	47
Repagination	3.8	F	48
Repagination	3.8	F	49
Repagination	3.8	F	51
Repagination	3.8	G	36

Prairie Island Nuclear Generating Plant

Attachment 3

to

Supplement dated August 13, 2001
to License Amendment Request dated December 11, 2000
Conversion to Improved Technical Specifications (ITS)

Revision 3 Change Pages

Improved Technical Specifications
Supplement dated 8/13/01

Revision 3 Change Page List

UPDATING INSTRUCTIONS

Remove				Insert			
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3.8	B	3.8.1-2	12/11/00	3.8	B	3.8.1-2	7/2/01
3.8	B	3.8.1-6	12/11/00	3.8	B	3.8.1-6	7/2/01
3.8	B	3.8.2-2	12/11/00	3.8	B	3.8.2-2	7/2/01
3.8	B	3.8.7-1	12/11/00	3.8	B	3.8.7-1	7/2/01
3.8	B	3.8.7-2	12/11/00	3.8	B	3.8.7-2	7/2/01
---	---	---	---	3.8	B	3.8.7-3	12/11/00
3.8	B	3.8.8-1	12/11/00	3.8	B	3.8.8-1	7/2/01
3.8	B	3.8.8-2	12/11/00	3.8	B	3.8.8-2	7/2/01
3.8	B	B 3.8.1-2	12/11/00	3.8	B	B 3.8.1-2	7/2/01
3.8	B	B 3.8.1-4	12/11/00	3.8	B	B 3.8.1-4	7/2/01
3.8	B	B 3.8.1-5	12/11/00	3.8	B	B 3.8.1-5	Repaginated
3.8	B	B 3.8.1-6	12/11/00	3.8	B	B 3.8.1-6	Repaginated
3.8	B	B 3.8.1-7	12/11/00	3.8	B	B 3.8.1-7	Repaginated
3.8	B	B 3.8.1-8	12/11/00	3.8	B	B 3.8.1-8	7/2/01
3.8	B	B 3.8.1-9	12/11/00	3.8	B	B 3.8.1-9	Repaginated
3.8	B	B 3.8.1-10	12/11/00	3.8	B	B 3.8.1-10	Repaginated
3.8	B	B 3.8.1-11	12/11/00	3.8	B	B 3.8.1-11	Repaginated
3.8	B	B 3.8.1-12	12/11/00	3.8	B	B 3.8.1-12	Repaginated
3.8	B	B 3.8.1-13	12/11/00	3.8	B	B 3.8.1-13	7/2/01
3.8	B	B 3.8.1-14	12/11/00	3.8	B	B 3.8.1-14	Repaginated
3.8	B	B 3.8.1-15	12/11/00	3.8	B	B 3.8.1-15	7/2/01
3.8	B	B 3.8.1-16	12/11/00	3.8	B	B 3.8.1-16	Repaginated
3.8	B	B 3.8.1-17	12/11/00	3.8	B	B 3.8.1-17	Repaginated
3.8	B	B 3.8.1-18	12/11/00	3.8	B	B 3.8.1-18	7/2/01
3.8	B	B 3.8.1-19	12/11/00	3.8	B	B 3.8.1-19	Repaginated
---	---	---	---	3.8	B	B 3.8.1-20	12/11/00
3.8	B	B 3.8.2-3	12/11/00	3.8	B	B 3.8.2-3	7/2/01
3.8	B	B 3.8.2-4	12/11/00	3.8	B	B 3.8.2-4	7/2/01
3.8	B	B 3.8.2-5	12/11/00	3.8	B	B 3.8.2-5	7/2/01
3.8	B	B 3.8.2-6	12/11/00	3.8	B	B 3.8.2-6	7/2/01
3.8	B	B 3.8.2-7	12/11/00	3.8	B	B 3.8.2-7	7/2/01
3.8	B	B 3.8.3-1	12/11/00	3.8	B	B 3.8.3-1	7/2/01
3.8	B	B 3.8.3-2	12/11/00	3.8	B	B 3.8.3-2	7/2/01
3.8	B	B 3.8.3-4	12/11/00	3.8	B	B 3.8.3-4	7/2/01
3.8	B	B 3.8.3-5	12/11/00	3.8	B	B 3.8.3-5	7/2/01
3.8	B	B 3.8.7-2	12/11/00	3.8	B	B 3.8.7-2	7/2/01
3.8	B	B 3.8.7-3	12/11/00	3.8	B	B 3.8.7-3	7/2/01
3.8	B	B 3.8.7-4	12/11/00	3.8	B	B 3.8.7-4	7/2/01

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UPDATING INSTRUCTIONS

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3.8	B	B 3.8.8-4	12/11/00	3.8	B	B 3.8.8-4	7/2/01
3.8	B	B 3.8.8-5	12/11/00	3.8	B	B 3.8.8-5	Repaginated
3.8	B	B 3.8.10-1	12/11/00	3.8	B	B 3.8.10-1	7/2/01
3.8	B	B 3.8.10-2	12/11/00	3.8	B	B 3.8.10-2	Repaginated
3.8	B	B 3.8.10-3	12/11/00	3.8	B	B 3.8.10-3	Repaginated
3.8	B	B 3.8.10-4	12/11/00	3.8	B	B 3.8.10-4	Repaginated
3.8	B	B 3.8.10-5	12/11/00	3.8	B	B 3.8.10-5	Repaginated
3.8	B	B 3.8.10-6	12/11/00	3.8	B	B 3.8.10-6	Repaginated
---	---	---	---	3.8	B	B 3.8.10-7	12/11/00
3.8	C	2 of 12	2	3.8	C	2 of 12	3
3.8	C	3 of 12		3.8	C	3 of 12	3
3.8	C	4 of 12		3.8	C	4 of 12	3
3.8	C	7 of 12	2	3.8	C	7 of 12	3
3.8	C	9 of 12	2	3.8	C	9 of 12	3
3.8	C	11 of 12	2	3.8	C	11 of 12	3
3.8	D	7	12/11/00	3.8	D	7	7/2/01
3.8	D	12	12/11/00	3.8	D	12	7/2/01
3.8	D	23	5/1/01	3.8	D	23	7/2/01
3.8	D	28	5/1/01	3.8	D	28	7/2/01
3.8	D	30	5/1/01	3.8	D	30	7/2/01
3.8	D	31	5/1/01	3.8	D	31	Repaginated
---	---	---	---	3.8	D	32	7/2/01
---	---	---	---	3.8	D	33	7/2/01
---	---	---	---	3.8	D	34	7/2/01
3.8	E	3.8.1-4		3.8	E	3.8.1-4	3
3.8	E	3.8.1-9		3.8	E	3.8.1-9	3
3.8	E	3.8.2-2		3.8	E	3.8.2-2	3
3.8	E	3.8.2-3		3.8	E	3.8.2-3	3
3.8	E	3.8.3-5		3.8	E	3.8.3-5	3
3.8	E	3.8.7-1		3.8	E	3.8.7-1	3
3.8	E	3.8.7-2		3.8	E	3.8.7-2	3
3.8	E	3.8.8-2		3.8	E	3.8.8-2	3
3.8	E	B 3.8.1-2		3.8	E	B 3.8.1-2	3
3.8	E	B 3.8.1-3		3.8	E	B 3.8.1-3	Repaginated
3.8	E	B 3.8.1-4		3.8	E	B 3.8.1-4	3
3.8	E	B 3.8.1-5		3.8	E	B 3.8.1-5	3
3.8	E	B 3.8.1-13		3.8	E	B 3.8.1-13	3

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3.8	E	B 3.8.1-22		3.8	E	B 3.8.1-22	3
3.8	E	B 3.8.1-24		3.8	E	B 3.8.1-24	3
3.8	E	B 3.8.1-25		3.8	E	B 3.8.1-25	Repaginated
3.8	E	B 3.8.1-26		3.8	E	B 3.8.1-26	Repaginated
3.8	E	B 3.8.1-27		3.8	E	B 3.8.1-27	Repaginated
3.8	E	B 3.8.1-28		3.8	E	B 3.8.1-28	Repaginated
3.8	E	B 3.8.1-29		3.8	E	B 3.8.1-29	Repaginated
3.8	E	B 3.8.1-30		3.8	E	B 3.8.1-30	Repaginated
3.8	E	B 3.8.1-31		3.8	E	B 3.8.1-31	Repaginated
3.8	E	B 3.8.1-32		3.8	E	B 3.8.1-32	Repaginated
3.8	E	B 3.8.1-33		3.8	E	B 3.8.1-33	Repaginated
3.8	E	B 3.8.1-34		3.8	E	B 3.8.1-34	Repaginated
3.8	E	B 3.8.1-35		3.8	E	B 3.8.1-35	Repaginated
3.8	E	B 3.8.1-36		3.8	E	B 3.8.1-36	Repaginated
3.8	E	B 3.8.1-37		3.8	E	B 3.8.1-37	3
3.8	E	B 3.8.1-38		3.8	E	B 3.8.1-38	Repaginated
3.8	E	B 3.8.2-3		3.8	E	B 3.8.2-3	3
3.8	E	B 3.8.2-4		3.8	E	B 3.8.2-4	3
3.8	E	B 3.8.2-5		3.8	E	B 3.8.2-5	Repaginated
3.8	E	B 3.8.2-6		3.8	E	B 3.8.2-6	3
3.8	E	B 3.8.2-7		3.8	E	B 3.8.2-7	3
3.8	E	B 3.8.2-8		3.8	E	B 3.8.2-8	Repaginated
---	---	---	---	3.8	E	B 3.8.2-9	Repaginated
3.8	E	B 3.8.3-1		3.8	E	B 3.8.3-1	3
3.8	E	B 3.8.3-4		3.8	E	B 3.8.3-4	3
3.8	E	B 3.8.3-9		3.8	E	B 3.8.3-9	3
3.8	E	B 3.8.3-12		3.8	E	B 3.8.3-12	3
3.8	E	B 3.8.7-2		3.8	E	B 3.8.7-2	Repaginated
3.8	E	B 3.8.7-3		3.8	E	B 3.8.7-3	3
3.8	E	B 3.8.7-4		3.8	E	B 3.8.7-4	3
3.8	E	B 3.8.7-5		3.8	E	B 3.8.7-5	3
---	---	---	---	3.8	E	B 3.8.7-6	Repaginated
3.8	E	B 3.8.8-5		3.8	E	B 3.8.8-5	3
3.8	E	B 3.8.8-6		3.8	E	B 3.8.8-6	Repaginated
3.8	E	B 3.8.10-1		3.8	E	B 3.8.10-1	3
3.8	E	B 3.8.10-2		3.8	E	B 3.8.10-2	Repaginated
3.8	E	B 3.8.10-3		3.8	E	B 3.8.10-3	Repaginated
3.8	E	B 3.8.10-4		3.8	E	B 3.8.10-4	Repaginated

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3.8	E	B 3.8.10-5		3.8	E	B 3.8.10-5	Repaginated
3.8	E	B 3.8.10-6		3.8	E	B 3.8.10-6	Repaginated
3.8	E	B 3.8.10-7		3.8	E	B 3.8.10-7	Repaginated
---	---	---	---	3.8	E	B 3.8.10-8	Repaginated
3.8	F	2	12/11/00	3.8	F	2	7/2/01
3.8	F	4	12/11/00	3.8	F	4	7/2/01
3.8	F	5	12/11/00	3.8	F	5	Repaginated
3.8	F	6	12/11/00	3.8	F	6	7/2/01
3.8	F	7	12/11/00	3.8	F	7	Repaginated
3.8	F	8	12/11/00	3.8	F	8	5/1/01
3.8	F	9	5/1/01	3.8	F	9	7/2/01
3.8	F	10	12/11/00	3.8	F	10	7/2/01
3.8	F	11	12/11/00	3.8	F	11	7/2/01
3.8	F	12	12/11/00	3.8	F	12	Repaginated
3.8	F	13	12/11/00	3.8	F	13	Repaginated
3.8	F	14	12/11/00	3.8	F	14	7/2/01
3.8	F	15	12/11/00	3.8	F	15	Repaginated
3.8	F	16	12/11/00	3.8	F	16	7/2/01
3.8	F	17	12/11/00	3.8	F	17	7/2/01
3.8	F	18	12/11/00	3.8	F	18	Repaginated
3.8	F	19	12/11/00	3.8	F	19	Repaginated
3.8	F	23	12/11/00	3.8	F	23	7/2/01
3.8	F	26	12/11/00	3.8	F	26	7/2/01
3.8	F	36	5/1/01	3.8	F	36	Repaginated
3.8	F	37	5/1/01	3.8	F	37	7/2/01
3.8	F	38	5/1/01	3.8	F	38	Repaginated
3.8	F	39	5/1/01	3.8	F	39	Repaginated
3.8	F	40	5/1/01	3.8	F	40	7/2/01
3.8	F	41	5/1/01	3.8	F	41	Repaginated
3.8	F	42	12/11/00	3.8	F	42	5/1/01
3.8	F	43	5/1/01	3.8	F	43	Repaginated
3.8	F	44	12/11/00	3.8	F	44	Repaginated
3.8	F	45	12/11/00	3.8	F	45	7/2/01
3.8	F	46	5/1/01	3.8	F	46	12/11/00
3.8	F	47	5/1/01	3.8	F	47	12/11/00
3.8	F	48	5/1/01	3.8	F	48	Repaginated
---	---	---	---	3.8	F	49	5/1/01
---	---	---	---	3.8	F	50	7/2/01

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---	---	---	---	3.8	F	51	12/11/00
3.8	G	1	5/1/01	3.8	G	1	7/2/01
3.8	G	32	12/11/00	3.8	G	32	7/2/01
---	---	---	---	3.8	G	33	7/2/01
---	---	---	---	3.8	G	34	7/2/01
---	---	---	---	3.8	G	35	7/2/01
---	---	---	---	3.8	G	36	12/11/00

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One DG inoperable.	B.1 Perform SR 3.8.1.1 for the paths.	1 hour AND Once per 8 hours thereafter
	AND	
	B.2 Declare required feature(s) supported by the 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.3.1 Determine OPERABLE DG is not inoperable due to common cause failure.	24 hours
	OR	

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.1	Verify correct breaker alignment and indicated power availability for each path.	7 days
SR 3.8.1.2	----------NOTES---------- 1. Performance of SR 3.8.1.6 satisfies this SR. 2. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. 3. A modified DG start involving idling and gradual acceleration to synchronous speed may be used for this SR in consideration of manufacturer's recommendations. When modified start procedures are not used, the time, voltage, and frequency tolerances of SR 3.8.1.6 must be met. ---------- Verify each DG starts from standby conditions and achieves steady state voltage ≥ 3740 V and ≤ 4580 V, and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.	31 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required path inoperable.	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.10, if one required train de-energized as a result of Condition A. ----------	
	A.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	A.2 Suspend movement of irradiated fuel assemblies.	Immediately
	AND	
	A.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	AND	
	A.4 Initiate action to restore required path to OPERABLE status.	Immediately

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 Inverters-Operating

LCO 3.8.7 Four Reactor Protection Instrument AC inverters shall be OPERABLE.

OR

Three Reactor Protection Instrument AC inverters shall be OPERABLE with:

a. The fourth Reactor Protection Instrument AC Panel powered from Panel 117 (Unit 2 - Panel 217);

OR

b. The fourth Reactor Protection Instrument AC Panel powered from its inverter bypass.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required Reactor Protection Instrument AC inverter inoperable.	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating" with any Reactor Protection Instrument AC Panel de-energized. ----------	
	A.1 Verify only one Reactor Protection Instrument AC Panel is powered from Panel 117 (Unit 2 - Panel 217).	2 hours
	OR	
	A.2 Verify only one Reactor Protection Instrument AC Panel is powered from its inverter bypass.	2 hours
	AND	
	A.3 Restore inverter to OPERABLE status.	8 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	AND	
	B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.7.1	Verify correct inverter voltage and alignment to required Reactor Protection Instrument AC Panels.	7 days

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Inverters-Shutdown

LCO 3.8.8 One Reactor Protection Instrument AC inverter shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required inverter inoperable.	A.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	A.2 Suspend movement of irradiated fuel assemblies.	Immediately
	AND	
	A.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	AND	

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.4 Initiate action to restore required inverter to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.8.1	Verify correct inverter voltage and alignment to required Reactor Protection Instrument AC Panel.	7 days

BASES

BACKGROUND (continued)

sequencer. The transformers are capable of block loading (operation without load sequencing), when loading and motor starting is selectively restricted. Refer to Specification 3.3.4 "4kV Safeguards Bus Voltage Instrumentation" for additional actions prescribed for an inoperable load sequencer.

The onsite standby power source for each 4kV safeguards bus is a dedicated DG. For Unit 1, DGs 1 and 2 are dedicated to buses 15 and 16, respectively. For Unit 2, DGs 5 and 6 are dedicated to buses 25 and 26, respectively. A DG starts automatically on a safety injection (SI) signal (e.g., low pressurizer pressure or high containment pressure signals) or on a 4 kV safeguards bus degraded voltage or undervoltage signal (refer to LCO 3.3.4, "4 kV Safeguards Bus Voltage Instrumentation"). After the DG has started, it will automatically tie to its respective bus after offsite power is tripped as a consequence of safeguards bus undervoltage or degraded voltage, independent of or coincident with an SI signal. The DGs will also start and operate in the standby mode without tying to the safeguards bus on an SI signal alone. Following the trip of offsite power, a sequencer strips nonpermanent loads from the bus. When the DG is tied to the bus, loads are then sequentially connected to its respective bus by the automatic load sequencer. The sequencing logic controls the start permissive for motor breakers to prevent overloading the DG by automatic load application.

In the event of a loss of offsite power, the safeguards electrical loads are automatically connected to the DGs in sufficient time to provide for safe reactor shutdown and to mitigate the consequences of a Design Basis Accident (DBA) such as a loss of coolant accident (LOCA).

Certain required unit loads are returned to service in a predetermined sequence in order to prevent overloading the DG in the process. Within 1 minute after the load restore signal is received, all loads needed to recover the unit or maintain it in a safe condition are returned to service.

BASES (continued)

LCO

Two paths between the offsite transmission grid and the onsite 4 kV Safeguards Distribution System and separate and independent DGs for each train ensure availability of the required power to shut down the reactor and maintain it in a safe shutdown condition after an anticipated operational occurrence (AOO) or a postulated DBA.

The paths are described in the USAR and are part of the licensing basis for the unit. There are four separate external power sources which provide multiple offsite network connections:

a. A reserve transformer (1R) from the 161 kV portion of the plant substation;

b. A second reserve transformer (2RS/2RY) from the 345 kV portion of the plant substation;

c. A cooling tower transformer (CT1/CT11) supplied from the 345 kV portion of the plant substation; and

d. A cooling tower transformer (CT12) supplied from a tertiary winding on the substation auto transformer.

Each path must be capable of maintaining rated frequency and voltage, and accepting required loads during an accident, while connected to the safeguards buses. Plant procedures provide an assessment for the various configurations and requirements (e.g., loading, grid conditions, generator MVAR load, and etc.) for a path to be declared OPERABLE.

Each DG must be capable of starting, accelerating to required speed and voltage, and connecting to its respective safeguards bus on detection of bus undervoltage. The DG will be ready to load within 10 seconds following receipt of a start signal. Each DG must also be capable of accepting required loads within the assumed loading

BASES

LCO (continued)

sequence intervals, and continue to operate until offsite power can be restored to the safeguards buses. These capabilities are required to be met from a variety of initial conditions such as DG in standby with the engine hot and DG in standby with the engine at ambient conditions.

Proper sequencing of loads is a required function for DG OPERABILITY.

APPLICABILITY

The AC sources are required to be OPERABLE in MODES 1, 2, 3, and 4 to ensure that:

a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of AOOs; and

b. Adequate core cooling is provided and containment OPERABILITY and other vital functions are maintained in the event of a postulated DBA.

The AC power requirements for MODES 5 and 6 are covered in LCO 3.8.2, "AC Sources-Shutdown."

The load Sequencer requirements are covered in LCO 3.3.4, "4 kV Safeguards Bus Voltage Instrumentation".

BASES (continued)

ACTIONS

A.1

To ensure a highly reliable power source remains with one path inoperable, it is necessary to verify the OPERABILITY of the remaining path on a more frequent basis. Since the Required Action only specifies "perform," a failure of SR 3.8.1.1 acceptance criteria does not result in a Required Action not met. However, if the second path fails SR 3.8.1.1, there are no OPERABLE paths, and Condition C, for two paths inoperable, is entered.

A. 2

Operation may continue in Condition A for a period that should not exceed 7 days. With one path inoperable, the reliability of the offsite system is degraded, and the potential for a loss of offsite power is increased, with attendant potential for a challenge to the unit safety systems. In this Condition, however, the remaining OPERABLE path and DGs are adequate to supply electrical power to the onsite Safeguards Distribution System.

The 7 day 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.1

To ensure a highly reliable power source remains with an inoperable DG, it is necessary to verify the availability of the paths on a more frequent basis. Since the Required Action only specifies "perform," a failure of SR 3.8.1.1 acceptance criteria does not result in a Required Action being not met. However, if a path fails to pass SR 3.8.1.1, it is inoperable and additional Conditions and Required Actions apply.

BASES

ACTIONS (continued)

B.2

Required Action B.2 is intended to provide assurance that a loss of offsite power, during the period that a DG is inoperable, 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.2 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 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.

BASES

ACTIONS

B.2 (continued)

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.3.1 and B.3.2

Required Action B.3.1 provides an allowance to avoid unnecessary testing of the OPERABLE DG. If it can be determined that the cause of the inoperable DG does not exist on the OPERABLE DG, SR 3.8.1.2 does not have to be performed. If the cause of inoperability exists on the other DG, the other DG would be declared inoperable upon discovery and Condition E of LCO 3.8.1 would be entered. Once the failure is repaired, the common cause failure no longer exists, and Required Action B.3.1 is satisfied. If the cause of the initial inoperable DG cannot be confirmed not to exist on the remaining DG, performance of SR 3.8.1.2 suffices to provide assurance of continued OPERABILITY of that DG.

In the event the inoperable DG is restored to OPERABLE status prior to completing either B.3.1 or B.3.2, the plant corrective action program will continue to evaluate the common cause possibility. This continued evaluation, however, is no longer under the 24 hour constraint imposed while in Condition B.

BASES

ACTIONS

B.3.1 and B.3.2 (continued)

According to the Maintenance Rule, 24 hours is reasonable to confirm that the OPERABLE DG is not affected by the same problem as the inoperable DG.

B.4

Operation may continue in Condition B for a period that should not exceed 7days.

In Condition B, the remaining OPERABLE DG and paths are adequate to supply electrical power to the onsite Safeguards Distribution System. The 7 day 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.

C.1 and C.2

Required Action C.1, which applies when two paths are inoperable, is intended to provide assurance that an event with a coincident single failure will not result in a complete loss of redundant required safety functions. The Completion Time for this failure of redundant required features is 12 hours. The rationale for the 12 hours is that a Completion Time of 24 hours is allowed for two paths inoperable, based upon the assumption that two complete safety trains are OPERABLE. When a concurrent redundant required feature failure exists, this assumption is not the case, and a Completion Time of 12 hours is appropriate. These features are powered from redundant AC safety trains.

BASES

ACTIONS

C.1 and C.2 (continued)

The Completion Time for Required Action C.1 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. Both paths are inoperable; and

b. A required feature on either train is inoperable.

If at any time during the existence of Condition C (two paths inoperable) a required feature becomes inoperable, this Completion Time begins to be tracked.

Operation may continue in Condition C for a period that should not exceed 24 hours. This level of degradation means that the offsite electrical power system does not have the capability to effect a safe shutdown and to mitigate the effects of an accident; however, the onsite AC sources have not been degraded. This level of degradation generally corresponds to a total loss of the immediately accessible offsite power sources.

