Attachment 4:

- **3.8 – Vol. 15 and 16**

ATTACHMENT 4

REVISION G
ITS SECTION 3.8

SUMMARY OF CHANGES TO ITS SECTION 3.8

SUMMARY OF CHANGES TO ITS SECTION 3.8 - REVISION G

Source of Change	Summary of Change	Affected Pages
RAI 3.8.1-01	CTS allows operation for 7 days when two reserve circuits are inoperable. The ITS added an new action (Required Action C.2) to also reduce power to less than or equal 45% RTP. The NRC stated that the new Required Action was outside the scope of the ITS review; thus it would have to be reviewed by the Technical Branch if JAFNPP wanted to keep the new Required Action. After further review, JAFNPP will delete this new Required Action and not include it in the ITS.	**Specification 3.8.1** CTS mark-up p 2 of 11 DOC M5 (deleted) (DOCs p 5 of 12) ITS mark-up p 3.8-3 JFD CLB6 and X13 (deleted) (JFDs p 4 of 10 and 8 of 10) ITS Bases mark-up p B 3.8-10, B 3.8-11, B 3.8-12, and Insert Page B 3.8-12 Bases JFD CLB7 (Bases JFDs p 4 of 10) Retyped ITS p 3.8-3 Retyped ITS Bases p B 3.8-12 and B 3.8-13
RAI 3.8.1-02	CTS 4.9.B.1 requires each EDG subsystem to be force paralleled and loaded to 5200 kW, and the load sharing capability of the EDG subsystem to be verified. ITS SR 3.8.1.3 requires the EDG subsystem to be force paralleled, but the load requirements are on a per EDG basis and the requirement to verify the load sharing capability is not included in the SR. The NRC requested that DOC L3 be revised to discuss why the deletion of the load sharing verification is acceptable. DOC L3 has been modified to provide the justification (i.e., maintaining the load of each EDG within the specified limits ensures the load sharing capability is demonstrated).	**Specification 3.8.1** DOC L3 (DOCs p 9 of 12) NSHC L3 (NSHCs p 4 of 13)
RAI 3.8.1-04 (as revised) and RAI 3.8.1-25 (as revised)	ITS ACTION G requires entry into LCO 3.0.3 when three or more AC sources are inoperable. Since there are two EDGs per EDG subsystem, the NRC questioned when the ACTION would be entered. For example, if two EDGs in the same subsystem are inoperable and one reserve circuit are inoperable, would Condition G have to be entered? The NRC requested that the Bases for ACTION G be clarified. The Bases have been revised to provide the proper clarification. (Entry into Condition G is necessary when both reserve circuits and one EDG subsystem are inoperable (where the EDG subsystem is inoperable due to an inoperability of one or both EDGs within the EDG subsystem), both EDG subsystems and one reserve circuit are inoperable, or both reserve circuits and both EDG subsystems are inoperable.)	**Specification 3.8.1** ITS Bases mark-up p B 3.8-15 and Insert Page B 3.8-15 Retyped ITS Bases p B 3.8-15

Source of Change	Summary of Change	Affected Pages
RAI 3.8.1-05, RAI 3.8.1-14, and RAI 3.8.1-26	CTS 4.9.C.2 requires monthly testing of the fuel oil transfer system. ITS SR 3.8.1.6 relaxed the requirement to every 92 days. The NRC commented that NUREG-1433 Bases state that the fuel oil system surveillance interval can be up to 92 days, but only if the amount of fuel oil consumed during the monthly EDG test is not enough to cause the transfer system to automatically start. If the amount of fuel oil consumed each month is enough to cause the transfer system to start, then the fuel oil system test must remain monthly. JAFNPP has determined that sufficient fuel oil is consumed in the monthly EDG test to start the transfer system. Therefore, the Surveillance Frequency is being changed back to monthly (31 days).	<u>Specification 3.8.1</u> CTS mark-up page 8 of 11 DOC L10 (deleted) (DOCs p 12 of 12) NSHC L10 (deleted) ITS mark-up p 3.8-7 JFDs CLB10 and X12 (deleted) (JFDs p 5 of 10 and 8 of 10) ITS Bases mark-up p B 3.8-19 and B 3.8-20 Bases JFDs CLB10 and X13 (deleted) (p 4 of 10 and 10 of 10) Retyped ITS 3.8-6 Retyped ITS Bases B 3.8-19
RAI 3.8.1-12 (as modified)	The NRC questioned the deletion of the prelube portion of Note 2 to SR 3.8.1.2. The NRC believed that JAFNPP should retain this Note, since it was a permissive, not a requirement. This portion of the Note has been added back into the ITS SR. In addition, a similar Note was deleted from ITS SRs 3.8.1.9, 3.8.1.10, and 3.8.1.12. The Note has been added back into these SRs as well.	<u>Specification 3.8.1</u> CTS mark-up p 2 of 11 and 4 of 11 DOC A8 (DOCs p 2 of 12) ITS mark-up p 3.8-6, 3.8-10, 3.8-11, and 3.8-15 JFDs DB5 and DB6 (deleted) (JFDs p 6 of 10) ITS Bases mark-up p B 3.8-16, B 3.8-24, B 3.8-25, and B 3.8-31 Bases JFDs DB4 and DB5 (deleted) (Bases JFDs p 6 of 10) Retyped ITS p 3.8-5, 3.8-8, 3.8-9, and 3.8-11 Retyped ITS Bases p B 3.8-17, B 3.8-22, B 3.8-23, and B 3.8-24

Source of Change	Summary of Change	Affected Pages
RAI 3.8.1-15 (as modified)	The NRC noted that JAFNPP had deleted Mode restriction Notes from certain Surveillances. These Notes restricted the SRs from being performed in the Operating Modes. The NRC requested that JAFNPP add the Notes back in or perform analysis to demonstrate the SRs could be safely performed in the Operating Modes. The CTS does not currently have these Mode restrictions, and they were deleted consistent with current licensing basis and Generic Letter 91-04. The Generic Letter stated that procedures were the proper place for these types of restrictions. Therefore, JAFNPP declined to add the Notes into the ITS. In addition, it was noted that JAFNPP had added the Notes for the LOCA, LOOP, and LOCA/LOOP tests, even though the restrictions are not in the CTS. These Notes are also being deleted from the ITS submittal. This deletion is consistent with the last two approved BWR/4 ITS submittals (Dresden 2 and 3 and Quad Cities 1 and 2).	**Specification 3.8.1** ITS mark-up p 3.8-10, 3.8-11, and 3.8-15 JFD CLB9 (JFDs p 4 of 10) ITS Bases mark-up p B 3.8-24, B 3.8-25, B 3.8-26, B 3.8-31, and B 3.8-32 Bases JFD CLB8 (Bases JFDs p 4 of 10 Retyped ITS p 3.8-8, 3.8-9, and 3.8-11 Retyped ITS Bases p B 3.8-22, B 3.8-23, and B 3.8-24
RAI 3.8.1-17	The NRC noted that the minimum voltage limit for all the EDG Surveillances was not the same; some had 3744 V while others had 3830 V. The NRC requested the submittal be revised to explain the differences. The proper value should have been 3900 V for all the Surveillances, which is consistent with the Allowable Value for ITS 3.3.8.1, Loss of Power Instrumentation, Function 2.a (Degraded Voltage). The ITS submittal has been corrected.	**Specification 3.8.1** ITS mark-up p 3.8-6, 3.8-10, 3.8-11, and 3.8-16 JFD X2 (JFDs p 7 of 10) ITS Bases mark-up p B 3.8-15 Retyped ITS 3.8-5, 3.8-8, 3.8-9, and 3.8-11 Retyped ITS Bases p B 3.8-16
RAI 3.8.1-18 (as modified)	The ITS submittal has the power factor limit for ITS SR 3.8.1.8 and ITS SR 3.8.1.11 in the Bases. The NRC requested that JAFNPP place the power factor limit back into the ITS SRs. JAFNPP will keep the actual power factor limits in the Bases, consistent with the most recently approved BWR/4 ITS submittals (Dresden 2 and 3 and Quad Cities 1 and 2). In addition, a Note to ITS SR 3.8.1.11 is being added, consistent with the allowance added to ITS SR 3.8.1.8 during Revision C. The Note will allow the power factor limit to not be met under certain grid conditions, and in this case, to maintain the power factor as close to the limit as practicable. Also, the Bases for the SRs will be revised to clearly state the purpose and reason for the Note allowances.	**Specification 3.8.1** DOC M2 (DOCs p 4 of 12) ITS mark-up p 3.8-13 JFD CLB3 (JFDs p 3 of 10) ITS Bases mark-up p B 3.8-21, B 3.8-28, and Insert Page B 3.8-28 Bases JFD X4 (Bases JFDs p 8 of 10) Retyped ITS p 3.8-10 Retyped ITS Bases p B 3.8-21 and B 3.8-24

Source of Change	Summary of Change	Affected Pages
RAI 3.8.1-19 (as modified) and RAI 3.8.1-29	NUREG-1433 includes an SR to verify the interval between each sequenced load block is within ± 10% of design interval for each load timer. The NRC requested the SR be included in the ITS, since EDG Operability is affected by the load timers. The SR has been added into the ITS as SR 3.8.1.13. However, it has been modified to only require each interval to be within the minimum design load interval, since a load block that starts too long does not necessarily affect DG Operability. If a load block is too long and this affects the next load block (making the next load block too short), then the EDG will still fail the SR since the SR uses the term "each sequenced load block."	**Specification 3.8.1** CTS mark-up p 1 of 11 DOC M2 (DOCs p 4 of 12) ITS mark-up p 3.8-15 JFDs CLB9, DB2, and X14 (JFDs p 4 of 10, 5 of 10, 9 of 10, and 10 of 10) ITS Bases mark-up p B 3.8-30 and Insert Page B 3.8-30 Bases JFD CLB8 (Bases JFDs p 4 of 10) Retyped ITS p 3.8-11 Retyped ITS Bases p B 3.8-25 **Specification 3.8.2** ITS mark-up p 3.8-20 JFDs CLB1 and DB1 (deleted) (JFDs p 1 of 2) Retyped ITS p 3.8-15
RAI 3.8.1-21 (as modified)	The NRC requested more information be provided on the purpose of the North and South Disconnect (10017). The Bases have been revised accordingly. Also, it was noted that the LCO section of the Bases included information concerning the Lighthouse Hill and Nine Mile Point Unit 1 substations. These substations are not required to be covered by the specific LCO 3.8.1 statement. Therefore, this information has been deleted from the LCO Bases (it is still retained in the Background section of the Bases).	**Specification 3.8.1** ITS Bases mark-up p Insert Page B 3.8-4 Retyped ITS Bases p B 3.8-5
RAI 3.8.1-27 (as modified)	The ITS added in a requirement to verify automatic and manual transfer from the normal station service transformer to the reserve circuits. This is included as part of OPERABILITY for the reserve circuits. The NRC requested that the JFD be enhanced to provide additional explanation of this transfer. This has been provided. In addition, it was noted that the SR is required at all times in MODE 1, 2, and 3, even when the normal station service transformer is not energizing a 4.16 kV emergency bus. This means that if the transfer is not OPERABLE, the reserve circuit must be declared inoperable, even if power is transferred to the reserve circuit. A Note has been added and the SR modified to clearly state that the transfer feature is only required to be met for each reserve circuit that is not energizing its respective 4.16 kV emergency bus.	**Specification 3.8.1** DOC M2 (DOCs p 3 of 12) ITS mark-up p 3.8-8 JFD X6 (JFDs p 7 of 10) ITS Bases markup p B 3.8-20 Bases JFD X8 (Bases JFDs p 9 of 10) Retyped ITS p 3.8-7 Retyped ITS Bases p B 3.8-19

SUMMARY OF CHANGES TO ITS SECTION 3.8 - REVISION G

Source of Change	Summary of Change	Affected Pages
New Change	The ISTS Specification uses the terms "qualified offsite circuit" and "offsite circuit." The ITS had been modified to use the term "reserve circuit," since this is the title of the qualified offsite circuit at JAFNPP. However, after further review, in order to more closely match the ISTS, the ITS has been modified to use the ISTS terms, with the Bases being used to describe that the reserve circuit is the qualified offsite circuit.	**Specification 3.8.1** CTS mark-up p 1 of 11 DOCs M2, M12, LA1, L1, and L7 (DOCs p 3 of 12, 6 of 12, 7 of 12, 8 of 12, and 11 of 12) NSHCs L1 and L7 (NSHCs p 1 of 13, 10 of 13, and 11 of 13) ITS mark-up p 3.8-1, 3.8-2, 3.8-3, 3.8-4, 3.8-6, and 3.8-8 JFDs CLB6 and X6 (JFDs p 4 of 10 and 7 of 10) ITS Bases mark-up p B 3.8-1, B 3.8-3, B 3.8-4, Insert Page B 3.8-4, B 3.8-5, B 3.8-6, B 3.8-7, B 3.8-11, B 3.8-12, Insert Page B 3.8-12, B 3.8-13, Insert Page B 3.8-15, B 3.8-16, Insert Page B 3.8-16, and B 3.8-20 Bases JFDs CLB7 and X8 (Bases JFDs p 4 of 10 and 9 of 10) Retyped ITS p 3.8-1, 3.8-2, 3.8-3, 3.8-4, 3.8-5, and 3.8-7 Retyped ITS Bases p B 3.8-2, B 3.8-4, B 3.8-5, B 3.8-6, B 3.8-7, B 3.8-8, B 3.8-12, B 3.8-13, B 3.8-14, B 3.8-14, B 3.8-16, and B 3.8-19
Typographical error	A typographical error was noted in the ITS JFDs, in that the incorrect DOC number was provided (DOC "M9" should be DOC "M11"). This has been corrected.	**Specification 3.8.1** JFD X8 (JFDs p 8 of 10)
Typographical error	A typographical error was noted in the ITS Bases mark-up and the retyped ITS Bases for Actions C.1 and C.2 (the word "with" was inadvertently left out of the sentence). This has been corrected.	**Specification 3.8.1** ITS Bases mark-up p Insert Page B 3.8-12 Retyped ITS Bases p B 3.8-13
Typographical error	A typographical error was noted in the retyped ITS Bases for ACTION G.1. The Condition identified in the first sentence should be Condition "G" not "H." This has been corrected.	**Specification 3.8.1** Retyped ITS Bases p B 3.8-15

SUMMARY OF CHANGES TO ITS SECTION 3.8 - REVISION G

Source of Change	Summary of Change	Affected Pages
Amendment 262	This amendment modified CTS 3.0.D and 4.0.D. However, CTS 3.0.D and 4.0.D are not part of ITS 3.8.1; they only appear on the same CTS page as CTS 3.0.E, which is part of ITS 3.8.1. Therefore, only the CTS mark-up page has been updated to reflect the most current CTS page.	**Specification 3.8.1** CTS mark-up p 11 of 11
RAI 3.8.2-01 (as modified), RAI 3.8.2-04 (as modified), and RAI 3.8.2-06 (as modified)	The NRC noted that ITS LCO 3.8.2.a requires one reserve circuit to be Operable. While this appears to be consistent with NUREG-1433; it is not. NUREG-1433 requires that one circuit to be powering all AC electrical distribution subsystems required Operable by LCO 3.8.8. Since the JAFNPP design is such that a reserve circuit can only power one AC division, if both AC divisions are required by LCO 3.8.8, the ITS LCO 3.8.2 will allow one of the two divisions to not be powered by a reserve circuit. The NRC requested that JAFNPP correct this problem and be consistent with the NUREG. Therefore, ITS LCO 3.8.2 has been modified to require a second reserve circuit to be Operable, when the second AC division is required Operable by LCO 3.8.8. However, the Bases has also been modified to allow both reserve circuits to share one of the incoming switchyard breakers, provided the North and South bus disconnect is closed. Also, while in this condition, the automatic opening feature of the disconnect is not required to be Operable. This will ensure the JAFNPP ITS is consistent with the requirements and allowances of NUREG-1433. In addition, the NRC noted that JAFNPP added a sentence to the ACTION A.1 Bases that was inappropriate, since it is not possible for a single reserve circuit to power both AC divisions. This statement ("Required features remaining powered from a reserve power circuit, even if that circuit is considered inoperable because it is not powering other required features, are not declared inoperable by this Required Action.") has been deleted.	**Specification 3.8.2** DOCs M1, M2, and L1 (p 2 of 4 and 4 of 4) ITS mark-up p 3.8-18 and 3.8-19 JFD DB2 (JFDs p 1 of 2 and 2 of 2) ITS Bases mark-up p B 3.8-36, B 3.8-37, B 3.8-38, Insert Page B 3.8-38, B 3.8-39, and B 3.8-40 Bases JFD DB2 (Bases JFDs p 1 of 2) Retyped ITS p 3.8-12, 3.8-13, and 3.8-14 Retyped ITS Bases p B 3.8-29, B 3.8-31, and B 3.8-32
RAI 3.8.2-02	In the original ITS submittal, an ACTIONS Note stating "LCO 3.0.3 is not applicable" was added based on pending TSTF-36, Revision 3. In the time since the original ITS submittal, TSTF-36, Revision 4 has been approved. Therefore, the ITS submittal is being revised to reflect the approved TSTF-36, Revision 4. The change only affects the Bases for the Note, and does not change the technical content. In addition, the JFD (both ITS and ITS Bases) has been updated to identify that the change is consistent with the approved TSTF-36, Revision 4 (versus a pending TSTF-36, Revision 3).	**Specification 3.8.2** ITS mark-up p 3.8-19 JFDs TA1 and TP1 (deleted) (JFDs p 2 of 2) ITS Bases mark-up p B 3.8-38 and Insert Page B 3.8-38 Bases JFDs TA1 and TP1 (deleted) (Bases JFDs p 1 of 2 and 2 of 2) Retyped ITS Bases p B 3.8-31

SUMMARY OF CHANGES TO ITS SECTION 3.8 - REVISION G

Source of Change	Summary of Change	Affected Pages
RAI 3.8.2-07 (as modified)	The NRC questioned the need for a parenthetical phrase added to the first paragraph of ACTIONS A.2.1, A.2.2, A.2.3, A.2.4, B.1, B.2, B.3, and B.4 Bases. The Bases was discussing the EDG, but the parenthetical added a statement discussing the reserve circuit. The Bases statement was "With the required EDG inoperable *(or with the required reserve circuit inoperable and Required Action A.1 not taken)*, the minimum required diversity of AC power sources is not available. Since the added parenthetical statement is not necessary for proper understanding of the Bases, it has been deleted.	**Specification 3.8.2** ITS Bases mark-up p B 3.8-39 Retyped ITS Bases p B 3.8-31
TSTF-275	TSTF-275 has been adopted. The TSTF adds a statement to the LCO Bases stating that the automatic initiation of the EDG during shutdown conditions is specified in ITS 3.3.5.1 "ECCS Instrumentation," and ITS 3.3.8.1, "Loss of Power Instrumentation."	**Specification 3.8.2** ITS Bases mark-up p B 3.8-37 JFD TA3 (JFDs p 2 of 2) Retyped ITS Bases p B 3.8-29
TSTF-300	TSTF-300 has been adopted. The TSTF adds an new Note to SR 3.8.2.1 (the SR that identifies which SRs must be performed on the AC sources while shutdown) that exempts the EDG LOCA test and the EDG LOOP/LOCA test when the ECCS subsystems are not required to be Operable by LCO 3.5.2, "ECCS – Shutdown."	**Specification 3.8.2** ITS mark-up p 3.8-20 JFDs PA4 and TA2 (JFDs p 1 of 2 and 2 of 2) ITS Bases mark-up p B 3.8-40 and Insert Page B 3.8-40 Bases JFDs PA4 and TA2 (Bases JFDs p 1 of 2) Retyped ITS p 3.8-15 Retyped ITS Bases p B 3.8-32 and B 3.8-33