With both of the required paths inoperable, sufficient onsite AC sources are available to maintain the unit in a safe shutdown condition in the event of a DBA or transient. In fact, a simultaneous loss of offsite AC sources, a LOCA, and a worst case single failure were postulated as a part of the design basis in the safety analysis. Thus, the 24 hour Completion Time provides a period of time to effect restoration of one of the paths commensurate with the importance of maintaining an AC electrical power system capable of meeting its design criteria.

BASES

ACTIONS

C.1 and C.2 (continued)

With the available offsite AC sources, two less than required by the LCO, operation may continue for 24 hours. If two paths are restored within 24 hours, unrestricted operation may continue. If only one path is restored within 24 hours, power operation continues in accordance with Condition A.

D.1 and D.2

Pursuant to LCO 3.0.6, the Distribution System ACTIONS would not be entered even if all AC sources to it were inoperable, resulting in de-energization. Therefore, the Required Actions of Condition D are modified by a Note to indicate that if Condition D is entered with no AC source to either train, the Conditions and Required Actions for LCO 3.8.9, "Distribution Systems-Operating," must be immediately entered. This allows Condition D to provide requirements for the loss of one path and one DG, without regard to whether a train is de-energized. LCO 3.8.9 provides the appropriate restrictions for a de-energized train.

Operation may continue in Condition D for a period that should not exceed 12 hours.

In Condition D, redundancy is lost in both the offsite electrical power system and the onsite AC electrical power system. Since power system redundancy is provided by two diverse sources of power, however, the reliability of the power systems in this Condition may appear higher than that in Condition C (loss of both required paths). This difference in reliability is offset by the susceptibility of this power system configuration to a single bus or switching failure. The 12 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.

BASES

ACTIONS (continued)

E.1

With Train A and Train B DGs inoperable, there are no remaining standby AC sources. Thus, with an assumed loss of offsite electrical power, insufficient standby AC sources are available to power the minimum required ESF functions. Since the offsite electrical power system is the only source of AC power for this level of degradation, the risk associated with continued operation for a very short time could be less than that associated with an immediate controlled shutdown (the immediate shutdown could cause grid instability, which could result in a total loss of AC power). Since inadvertent generator trips could result in a total loss of offsite AC power, however, the time allowed for continued operation is severely restricted. The intent here is to avoid the risk associated with an immediate controlled shutdown and to minimize the risk associated with this level of degradation.

With both DGs inoperable, operation may continue for a period that should not exceed 2 hours.

F.1 and F.2

If the inoperable AC electric power sources cannot be restored to OPERABLE status within the required Completion Time, 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. 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 plant systems.

BASES

ACTIONS

G.1 (continued)

Condition G corresponds to a level of degradation in which all redundancy in the AC electrical power supplies has been lost. At this severely degraded level, any further losses in the AC electrical power system may cause a loss of function. Therefore, no additional time is justified for continued operation. The unit is required by LCO 3.0.3 to commence a controlled shutdown.

SURVEILLANCE REQUIREMENTS

The AC sources are designed to permit inspection and testing of all important areas and features, especially those that have a standby function, as discussed in the USAR (Ref. 2). Periodic component tests are supplemented by extensive functional tests during refueling outages (under simulated accident conditions). The SRs for demonstrating the OPERABILITY of the DGs are in accordance with regulatory guidance as addressed in the USAR.
The voltages and frequencies discussed in these SRs are consistent with analysis described in the USAR (Ref. 2).

SR 3.8.1.1

This SR ensures proper circuit continuity for the offsite AC electrical power supply to the onsite distribution network and availability of offsite AC electrical power. The breaker alignment verifies that each breaker is in its correct position to ensure that distribution buses and loads are connected to their offsite power source, and that appropriate independence of offsite circuits is maintained. The 7 day Frequency is adequate since breaker position is not likely to change without the operator being aware of it and because its status is displayed in the control room.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.2 and SR 3.8.1.6

These SRs help to ensure the availability of the standby electrical power supply to mitigate DBAs and transients and to maintain the unit in a safe shutdown condition.

To minimize the wear on moving parts that do not get lubricated when the engine is not running, these SRs are modified by a Note (Note 2 for SR 3.8.1.2) to indicate that all DG starts for these Surveillances may be preceded by an engine prelube period and followed by a warmup period prior to loading.

In order to reduce stress and wear on diesel engines, some manufacturers recommend a modified start in which the starting speed of DGs is limited, warmup is limited to this lower speed, and the DGs are gradually accelerated to synchronous speed prior to loading. These start procedures are the intent of Note 3, which is only applicable when such modified start procedures are recommended by the manufacturer.

SR 3.8.1.6 requires that, at a 184 day Frequency, the DG starts from standby conditions and achieves required voltage and frequency within 10 seconds. The 10 second start requirement supports the assumptions of the design basis LOCA analysis in the USAR (Ref. 3). Standby conditions for a DG mean that the diesel engine coolant and oil temperatures are being maintained consistent with manufacturer recommendations.

The 10 second start requirement is not applicable to SR 3.8.1.2 (see Note 3) when a modified start procedure as described above is used. If a modified start is not used, the 10 second start requirement of SR 3.8.1.6 applies.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.2 and SR 3.8.1.6 (continued)

Since SR 3.8.1.6 requires a 10 second start, it is more restrictive than SR 3.8.1.2, and it may be performed in lieu of SR 3.8.1.2. This is the intent of Note 1 of SR 3.8.1.2.

The 31 day Frequency for SR 3.8.1.2 and the 184 day Frequency for SR 3.8.1.6 provide adequate assurance of DG OPERABILITY, while minimizing degradation resulting from testing.

SR 3.8.1.3

This Surveillance verifies that the DGs are capable of synchronizing with the offsite electrical system and accepting loads greater than or equal to the manufacturer's recommended loads (Ref. 2). The Unit 1 and 2 diesel generators have different loading requirements since their individual loads are different. As an example, the Unit 2 diesel generators supply emergency power to the cooling water pump whereas the Unit 1 diesel generators do not. A minimum run time of 60 minutes is required to stabilize engine temperatures, while minimizing the time that the DG is connected to the offsite source.

The 31 day Frequency for this Surveillance is consistent with SR 3.8.1.2.

This SR is modified by four Notes. Note 1 indicates that diesel engine runs for this Surveillance may include gradual loading, as recommended by the manufacturer, so that mechanical stress and wear on the diesel engine are minimized. Note 2 states that momentary transients, because of changing loads or system

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.3 (continued)

characteristics, do not invalidate this test. Note 3 indicates that this Surveillance should be conducted on only one DG at a time in order to avoid common cause failures that might result from path or grid perturbations. Note 4 stipulates a prerequisite requirement for performance of this SR. A successful DG start must precede this test to credit satisfactory performance.

SR 3.8.1.4

This SR provides verification that the level of fuel oil in the day tank is at or above the level at which fuel oil is automatically added. The level is selected to ensure adequate fuel oil for a minimum of 2 hours for Unit 1 (1 hour of DG operation at full load plus 10% for Unit 2).

The 31 day Frequency is adequate to assure that a sufficient supply of fuel oil is available, since low level alarms are provided and facility operators would be aware of any large uses of fuel oil during this period.

SR 3.8.1.5

This Surveillance demonstrates that each required fuel oil transfer pump operates and transfers fuel oil from its associated storage tank to its associated day tank. This is required to support continuous operation of standby power sources. This Surveillance provides assurance that the fuel oil transfer pump is OPERABLE, the fuel oil piping system is intact, the fuel delivery piping is not obstructed, and the controls and control systems for automatic fuel transfer systems are OPERABLE.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.5 (continued)

The design of fuel transfer systems is such that pumps operate automatically in order to maintain an adequate volume of fuel oil in the day tanks during or following DG testing. Therefore, a 31 day Frequency is appropriate.

SR 3.8.1.6

See SR 3.8.1.2.

SR 3.8.1.7

This Surveillance demonstrates the DG capability to reject a load equivalent to the largest single load without tripping. The DG load rejection may occur because of an inadvertent breaker tripping. This Surveillance ensures proper engine response under the simulated test conditions. This test simulates a load rejection and verifies that the DG does not trip upon loss of the largest single load.

The 24 month Frequency is consistent with the expected fuel cycle lengths.

SR 3.8.1.8

This Surveillance demonstrates that DG noncritical protective functions (e.g., high jacket water temperature) are bypassed on an actual or simulated safety injection (SI) signal, and critical protective functions (e.g., engine overspeed, generator differential current, and ground fault (Unit 1)) trip the DG to avert substantial damage to the

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.8 (continued)

DG unit. The noncritical trips are bypassed during DBAs and provide an alarm on an abnormal engine condition. This alarm provides the operator with sufficient time to react appropriately. The DG availability to mitigate the DBA is more critical than protecting the engine against minor problems that are not immediately detrimental to emergency operation of the DG.

The 24 month Frequency is based on engineering judgment, taking into consideration unit conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths. Operating experience has shown that these components usually pass the SR when performed at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

SR 3.8.1.9

Demonstrate once per 24 months that the DGs can start and run continuously at full load capability for an interval of not less than 24 hours, ≥ 2 hours of which is at a load equivalent to 103 - 110% of the continuous duty rating and the remainder of the time at a load equivalent to the continuous duty rating of the DG. The DG starts for this Surveillance can be performed either from standby or hot conditions. The provisions for prelubricating and warmup, discussed in SR 3.8.1.2, and for gradual loading, discussed in SR 3.8.1.3, are applicable to this SR.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.9 (continued)

The load band is provided to avoid routine overloading of the DG. Routine overloading may result in more frequent teardown inspections in accordance with vendor recommendations in order to maintain DG OPERABILITY.

The 24 month Frequency takes into consideration unit conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths.

This Surveillance is modified by a Note. The Note states that momentary transients due to changing loads do not invalidate this test.

SR 3.8.1.10

In the event of a DBA coincident with a loss of offsite power, the DGs are required to supply the necessary power to ESF systems so that the fuel, RCS, and containment design limits are not exceeded.

This Surveillance demonstrates the DG operation during a loss of offsite power actuation test signal in conjunction with an SI actuation signal. In lieu of actual demonstration of connection and loading of emergency loads, testing that adequately shows the capability of the DG system to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.10 (continued)

The Frequency of 24 months takes into consideration unit conditions required to perform the Surveillance and is intended to be consistent with an expected fuel cycle length of 24 months.

This SR is modified by two Notes. The reason for Note 1 is to minimize wear and tear on the DGs during testing. The reason for Note 2 is that the performance of the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems.

REFERENCES

1. AEC "General Design Criteria for Nuclear Power Plant Construction Permits," Criterion 39, issued for comment July 10, 1967, as referenced in the USAR, Section 1.2.

2. USAR, Section 8.

3. USAR, Section 14.

BASES (continued)

LCO

One path capable of supplying the onsite 4 kV Safeguards Distribution subsystem(s) of LCO 3.8.10, "Distribution Systems - Shutdown," ensures that all required loads are powered from offsite power. An OPERABLE DG, associated with the distribution system train required to be OPERABLE by LCO 3.8.10, ensures a diverse power source is available to provide electrical power support, assuming a loss of the path. Together, OPERABILITY of the required path and DG ensures the availability of sufficient AC sources to operate the unit in a safe manner and to mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents).

The path must be capable of maintaining rated frequency and voltage, and accepting required loads during an accident, while connected to the Safeguards bus(es). Paths are those that are described in the USAR and are part of the licensing basis for the unit.

There are four separate external power sources which provide multiple offsite network connections:

a. A reserve transformer (1R) from the 161 kV portion of the plant substation;

b. A second reserve transformer (2RS/2RY) from the 345 kV portion of the plant substation;

c. A cooling tower transformer (CT1/CT11) supplied from the 345 kV portion of the plant substation; and

d. A cooling tower transformer (CT12) supplied from a tertiary winding on the substation auto transformer.

BASES

LCO (continued)

The DG must be capable of starting, accelerating to required speed and voltage, and connecting to its respective Safeguards bus on detection of bus undervoltage. The DG will be ready to load within 10 seconds of receiving a start signal. The DG must be capable of accepting required loads within the assumed loading sequence intervals, and continue to operate until offsite power can be restored to the Safeguards buses. These capabilities are required to be met from a variety of initial conditions such as DG in standby with the engine hot or DG in standby at ambient conditions.

Proper sequencing of loads is a required function for DG OPERABILITY.

A Note has been added allowing the LCO not being applicable for a period of 8 hours during the performance of SR 3.8.1.10. This is acceptable since the DG(s) will be procedurally controlled and considering the small likelihood of a severe transient or event in this time period.

APPLICABILITY

The AC sources required to be OPERABLE in MODES 5 and 6 and during movement of irradiated fuel assemblies provide assurance that:

a. Systems to provide adequate coolant inventory makeup are available for the irradiated fuel assemblies in the core;

b. Systems needed to mitigate a fuel handling accident are available;

c. Systems necessary to mitigate the effects of events that can lead to core damage during shutdown are available; and

BASES

APPLICABILITY (continued)

d. Instrumentation and control capability is available for monitoring and maintaining the unit in a cold shutdown condition or refueling condition.

The AC power requirements for MODES 1, 2, 3, and 4 are covered in LCO 3.8.1.

The Load Sequencer requirements are covered in LCO 3.3.4, "4 kV Safeguards Bus Voltage Instrumentation".

ACTIONS

LCO 3.0.3 is not applicable while in MODE 5 or 6. However, since irradiated fuel assembly movement can occur in MODE 1, 2, 3, or 4, the ACTIONS have been modified by a Note stating that LCO 3.0.3 is not applicable. If moving irradiated fuel assemblies while in MODE 5 or 6, LCO 3.0.3 would not specify any action. If moving irradiated fuel assemblies while in MODE 1, 2, 3, or 4, the fuel movement is independent of reactor operations. Entering LCO 3.0.3 while in MODES 1, 2, 3, or 4 would require the unit to be shutdown unnecessarily.

A.1, A.2, A.3, A.4, B.1, B.2, B.3, and B.4

A required path would be considered inoperable if it were not available to at least one required Safeguards train. Although two trains may be required by LCO 3.8.10, the one train with offsite power available may be capable of supporting sufficient required features to allow continuation of CORE ALTERATIONS and fuel movement.

BASES

ACTIONS

A.1, A.2, A.3, A.4, B.1, B.2, B.3, and B.4 (continued)

With the required DG inoperable, the minimum required diversity of AC power sources is not available. It is, therefore, required to suspend CORE ALTERATIONS, movement of irradiated fuel assemblies, and operations involving positive reactivity additions that could result in loss of required SDM (MODE 5) or boron concentration (MODE 6). Suspending positive reactivity additions that could result in failure to meet the minimum SDM or boron concentration limit is required to assure continued safe operation. Introduction of coolant inventory must be from sources that have a boron concentration greater than that required in the RCS for minimum SDM or refueling boron concentration. This may result in an overall reduction in RCS boron concentration, but provides acceptable margin to maintaining subcritical operation. Introduction of temperature changes including temperature increases when operating with a positive MTC must also be evaluated to ensure they do not result in a loss of required SDM.

Suspension of these activities does not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability of the occurrence of postulated events. It is further required to immediately initiate action to restore the required AC sources and to continue this action until restoration is accomplished in order to provide the necessary AC power to the unit safety systems.

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.

BASES

ACTIONS

A.1, A.2, A.3, A.4, B.1, B.2, B.3, and B.4 (continued)

Pursuant to LCO 3.0.6, the Distribution System's ACTIONS would not be entered even if all AC sources to it are inoperable, resulting in de-energization. Therefore, the Required Actions of Condition A are modified by a Note to indicate that when Condition A is entered with no AC power to any required Safeguards bus, the ACTIONS for LCO 3.8.10 must be immediately entered. This Note allows Condition A to provide requirements for the loss of the path, whether or not a train is de-energized. LCO 3.8.10 would provide the appropriate restrictions for the situation involving a de-energized train.

SURVEILLANCE REQUIREMENTS

SR 3.8.2.1

SR 3.8.2.1 requires the SRs from LCO 3.8.1 that are necessary for ensuring the OPERABILITY of the AC sources in other than MODES 1, 2, 3, and 4.

This SR is modified by a Note. The reason for the Note is to preclude requiring the OPERABLE DG(s) from being paralleled with the offsite power grid or otherwise rendered inoperable during performance of SRs, and to preclude deenergizing a required 4 kV Safeguards bus or disconnecting a required path during performance of SRs. With limited AC sources available, a single event could compromise both the required path and the DG. It is the intent that these SRs must still be capable of being met, but actual performance is not required during periods when the DG and required path is required to be OPERABLE. Refer to the corresponding Bases for LCO 3.8.1 for a discussion of each SR.

REFERENCES

None.

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.3 Diesel Fuel Oil

BASES

BACKGROUND

Each unit is provided with a fuel oil capacity sufficient to operate the diesel generator (DGs) for a period of 14 days while the DG is supplying maximum post loss of coolant accident load demand as discussed in the USAR (Ref. 1). This onsite fuel oil capacity is sufficient to operate the DGs for longer than the time to replenish the onsite supply from outside sources.

New DG fuel oil is placed in a receiving tank where it is tested in accordance with the PI Diesel Fuel Oil Testing Program. Once the test results have verified that the fuel oil is within limits, the fuel oil may be transferred to the safeguards fuel oil storage tanks. Fuel oil is then transferred from the safeguards fuel oil storage tank to the day tank by the fuel oil transfer pumps associated with each storage tank. Redundancy of pumps and piping precludes the failure of one pump, or the rupture of any pipe, valve or tank to result in the loss of more than one DG.

APPLICABLE SAFETY ANALYSES

The initial conditions of Design Basis Accident (DBA) and transient analyses in the USAR (Ref. 2) assume Engineered Safety Feature (ESF) systems are OPERABLE. The DGs are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ESF systems so that fuel, Reactor Coolant System and containment design limits are not exceeded. These limits are discussed in more detail in the Bases for Section 3.2, Power Distribution Limits; Section 3.4, Reactor Coolant System (RCS); and Section 3.6, Containment Systems.

Since the diesel fuel oil system supports the operation of the standby AC power sources, it satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

BASES (continued)

LCO

Stored diesel fuel oil is required to have sufficient supply for one DG on each unit to operate for 14 days (Ref. 1). It is also required to meet specific standards for quality. This requirement, in conjunction with an ability to obtain replacement supplies within 14 days, supports the availability of DGs required to shut down the reactor and to maintain it in a safe condition for an anticipated operational occurrence (AOO) or a postulated DBA with loss of offsite power. DG day tank fuel requirements, as well as transfer capability from the safeguards storage tank to the day tank, are addressed in LCO 3.8.1, "AC Sources-Operating," and LCO 3.8.2, "AC Sources-Shutdown."

APPLICABILITY

The AC sources (LCO 3.8.1 and LCO 3.8.2) are required to ensure the availability of the required power to shut down the reactor and maintain it in a safe shutdown condition after an AOO or a postulated DBA. Since stored diesel fuel oil supports LCO 3.8.1 and LCO 3.8.2, it is required to be within limits when the DG(s) is required to be OPERABLE.

ACTIONS

A.1

In this Condition, the 14 day fuel oil supply for the DGs is not available. However, the Condition is restricted to fuel oil supply reductions that maintain at least a 12 day supply. These circumstances may be caused by events, such as full load operation required after an inadvertent start while at minimum required supply, or feed and bleed operations, which may be necessitated by increasing particulate levels or any number of other oil quality degradations. This restriction allows sufficient time for obtaining the requisite replacement volume and performing the analyses required prior to addition of fuel oil to the tank(s). A period of 48 hours is considered sufficient to complete restoration of the required supply prior to declaring the DGs inoperable. This period

BASES

ACTIONS (continued)

D.1

With the stored fuel oil supply not within the limits specified or Required Actions and associated Completion Times of Conditions A or C not met, the DGs may be incapable of performing their intended function and must be immediately declared inoperable.

SURVEILLANCE REQUIREMENTS

SR 3.8.3.1

This SR provides verification that there is an adequate inventory of fuel oil in the storage tanks to support the operation of one DG for 14 days. The 14 day period is sufficient time to place the unit in a safe shutdown condition and to bring in replenishment fuel from an offsite location.

The 31 day Frequency is adequate to ensure that a sufficient supply of fuel oil is available, since low level alarms are provided and unit operators would be aware of any large uses of fuel oil during this period.

SR 3.8.3.2

The tests for the new fuel oil prior to addition into the safeguards storage tank(s) are a means of determining whether new fuel oil is of the appropriate grade and has not been contaminated with substances that would have an immediate, detrimental impact on diesel engine combustion. If results from these tests are within acceptable limits, the fuel oil may be added to the safeguards storage tanks without concern for contaminating the entire volume of fuel oil in the safeguards storage tanks. These tests are to be conducted prior to adding the new fuel to the safeguards storage tank(s), but in no case is the time between receipt of new fuel and conducting the tests to

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.3.2 (continued)

exceed 31 days. The tests and limits for new and stored fuel are described in the Diesel Fuel Oil Testing Program of Specification 5.5.11.

Failure to meet any of the limits specified in the Diesel Fuel Oil Testing Program is cause for rejection the new fuel oil, but does not represent a failure to meet the LCO concern since the fuel oil is not added to the storage tanks. Failure to meet any of the limits for stored fuel requires entry into Condition B.

REFERENCES

1. USAR, Sections 8.4 and 10.3.
2. USAR, Section 14.

BASES

APPLICABLE SAFETY ANALYSES (continued)

b. A worst case single failure.

Inverters satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

The inverters ensure the availability of AC electrical power for the systems instrumentation required to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence (AOO) or a postulated DBA.

Maintaining the required inverters OPERABLE ensures that the redundancy incorporated into the design of the RPS and ESFAS instrumentation and controls is maintained. The inverters ensure an uninterruptible supply of AC electrical power to the Reactor Protection Instrument AC Panels even if the 4 kV Safeguards buses are de-energized.

OPERABLE inverters require the associated Reactor Protection Instrument AC Panel to be powered by the inverter with power supply to the inverter from a 125 VDC station battery. Normally, the power supply is from an internal AC source via rectifier with the station battery available as the uninterruptible power supply. Four Reactor Protection Instrument AC inverters are required to be OPERABLE in MODES 1,2,3, and 4. In accordance with the LCO, three inverters can be OPERABLE with the fourth powered from Reactor Protections Instrument AC Panel 117 (Unit 2 - 217) or from its own bypass switch.

BASES (continued)

APPLICABILITY

The inverters are required to be OPERABLE in MODES 1, 2, 3, and 4 to ensure that:

a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of AOOs; and

b. Adequate core cooling is provided, and containment OPERABILITY and other vital functions are maintained in the event of a postulated DBA.

Inverter requirements for MODES 5 and 6 are covered in the Bases for LCO 3.8.8, "Inverters-Shutdown."

ACTIONS

A.1, A.2, and A.3

With a required Reactor Protection Instrument AC inverter inoperable, its associated Reactor Protection Instrument AC Panel is considered to be inoperable unless it is automatically re-energized by its static transfer switch.

For this reason a Note has been included in Condition A requiring the entry into the Conditions and Required Actions of LCO 3.8.9, "Distribution Systems-Operating." This ensures that the Reactor Protection Instrument AC Panel is re-energized within 2 hours. Plant design provides acceptable alternate methods of powering an inoperable Reactor Protection Instrument AC panel. Panel 117 (Unit 2 - Panel 217), by plant design, can provide reliable power to the instrument panel associated with an inoperable inverter. In addition to using an alternate Panel 117 (Unit 2 - 217) the Reactor Protection

BASES

ACTIONS

A.1, A.2, and A.3 (continued)

Instrument AC Panels are designed having an internal bypass switch. In the event the main panel switch fails, which causes the inverter to become inoperable, the bypass switch can be used, thus providing power to the inverter and maintaining OPERABILITY. Therefore, based on plant design, Required Actions A.1 and A.2 require verification that only one reactor Protection verification Instrument AC inverter will be powered from Panel 117 (Unit 2 - Panel 217) or its bypass switch. This verification must be completed within 2 hours.

Required Action A.3 allows 8 hours to fix the inoperable inverter and return it to service. The 8 hour limit is based upon engineering judgment, taking into consideration the time required to repair an inverter and the additional risk to which the unit is exposed because of the inverter inoperability. This has to be balanced against the risk of an immediate shutdown, along with the potential challenges to safety systems such a shutdown might entail. When the Reactor Protection Instrument AC Panel is powered from its alternate source, it is relying upon interruptible AC electrical power sources (offsite and onsite). The uninterruptible inverter source to the Reactor Protection Instrument AC Panel is the preferred source for powering instrumentation trip setpoint devices.

B.1 and B.2

If the inoperable devices or components cannot be restored to OPERABLE status within the required Completion Time, 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. 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 plant systems.

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.7.1

This Surveillance verifies that the inverters are functioning properly with all required circuit breakers closed and Reactor Protection Instrument AC Panels energized from the inverter. The verification of proper voltage output ensures that the required power is readily available for the instrumentation of the RPS and ESFAS connected to the Reactor Protection Instrument AC Panels. The 7 day Frequency takes into account the redundant capability of the inverters and other indications available in the control room that alert the operator to inverter malfunctions.

REFERENCES

1. USAR, Section 8.
2. USAR, Section 14.

BASES

APPLICABILITY (continued)

c. Systems necessary to mitigate the effects of events that can lead to core damage during shutdown are available; and

d. Instrumentation and control capability is available for monitoring and maintaining the unit in a cold shutdown condition or refueling condition.

Inverter requirements for MODES 1, 2, 3, and 4 are covered in LCO 3.8.7.

ACTIONS

A.1, A.2, A.3, and A.4

If the required inverter is inoperable, the remaining OPERABLE Reactor Protection Instrument AC Panel power supplies as required by LCO 3.8.10, "Distribution Systems-Shutdown," may be capable of supporting sufficient required features to allow continuation of CORE ALTERATIONS, fuel movement, or operations with a potential for positive reactivity additions. Therefore, the allowance for sufficiently conservative actions is made (i.e., to suspend CORE ALTERATIONS, movement of irradiated fuel assemblies, and operations involving positive reactivity additions that could result in loss of required SDM (MODE 5) or boron concentration (MODE 6)). Suspending positive reactivity additions that could result in failure to meet the minimum SDM or boron concentration limit is required to assure continued safe operation. Introduction of coolant inventory must be from sources that have a boron concentration greater than that required in the RCS for minimum SDM or refueling boron concentration. This may result in an overall reduction in RCS boron concentration, but provides acceptable margin to maintaining subcritical operation. Introduction of temperature changes including temperature increases when operating with a positive MTC must also be evaluated to ensure they do not result in a loss of required SDM.

BASES

ACTIONS

A.1, A.2.1, A.2.2, A.2.3, and A.2.4 (continued)

Suspension of these activities shall not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability of the occurrence of postulated events. It is further required to immediately initiate action to restore the required inverter and to continue this action until restoration is accomplished in order to provide the necessary inverter power to the unit safety systems.

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required inverter should be completed as quickly as possible in order to minimize the time the unit safety systems may be without power.

SURVEILLANCE REQUIREMENTS

SR 3.8.8.1

This Surveillance verifies that the required inverter is functioning properly with all required circuit breakers closed and Reactor Protection Instrument AC Panel energized from the inverter. The verification of proper voltage output ensures that the required power is readily available for the instrumentation connected to the Reactor Protection Instrument AC Panel. The 7 day Frequency takes into account the reliability of the instrument panel power sources and other indications available in the control room that alert the operator to malfunctions.

REFERENCES

None.

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.10 Distribution Systems-Shutdown

BASES

BACKGROUND

A description of the safeguards AC, DC, and Reactor Protection Instrument AC electrical power distribution systems is provided in the Bases for LCO 3.8.9, "Distribution Systems-Operating."

In addition to the safeguards AC, DC, and Reactor Protection Instrument AC electrical power distribution systems listed in Table B 3.8.9-1, the following are examples of alternate power distribution equipment that may also be used during plant shutdown:

a. 4kV bus ties;

b. 480V alternate feeds;

c. Uninterruptable Panel 117 (217 for Unit 2);

d. Uninterruptable Panel 117 to 217 cross tie; and

e. Service Building DC to Safeguards DC cross tie.

This alternate equipment may be used to maintain reliable power to various plant systems and equipment that are required to be OPERABLE to support shutdown conditions. This equipment, when used as an alternate source, comes from the safeguards systems or sources from the other unit (except for Service Building DC to Safeguards DC cross tie which is neither from safeguards systems nor the other unit). Use of these systems or sources has been evaluated and does not have a detrimental impact on the other operating unit.

BASES (continued)

APPLICABLE SAFETY ANALYSES

The OPERABILITY of the minimum safeguards AC, DC, and Reactor Protection Instrument AC electrical power distribution subsystems during MODES 5 and 6, and during movement of irradiated fuel assemblies ensures that:

a. The unit can be maintained in the shutdown or refueling condition for extended periods;

b. Sufficient instrumentation and control capability is available for monitoring and maintaining the unit status; and

c. Adequate power is provided to mitigate events postulated during shutdown, such as a fuel handling accident.

In general, when the unit is shut down, the Technical Specifications requirements ensure that the unit has the capability to mitigate the consequences of postulated accidents. However, assuming a single failure and concurrent loss of all offsite or all onsite power is not required. The rationale for this is based on the fact that many Design Basis Accidents (DBAs) that are analyzed in MODES 1, 2, 3, and 4 have no specific analyses in MODES 5 and 6. Worst case bounding events are deemed not credible in MODES 5 and 6 because the energy contained within the reactor pressure boundary, reactor coolant temperature and pressure, and the corresponding stresses result in the probabilities of occurrence being significantly reduced or eliminated, and in minimal consequences. These deviations from DBA analysis assumptions and design requirements during shutdown conditions are allowed by the LCO for required systems.

BASES

APPLICABLE SAFETY ANALYSES (continued)

During MODES 1, 2, 3, and 4, various deviations from the analysis assumptions and design requirements are allowed within the Required Actions. This allowance is in recognition that certain testing and maintenance activities must be conducted provided an acceptable level of risk is not exceeded. During MODES 5 and 6, performance of a significant number of required testing and maintenance activities is also required. In MODES 5 and 6, the activities are generally planned and administratively controlled. Relaxations from MODES 1, 2, 3, and 4 LCO requirements are acceptable during shutdown modes based on:

a. The fact that time in an outage is limited. This is a risk prudent goal as well as a utility economic consideration.

b. Requiring appropriate compensatory measures for certain conditions. These may include administrative controls, reliance on systems that do not necessarily meet typical design requirements applied to systems credited in operating MODE analyses, or both.

c. Prudent utility consideration of the risk associated with multiple activities that could affect multiple systems.

d. Maintaining, to the extent practical, the ability to perform required functions (even if not meeting MODES 1, 2, 3, and 4 OPERABILITY requirements) with systems assumed to function during an event.

The safeguards AC and DC electrical power distribution systems satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

BASES (continued)

LCO

Various combinations of subsystems, equipment, and components are required OPERABLE by other LCOs, depending on the specific plant condition. Implicit in those requirements is the required OPERABILITY of necessary support required features. This LCO explicitly requires energization of the portions of the electrical distribution system, as presented in Table B 3.8.9-1, necessary to support OPERABILITY of required systems, equipment, and components — all specifically addressed in each LCO and implicitly required via the definition of OPERABILITY. In addition, the alternate equipment described in the Background Section may be used to maintain OPERABILITY of the Electrical Distribution subsystems.

Maintaining these portions of the distribution system energized ensures the availability of sufficient power to operate the unit in a safe manner to mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents).

APPLICABILITY

The AC and DC electrical power distribution subsystems required to be OPERABLE in MODES 5 and 6, and during movement of irradiated fuel assemblies, provide assurance that:

a. Systems to provide adequate coolant inventory makeup are available for the irradiated fuel in the core;

b. Systems needed to mitigate a fuel handling accident are available;

BASES

APPLICABILITY (continued)

c. Systems necessary to mitigate the effects of events that can lead to core damage during shutdown are available; and

d. Instrumentation and control capability is available for monitoring and maintaining the unit in a cold shutdown condition and refueling condition.

The safeguards AC, DC, and Reactor Protection Instrument AC electrical power distribution subsystems requirements for MODES 1, 2, 3, and 4 are covered in LCO 3.8.9.

ACTIONS

LCO 3.0.3 is not applicable while in MODES 5 and 6. However, since irradiated fuel assembly movement can occur in MODE 1, 2, 3, or 4, the ACTIONS have been modified by a Note stating that LCO 3.0.3 is not applicable. If moving irradiated fuel assemblies while in MODE 5 or 6, LCO 3.0.3 would not specify any action. If moving irradiated fuel assemblies while in MODE 1, 2, 3, or 4, the fuel movement is independent of reactor operations. Entering LCO 3.0.3 while in MODE 1, 2, 3, or 4 would require the unit to be shutdown unnecessarily.

A.1, A.2.1, A.2.2, A.2.3, A.2.4, and A.2.5

Although redundant required features may require redundant trains of electrical power distribution subsystems to be OPERABLE, one OPERABLE distribution subsystem train may be capable of supporting sufficient required features to allow continuation of CORE ALTERATIONS and fuel movement. By allowing the option to declare required features associated with an inoperable distribution subsystem inoperable, appropriate restrictions are implemented in accordance with the affected distribution subsystem LCO's Required Actions. In many instances, this option may involve undesired administrative efforts. Therefore, the allowance for sufficiently

BASES

ACTIONS

A.1, A.2.1, A.2.2, A.2.3, A.2.4, and A.2.5 (continued)

conservative actions is made (i.e., to suspend CORE ALTERATIONS, movement of irradiated fuel assemblies, and operations involving positive reactivity additions that could result in loss of required SDM (MODE 5) or boron concentration (MODE 6)). Suspending positive reactivity additions that could result in failure to meet the minimum boron concentration limit is required to assure continued safe operation. Introduction of coolant inventory must be from sources that have a boron concentration greater than that required in the RCS for minimum SDM or refueling boron concentration. This may result in an overall reduction in RCS boron concentration, but provides acceptable margin to maintaining subcritical operation. Introduction of temperature changes including temperature increases when operating with a positive MTC must also be evaluated to not result in reducing core reactivity below the required SDM or refueling boron concentration limit.

Suspension of these activities does not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability of the occurrence of postulated events. It is further required to immediately initiate action to restore the required safeguards AC and DC electrical power distribution subsystems and to continue this action until restoration is accomplished in order to provide the necessary power to the unit safety systems.

Notwithstanding performance of the above conservative Required Actions, a required residual heat removal (RHR) subsystem may be inoperable. In this case, Required Actions A.2.1 through A.2.4 do not adequately address the concerns relating to coolant circulation and heat removal. Pursuant to LCO 3.0.6, the RHR ACTIONS

BASES

ACTIONS

A.1, A.2.1, A.2.2, A.2.3, A.2.4, and A.2.5 (continued)

would not be entered. Therefore, Required Action A.2.5 is provided to direct declaring the associated RHR inoperable, which results in taking the appropriate RHR actions.

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required distribution subsystems should be completed as quickly as possible in order to minimize the time the unit safety systems may be without power.

SURVEILLANCE REQUIREMENTS

SR 3.8.10.1

This Surveillance verifies that the safeguards AC, DC, and Reactor Protection Instrument AC electrical power distribution subsystems are functioning properly, with the required buses and panels energized. The verification of proper voltage availability on the buses ensures that the required power is readily available for motive as well as control functions for critical system loads connected to these buses. The 7 day Frequency takes into account the capability of the electrical power distribution subsystems, and other indications available in the control room that alert the operator to subsystem malfunctions.

REFERENCES

None.

A3.8-01

LCO3.8.1

LCO3.8.3 COND A

(b) Unit 2~~: D5 and D6~~ diesel generators are OPERABLE and capable of supplying the onsite 4KV Safeguards Distribution System and a stored fuel oil supply of 75,000 gallons ~~is available for D5 and D6 diesel generators in the Unit 2 interconnected diesel fuel oil storage tanks.~~ If not within limits, restore within 48 hours.

LR3.8-02

L3.8-12

LCO3.8.4

6. Both batteries with their associated chargers and both dc safeguard systems shall be OPERABLE.

LR3.8-02

LCO3.8.7

7. No more than one of the Instrument AC Panels 111, 112, 113 and 114 (Unit 2 panels: 211, 212, 213 and 214) shall be powered from Panel-117 (Unit 2 panel: 217) or its associated instrument inverter bypass source Three Reactor Protection Instrument AC Bus inverters shall be OPERABLE.

R-3

Add LCOs 3.8.2, 3.8.5, 3.8.6, 3.8.8, and 3.8.10

M3.8-04

LCO3.8.2

LCO 3.8.2 AC SOURCES - SHUTDOWN This LCO identifies the AC electrical power sources that are required to be OPERABLE during plant SHUTDOWN.

LCO3.8.5

LCO 3.8.5 One DC electrical power subsystem shall be OPERABLE in MODES 5 and 6, During movement of irradiated fuel assemblies.

A3.8-23

Add LCO NOTE

LCO3.8.6

LCO 3.8.6 Battery parameters for Train A and B batteries shall be within limits when the batteries are required to be OPERABLE.

LCO3.8.8

LCO 3.8.8 Inverters - SHUTDOWN This LCO requires one inverter shall be OPERABLE.

LCO3.8.10

LCO 3.8.10 DISTRIBUTION SYSTEMS - SHUTDOWN This LCO requires necessary portions of the safeguards AC, DC, and reactor protection instrument AC electrical power distribution subsystems to be OPERABLE to support equipment required to be OPERABLE.

A3.8-01

3.7.B. ~~During STARTUP OPERATION or POWER OPERATION, any of the following conditions of inoperability may exist for the times specified, provided STARTUP OPERATION is discontinued until OPERABILITY is restored.~~ If OPERABILITY is not restored within the time specified, place the affected unit(s) in at least ~~HOT SHUTDOWN~~ MODE 3 within the next 6 hours and be in ~~COLD SHUTDOWN~~ MODE 5 within the following 30 hours.

A3.8-17

LCO3.8.9 COND D

LCO3.8.1 COND F

LCO3.8.4 COND C

LCO3.8.7 COND B

1. One diesel generator ~~may be~~ inoperable for 7 days ~~provided (a) the OPERABILITY of the other diesel generator is demonstrated* by~~ perform~~ance of~~ surveillance requirement 3.8.1.2 ~~4.6.A.1.c~~ within 24 hours or determine OPERABLE DG is not inoperable due to common cause failure within 24 hours. Declare required feature(s) supported by the 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) all engineered safety features equipment associated with the operable diesel generator is OPERABLE, (c)~~ the two required paths from the grid to the plant 4 kV safeguards distribution system are OPERABLE~~ and (d)~~ the OPERABILITY of the ~~two~~ ~~required~~ paths ~~from the grid~~ shall be verified OPERABLE within 1 hour and ~~at least~~ once per 8 hours thereafter.

LCO3.8.1 COND B

M3.8-06

L3.8-59

R-3

L3.8-07

A3.8-10

SR 3.8.1.2

2. One ~~of the two~~ ~~required~~ path~~s~~ ~~from the grid to the unit 4 kV safeguards distribution system may be~~ inoperable for 7 days ~~provided (a) D1 and D2 (Unit 2: D5 and D6) diesel generators are already operating or are demonstrated to be OPERABLE by sequentially performing surveillance requirement 4.6.A.1.c on each diesel generator within 24 hours and (b)~~ the OPERABLE path ~~from the grid~~ shall be verified OPERABLE within 1 hour and ~~at least~~ once per 8 hours thereafter.

LCO3.8.1 COND A

L3.8-09

3. One ~~of the two~~ ~~required~~ path~~s~~ ~~from the grid to the unit 4 kV safeguards distribution system~~ and one diesel generator ~~may be~~ inoperable for 12 hours ~~provided, (a) the OPERABILITY of the other diesel generator is demonstrated* by performance of Surveillance Requirement 4.6.A.1.c within 8 hours **, (b) all engineered safety features equipment associated with the OPERABLE diesel generator is OPERABLE, and (c) the OPERABLE path from the grid shall be verified OPERABLE within 1 hour and at least once per 8 hours thereafter.~~

LCO3.8.1 COND D

L3.8-09

A3.8-10

LCO3.8.1 COND C

4. ~~Both of the~~ two ~~required~~ paths ~~from the grid to the unit 4 kV safeguards distribution system may be~~ inoperable for ~~12~~ 24 hours ~~provided the D1 and D2 (Unit 2: D5 and D6) diesel generators are already operating or are demonstrated to be OPERABLE by sequentially performing Surveillance requirement 4.6.A.1.c on each diesel generator within 8 hours.~~ Declare required feature(s) inoperable when its redundant required feature(s) is inoperable, 12 hours from discovery of Condition C concurrent with inoperability of redundant required features.

L3.8-11

L3.8-09

L3.8-07

* ~~The OPERABILITY of the other diesel generator need not be demonstrated if the diesel generator inoperability was due to preplanned preventative maintenance or testing.~~

A3.8-57

L3.8-09

~~** This test is required to be completed regardless of when the inoperable diesel generator is restored to OPERABILITY.~~

R-3

LCO3.8.1

Add LCO 3.8.1, Condition G

A3.8-13

Two DGs inoperable and one or more paths inoperable OR one DG inoperable and two paths inoperable, enter LCC 3.0.3 immediately.

Add LCO 3.8.1,Condition D, NOTE

A3.8-15

Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating." if Condition D is entered with no AC power source to any train.

A3.8.-01

4.6 PERIODIC TESTING OF EMERGENCY POWER SYSTEM

~~Applicability~~

~~Applies to periodic testing and surveillance requirements of the emergency power system.~~

~~Objective~~

~~To verify that the emergency power sources and equipment are OPERABLE.~~

~~Specification~~

~~The following tests and surveillance shall be performed:~~

A. Diesel Generators

1. At least once each month, for each diesel generator:

SR3.8.1.4 a. Verify the fuel level in the day tank. A3.8-25

SR3.8.3.1 b. Verify the ~~fuel level in the~~ total available fuel oil quantity ~~storage tank~~ greater than or equal to 42,0000 gallons for Unit 1 (greater than or equal to 75,000 gallons for Unit 2).

SR3.8.3.2 c. Deleted Verify fuel oil properties of new and stored fuel oil are tested in accordance with and maintained within the limits of the Diesel Fuel Oil Testing Program. A3.8-39

SR3.8.1.5 d. Verify the fuel oil transfer ~~pump can be started and~~ system operates to transfers fuel oil from the storage tank(s) ~~system~~ to the day tank. A3.8-40

SR3.8.1.3N1 e. Verify the diesel generator ~~can~~ start and gradually accelerate A3.8-58
Verify the generator starts from standby conditions and achieves
SR3.8.1.2 steady state voltage and frequency ~~can be adjusted to~~ 4160 ± 420 R-3
volts and 60 ± 1.2 Hz. ~~Subsequently~~, ~~manually~~ synchronize the
SR3.8.1.3 generator, gradually load to at least 1650 kW (Unit 2: 5100 kW to
SR3.8.1.2N2 5300 kW), and operate for at least 60 minutes. This test should A3.8-51
be conducted in consideration of the manufacturer's
recommendations regarding engine prelube, warm-up, gradual loading
~~and shutdown procedures where possible.~~ A3.8-38

4.6.A.2. At least once each 6 months, for each diesel generator:

SR3.8.1.6

a. Verify the diesel generator starts from standby conditions and achieves generator steady state voltage and frequency of 4160 ± 420 volts and 60 ± 1.2 Hz and within 10 seconds minimum voltage ≥ 3741 V and frequency of ≥ 58.8 Hz ~~after the start signal~~. A3.8-60 R-3

~~b. Manually synchronize the generator, load to at least 1650 kW (Unit 2: 5100 kW to 5300 kW) in less than or equal to 60 seconds and operate for at least one hour.~~ L3.8-61 R-3

SR3.8.1.6N

c. This test should be conducted from standby conditions in consideration of the manufacturer's recommendations regarding engine prelube ~~and shutdown procedures where possible.~~ A3.8-38

3. At least once each ~~18~~24 months: L3.8-35

a. ~~Subject each diesel generator to a thorough inspection in accordance with procedures prepared in consideration of the manufacturer's recommendations for this class of standby service.~~ LR3.8-34

SR3.8.1.10

b. ~~For each unit,~~ simulate or actual ~~a~~ loss of offsite power in conjunction with a safety injection signal, and: L3.8-36

1. Verify de-energization of the emergency buses and load shedding from the emergency buses.

SR3.8.1.10N

2. Verify the diesels start on the auto-start ~~signal~~ and energize the emergency ~~buses~~loads in one minute. This test should be conducted in consideration of the manufacturer's recommendations regarding engine prelube ~~and shutdown procedures where possible~~. M3.8-55 A3.8-38

~~3. During this test, operation of the emergency lighting system shall be ascertained.~~ LR3.8-37

A3.8-01

B. Station Batteries

SR3.8.6.2 SR3.8.6.4

~~1.~~ Verify Each battery ~~shall be tested~~ each month. ~~Tests shall include measuring~~ voltage of each cell ≥ 2.07 ~~to the nearest hundredth volt,~~ and measuring the temperature ~~and density~~ of a pilot cell in each battery ≥ minimum established design limits. LR3.8-43 A3.8-53

SR3.8.4.1 Verify battery terminal voltage is greater or equal to the minimum established float voltage every 7 days. M3.8-52

2. ~~The following additional measurements shall be made~~ Verify every ~~three~~ month~~s: the density and height of~~ electrolyte ~~in every cell, the amount~~ level of water ~~added to~~ each cell is greater than or equal to minimum established design limits~~, and the temperature of each fifth cell.~~ LR3.8-43 SR3.8.6.3 M3.8-50

3. ~~All measurements shall be recorded and compared with previous data to detect signs of deterioration or need of equalization charge according to the manufacturer's recommendation.~~ LR3.8-43

4. The batteries shall be subjected to a performance test discharge or a modified performance discharge test to verify capacity is ≥ 80% of manufacturer's rating ~~during the first refueling and once~~ every five years and 12 months when battery shows degradation, or has reached 85% of the expected life with capacity < 100% of manufacturer's rating and 24 months when battery has reached 85% of the expected life with capacity ≥ 100% of manufacturer's rating ~~thereafter Battery voltage shall be monitored as a function of time to establish that the battery performs as expected during heavy discharge and that all electrical connections are tight.~~ SR3.8.6.6 M3.8-24 LR3.8-45 A3.8-62

5. ~~Integrity of Station Battery fuses shall be checked once each day when the battery charger is running.~~ L3.8-46 R-3

SR3.8.4.2 M3.8-47

Add SR 3.8.4.2:
Verify each battery charger supplies ≥ 250 amps at greater than or equal to the minimum established float voltage for ≥ 4 hours, or verify each battery charger can recharge the battery to the fully charged state within 24 hours while supplying the demands of the various continuous steady state loads, after a battery discharge to the bounding design basis event discharge state every 24 months.