SUMMARY OF CHANGES TO ITS SECTION 3.8 - REVISION G

Source of Change	Summary of Change	Affected Pages
New Change	The ISTS Specification uses the terms "qualified offsite circuit" and "offsite circuit." The ITS had been modified to use the term "reserve circuit," since this is the title of the qualified offsite circuit at JAFNPP. However, after further review, in order to more closely match the ISTS, the ITS has been modified to use the ISTS terms, with the Bases being used to describe that the reserve circuit is the qualified offsite circuit.	**Specification 3.8.2** DOCs A2, M1, and L1 (DOCs p 1 of 4, 2 of 4, 3 of 4, and 4 of 4) NSHC L1 (NSHCs p 1 of 1) ITS mark-up p 3.8-18 and 3.8-19 JFD DB2 (JFDs p 1 of 2 and 2 of 2) ITS Bases mark-up p B 3.8-35, Insert Page B 3.8-35, B 3.8-36, B 3.8-37, B 3.8-38, and B 3.8-39 Retyped ITS p 3.8-12, 3.8-13, and 3.8-14 Retyped ITS Bases p B 3.8-27, B 3.8-28, B 3.8-29, B 3.8-30, B 3.8-31, and B 3.8-32
Typographical error	It was noted in ITS JFD CLB1 that the ISTS SR number was incorrect (SR 3.1.8.17 should be SR 3.8.1.17). This has been corrected.	**Specification 3.8.2** JFD CLB1 (JFDs p 1 of 2)
Editorial	It was noted during this revision process that the reason for why SR 3.8.1.7 is not required to be met during shutdown conditions was not accurate. SR 3.8.1.7 requires verification of automatic and manual transfer from the normal power supply to the reserve power supply. The Bases for SR 3.8.2.1 stated that SR 3.8.1.7 was not required since only one reserve circuit is required. The correct reason is because the main generator is not used to provide AC power while shutdown. The Bases has been corrected to reflect this more correct reason.	**Specification 3.8.2** ITS Bases mark-up p B 3.8-40 Retyped ITS Bases p B 3.8-32
RAI 3.8.3-03	The reference to ASTM D 5452-96 has been replaced with a reference to ASTM D 5452-98. This is the current ASTM Standard JAFNPP is using to perform this fuel oil test.	**Specification 3.8.3** ITS Bases mark-up p B 3.8-47 and Insert Page B 3.8-49 Bases JFD DB3 (Bases JFDs p 1 of 2 Retyped ITS Bases p B 3.8-41 and B 3.8-43

Source of Change	Summary of Change	Affected Pages
RAI 3.8.3-04 (as modified)	The NRC questioned a change to the STS Bases concerning when the fuel oil sample was required to be analyzed. The statement in the Bases has been clarified by stating the fuel oil is analyzed "within 31 days following addition of the new fuel oil to the fuel oil storage tanks." The previous statement required the sampling to be within 31 days of both the sampling and the addition. The new words are consistent with the requirements in ITS 5.5.10, the Diesel Fuel Oil Testing Program.	**Specification 3.8.3** ITS Bases mark-up p B 3.8-47 and Insert Page B 3.8-47 (deleted) Bases JFD PA4 (Bases JFDs p 1 of 2) Retyped ITS Bases p B 3.8-41
RAI 3.8.4-02 and RAI 3.8.4-06	CTS 4.9.E.1 and 4.9.F.1 require a weekly overall battery voltage measurement. The ITS changed this Frequency to 31 days, based on a proposed TSTF. The specific TSTF has not been approved by the NRC; therefore, the Frequency is being changed back to weekly (every 7 days), as requested by the NRC.	**Specification 3.8.4** CTS mark-up p 1 of 5 and 3 of 5 DOC L2 (deleted) (p 5 of 8) NSHC L2 (deleted) (p 3 of 13) ITS mark-up p 3.8-25 JFD TP1 (deleted) (JFDs p 3 of 3) ITS Bases mark-up p B 3.8-54 Bases JFD TP1 (deleted) (Bases JFDs p 3 of 4) Retyped ITS p 3.8-20 Retyped ITS Bases p B 3.8-49
RAI 3.8.4-04	When one 419 VDC LPCI MOV independent power supply is inoperable, The ITS requires the affected LPCI subsystem to be declared inoperable and the appropriate ACTIONS of ITS 3.5.1 (ECCS - Operating) taken. However, when both 419 VDC LPCI MOV independent power supplies are inoperable, the ITS requires a plant shutdown within ITS 3.8.2; it does not require both affected LPCI subsystems to be declared inoperable and to take the ACTIONS of ITS 3.5.1. For consistency, the ITS has been modified to declare the affected LPCI subsystems inoperable when one or both 419 VDC LPCI MOV independent power supplies are inoperable. Discussion of Change L7 and associated No Significant Hazards Consideration have been modified to justify this change.	**Specification 3.8.4** CTS mark-up p 4 of 5 and 5 of 5 DOCs A2 and L7 (p 1 of 8 and 7 of 8) NSHC L7 (p 11 of 13 and 12 of 13) ITS mark-up p 3.8-24 ITS Bases mark-up p B 3.8-54 Retyped ITS p 3.8-19 Retyped ITS Bases p B 3.8-48
RAI 3.8.4-07 (as modified)	The NRC requested that the ITS Required Action C.1 Bases be modified to include similar words, found in Required Action A.1 Bases, that describe what constitutes an inoperable LPCI MOV power supply subsystem. Therefore, the phrase "(e.g., inoperable battery, inoperable battery charger, or inoperable battery charger and associated inoperable battery)" has been added to the first sentence of Required Action C.1 Bases.	**Specification 3.8.4** ITS Bases mark-up p B 3.8-54 Retyped ITS Bases p B 3.8-48

SUMMARY OF CHANGES TO ITS SECTION 3.8 - REVISION G

Source of Change	Summary of Change	Affected Pages
TSTF-283	The CTS and ITS contain restrictions that the battery Surveillances (service test and performance discharge test) can only be performed while shutdown. TSTF-283 supercedes TSTF-8 (which has been deleted from the ITS) and adds an allowance that portions of the Surveillances can be performed in MODE 1, 2, or 3 to reestablish Operability provided an assessment determines the safety of the plant is maintained or enhanced. In addition, an allowance is added that credit may be taken for unplanned events that satisfy the Surveillances. Also, ITS SR 3.8.4.2, the battery charger Surveillance, includes a Note restricting the Surveillance from being performed in MODE 1, 2, or 3. This restriction is not required by the CTS, and has therefore been deleted.	**Specification 3.8.4** CTS mark-up p 2 of 5 DOCs M5 (deleted) and L8 (p 3 of 8, 7 of 8, and 8 of 8) NSHC L8 (p 13 of 13) ITS mark-up p 3.8-26 and 3.8-27 JFDs CLB8 and TA1 (JFDs p 2 of 3 and 3 of 3) ITS Bases mark-up p B 3.8-56, B 3.8-58, Insert Page B 3.8-58, B 3.8-59, and Insert Page B 3.8-59 Bases JFDs CLB6 and TA1 p 1 of 4 and 3 of 4 Retyped ITS p 3.8-20 and P 3.8-21 Retyped ITS Bases p B 3.8-49, B 3.8-50, B 3.8-51, and B 3.8-52
Typographical correction	The Note in the retyped ITS SR 3.8.4.4 did not match the ITS mark-up: the Note included the term "Division 1 and 2." This term is inconsistent with the rest of the SRs and is redundant; therefore it has been deleted.	**Specification 3.8.4** Retyped ITS p 3.8-21
RAI 3.8.5-01	In the original ITS submittal, an ACTIONS Note stating "LCO 3.0.3 is not applicable" was added based on pending TSTF-36, Revision 3. In the time since the original ITS submittal, TSTF-36, Revision 4 has been approved. Therefore, the ITS submittal is being revised to reflect the approved TSTF-36, Revision 4. The change only affects the Bases for the Note, and does not change the technical content. In addition, the JFD (both ITS and ITS Bases) has been updated to identify that the change is consistent with the approved TSTF-36, Revision 4 (versus a pending TSTF-36, Revision 3).	**Specification 3.8.5** ITS mark-up p 3.8-28 JFDs TA1 and TP1 (deleted) (JFDs p 1 of 2) ITS Bases mark-up p B 3.8-61 and Insert Page B 3.8-61 Bases JFDs TA1 and TP1 (deleted) (Bases JFDs p 2 of 2) Retyped ITS Bases p B 3.8-56

Source of Change	Summary of Change	Affected Pages
TSTF-204	TSTF-204, Revision 1 provides a second option for LCO 3.8.5. The second option only requires one division of the DC Electrical Power System to be OPERABLE and capable of supplying one division of the onsite Class 1E DC Electrical Power Distribution System. As currently written, the ITS may require both DC electrical power divisions to be OPERABLE, if both DC electrical power distribution subsystems are required by LCO 3.8.8, "Distribution – Shutdown." This revision adopts the second option. Thus, even if both DC distribution divisions are required by LCO 3.8.8, only one DC source will be required OPERABLE. In addition, while LCO 3.8.8 will still require both DC distribution divisions to be energized, this can be accomplished by energizing one DC distribution division with the OPERABLE DC source and energizing the other DC distribution division by just the battery charger alone. Appropriate changes have also been made to ACTION A.	**Specification 3.8.5** DOC M.1 (DOCs p 1 of 1) ITS mark-up p 3.8-28 JFDs PA2 (deleted) and TA2 (JFDs p 1 of 2 ITS Bases mark-up p B 3.8-60, Insert Page B 3.8-60, B 3.8-61, and B 3.8-62 Bases JFD TA2 (Bases JFDs p 2 of 2) Retyped ITS p 3.8-22 Retyped ITS Bases p B 3.8-54, B 3.8-55, B 3.8-56, and B 3.8-57
RAI 3.8.6-01	CTS 4.9.E.1 and 4.9.F.1 require a weekly battery pilot cell specific gravity voltage measurement. The ITS changed this Frequency to 31 days, based on a proposed TSTF. The specific TSTF has not been approved by the NRC; therefore, the Frequency is being changed back to weekly (every 7 days), as requested by the NRC.	**Specification 3.8.6** CTS mark-up p 1 of 3 and 2 of 3 DOC L1 (deleted) (DOCs p 4 of 5) NSHC L1 (deleted) (NSHCs p 1 of 4) ITS mark-up p 3.8-31 JFD TP1 (deleted) (JFDs p 2 of 2) Retyped ITS p 3.8-25
RAI 3.8.6-02	ITS Table 3.8.6-1, footnote (a) allows the electrolyte level to temporarily increase above the specified maximum level during and following an equalizing charge provided it is not overflowing. The NRC requested that a more definite limit be placed on how long following the equalizing charge the maximum level can be exceeded. Recently approved BWRs ITS conversions (Dresden, Quad Cities, and LaSalle) changed to wording from "and following" to "and, for a limited time, following." The ITS has been modified to use these same words. In addition, the Bases states that the limited time is "normally up to 3 days following completion of an equalization charge to allow electrolyte stabilization." Thus, under normal conditions, it should only take 3 days for the level to return to normal, but it is allowed to take longer (i.e., the Bases do not limit the time to only 3 days).	**Specification 3.8.6** ITS mark-up p 3.8-33 JFD X3 (JFDs p 2 of 2) ITS Bases mark-up p B 3.8-67 Bases JFD X3 (Bases JFDs p 2 of 3) Retyped ITS p 3.8-27 Retyped ITS Bases p B 3.8-62

Source of Change	Summary of Change	Affected Pages
RAI 3.8.7-01 and RAI 3.8.7-05	CTS 3.9.E does not provide specific actions for inoperable 125 VDC buses; thus entry into CTS LCO 3.0.C would be required. ITS 3.8.7 ACTION B provides an 8 hour restoration time when one 125 VDC bus is inoperable prior to requiring a plant shutdown. The NRC requested the Discussion of Change that justified the 8 hour restoration time be enhanced to specifically address the impact of a single inoperable 125 VDC bus. Discussion of Change L1 has been modified to state that the 8 hour restoration time is acceptable for a single 125 VDC subsystem because the loss of a 125 VDC subsystem was analyzed as the most limiting single failure and was found to be acceptable (i.e., no loss of function occurs). In addition, a typographical error in DOC L1 was corrected (the wrong CTS number was used).	**Specification 3.8.7** DOC L1 (DOCs p 3 of 4 and 4 of 4) NSHC L1 (p 2 of 4)
RAI 3.8.7-03, RAI 3.8.7-06, and RAI 3.8.7-10	ITS 3.8.7 Condition B addresses "one or more" DC electrical power distribution subsystems inoperable. Condition B allowed "one or more" since Condition D would provide the Actions when a loss of function has occurred due to "two or more" inoperable buses. However, the JAFNPP design includes only two DC distribution subsystems, each with one DC bus. Thus, when "more" are inoperable, essentially both DC subsystems are inoperable and a loss of function has occurred. Therefore, the NRC requested the "or more" provisions be deleted, since the "or more" provisions of Condition B cannot be used. The requested changes have been made. In addition to the change described above, the NRC noted that the Action B.1 Bases included (in two locations) the term "active component" between the words "single" and "failure." The NRC questioned the purpose of this change, and, after additional review, JAFNPP has concluded that the added term is not correct. Also, Therefore, it has been deleted from the ITS Bases.	**Specification 3.8.7** DOCs A3 and L1 (p 1 of 4, 3 of 4, and 4 of 4) NSHC L1 (p 1 of 4 and 2 of 4) ITS mark-up p 3.8-38 JFD X2 (JFDs p 2 of 2) ITS Bases mark-up p B 3.8-85 Retyped ITS p 3.8-28 Retyped ITS Bases p B 3.8-69 and B 3.8-70
RAI 3.8.7-04	The NRC noted that the first paragraph of Action A.1 Bases included the term "active component" between the words "single" and "failure." The NRC questioned the purpose of this change, and, after additional review, JAFNPP has concluded that the added term is not correct. Therefore, it has been deleted from the ITS Bases. JAFNPP also noted that a similar change in a following paragraph in Action A.1 Bases (subparagraph b). This has also been corrected.	**Specification 3.8.7** ITS Bases mark-up p B 3.8-82 Retyped ITS Bases p B 3.8-68 and B 3.8-69
RAI 3.8.7-09 (as modified)	The NRC noted that no justification was provided for a change to the ACTION A.1 Bases. Specifically, the words "in one division" were replaced by the word "subsystems." JAFNPP provided a response (as modified) that stated the reason for the change was that the Bases was inconsistent with the actual ITS Condition. The ITS Condition uses the term "subsystems" and the Bases (in Table B 3.8.7-1 footnote *) defines a division as a subsystem. Since the change is only a correction of a typographical error, JFD PA5 has been used to justify the change. In addition, the Bases have been modified to state that the ACTION is applicable as long as a loss of function has not occurred.	**Specification 3.8.7** ITS Bases mark-up p B 3.8-81 Retyped ITS Bases p B 3.8-68

SUMMARY OF CHANGES TO ITS SECTION 3.8 - REVISION G

Source of Change	Summary of Change	Affected Pages
RAI 3.8.8-01	In the original ITS submittal, an ACTIONS Note stating "LCO 3.0.3 is not applicable" was added based on pending TSTF-36, Revision 3. In the time since the original ITS submittal, TSTF-36, Revision 4 has been approved. Therefore, the ITS submittal is being revised to reflect the approved TSTF-36, Revision 4. The change only affects the Bases for the Note, and does not change the technical content. In addition, the JFD (both ITS and ITS Bases) has been updated to identify that the change is consistent with the approved TSTF-36, Revision 4 (versus a pending TSTF-36, Revision 3).	Specification 3.8.8 ITS mark-up p 3.8-40 JFDs TA1 and TP1 (deleted) (JFDs p 1 of 1) ITS Bases mark-up p B 3.8-91 and Inert Page B 3.8-91 Bases JFDs TA1 and TP1 (deleted) (Bases JFDs p 1 of 2 Retyped ITS Bases p B 3.8-76

ITS CONVERSION PACKAGE

SECTION 3.8 - ELECTRICAL POWER SYSTEMS

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.1

AC Sources - Operating

MARKUP OF CURRENT TECHNICAL SPECIFICATIONS (CTS)

DISCUSSION OF CHANGES (DOCs) TO THE CTS

NO SIGNIFICANT HAZARDS CONSIDERATION (NSHC) FOR LESS RESTRICTIVE CHANGES

MARKUP OF NUREG-1433, REVISION 1, SPECIFICATION

JUSTIFICATION FOR DIFFERENCES (JFDs) FROM NUREG-1433, REVISION 1

MARKUP OF NUREG-1433, REVISION 1, BASES

JUSTIFICATION FOR DIFFERENCES (JFDs) FROM NUREG-1433, REVISION 1, BASES

RETYPED PROPOSED IMPROVED TECHNICAL SPECIFICATIONS (ITS) AND BASES

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.1

AC Sources - Operating

MARKUP OF CURRENT TECHNICAL SPECIFICATIONS (CTS)

Specification 3.8.1

A1

3.9 LIMITING CONDITIONS FOR OPERATION

3.9 AUXILIARY ELECTRICAL SYSTEMS

Applicability:

Applies to the auxiliary electrical systems.

Objective:

To assure an adequate supply of electrical power for operation of those systems required for safety.

Specification: AC Power Sources - Operating

[3.8.1] A. ~~Normal and Reserve A-C Power Systems~~

[App] [LCO 3.8.1] The reactor shall not be made critical unless all of the following requirements are ~~satisfied~~: MODES 1, 2 and 3 M1

OPERABLE LA1

1. ~~Power is available to the emergency buses from the following power sources:~~

[LCO 3.8.1.a] a. the two ~~115 kv lines and reserve station service transformers~~ LA1 qualified circuits between the offsite transmission network and the plant Class 1E AC Electrical Power Distribution System

[LCO 3.8.1.b] b. the two Emergency Diesel Generator Systems.

2. a. 4,160 v buses 10,500 and 10,600 are energized.

b. 600 v buses 11,500, 12,500, 11,600 and 12,600 are energized.

See ITS 3.8.7

4.9 SURVEILLANCE REQUIREMENTS

4.9 AUXILIARY ELECTRICAL SYSTEMS

Applicability:

Applies to the periodic testing requirements of the auxiliary electrical systems.

Objective:

Verify the operability of the auxiliary electrical system.

Specification:

A. Deleted

add SRs 3.8.1.4
3.8.1.5
3.8.1.7
3.8.1.8
3.8.1.11
3.8.1.13

M2

G

G RAI 3.8.1-19

Page 1 of 11

Revision G

Specification 3.8.1 (A1)

Applicability

JAFNPP

AC Power Sources - Operating

(M1) MODES 1, 2 and 3

3.9.A cont'd

4.9 (cont'd)

[LCO 3.8.1]- **B. Emergency A-C Power System**

The availability of electric power shall be as specified in 3.9.A, except as specified in 3.9.B.1, 3.9.B.2, 3.9.B.3, 3.9.B.4, and 3.9.B.5, except when the reactor is in the cold condition:

(L7) add Required Action A.2 Completion Time

[ACTION A] 1. From and after the time that incoming power is available from only one line or through only one reserve station service transformer, continued reactor operation is permissible for a period not to exceed 7 days unless the line or reserve transformer is made operable earlier, provided that during such 7 days both Emergency Diesel Generator Systems are operable. At the end of the 7th day, if the condition still exists, the reactor shall be placed in a cold condition within 24 hours. (36) (L2)

[RA A.3] [(L1) ACTION D] [(A6) ACTION G] [ACTION F]

(M3) IN MODE 3 in 12 hours

[ACTION C] 2. From and after the time that incoming power is not available from any line or through either reserve station transformer, continued reactor operation is permissible for a period not to exceed 7 days, provided that both redundant Emergency Diesel Generator Systems are operable, all core and containment cooling systems are operable and the shutdown cooling systems are operable. At the end of the seventh day, if the condition still exists, the Reactor shall be placed in a cold condition within 24 hours. (36) (L2)

[RA C.2] [(A6) ACTION G] [RA C.1] [ACTION F]

(M3) IN MODE 3 in 12 hours

B. Emergency A-C Power System

(A8) add Note 3 to SR 3.8.1.2

(M7) add time voltage frequency

1. Once each month, each pair of diesel generators which forms a redundant Emergency Diesel Generator System shall be manually initiated to demonstrate its ability to start, accelerate, and force parallel, after connection to the bus, the paralleled pair will be loaded to 6,200 KW, this load will be maintained until both generators are at steady state temperature conditions. During this period the generators' load shaving capability will be checked. (L3)

[SR 3.8.1.2] [SR 3.8.1.3] (A4) ≥ 1 hr

2. Once per month the diesel starting air compressors shall be checked for proper operation and their ability to recharge air receivers. (See ITS: 3.8.3)

(M4) and 21 days from discovery of failure to meet LCO

each EDG loaded to ≥ 2340 and ≤ 2600

(L7) add Required Action C.1 Completion Time

(L8) add Note 1 to SR 3.8.1.3

(L9) add Note 2 to SR 3.8.1.3

(M8) add Note 3 to SR 3.8.1.3

(A3) add Note 4 to SR 3.8.1.3

(L1) add ACTION D

add ACTION G (A6)

G RAI 3.8.1-12

C

G RAI 3.8.1-01

Page 2 of 11

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Specification 3.8.1

M11 A1

add specific requirements identified in SR 3.8.1.9, SR 3.8.1.10, SR 3.8.1.12

add Required Action B.2 L7

3.9 (cont'd)

[ACTION B] 3. From and after the time that one of the Emergency Diesel Generator Systems is made or found to be inoperable, continued reactor operation is permissible for a period not to exceed 14 days provided that the two incoming power sources are available and that the remaining Diesel Generator System is operable. At the end of the 14 day period, the reactor shall be placed in a cold condition within 24 hours, unless the affected diesel generator system is made operable sooner.