NSHD category	Change number 3.8-	Discussion Of Change
L	09	CTS 3.7.B.2, 3, 4, 5, 6, 7 **, and 8**. CTS 3.7.B.2 requires that if a path is inoperable, the associated DG(s) either are already operating or are demonstrated to be OPERABLE by sequentially performing surveillance requirement 4.6.A.1.e on each DG within 24 hours. CTS SR 4.6.A.1.e is the equivalent to PI ITS SR 3.8.1.2. The ITS requires, for the same condition, the performance of SR 3.8.1.1 which verifies that the correct breaker alignment and indicated power is available for the OPERABLE path. There is no requirement to start the DGs, thereby minimizing starting, operating, stopping, and over testing of the DGs. The performance of ITS SR 3.8.1.1 ensures a highly reliable power source remains with one path inoperable. This is considered to be a less restrictive change since the ITS does not require the DGs to be tested and only requires verification of the other path. This change is consistent with NUREG-1431. CTS 3.7.B.3 requires that with one path and one DG inoperable, that the OPERABILITY of the other DG be demonstrated by the performance of CTS SR 4.6.A.1.e within 8 hours. CTS 4.6.A.1.e is the equivalent to PI ITS 3.8.1.2. The ITS only requires, for the same Condition, that either the path or DG be restored to OPERABLE status within 12 hours. While in this plant condition (ITS Condition D) and the inoperable path is restored to OPERABLE status, and the DG is still inoperable, ITS Condition B remains applicable. ITS Condition B provides for the option to either verify the paths are OPERABLE and declare the supported feature(s) of the inoperable DG inoperable and determine that there is not a common failure OR

NSHD category	Change number 3.8-	Discussion Of Change
L	12	CTS 3.7.A.5. CTS 3.7.A.5 currently contains fuel oil quantities for both Unit 1 and Unit 2 DGs. During the ITS conversion, new calculations for Unit 1 DG were performed based on the DG consumption rate while loaded in accordance with the USAR, the CTS TS requirement of 51,000 gallons is actually 42,000 gallons. Initially, the 51,000 gallons was an overly conservative requirement based on the D1 and D2 consumption rate, a 14 day supply requirement and the location of the plant in relation to a refueling supply point. Based on a close fuel oil supply point and a recalculation of fuel oil consumption, which was based on actual loads of the D1 and D2, 42,000 gallons of fuel oil is sufficient to meet accident requirements for the 14 days. Therefore, the ITS will reflect the 42,000 gallon fuel oil limit for Unit 1 DGs. In addition, in the event the fuel oil quantity falls below the values in the CTS, the DGs are declared inoperable. The CTS allows two DGs to be inoperable for 2 hours. If at the end of the two hours, and the DGs are still inoperable due to low fuel oil quantity, the unit must shutdown. The ITS allows 48 hours to restore the fuel oil to within limits. These changes are considered to be a less restrictive change since the CTS Unit 1 fuel oil limit has changed to 42,000 gallons and the ITS allows 48 hours to replenish the fuel oil prior to declaring the DGs inoperable and a possible unit shutdown. This change is consistent with NUREG-1431.

NSHD category	Change number 3.8-	Discussion Of Change
LR	34	CTS 4.6.A.3.a. CTS 4.6.A.3.a requires that every 18 months that each diesel generator be thoroughly inspected in accordance with procedures prepared in consideration of the manufacturer's recommendations for this class of standby service. The ITS does not incorporate this requirement nor does it meet the NRC Criteria to be included in the Technical Specifications. Therefore, this requirement is being relocated to the TRM or other Licensee Controlled Document. This change is consistent with NUREG-1431, Rev. 1. Reference DOC 3.8.A-51 for manual loading the generator.
L	35	CTS 4.6.A.3. The surveillance interval for various testing of the diesel generators is being increased from 18 months to 24 months to accommodate extended refueling cycles. In accordance with CTS 3.0.2, the 18 month Frequency is fixed at a maximum and not to be extended beyond 24 months. This change is acceptable since it is within the bounds of the CTS, there is to any time dependent degradation on equipment, no instrumentation drift, nor historical operability issues associated with this increased Frequency. This change is consistent with NUREG-1431, Rev. 1, and the guidance provided by GL 91-04.
L	36	CTS 4.6.A.3.b and e. CTS 4.6.A.3.b and e are revised to add the word "actual" in reference to the test signals used to actuate the DGs. The CTS wording "simulate" does not allow for an actual signal to be applied in meeting the Specification. The revised wording will allow the plant to take credit for an actual signal to initiate the protective function being tested, as well as a simulated signal. Therefore, this change is less restrictive. This clarification is consistent with NUREG-1431.

NSHD category	Change number 3.8-	Discussion Of Change
LR	44	CTS 4.6.A.3.c. CTS 4.6.A.3.c contains various information about the DG full load carrying capability for an interval of not less than 103 to 110 percent of the continuous rating of the emergency DG, and information about the 90% of its continuous rating. This information does not meet the NRC criteria for inclusion into the ITS and is therefore being relocated to the ITS Bases, USAR or other Licensee Controlled Documents. This change is consistent with NUREG-1431.
LR	45	CTS 4.6.B.4. CTS 4.6.B.4 requires, in part, that during the performance of this SR, verify that all electrical connections are tight. This part of the SR does meet the NRC criteria as described in 10CFR50.36(c)(2)(ii) and is being relocated to other Licensee Controlled Documents.
L	46	CTS 4.6.B.5. The CTS requires that the integrity of Station Battery fuses be checked once every day when the battery charger is running. This SR is being deleted. In accordance with PI design, there is a fuse disconnect switch which would alarm in the Control Room if the subject fuse blows. In addition, ISTS, SR 3.8.4.1 requires weekly checks on battery voltage. If the subject fuse is blown, not only would the alarm be received, but the battery would not pass the weekly check as required by the NUREG-1431, Rev. 2.

NSHD category	Change number 3.8-	Discussion Of Change
M	50	CTS 4.6.B.2. CTS 4.6.B.2 requires, in part, to measure the amount (level) of water in each cell every three months. The ITS requires that the water level of each battery cell be verified monthly. The requirements in the CTS and NUREG are essentially the same and would be considered to be an administrative change, however, NUREG-1431, Rev. 2 increases the Frequency from three months to monthly. This increase in Frequency is considered to be a more restrictive change.
A	51	CTS 4.6.A.1.e. CTS 4.6.A.1.e refers to manually synchronizing to the generator. The word "manually" is being deleted since this is the only way the DG can be synchronized. Therefore, specifically specifying how the DG is synchronized does not provide any important detail in the ITS. This is considered to be an Administrative change consistent with NUREG-1431.
M	52	CTS 4.6.B.1. CTS 4.6.B.1 requires that the batteries be tested each month. ITS 3.8.4.1 changes the Frequency from monthly to 7 days. The 7 days has been changed to be consistent with IEEE-450 and NUREG-1431, Rev. 2. Since the ITS substantially shortened the SR Frequency, this is considered to be a more restrictive change. In addition, ITS SR 3.8.4.1 requires verification that the battery terminal voltage is greater than the minimum float voltage. This is a new requirement to PI and is not in the CTS. Therefore; the addition of a new requirement is considered to be a more restrictive change. The increase in Frequency is not considered to be a safety issue since it complies with industry standards. In addition, the increased Frequency ensures that the battery is performing as designed, there is not degradation, and it will perform its intended safety function.

NSHD category	Change number 3.8-	Discussion Of Change
A	53	CTS 4.6.B.1. CTS 4.6.B.1 states, "Each battery "shall be tested" ... ." ITS SR 3.8.4.1 revises this to "Verify that each battery ... ." Replacing the word "tested" with "verify" is an administrative change. This change is consistent with NUREG-1431, Rev. 2.
A	54	Not used.
M	55	CTS 4.6.A.3.b.2 states in part that, "... the diesels start on the auto-start signal and energize the emergency buses ... ". This has been revised by changing "buses" to "loads". CTS only requires energizing the buses which actually verifies that the diesel generators start. This CTS requirement does not require any verification of any loads. Therefore, requiring verification of the loads is a more restrictive change instead of just verifying the diesel generators start.
A	56	CTS 3.7.A provides descriptive wording describing MODES 1, 2, 3, and 4. The ISTS does not use descriptive wording for identifying MODES; therefore the PI ITS have been revised to be consistent with NUREG-1431, Rev. 2.

NSHD category	Change number 3.8-	Discussion Of Change
A	57	CTS 3.7.B Footnote* states the "other diesel generator (DG) need not be tested if the DG inoperability is due to preplanned preventative maintenance or testing. This Footnote is not included in the ITS. ITS LCO 3.8.1, Condition B, is applicable when a DG is inoperable, will require determination that the OPERABLE DG is not inoperable due to common cause failure. Since the first DG is inoperable due to testing or preplanned preventative maintenance, it is readily apparent that the "other DG" is not in maintenance or testing and therefore, not inoperable due to common cause failure. Further testing of the "other DG" will not be required. Since further testing of the "other DG" will not be required in ITS, this is an Administrative change.
A	58	CTS 4.6.A.1.e has been revised to add specific words "standby conditions". This is consistent with the rest of the CTS SR which states that the diesel generator should be started in consideration of the manufacturer's recommendations which is to prelube, warm-up, and gradually load the DG. PI defines standby conditions for the DG that the DG engine coolant and oil temperatures are being maintained consistent with manufacturer's recommendations.

NSHD category	Change number 3.8-	Discussion Of Change
L	59	CTS 3.7.B.1. CTS 3.7.B.1 has been revised to add a provision to determine that the OPERABLE DG is not inoperable due to common cause failure within 24 hours. The 24 hour Completion Time is discussed in DOC M3.8-06. The flexibility provided in the ITS allowing a determination be performed on the OPERABLE DG, to ensure it is not inoperable due to a common cause failure, is a less restrictive change from the CTS. Under the CTS, if one DG is inoperable, one of the actions is to demonstrate, by performance of an SR, that the other DG is OPERABLE. Therefore, the CTS does not allow any relief in determining that the other DG is not inoperable due to common cause failure. The CTS would require the other DG to be started and determined OPERABLE, unless the initial DG inoperability was a result of preplanned maintenance or testing. Allowing a determination to be made for a common cause failure, for the OPERABLE DG, is acceptable since the OPERABLE DG successfully completed its last SR, the SR Frequency has not expired, and there is no common cause failure associated with the OPERABLE DG. Therefore it is safe to state that the OPERABLE DG will perform its intended safety function if called upon. This change is consistent with NUREG-1431, Rev. 1.

NSHD category	Change number 3.8-	Discussion Of Change
A	60	CTS 4.6.A.2.a. CTS 4.6.A.2.a has been revised by reformatting CTS voltage and frequency testing requirements to be more consistent with NUREG-1431, Rev. 1. The CTS SR requires that the DGs start and achieve a specific voltage and frequency within 10 seconds. Per PI operating practices, the DGs are started from standby conditions in accordance with manufacturer's recommendations. Though not specifically stated in the SR, this has been PIs intent and practice. Once the DGs have been started and reached their specified voltage and frequency ranges, within the 10 seconds, the DGs are also verified to maintain their voltage and frequency within a specific range to prove steady state operations. The same CTS requirements are maintained in the ITS therefore, making this an Administrative change.
L	61	CTS 4.6.A.2.b. CTS 4.6.A.2.b requires that the diesel generator (DG) be manually synchronized and loaded to at least 1650 kW (Unit 2: 5100 kW to 5300 kW) in less than or equal to 60 seconds and operate for at least one hour once every 6 months. This requirement is not included in the PI ITS. Since this will require less testing of plant equipment, this is a less restrictive change. This change is acceptable since industry experience has shown that loading diesels within the requirements of this specification may eventually harm the DG and reliability and capability are established through other tests. This change is consistent with NUREG-1431, Rev. 2.
A	62	CTS 4.6.B.4. CTS 4.6.B.4 requires that a discharge test be performed on the batteries during the first refueling and once every five years thereafter. This SR includes monitoring the voltage as a function of time to establish that the battery performs as expected during a heavy discharge. This part of the SR is included in ITS SR 3.8.6.6. Therefore, this change is consistent with NUREG-1431, Rev. 2.

ACTIONS

PA3.8-100

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. One ~~[required]~~ DG inoperable.	B.1	Perform SR 3.8.1.1 for the ~~[required]~~ ~~offsite~~paths ~~circuit(s)~~.	1 hour AND Once per 8 hours thereafter
	AND		
	B.2	Declare required feature(s) supported by the 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.3.1	Determine OPERABLE DG~~(s)~~ is not inoperable due to common cause failure.	~~[~~24~~]~~ hours R-3
	OR		
			(continued)

ACTIONS (continued) PA3.8-100

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.1	Verify correct breaker alignment and indicated power availability for each ~~[required] offsite~~ path~~circuit~~.	7 days
SR 3.8.1.2	----------NOTES---------- 1. Performance of SR 3.8.1.~~7~~6 satisfies this SR. 2. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. 3. A modified DG start involving idling and gradual acceleration to synchronous speed may be used for this SR ~~as recommended by the~~in consideration of manufacturer's recommendations. When modified start procedures are not used, the time, voltage, and frequency tolerances of SR 3.8.1.~~7~~6 must be met. ---------- CL3.8-116 Verify each DG starts from standby conditions and achieves steady state voltage ≥ ~~[~~3740~~]~~ V and ≤ ~~[~~4580~~]~~ V, and frequency ≥ ~~[~~58.8~~]~~ Hz and ≤ ~~[~~61.2~~]~~ Hz.	TA3.8-137 31 days~~As specified in Table 3.8.1-1~~ R-3

(continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ~~One~~ ~~r~~Required ~~offsite~~ path~~circuit~~ inoperable.	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.10, ~~with~~if one required train de-energized as a result of Condition A. ----------	PA3.8-111
	~~A.1 Declare affected required feature(s) with no offsite power available inoperable.~~	~~Immediately~~ PA3.8-215
	~~OR~~	
	A.~~2.~~1 Suspend CORE ALTERATIONS.	Immediately R-3
	AND	(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2~~.2~~ Suspend movement of irradiated fuel assemblies.	Immediately R-3
	AND	
	A.~~2.~~3 ~~Initiate action to~~ ~~s~~Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately R-3 TA3.8-117
	AND	
	A.~~2.~~4 Initiate action to restore required ~~offsite~~ path~~power circuit~~ to OPERABLE status.	Immediately R-3

PA3.8-100

CL3.8-145

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
~~SR 3.8.3.6 For each fuel oil storage tank:~~ ~~a. Drain the fuel oil;~~ ~~b. Remove the sediment; and~~ ~~c. Clean the tank.~~	~~10 years~~ CL3.8-156 R-3

PA3.8-100

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 Inverters – Operating

LCO 3.8.7 ~~The required Train A and Train B~~Four Reactor Protection Instrument AC inverters shall be OPERABLE. R-3

PA3.8-102

~~NOTE~~

~~[One/two] inverter[s] may be disconnected from [its/their] associated DC bus for ≤ 24 hours to perform an equalizing charge on [its/their] associated [common] battery, provided:~~

~~a. The associated AC vital bus(es) [is/are] energized from [its/their] [Class 1E constant voltage source transformers] [inverter using internal AC source]; and~~

~~b. All other AC vital buses are energized from their associated OPERABLE inverters.~~

OR

CL3.8-183

Three Reactor Protection Instrument AC inverters shall be OPERABLE with:

a. The fourth Reactor Protection Instrument AC Panel powered from Panel 117 (Unit 2 - Panel 217);

OR

b. The fourth Reactor Protection Instrument AC Panel powered from its inverter bypass.

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

ACTIONS

PA3.8-100

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One ~~[~~required~~]~~ Reactor Protection Instrument AC inverter inoperable.	~~A.1~~	---------NOTE-------- Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating" with any ~~vital~~Reactor Protection Instrument AC Panel~~bus~~ de-energized. ----------	R-3 R-3
	A.1	Verify only one Reactor Protection Instrument AC Panel is powered from Panel 117 (Unit 2 - Panel 217).	2 hours CL3.8-183
	OR		
	A.2	Verify only one Reactor Protection Instrument AC Panel is powered from its inverter bypass.	2 hours CL3.8-183
	AND		
	A.3	Restore inverter to OPERABLE status.	8~~24 hours~~ R-3

PA3.8-100

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ~~or more [~~required~~]~~ inverter~~s~~ inoperable.	~~A.1 Declare affected required feature(s) inoperable.~~	TA3.8-175 ~~Immediately~~
		PA3.8-215
	~~OR~~	
	A.~~2.~~1 Suspend CORE ALTERATIONS.	Immediately R-3
	AND	
	A.~~2.~~2 Suspend movement of irradiated fuel assemblies.	Immediately R-3
	AND	
	A.~~2.~~3 ~~Initiate action to~~ ~~s~~Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately R-3 TA3.8-117
	AND	(continued)
A. (continued)	A.~~2.~~4 Initiate action to restore required inverter~~s~~ to OPERABLE status.	Immediately R-3

PA3.8-100

BASES

Certain required unit loads are returned to service in a predetermined sequence in order to prevent overloading the transformer supplying offsite power to the onsite Safeguards~~Class 1E~~ AC Distribution System under postulated worst case loading conditions. Within ~~[~~1~~]~~ minute after the ~~initiating~~load restore signal is received, all ~~automatic and permanently connected~~ loads needed to recover the unit or maintain it in a safe condition are returned to service via the load sequencer. The transformers are capable of block loading (operation without load sequencing), when loading and motor starting is selectively restricted. Refer to Specification 3.3.4, "4 kV Safeguards Bus Voltage Instrumentation" for additional actions perscribed for an inoperable load sequencer.

PA3.8-135

R-3

~~BACKGROUND~~

~~(continued)~~

The onsite standby power source for each 4~~.16~~ kV safeguards~~ESF~~ bus is a dedicated DG. For Unit 1, DGs ~~[~~1~~1]~~ and ~~[~~1~~2]~~ are dedicated to ~~ESF~~ buses ~~[~~15~~1]~~ and ~~[~~16~~2]~~, respectively. For Unit 2, DGs 5 and 6 are dedicated to buses 25 and 26, respectively. A DG starts automatically on a safety injection (SI) signal (~~i.e.~~e.g., low pressurizer pressure or high containment pressure signals) or on a~~n~~ ~~[ESF~~4 kV safeguards bus degraded voltage or undervoltage signal~~]~~ (refer to LCO 3.3.4~~5~~, "4 kV Safeguards Bus Voltage Instrumentation~~Loss of Power (LOP) Diesel Generator (DG) Start Instrumentation~~"). After the DG has started, it will automatically tie to its respective bus after offsite power is tripped as a consequence of safeguards~~ESF~~ bus undervoltage or degraded voltage, independent of or coincident with an SI signal. The DGs will also start and operate in the standby mode without tying to the safeguards~~ESF~~ bus on an SI signal alone. Following the trip of offsite power, ~~[~~a sequencer~~/an undervoltage signal]~~ strips nonpermanent loads from the ~~ESF~~ bus. When the DG is tied to the ~~ESF~~ bus, loads are then sequentially connected to its respective ~~ESF~~ bus by the

(continued)

automatic load sequencer. The sequencing logic controls the start permissive for~~and starting signals to~~ motor breakers to prevent overloading the DG by automatic load application.

In the event of a loss of offsite~~preferred~~ power, the ~~ESF~~safeguards electrical loads are automatically connected to the DGs in sufficient time to provide for safe reactor shutdown and to mitigate the consequences of a Design Basis Accident (DBA) such as a loss of coolant accident (LOCA).

Certain required unit loads are returned to service in a predetermined sequence in order to prevent overloading the DG in the process. Within ~~[~~1~~]~~ minute after the ~~initiating~~load restore signal is received, all loads needed to recover the unit or maintain it in a safe condition are returned to service.

Ratings for the Unit 1 DGs meet the intent of Safety Guide 9 and Unit 2 ~~Train A and Train B~~ DGs satisfy the intent~~requirements~~ of Regulatory Guide 1.9, as discussed in the USAR (Ref. 2~~3~~). The continuous service rating of each Unit 1 DG is 2750 kW with a 30 minute rating of 3250 kW. The continuous service rating of each Unit 2 DG is ~~[~~70~~]~~5400 kW with ~~[~~10~~]~~% overload permissible for up to 2 hours in any 24 hour period. The ~~ESF~~safeguards loads that are powered from the 4~~.16~~ kV safeguards~~ESF~~ buses are listed in Reference 2. CL3.8-201

APPLICABLE SAFETY ANALYSES

The initial conditions of DBA and transient analyses in the ~~U~~FSAR~~, Chapter [6] (Ref. 4) and Chapter [15]~~ (Ref. 3~~5~~)~~,~~ assume ESF systems are OPERABLE. The AC electrical power sources are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ESF systems so that the

(continued)

PA3.8-100

BASES

~~APPLICABLE SAFETY ANALYSES (continued)~~

fuel, Reactor Coolant System (RCS), and containment design limits are not exceeded. These limits are discussed in more detail in the Bases for Section 3.2, Power Distribution Limits; Section 3.4, Reactor Coolant System (RCS); and Section 3.6, Containment Systems.

The OPERABILITY of the AC electrical power sources is consistent with the initial assumptions of the Accident analyses and is based upon meeting the design basis of the unit. This results in maintaining at least one train of the onsite or offsite AC sources OPERABLE during Accident conditions in the event of:

a. An assumed loss of all offsite power ~~or all onsite AC power~~; and

CL3.8-163

b. A worst case single failure.

The AC sources satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii)~~NRC Policy Statement~~.

LCO

Two ~~qualified~~ paths~~circuits~~ between the offsite transmission grid~~network~~ and the onsite 4 kV Safeguards~~Class 1E Electrical Power~~Distribution System and separate and independent DGs for each train ensure availability of the required power to shut down the reactor and maintain it in a safe shutdown condition after an anticipated operational occurrence (AOO) or a postulated DBA.

The~~Qualified offsite~~ paths~~circuits are those that~~ are described in the U~~F~~SAR and are part of the licensing basis for the unit. There are four separate external power sources which provide multiple offsite network connections:

PA3.8-103

R-3

(continued)

PA3.8-100

BASES

a. A reserve transformer (1R) from the 161 kV portion of the plant substation;

b. A second reserve transformer (2RS/2RY) from the 345 kV portion of the plant substation;

c. A cooling tower transformer (CT1/CT11) supplied from the 345 kV portion of the plant substation; and

d. A cooling tower transformer (CT12) supplied from a tertiary winding on the substation auto transformer.

~~In addition, one required automatic load sequencer per train must be OPERABLE.~~

Each ~~offsite~~ path~~circuit~~ must be capable of maintaining rated frequency and voltage, and accepting required loads during an accident, while connected to the safeguards~~ESF~~ buses. Plant procedures provide an assessment for the various configurations and requirements (e.g., loading, grid conditions, generator MVAR load, and etc.) for a path to be declared OPERABLE.

CL3.8-110

R-3

~~Offsite circuit #1 consists of Safeguards Transformer B, which is supplied from Switchyard Bus B, and is fed through breaker 52-3 powering the ESF transformer XNB01, which, in turn, powers the #1 ESF bus through its normal feeder breaker. Offsite circuit #2 consists of the Startup Transformer, which is normally fed from the Switchyard~~

PA3.8-103

(continued)

in starting the Completion Time for the Required Action. Four hours from the discovery of these events existing concurrently is ~~A~~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 ~~offsite circuits~~paths are adequate to supply electrical power to the onsite ~~Class 1E~~Safeguards Distribution ~~S~~ystem. 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.3.1 and B.3.2

Required Action B.3.1 provides an allowance to avoid unnecessary testing of the OPERABLE DG~~(s)~~. If it can be determined that the cause of the inoperable DG does not exist on the OPERABLE DG, SR 3.8.1.2 does not have to be performed. If the cause of inoperability exists on the other DG~~(s)~~, the other DG~~(s)~~ would be declared inoperable upon discovery and Condition E of LCO 3.8.1 would be entered. Once the failure is repaired, the common cause failure no longer exists, and Required Action B.3.1 is satisfied. If the cause of the initial inoperable DG cannot

R-3

(continued)

PA3.8-100

BASES

~~(continued)~~ ~~is specified as 90% or 3600 V. It also allows for voltage drops to motors and other equipment down through the 120 V level where minimum operating voltage is also usually specified as 90% of name plate rating. The specified maximum steady state output voltage of [4756] V is equal to the maximum operating voltage specified for 4000 V motors. It ensures that for a lightly loaded distribution system, the voltage at the terminals of 4000 V motors is no more than the maximum rated operating voltages. The specified minimum and maximum frequencies of the DG are 58.8 Hz and 61.2 Hz, respectively. These values are equal to ± 2% of the 60 Hz nominal frequency and are derived from the recommendations given in Regulatory Guide 1.9 (Ref. 3).~~

SR 3.8.1.1

This SR ensures proper circuit continuity for the offsite AC electrical power supply to the onsite distribution network and availability of offsite AC electrical power. The breaker alignment verifies that each breaker is in its correct position to ensure that distribution buses and loads are connected to their offsite~~preferred~~ power source, and that appropriate independence of offsite circuits is maintained. The 7 day Frequency is adequate since breaker position is not likely to change without the operator being aware of it and because its status is displayed in the control room.

PA3.8-204

R-3

SR 3.8.1.2 and SR 3.8.1.~~7~~6

These SRs help to ensure the availability of the standby electrical power supply to mitigate DBAs and transients and to maintain the unit in a safe shutdown condition.

(continued)

PA3.8-100

BASES

described above is used. If a modified start is not used, the 10 second start requirement of SR 3.8.1.~~7~~6 applies.

Since SR 3.8.1.~~7~~6 requires a 10 second start, it is more restrictive than SR 3.8.1.2, and it may be performed in lieu of SR 3.8.1.2. This is the intent of Note 1 of SR 3.8.1.2.

The ~~normal~~ 31 day Frequency for SR 3.8.1.2 ~~(see Table 3.8.1-1, "Diesel Generator Test Schedule," in the accompanying LCO) is consistent with Regulatory Guide 1.9 (Ref. 3).~~ and ~~T~~the 184 day Frequency for SR 3.8.1.~~7~~6 ~~is a reduction in cold testing consistent with Generic Letter 84-15 (Ref. 7). These Frequencies~~ provide adequate assurance of DG OPERABILITY, while minimizing degradation resulting from testing. TA3.8-137 CL3.8-172

SR 3.8.1.3

This Surveillance verifies that the DGs are capable of synchronizing with the offsite electrical system and accepting loads greater than or equal to the ~~equivalent of the maximum expected accident loads~~manufacturer's recommended loads (Ref. 2). The Unit 1 and Unit 2 diesel generators have different loading requirements since their individual loads are different. As an example, the Unit 2 diesel generators supply emergency power to the cooling water pump whereas the Unit 1 diesel generators do not. A minimum run time of CL3.8-116 R-3

~~SURVEILLANCE REQUIREMENTS~~

~~SR 3.8.1.3 (continued)~~

60 minutes is required to stabilize engine temperatures, while minimizing the time that the DG is connected to the offsite source.

~~Although no power factor requirements are established by~~ CL3.8-125

(continued)

PA3.8-100

BASES

~~this SR, the DG is normally operated at a power factor between [0.8 lagging] and [1.0]. The [0.8] value is the design rating of the machine, while the [1.0] is an operational limitation [to ensure circulating currents are minimized]. The load band is provided to avoid routine overloading of the DG. Routine overloading may result in more frequent teardown inspections in accordance with vendor recommendations in order to maintain DG OPERABILITY.~~

TA3.8-137

The 31 day Frequency for this Surveillance ~~(Table 3.8.1-1)~~ is consistent with SR 3.8.1.2~~Regulatory Guide 1.9 (Ref. 3)~~. CL3.8-172

This SR is modified by four Notes. Note 1 indicates that diesel engine runs for this Surveillance may include gradual loading, as recommended by the manufacturer, so that mechanical stress and wear on the diesel engine are minimized. Note 2 states that momentary transients, because of changing ~~bus~~ loads or system characteristics, do not invalidate this test. ~~Similarly, momentary power factor transients above the limit do not invalidate the test.~~ CL3.8-125 Note 3 indicates that this Surveillance should be conducted on only one DG at a time in order to avoid common cause failures that might result from ~~offsite circuit~~path or grid perturbations. Note 4 stipulates a prerequisite requirement for performance of this SR. A successful DG start must precede this test to credit satisfactory performance.

SR 3.8.1.4

This SR provides verification that the level of fuel oil in the day tank ~~[and engine mounted tank]~~ is at or above the level at which fuel oil is automatically added. The level ~~is expressed as an equivalent volume in gallons, and~~ is selected to ensure adequate fuel oil for a minimum of ~~1~~2 hours for Unit 1 (1 hour of DG operation at full load plus 10% for Unit 2). CL3.8-118

(continued)

PA3.8-100

BASES

The 31 day Frequency is adequate to assure that a sufficient supply of fuel oil is available, since low level alarms are

~~SURVEILLANCE REQUIREMENTS~~

~~SR 3.8.1.4 (continued)~~

provided and facility operators would be aware of any large uses of fuel oil during this period.

~~SR 3.8.1.5~~

CL3.8-197

~~Microbiological fouling is a major cause of fuel oil degradation. There are numerous bacteria that can grow in fuel oil and cause fouling, but all must have a water environment in order to survive. Removal of water from the fuel oil day [and engine mounted] tanks once every [31] days eliminates the necessary environment for bacterial survival. This is the most effective means of controlling microbiological fouling. In addition, it eliminates the potential for water entrainment in the fuel oil during DG operation. Water may come from any of several sources, including condensation, ground water, rain water, contaminated fuel oil, and breakdown of the fuel oil by bacteria. Frequent checking for and removal of accumulated water minimizes fouling and provides data regarding the watertight integrity of the fuel oil system. The Surveillance Frequencies are established by Regulatory Guide 1.137 (Ref. 10). This SR is for preventative maintenance. The presence of water does not necessarily represent failure of this SR, provided the accumulated water is removed during the performance of this Surveillance.~~

SR 3.8.1.~~6~~5

This Surveillance demonstrates that each required fuel oil transfer pump operates and transfers fuel oil from its

(continued)

PA3.8-100

BASES

associated storage tank to its associated day tank. This is required to support continuous operation of standby power sources. This Surveillance provides assurance that the fuel oil transfer pump is OPERABLE, the fuel oil piping system is intact, the fuel delivery piping is not obstructed, and the controls and control systems for automatic fuel transfer systems are OPERABLE.

~~The Frequency for this SR is variable, depending on individual system design, with up to a [92] day interval. The [92] day Frequency corresponds to the testing requirements for pumps as contained in the ASME Code,~~

~~SURVEILLANCE REQUIREMENTS~~

~~SR 3.8.1.6 (continued)~~

PA3.8-103

~~Section XI (Ref. 11); however, t~~The design of fuel transfer systems is such that pumps operate automatically ~~or must be started manually~~ in order to maintain an adequate volume of fuel oil in the day ~~[and engine mounted]~~ tanks during or following DG testing. ~~In such a case~~Therefore, a 31 day Frequency is appropriate. ~~Since proper operation of fuel transfer systems is an inherent part of DG OPERABILITY, the Frequency of this SR should be modified to reflect individual designs.~~

SR 3.8.1.~~7~~6

See SR 3.8.1.2.

~~SR 3.8.1.8~~

~~Transfer of each [4.16 kV ESF bus] power supply from the normal offsite circuit to the alternate offsite circuit~~

(continued)

PA3.8-100

BASES

~~demonstrates the OPERABILITY of the alternate circuit distribution network to power the shutdown loads. The [18 month] Frequency of the Surveillance is based on engineering judgment, taking into consideration the unit conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths. Operating experience has shown that these components usually pass the SR when performed at the [18 month] Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

~~This SR is modified by a Note. The reason for the Note is that, during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, unit safety systems. Credit may be taken for unplanned events that satisfy this SR.~~

~~SR 3.8.1.9~~

CL3.8-121

~~Each DG is provided with an engine overspeed trip to prevent damage to the engine. Recovery from the transient caused by the loss of a large load could cause diesel engine~~

~~SURVEILLANCE REQUIREMENTS~~

~~SR 3.8.1.9 (continued)~~

~~overspeed, which, if excessive, might result in a trip of the engine. This Surveillance demonstrates the DG load response characteristics and capability to reject the largest single load without exceeding predetermined voltage and frequency and while maintaining a specified margin to the overspeed trip. [For this unit, the single load for each DG and its horsepower rating is as follows:] This Surveillance may be accomplished by:~~

(continued)

~~a. Tripping the DG output breaker with the DG carrying greater than or equal to its associated single largest post-accident load while paralleled to offsite power, or while solely supplying the bus; or~~

~~b. Tripping its associated single largest post-accident load with the DG solely supplying the bus.~~

~~As required by IEEE-308 (Ref. 12), the load rejection test is acceptable if the increase in diesel speed does not exceed 75% of the difference between synchronous speed and the overspeed trip setpoint, or 15% above synchronous speed, whichever is lower.~~

~~The time, voltage, and frequency tolerances specified in this SR are derived from Regulatory Guide 1.9 (Ref. 3) recommendations for response during load sequence intervals. The 3 seconds specified is equal to 60% of a typical 5 second load sequence interval associated with sequencing of the largest load. The voltage and frequency specified are consistent with the design range of the equipment powered by the DG. SR 3.8.1.9.a corresponds to the maximum frequency excursion, while SR 3.8.1.9.b and SR 3.8.1.9.c are steady state voltage and frequency values to which the system must recover following load rejection. The [18 month] Frequency is consistent with the recommendation of Regulatory Guide 1.108 (Ref. 9).~~

~~This SR is modified by two Notes. The reason for Note 1 is that during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, unit safety systems. Credit may be taken for unplanned events that satisfy this SR. In order to ensure that the DG is tested under load~~

~~SURVEILLANCE~~ ~~SR 3.8.1.9 (continued)~~

(continued)

PA3.8-100

BASES

~~REQUIREMENTS~~

~~conditions that are as close to design basis conditions as possible, Note 2 requires that, if synchronized to offsite power, testing must be performed using a power factor ≤ [0.9]. This power factor is chosen to be representative of the actual design basis inductive loading that the DG would experience.~~

~~Reviewer's Note: The above MODE restrictions may be deleted if it can be demonstrated to the staff, on a plant specific basis, that performing the SR with the reactor in any of the restricted MODES can satisfy the following criteria, as applicable:~~

~~a. Performance of the SR will not render any safety system or component inoperable;~~

~~b. Performance of the SR will not cause perturbations to any of the electrical distribution systems that could result in a challenge to steady state operation or to plant safety systems; and~~

~~c. Performance of the SR, or failure of the SR, will not cause, or result in, an AOO with attendant challenge to plant safety systems.~~

SR 3.8.1.~~10~~7

This Surveillance demonstrates the DG capability to reject a ~~full~~ load equivalent to the largest single load without ~~overspeed~~ tripping ~~or exceeding the predetermined voltage limits~~. The DG ~~full~~ load rejection may occur because of an ~~system fault or~~ inadvertent breaker tripping. This Surveillance ensures proper engine ~~generator load~~ response under the simulated test conditions. This test simulates ~~the loss of the total connected load that the DG experiences~~

CL3.8-125

(continued)

PA3.8-100

BASES

~~following a full~~ load rejection and verifies that the DG does not trip upon loss of the largest single load. ~~These acceptance criteria provide for DG damage protection. While the DG is not expected to experience this transient during an event and continues to be available, this response ensures that the DG is not degraded for future application, including reconnection to the bus if the trip initiator can be corrected or isolated.~~ CL3.8-125

~~SURVEILLANCE REQUIREMENTS~~ ~~SR 3.8.1.10 (continued)~~

~~In order to ensure that the DG is tested under load conditions that are as close to design basis conditions as possible, testing must be performed using a power factor ≤ [0.9]. This power factor is chosen to be representative of the actual design basis inductive loading that the DG would experience.~~ CL3.8-125

X3.8-126

The ~~[18~~24 month~~]~~ Frequency is consistent with the ~~recommendation of Regulatory Guide 1.108 (Ref. 9) and is intended to be consistent with~~ expected fuel cycle lengths. CL3.8-172

~~This SR has been modified by a Note. The reason for the Note is that during operation with the reactor critical, performance of this SR could cause perturbation to the electrical distribution systems that could challenge continued steady state operation and, as a result, unit safety systems. Credit may be taken for unplanned events that satisfy this SR.~~ CL3.8-122 TA3.8-123

~~Reviewer's Note: The above MODE restrictions may be deleted if it can be demonstrated to the staff, on a plant specific basis, that performing the SR with the reactor in any of the restricted MODES can satisfy the following criteria, as applicable:~~

(continued)

PA3.8-100

BASES

~~a. Performance of the SR will not render any safety system or component inoperable;~~

~~b. Performance of the SR will not cause perturbations to any of the electrical distribution systems that could result in a challenge to steady state operation or to plant safety systems; and~~

~~c. Performance of the SR, or failure of the SR, will not cause, or result in, an AOO with attendant challenge to plant safety systems.~~

~~SR 3.8.1.11~~

CL3.8-128

~~As required by Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(1), this Surveillance demonstrates the as designed operation of the standby power sources during loss of the offsite source. This test verifies all actions~~

~~SURVEILLANCE REQUIREMENTS~~

~~SR 3.8.1.11 (continued)~~

~~encountered from the loss of offsite power, including shedding of the nonessential loads and energization of the emergency buses and respective loads from the DG. It further demonstrates the capability of the DG to automatically achieve the required voltage and frequency within the specified time.~~

~~The DG autostart time of [10] seconds is derived from requirements of the accident analysis to respond to a design basis large break LOCA. The Surveillance should be continued for a minimum of 5 minutes in order to demonstrate that all starting transients have decayed and stability is achieved.~~

(continued)

~~The requirement to verify the connection and power supply of permanent and autoconnected loads is intended to satisfactorily show the relationship of these loads to the DG loading logic. In certain circumstances, many of these loads cannot actually be connected or loaded without undue hardship or potential for undesired operation. For instance, Emergency Core Cooling Systems (ECCS) injection valves are not desired to be stroked open, or high pressure injection systems are not capable of being operated at full flow, or residual heat removal (RHR) systems performing a decay heat removal function are not desired to be realigned to the ECCS mode of operation. In lieu of actual demonstration of connection and loading of loads, testing that adequately shows the capability of the DG systems to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified.~~

~~The Frequency of [18 months] is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(1), takes into consideration unit conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths.~~

~~This SR is modified by two Notes. The reason for Note 1 is to minimize wear and tear on the DGs during testing. For the purpose of this testing, the DGs must be started from standby conditions, that is, with the engine coolant and oil continuously circulated and temperature maintained~~

~~SURVEILLANCE REQUIREMENTS~~

~~SR 3.8.1.11 (continued)~~

~~consistent with manufacturer recommendations. The reason for Note 2 is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety~~

(continued)

~~systems. Credit may be taken for unplanned events that satisfy this SR.~~

~~SR 3.8.1.12~~

~~This Surveillance demonstrates that the DG automatically starts and achieves the required voltage and frequency within the specified time ([10] seconds) from the design basis actuation signal (LOCA signal) and operates for ≥ 5 minutes. The 5 minute period provides sufficient time to demonstrate stability. SR 3.8.1.12.d and SR 3.8.1.12.e ensure that permanently connected loads and emergency loads are energized from the offsite electrical power system on an ESF signal without loss of offsite power.~~

~~The requirement to verify the connection of permanent and autoconnected loads is intended to satisfactorily show the relationship of these loads to the DG loading logic. In certain circumstances, many of these loads cannot actually be connected or loaded without undue hardship or potential for undesired operation. For instance, ECCS injection valves are not desired to be stroked open, or high pressure injection systems are not capable of being operated at full flow, or RHR systems performing a decay heat removal function are not desired to be realigned to the ECCS mode of operation. In lieu of actual demonstration of connection and loading of loads, testing that adequately shows the capability of the DG system to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified.~~

~~The Frequency of [18 months] takes into consideration unit conditions required to perform the Surveillance and is intended to be consistent with the expected fuel cycle lengths. Operating experience has shown that these~~

(continued)

PA3.8-100

BASES

~~components usually pass the SR when performed at the [18 month] Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

~~SURVEILLANCE REQUIREMENTS~~ ~~SR 3.8.1.12 (continued)~~

~~This SR is modified by two Notes. The reason for Note 1 is to minimize wear and tear on the DGs during testing. For the purpose of this testing, the DGs must be started from standby conditions, that is, with the engine coolant and oil continuously circulated and temperature maintained consistent with manufacturer recommendations. The reason for Note 2 is that during operation with the reactor critical, performance of this Surveillance could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, unit safety systems. Credit may be taken for unplanned events that satisfy this SR.~~

SR 3.8.1.8~~13~~

This Surveillance demonstrates that DG noncritical protective functions (e.g., high jacket water temperature) are bypassed on an ~~loss of voltage signal concurrent with an ESF actuation test~~actual or simulated safety injection (SI) signal, and critical protective functions (e.g., engine overspeed, generator differential current, and ground fault (Unit 1)~~[low lube oil pressure, high crankcase pressure, and start failure relay]~~) trip the DG to avert substantial damage to the DG unit. The noncritical trips are bypassed during DBAs and provide an alarm on an abnormal engine condition. This alarm provides the operator with sufficient time to react appropriately. The DG availability to mitigate the DBA is more critical than protecting the engine against minor problems that are not immediately detrimental to emergency operation of the DG.

PA3.8-103

X3.8-126

(continued)

PA3.8-100

BASES

The ~~[18~~24 month~~]~~ Frequency is based on engineering judgment, taking into consideration unit conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths. Operating experience has shown that these components usually pass the SR when performed at the ~~[18~~24 month~~]~~ Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

CL3.8-122

~~The SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required DG from service. Credit may be taken for unplanned events that satisfy this SR.~~

TA3.8-123

~~SURVEILLANCE REQUIREMENTS~~

~~SR 3.8.1.13 (continued)~~

~~Reviewer's Note: The above MODE restrictions may be deleted if it can be demonstrated to the staff, on a plant specific basis, that performing the SR with the reactor in any of the restricted MODES can satisfy the following criteria, as applicable:~~

~~a. Performance of the SR will not render any safety system or component inoperable;~~

~~b. Performance of the SR will not cause perturbations to any of the electrical distribution systems that could result in a challenge to steady state operation or to plant safety systems; and~~

~~c. Performance of the SR, or failure of the SR, will not cause, or result in, an AOO with attendant challenge to plant safety systems.~~

(continued)

PA3.8-100

BASES

SR 3.8.1.~~14~~9

CL3.8-172

~~Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(3), requires~~ ~~d~~Demonstrate~~ion~~ once per ~~18~~24 months that the DGs can start and run continuously at full load capability for an interval of not less than 24 hours, ≥ ~~[2]~~ hours of which is at a load equivalent to 103 - 110% of the continuous duty rating and the remainder of the time at a load equivalent to the continuous duty rating of the DG. The DG starts for this Surveillance can be performed either from standby or hot conditions. The provisions for prelubricating and warmup, discussed in SR 3.8.1.2, and for gradual loading, discussed in SR 3.8.1.3, are applicable to this SR.

X3.8-126

R-3

CL3.8-125

~~In order to ensure that the DG is tested under load conditions that are as close to design conditions as possible, testing must be performed using a power factor of ≤ [0.9]. This power factor is chosen to be representative of the actual design basis inductive loading that the DG would experience.~~ The load band is provided to avoid routine overloading of the DG. Routine overloading may result in more frequent teardown inspections in accordance with vendor recommendations in order to maintain DG OPERABILITY.

~~SURVEILLANCE REQUIREMENTS~~

~~SR 3.8.1.14 (continued)~~

X3.8-126

The ~~[18~~24 month~~]~~ Frequency ~~is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(3),~~ takes into consideration unit conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths.

CL3.8-172

(continued)

PA3.8-100

BASES

This Surveillance is modified by ~~a two~~ Notes. The Note ~~1~~ states that momentary transients due to changing ~~bus~~ loads do not invalidate this test. ~~Similarly, momentary power factor transients above the power factor limit will not invalidate the test. The reason for Note 2 is that during operation with the reactor critical, performance of this Surveillance could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, unit safety systems. Credit may be taken for unplanned events that satisfy this SR.~~

CL3.8-122 CL3.8-125 TA3.8-123

CL3.8-130

~~SR 3.8.1.15~~

~~This Surveillance demonstrates that the diesel engine can restart from a hot condition, such as subsequent to shutdown from normal Surveillances, and achieve the required voltage and frequency within [10] seconds. The [10] second time is derived from the requirements of the accident analysis to respond to a design basis large break LOCA. The [18 month] Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(5).~~

~~This SR is modified by two Notes. Note 1 ensures that the test is performed with the diesel sufficiently hot. The load band is provided to avoid routine overloading of the DG. Routine overloads may result in more frequent teardown inspections in accordance with vendor recommendations in order to maintain DG OPERABILITY. The requirement that the diesel has operated for at least [2] hours at full load conditions prior to performance of this Surveillance is based on manufacturer recommendations for achieving hot conditions. Momentary transients due to changing bus loads do not invalidate this test. Note 2 allows all DG starts to be preceded by an engine prelube period to minimize wear and tear on the diesel during testing.~~

~~SURVEILLANCE~~ ~~SR 3.8.1.16~~

CL3.8-131

(continued)

PA3.8-100

BASES

In the event of an accident during shutdown, this LCO ensures the capability to support systems necessary to avoid immediate difficulty, assuming either a loss of all offsite power or a loss of all onsite diesel generator (DG) power.

The AC sources satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii)~~the NRC Policy Statement~~.

LCO

One ~~offsite circuit~~ path capable of supplying the onsite ~~Class 1E power~~4 kV Safeguards ~~d~~Distribution subsystem(s) of LCO 3.8.10, "Distribution Systems – Shutdown," ensures that all required loads are powered from offsite power. An OPERABLE DG, associated with the distribution system train required to be OPERABLE by LCO 3.8.10, ensures a diverse power source is available to

LCO (continued)

provide electrical power support, assuming a loss of the ~~offsite circuit~~path. Together, OPERABILITY of the required ~~offsite circuit~~path and DG ensures the availability of sufficient AC sources to operate the unit in a safe manner and to mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents).

The ~~qualified offsite circuit~~path must be capable of maintaining rated frequency and voltage, and accepting required loads during an accident, while connected to the ~~Engineered Safety Feature (ESF)~~Safeguards bus(es). ~~Qualified offsite circuits~~Paths are those that are described in the ~~F~~USAR and are part of the licensing basis for the unit.

PA3.8-103

R-3

~~Offsite circuit #1 consists of Safeguards Transformer B, which is supplied from Switchyard Bus B, and is fed through breaker 52-3 powering the ESF transformer XNB01, which, in~~

(continued)

PA3.8-100

BASES

~~turn, powers the #1 ESF bus through its normal feeder breaker. The second offsite circuit consists of the Startup Transformer, which is normally fed from the Switchyard Bus A, and is fed through breaker PA 0201 powering the ESF transformer, which, in turn, powers the #2 ESF bus through its normal feeder breaker.~~There are four separate external power sources which provide multiple offsite network connections:

a. A reserve transformer (1R) from the 161 kV portion of the plant substation;

b. A second reserve transformer (2RS/2RY) from the 345 kV portion of the plant substation;

c. A cooling tower transformer (CT1/CT11) supplied from the 345 kV portion of the plant substation; and

d. A cooling tower transformer (CT12) supplied from a tertiary winding on the substation auto transformer.

R-3

CL3.8-202

The DG must be capable of starting, accelerating to required~~rated~~ speed and voltage, and connecting to its respective ~~ESF~~Safeguards bus on detection of bus undervoltage. ~~This sequence must be accomplished within [10] seconds.~~The DG will be ready to load within 10 seconds of receiving a start signal. The DG must be capable of accepting required loads within the assumed loading sequence intervals, and continue to operate until offsite power can be restored to the ~~ESF~~Safeguards buses. These capabilities are required to be met from a variety of initial conditions such as DG in standby with the engine hot or~~and~~ DG in standby at ambient conditions.