[RA B.4] L1 A6 [ACTION D] [ACTION G] [ACTION E] [ACTION F]

in MODE 3 in 12 hours and M3

36 L2

[ACTION E] 4. When both Emergency Diesel Generator Systems are made or found to be inoperable restore at least one system to operable status within two hours or place the reactor in the cold condition within the following 24 hours.

ACTION F]

5. Deleted

MODE 3 in 12 hours and in M3

L2 36

and 21 days from discovery of failure to meet LCO M4

add Action G A6

4.9 (cont'd)

LA2

3. The emergency diesel generator system instrumentation shall be checked during the monthly generator test.

A8 add Note to SR 3.8.1.9, SR 3.8.1.10, and SR 3.8.1.12

verified by an actual or L4

A2 M9

4. Once every 24 months, the conditions under which the Emergency Diesel Generator System is required will be simulated to demonstrate that the pair of diesel generators will start, accelerate, force parallel, and accept the emergency loads in the prescribed sequence.

[SR 3.8.1.9] [SR 3.8.1.10] [SR 3.8.1.12]

5. While the reactor is being operated in accordance with Specification 3.9.B.3, the availability of the operable Emergency Diesel Generator System shall be demonstrated once within 8 hours by manual starting and force paralleling. The operability of the remaining Emergency Diesel Generator System need not be demonstrated if the affected Emergency Diesel Generator System became inoperable due to:

[RA B.3.1]

24 L5 A7

a. Preplanned preventive maintenance or testing.

b. An inoperable support system with no potential common mode failure for the remaining diesel generators, or

c. An independently testable component with no potential common mode failure for the remaining diesel generators.

[RA B.3.1]

C

(5) RAI 3.8.1-12

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Specification 3.8.1 (A1)

add SR 3.8.1.1 Frequency (M12)

3.9 Continued

4.9 Continued

[RA A.1]
[RA B.1]

6. Once within one hour and at least once per eight hours thereafter, while the reactor is being operated in accordance with Specifications 3.9.B.1, 3.9.B.3 and 3.9.B.4 the availability of off-site power shall be assured by verifying correct breaker alignment and by verifying that the associated off-site electrical line is energized. (C)

(M12) [SR 3.8.1.1]

C. Diesel Fuel

There will be a minimum of 64,000 gal. of diesel fuel on site for each operable pair of diesel generators.

1. From and after the time that fuel oil storage tank level instrumentation is made or found to be inoperable for any reason continued reactor operation is permissible indefinitely, provided that the level in the affected storage tank is manually measured at least once/day.

See ITS 3.8.3

C. Diesel Fuel

Perform SR 3.8.1.1 for Operable circuit

Once a month the quantity of diesel fuel available in each storage tank shall be manually measured and compared to the reading of the local level indicators to ensure the proper operation thereof.

1. Once a month a sample of the diesel fuel in each storage tank shall be checked for quality as per the following:

Flash Point - °F	125°F min.
Pour Point - °F	10°F max.
Water & Sediment	0.05% max.
Ash	0.01% max.
Distillation 90% Point	540 min.
Viscosity (SSU) at 100°F	40 max.
Sulfur	1% max.
Copper Strip Corrosion	No. 3 max.
Cetane #	35 min.

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3.9 Continued

A5

2. The Diesel Fuel Oil Transfer System shall be operable whenever the diesel generator it supplies is required to be operable, except as specified below:

a. From and after the time that one fuel oil transfer pump per Diesel Generator System is made or found to be inoperable for any reason, continued reactor operation is permissible for a period not to exceed 60 days; provided that the remaining fuel oil transfer pumps are demonstrated to be operable immediately and weekly thereafter.

L6

b. From and after the time that only two fuel oil transfer pumps per Diesel Generator System are operable, continued reactor opertion is permissible for a period not to exceed 30 days total per pair of diesels, provided that the remaining fuel oil transfer pumps are demonstrated to be operable and daily thereafter.

M13

4.9 Continued

2. Once per month demonstrate the fuel oil transfer system operates to transfer fuel from the storage systems to the fuel oil day tank. [SR3.8.1.6]

each EDG
its
tank
associated
automatically
M13
RAI 3.8.1-05

219

Specification 3.8.1

A1

3.9 (cont'd)

c. ~~From and after the time that only one fuel oil transfer pump in a Diesel Generator System is found to be operable, that Diesel Generator System shall be considered inoperable and continued reactor operation shall be in accordance with Specification 3.9.B.3 above.~~

M13

3. Whenever the diesel fuel on site for each operable pair of Diesel Generators decreases to less than 64,000 gallons as a result of operation of the Diesel Generators "to meet Technical Specification requirements," Specification 3.0.C does not apply. 48 hours are allowed to restore fuel oil storage tank quantity to a minimum of 64,000 gallons.

See ITS 3.8.3

D. <u>AC Power Operability During Cold Shutdown or Refueling Modes</u>

Whenever the reactor is in the cold shutdown or refueling mode, a minimum of one offsite power source and one Emergency Diesel Generator System, capable of supporting required emergency equipment, shall be operable whenever any work is being done which has the potential for draining the vessel, secondary containment is required, or a core or containment cooling system is required. When this condition is not met, initiate actions to suspend all work that could cause draining of the vessel, suspend core alterations and handling of irradiated fuel assemblies in the secondary containment, declare required core or containment cooling systems inoperable and immediately initiate actions to restore required AC power sources.

4.9 (cont'd)

D. <u>Not Applicable</u>

See ITS 3.8.2

C

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A1

3.0 Continued

D. Entry into an OPERATIONAL CONDITION (mode) or other specified condition shall not be made when the conditions for the Limiting Condition for Operation are not met and the associated ACTION requires a shutdown if they are not met within a specified time interval. Entry into an OPERATIONAL CONDITION (mode) or specified condition may be made in accordance with ACTION requirements when conformance to them permits continued operation of the facility for an unlimited period of time. This provision shall not prevent passage through OPERATIONAL CONDITIONS (modes) required to comply with ACTION requirements or that are part of a shutdown of the plant. Exceptions to these requirements are stated in the individual specifications.

G

E. When a system, subsystem, train, component or device is determined to be inoperable solely because its emergency power source is inoperable, or solely because its normal power source is inoperable, it may be considered OPERABLE for the purpose of satisfying the requirements of its applicable Limiting Condition for Operation, provided: (1) its corresponding normal or emergency power source is OPERABLE; and (2) all of its redundant system(s), subsystem(s), train(s), component(s) and device(s) are OPERABLE, or likewise satisfy the requirements of this specification. Unless both conditions (1) and (2) are satisfied, the unit shall be placed in COLD SHUTDOWN within the following 24 hours. This specification is not applicable when in Cold Shutdown or Refuel Mode.

[RA A.2] [RA B.2] [RA C.1]

[ACTIONS]

36

[Applicability]

in Mode 3 in 12 hours

L2

F. Equipment removed from service or declared inoperable to comply with required actions may be returned to service under administrative control solely to perform testing required to demonstrate its operability or the operability of other equipment. This is an exception to LCO 3.0.B.

M3

See ITS: Chapter 3.0

4.0 Continued

See ITS: Chapter 3.0

that a Surveillance Requirement has not been performed. The ACTION requirements may be delayed for up to 24 hours to permit the completion of the surveillance when the allowable outage time limits of the ACTION requirements are less than 24 hours. Surveillance requirements do not have to be performed on inoperable equipment.

D. Entry into an OPERATIONAL CONDITION (mode) shall not be made unless the Surveillance Requirement(s) associated with the Limiting Condition for Operation have been performed within the applicable surveillance interval or as otherwise specified. This provision shall not prevent passage through or to Operational Modes as required to comply with ACTION requirements or that are part of a shutdown of the plant.

G

E. Surveillance Requirements for inservice testing of components shall be applicable as follows:

1. Inservice testing of pumps and valves shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50, Section 50.55a(f), except where specific written relief has been granted by the NRC pursuant to 10 CFR 50, Section 50.55a(f)(6)(i). The inservice testing and inspection program is based on an NRC approved edition of, and addenda to, Section XI of the ASME Boiler and Pressure Vessel Code which is in effect 12 months prior to the beginning of the inspection interval.

within 24 hours (A.2), 4 hours (B.2), 12 hours (C.1)

L7

See ITS: Section 5.5

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.1

AC Sources - Operating

DISCUSSION OF CHANGES (DOCs) TO THE CTS

DISCUSSION OF CHANGES
ITS: 3.8.1 - AC SOURCES - OPERATING

ADMINISTRATIVE CHANGES

A1 In the conversion of the James A. FitzPatrick Nuclear Power Plant (JAFNPP) Current Technical Specifications (CTS) to the proposed plant specific Improved Technical Specifications (ITS) certain wording preferences or conventions are adopted which do not result in technical changes. Editorial changes, reformatting, and revised numbering are adopted to make ITS consistent with the conventions in the Standard Technical Specifications, General Electric Plants, BWR/4, NUREG-1433, Revision 1 (i.e., Improved Standard Technical Specifications (ISTS)). These changes are administrative, and have no adverse impact on safety.

A2 CTS 4.9.B.4 requires, once every 24 months, the conditions under which the EDG system is required will be simulated to demonstrate that the pair of diesel generators will start, accelerate, force parallel and accept the emergency loads in the prescribed sequence. ITS SR 3.8.1.12 specifies the conditions and requires, once each 24 months, verification that the diesel generator, in response to loss of power signal in conjunction with an ECCS initiation signal will auto-start from a standby condition and energize as required permanently connected loads within the required time and auto-connected emergency loads in the prescribed sequence. This change is a presentation preference consistent with JAFNPP current practice, safety analysis assumptions, and interpretation of the requirements of CTS 4.9.B.4. Therefore this change is administrative and has no adverse impact on safety.

A3 CTS 4.9.B.1 requirement to start, accelerate, force parallel and load each pair of EDGs and run until both EDGs are at steady state temperature conditions has been divided into two separate Surveillance Requirements. ITS SR 3.8.1.2 addresses the start requirements (M7), and ITS SR 3.8.1.3 addresses the Loading requirements (L3). In addition, ITS SR 3.8.1.3 Note 4 has been added, to clarify the requirement, that the SR be preceded by and immediately follow, without shutdown, a successful performance of SR 3.8.1.2. The addition of ITS SR 3.8.1.3 Note 4 retains the CTS 4.9.B.1 relationship between starting and loading the EDGs, and as such does not alter any current testing or technical requirements. Therefore this change is administrative and has no adverse impact on safety.

A4 CTS 4.9.B.1 requires that the paralleled EDG pair be loaded until both EDGs are at steady state temperature conditions. ITS SR 3.8.1.3 requires that the loaded EDG pair be run for ≥ 60 minutes. ITS SR 3.8.1.3 Bases states that the minimum run time of 60 minutes is required to stabilize engine temperatures. Since this change does not alter any technical requirements since historically these temperatures have stabilized at about this time, this change is considered administrative and has no adverse impact on safety.

ADMINISTRATIVE CHANGES

A5 The details of CTS 3.9.C.2 related to the Diesel Fuel Oil Transfer System OPERABILITY have been deleted. The CTS 4.9.C.2 Surveillance Requirement of the Diesel Fuel Oil Transfer System necessary to support EDG OPERABILITY is maintained by ITS SR 3.8.1.6. Additional technical changes to the diesel fuel oil transfer system are discussed in L6, L10, and M13. The applicability of the Diesel Fuel Oil Transfer System is currently and will remain associated with EDG OPERABILITY, therefore this change in presentation is administrative.

A6 CTS 3.9.B does not provide specific Actions for the condition of three or more AC sources inoperable and therefore entry into CTS 3.0.C is required and the plant must be placed in COLD SHUTDOWN within 24 hours. ITS 3.8.1 Condition G has been included which specifies all other possible combinations of inoperable AC sources not addressed in the other proposed conditions in ITS 3.8.1. Since the ITS format allows multiple Conditions to be entered simultaneously, with three or more AC sources inoperable, ACTIONS would be taken in accordance with ITS 3.8.1, and ITS LCO 3.0.3 entry conditions would not be met. However, consistent with the CTS default to CTS 3.0.C, ITS 3.8.1 Required Action G.1 will require direct entry into ITS LCO 3.0.3. The changes in time requirements to shutdown of CTS 3.0.C are addressed in ITS Section 3.0 Discussion of Changes M1 and L1. Therefore this change is considered administrative.

A7 The wording in CTS 4.9.B.5.a, b and c related to the criteria for determining whether a potential common cause EDG failure exists are being replaced with ITS 3.8.1 Required Action B.3.1 which requires the determination whether the other Operable EDG and EDG subsystems are not inoperable due to common cause failure. The allowance to extend the CTS Completion Time of 8 hours to 24 hours is discussed in L5. Since the intent of the CTS and ITS wording are identical, this change is considered administrative. This change is consistent with NUREG-1433, Revision 1.

A8 A Note has been added to CTS 4.9.B.1 (ITS SR 3.8.1.2) and 4.9.B.4 (ITS SRs 3.8.1.9, 10, and 12) which allows all EDG subsystem starts to be preceded by an engine prelube period to minimize wear and tear on the EDGs during testing. The addition of the Note is considered administrative since the EDGs at JAFNPP run in a continuous prelube mode of operation.

RAI 3.8.1-12

TECHNICAL CHANGES - MORE RESTRICTIVE

M1 CTS 3.9.A requires the LCO to be met prior to making the reactor critical. This effectively implies MODES 1 and 2. ITS 3.8.1

TECHNICAL CHANGES - MORE RESTRICTIVE

M1 (continued)

Applicability requires AC sources be OPERABLE in MODES 1, 2, and 3. This change expands the Applicability of AC electric power source OPERABILITY requirements to more MODES of operation. The addition of MODE 3 establishes requirements for the OPERABILITY of AC sources consistent with the OPERABILITY requirements for the functions that these sources are required to support including Emergency Core Cooling Systems and Primary Containment Isolation. The addition of MODE 3, is consistent with NUREG-1433, Revision 1, imposes additional operational requirements, and is considered more restrictive. The proposed Applicability in ITS 3.8.1 is consistent with the Applicability statement in CTS 3.9.B (except when the reactor is in the cold condition). This statement implies that the 3.9.B is applicable in MODES 1, 2 and 3. Since CTS 3.9.B provides exception to the Operability requirements in CTS 3.9.A, this portion of the change is considered administrative since it clearly states when the AC sources are required to be Operable and fixes an inconsistency in the current Specification.

M2 The JAFNPP CTS 3.9.B does not contain certain Surveillance Requirements specified in the Standard Technical Specifications, General Electric Plants, BWR/4, NUREG-1433, Revision 1 (i.e., Improved Standard Technical Specifications (ISTS)). JAFNPP has included the following Surveillance Requirements since they directly impact the OPERABILITY of the AC Sources, and should be performed to ensure the accident analysis can be met.

The following 31 day Surveillance Requirements are adopted in the ITS:

SR 3.8.1.4, Verify each day tank contains ≥ 327 gal of fuel oil; and

SR 3.8.1.5, Check for and remove accumulated water from each day tank.

The following 24 month Surveillance Requirements are adopted in the ITS:

SR 3.8.1.7, Verify automatic and manual transfer of plant power supply from the normal station service transformer to each offsite circuit. The normal station service transformer, which is not a qualified offsite circuit, is the normal power source for the 4.16 kV emergency buses when the main generator is on line. However, automatic residual transfer ensures that power can be transfered to the qualified source (reserve circuit) if a main generator trip occurs; G RAI 28-27

TECHNICAL CHANGES - MORE RESTRICTIVE

M2 (continued)

SR 3.8.1.8, Verify each EDG subsystem rejects a load greater than or equal to a load equivalent to one core spray pump;

SR 3.8.1.11, Verify each EDG pair operating within the power factor limit (except when grid conditions will not permit, and then as close to the limit as practicable) operates for ≥ 2 hours loaded from 105% to 110% of the continuous rating, and for 6 hours loaded from 90% to 100% of the continuous rating. RAI 3.8.1-18

SR 3.8.1.13, Verify interval between each sequenced load block is greater than or equal to the minimum design interval. RAI 3.8.1-19

An evaluation has been performed due to the added testing requirements imposed by SR 3.8.1.7, SR 3.8.1.8, SR 3.8.1.11, and SR 3.8.1.13. The evaluation has concluded that the additional tests will not impact the reliability of the EDG subsystems.

Since no similar Specifications exist, the addition of these SRs imposes additional operational requirements, and is considered more restrictive. This change, consistent with current operating practice, is considered to have no adverse impact on safety.

M3 CTS 3.9.B.1, 3.9.B.2, 3.9.B.3, 3.9.B.4, and 3.0.E requirements, that the plant be placed in cold shutdown (MODE 4) within 24 hours (L2) if the corresponding AC sources were not restored within the current Completion Times or all of its redundant system(s), subsystem(s), train(s), component(s), or device(s) are OPERABLE, are being added to. ITS 3.8.1 Required Action F.1 requires the plant to be in MODE 3 (Hot Shutdown) within 12 hours. This action will ensure that the plant is placed in a MODE outside of the Applicability in a timely manner. Based on operating experience, the 12 hour Completion Time limit is acceptable since it allows sufficient time for an orderly transition to MODE 3 without challenging plant systems. The additional requirement, to be in MODE 3 in 12 hours, is consistent with NUREG-1433, Revision 1, imposes additional operational requirements, and is considered more restrictive. This change is considered to have no adverse impact on safety.

M4 CTS 3.9.B.1 and 3.9.B.3 Completion Times are being added to. ITS 3.8.1 Required Actions A.3 and B.4 include a second Completion Time of 21 days from the discovery of failure to meet the LCO. This second Completion Time imposes a limit on the maximum time allowed for any combination of required AC power sources to be inoperable during any single contiguous occurrence of failing to meet the LCO. This restriction is intended to

TECHNICAL CHANGES - MORE RESTRICTIVE

M4 (continued)

prevent exceeding the assumptions regarding allowed out of service times for an inoperable AC source as a result of sequential inoperable EDG subsystems and reserve sources. The additional requirement, limiting the maximum continuous allowed out of service time, is consistent with NUREG-1433, Revision 1, imposes additional operational requirements, and is considered more restrictive. This change is considered to have no adverse impact on safety.

RAI 3.8.1-01

M5 Not Used.

M6 Not Used.

M7 CTS 4.9.B.1 requirement, to demonstrate the ability of each EDG subsystem to start, accelerate, and force parallel, is being supplemented. ITS SR 3.8.1.2 requires the EDG subsystem also meet specific values for time, voltage and frequency. These requirements are acceptable based on meeting the values for time, voltage, and frequency consistent with existing plant design, and regulatory requirements. The addition of the requirement for the EDG subsystems to meet specific values for time, voltage, and frequency, is necessary to ensure EDG OPERABILITY and safety analysis assumptions are maintained, is consistent with NUREG-1433, Revision 1, imposes additional operational requirements, and is considered more restrictive. This change is considered to have no adverse impact on safety.

M8 CTS 4.9.B.1 requirement, to load each EDG subsystem, is being restricted. ITS SR 3.8.1.3 Note 3 precludes this Surveillance from being performed on more than one EDG subsystem at a time. This change will ensure that at least one EDG subsystem is available to minimize the consequences of a design basis accident. This change is considered acceptable since although not required by CTS it is consistent with current JAFNPP practice. The addition of ITS SR 3.8.1.3 Note 3 to permit loading of only one EDG subsystem at a time, is necessary to help avoid common cause failures of both EDG subsystems that might result from offsite circuit or grid perturbations, is consistent with NUREG-1433, Revision 1, imposes additional operational requirements, and is considered more restrictive. This change is considered to have no adverse impact on safety.

M9 CTS 4.9.B.4 requires, once every 24 months, the conditions under which the EDG system is required (loss of power signal in conjunction with an ECCS initiation signal) will be simulated to demonstrate that the pair of diesel generators will start, accelerate, force parallel and accept

TECHNICAL CHANGES - MORE RESTRICTIVE

M9 (continued)

the emergency loads in the prescribed sequence. This condition, loss of power signal in conjunction with an ECCS initiation signal is addressed in ITS SR 3.8.1.12 (A2). In addition, JAFNPP has included ITS SR 3.8.1.9 and SR 3.8.1.10 which require, once each 24 months, verification that the EDG subsystem, in response to a loss of power signal or ECCS initiation signal respectively, will auto-start from a standby condition and energize, as required, permanently connected loads within the required time and auto-connected emergency loads in the prescribed sequence. These Surveillance Requirements have been added to verify EDGs respond in accordance with the variations in the applicable design requirements. Addition of these Surveillance Requirements is consistent with the format in NUREG-1433, Revision 1, imposes additional operational requirements, and therefore is considered more restrictive. This change is considered to have no adverse impact on safety.

M10 Not Used.

M11 CTS 4.9.B.4 requirement, to demonstrate the ability under required conditions (loss of power signal, ECCS initiation signal, loss of power signal in conjunction with ECCS signal) of each EDG subsystem to start, accelerate, force parallel and accept emergency loads in the prescribed sequence, is being supplemented. ITS SR 3.8.1.9, SR 3.8.1.10, and SR 3.8.1.12 require also that the EDG subsystem meet specific values for time, voltage, frequency and loading duration. These requirements verified by current Surveillances are acceptable based on meeting the values for time, voltage, and frequency consistent with existing plant design and regulatory requirements. The addition of these requirements for the EDG subsystems to meet specific values for time, voltage, frequency and loading duration is necessary to ensure EDG OPERABILITY is maintained, is consistent with NUREG-1433, Revision 1, imposes additional operational requirements, and is considered more restrictive. This change is considered to have no adverse impact on safety.

M12 CTS 4.9.B.6 requires that, in the event an EDG subsystem or reserve source is inoperable, the availability of reserve power be assured by verification of correct breaker alignment and that the associated reserve electrical line is energized, once within one hour and every 8 hours thereafter. There is no CTS requirement to verify correct breaker alignment and indicated power availability for each reserve circuit on a regular basis during MODES 1,2 and 3 if the EDG subsystems reserve sources are available. ITS SR 3.8.1.1, a new surveillance, has been included to verify the offsite circuits breaker alignment and power availability once every 7 days. This Frequency is considered adequate

TECHNICAL CHANGES - MORE RESTRICTIVE

M12 (continued)

since alarms and annunciators exist which will identify problems with the offsite circuits. The addition of the SR 3.8.1.1 to verify correct breaker alignment and indicated power availability for each offsite circuit every 7 days, is consistent with NUREG-1433, Revision 1, imposes additional operational requirements, and is considered more restrictive. This change is considered to have no adverse impact on safety. G

M13 CTS 3.9.C.2.b, 3.9.C.2.c and CTS 4.9.C.2 do not specify which EDG fuel oil transfer pumps must be OPERABLE. ITS SR 3.8.1.6 will require each diesel generator to have at least one transfer pump capable to transfer oil from its corresponding storage tank to day tank automatically. If this requirement is not met the associated diesel generator must be declared inoperable. The allowance in CTS 3.9.C.2.b to repair the transfer pumps in 30 days is deleted and the allowed outage time for the associated EDG applies. This allowance is 14 days for an EDG subsystem therefore this change is more restrictive on plant operation. In addition CTS 3.9.C.2.c has been deleted since the association between the fuel oil transfer system will now correspond to the associated EDG and not the EDG subsystem. The specification of required transfer pumps for each EDG and the elimination or reduction of time to restore the pumps to OPERABLE consistent with EDG OPERABILITY, is consistent with NUREG-1433, Revision 1, imposes additional operational requirements, and is considered more restrictive. This change is considered to have no adverse impact on safety.

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

LA1 The details of OPERABILITY in CTS 3.9.A.1, that "power is available to the emergency buses from the following power sources", and specific design details in CTS 3.9.A.1.a, referring to the "115 kV lines and reserve station transformers", are proposed to be relocated to the Bases. These details for system OPERABILITY and design are not necessary in the LCO. ITS 3.8.1 LCO which requires two offsite circuits between the offsite transmission network and the plant class 1E AC Electrical Power Distribution System and the associated ACTIONS and Surveillance Requirements and the definition of OPERABILITY are sufficient to ensure the OPERABILITY of the AC Sources - Operating. Therefore, these details are not required to be in the ITS to provide adequate protection of the public health and safety. Changes to the Bases will be controlled by the provisions of the proposed Bases Control Program in Chapter 5 of the Technical Specifications. G

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

LA2 The CTS 4.9.B.3 requirement to check the EDG subsystem instrumentation during the monthly generator test is proposed to be relocated to the Technical Requirements Manual. The requirement does not specify which instrumentation is required to be checked. Based on the definition of OPERABILITY all instrumentation necessary for the EDGs to operate must be OPERABLE. The definition of OPERABILITY ensures that all instrumentation not specified in the Technical Specifications and required for proper diesel generator operation are OPERABLE. As a result, this relocated requirement is not necessary to be included in the ITS to provide adequate protection of the public health and safety. At ITS implementation, the relocated requirement will be incorporated by reference into the UFSAR. Changes to the relocated requirements in the Technical Requirements Manual will be controlled by the provisions of 10 CFR 50.59.

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 CTS 3.9.B does not provide a specific Action for the condition of one inoperable offsite circuit and one inoperable EDG subsystem. Therefore, if this Condition existed the plant would be required to enter LCO 3.0.C and place the plant in cold shutdown in 24 hours. Therefore, ITS 3.8.1 ACTION D, and associated Required Actions and Completion Times, for one offsite circuit and one EDG subsystem inoperable, have been added, since in this Condition either the OPERABLE offsite circuit or OPERABLE EDGs are more than sufficient to bring the plant to a safe shutdown condition. ITS 3.8.1 Required Action D.1 is to restore the offsite circuit to OPERABLE status within 12 hours or Required Action D.2 is to restore the EDG subsystem to OPERABLE status within a Completion Time of 12 hours. The 12 hour Completion Time is based on the capacity and capability of the remaining AC sources, reasonable time for repairs, and the low probability of a DBA occurring during this period. In addition, if the Completion Times are not satisfied entry into ITS 3.8.1 Required Action F.1, MODE 3 in 12 hours(M3) and Required Action F.2, MODE 4 in 36 hours (L2), will be required instead of ITS LCO 3.0.3 since the plant is not outside its Design Bases.

The addition of ITS 3.8.1 Condition D is considered less restrictive since it allows an additional 12 hours to restore the inoperable sources. However, it is considered acceptable since it reduces the risk of subjecting the plant to a shutdown and since other equipment will still be available to support any abnormal operational transient or a design bases accident. This change is consistent with NUREG-1433, Revision 1, and is appropriate, based on the design of the JAFNPP AC Sources.

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L2 CTS 3.9.B.1, 3.9.B.2, 3.9.B.3, 3.9.B.4, and 3.0.E requirement, that the plant to be placed in cold shutdown (MODE 4) within 24 hours is being relaxed. ITS 3.8.1 Required Action F.2, extends the time allowed for the plant to be in MODE 4 from 24 to 36 hours. This change is in association with the addition of a new interim requirement, ITS 3.8.1 Required Action F.1, which requires the plant to be in MODE 3 in 12 hours (M3). The 36 hour Completion Time is based on providing the necessary time for the plant to cool down and reduce pressure in a controlled and orderly manner, and the low probability of a DBA occurring during this period. The additional time to reach MODE 4 (36 hours) in association with the interim requirement to be in MODE 3 (12 hours), is consistent with NUREG-1433, Revision 1, reduces the potential for a plant event that could challenge plant safety systems, relaxes operational time requirements, and therefore is considered to be less restrictive.

L3 CTS 4.9.B.1 requirement, that each EDG subsystem be force paralleled and loaded to 5200 KW, and load sharing capability checked, are being relaxed. ITS SR 3.8.1.3 requires each EDG subsystem be paralleled with normal, reserve, or backfeed power and each EDG be loaded and operated for ≥ 60 minutes at a load ≥ 2340 KW and ≤ 2600 KW. Maintaining the load of each EDG within the specified limits ensures the load sharing capability is demonstrated, since, if the load sharing capability was not functioning properly, it would be difficult, if not impossible, to maintain each EDG within the required load range. Therefore, the explicit words to check the load sharing capability are not necessary. The EDG subsystem load requirements have also been relaxed to ensure that the EDGs continuous rating is not required to be exceeded every 31 days. The new load range requirement of 90%-100% of continuous rating is consistent with the recommendations of Regulatory Guide 1.9, Revision 3. This change is acceptable since the EDG full load carrying capability will be demonstrated during the 8 hour load test in ITS SR 3.8.1.11. RAI 3.8.1-01

L4 CTS 4.9.B.4 stipulates that an automatic starting test, under the conditions which the EDG is required to perform will be simulated to demonstrate that the pair of diesel generators will start, accelerate, force parallel, and accept the emergency loads in the prescribed sequence. ITS SRs 3.8.1.9, 3.8.1.10, and 3.8.1.12, include the phrase "actual or," in reference to the automatic initiation signal, for verifying that each EDG starts on an automatic initiation signal. This change is acceptable since the EDGs cannot discriminate between "actual" or "simulated" signals and OPERABILITY is adequately demonstrated in either case. This change allows satisfactory automatic system initiations to be used to fulfill the Surveillance Requirements, is consistent with the NUREG-1433, Revision 1, allows alternative operational requirements, and therefore is less restrictive.

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L5 CTS 4.9.B.5 provides a Completion Time of 8 hours when an EDG subsystem is inoperable to demonstrate, by manual start and force paralleling, the availability of the OPERABLE EDG subsystem or determine that the inoperability is due to preplanned maintenance or testing, an inoperable support system with no potential common mode failure, or an independently testable component with no potential common mode failure. ITS 3.8.1 Required Action B.3.1 provides a Completion Time of 24 hours to determine the OPERABLE EDG subsystem is not inoperable due to common cause failure or ITS 3.8.1 Required Action B.3.2, perform SR 3.8.1.2 for OPERABLE EDG subsystem. This change provides an additional 16 hours to determine that the inoperabilities are not due to common cause failure or to demonstrate OPERABLE EDG subsystem availability. The 24 hour Completion Time, in accordance with Generic Letter 84-15, is reasonable time to confirm that the OPERABLE EDG subsystem is not affected by the same problem as the inoperable EDG subsystem based on the low probability of an event during the additional 16 hours. If the cause of the inoperable EDG subsystem cannot be confirmed not to exist on the OPERABLE EDG subsystem, then performance of ITS SR 3.8.1.2 is required to provide assurance of continued OPERABILITY of the remaining EDG subsystem. This change is consistent with Generic Letter 84-15 and NUREG-1433, Revision 1, relaxes operational requirements, and therefore is considered to be less restrictive.

L6 CTS 3.9.C.2.a allowance, for operation to continue for 60 days with one inoperable fuel oil transfer pump associated with a Diesel Generator subsystem provided the remaining fuel oil transfer pumps are demonstrated OPERABLE immediately and weekly thereafter, has been deleted. ITS SR 3.8.1.6 Bases requires only one pump to be OPERABLE for each EDG. Each individual diesel generator is provided with an independent fuel oil system consisting of a main fuel oil storage tank, a day tank and two full-capacity motor-driven pumps which are designed to transfer fuel oil from the storage tank to the associated day tank automatically. The selected pump will start automatically when the day tank level is < 70 % and the standby pump will start when the day tank level is < 50%. The fuel oil transfer system design includes provisions so that the transfer pumps can be aligned manually to transfer oil from any storage tank to the day tank within each Diesel Generator subsystem. Since one transfer pump is capable of maintaining adequate level in the day tank with the diesel generator operating at full load, allowing continuous operation with one OPERABLE transfer pump is acceptable.

L7 CTS 3.9.B.1 allows operation to continue for 7 days with one reserve power source inoperable provided both Emergency Diesel Generator subsystems are OPERABLE. CTS 3.9.B.2 allows operation to continue for 7 days with two reserve power sources inoperable provided both Emergency Diesel Generator subsystems, all core and containment cooling systems as well as the shutdown cooling systems are OPERABLE. CTS 3.9.B.3 allows

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L7 (continued)

operation to continue for 14 days with one EDG subsystem inoperable provided that the two reserve power sources are available and the remaining EDG subsystem is OPERABLE. CTS 3.0.E requires the plant to be in cold shutdown within 24 hours when a redundant feature is inoperable and the reserve or onsite power source of a system, subsystem, train, component or device is inoperable.

ITS 3.8.1 includes all of the requirements for redundant system cross checks when AC sources are inoperable. ITS 3.8.1, Required Action A.2 allows 24 hours from discovery of no offsite power to one division concurrent with inoperability of redundant required feature(s) to declare required feature(s) with no offsite power available inoperable when the required feature(s) are inoperable. ITS 3.8.1 Required Action B.2 allows 4 hours from discovery of one inoperable EDG subsystem concurrent with inoperability of redundant required feature(s) to declare the required features supported by the inoperable EDG subsystem inoperable when the redundant required feature(s) are inoperable. ITS 3.8.1 Required Action C.1 allows 12 hours from discovery of two offsite circuits inoperable concurrent with inoperability of redundant required feature(s) to declare required feature(s) inoperable when the redundant required feature(s) are inoperable. 16 16 16

Thus, adding the new ITS 3.8.1 Required Actions A.2, B.2, and C.1 will allow the operator time to evaluate and correct any discovered inoperabilities. This will reduce the risk of subjecting the plant to a shutdown while the redundant safety features are inoperable. This change is acceptable because the remaining OPERABLE power supplies are adequate to supply electrical power to the onsite emergency distribution system. Thus, on a component basis, single failure protection for the required feature's function may have been lost; however, the safety function has not been lost. The 4 hour, 12 hour, and 24 hour Completion Times take into account the component OPERABILITY of the redundant counterpart to the inoperable required feature. By allowing featuresassociated with the inoperable offsite circuit(s) to be declared inoperable, the appropriate ACTIONS can be taken. Additionally, the Completion Times take into account the capacity and capability of the remaining AC sources, reasonable time for repairs, and a low probability of a DBA occurring during this period. Therefore, this change is considered acceptable. 16

L8 A Note is added to CTS 4.9.B.1 requirement for loading the emergency diesel generators (EDGs). ITS SR 3.8.1.3 Note 1, allows gradual loading of the EDGs as recommended by the manufacturer. EDG loading should be gradual whenever possible to minimize mechanical stress and wear on the diesel engine. This change is considered to be acceptable since the

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L8 (continued)

starting, loading, subsequent full load operation, and automatic start and loading testing required by other Technical Specification Surveillances is adequate to confirm the EDG's capability.

L9 Note is added to CTS 4.9.B.1 requirement for loading the emergency diesel generators (EDGs). ITS SR 3.8.1.3 Note 2, allows that momentary load transients outside of the load range do not invalidate performance of the SR. Momentary transients may occur for various reasons during loading, unloading, and steady state operation of the EDG. However, these transients are quickly restored to within the limits and do not reflect an inability of the EDG to fulfill its function. Therefore, these transients should not be considered as a failure of the Surveillances.

RAI 3.8.1-05

TECHNICAL CHANGES - RELOCATIONS

None

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.1

AC Sources - Operating

NO SIGNIFICANT HAZARDS CONSIDERATION (NSHC) FOR LESS RESTRICTIVE CHANGES

NO SIGNIFICANT HAZARDS CONSIDERATION
ITS: 3.8.1 - AC SOURCES - OPERATING

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 CHANGE

The Licensee has evaluated the proposed Technical Specification change and has concluded that it does not involve a significant hazards consideration. Our conclusion is in accordance with the criteria set forth in 10 CFR 50.92. The bases for the conclusion that the proposed change does not involve a significant hazards consideration are discussed below.

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

   ITS 3.8.1 ACTION D will allow additional time to operate with an offsite circuit and one EDG subsystem (one or two EDGs within the same subsystem) inoperable, before commencing a shutdown if the equipment is not restored to service. Allowing an additional 12 hours does not increase the probability of an accident previously evaluated since operating with inoperable AC sources does not cause an accident to occur. The remaining AC sources are adequate to supply the equipment necessary to bring the plant to safe shutdown conditions during a DBA or transient therefore the consequences of an accident previously evaluated is not increased.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

   The proposed change does not involve any physical alteration of plant systems, structures or components, changes in parameters governing normal plant operation, or methods of operation. The proposed change provides additional time to repair an inoperable EDG subsystem or reserve source. Therefore, the possibility of a new or different kind of accident from any accident previously evaluated is not created.

3. Does this change involve a significant reduction in a margin of safety?

   The proposed change provides additional time to repair an inoperable EDG subsystem or an offsite circuit. The requirements will still assure that adequate AC sources are available to operate the minimum required equipment. Therefore, this change does not involve a significant reduction in a margin of safety.

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L2 CHANGE

New York Power Authority has evaluated the proposed Technical Specification change and has concluded that it does not involve a significant hazards consideration. Our conclusion is in accordance with the criteria set forth in 10 CFR 50.92. The bases for the conclusion that the proposed change does not involve a significant hazards consideration are discussed below.

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

   The proposed change extends the time to Cold Shutdown from 24 hours to 36 hours when the Actions associated with CTS 3.9.B.1, 3.9.B.2, 3.9.B.3, or 3.9.B.4 are not met within the required times. Shutdown Completion Times are not assumed in the initiation of any analyzed event. Allowing this additional time does not increase the probability of an accident previously evaluated since operating with inoperable AC sources does not cause an accident to occur. This change in association with the addition of a new requirement, ITS 3.8.1 Required Action F.1, does not increase the consequences of an accident because ITS 3.8.1, Required Action F.1 will require that the plant be placed in MODE 3 within 12 hours (M3) once the determination is made that the Required Action or Completion Time associated with the AC source being inoperable cannot be satisfied. The remaining AC sources are adequate to supply the equipment necessary to bring the plant to safe shutdown conditions during a LOCA or transient therefore the consequences of an accident previously evaluated is not increased.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

   The proposed change will not involve any physical changes to plant systems, structures, or components (SSC), or the manner in which these SSC are operated, maintained, modified, tested, or inspected. The change increases the Completion Time to achieve Cold Shutdown from 24 hours to 36 hours. Therefore, this change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does this change involve a significant reduction in a margin of safety?

   The change extends the Completion Time to reach Cold Shutdown from 24 hours to 36 hours when the current Actions cannot be satisfied. The remaining AC sources are adequate to supply the equipment necessary to

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L2 CHANGE

3. (continued)

bring the plant to safe shutdown conditions during a LOCA or transient as long as the remaining AC sources operate as designed therefore there is still an adequate margin of safety. This change is in association with the addition of a new requirement, ITS 3.8.1 Required Action F.1, which will require that the plant be placed in MODE 3 within 12 hours (M3) once the determination is made that the Required Action or Completion Time associated with the AC source being inoperable cannot be satisfied. In addition, this change provides the benefit of a reduced potential for a plant event that could challenge safety systems by providing additional time to reduce pressure in a controlled and orderly manner. Therefore, this change does not involve a significant reduction in a margin of safety.