R-3

(continued)

PA3.8-100

BASES

Proper sequencing of loads~~, including tripping of nonessential loads,~~ is a required function for DG OPERABILITY. CL3.8-110

~~In addition, proper sequencer operation is an integral part of offsite circuit OPERABILITY since its inoperability impacts on the ability to start and maintain energized loads required OPERABLE by LCO 3.8.10.~~

LCO (continued)

~~It is acceptable for trains to be cross-tied during shutdown conditions, allowing a single offsite power circuit to supply all required trains.~~ CL3.8-210

PA3.8-211

A Note has been added allowing the LCO not being applicable for a period of 8 hours during the performance of SR 3.8.1.10. This is acceptable since the DG(s) will be procedurally controlled and considering the small likelihood of a severe transient or event in this time period.

APPLICABILITY

The AC sources required to be OPERABLE in MODES 5 and 6 and during movement of irradiated fuel assemblies provide assurance that:

a. Systems to provide adequate coolant inventory makeup are available for the irradiated fuel assemblies in the core;

b. Systems needed to mitigate a fuel handling accident are available;

c. Systems necessary to mitigate the effects of events that can lead to core damage during shutdown are available; and

(continued)

PA3.8-100

BASES

d. Instrumentation and control capability is available for monitoring and maintaining the unit in a cold shutdown condition or refueling condition.

The AC power requirements for MODES 1, 2, 3, and 4 are covered in LCO 3.8.1.

The Load Sequencer requirements are covered in LCO 3.3.4, "4 kV Safeguards Bus Voltage Instrumentation".

LCO 3.0.3 is not applicable while in MODE 5 or 6. However, since irradiated fuel assembly movement can occur in MODE 1, 2, 3, or 4, the ACTIONS have been modified by a Note stating that LCO 3.0.3 is not applicable. If moving irradiated fuel assemblies while in MODE 5 or 6, LCO 3.0.3 would not specify any action. If moving irradiated fuel assemblies while in MODE 1, 2, 3, or 4, the fuel movement is independent of reactor operations. Entering LCO 3.0.3 while in MODES 1, 2, 3, or 4 would require the unit to be shutdown unnecessarily. TA3.8-140

ACTIONS

A.1, A.2, A.3, A.4, B.1, B.2, B.3, and B.4

~~An offsite circuit~~A required path would be considered inoperable if it were not available to at least one required ~~ESF~~Safeguards train. Although two trains ~~are~~may be required by LCO 3.8.10, the one train with offsite power available may be capable of supporting sufficient required features to allow continuation of CORE ALTERATIONS and fuel movement. ~~By the allowance of the option to declare required features inoperable, with no offsite power available, appropriate restrictions will be implemented in accordance with the affected required features LCO's ACTIONS.~~ R-3 CL3.8-157 PA3.8-215 R-3

(continued)

PA3.8-100

BASES

ACTIONS (continued)

A.~~2.~~1, A.2~~.2~~, A.~~2~~.3, A.~~2~~.4, B.1, B.2, B.3, and B.4

~~With the offsite circuit not available to all required trains, the option would still exist to declare all required features inoperable. Since this option may involve undesired administrative efforts, the allowance for sufficiently conservative actions is made.~~ With the required DG inoperable, the minimum required diversity of AC power sources is not available. It is, therefore, required to suspend CORE ALTERATIONS, movement of irradiated fuel assemblies, and operations involving positive reactivity additions ~~. The Required Action to suspend positive reactivity additions does not preclude actions to maintain or increase reactor vessel inventory provided the required SDM is maintained.~~ that could result in loss of required SDM (MODE 5) or boron concentration (MODE 6). Suspending positive reactivity additions that could result in failure to meet the minimum SDM or boron concentration limit is required to assure continued safe operation. Introduction of coolant inventory must be from sources that have a boron concentration greater than that required in the RCS for minimum SDM or refueling boron concentration. This may result in an overall reduction in RCS boron concentration, but provides acceptable margin to maintaining subcritical operation. Introduction of temperature changes including temperature increases when operating with a positive MTC must also be evaluated to ensure they do not result in a loss of required SDM.

CL3.8-157

R-3

TA3.8-117

Suspension of these activities does not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability ~~or~~of the occurrence of postulated events. It is further required to immediately initiate action to restore the required AC sources and to continue this action until restoration is accomplished in order to provide the necessary AC power to the unit safety systems.

(continued)

PA3.8-100

BASES (continued)

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.

Pursuant to LCO 3.0.6, the Distribution System's ACTIONS would not be entered even if all AC sources to it are inoperable, resulting in de-energization. Therefore, the Required Actions of Condition A are modified by a Note to indicate that when Condition A is entered with no AC power to any required ~~ESF~~Safeguards bus, the ACTIONS for LCO 3.8.10 must be immediately entered. This Note allows Condition A to provide requirements for the loss of the ~~offsite circuit~~path, whether or not a train is de-energized. LCO 3.8.10 would provide the appropriate restrictions for the situation involving a de-energized train.

SURVEILLANCE REQUIREMENTS

SR 3.8.2.1

SR 3.8.2.1 requires the SRs from LCO 3.8.1 that are necessary for ensuring the OPERABILITY of the AC sources in other than MODES 1, 2, 3, and 4. ~~SR 3.8.1.8 is not required to be met since only one offsite circuit is required to be OPERABLE. SR 3.8.1.17 is not required to be met because the required OPERABLE DG(s) is not required to undergo periods of being synchronized to the offsite circuit. SR 3.8.1.20 is excepted because starting independence is not required with the DG(s) that is not required to be operable.~~ PA3.8-142

This SR is modified by a Note. The reason for the Note is to preclude requiring the OPERABLE DG(s) from being paralleled with the offsite power ~~network~~grid or otherwise rendered inoperable during performance of SRs, and to

(continued)

BASES (continued)

preclude deenergizing a required ~~4160~~4 kV ~~ESF~~Safeguards bus or disconnecting a required ~~offsite circuit~~path during performance of SRs. With limited AC sources available, a single event could compromise both the required ~~circuit~~path and the DG. It is the intent that these SRs must still be capable of being met, but actual performance is not required during periods when the DG and ~~offsite circuit~~required path is required to be OPERABLE. Refer to the corresponding Bases for LCO 3.8.1 for a discussion of each SR.

REFERENCES None.

PA3.8-100 CL3.8-145

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.3 Diesel Fuel Oil~~, Lube Oil, and Starting Air~~

BASES

BACKGROUND

Each ~~diesel generator (DG)~~unit is provided with ~~a storage tank having~~ a fuel oil capacity sufficient to operate ~~that~~the diesel generator (DGs) for a period of ~~7~~14 days while the DG is supplying maximum post loss of coolant accident load demand as discussed in the ~~F~~USAR~~, Section [9.5.4.2]~~(Ref. 1). ~~The maximum load demand is calculated using the assumption that a minimum of any two DGs is available.~~ This onsite fuel oil capacity is sufficient to operate the DGs for longer than the time to replenish the onsite supply from outside sources. CL3.8-143 R-3

New DG fuel oil is placed in a receiving tank where it is tested in accordance with the PI Diesel Fuel Oil Testing Program. Once the test results have verified that the fuel oil is within limits, the fuel oil may be transferred to the safeguards fuel oil storage tanks. Fuel oil is then transferred from the safeguards fuel oil storage tank to the day tank by ~~either of two~~ the fuel oil transfer pumps associated with each storage tank. Redundancy of pumps and piping precludes the failure of one pump, or the rupture of any pipe, valve or tank to result in the loss of more than one DG. ~~All outside tanks, pumps, and piping are located underground.~~ CL3.8-146 PA3.8-150

~~For proper operation of the standby DGs, it is necessary to ensure the proper quality of the fuel oil. Regulatory Guide 1.137 (Ref. 2) addresses the recommended fuel oil practices as supplemented by ANSI N195 (Ref. 3). The fuel oil properties governed by these SRs are the water and sediment content, the kinematic viscosity, specific gravity (or API gravity), and impurity level.~~ CL3.8-151

(continued)

ACTIONS

~~The ACTIONS Table is modified by a Note indicating that separate Condition entry is allowed for each DG. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable DG subsystem. Complying with the Required Actions for one inoperable DG subsystem may allow for continued operation, and subsequent inoperable DG subsystem(s) are governed by separate Condition entry and application of associated Required Actions.~~ PA3.8-134

A.1

In this Condition, the ~~7~~14 day fuel oil supply for the~~a~~ DG(s) is not available. However, the Condition is restricted to fuel oil supply~~level~~ reductions that maintain at least a ~~6~~12 day supply. These circumstances may be caused by events, such as full load operation required after an inadvertent start while at minimum required supply~~level~~, or feed and bleed operations, which may be necessitated by increasing particulate levels or any number of other oil quality degradations. This restriction allows sufficient time for obtaining the requisite replacement volume and performing the analyses required prior to addition of fuel oil to the tank(s). A period of 48 hours is considered sufficient to complete restoration of the required supply~~level~~ prior to declaring the DGs inoperable. This period is acceptable based on the remaining capacity (> ~~6~~12 days), the fact that procedures will be initiated to obtain replenishment, and the low probability of an event during this brief period. CL3.8-152 R-3

(continued)

tanks. These tests are to be conducted prior to adding the new fuel to the safeguards storage tank(s), but in no case is the time between receipt of new fuel and conducting the tests to exceed 31 days. The tests~~,~~ and limits~~,~~ for new and stored fuel are~~and applicable ASTM Standards~~ described in the Diesel Fuel Oil Testing Program of Specification 5.5.11. ~~are as follows:~~ R-3

~~a. Sample the new fuel oil in accordance with ASTM D4057-[88] (Ref. 6);~~ CL3.8-155

~~b. Verify in accordance with the tests specified in ASTM D975-[77] (Ref. 6) that the sample has an absolute specific gravity at 60/60°F of ≥ 0.83 and ≤ 0.89 or an API gravity at 60°F of ≥ 27° and ≤ 39°, a kinematic viscosity at 40°C of ≥ 1.9 centistokes and ≤ 4.1 centistokes, and a flash point of ≥ 125°F; and~~

~~c. Verify that the new fuel oil has a clear and bright appearance with proper color when tested in accordance with ASTM D4176-[----] (Ref. 6).~~

~~SURVEILLANCE REQUIREMENTS~~

~~SR 3.8.3.3 (continued)~~

Failure to meet any of the ~~above~~ limits specified in the Diesel Fuel Oil Testing Program is cause for rejecting the new fuel oil, but does not represent a failure to meet the LCO concern since the fuel oil is not added to the storage tanks. Failure to meet any of the limits for stored fuel requires entry into Condition B.

~~Within 31 days following the initial new fuel oil sample, the fuel oil is analyzed to establish that the other properties specified in Table 1 of ASTM D975-[77] (Ref. 7) are met for new fuel oil when tested in accordance with~~ CL3.8-155

(continued)

PA3.8-100 CL3.8-145

BASES

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SR 3.8.3.6~~

~~Draining of the fuel oil stored in the supply tanks, removal of accumulated sediment, and tank cleaning are required at 10 year intervals by Regulatory Guide 1.137 (Ref. 2), paragraph 2.f. This SR also requires the performance of the ASME Code, Section XI (Ref. 8), examinations of the tanks. To preclude the introduction of surfactants in the fuel oil system, the cleaning should be accomplished using sodium hypochlorite solutions, or their equivalent, rather than soap or detergents. This SR is for preventive maintenance. The presence of sediment does not necessarily represent a failure of this SR, provided that accumulated sediment is removed during performance of the Surveillance.~~

CL3.8-156

R-3

REFERENCES

1. FUSAR, Sections ~~[9.5~~8.4 and 10.3~~.4.2]~~.

~~2. Regulatory Guide 1.137.~~

~~3. ANSI N195-1976, Appendix B.~~

~~2~~4. FUSAR, Section ~~[146]~~.

~~5. FSAR, Chapter [15].~~

~~6. ASTM Standards: D4057-[ ]; D975-[77]; D4176-[ ]; D1552-[ ]; D2622-[ ]; D2276, Method A.~~

CL3.8-154

~~7. ASTM Standards, D975, Table 1.~~

~~8. ASME, Boiler and Presser Vessel Code, Section XI.~~

TA3.8-156

PA3.8-100

BASES (continued)

maintaining required Reactor Protection Instrument AC Panels~~vital buses~~ OPERABLE during accident conditions in the event of:

a. An assumed loss of all offsite AC electrical power ~~or all onsite AC electrical power~~; and CL3.8-163

b. A worst case single failure.

Inverters ~~are a part of the distribution system and, as such,~~ satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii)~~the NRC Policy Statement~~. PA3.8-217

LCO

The inverters ensure the availability of AC electrical power for the systems instrumentation required to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence (AOO) or a postulated DBA.

Maintaining the required inverters OPERABLE ensures that the redundancy incorporated into the design of the RPS and ESFAS instrumentation and controls is maintained. The~~four~~ inverters ~~[(two per train)]~~ ensure an uninterruptible supply of AC electrical power to the Reactor Protection Instrument AC Panels~~vital buses~~ even if the 4~~.16~~ kV ~~safety~~Safeguards buses are de-energized.

(continued)

PA3.8-100

BASES (continued)

OPERABLE~~perable~~ inverters require the associated ~~vital~~Reactor Protection Instrument AC Panel~~bus~~ to be powered by the inverter with ~~output voltage and frequency within tolerances, and~~ power supply~~input~~ to the inverter from a ~~[~~125 VDC~~]~~ station battery. ~~Alternatively~~Normally, the power supply ~~may be~~is from an internal AC source via rectifier ~~as long as~~with the station battery~~is~~ available as the uninterruptible power supply. Four Reactor Protection Instrument AC inverters are required to be OPERABLE in MODES 1, 2, 3, and 4. In accordance with the LCO, three inverters can be OPERABLE with the fourth powered from Reactor Protections Insturment AC Panel 117 (Unit 2 - 217) or from its own bypass switch.

CL3.8-180

CL3.8-183

R-3

~~This LCO is modified by a Note that allows [one/two] inverters to be disconnected from a [common] battery for ≤ 24 hours, if the vital bus(es) is powered from a [Class 1E constant voltage transformer or inverter using internal AC source] during the period and all other inverters are operable. This allows an equalizing charge to be placed on one battery. If the inverters were not disconnected, the resulting voltage condition might damage the inverter[s]. These provisions minimize the loss of equipment that would occur in the event of a loss of offsite power. The 24 hour time period for the allowance minimizes the time during which a loss of offsite power could result in the loss of equipment energized from the affected AC vital bus while taking into consideration the time required to perform an equalizing charge on the battery bank.~~

PA3.8-185

~~The intent of this Note is to limit the number of inverters that may be disconnected. Only those inverters associated with the single battery undergoing an equalizing charge may be disconnected. All other inverters must be aligned to their associated batteries, regardless of the number of inverters or unit design.~~

PA3.8-185

(continued)

PA3.8-100

BASES (continued)

APPLICABILITY

The inverters are required to be OPERABLE in MODES 1, 2, 3, and 4 to ensure that:

a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of AOOs~~ or abnormal transients~~; and CL3.8-205

b. Adequate core cooling is provided, and containment OPERABILITY and other vital functions are maintained in the event of a postulated DBA.

Inverter requirements for MODES 5 and 6 are covered in the Bases for LCO 3.8.8, "Inverters – Shutdown."

ACTIONS

A.1, A.2, and A.3

With a required Reactor Protection Instrument AC inverter inoperable, its associated Reactor Protection Instrument AC Panel~~vital bus becomes inoperable until it is [manually]~~ is considered to be inoperable unless it is automatically re-energized ~~from~~by its static transfer switch. ~~[Class 1E constant voltage source transformer or inverter using internal AC source]~~. R-3 R-3

For this reason a Note has been included in Condition A requiring the entry into the Conditions and Required Actions of LCO 3.8.9, "Distribution Systems – Operating." This ensures that the ~~vital~~Reactor Protection Instrument AC Panel ~~bus~~ is re-energized within 2 hours. Plant design provides acceptable alternate methods of powering an inoperable Reactor Protection Instrument AC panel. Panel 117 (Unit 2 - Panel 217), by plant design, can provide reliable power to the instrument panel associated with an inoperable inverter. In addition to using an alternate Panel 117 (Unit 2 - 217) the Reactor Protection Instrument CL3.8-183 R-3

(continued)

PA3.8-100

BASES

AC Panels are designed having an internal bypass switch. In the event the main panel switch fails, which causes the inverter to become inoperable, the bypass switch can be used, thus providing power to the inverter and maintaining OPERABILITY. Therefore, based on plant design, Requried Actions A.1 and A.2 require verification that only one reactor Protection Instrument AC inverter will be powered from Panel 117 (Unit 2 - Panel 217) or its bypas switch. This verification must be completed within 2 hours.

R-3

CL3.8-183

Required Action A.~~1~~3 allows ~~24~~8 hours to fix the inoperable inverter and return it to service. The ~~24~~8 hour limit is based upon engineering judgment, taking into consideration the time required to repair an inverter and the additional risk to which the unit is exposed because of the inverter inoperability. This has to be balanced against the risk of an immediate shutdown, along with the potential challenges to safety systems such a shutdown might entail. When the Reactor Protection Instrument AC Panel~~vital bus~~ is powered from its alternate ~~constant voltage~~ source, it is relying upon interruptible AC electrical power sources (offsite and onsite). The uninterruptible inverter source to the Reactor Protection Instrument AC Panel ~~vital buses~~ is the preferred source for powering instrumentation trip setpoint devices.

ACTIONS (continued)

B.1 and B.2

If the inoperable devices or components cannot be restored to OPERABLE status within the required Completion Time, 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. 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 plant systems.

PA3.8-100

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.7.1

This Surveillance verifies that the inverters are functioning properly with all required circuit breakers closed and Reactor Protection Instrument AC Panels~~vital buses~~ energized from the inverter. The verification of proper voltage ~~and frequency~~ output ensures that the required power is readily available for the instrumentation of the RPS and ESFAS connected to the Reactor Protection Instrument AC Panels~~vital buses~~. The 7 day Frequency takes into account the redundant capability of the inverters and other indications available in the control room that alert the operator to inverter malfunctions.

PA3.8-102

REFERENCES

1. ~~F~~USAR, ~~Chapter~~Section ~~[~~8~~]~~.
2. ~~F~~USAR, ~~Chapter~~Section ~~[~~6~~]~~14.
3. ~~FSAR, Chapter [15].~~

PA3.8-100

BASES (continued)

c. Systems necessary to mitigate the effects of events that can lead to core damage during shutdown are available; and

d. Instrumentation and control capability is available for monitoring and maintaining the unit in a cold shutdown condition or refueling condition.

Inverter requirements for MODES 1, 2, 3, and 4 are covered in LCO 3.8.7.

ACTIONS

~~A.1,~~ A.~~2.~~1, A.~~2.~~2, A.~~2.~~3, and A.~~2.~~4

R-3

If the required inverter is inoperable, the remaining OPERABLE Reactor Protection Instrument AC Panel power supplies~~two trains are~~ as required by LCO 3.8.10, "Distribution Systems – Shutdown," ~~the remaining OPERABLE Inverters~~ may be capable of supporting sufficient required features to allow continuation of CORE ALTERATIONS, fuel movement, ~~and~~or operations with a potential for positive reactivity additions. ~~By the allowance of the option to declare~~

CL3.8-177

R-3

~~ACTIONS~~

~~A.1, A.2.1, A.2.2, A.2.3, and A.2.4 (continued)~~

~~required features inoperable with the associated inverter(s) inoperable, appropriate restrictions will be implemented in accordance with the affected required features LCOs' Required Actions. In many instances, this option may involve undesired administrative efforts.~~ Therefore, the allowance for sufficiently conservative actions is made (i.e., to suspend CORE ALTERATIONS, movement of irradiated fuel assemblies, and operations involving positive reactivity additions~~). The Required Action to suspend positive reactivity additions~~

PA3.8-215

R-3

TA3.8-117

(continued)

PA3.8-100

BASES

~~does not preclude actions to maintain or increase reactor vessel inventory, provided the required SDM is maintained.~~that could result in loss of required SDM (MODE 5) or boron concentration (MODE 6)). Suspending positive reactivity additions that could result in failure to meet the minimum SDM or boron concentration limit is required to assure continued safe operation. Introduction of coolant inventory must be from sources that have a boron concentration greater than that required in the RCS for minimum SDM or refueling boron concentration. This may result in an overall reduction in RCS boron concentration, but provides acceptable margin to maintaining subcritical operation. Introduction of temperature changes including temperature increases when operating with a positive MTC must also be evaluated to ensure they do not result in a loss of required SDM.

Suspension of these activities shall not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability of the occurrence of postulated events. It is further required to immediately initiate action to restore the required inverter~~s~~ and to continue this action until restoration is accomplished in order to provide the necessary inverter power to the unit safety systems.

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required inverter~~s~~ should be completed as quickly as possible in order to minimize the time the unit safety systems may be without power~~ or powered from a constant voltage source transformer~~. CL3.8-177

(continued)

PA3.8-100

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.10 Distribution Systems – Shutdown

BASES

BACKGROUND

A description of the safeguards AC, DC, and Reactor Protection Instrument AC ~~vital bus~~ electrical power distribution systems is provided in the Bases for LCO 3.8.9, "Distribution Systems – Operating."

PA3.8-191

In addition to the safeguards AC, DC, and Reactor Protection Instrument AC electrical power distribution systems listed in Table B 3.8.9-1, the following are examples of alternate power distribution equipment that may also be used during plant shutdown:

a. 4kV bus ties;

b. 480V alternate feeds;

c. Uninterruptable Panel 117 (217 for Unit 2);

d. Uninterruptable Panel 117 to 217 cross tie; and

e. Service Building DC to Safeguards DC cross tie.

This alternate equipment may be used to maintain reliable power to various plant systems and equipment that are required to be OPERABLE to support shutdown conditions. This equipment, when used as an alternate source, comes from the safeguards systems or sources from the other unit (except for Service Building DC to Safeguards DC cross tie which is neither from safeguards systems nor the other unit). Use of these systems or sources has been evaluated and does not have a detrimental impact on the other operating unit.

R-3

(continued)

PA3.8-100

BASES

APPLICABLE SAFETY ANALYSES

~~The initial conditions of Design Basis Accident and transient analyses in the FSAR, Chapter [6] (Ref. 1) and Chapter [15] (Ref. 2), assume Engineered Safety Feature (ESF) systems are OPERABLE. The AC, DC, and AC vital bus electrical power distribution systems are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ESF systems so that the fuel, Reactor Coolant System, and containment design limits are not exceeded.~~ PA3.8-192

~~The OPERABILITY of the AC, DC, and AC vital bus electrical power distribution system is consistent with the initial assumptions of the accident analyses and the requirements for the supported systems' OPERABILITY.~~

The OPERABILITY of the minimum safeguards AC, DC, and Reactor Protection Instrument AC ~~vital bus~~ electrical power distribution subsystems during MODES 5 and 6, and during movement of irradiated fuel assemblies ensures that:

a. The unit can be maintained in the shutdown or refueling condition for extended periods;

b. Sufficient instrumentation and control capability is available for monitoring and maintaining the unit status; and

c. Adequate power is provided to mitigate events postulated during shutdown, such as a fuel handling accident.

In general, when the unit is shut down, the Technical Specifications requirements ensure that the unit has the capability to mitigate the consequences of postulated accidents. However, assuming a single failure and PA3.8-192

(continued)

concurrent loss of all offsite or all onsite power is not required. The rationale for this is based on the fact that many Design Basis Accidents (DBAs) that are analyzed in MODES 1, 2, 3, and 4 have no specific analyses in MODES 5 and 6. Worst case bounding events are deemed not credible in MODES 5 and 6 because the energy contained within the reactor pressure boundary, reactor coolant temperature and pressure, and the corresponding stresses result in the probabilities of occurrence being significantly reduced or eliminated, and in minimal consequences. These deviations from DBA analysis assumptions and design requirements during shutdown conditions are allowed by the LCO for required systems.