NO SIGNIFICANT HAZARDS CONSIDERATION
ITS: 3.8.1 - AC SOURCES - OPERATING

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L3 CHANGE

The Licensee has evaluated the proposed Technical Specification change and has concluded that it does not involve a significant hazards consideration. Our conclusion is in accordance with the criteria set forth in 10 CFR 50.92. The bases for the conclusion that the proposed change does not involve a significant hazards consideration are discussed below. RAI 3.8.1-02

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

   The EDGs are not assumed to be an initiator of any analyzed event. The EDGs function to mitigate consequences of an analyzed event by supplying sufficient power to equipment assumed to function during an accident. The change to the Surveillance still provides assurance the EDGs are capable of synchronizing and carrying and sharing loads. Full load carrying capability will be demonstrated on a 24 month basis. Therefore, adequate assurance the EDG is capable of carrying greater than the continuous rating is provided by the 24 month test and need not be repeated once per 31 days. The change will help enhance EDG reliability and availability by ensuring the continuous rating is not required to be exceeded on a 31 day basis. Therefore, this change will not involve a significant increase in the probability or consequences of an accident previously evaluated. RAI 3.8.1-02

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

   The proposed change will not involve any physical changes to plant systems, structures, or components (SSC), or the manner in which these SSC are operated, maintained, modified, tested, or inspected. Therefore, it does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does this change involve a significant reduction in a margin of safety?

   No significant reduction in a margin of safety is involved with this change since, based on operating experience, adequate assurance of EDG full load carrying capability is provided by the 24 month test. Any reduction in a margin of safety would be offset by the enhanced EDG reliability and availability gained by not requiring the continuous rating to be exceeded on a 31 day basis.

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L4 CHANGE

New York Power Authority has evaluated the proposed Technical Specification change and has concluded that it does not involve a significant hazards consideration. Our conclusion is in accordance with the criteria set forth in 10 CFR 50.92. The bases for the conclusion that the proposed change does not involve a significant hazards consideration are discussed below.

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

   The phrase "actual or," in reference to the automatic initiation signal, has been added to the system functional test surveillance test description. This does not impose a requirement to create an "actual" signal, nor does it eliminate any restriction on producing an "actual" signal. While creating an "actual" signal could increase the probability of an event, existing procedures and 10 CFR 50.59 control of revisions to them, govern the acceptability of generating this signal without increasing the probability of an event. The proposed change does not affect the procedures governing plant operations and therefore the probability of creating these signals; it simply would allow such a signal to be credited when evaluating the acceptance criteria for the system functional test requirements. Therefore, the change does not involve a significant increase in the probability of an accident previously evaluated. Since the method of initiation will not affect the acceptance criteria of the system functional test, the change does not involve a significant increase in the consequences of an accident previously evaluated.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

   The possibility of a new or different kind of accident from any accident previously evaluated is not created because the proposed change does not introduce a new mode of plant operation and does not involve physical modification to the plant.

3. Does this change involve a significant reduction in a margin of safety?

   Use of an actual signal instead of the existing requirement, which limits use to a simulated signal, will not affect the performance or acceptance criteria of the surveillance test. Operability is adequately demonstrated in either case since the system itself cannot discriminate between "actual" or "simulated" signals. Therefore, the change does not involve a significant reduction in a margin of safety.

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L5 CHANGE

New York Power Authority has evaluated the proposed Technical Specification change and has concluded that it does not involve a significant hazards consideration. Our conclusion is in accordance with the criteria set forth in 10 CFR 50.92. The bases for the conclusion that the proposed change does not involve a significant hazards consideration are discussed below.

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

   The proposed change allows an additional 16 hours to verify the availability (Operability) of the other EDG subsystem when one EDG subsystem is found to be inoperable. The EDGs are not assumed to be an initiator of any analyzed event. Therefore, this change does not involve a significant increase in the probability of an accident previously evaluated. As stated in NRC Generic Letter 87-09, "It is overly conservative to assume that systems or components are inoperable when a surveillance requirement has not been performed. The opposite is in fact the case; the vast majority of surveillances demonstrate the systems or components in fact are operable." Therefore, reliance on the specified surveillance intervals does not result in a reduced level of confidence concerning the equipment availability. The proposed Completion Time of 24 hours is also in accordance with Generic Letter 84-15. Additionally, the proposed change does not involve any physical changes to plant systems, structures, or components (SSC), or the manner in which these SSC are operated, maintained, modified, or tested. The consequences of an accident will not be increased because the proposed change still provides assurance that a common mode failure has not affected the remaining Operable EDG subsystem while enhancing reliability of the remaining Operable EDG subsystem by reducing the number of starts required.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

   The proposed change does not involve any physical alteration of plant systems, structures or components, changes in parameters governing normal plant operation, or methods of operation. The proposed change extends the allowed time to complete a Surveillance by 16 hours. Therefore, the possibility of a new or different kind of accident from any accident previously evaluated is not created.

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L5 CHANGE

3. Does this change involve a significant reduction in a margin of safety?

The proposed change extends the allowed time to complete a Surveillance by 16 hours. The requirements will still assure adequate AC electrical power is available to operate the minimum required equipment. Thus, extending the time to verify that the failure of the EDG subsystem will not result in a common cause failure of the other EDG subsystem or performing proposed SR 3.8.1.2 does not involve a significant reduction in a margin of safety.

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L6 CHANGE

New York Power Authority has evaluated the proposed Technical Specification change and has concluded that it does not involve a significant hazards consideration. Our conclusion is in accordance with the criteria set forth in 10 CFR 50.92. The bases for the conclusion that the proposed change does not involve a significant hazards consideration are discussed below.

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

   This proposed change will allow continuous operation if each EDG has at least one OPERABLE fuel oil transfer pump with the capability to automatically transfer oil from its associated storage tank to its associated day tank. The fuel oil transfer pumps are not assumed to be an initiator of any analyzed event. Therefore, this change does not involve a significant increase in the probability or consequences of an accident previously evaluated. Each fuel oil transfer pump is capable of transferring the fuel oil from its associated storage tank to its associated day tank with the EDG operating at full load. Therefore each EDG will have the capability to supply the required loads for safe shutdown during a DBA or transient. This change is acceptable since there is sufficient redundancy in the onsite AC Sources and therefore there is no significant increase in the consequences of an accident due to this change.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

   The proposed change does not involve any physical alteration of plant systems, structures or components, changes in parameters governing normal plant operation, or methods of operation. This proposed change will allow continuous operation if each EDG has at least one OPERABLE fuel oil transfer pump with the capability to automatically transfer oil from its associated storage tank to its associated day tank. Therefore, the possibility of a new or different kind of accident from any accident previously evaluated is not created.

3. Does this change involve a significant reduction in a margin of safety?

   This proposed change will allow continuous operation if each EDG has at least one OPERABLE fuel oil transfer pump with the capability to automatically transfer oil from its associated storage tank to its associated day tank. As long as each EDG has an OPERABLE fuel oil transfer pump with automatic operation capability operation is allowed

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L6 CHANGE

3. (continued)

to continue. The margin of safety is not significantly reduced due to the redundant design in the AC electrical power sources. Plant maintenance controls will ensure that any inoperability of fuel oil transfer pumps not required by the Technical Specifications are repaired to ensure overall reliability. Therefore, this change does not involve a significant reduction in a margin of safety.

NO SIGNIFICANT HAZARDS CONSIDERATION
ITS: 3.8.1 - AC SOURCES - OPERATING

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L7 CHANGE

The Licensee has evaluated the proposed Technical Specification change and has concluded that it does not involve a significant hazards consideration. Our conclusion is in accordance with the criteria set forth in 10 CFR 50.92. The bases for the conclusion that the proposed change does not involve a significant hazards consideration are discussed below. 16

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

   The change increases the Completion Times allowed for declaring required feature(s), supported by the inoperable AC source, inoperable when the redundant required feature(s) are inoperable concurrent with one or two offsite circuits or one EDG subsystem inoperable. Although the offsite circuits and EDG subsystems are used to support mitigation of the consequences of an accident; neither they nor the Completion Times for verifying redundant required features are OPERABLE in the event of AC source inoperability are considered to be the initiator of any previously analyzed accident. Further, equipment powered by the inoperable offsite circuits and EDG subsystems continues to be evaluated for loss of function and previously determined appropriate ACTIONS for restoration or repair of such inoperabilities continue to be implemented. As such, the proposed ACTION will not increase the probability of any accident previously evaluated. The proposed ACTION continues to provide adequate assurance of OPERABLE required equipment and therefore, does not involve an increase in the consequences of any accident previously evaluated. 16

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

   This change will not create the possibility of an accident. This change will not physically alter the plant (no new or different type of equipment will be installed). The changes in methods governing normal plant operation are consistent with the current safety analysis assumptions. Therefore, this change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does this change involve a significant reduction in a margin of safety?

   This change increases the Completion Times allowed for declaring required feature(s) supported by the inoperable AC source inoperable,

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L7 CHANGE

3. (continued)

when the redundant required feature(s) are inoperable, concurrent with one or two offsite circuits or one EDG subsystem inoperable. This change does not involve a significant reduction in any margin of safety since the determination of loss of redundancy or loss of function continues to be made in the same manner. 1G

NO SIGNIFICANT HAZARDS CONSIDERATION
ITS: 3.8.1 - AC SOURCES - OPERATING

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L8 CHANGE

New York Power Authority has evaluated the proposed Technical Specification change and has concluded that it does not involve a significant hazards consideration. Our conclusion is in accordance with the criteria set forth in 10 CFR 50.92. The bases for the conclusion that the proposed change does not involve a significant hazards consideration are discussed below.

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

   The emergency diesel generators (EDGs) are used to support mitigation of the consequences of an accident; however, they are not considered the initiator of any previously analyzed accident. As such, the allowance for gradual loading of the EDGs during surveillance testing will not increase the probability of any accident previously evaluated. The ITS SR continues to provide adequate assurance of OPERABLE EDGs and therefore, does not involve an increase in the consequences of any accident previously evaluated.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

   The proposed change does not introduce a new mode of plant operation and does not involve physical modification to the plant. Therefore, it does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does this change involve a significant reduction in a margin of safety?

   The gradual loading of the EDGs does not impact the capability of the EDGs to perform their safety function and the automatic starting and loading required by other SRs is adequate to confirm the EDG's capability. In addition, this change provides the benefit of minimizing wear on the EDG engine through the practice of gradual loading whenever possible. As such, this change does not involve a significant reduction in a margin of safety.

NO SIGNIFICANT HAZARDS CONSIDERATION
ITS: 3.8.1 - AC SOURCES - OPERATING

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L9 CHANGE

New York Power Authority has evaluated the proposed Technical Specification change and has concluded that it does not involve a significant hazards consideration. Our conclusion is in accordance with the criteria set forth in 10 CFR 50.92. The bases for the conclusion that the proposed change does not involve a significant hazards consideration are discussed below.

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

   The emergency diesel generators (EDGs) are used to support mitigation of the consequences of an accident; however, they are not considered the initiator of any previously analyzed accident. As such, the revised criteria for determining failure of the required Surveillance (i.e., allowing momentary load transients) will not increase the probability of any accident previously evaluated. The proposed criteria provide adequate assurance of OPERABLE EDGs and therefore, do not involve any increase to the consequences of any accident previously evaluated.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

   The proposed change does not introduce a new mode of plant operation and does not involve physical modification to the plant. Therefore, it does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does this change involve a significant reduction in a margin of safety?

   This change does not involve a significant reduction in a margin of safety since the OPERABILITY of the EDGs continues to be determined based on their capability to perform their safety related function.

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.1

AC Sources - Operating

MARKUP OF NUREG-1433, REVISION 1
SPECIFICATION

PA1

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources—Operating

LCO 3.8.1 The following AC electrical power sources shall be OPERABLE:

[3.9.A.1.a]

a. Two qualified circuits between the offsite transmission network and the ~~onsite~~ plant Class 1E AC Electrical Power Distribution System; DB2 and PA1 1G

[3.9.A.1.b]

b. ~~Three~~ Two emergency diesel generators (DGs); DB2 and DB1 subsystems

c. ~~Three automatic sequencers~~ E DB2

[3.9.A] [M1] APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ~~required~~ offsite circuit inoperable. [3.9.B.1] [3.0.E] [4.9.B.6]	A.1 Perform SR 3.8.1.1 for OPERABLE DB7 ~~required~~ offsite circuit.	1 hour 1G
	AND	AND 1G
		Once per 8 hours thereafter
[L7]	A.2 Declare required feature(s) with no offsite power available inoperable when the redundant required feature(s) are inoperable.	24 hours from discovery of no offsite power to one division concurrent with inoperability of redundant required feature(s) 1G
	AND	
		(continued)

Revision G

PA1

ACTIONS

	CONDITION	REQUIRED ACTION	COMPLETION TIME
[3.9.B.1] [M4]	A. (continued)	A.3 Restore ~~[required]~~ DB7 offsite circuit to OPERABLE status.	~~72 hours~~ 7 days CLB1 AND ~~8~~ 21 days from discovery of failure to meet LCO X11
[3.9.B.3] [4.9.B.6] [3.0.E]	B. One ~~[required]~~ DB7 DG E inoperable. Subsystem DB1	B.1 Perform SR 3.8.1.1 for OPERABLE ~~[required]~~ DB7 offsite circuit(s). AND B.2 Declare required feature(s), supported by the inoperable DG E inoperable when the redundant required feature(s) are inoperable. Subsystem DB1 AND	1 hour AND Once per 8 hours thereafter 4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s) (continued)
[L7]			

DB1 PA1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued) [4.9.B.5] [L5]	B.3.1 Determine subsystem is OPERABLE DG(s) (E) not inoperable due to common cause failure.	24 hours X1
	OR DB1	
	B.3.2 Perform SR 3.8.1.2 for OPERABLE DG(s) (E)	24 hours
	AND DB7	
[3.9.B.3]	B.4 Restore required DG (E) to OPERABLE status. subsystem DB1	14 days CLB1 72 hours
		AND 21 X11 6 days from discovery of failure to meet LCO
[M4]		
C. Two required offsite circuits inoperable. DB7 [3.9.B.2] [3.0.E] [L7]	C.1 Declare required feature(s) inoperable when the redundant required feature(s) are inoperable.	12 hours from discovery of Condition C concurrent with inoperability of redundant required feature(s)
	AND DB7	
	C.2 Restore one required offsite circuit to OPERABLE status.	24 hours 7 days

(continued) CLB 6

RAI 3.8.1-01

RAI 3.8.1-01

Revision G

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One required offsite circuit inoperable. AND One required DG inoperable.	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.8, "Distribution Systems—Operating," when Condition D is entered with no AC power source to any division. ----------	
	D.1 Restore required offsite circuit to OPERABLE status.	12 hours
	OR	
	D.2 Restore required DG to OPERABLE status.	12 hours
E. Two or three required DG inoperable.	E.1 Restore one required DG to OPERABLE status.	2 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. One [required] [automatic load sequencer] inoperable.	-------REVIEWER'S NOTE------- This Condition may be deleted if the unit design is such that any sequencer failure mode will only affect the ability of the associated DG to power its respective safety loads following a loss of offsite power independent of, or coincident with, a Design Basis Event. ----------	
	F.1 Restore [required] [automatic load sequencer] to OPERABLE status.	[12] hours
G. Required Action and Associated Completion Time of Condition A, B, C, D, or E or F not met.	G.1 Be in MODE 3.	12 hours
	AND	
	G.2 Be in MODE 4.	36 hours
H. Three or more [required] AC sources inoperable [for reasons other than Condition E].	H.1 Enter LCO 3.0.3.	Immediately

DB2 DB2 F [3.0.E] [3.9.B.1] [3.9.B.2] [3.9.B.3] [3.9.B.4] DB2 G [A6] DB7 PA1 C

PA1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.1	Verify correct breaker alignment and indicated power availability for each required offsite circuit.	7 days
SR 3.8.1.2	----------NOTES----------	
	1. Performance of SR 3.8.1.7 satisfies this SR.	
	2. All DG subsystem 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 manufacturer. When modified start procedures are not used, the time, voltage, and frequency tolerances of SR 3.8.1.7 must be met.	
	---------- Verify each DG subsystem 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 As specified in Table 3.8.1-1

[4.9.B.6] DB7 G

[4.9.B.1] DB5 C

[4.9.B.1] DB5 G RAI 3.8.1-12

DB5 C

[4.9.B.1] [M7] DB1 force parallels 3900 4400 DB5 CIB5 X2 G RAI 3.8.1-17

(continued)

; a. in ≤ 10 seconds DB5
voltage ≥ 3900 V and
frequency ≥ 58.8 Hz; and TA2
b.

G RAI 3.8.1-17

Revision G

PA1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.3	----------NOTES---------- [L8] 1. DG loadings may include gradual loading as recommended by the manufacturer. [L9] 2. Momentary transients outside the load range do not invalidate this test. [M8] 3. This Surveillance shall be conducted on only one DG at a time. [A3] 4. This SR shall be preceded by and immediately follow, without shutdown, a successful performance of SR 3.8.1.2 or SR 3.8.1.7. ---------- Verify each DG is synchronized and loaded and operates for ≥ 60 minutes at a load ≥ 1810 kW and ≤ 2000 kW. [L3]	DB1 Paralleled with normal, reserve, or backfeed power. CLB5 31 days. As specified in Table 3.8.1-1 C
SR 3.8.1.4	Verify each day tank and engine mounted tank contains ≥ 900 gal of fuel oil. [M1]	31 days
SR 3.8.1.5	Check for and remove accumulated water from each day tank and engine mounted tank. [M2]	31 days
SR 3.8.1.6	Verify the fuel oil transfer system operates to automatically transfer fuel oil from storage tank(s) to the day tank and engine mounted tank. [4.9.C.2]	92 days G RAI 3.8.1-05 RAI 3.8.1-14

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.8.1.7 ----------NOTE---------- All DG starts may be preceded by an engine prelube period. ---------- Verify each DG starts from standby condition and achieves, in ≤ [12] seconds, voltage ≥ [3740] V and ≤ [4580] V and frequency ≥ [58.8] Hz and ≤ [61.2] Hz.	184 days
SR 3.8.1.8 ----------NOTE---------- This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. ---------- Verify automatic and manual transfer of unit power supply from the normal offsite circuit to the alternate offsite circuit.	18 months

(continued)

DB5

CLB9

TAI

24

plant

PAI

each

station service transformer

X6

Only required to be met for each offsite circuit that is not energizing its respective 4.16 kV emergency bus.

RAI 3.8.1-27

RAI 3.8.1-27

RAI 3.8.1-27

[M2]

Revision 6

PA1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.8.1.8 ----------NOTES---------- 1. This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. 2. If performed with the DG synchronized with offsite power, it shall be performed at a power factor ≤ [0.9]. ---------- Verify each DG rejects a load greater than or equal to its associated single largest post-accident load, and: a. Following load rejection, the frequency is ≤ [66.5] Hz; b. Within [3] seconds following load rejection, the voltage is ≥ [3740] V and ≤ [4580] V; and c. Within [6] seconds following load rejection, the frequency is ≥ [58.8] Hz and ≤ [61.2] Hz.	[18] months
SR 3.8.1.10 ----------NOTE---------- This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. ---------- Verify each DG operating at a power factor ≤ [0.9] does not trip and voltage is maintained ≤ [4800] V during and following a load rejection of ≥ [1710] kW and ≤ [2000] kW.	[18 months]

(continued)

11/22/98

PA 1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
CLB2 9	
SR 3.8.1.11 ——— NOTES ———	
1. All DG subsystem starts may be preceded by an engine prelube period.	
2. This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR.	CLB9 TA1 CLB7
[4.9.B.4] Verify on an actual or simulated loss of offsite power signal:	24 18 months
a. De-energization of emergency buses;	DB1
b. Load shedding from emergency buses; and	
c. DG subsystem auto-starts from standby condition and:	force parallels
1. energizes permanently connected loads in ≤ 12 seconds,	11 X8
[m9] 2. energizes auto-connected shutdown loads through [automatic load sequencer];	DB2
[m11] 3. maintains steady state voltage ≥ 3740 V and ≤ 4580 V,	3900 4400
4. maintains steady state frequency ≥ 58.8 Hz and ≤ 61.2 Hz, and	X8
5. supplies permanently connected and auto-connected shutdown loads for ≥ 5 minutes.	

C RAI 3.8.1-12

RAI 3.8.1-15

RAI 3.8.1-15

(continued)

PA1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
CLB2 10 [4.9.B.4] SR 3.8.1.12 — NOTES — E subsystem 1. All DG starts may be preceded by an engine prelube period. CLB4 TA1 2. This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR.	C RAI 3.8.1-12 RAI 3.8.1-15
DB1 [4.9.B.4] force parallels, E subsystem Verify on an actual or simulated Emergency Core Cooling System (ECCS) initiation signal each DG auto-starts from standby condition and:	CLB8 24 [18 months]
a. In ≤ [12] 10 seconds after auto-start and during tests, achieves voltage ≥ [3740] 3900 V and ≤ [4580] V; [m9] [m11] X8	frequency ≥ 58.8 Hz RAI 3.8.1-15
b. In ≤ [12] seconds after auto-start and during tests, achieves frequency ≥ [58.8] Hz and ≤ [61.2] Hz;	TA2 steady state voltage ≥ 3900 V and ≤ 4400 V and X8 RAI 3.8.1-15
c. Operates for ≥ [5] minutes;	
d. Permanently connected loads remain energized from the offsite power system; and	
e. Emergency loads are energized [or auto-connected through the automatic load sequencer] from the offsite power system.	reserve

(continued)

DB2 in the prescribed sequence

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.8.1.13 ----------NOTE---------- This Surveillance shall not be performed in MODE 1, 2 or 3. However, credit may be taken for unplanned events that satisfy this SR. ---------- Verify each DG's automatic trips are bypassed on [actual or simulated loss of voltage signal on the emergency bus concurrent with an actual or simulated ECCS initiation signal] except: a. Engine overspeed; [and] b. Generator differential current[; c. Low lube oil pressure; d. High crankcase pressure; and e. Start failure relay].	CLB2 [18 months]

(continued)

2. If grid conditions do not permit, the power factor limit is not required to be met. Under this condition, the power factor shall be maintained as close to the limit as practicable. CLB3

G RAI 3.8.1-18

PA1

SURVEILLANCE REQUIREMENTS (continued)

CLB2 SURVEILLANCE	FREQUENCY
SR 3.8.1.~~10~~ 11 ----------NOTES---------- 1. Momentary transients outside the load and power factor ranges do not invalidate this test. CLB9 TA1 2. This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. CLB3 ---------- Verify each DG operating ~~at a~~ within the power factor ~~≤ 0.9~~ limit operates for ≥ ~~24~~ 8 hours:	~~[18]~~ 24 months X9
a. For ≥ ~~[2]~~ 8 hours loaded ≥ ~~[3150]~~ 2860 kW and ≤ ~~[3500]~~ 2730 kW; and	
b. For the remaining hours of the test loaded ≥ ~~[2850]~~ 2340 kW and ≤ ~~[3150]~~ 2600 kW.	
SR 3.8.1.15 ----------NOTES---------- 1. This Surveillance shall be performed within 5 minutes of shutting down the DG after the DG has operated ≥ [2] hours loaded ≥ [1710] kW and ≤ [2000] kW. Momentary transients outside of load range do not invalidate this test. 2. All DG starts may be preceded by an engine prelube period. ---------- Verify each DG starts and achieves, in ≤ [12] seconds, voltage ≥ [3740] V and ≤ [4584] V and frequency ≥ [58.8] Hz and ≤ [61.2] Hz.	[18 months]

CLB2

[M2]

C

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.16	----------NOTE---------- This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. ---------- Verify each DG: a. Synchronizes with offsite power source while loaded with emergency loads upon a simulated restoration of offsite power; b. Transfers loads to offsite power source; and c. Returns to ready-to-load operation.	[18 months]
SR 3.8.1.17	----------NOTE---------- This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. ---------- Verify with a DG operating in test mode and connected to its bus, an actual or simulated ECCS initiation signal overrides the test mode by: a. Returning DG to ready-to-load operation[; and] [b. Automatically energizing the emergency load from offsite power.]	[18 months]

CLB2

(continued)

PA 1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
CLB2 13 SR 3.8.1.18 ----------NOTE---------- This Surveillance shall not be performed in MODE 1, 2 or 3. However, credit may be taken for unplanned events that satisfy this SR. ---------- CLB9	
Verify interval between each sequenced load block is within ± 10% of design interval [for each load sequencer timer]. (greater than or equal to the minimum) (load) (move to proper location)	24 [18] months* X14
SR 3.8.1.19 ----------NOTES---------- 12 CLB2 E Subsystem 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. ---------- CLB9 TA1	
[4.9.B.4] Verify, on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated ECCS initiation signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; and c. Each DG subsystem auto-starts from standby condition and: 1. energizes permanently connected loads in ≤ [121] seconds, 11 X8 2. energizes auto-connected emergency loads through [load sequencer]; [m9] [m11]	24 [18] months* CLB7 DB1 force parallels, in the prescribed sequence DB2 (continued)

G RAI 3.8.1-14

C G RAI 3.8.1-12 G RAI 3.8.1-15

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.1.12 (continued)	
3. achieves steady state voltage ≥ [3740] V and ≤ [4580] V,	X8
4. achieves steady state frequency ≥ [58.8] Hz and ≤ [61.2] Hz, and	
5. supplies permanently connected and auto-connected emergency loads for ≥ [5] minutes.	X8
SR 3.8.1.20 ----------NOTE---------- All DG starts may be preceded by an engine prelube period. ---------- Verify, when started simultaneously from standby condition, [each] [2A and 2C] DG achieves, in ≤ [12] seconds, voltage ≥ [3740] V and ≤ [4580] V and frequency ≥ [58.8] Hz and ≤ [61.2] Hz.	10 years

CLB2

3900

4400

[M11]

G RAI 3.8.1-17

Revision G

CLBS

Table 3.8.1-1
Diesel Generator Test Schedule

NUMBER OF FAILURES IN LAST 25 VALID TESTS(a)	FREQUENCY
≤ 3	31 days
≥ 4	7 days(b) (but ≥ 24 hours)

(a) Criteria for determining number of failures and valid tests shall be in accordance with Regulatory Position C.2.1 of Regulatory Guide 1.9, Revision 3, where the number of tests and failures is determined on a per DG basis.

(b) This test frequency shall be maintained until seven consecutive failure free starts from standby conditions and load and run tests have been performed. This is consistent with Regulatory Position [ ], of Regulatory Guide 1.9, Revision 3. If, subsequent to the 7 failure free tests, 1 or more additional failures occur such that there are again 4 or more failures in the last 25 tests, the testing interval shall again be reduced as noted above and maintained until 7 consecutive failure free tests have been performed.

[Note: If Revision 3 of Regulatory Guide 1.9 is not approved, the above table will be modified to be consistent with the existing version of Regulatory Guide 1.108, GL 84-15, or other approved guidance.]

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.1

AC Sources - Operating

JUSTIFICATION FOR DIFFERENCES (JFDs)
FROM NUREG-1433, REVISION 1

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS: 3.8.1 - AC SOURCES - OPERATING

RETENTION OF EXISTING REQUIREMENTS (CLB)

CLB1 ITS 3.8.1 Required Action A.3 first Completion Time has been changed from 72 hours to 7 days consistent with the current licensing basis for an inoperable reserve circuit (7 days). In addition, ITS 3.8.1 Required Action B.4 first Completion Time has been changed from 72 hours to 14 days consistent with the current licensing basis for an inoperable emergency diesel generator.

CLB2 The following NUREG-1433, Revision 1, Surveillance Requirements are generally based upon the recommendations of Regulatory Guide 1.108. JAFNPP has not committed to fully implement this Regulatory Guide, but has used its guidance where appropriate consistent with the JAFNPP design and licensing basis, and the recommendations of the EDG manufacturer for testing of the JAFNPP EDGs. These SRs are not included in the JAFNPP ITS, and the following SRs have been renumbered where applicable.

ISTS SR 3.8.1.10 is not included in the JAFNPP ITS since it is not consistent with current testing practices for the EDGs and tests a design feature (EDG capability to reject a full load without overspeed tripping or exceeding the predetermined voltage limits) that is not credited in the JAFNPP accident analysis, although it was satisfactorily tested during initial Startup Testing. No postulated design basis event results in a full load rejection, and the potential consequences of any postulated single active component failure or single Operator failure (such as tripping open the EDG output circuit breaker) that results in full load rejection, are bounded by the potential consequences that would result from an immediate failure of the EDG subsystem itself. Furthermore, if the EDG rejects the full load, operator action would be required to re-establish these loads, regardless of whether or not the EDG overspeeds. Since the accident analysis assumes no operator actions take place in the first 10 minutes following an accident, verification of this design feature does not materially contribute to the demonstration of EDG Operability.

ISTS SR 3.8.1.13 is not included in the JAFNPP ITS since it tests a design feature (the bypassing of certain EDG automatic trips) that is not credited in the JAFNPP accident analysis. There is no reason to expect that the EDG will not run continuously, as long as it has fuel, once it reaches steady state.

ISTS SR 3.8.1.15 is not included in the JAFNPP ITS since it is not consistent with current testing practices for the EDGs. This SR demonstrates that the EDG can be restarted and fully loaded from a "hot" condition (i.e., after any routine surveillance test). Since the routine monthly EDG tests (SRs 3.8.1.2 and 3.8.1.3) require the EDGs to

RETENTION OF EXISTING REQUIREMENT (CLB)

CLB2 (continued)

be operated under fully loaded conditions for period of time that is sufficient to cause all monitored critical parameters (e.g., temperatures and pressures) to stabilize within limits, there is no reason to expect that any of these critical parameters would exceed any of the applicable limits during the period immediately after the EDGS are shutdown, causing the EDGs to be unable to be restarted. Furthermore, the ability of the EDGs to successfully restart under "hot" conditions was verified during initial plant Startup Testing, when the EDGs were started and loaded 10 times (five hot, five cold). Therefore, since the EDGs designed ability to restart under "hot" conditions was successfully verified during plant Startup Testing, and since the routine monthly SRs verify critical parameters have stabilized within limits, performance of this SR would not materially contribute to the demonstration of EDG Operability.

ISTS SR 3.8.1.16 is not included in the JAFNPP ITS since it tests a design feature (restoration of load to a reserve source when restored) that is not credited in the JAFNPP accident analysis. The capability to transfer load to a restored reserve source is not a JAFNPP accident analysis assumption and need not be included in the Technical Specifications. Operator action would be required at JAFNPP to transfer loads from the EDGs to a restored reserve source. Since the accident analysis does not assume operator actions take place, verification of this design feature does not demonstrate EDG Operability.

ISTS SR 3.8.1.17 is not included in the JAFNPP ITS since this feature was not included in the JAFNPP design. This SR demonstrates that with an EDG operating in the test mode and connected to its bus, an ECCS initiation signal overrides the test mode and returns the EDG to ready-to-load operation. At JAFNPP for this test condition, the EDG would stay connected to its bus. Furthermore, the EDGs do not perform any safety-related function for a LOCA event (e.g., ECCS initiation), when the reserve sources remain available. Also, the current licensing basis does not require postulating that a loss of reserve power event occurs some time subsequent to when a LOCA occurs (i.e., the licensing basis only requires mitigating a simultaneous loss of reserve power and LOCA). Therefore, this SR is not applicable.

ISTS SR 3.8.1.20 is not included in the JAFNPP ITS. This SR is intended to periodically verify acceptable electrical and physical independence of the EDGs and associated electrical distribution systems. Adequate independence (both electrical and physical) of the EDGs and associated electrical distribution systems was a requirement (and has been

RETENTION OF EXISTING REQUIREMENT (CLB)

CLB2 (continued)

established in) the original plant design (ref. USFAR Chapter 8). Furthermore, existing maintenance practices and configuration control practices are judged to be sufficient to ensure continued acceptable separation and independence. Thus, there is no need to periodically perform this SR to demonstrate continued acceptable independence or simultaneous start capability.

CLB3 The transmission system connected to the plant during testing may exhibit an excessively high grid voltage due to loading. Due to this high grid voltage it may not be possible to raise EDG output voltage sufficiently to obtain the required power factor without creating an overvoltage condition on the emergency bus. Therefore, to ensure the emergency bus, supplied loads, and EDG are not placed in an unsafe condition during this test, the power factor limit should not have to be met if it will require creating an overvoltage condition on the emergency bus while the EDG is paralleled with the grid. When this condition occurs, the power factor should be maintained as close to the limit as practicable. Therefore, words have been added to ITS SR 3.8.1.8 Note and ITS SR 3.8.1.11 Note 2 to provide this allowance. The limits have been placed in the Bases of the applicable SR, instead of in the actual SRs since it has normally been controlled by plant procedures. The SRs still require the power factor limits to be met. This change is still more restrictive than current licensing basis, since currently no power factor limit is required for these SRs.

RAI 3.8.1-18

CLB4 The ISTS SR 3.8.1.9, limits imposed on return to steady state frequency and voltage following a single load rejection, are controlled by plant procedures, and are not presented as specific TS requirements in ITS SR 3.8.1.8. The specific criteria referenced would not be appropriate for certain methods of performing this test, e.g., if performed while the EDG was loaded only with the single largest load. Furthermore, this criteria is not included in the JAFNPP Current Licensing Basis. In addition, due to this deletion, the load reject maximum frequency requirement has been made part of the first paragraph, instead of leaving it as part a.

CLB5 This change deletes ISTS Table 3.8.1-1 and associated references to ISTS Table 3.8.1-1. This is acceptable since JAFNPP is not committed to the accelerated EDG testing required by Regulatory Guide 1.9, Revision 3. This change deletes the accelerated testing required by NUREG-1433, Revision 1. This change is consistent with the guidance of TSTF-37, which is acceptable based on the implementation of a maintenance rule monitoring program for EDG performance, pursuant to 10 CFR 50.65, which

RETENTION OF EXISTING REQUIREMENT (CLB)

CLB5 (continued)

ensures adequate EDG reliability. Changes to this program will be controlled by the provisions of 10 CFR 50.59.

CLB6 The Required Actions and Completion Times of ITS 3.8.1 Condition C for two inoperable offsite circuits have been modified to reflect the current licensing basis. The Completion Time to restore one offsite circuit has been extended from 24 hours to 7 days consistent with CTS 3.9.B.2. (6) RAI 3.8.1-1

CLB7 ITS SR 3.8.1.9 and SR 3.8.1.12 bracketed Frequency has been revised to reflect the current licensing requirements of JAFNPP, CTS 4.9.B.4 of once per operating cycle equivalent to 24 months.

CLB8 ITS SR 3.8.1.10 brackets have been removed and the Frequency has been revised to reflect the current licensing requirements of JAFNPP, CTS 4.9.B.4 of once per operating cycle equivalent to 24 months.

CLB9 ITS SR 3.8.1.7, SR 3.8.1.8, SR 3.8.1.9, SR 3.8.1.10, SR 3.8.1.11, SR 3.8.1.12, and SR 3.8.1.13 Notes, which specify these Surveillances shall not be performed in MODE 1, 2, or 3, as applicable, are being deleted. This change is consistent with the current JAFNPP licensing basis which does not restrict the MODE in which these Surveillances may be performed. RAI 3.8.1-15 RAI 3.8.1-19

In addition this change is consistent with Generic Letter (GL) 91-04, Changes in Technical Specification Surveillance Intervals to Accommodate a 24 Month Fuel Cycle, which states in part:

"licensees may omit the TS qualification that an 18-month surveillance is to be performed "during shutdown" when specifying the surveillance interval as "...at least once per REFUELING INTERVAL." Because the terms "Hot" and "Cold Shutdown" are defined in the TS as operating modes or conditions, the added restriction to perform certain surveillances during shutdown may be mis-interpreted. This restriction ensures that a surveillance would only be performed when it is consistent with safe plant operation. However, this consideration is valid for other surveillances that are performed during power operation, plant startup, or shutdown, but is not addressed by restricting the conduct of these surveillances.

The staff concludes that the TS need not restrict surveillances as only being performed during shutdown. Nevertheless, safety dictates that

RETENTION OF EXISTING REQUIREMENT (CLB)

CLB9 (continued)

when refueling interval surveillances are performed during power operation, licensees give proper regard for their effect on the safe operation of the plant. If the performance of a refueling interval surveillance during plant operation would adversely affect safety, the licensee should postpone the surveillance until the unit is shutdown for the refueling or is in a condition or mode that is consistent with the safe conduct of that surveillance".

Subsequent Notes have been renumbered as applicable.

CLB10 ITS 3.8.1.6 brackets have been removed and the Frequency has been revised to reflect the current licensing requirements at JAFNPP, CTS 4.9.C.2 of every 31 days. RAI 3.8.1-05 RAI 3.8.1-14

PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT (PA)

PA1 Changes have been made (additions, deletions, and/or changes to the NUREG) to reflect plant specific system/structure/component nomenclature equipment identification or description.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB1 The onsite source of AC electrical power at JAFNPP is provided by two redundant emergency diesel generator (EDG) subsystems, Division 1 and Division 2. Each EDG subsystem consists of two Emergency Diesel Generators. This change is reflected in ITS LCO 3.8.1.b, in the proposed ACTIONS as well as the associated Surveillances. Based on these differences in design, each EDG subsystem is tested in a forced parallel configuration.

DB2 The JAFNPP AC Sources do not include an automatic sequencer. The LCO, associated ACTIONS, Surveillances, and references to the automatic sequencer have been deleted/modified. The verification that the emergency loads are auto-connected in the prescribed sequence will be evaluated in accordance with ITS SR 3.8.1.10, SR 3.8.1.12, SR 3.8.1.13, LCO 3.3.5.1 and LCO 3.5.1. The subsequent requirements have been renumbered where applicable to reflect this change. RAI 3.8.1-19

DB3 Not used.

PLANT SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB4 Words have been changed to properly reflect the JAFNPP fuel oil transfer system. Each EDG is considered to have its own dedicated system even though the systems within an EDG subsystem can be manually tied together. In addition, the EDGs do not have an engine mounted tank.

DB5 Note 1 and Note 3 of ISTS SR 3.8.1.2 have been deleted since the idling and gradual acceleration feature is not included in the JAFNPP EDG design. ISTS SR 3.8.1.7 has been deleted since the quick start (i.e., starting and accelerating to rated speed and voltage within a specific time period) will be performed every 31 days, however, the ISTS SR 3.8.1.7 requirement to reach rated speed and voltage in ≤ 10 seconds has been added to ITS SR 3.8.1.2. In addition, the allowance in ISTS SR 3.8.1.2 Note 2 to allow a warmup period prior to loading has been deleted. Subsequent surveillances have been renumbered as applicable.

RAI 3.8.1-12

DB6 Not Used.

DB7 ITS 3.8.1 has been revised to reflect the specific AC sources design at JAFNPP, in that JAFNPP has two offsite (reserve circuit) sources and 4 emergency diesel generators (EDGs) in two EDG subsystems all of which are required to be OPERABLE. As such, the term required has been deleted to reflect the OPERABILITY requirement of all available AC sources.

DIFFERENCE BASED ON APPROVED TRAVELER (TA)

TA1 The changes presented in Technical Specification Task Force (TSTF) Technical Specification Change Traveler Number 8, Revision 2, have been incorporated into the revised Improved Technical Specifications. TSTF-8, Revision 2, revises NUREG-1433 SRs 3.8.1.8 Note, 3.8.1.9 Note 1, 3.8.1.11 Note 2, 3.8.1.12 Note 2, 3.8.1.14 Note 2, and 3.8.1.19 Note 2 by deleting the statement allowing credit to be taken for unplanned events that satisfy this SR. The removal of this statement is consistent with additional changes to the Bases for SR 3.0.1 which clarify that credit may be taken for unplanned events to satisfy any SR, not just those in Section 3.8.

TA2 The changes presented in Technical Specification Task Force (TSTF) Technical Specification Change Traveler 163, Revision 2, have been incorporated into revised Improved Technical Specifications. TSTF-163, Revision 2, revises EDG SR start acceptance criteria to specify only

DIFFERENCE BASED ON APPROVED TRAVELER (TA)

TA2 (continued)

minimum voltage and frequency within 10 seconds. The minimum and maximum voltage and frequency ranges are applicable only to steady state operation.

DIFFERENCE BASED ON A SUBMITTED, BUT PENDING TRAVELER (TP)

None

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X1 ITS 3.8.1 Required Actions B.3.1 and B.3.2 bracketed Completion Time has been revised to reflect changes to CTS 4.9.B.5, which provided the Completion Time of 24 hours (L5) to determine that OPERABLE EDG subsystems is not inoperable due to common cause failure or demonstrate EDG subsystem OPERABILITY.