During MODES 1, 2, 3, and 4, various deviations from the analysis assumptions and design requirements are allowed within the Required Actions. This allowance is in recognition that certain testing and maintenance activities must be conducted provided an acceptable level of risk is not exceeded. During MODES 5 and 6, performance of a significant number of required testing and maintenance activities is also required. In MODES 5 and 6, the activities are generally planned and administratively controlled. Relaxations from MODES 1, 2, 3, and 4 LCO requirements are acceptable during shutdown modes based on: PA3.8-192

a. The fact that time in an outage is limited. This is a risk prudent goal as well as a utility economic consideration.

b. Requiring appropriate compensatory measures for certain conditions. These may include administrative controls, reliance on systems that do not necessarily meet typical design requirements applied to systems credited in operating MODE analyses, or both.

(continued)

PA3.8-100

BASES (continued)

c. Prudent utility consideration of the risk associated with multiple activities that could affect multiple systems.

d. Maintaining, to the extent practical, the ability to perform required functions (even if not meeting MODES 1, 2, 3, and 4 OPERABILITY requirements) with systems assumed to function during an event.

The safeguards AC and DC electrical power distribution systems satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii)~~the NRC Policy Statement~~.

LCO

Various combinations of subsystems, equipment, and components are required OPERABLE by other LCOs, depending on the specific plant condition. Implicit in those requirements is the required OPERABILITY of necessary support required features. This LCO explicitly requires energization of the portions of the electrical distribution system, as presented in Table B 3.8.9-1, necessary to support OPERABILITY of required systems, equipment, and components – all specifically addressed in each LCO and implicitly required via the definition of OPERABILITY. In addition, the alternate equipment described in the Background Section may be used to maintain OPERABILITY of the Electrical Distribution subsystems. PA3.8-191

Maintaining these portions of the distribution system energized ensures the availability of sufficient power to operate the unit in a safe manner to mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents).

(continued)

PA3.8-100

BASES (continued)

APPLICABILITY

The AC and DC electrical power distribution subsystems required to be OPERABLE in MODES 5 and 6, and during movement of irradiated fuel assemblies, provide assurance that:

a. Systems to provide adequate coolant inventory makeup are available for the irradiated fuel in the core;

b. Systems needed to mitigate a fuel handling accident are available;

c. Systems necessary to mitigate the effects of events that can lead to core damage during shutdown are available; and

d. Instrumentation and control capability is available for monitoring and maintaining the unit in a cold shutdown condition and refueling condition.

The safeguards AC, DC, and Reactor Protection Instrument AC ~~vital bus~~ electrical power distribution subsystems requirements for MODES 1, 2, 3, and 4 are covered in LCO 3.8.9.

ACTIONS

LCO 3.0.3 is not applicable while in MODES 5 and 6. However, since irradiated fuel assembly movement can occur in MODE 1, 2, 3, or 4, the ACTIONS have been modified by a Note stating that LCO 3.0.3 is not applicable. If moving irradiated fuel assemblies while in MODE 5 or 6, LCO 3.0.3 would not specify any action. If moving irradiated fuel assemblies while in MODE 1, 2, 3, or 4, the fuel movement is independent of reactor operations. Entering LCO 3.0.3 while in MODE 1, 2, 3, or 4 would require the unit to be shutdown unnecessarily.

TA3.8-140

(continued)

BASES (continued)

A.1, A.2.1, A.2.2, A.2.3, A.2.4, and A.2.5

Although redundant required features may require redundant trains of electrical power distribution subsystems to be OPERABLE, one OPERABLE distribution subsystem train may be capable of supporting sufficient required features to allow continuation of CORE ALTERATIONS and fuel movement. By allowing the option to declare required features associated with an inoperable distribution subsystem inoperable, appropriate restrictions are implemented in accordance with the affected distribution subsystem LCO's Required Actions. In many instances, this option may involve undesired administrative efforts. Therefore, the allowance for sufficiently conservative actions is made (i.e., to suspend CORE ALTERATIONS, movement of irradiated fuel assemblies, and operations involving positive reactivity additions that could result in loss of required SDM (MODE 5) or boron concentration (MODE 6)). Suspending positive reactivity additions that could result in failure to meet the minimum boron concentration limit is required to assure continued safe operation. Introduction of coolant inventory must be from sources that have a boron concentration greater than that required in the RCS for minimum SDM or refueling boron concentration. This may result in an overall reduction in RCS boron concentration, but provides acceptable margin to maintaining subcritical operation. Introduction of temperature changes including temperature increases when operating with a positive MTC must also be evaluated to not result in reducing core reactivity below the required SDM or refueling boron concentration limit. TA3.8-117

Suspension of these activities does not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability of the occurrence of postulated events. It is further required to immediately initiate action to restore the required safeguards AC and DC

(continued)

BASES (continued)

electrical power distribution subsystems and to continue this action until restoration is accomplished in order to provide the necessary power to the unit safety systems.

Notwithstanding performance of the above conservative Required Actions, a required residual heat removal (RHR) subsystem may be inoperable. In this case, Required Actions A.2.1 through A.2.4 do not adequately address the concerns relating to coolant circulation and heat removal. Pursuant to LCO 3.0.6, the RHR ACTIONS would not be entered. Therefore, Required Action A.2.5 is provided to direct declaring the associated RHR inoperable, which results in taking the appropriate RHR actions.

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required distribution subsystems should be completed as quickly as possible in order to minimize the time the unit safety systems may be without power.

SURVEILLANCE REQUIREMENTS

SR 3.8.10.1

This Surveillance verifies that the safeguards AC, DC, and Reactor Protection Instrument AC ~~vital bus~~ electrical power distribution subsystems are functioning properly, with ~~all~~ the required buses and panels energized. The verification of proper voltage availability on the buses ensures that the required power is readily available for motive as well as control functions for critical system loads connected to these buses. The 7 day Frequency takes into account the capability of the electrical power distribution subsystems, and other indications available in the control room that alert the operator to subsystem malfunctions.

BASES (continued)

REFERENCES ~~1. FSAR, Chapter [6].~~

~~2. FSAR, Chapter [15].~~

Difference Category	Difference Number 3.8-	Justification for Differences
PA	102	NUREG-1431 contained optional wording, values, or requirements in brackets. This bracketed information has not been included in the PI ITS since it is neither consistent with PI design, CLB, PI operating practices, or is not contained in the CTS. As a result, the optional information was not applicable to PI and therefore not retained in the ITS.
PA	103	NUREG-1431 contained optional wording or values in brackets. The correct information, based on PIs Current Licensing Bases (CLB), was incorporated and brackets removed.
CL	104	NUREG-1431 LCO 3.8.1, Required Actions A.2 and associated Bases have been deleted. Required Action A.2 involved restrictions on loss of offsite power to one division and loss of features on the other division. PI design has two paths feeding each bus; if one path is inoperable, there is still a second independent path feeding the same bus. Therefore, the loss of one path does not render the train or bus inoperable. Two paths on the same train or bus would have to be inoperable to make the train or bus inoperable. These limitations are not imposed in the CTS, and are therefore not included in the conversion to the ITS.

Difference Category	Difference Number 3.8-	Justification for Differences
CL	106	The Completion Time limit of "6 days from the discovery of failure to meet the LCO" was not included in the ITS since PI does not have this requirement in the CTS. The intent of adding this limit to the Completion Time is to prevent a plant from continuously being in the LCO without ever meeting the full LCO requirements. This abuse of the LCO can be adequately addressed in plant procedures. For the past three years, the Offsite qualified paths have been considered out of service in accordance with the ITS less than 1% of the time. Since the ITS only requires two qualified paths to be OPERABLE at any one time, plant design would ensure that this LCO would be maintained. From this data, it is evident that PI has not abused the use of Allowed Outage Times for the Offsite qualified paths. Including this statement in the ITS would only add confusion for the operators. In addition, the associated Bases have been deleted.
	107	Not used.

Difference Category	Difference Number 3.8-	Justification for Differences
CL	108	NUREG-1431 LCO 3.8.1, Required Action B.4 and associated Completion Time, states , "Restore ... 72 hours AND 6 days from discovery of failure to meet LCO." CTS 3.7.B.1 states, "One diesel generator may be inoperable for 7 days ... . " Therefore, based on PI CLB, the ISTS Completion Time has been revised to state, "Restore ... 7 days." The 7 days takes into account the capacity and capability of the remaining diesel generator and AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period. The second Completion Time states, "6 days from discovery of failure to meet LCO", has been deleted. The deletion of this Completion Time is discussed in JFD CL3.8-109. Maintaining CLB was agreed to be acceptable between the industry and NRC during the onset of the ITS conversion project. This change is consistent with that agreement. In addition, the associated Bases have been revised to be consistent with the above changes.
	109	Not used.

Difference Category	Difference Number 3.8-	Justification for Differences
CL	110	NUREG-1431 LCO 3.8.1.c states, "[Automatic load sequencer for Train A and Train B]". This statement was deleted since the load sequencer has been relocated to ITS LCO 3.3.4, and therefore not retained in this Specification. In addition, Bases 3.8.1 and 3.8.2, LCO statement has been changed by deleting bracketed information related to the load sequencers. Bases 3.8.2, LCO has also been revised by deleting the phrase, " ... including tripping of nonessential loads, ..." PI does not have any nonessential loads that are tripped and not restored by sequencer action. Therefore; this phrase is being deleted and not applicable to PI. In addition, a sentence has been added stating that plant procedures are used to assess specific configurations and requirements based on varying conditions (e.g., loading, grid conditions, generator MVAR load, and etc.) before declaring a path OPERABLE. Once this evaluation has been completed and the path considered OPERABLE, the applicable Conditions and Required Actions of Specification 3.8.1 are applicable. This evaluation and associated Specification ensure that PI has an OPERABLE path which is consistent with the PI ITS.

Difference Category	Difference Number 3.8-	Justification for Differences
PA	111	NUREG-1431 LCO 3.8.1, Required Action D, Note states, " ... when Condition D is ... ." This Note was changed by replacing the word "when" with the word "if". Since the paths go to both trains, loss of a path will not de-energize either train, therefore not necessarily requiring entry into Condition D. This change was made for consistency with changes made in other Sections of the ITS (e.g., Section 3.7) and is based on plant design. In addition, the word "any" is being replaced with the word "either." PI only has two trains; therefore, "either" is more representative of the plant design. Similar word changes are made in LCO 3.8.2, Required Action A, Note. In addition, the Bases have been revised to be consistent with the above changes.
PA	112	NUREG-1431 LCO 3.8.1, Condition F and associated Bases have been deleted. This Condition is for when a load sequencer is inoperable. The load sequencer Actions and Surveillance have been relocated to ITS Section 3.3.4.

Difference Category	Difference Number 3.8-	Justification for Differences
PA	113	NUREG-1431 LCO 3.8.1, Condition H (PI Condition G) states, "Three or more ... inoperable." has been revised to state, "Two DGs inoperable and one or more paths inoperable" OR "One DG inoperable and two paths inoperable." This change was made to more accurately reflect the PI design and be more specific as to the combination of inoperabilities between the DG and required offsite circuits. These scenarios reflect where entering LCO 3.0.3 would be appropriate.
CL	114	NUREG-1431, Rev. 2, Bases 3.8.4, Background Section has been revised by deleting the statement, "from the design minimum charge ...", and Bases SR 3.8.4.6 (PI SR 3.8.4.2) has also been revised by deleting the statement, "from the design minimum charge state ... ." The design minimum charge is in reference to the charging capacity of the battery charger. The deletion of this statement is consistent with PI design bases. PI has purchased batteries with a design and capacity in support of the PI accident analysis.

Difference Category	Difference Number 3.8-	Justification for Differences
PA	115	NUREG-1431, Bases SR 3.8.1.2 has been revised by replacing the wording which defines, "from standby conditions" and replacing them with a PI specific definition. At PI the DGs are started from standby conditions in accordance with manufacturer's recommendations requiring prelube, warm-up, loading, and shutdown. Therefore, this SR is revised to align with the current way PI starts the DGs. This is consistent with PI CLB, CTS 4.6.A.1.e, and 4.6.A.2.c.

Difference Category	Difference Number 3.8-	Justification for Differences
CL	116	NUREG-1431 SR 3.8.1.2, Note 3 and 3.8.1.3, Note 1 have been revised by replacing the statement, "as recommended by the manufacturer" with "in consideration of the manufacturer's recommendations." This change is consistent with the PI CTS (4.6.A.1.e). In addition, SR 3.8.1.3 Bases has been revised replacing the phrase, "... equivalent of the maximum expected accident loads" with "manufacturer's recommended loads." The loads stated in the ITS are consistent with CTS requirements which were derived from the manufacturer's recommendations. The maximum accident loading may exceed these values during the earlier time periods, however, it remains within the manufacturer's load capability. Refer to USAR Table 8.4-1 and Table 8.4-2. The Unit 2 loads are higher than the Unit 1 DGs since the Unit 2 DGs provide emergency power to the cooling water pump whereas, the Unit 1 DGs do not. This change is consistent with PI CLB and testing practices, which are based on test limitations provided by one of the manufacturers.
TA	117	Incorporated TSTF-286, Rev. 2.

Difference Category	Difference Number 3.8-	Justification for Differences
CL	118	NUREG-1431 SR 3.8.1.4 requires that each day tank contains a specific amount of fuel oil. PI CTS 4.6.A.1.a only requires the fuel oil level to be verified and does not specify any specific amount or quantity for the day tanks. The CTS does not have any requirements verifying that the day tank contains a specific volume of fuel oil. This would be an additional part of the SR not required by either PI CLB or CTS. Therefore; PI is not adopting this part of SR 3.8.1.4 that identifies a specific day tank volume (in gallons) of fuel oil. This is also acceptable since the PI design uses level switches which sense low and high levels of fuel oil in the day tanks. The level switches are permanently set in order to supply enough fuel oil to the DGs in support of the USAR analysis. In addition, the associated Bases have been revised to be consistent with the above changes.
	119	Not used.
TA	120	Incorporated TSTF-163, Rev. 2.

Difference Category	Difference Number 3.8-	Justification for Differences
CL	121	NUREG-1431 SR 3.8.1.9 and associated Bases are being deleted since the load reject test requirements, per the CTS, are included in ISTS SR 3.8.1.10 (PI SR 3.8.1.7). Therefore, requiring them to be performed again is not necessary nor does it serve any advantage in evaluating system OPERABILITY.
CL	122	NUREG-1431 SRs 3.8.1.10 (PI 3.8.1.7), 3.8.1.13 (PI 3.8.1.8), 3.8.1.14 (PI 3.8.1.9), 3.8.4.6 (PI 3.8.4.2) Notes and associated Bases, have been revised by deleting the statement, "This Surveillance shall not be performed in MODE 1 or 2." PI CTS does not provide a restriction or MODE of Applicability for this SR. PI presently performs some of these SRs during the specified MODES and maintains to keep this flexibility in accordance with CLB.
TA	123	NUREG-1431 SRs 3.8.1.10 (PI 3.8.1.7), 3.8.1.13 (PI 3.8.1.8), 3.8.1.14 (PI 3.8.1.9), 3.8.1.19 (PI 3.8.1.10), SR 3.8.4.6 (PI 3.8.4.2) and SR 3.8.4.7(PI 3.8.4.3). Notes and associated Bases, have been revised by deleting the statement, "However, credit may be taken for unplanned events that satisfy this SR." Deleting this sentence is consistent with approved TSTF-8, Rev. 1.

Difference Category	Difference Number 3.8-	Justification for Differences
	124	Not used.
CL	125	NUREG-1431 SRs 3.8.1.10 (PI 3.8.1.7), 3.8.1.14 (PI 3.8.1.9) and associated Bases require that the DG be operating at its rated power factor when the total load rejection test is performed, and for 2 hours of the 24 hour full load test, respectively. The practice of performing these tests at the rated power factor has been determined to be unjustified, potentially destructive testing due to exceeding the vendors' recommendation for maximum voltage of the generator. The NRC has concurred with discontinuing the DG load rejection testing at rated power factor. Therefore, this requirement has been deleted. Also the Bases have been revised deleting the requirement of the "full load test" to be the "largest load test." PI does not perform a full load test as required by the ISTS. Instead, PI performs a test to ensure it can handle the largest load that will be required. These changes are consistent with PI USAR and CLB.
X	126	NUREG-1431 SRs and associated Bases contain Frequencies of 18 months. The SR Frequencies have been increased to 24 months to be consistent with PI refueling intervals.

Difference Category	Difference Number 3.8-	Justification for Differences
	127	Not used.
CL	128	NUREG-1431 SR 3.8.1.11 and associated Bases have been deleted. CTS requires a simulated loss of power in conjunction with a safety injection (SI) signal while verifying de-energization of the emergency buses, load shedding from the emergency buses, diesel (EDG) auto-start and re-energization of the emergency buses. In the PI design, both the LOOP and a LOOP/LOCA test will verify de-energization of the safeguards buses, auto-start of the EDG (from either the SI signal or the undervoltage signal), re-energization of the safeguards buses from the EDG, load shedding and load restoration of the safeguards buses. There is no difference in the load shedding portion of the sequencer between the SI initiation and the undervoltage initiation. EDG loading on a LOOP/LOCA test is greater than the loading would be on a LOOP test. The LOOP/LOCA SR performed by PI (ITS 3.8.1.10), encompasses the requirements of the LOOP SR (STS 3.8.1.11). In other words, all loads required by STS 3.8.1.11 that start as a result of a LOOP SR will start on a LOOP/LOCA as required by ITS SR 3.8.1.10 In addition, STS SR3.8.1.11.c.2, c.3, c.4, and c.5 have also been deleted in ITS SR 3.8.10.c.2, c.3, c.4, and c.5. These tests are not required by PI CTS or CLB and are not incorporated into the PI ITS (Ref. CL3.8-139). The SR PI performs encompasses the testing being deleted under SR 3.8.1.11.

Difference Category	Difference Number 3.8-	Justification for Differences
CL	129	NUREG-1431 SR 3.8.1.14, (PI SR 3.8.1.9.c) has been revised by adding specific CTS requirements (CTS SR 4.6.A.3.c), ensuring the DG achieves a specific steady state voltage and frequency. In addition, the associated Bases have been revised to be consistent with the above change.
CL	130	NUREG-1431 SR 3.8.1.15 and associated Bases are being deleted. Note 1 requires that the SR shall be performed within 5 minutes of shutting down the DG after the DG has operated under specific conditions. The PI CTS does not contain this requirement to restart the DG. The remainder of this SR (start time, voltage, and frequency) testing the DG, is performed under ISTS SR 3.8.1.7 (PI SR 3.8.1.6) at a Frequency of 184 days. Since ISTS SR 3.8.1.7 verifies the same parameters for DG OPERABILITY as does ISTS SR 3.8.1.15, PI does not see the need to perform a restart of the DG to again verify the same parameters. This would be excessive testing on the DG without providing any additional benefits. PI is deleting this SR based on CLB. Maintaining CLB requirements was agreed to be acceptable between the industry and NRC during the onset of the ITS conversion project. This change is consistent with that agreement.

Difference Category	Difference Number 3.8-	Justification for Differences
PA	131	NUREG-1431 SR 3.8.1.16 and associated Bases have been deleted. PI CLB does not require synchronizing the DG with offsite power sources while loaded with emergency loads, nor transferring loads to offsite power sources. Deleting this SR is consistent with PI current operating and testing practices.
	132	Not used.
CL	133	NUREG-1431 SR 3.8.1.20 and associated Bases have been deleted. This SR was to be performed on a 10 year interval. This SR is the same as ISTS SR 3.8.1.7 (PI SR 3.8.1.6), which is performed on a 184 day Frequency. SR 3.8.1.20 requires that both DGs be verified to simultaneously start upon receipt of an SI signal, achieves a specific voltage and frequency range within 10 seconds every 10 years. PI does not have any CTS or CLB requirements for any simultaneous DG start. PI does have a requirement (PI ITS 3.8.1.6) requiring the same testing parameters every 184 days, however, this SR is performed on one DG at a time. As stated above, SR 3.8.1.20 is deleted and not required by PI CTS.

Difference Category	Difference Number 3.8-	Justification for Differences
PA	134	NUREG-1431 LCO 3.8.3, Actions Note and associated Bases have been revised by deleting "Separate Condition entry is allowed for each DG" statement. This is not needed since the ITS Condition provides adequate guidance and Required Actions when one or both DGs are inoperable.
PA	135	NUREG-1431 Bases 3.8.1, Background Section, has been revised by providing additional detail describing that the transformers are capable of block loading without load sequencing or load rejected. This additional detail more specifically describes the PI plant design and operation. Additional information was provided to more accurately describe the PI design for the DG, which buses they are dedicated to, and each unit's continuous service rating values. The Bases have also been revised to reference ITS Bases 3.3.4 for an inoperable load sequencer.
CL	136	NUREG-1431 Bases 3.8.1, LCO Section has been revised by deleting the following, " Additional DG capabilities must be demonstrated to meet required Surveillance, e.g., capability of the DG to revert to standby status on an ECCS signal while operating in parallel test mode." PI does not have any CLB requirement to ensure that the DGs have or maintain this capability. Therefore this statement can be deleted.

Difference Category	Difference Number 3.8-	Justification for Differences
TA	137	TSTF 37, Rev. 2 was incorporated.
CL	138	NUREG-1431 SR 3.8.1.18 and associated Bases have been deleted. PI CLB does not require this surveillance testing and it is therefore being deleted.
CL	139	NUREG-1431 SR 3.8.1.19 has been revised by deleting ISTS SR requirements c.2, c.3, c.4, and c.5. Requirement c.1 was edited to represent the PI CTS requirement. These additional requirements are not in the PI CTS and therefore not incorporated into the PI ITS.
TA	140	Incorporated TSTF-36, Rev. 4.
	141	Not used.

Difference Category	Difference Number 3.8-	Justification for Differences
PA	142	NUREG-1431 SR 3.8.2.1 and associated Bases have been revised by making the SR numbers in the Notes and the SR to be consistent with the SRs in ITS 3.8.1. Some of the SRs identified in SR 3.8.2.1 have been deleted or renumbered in LCO 3.8.1. Reference specific justifications for LCO 3.8.1.
CL	143	NUREG-1431 Bases 3.8.3, Background Section is being revised by deleting the following, "...for a period of 7 days while the DG is supplying maximum post loss of coolant accident load demands....", and "The maximum load demand is calculated using the assumption that a minimum of any two DGs is available." These statements are not accurate relative to the PI CLB. The maximum load demand, associated calculations, and assumptions are discussed in detail in the PI USAR. This change is considered to be administrative in nature providing consistency with the PI USAR.
	144	Not used.

Difference Category	Difference Number 3.8-	Justification for Differences
CL	146	(continued) entered. During isolation of the tank, the fuel oil in the tank may be replaced or brought back within limits. Once the stored fuel oil is restored to within limits, the tank can be unisolated and returned to service. ISTS Condition F has been revised by adding the minimum stored DG fuel oil quantity limits that can support the PI safety analysis. If the stored DG fuel oil falls below the specified quantity, the DG(s) is to be declared inoperable immediately. The addition of this new requirement ensures that PI will have adequate supply of stored DG fuel oil for it to perform its intended safety function for the analyzed amount of time.
CL	147	NUREG-1431 SR 3.8.3.5 and associated Bases Section have been deleted. Water in the fuel oil storage tanks is tested in SR 3.8.3.2. PI has not had a history of water accumulation in the fuel oil tanks and therefore, water does not have to be routinely removed. In addition, neither PI CLB or CTS have any requirements for water testing from the fuel oil tanks. Any testing requirements for fuel oil are contained in the PI Diesel Fuel Oil Testing Program.