X2 ITS SR 3.8.1.2 bracketed EDG voltages (≥ 3900 and ≤ 4400) and frequencies (≥ 58.8 and ≤ 61.2) requirements at steady state conditions have been provided consistent with values provided by plant engineering calculations. RAI 3.8.1-17

X3 ITS SR 3.8.1.3 bracketed EDG loading requirements have been provided consistent with changes identified in CTS 4.9.B.1 (L3).

X4 ITS SR 3.8.1.4, a new requirement (M2), bracketed EDG day tank content requirement (327 gal) has been provided consistent with the format of NUREG-1433, Revision 1.

X5 ITS SR 3.8.1.5, a new requirement (M2), bracketed Frequency (31 days) requirement to check the EDG day tank for water has been provided consistent with the format of NUREG-1433, Revision 1.

X6 ITS SR 3.8.1.7, a new requirement (M2), brackets have been removed and the requirements to verify automatic and manual transfer of the plant power supplies from the normal station service transformer to each offsite circuit (for each offsite circuit that is not energizing its respective 4.16 kV emergency bus) at a Frequency of 24 months has been provided consistent with the format of NUREG-1433, Revision 1. RAI 3.8.1-27

X7 ITS SR 3.8.1.8, a new requirement (M2), brackets have been removed and the applicable requirements to verify the capability of each EDG to

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X7 (continued)

reject a load greater than or equal to its associated single largest post-accident load at a Frequency of 24 months has been provided consistent with the format of NUREG-1433, Revision 1.

X8 ITS SR 3.8.1.9, SR 3.8.1.10, and SR 3.8.1.12, bracketed EDG voltage, frequency, loading time and duration requirements have been provided consistent with changes identified in CTS 4.9.B.4 (M11).

Typo

X9 ISTS SR 3.8.1.14 requires each EDG operating at the required power factor to operate for ≥ 24 hours. ITS SR 3.8.1.11, a new requirement (M2), requires each EDG operating at the required power factor to operate for ≥ 8 hours. The 8 hour duration for this test is considered sufficient to demonstrate EDG Operability. This change is based on the requirements of IEEE Standard 387-1995, "IEEE Standard Criteria for Diesel Generator Units Applied as Standby Power Supplies for Nuclear Power Generating Stations." IEEE Standard 387-1995, Section 7.5.9 and Table 3 for the endurance and load test conducted during shutdown/refueling once every two years, state to demonstrate the load carrying capability for an interval of not less than 8 hours, of which 2 hours should be at a load equivalent to the short time rating of the diesel generator and 6 hours at a load equivalent to the 90-100% of the continuous rating. The IEEE Standard 387-1995, Section 7.5.9 and Table 3, state for the pre-operational test, to use 2 hours and 22 hours. Since the pre-operational test of the diesel generators has been completed at JAFNPP and 24 hour duration testing has been successfully performed, an 8 hour duration has been included in ITS SR 3.8.1.11 instead of the 24 hours duration included in ISTS SR 3.8.1.14 for this test.

X10 ITS SR 3.8.1.6, brackets have been removed and the requirement to verify automatic operation of each fuel oil transfer system has been included consistent with changes identified in CTS 4.9.C.2 (M13).

X11 ITS 3.8.1 Required Actions A.3 and B.4 second Completion Times have been revised to reflect changes to CTS 3.9.B.1 and 3.9.B.3, which added the second Completion Time of 21 days from discovery of failure to meet the LCO (M4).

RAI 3.8.1-5 RAI 3.8.1-14

X12 Not Used.

X13 Not Used.

RAI 3.8.1-1

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X14 ISTS SR 3.8.1.18 requires verification that the interval between each sequenced load block is within ± 10% of design interval for each load sequence timer. The SR is proposed to be changed to delete the upper limit, such that the interval between each load block is only required to be greater than or equal to the minimum design load interval.

As stated in the ISTS Bases, the purposes of the 10% load sequence time interval tolerance are to ensure that sufficient time exists for the EDG to restore frequency and voltage prior to applying the next load and that safety analysis assumptions regarding emergency safeguards equipment time delays are not violated. The first purpose is met solely by applying a lower limit. If the interval between two load blocks is greater than 110% of the design interval, the capability of the EDG to perform its function is not necessarily impacted. For the first load interval, sufficient time after energizing the first load block to allow the EDG to restore frequency and voltage prior to energizing the second load block is still provided, since the minimum time needed is the minimum design interval; allowing more time than the design interval plus 10% does not negatively affect the ability of the EDG to perform its intended function, with respect to the first load interval. In addition, it is recognized that if there is an additional load block following the first two described above, then allowing the load interval between the first two load blocks to be longer than the design interval plus 10% could impact the capability of the EDG to restore frequency and voltage prior to the start of the third load block. However, the requirement that "each" load block be greater than or equal to the minimum design load interval will ensure that the time between the second and third load blocks is sufficient to ensure that the EDG can restore frequency and voltage prior to energizing the third load block. The "each" requirement also ensures that all subsequent load intervals (e.g., the third, fourth, etc.) do not impact the capability of the EDG to perform its intended function.

The second purpose described in the Bases for the SR is not related to the EDG; it relates to the ability of the individual loads to perform their assumed functions. Thus, if a time delay was too long, while the individual load may be inoperable, the EDG is not inoperable; the EDG can still perform its intended function. Thus, the upper limit should not be considered as an operability requirement for the EDG. If an individual load timer is too long, only the associated load should be considered inoperable. In addition, many of the load timers (the ones that affect the ECCS pumps) are required by ISTS 3.3.5.1, ECCS Instrumentation; thus the upper limits for these timers will be maintained in the ISTS.

RAI 3.8.1-19

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X14 (continued)

In addition, the bracketed 18 month Frequency has been changed to 24 months, consistent with the operating cycle.

RAI 3.8.1-14

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.1

AC Sources - Operating

MARKUP OF NUREG-1433, REVISION 1, BASES

PA3

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.1 AC Sources—Operating

PA1

AC sources for the plant

BASES

BACKGROUND

The unit Class 1E AC Electrical Power Distribution System AC sources consist of the offsite power sources (preferred power sources, normal and alternates), and the onsite standby power sources (diesel generators (DGs) 2A, 2C, and 1B). As required by 10 CFR 50, Appendix A, GDC 17 (Ref. 1), the design of the AC electrical power system provides independence and redundancy to ensure an available source of power to the Engineered Safety Features (ESF) systems.

DBI

JAFNPP design criteria

Safeguards

INSERT BKGD-P1

The Class 1E AC distribution system is divided into redundant load groups, so loss of any one group does not prevent the minimum safety functions from being performed. Each load group has connections to two preferred offsite power supplies and a single DG.

INSERT BKGD-P2

Offsite power is supplied to the 230 kV and 500 kV switchyards from the transmission network by eight transmission lines. From the 230 kV switchyards, two electrically and physically separated circuits provide AC power, through auxiliary transformers 2C and 2D, to 4.16 kV ESF buses 2E, 2F, and 2G. A detailed description of the offsite power network and circuits to the onsite Class 1E ESF buses is found in the FSAR, Section 8.2 (Ref. 2).

115 345 four

INSERT BKGD-P3

115 kV and 345 kV transmission networks and the normal, reserve, and backfeed AC power supply

plant

emergency

4 Chapter

qualified

A offsite circuit consists of all breakers, transformers, switches, interrupting devices, cabling, and controls required to transmit power from the offsite transmission network to the onsite Class 1E ESF bus or buses.

115 kV

emergency

plant

one independent 115 kV transmission network source,

source

Startup auxiliary transformer (SAT) 2D provides the normal source of power to the ESF buses 2E, 2F, and 2G. If any 4.16 kV ESF bus loses power, an automatic transfer from SAT 2D to SAT 2C occurs. At this time, 4.16 kV buses 2A and 2B and supply breakers from SAT 2C also trip open, disconnecting all nonessential loads from SAT 2C to preclude overloading of the transformer.

INSERT BKGD-P4

SATs 2C and 2D are sized to accommodate the simultaneous starting of all ESF loads on receipt of an accident signal without the need for load sequencing.

(continued)

PA3 INSERT BKGD-P1

Main Generator (normal), 115 kV transmission network (reserve), 345 kV transmission network (backfeed), and emergency diesel generators (EDGs) A, B, C, and D (onsite).

PA3 INSERT BKGD-P2

the normal main generator source, two 115 kV transmission network sources through the associated reserve circuits, one EDG subsystem onsite source consisting of two EDGs, and the 345 kV transmission network backfeed source.

PA3 Insert BKGD-P3

The 115 kV switchyard is supplied by two independent 115 kV transmission lines and associated breakers. One transmission line, the Lighthouse Hill-FitzPatrick line 3 (breaker 10022), connects the South 115 kV bus to the Lighthouse Hill substation. The other transmission line, Nine Mile - FitzPatrick line 4 (breaker 10012), connects the North 115 kV bus to the Nine Mile Point Unit One Nuclear Station 115 kV switchyard which is then connected to the South Oswego substation. The South 115 kV bus and the North 115 kV bus are connected by a normally closed electrically operated disconnect (10017). Each circuit breaker and disconnect is provided with two complete sets of protective relaying for tripping. In the event of a fault on a 115 kV bus the associated breaker and disconnects will open to de-energize the bus and isolate the faulted bus section. The 115 kV reserve power source is stepped down to 4.16 kV by Reserve Station Service Transformers (RSSTs) 71T-2 and 71T-3. RSST 71T-2 supplies 4.16 kV buses 10200, 10400, and 10600 for plant startup and shutdown. RSST 71T-3 supplies 4.16 kV buses 10100,10300, and 10500 for plant startup and shutdown. The lines connecting the RSSTs to the 115 kV transmission lines are arranged so that a failure of either line does not result in the loss of the other line. The 345 kV switchyard is connected to the Niagara Mohawk Power Corporation's Edic Substation and the Niagara Mohawk Power Corporations's Scriba Substation. The Main Generator provides power at 24 kV to two main transformers (T1A and T1B) connected in parallel, and to the Normal Station Service Transformer (NSST) 71T-4. NSST 71T-4 steps down voltage to supply power to the 4.16 kV buses 10100, 10200, 10300, 10400 and 10700. Normal (from the Main Generator) or reserve power is supplied to emergency buses 10500 and 10600 through tie connections from buses 10300 and 10400, respectively. If normal power from NSST 71T-4 is lost, the reserve power, RSSTs 71T-2 and 71T-3, will automatically energize all plant buses via the fast or residual transfer, except bus 10700. The only power source to bus 10700 is NSST 71T-4 because the bus has no connected loads necessary for startup or safe shutdown of the plant. If the RSSTs were to fail, the EDG subsystems would automatically energize their respective buses. The 345 kV switchyard is sometimes used to backfeed NSST 71T-4. This operation requires the main generator leads to be manually disconnected and therefore can only be used during plant outages.

PA3

Insert BKGD-P4

During normal plant operation, with the main generator on line, emergency buses 10500 and 10600 are energized by the normal AC power source from NSST 71T-4 via buses 10300 and 10400, respectively. Loss or degradation of the normal AC power source results in an automatic fast transfer or automatic residual transfer to the reserve AC power source through RSSTs 71T-2 and 71T-3. Each RSST is sized to supply all loads on its associated emergency and non-emergency service buses.

PA3

BASES

BACKGROUND (continued)

Insert BKGD-P7

The onsite standby power source for 4.16 kV ESF buses 2E, 2F, and 2G consists of three DGs. DGs 2A and 2C are dedicated to ESF buses 2E and 2G, respectively. DG 1B is a shared power source and can supply either Unit 1 ESF bus 1F or Unit 2 ESF bus 2F. A DG starts automatically on a loss of coolant accident (LOCA) signal (i.e., low reactor water level signal or high drywell pressure signal) or on an ESF bus degraded voltage or undervoltage signal. After the DG has started, it automatically ties to its respective bus after offsite power is tripped as a consequence of ESF bus undervoltage or degraded voltage, independent of or coincident with a LOCA signal. The DGs also start and operate in the standby mode without tying to the ESF bus on a LOCA signal alone. Following the trip of offsite power, a sequencer 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 automatic sequencer. The sequencing logic controls the permissive and starting signals to motor breakers to prevent overloading the DG.

In the event of a loss of preferred power, the ESF 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 LOCA.

Certain required plant loads are returned to service in a predetermined sequence in order to prevent overloading of the DGs in the process. Within 10 seconds after the initiating 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.

Insert BKGD-P9

Ratings for the DGs satisfy the requirements of Regulatory Guide 1.9 (Ref. 3). DGs 2A and 2C have the following ratings:

a. 2850 kW—continuous,

b. 3100 kW—2000 hours,

c. 3250 kW—500 hours,

d. 3500 kW—30 minutes.

(continued)

PA3

Insert BKGD-P7

The onsite standby AC power sources for 4.16 kV emergency buses 10500 and 10600 consist of two independent and redundant EDG subsystems that are self contained and independent of normal, backfeed, and reserve sources. Each EDG subsystem consists of two EDGs which operate in parallel and are dedicated to an emergency power division (1 or 2). The Division 1 EDG subsystem consists of EDGs A and C and is dedicated to emergency bus 10500. The Division 2 EDG subsystem consists of EDGs B and D and is dedicated to emergency bus 10600. The EDGs start automatically on an emergency bus degraded voltage signal, an emergency bus undervoltage (LOP) signal, or a loss of coolant accident (LOCA) signal (i.e., low-low-low reactor water level signal or high drywell pressure signal). As a consequence of a LOP or degraded voltage signal, independent of or coincident with a LOCA signal, the emergency bus undervoltage control logic starts the EDGs. Coincident with the EDG starting and force paralleling, the emergency bus undervoltage control logic trips the 4.16 kV emergency bus tie breakers, trips the emergency bus load breakers (except for the 600 V emergency substations), and provides a close permissive signal to the EDG output breakers. The EDGs are automatically tied to their respective emergency buses and if a LOCA condition exists loads are sequentially connected to the emergency buses by the programmed restart time delay relays. The programmed restart time delay relays control the permissive and starting signals to motor breakers to prevent overloading the EDGs. On a LOCA signal alone the EDGs start, force parallel, and operate in the standby mode without tying to the emergency bus.

PA3

Insert BKGD-P9

While each emergency power division is designed to be supplied by an EDG pair, if one of the EDGs within an EDG system were to fail during a LOCA event in conjunction with a LOP, the programmed restart logic will not start the second residual heat removal pump powered from the 4.16 kV emergency bus associated with the failed EDG so that the remaining EDG in that EDG subsystem is not overloaded.

PA3

BASES

BACKGROUND (continued)

DG 1B has the following ratings:

a. 2850 kW—continuous,

b. 3250 kW—168 hours.

DB9 14 DB10

APPLICABLE SAFETY ANALYSES

4

The initial conditions of DBA and transient analyses in the FSAR, Chapter 6 (Ref. 4) and Chapter 15 (Ref. 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 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.

Emergency Safeguards

3.5 Emergency Core Cooling System (ECCS) and Reactor Core Isolation Cooling (RCIC) System

The OPERABILITY of the AC electrical power sources (EDGs) is consistent with the initial assumptions of the accident analyses and is based upon meeting the design basis of the unit (plant). This includes maintaining the onsite or offsite AC sources OPERABLE during accident conditions in the event of: qualified G

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

b. A worst case single active component failure. 10 CFR 50.36 (c)(2)(ii) (Ref. 6)

AC sources satisfy Criterion 3 of the NRC Policy Statement. PA1 X1

LCO

Two qualified circuits between the offsite transmission network and the onsite (plant) Class 1E (E) Distribution System and three (two) separate and independent DGs (2A, 2C, and 1B) ensure availability of the required power to shut down the reactor and maintain it in a safe shutdown condition after an anticipated (abnormal) operational occurrence (AOO) (transient) or a postulated DBA. subsystems each consisting of two EDGs E

Qualified offsite circuits are those that are described in the FSAR, and are part of the licensing basis for the unit (plant). 4 G

(continued)

11/22/98

PA3

BASES

LCO (continued)

[In addition, [one required automatic load sequencer per ESF bus] shall be OPERABLE.] PB6

qualified

emergency

Each offsite circuit must be capable of maintaining rated frequency and voltage, and accepting required loads during an accident, while connected to the ESF buses. Each offsite circuit consists of incoming breaker and disconnect to the respective 2C and 2D SATs, the 2C and 2D transformers, and the respective circuit path including feeder breakers to 4.16 kV ESF buses. Feeder breakers from each circuit are required to the 2E ESF bus; however, if 2C SAT is connected to ESF bus 2E (or 2G) and 2D SAT is connected to 2G (or 2E), the remaining breakers to 2E and 2G are not required. E

Insert B 3.8.1 LCO-1

subsystem

Each DG must be capable of starting, accelerating to rated speed and voltage, and connecting to its respective ESF bus on detection of bus undervoltage. This sequence must be accomplished within 10 seconds. Each DG must also be capable of accepting required loads within the assumed loading sequence intervals, and must continue to operate until offsite power can be restored to the ESF 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 condition. Additional DG capabilities must be demonstrated to meet required Surveillances, e.g., capability of the DG to revert to standby status on an ECCS signal while operating in parallel test mode. E

subsystem

emergency

G

force paralleling

with the EDGs

each EDG

reject a load greater than or equal to the load of a core spray pump

x2

Proper sequencing of loads, including tripping of nonessential loads, is a required function for DG OPERABILITY. E

The AC sources must be separate and independent (to the extent possible) of other AC sources. For the DGs, the separation and independence are complete. For the offsite AC sources, the separation and independence are to the extent practical. A circuit may be connected to more than one ESF bus, with fast transfer capability to the other circuit OPERABLE, and not violate separation criteria. A circuit that is not connected to an ESF bus is required to have OPERABLE fast transfer interlock mechanisms to at least two ESF buses to support OPERABILITY of that circuit. E

qualified

emergency

qualified offsite

automatic

its associated emergency

Revision G

PA3 Insert B 3.8.1 LCO-1

Each qualified offsite circuit consists of the incoming switchyard breakers and disconnect devices to reserve station service transformer (RSST) 71T-2 or 71T-3, and the respective circuit path including feeder breakers to the 4.16 kV emergency bus 10500 or 10600. In addition, to ensure a fault on one qualified offsite circuit does not adversely impact the other qualified offsite circuit, the 115 kV North and South bus disconnect (10017) automatic opening feature must be OPERABLE if the disconnect is closed. G G RAI 3.8.1-21

DB6 PA3

BASES (continued)

APPLICABILITY

The AC sources [and sequencers] are required to be OPERABLE in MODES 1, 2, and 3 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 operational

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 4 and 5 are covered in LCO 3.8.2, "AC Sources—Shutdown."

ACTIONS

A.1

To ensure a highly reliable power source remains with one offsite circuit inoperable, it is necessary to verify the availability of the remaining required offsite circuit 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 a second required circuit fails SR 3.8.1.1, the second offsite circuit is inoperable, and Condition C, for two offsite circuits inoperable, is entered. G C G

offsite

A.2

subsystem

Required Action A.2, which only applies if the division cannot be powered from an offsite source, is intended to provide assurance that an event with a coincident single failure of the associated DG does not result in a complete loss of safety function of critical systems. These features are designed with redundant safety related divisions (i.e., single division systems are not included). Redundant required features failures consist of inoperable features associated with a division redundant to the division that has no offsite power from an offsite circuit. PA1 active E G

The Completion Time for Required Action A.2 is intended to allow time for the operator to evaluate and repair any

(continued)

PA3

BASES

ACTIONS

A.2 (continued)

discovered inoperabilities. This Completion Time also allows 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. The division has no offsite power supplying its loads; and

b. A required feature on the other division is inoperable.

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

Discovering no offsite power to one 4160 V ESF bus of the onsite Class 1E Power Distribution System coincident with one or more inoperable required support or supported features, or both, that are associated with any other ESF bus that has offsite power, results in starting the Completion Times for the Required Action. Twenty-four hours is acceptable because it minimizes risk while allowing time for restoration before the unit is subjected to transients associated with shutdown.

The remaining OPERABLE offsite circuit and DGs are adequate to supply electrical power to the onsite Class 1E Distribution System. Thus, on a component basis, single failure protection may have been lost for the required feature's function; however, function is not lost. The 24 hour Completion Time takes into account the component OPERABILITY of the redundant counterpart to the inoperable required feature. Additionally, the 24 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.