Difference Category	Difference Number 3.8-	Justification for Differences
	153	Not used.
CL	154	NUREG-1431 Bases 3.8.3, Background Section has been revised providing additional information and clarification about the design and operations of the DG fuel oil receiving tank, the safeguards fuel oil storage tanks, and the PI Diesel Fuel Oil Testing Program. New fuel oil is placed in the DG fuel oil receiving tank where it is tested in accordance with the PI DG Fuel Oil Testing Program. Once the test results have been certified that the fuel oil is within limits, the fuel oil is transferred, using the DG tank pump, to one of the fuel oil storage tanks (4 for each unit). This is additional information and does not change or alter any technical requirements or the way any equipment is operated.
CL	155	NUREG-1431, Rev. 1, Bases 3.8.3 has been revised throughout deleting all diesel fuel oil testing requirements and statements not specifically applying to PI. To make the Bases read correctly, it has been updated throughout reflecting PI CLB and CTS requirements for testing DG fuel oil.
CL	156	TSTF-2, Rev. 1 was not incorporated. STS SR 3.8.3.6 was deleted since it is not in the PI CTS or required by any CLB.

Difference Category	Difference Number 3.8-	Justification for Differences
CL	181	NUREG-1431, Rev. 2, LCO 3.8.4, Condition C and associated Bases, have been deleted. This Condition is either specifically incorporated or included by the definition of OPERABILITY as related to Conditions A and B. PI does not know of any other reasons for the DC power subsystems to be inoperable other than Conditions A or B.
CL	182	NUREG-1431, Rev. 2, SR 3.8.4.2 and associated Bases, have been revised replacing the statement, "largest combined demands of the various continuous steady state loads … ." with the statement, " … demands of the various continuous steady state loads, … ." PI battery charger design requirements were based on the demands of the various continuous steady state loads not the largest combined demands of the of the various continuous steady state loads. Revising this statement as proposed, brings the SR into agreement with the PI design and consistent with the PI USAR.

Difference Category	Difference Number 3.8-	Justification for Differences
CL	183	NUREG-1431 LCO 3.8.7 requires four inverters to be OPERABLE when in MODES 1, 2, 3, or 4. The LOC has been revised based on plant design to allow three inverters to be OPERABLE with the fourth powered from either the Reactor Protection Instrument AC Panel 117 (Unit 2 - 217) or from the Reactor Protection Instrument AC Panel bypass switch. This is acceptable since the LCO will still be met using the alternate means of supplying reliable power to the inverter, thus providing power the applicable equipment powered from the Panel and ensuring the equipment will still perform its intended function when called upon. LCO 3.8.7, Required Action A.1 (ITS Required Action A.3) Completion Time and associated Bases have been decreased from 24 hours to 8 hours. The decrease in Completion Time to 8 hours is consistent with the CTS. In addition, new Required Actions A.1 and A.2 have been added. Required Action A.1 requires verifying only one Reactor Protection Instrument AC inverter is powered from Panel 117. Required Action A.2 requires verification that only one Reactor Protection Instrument AC Panel is powered from its inverter bypass. Both the new Required Actions A.1 and A.2 are CLB and have been incorporated based on PI design. Maintaining CLB was agreed to be acceptable between the industry and NRC during the onset of the ITS conversion project. This change is consistent with that agreement.

Difference Category	Difference Number 3.8-	Justification for Differences
CL	184	NUREG-1431, Rev. 2, SR 3.8.4.3 and associated Bases have not been included in the PI ITS. This SR is not required by the CTS. The purpose of this SR is to ensure that the battery has sufficient capacity to support the required emergency loads based on a battery service test. The Note for this SR also allows a modified performance discharge test (SR 3.8.6.6) to be performed in lieu of this SR. PI always performs the modified performance discharge test, therefore, the additional SR 3.8.3.4 is not required for PI.
PA	185	NUREG-1431 Bases 3.8.7 LCO Section contains an explanation of the Note which allows an instrument bus inverter to be disconnected from its associated DC bus for up to 24 hours while performing an equalizing charge on the battery. The inverters used at PI are not required to be disconnected during equalizing charges. Therefore, this Note has been deleted consistent with ITS.
	186	Not used.

Difference Category	Difference Number 3.8-	Justification for Differences
PA	187	NUREG-1431, Rev. 2, LCO 3.8.6 and associated Bases, Completion Time for Required Action B.2 has been revised to 24 hours. PI does not have either this Required Action or Completion Time in the CTS. Therefore, PI has evaluated the time required to restore the battery float current and perform a test to ensure OPERABILITY and during off normal working hours PI has estimated this Required Action could safely be completed in 24 hours which is also consistent with USAR Section 8.5.2.
	188	Not used.
	189	Not used.

Difference Category	Difference Number 3.8-	Justification for Differences
PA	190	NUREG-1431 LCO 3.8.10, Required Action A.2.5 states, " Declare associated required residual heat removal subsystem(s) inoperable and not in operation. " This statement has been revised by deleting, "and not in operation". Plant procedures and practices are established to declare TS equipment OPERABLE or not OPERABLE (inoperable). Prairie Island (PI) does not have procedures or practices for declaring equipment "not in operation" and retaining this clause would require new procedures and practices. The intent of Specification 3.8.10 is not to assure there is no flow. The Bases state, "Pursuant to LCO 3.0.6, the RHR ACTIONS would not be entered. Therefore, Required Action A.2.5 is provided to direct declaring the associated RHR inoperable, which results in taking the appropriate RHR actions." The clause "and not in operation" is redundant based on current PI operating practices. Once the RHR subsystem is declared inoperable in accordance with 3.8.10 R.A. A.2.5, the operators will take action to establish an acceptable source of core cooling. If for some reason the RHR subsystem continued to provide core cooling after the subsystem were declared inoperable, continued core cooling would be a harmless, but beneficial, consequence while operators establish an acceptable source of core cooling. For these reasons, NMC proposes not to include the clause "and not in operation" in the ITS.

Difference Category	Difference Number 3.8-	Justification for Differences
PA	191	NUREG-1431 Bases 3.8.10, Background Section has been revised by adding a discussion about the use of "alternate" power distribution equipment during MODES 5 and 6. During the unit shutdown, PI has available the safeguards AC, DC, and reactor protection instrument AC electrical power distribution systems. These power distribution systems feed various plant equipment required to be OPERABLE during plant shutdown conditions. However, during an outage, maintenance and testing is required to be done on parts of the above distribution systems, therefore making them inoperable. In order to maintain electrical power to required systems, PI also uses the following alternate power distribution equipment; 4kV bus tie, 480kV alternate feeds, Panel 117 (217 for unit 2), 117 to 217 cross tie, and the Service Building DC Safeguards DC cross tie. The alternate power distribution equipment provides a reliable power supply to the various plant systems or equipment required to be OPERABLE during MODES 5 and 6. This change is consistent with CLB and current plant practices.
PA	192	NUREG-1431 Bases 3.8.5, 3.8.8, and 3.8.10, Applicable Safety Analyses have been revised where applicable with the Applicable Safety Analyses discussion from Bases 3.8.2. Bases 3.8.2 provides additional information which is applicable and better explained than in the other Sections.

Difference Category	Difference Number 3.8-	Justification for Differences
	193-196	Not used.
CL	197	NUREG-1431 LCO SR 3.8.1.5 and associated Bases have been deleted. PI day tanks are not designed with any type of drain in the tank that would allow draining any water. PI operating history has shown that the day tanks have not had any water accumulation problems. In addition, neither PI CTS or CLB require checking the day tanks for water; therefore, this SR is being deleted.
PA	198	NUREG-1431, Rev. 2, LCO 3.8.5, Condition A, and associated Bases, have been revised to delete the Condition phrase, "The redundant train battery and charger[s] OPERABLE." Per PI design, two trains of DC power are not required to be OPERABLE to support plant DC shutdown requirements as identified by LCO 3.8.10. Therefore, this part of Condition A does not apply to PI and is being deleted. In addition, the word "required" has been added as appropriate. Since PI has two trains, with each train consisting of a battery, battery charger, and interconnecting cable, it is necessary for clarification to state the "required" battery therefore, no mistake can be made on which battery charger is being credited when the plant is in the shutdown condition.

Difference Category	Difference Number 3.8-	Justification for Differences
PA	199	NUREG-1431,Rev. 2, LCO 3.8.5, Required Action B.1, and associated Bases, have been deleted. This Required Action requires declaring the affected required features(s) inoperable. This action is only applicable if there were more than one DC electrical power subsystems required to be OPERABLE. Since PI design and shutdown operations do not require more than one DC electrical power subsystem to be OPERABLE, this Required Action does not apply.
CL	200	NUREG-1431 Bases 3.8 has been revised to reflect current PI design and operating practices. As an example, Bases 3.8.1, Required Action B.2 states, "This includes motor driven auxiliary feedwater pumps. Single train systems, such as turbine driven auxiliary feedwater pumps, are not included." PI has two 100% capacity auxiliary feedwater pumps, a motor and a turbine driven. The turbine driven auxiliary feedwater pump is not supported by the DG. Therefore, this statement is not applicable to PI design and is deleted.

Difference Category	Difference Number 3.8-	Justification for Differences
CL	201	NUREG-1431 Bases 3.8.1, Background Section has been revised by adding the statement, "... the Unit 1 DGs meet the intent of Safety Guide 9 and Unit 2 DGs satisfy the intent of Regulatory Guide 1.9, ..." This statement was added to reflect the differences between the two unit DGs. Unit 1 DGs were installed prior to the issuance of Regulatory Guide 1.9. Therefore, Unit 1 DGs rating were consistent with Safety Guide 9. When Unit 2 DGs were installed, Regulatory Guide 1.9 has been issued; however, PI did not adopt this Regulatory Guide in its entirety as discussed in the PI USAR. This change is consistent with the PI CLB.
CL	202	NUREG-1431 Bases 3.8.1 and 3.8.2, LCO Section have been revised by replacing the statement, "This will be accomplished ... ." with "The DG will be ready to load ... following receipt of a start signal." PI design is that each DG is capable of starting, accelerating to the required speed and voltage, and ready to be loaded within 10 seconds. PI DGs are not required to be loaded within 10 seconds. In addition, Bases 3.8.2, LCO statement has been revised by deleting the statement, "This sequence must be accomplished within [10] seconds." As stated above, the PI DGs are required to be ready to load within 10 seconds upon receipt of a start signal. Therefore, the Bases is revised to reflect the PI design and CLB.

Difference Category	Difference Number 3.8-	Justification for Differences
PA	203	NUREG-1431, Rev. 2, Bases 3.8.4 Actions B Section has been revised deleting the following sentence, "In addition the energization transients of any DC loads that are beyond the capability of the battery charger[s] and normally require the assistance of the batter[y][ies] will not be able to be brought online." PI design does not have any energization transients that exceed the battery charger capacity. The PI battery chargers were designed and installed to handle any of the anticipated transients that they would experience. Therefore, this statement is not applicable to PI.
PA	204	NUREG-1431 Bases 3.8.1, LCO Section has been revised by deleting the subject paragraphs. The subject paragraphs discuss various information about the AC sources in a train and the AC offsite sources being independent and separated to the extent practical. PI USAR provides a detailed discussion about the design of the AC trains and offsite sources; therefore, this redundant information is not needed in the TS and is being deleted. Also, Bases SR 3.8.1.1 has been revised by editing the sentence discussing preferred power source. PI design does not identify a preferred power source. The correct plant terminology is offsite power source.

Difference Category	Difference Number 3.8-	Justification for Differences
PA	205	NUREG-1431 Bases 3.8.1, 3.8.4, 3.8.7, and 3.8.9 Applicability Sections have been revised by deleting the following, " ...or abnormal transients;" PI considers an abnormal transient as an AOO. Therefore, the specific reference to an abnormal transient is being deleted.
CL	206	NUREG-1431 Bases 3.8.1, Condition C is for two paths inoperable. Required Action C.1 states to declare required feature(s) inoperable when its redundant required feature(s) is inoperable with a Completion Time of 12 hours. The ISTS states that the justification for the 12 hours is Regulatory Guide 1.93. PI CTS already has a Completion Time of 12 hours. Therefore, any references in the ISTS to the Completion Time being shorter or reduced is deleted.
CL	207	NUREG-1431 Bases 3.8.1, Required Action C.1 and C.2 have been revised by deleting the subject discussions since they are referring to Regulatory Guide 1.93. Since PI is not committed to Regulatory Guide 1.93, the subject discussions are not applicable to PI.
PA	208	NUREG-1431 Bases 3.8 has been revised deleting redundant information that also appears in the USAR.
	209	Not used.

Difference Category	Difference Number 3.8-	Justification for Differences
CL	210	NUREG-1431 Bases 3.8.2, LCO statement has been revised deleting the following, "It is acceptable for trains to be cross tied during shutdown conditions, allowing a single offsite power circuit to supply all required trains." PI design does not provide a cross tie between the trains. The design, as described in the USAR, provides for each offsite source being capable of supplying both trains, but this not termed a cross tie.
PA	211	NUREG-1431 LCO 3.8.2 and associated Bases has been revised by adding a Note allowing the LCO not being applicable for a period of 8 hours during the performance of SR 3.8.1.10. Without the Note, the LCO requires that one DG capable of supplying one train of the onsite 4 kV safeguards distribution system required by LCO 3.8.10 be OPERABLE. SR 3.8.2.1 requires the SRs of Specification 3.8.1 be performed at their specified Frequencies for those AC sources that are required to be OPERABLE to support those systems operating during plant shutdown. One of these SRs requires DG testing. At PI, when a DG is being tested, and thus operating, it is considered to be inoperable since during this testing some controls must be placed in manual. SR 3.8.1.10 in particular results in considering both DGs inoperable during test performance. The 8 hour period is reasonable to allow performance of the required SR.

Difference Category	Difference Number 3.8-	Justification for Differences
PA	212	NUREG-1431, Rev. 2, LCO 3.8.5 and associated Bases Background Section has been revised by adding a NOTE stating, " Service building DC electrical power subsystem components may be used in lieu of a safeguards DC electrical power subsystem component when the required safeguards DC electrical power subsystem is inoperable due to testing, maintenance, or replacement." PI design comprises of one battery, battery charger, and interconnecting cabling for each train. Since PI only has two trains of safeguards DC electrical power, during an outage only one train is required to be OPERABLE to support plant operations. The other train may be inoperable. At times during the outage, one train will be inoperable with the other needing testing, or even replacement. Based on new shutdown requirements, one train must remain OPERABLE, therefore requiring an extension in the outage schedule in order to accomplish needed maintenance, testing or replacement. PI design has two service building DC electrical power subsystems from which components may be used in lieu of either safeguards DC electrical power subsystem components. This is acceptable since the service building batteries are maintained in accordance with TS 5.5.15, Battery Testing Program, and the service building DC electrical power components will be maintained the same as the safeguards DC electrical power subsystem components.

Difference Category	Difference Number 3.8-	Justification for Differences
PA	212	(continued) Plant procedures will ensure that the DC electrical power subsystem components will perform their intended safety function. The time in which the service building DC electrical subsystem components can be used in lieu of the safeguards DC electrical power will be limited to the time the safeguards DC electrical power subsystem components are inoperable due to maintenance, testing, or replacement.
PA	213	NUREG-1431 LCO 3.8.9, Required Actions A, B, and C have been revised by adding the following, "Declare associated required supported feature(s) inoperable, Immediately." This Action needed to be added to provide guidance for when a portion of safeguards AC, DC, and Reactor Protection Instrument AC electrical power distribution subsystems is inoperable. This condition is not covered in the ISTS. This change is consistent with the practices at PI.
CL	214	NUREG-1431 LCO 3.8.9 Required Action E has been revised by adding the following, "Two or more Reactor Protection Instrument AC Panels inoperable, Enter LCO 3.0.3, Immediately." This Required Action has been added to provide specific Actions when two or more Reactor Instrument AC panels are inoperable, since the instrument AC panels are distinct from "Two trains...". The ISTS does not currently specify this condition.

Difference Category	Difference Number 3.8-	Justification for Differences
PA	215	NUREG-1431, Rev. 1 LCO 3.8.2, Required Action A.1, LCO 3.8.8, Required Action A.1 and associated Bases have been deleted. The rational for the subject Required Actions A.1 was based on NUREG-1431, Rev.1 which would, in certain conditions, require more than one safeguards bus or inverter required to be OPERABLE. With one of two or more required safeguards bus or inverter inoperable, the remaining safeguards bus(s) or inverter(s) might be able to power all necessary loads. In such a case, it is acceptable to declare inoperable required features associated with the inoperability. However, with only one safeguards bus or inverter required, the above conditions do not exist, and the option to declare required features inoperable is not appropriate. Therefore, Required Action A.1 is being deleted.
CL	216	NUREG-1431 Bases 3.8.7, Background Section has been revised by deleting the following sentence, "Specific details on inverters and their operating characteristics are found in the USAR." This statement is being deleted because the PI USAR does not contain this detailed information.

Difference Category	Difference Number 3.8-	Justification for Differences
PA	217	NUREG-1431 Bases 3.8.7 and 3.8.8, Applicable Safety Analyses Section has been revised by changing the last sentence to be consistent with the rest of the ISTS.

Part G

PACKAGE 3.8

ELECTRICAL POWER SYSTEMS

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)

(A3.8-01, A3.8-10, A3.8-13, A3.8-15, A3.8-17, A3.8-20, A3.8-22, A3.8-23, A3.8-25, A3.8-30, A3.8-38, A3.8-39, A3.8-40, A3.8-51, A3.8-53, A3.8-56, A3.8-57, A3.8-58, A3.8-60, and A3.8-62)

Most administrative changes have not been marked-up in the CTS, and may not be specifically referenced to a discussion of change (DOC). This NSHD may be referenced in a discussion of change by the suffix "A" if the change is not obviously an administrative change and requires an explanation.

These proposed changes are editorial in nature. They involve reformatting, renaming, renumbering, or rewording of existing TS to provide consistency with NUREG-1431 or conformance with the Writer's Guide, change of current plant terminology to conform to NUREG-1431 or change of NUREG-1431 terminology to conform to CTS. Some administrative changes involve relocation of requirements within the TS without affecting their technical content. Clarifications within the NEW PI ITS which do not impose new requirements on plant operation are also considered administrative.

Specific NSHD for Change L3.8-59

CTS 3.7.B.1 allows one diesel generator (DG) to be inoperable for 7 days, provided the other DG is demonstrated OPERABLE by performing an SR, which starts the OPERABLE DG, within 24 hours. This change allows that a determination can be performed, within 24 hours, to ensure that the inoperability of the initial DG is not a common cause failure issue for the OPERABLE DG.

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

   The consequences or probability of a previously analyzed event are dependent on the initial conditions assumed for the analysis, the availability and successful functioning of the equipment assumed to operate in response to the analyzed event, and the setpoints at which these actions are initiated. The proposed change allows an evaluation to be made as to the cause of the inoperability of the first DG to determine if it is a common cause failure that would make the OPERABLE DG inoperable. The CTS does not allow this determination. Instead, the CTS would require the OPERABLE DG to be demonstrated OPERABLE by performing an SR which requires an unnecessary DG start and loading. If the OPERABLE DG successfully passed its last SR, if the SRs are current, no maintenance has been performed that would render it inoperable, or if there is no reason why it should be considered inoperable, then requiring the OPERABLE DG to be demonstrated OPERABLE by performing the SR would be unnecessary starting of the DG. In addition, while performing the SR, the DG being tested would be considered inoperable. This would place the plant in a condition of two DGs inoperable and be in a 2 hour condition and possible plant shutdown. Therefore, this change does not involve a significant increase in the probability or consequences of a previously analyzed event.

Specific NSHD for Change L3.8-59 (continued)

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 any physical alteration of the plant (no new or different type of equipment will be installed) or changes in parameters governing normal plant operation. There are no setpoints, at which protective or mitigative actions are initiated, that are affected by this change. This change will not alter the manner in which equipment operation is initiated, nor will the function demands on credited equipment be changed. No alterations in the procedures which ensure the plant remains within analyzed limits are being proposed, and no change is being made to the procedures relied upon to respond to an off normal event. As such, no new failure modes are being introduced. The change does not alter assumptions made in the safety analysis nor licensing basis. Therefore, the change does not create the possibility of a new or different kind of accident previously evaluated. Thus, this change does not create the possibility of a new or different kind of accident.

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

   The margin of safety is established through equipment design, operating parameters, and the setpoints at which automatic actions are initiated. Sufficient equipment remains available to actuate upon demand for the purpose of mitigating an analyzed event. The proposed change allows for a determination to be performed for DG inoperability ensuring that the cause of inoperability is not common cause, thus affecting the OPERABLE DG. The ITS allows this determination which eliminates additional DG starting and loading to demonstrate OPERABILITY as required by the CTS. If the OPERABLE DG successfully passed its last SR, if the SRs are current, no maintenance has been performed that would render it inoperable, or if there is no reason why it should be considered inoperable, than the OPERABLE DG will remain considered to be OPERABLE with no other testing required. The CTS requires additional testing by starting the OPERABLE DG which increases the amount of wear and potential maintenance. Requiring the already declared OPERABLE DG to be unnecessarily started to prove it is still OPERABLE does not provide any additional margin of safety. This change will not result in any detrimental impact or any changes in equipment design parameters, and the plant will still be required to operate within prescribed limits. Therefore, the change does not involve a significant reduction in the margin of safety.

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

Specific NSHD for Change L3.8-61

CTS 4.6.A.2.b requires each diesel generator (DG) to be loaded to rated capacity within 60 seconds every six months. This test is not included in the ITS since industry experience indicates that this test may eventually harm the DGs. This change provides some relaxation and therefore is considered to be a Less Restrictive change.

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

   The consequences of a previously analyzed event are dependent on the initial conditions assumed for the analysis, the availability and successful functioning of the equipment assumed to operate in response to the analyzed event, and the setpoints at which these actions are initiated. This change will remove the requirement to periodically load the DGs to their rated load within 60 seconds. Since the DGs are not assumed accident initiators, this change does not involve a significant increase in the probability of an accident previously evaluated. There are two DGs per unit and these DGs are subjected to other performance tests which demonstrate that the DGs start and assume the required post-accident loads within the required time frame. Since other DG tests demonstrate DG OPERABILITY, at least one DG will operate as required and the accident consequences will not be increased. Based on this evaluation, there is no significant increase in the consequences of a previously analyzed event.

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 any physical alteration of the plant (no new or different type of equipment will be installed) or changes in parameters governing normal plant operation. There are no setpoints, at which protective or mitigative actions are initiated, that are affected by this change. This change will not alter the manner in which equipment is operation is initiated, nor will the function demands on credited equipment be changed. No alterations in the procedures which ensure the plant remains within analyzed limits are being proposed, and no change is being made to the procedures relied upon to respond to an off normal event. As such, no new failure modes are being introduced. The change does not alter assumptions made in the safety analysis nor licensing basis. Therefore, the

Specific NSHD for Change L3.8-61 (continued)

change does not create the possibility of a new or different kind of accident previously evaluated. Thus, this change does not create the possibility of a new or different kind of accident.

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

   The margin of safety is established through equipment design, operating parameters, and the setpoints at which automatic actions are initiated. Sufficient equipment remains available to actuate upon demand for the purpose of mitigating an analyzed event. The proposed change deletes the periodic loading of the DGs to their rated loads within 60 seconds. Equipment testing is performed to improve plant safety by demonstrating that the equipment performs designed. This test requires testing equipment beyond the plant expectations. Furthermore, industry experience indicates that this test may eventually harm the performance of the DGs. Other DG tests verify that the DGs will perform their intended function. Therefore, the change does not involve a significant reduction in the margin of safety.

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

ENVIRONMENTAL ASSESSMENT

The Nuclear Management Company has evaluated the proposed changes and determined that:

1. The changes do not involve a significant hazards consideration, or

2. The changes do not involve a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or

3. The changes do not involve a significant increase in individual or cumulative occupational radiation exposure.

Accordingly, the proposed changes meet the eligibility criteria for categorical exclusion set forth in 10 CFR Part 51 Section 51.22(c)(9). Therefore, pursuant to 10 CFR Part 51 Section 51.22(b), an environmental assessment of the proposed changes is not required.