A.3

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition A for a period that should not exceed 72 hours. With one offsite circuit inoperable, the

(continued)

PA3

BASES

ACTIONS

A.3 (continued)

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 plant safety systems. In this condition, however, the remaining OPERABLE offsite circuit and DGs are adequate to supply electrical power to the onsite Class 1E Distribution System.

The 72 hour Completion Time takes into account the capacity and capability of the remaining AC sources, reasonable time for repairs, and the low probability of a DBA occurring during this period.

The second Completion Time for Required Action A.3 establishes a limit on the maximum time allowed for any combination of required AC power sources to be inoperable during any single contiguous occurrence of failing to meet the LCO. If Condition A is entered while, for instance, an DG is inoperable, and that DG is subsequently returned OPERABLE, the LCO may already have been not met for up to 72 hours. This situation could lead to a total of 144 hours, since initial failure to meet the LCO, to restore the offsite circuit. At this time, a DG could again become inoperable, the circuit restored OPERABLE, and an additional 72 hours (for a total of 9 days) allowed prior to complete restoration of the LCO. The 6 day Completion Time provides a limit on the time allowed in a specified condition after discovery of failure to meet the LCO. This limit is considered reasonable for situations in which Conditions A and B are entered concurrently. The "AND" connector between the 72 hours and 6 day Completion Times means that both Completion Times apply simultaneously, and the more restrictive Completion Time must be met.

As in Required Action A.2, the Completion Time allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." This exception results in establishing the "time zero" at the time the LCO was initially not met, instead of at the time that Condition A was entered.

(continued)

PA3

BASES

ACTIONS (continued)

B.1

To ensure a highly reliable power source remains with one DG inoperable, it is necessary to verify the availability of the required offsite circuits 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 circuit fails to pass SR 3.8.1.1, it is inoperable. Upon offsite circuit inoperability, additional Conditions must then be entered.

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 divisions (i.e., single division systems are not included). Redundant required features failures consist of inoperable features associated with a division redundant to the division that has an inoperable DG.

The Completion Time 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 division (Division 1 or 2) is inoperable.

If, at any time during the existence of this Condition (one DG inoperable), a required feature subsequently becomes inoperable, this Completion Time begins 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(s) results in starting the Completion Time for the Required Action. Four hours from the discovery of these events existing

(continued)

PA3

BASES

ACTIONS

B.2 (continued)

concurrently is acceptable because it minimizes risk while allowing time for restoration before subjecting the ~~unit~~ plant to transients associated with shutdown. PA1

The remaining OPERABLE DG(s) and ~~offsite~~ subsystem circuits are adequate to supply electrical power to the ~~onsite~~ reserve Class 1E 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 component 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, reasonable time for repairs, and low probability of a DBA occurring during this period. PA1 active

B.3.1 and B.3.2

Required Action B.3.1 provides an allowance to avoid unnecessary testing of 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 other DG(s), they are declared inoperable upon discovery, and Condition E of LCO 3.8.1 is entered. Once the failure is repaired, and the common cause failure no longer exists, 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(s), performance of SR 3.8.1.2 suffices to provide assurance of continued OPERABILITY of those DGs. EDG subsystem, the EDG subsystem is

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.

According to Generic Letter 84-15 (Ref. 7), ~~24~~ 3 hours is a reasonable time to confirm that the OPERABLE ~~DGs are~~ the remaining EDG subsystem not affected by the same problem as the inoperable DG. EDG subsystem is

(continued)

PA3

BASES

ACTIONS (continued)

CLB1

The design of the AC Sources allows

EDG subsystem

B.4

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition B for a period that should not exceed 72 hours. In Condition B, the remaining OPERABLE DGs and offsite circuits are adequate to supply electrical power to the onsite Class 1E Distribution System. The 72 hour Completion Time takes into account the capacity and capability of the remaining AC sources, reasonable time for repairs, and low probability of a DBA occurring during this period.

to

C

14 days

reserve

plant

1d day

CLB1

Insert B 3.8.1 ACTION B.4

CLB9

C

The second Completion Time for Required Action B.4 establishes a limit on the maximum time allowed for any combination of required AC power sources to be inoperable during any single contiguous occurrence of failing to meet the LCO. If Condition B is entered while, for instance, an offsite circuit is inoperable and that circuit is subsequently restored OPERABLE, the LCO may already have been not met for up to 72 hours. This situation could lead to a total of 144 hours, since initial failure of the LCO, to restore the DG. At this time, an offsite circuit could again become inoperable, the DG restored OPERABLE, and an additional 72 hours (for a total of 9 days) allowed prior to complete restoration of the LCO. The 9 day Completion Time provides a limit on the time allowed in a specified condition after discovery of failure to meet the LCO. This limit is considered reasonable for situations in which Conditions A and B are entered concurrently. The "AND" connector between the 72 hour and 6 day Completion Times means that both Completion Times apply simultaneously, and the more restrictive must be met.

reserve

to

7days

21 days

CLB1

EDG subsystem

7 days

reserve

28

C

21

X12

14 day and 21

PA1

Similar to

As in Required Action B.2, the second Completion Time of Required Action B.4 allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." This exception results in establishing the "time zero" at the time that the LCO was initially not met, instead of the time that Condition B was entered.

PA1

C.1 and C.2

Required Action C.1 addresses actions to be taken in the event of inoperability of redundant required features

C

RAI 3.8.1-01

(continued)

CLB 9

Insert B 3.8.1 ACTION B.4

In addition, the 14 day completion time is based on a risk-informed assessment of the EDG subsystem inoperability. EDG system inoperability and the simultaneous inoperability of other plant equipment is assessed in accordance with Specification 5.5.13, Configuration Risk Management Program (CRMP).

PA3

RAI 3.8.1-01

BASES

ACTIONS

C.1 and C.2 (continued)

concurrent with inoperability of two offsite circuits. Required Action C.1 reduces the vulnerability to a loss of function. The Completion Time for taking these actions is reduced to 12 hours from that allowed with one division without offsite power (Required Action A.2). The rationale for the reduction to 12 hours is that ~~Regulatory Guide 1.93~~ ~~(Ref. 6) allows~~ a Completion Time of ~~24 hours~~ 7 days for two required offsite circuits inoperable, is acceptable based upon the assumption that two complete safety divisions are OPERABLE. When a concurrent redundant required feature failure exists, this assumption is not the case, and a shorter Completion Time of 12 hours is appropriate. These features are designed with redundant safety related divisions, (i.e., single division systems are not included in the list). Redundant required features failures consist of any of these features that are inoperable because any inoperability is on a division redundant to a division with inoperable offsite circuits.

CLB7

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. ~~All required~~ Both offsite circuits are inoperable; and

b. A redundant required feature is inoperable.

PA1

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

CLB7

~~According to Regulatory Guide 1.93 (Ref. 6),~~ Operation may continue in Condition C for a period that should not exceed ~~24 hours~~ 7 days. 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

CLB7

(continued)

PA 3

RAI 3.8.1-01

BASES

ACTIONS

C.1 and C.2 (continued)

to a total loss of the immediately accessible offsite power sources.

Because of the normally high availability of the offsite sources, this level of degradation may appear to be more severe than other combinations of two AC sources inoperable that involve one or more DGs inoperable. However, two factors tend to decrease the severity of this degradation level:

EDG subsystems — DB 3

a. The configuration of the redundant AC electrical power system that remains available is not susceptible to a single bus or switching failure; and

b. The time required to detect and restore an unavailable offsite power source is generally much less than that required to detect and restore an unavailable onsite AC source.

With both of the required offsite circuits 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 offsite circuits commensurate with the importance of maintaining an AC electrical power system capable of meeting its design criteria.

Plant

PA 1

active component

Insert Condition C

CLB 7

According to Regulatory Guide 1.93 (Ref. 6), with the available offsite AC sources two less than required by the LCO, operation may continue for 24 hours. If two offsite sources are restored within 24 hours, unrestricted operation may continue. If only one offsite source 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 Systems-Operating ACTIONS would not be entered even if all AC sources to it were inoperable,

(continued)

CLB7

Insert Condition C

The 7 day Completion Time in Required Action C.2 provides a period of time to effect restoration of both offsite circuits commensurate with the importance of maintaining an AC electrical power system capable of meeting its design criteria.

With both offsite circuits inoperable, operation may continue for 7 days. In this situation Conditions A and C must be entered concurrently. If both offsite circuits are restored within 7 days, unrestricted operation may continue. If only one offsite circuit is restored within 7 days, entry into Condition F is required. If the offsite circuits were not found to be inoperable concurrently, the Completion Time of Required Action A.3 must be met for the first inooperable circuit in accordance with the guidance of Section 1.3 (Completion Times). This will ensure that the maximum time two offsite circuits could be inoperable simultaneously without entering Condition F is limited.

Revision 0

PA 3

BASES

ACTIONS

D.1 and D.2 (continued)

resulting in de-energization. Therefore, the Required Actions of Condition D are modified by a Note to indicate that when Condition D is entered with no AC source to any ESF bus, ACTIONS for LCO 3.8.9, "Distribution Systems—Operating," must be immediately entered. This allows Condition D to provide requirements for the loss of the offsite circuit and one DG without regard to whether a division is de-energized. LCO 3.8.9 provides the appropriate restrictions for a de-energized division.

PA 2 7 8 DB11

4 kV emergency

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition D for a period that should not exceed 12 hours. In Condition D, individual 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 offsite circuits). 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, reasonable time for repairs, and the low probability of a DBA occurring during this period.

recommendations in

E.1

E subsystems no onsite

With two DGs inoperable, there is [one] remaining standby AC source. 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 the majority of ESF equipment at 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 any inadvertent unit generator trip could also 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

engineered safeguards

Main

(continued)

PA3

BASES

ACTIONS

E.1 (continued)

associated with an immediate controlled shutdown and to minimize the risk associated with this level of degradation.

the recommendations in

According to Regulatory Guide 1.93 (Ref. 8), with both DG subsystems inoperable, operation may continue for a period that should not exceed 2 hours.

DB11

DB6

~~E.1~~

~~The sequencer(s) is an essential support system to [both the offsite circuit and the DG associated with a given ESF bus.] [Furthermore, the sequencer(s) is on the primary success path for most major AC electrically powered safety systems powered from the associated ESF bus.] Therefore, loss of an [ESF bus's sequencer] affects every major ESF System in the [division]. The [12] hour Completion Time provides a period of time to correct the problem commensurate with the importance of maintaining sequencer OPERABILITY. This time period also ensures that the probability of an accident requiring sequencer OPERABILITY occurring during periods when the sequencer is inoperable is minimal.~~

~~This Condition is preceded by a Note that allows the Condition to be deleted if the unit design is such that any sequencer failure mode only affects the ability of the associated DG to power its respective safety loads under any conditions. Implicit in this Note is the concept that the Condition must be retained if any sequencer failure mode results in the inability to start all or part of the safety loads when required regardless of power availability, or results in overloading the offsite power circuit to a safety bus during an event thereby causing its failure. Also implicit in the Note is that the Condition is not applicable to any division that does not have a sequencer.~~

F

DB6

F.1 and F.2

If the inoperable AC electrical power sources cannot be restored to OPERABLE status within the associated 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 12 hours and to MODE 4

Plant

(continued)

PA3

BASES

ACTIONS

F.1 and F.2 (continued)

C

within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

F

DB6

G

H.1

C

Condition H 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 will 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.

PA3 Insert Condition G

RAI 3.8.1-04
RAI 3 8.1-25

plant

DB3

PA1

SURVEILLANCE REQUIREMENTS

subsystems

in general conformance

The AC sources are designed to permit inspection and testing of all important areas and features, especially those that have a standby function, in accordance with 10 CFR 50, GDC 18 (Ref. 8). 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 the recommendations of Regulatory Guide 1.9 (Ref. 3), Regulatory Guide 1.108 (Ref. 9), and Regulatory Guide 1.137 (Ref. 10), as addressed in the FSAR.

DB1

Reference 1

E

DB8

Safety

C

Steady state

X5

Where the SRs discussed herein specify voltage and frequency tolerances, the following summary is applicable. The minimum steady state output voltage of 3840 V is 92% of the nominal 4160 V output voltage. This value, which is specified in ANSI C84.1 (Ref. 11), allows for voltage drop to the terminals of 4000 V motors whose minimum operating voltage 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

3900

4

approximately

RAI 3.8.1-17

slightly greater than that

X5

X5

4400

(continued)

11/22/98

PA3 Insert Condition G

Entry into Condition G is necessary when both offsite circuits and one EDG subsystem are inoperable (where the EDG subsystem is inoperable due to an inoperability of one or both EDG's within the EDG subsystem), both EDG subsystems and one offsite circuit are inoperable, or both offsite circuits and both EDG subsystems are inoperable.

G

RAI 3.8.1-4

BASES

SURVEILLANCE REQUIREMENTS (continued)

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 found 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 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.

Insert B SR 3.8.1.1-A

Insert B SR 3.8.1.1-B

SR 3.8.1.2 and SR 3.8.1.7

These SRs help to ensure the availability of the standby electrical power supply to mitigate DBAs and transients and 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 have been modified by a Note (Note 2 for SR 3.8.1.2 and Note 1 for SR 3.8.1.7) to indicate that all DG starts for these Surveillances may be preceded by an engine prelube period and followed by a warmup prior to loading.

For the purposes of this testing, the DGs are started from standby conditions. Standby conditions for a DG mean that the diesel engine coolant and oil are being continuously circulated and temperature is being maintained consistent with manufacturer recommendations.

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.

(continued)

Revision G

PA3 Insert B SR 3.8.1.1-A

Offsite circuit alignment verification can be accomplished by verifying that an offsite circuit is energized and that the status of offsite circuit supply breakers and disconnects displayed in the control room is correct. Offsite source power availability can be verified by communication with Niagara Mohawk, for the Nine Mile Point Unit One switchyard and South Oswego substation, and the New York Power Pool for the Light House Hill substation. G

PA3 Insert B SR 3.8.1.1-B

In addition, the Frequency is adequate since administrative controls are in place which require plant notification of distribution system problems, affecting power availability, from both Niagara Mohawk and the New York Power Pool.

In addition to the SR requirements, the time for the EDG to reach steady state operation is periodically monitored and the trend evaluated to identify degradation of governor and voltage regulator performance.

TA2

DB3 force parallels,

PA3

BASES

SURVEILLANCE REQUIREMENTS

DB4 DB4

SR 3.8.1.2 and SR 3.8.1.7 (continued)

This SR requires that, at a 31 day Frequency, the DG subsystem starts from standby conditions and achieves required voltage and frequency within 10 seconds. The 10 second start requirement supports the assumptions in the design basis LOCA analysis of FSAR, Section 6.3 (Ref. 12). The 12 second start requirement is not applicable to SR 3.8.1.2 (see Note 3 of SR 3.8.1.2), when a modified start procedure as described above is used. If a modified start is not used, the 12 second start requirement of SR 3.8.1.7 applies.

DB15 DB4 DB4

Since SR 3.8.1.7 does require a 12 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 procedure is the intent of Note 1 of SR 3.8.1.2.

CLB3 1.108 DB4

The normal 31 day Frequency for SR 3.8.1.2 (see Table 3.8.1-1, "Diesel Generator Test Schedule") is consistent with Regulatory Guide 1.108 (Ref. 9). The 184 day Frequency for SR 3.8.1.7 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.

C

PA3 is Y subsystem

SR 3.8.1.3

PA1 SR

This Surveillance verifies that the DGs are capable of synchronizing and accepting greater than or equal to the equivalent of the maximum expected accident loads. 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.

subsystems

C

paralleled with DB3 normal, reserve or backfeed power

subsystem

C

Although no power factor requirements are established by 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 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.

(continued)

PA3

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.3 (continued)

The normal 31 day Frequency for this Surveillance (see Table 3.8.1-1) is consistent with Regulatory Guide 1.9 (Ref. 3).

CLB3 DB8 Safety

Note 1 modifies this Surveillance to indicate 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.

SR PA1

Note 2 modifies this Surveillance by stating that momentary transients because of changing bus loads do not invalidate this test. Similarly, momentary power factor transients above the limit do not invalidate the test.

SR PA1

DB3

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 or grid perturbations.

subsystem E C

normal, reserve or backfeed power source

Note 4 stipulates a prerequisite requirement for performance of this SR. A successful DG start must precede this test to credit satisfactory performance.

E subsystem

SR 3.8.1.4

DB16

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 hour of DG operation at full load plus 10%.

PA3 B E E

The low level alarm is annunciated

The 31 day Frequency is adequate to ensure 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.

plant PA1

SR 3.8.1.5

Microbiological fouling is a major cause of fuel oil degradation. There are numerous bacteria that can grow in

(continued)

PA3

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.5 (continued)

DB16

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 preventive maintenance. The presence of water does not necessarily represent a failure of this SR provided that accumulated water is removed during performance of this Surveillance.

X6 E PA1 PA1 consistent with is

SR 3.8.1.6

PA1 SR automatically at least one X7 PA1 onsite

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. It 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.

associated with each OPERABLE EDG

for each EDG

~~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 Boiler and Pressure Vessel Code, Section XI (Ref. 13); however, 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, a 31 day Frequency is appropriate. Since proper operation of fuel transfer systems is an inherent~~

CIB10

consistent with the Frequency for testing the EDG subsystem in SR 3.8.1.3. EDG operation for SR 3.8.1.2 is normally long enough that fuel oil level in the day tank will be reduced to the point where the fuel oil transfer pump automatically starts to restore fuel oil level in the day tank.

G

RAI 3.8.1-05
RAI 3.8.1-26

Revision G

PA3

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.6 (continued)

~~part of DG OPERABILITY, the Frequency of this SR should be modified to reflect individual designs.~~

CLB10 G

RAI 3.8.1-05

This SR is only required to be met for each offsite circuit that is not energized (its respective 4.16 kV emergency bus (i.e., the bus is being energized by the NSST).

SR 3.8.1.7

~~See SR 3.8.1.2.~~

DB4

SR 3.8.1.8 7

automatic residual

source (NSST 71T-4)

each

emergency

offsite

or backfeed

Transfer of each 4.16 kV ESF bus power supply from the normal ~~offsite circuit~~ to the alternate offsite circuit 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 plant 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 on the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint. 24

24

X8

RAI 3.8.1-27

PA1

Insert B SR 3.8.1.7-A

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

CLB8

TA1

B DB4

SR 3.8.1.9

E

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 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. The largest single load for each DG is a residual heat removal service water pump (1225 bhp). This Surveillance may be accomplished by:

CLB4

a

C

50

E

core spray

(continued)

PA1

Insert B SR 3.8.1.7-A

In lieu of an actual automatic residual transfer, testing that adequately demonstrates the automatic residual transfer capability is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire automatic residual transfer function and emergency bus energization is verified.

PA3

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.8 (continued) DB4

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

with normal, reserve or backfeed

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

DB8

Consistent with Safety Guide 9 (Ref. 3)

115% of nominal

As required by IEEE-308 (Ref. 14), 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. For DGs 2A, 2C, and 1B, this represents 65.5 Hz, equivalent to 75% of the difference between nominal speed and the overspeed trip setpoint.

the nominal (synchronous) speed plus

PA1

CLB4

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 [6] seconds specified is equal to 60% of the 10 second load sequence interval associated with sequencing the residual heat removal (RHR) pumps during an undervoltage on the bus concurrent with a LOCA. 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).

X2

of 24 months

takes into consideration Plant conditions requires 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 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, plant safety systems. Credit may be taken for unplanned events that satisfy this SR. In order to ensure that the DG is tested under load 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 ≤ 0.90. This power factor is chosen to be representative of the actual design basis inductive loading that the DG would experience. However, if the grid conditions do not permit, the power factor limit is not required to be met. In this condition the test is performed with a power factor as close to the design rating of the machine as practicable.

a

PA1

CLB8

TA1

E

Paralleled with normal, reserve or backfeed

the

C

RAI 3.8.1-18

X-4

This is permitted since, with a high grid voltage it may not be possible to raise the EDG output voltage sufficiently to obtain the required power factor without creating an overvoltage condition on the emergency bus.

(continued)

RAI 3.8.1-18

BASES

SURVEILLANCE REQUIREMENTS

X 9

SR 3.8.1.9 (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.

CLB2

SR 3.8.1.10

This Surveillance demonstrates the DG capability to reject a full load without overspeed tripping or exceeding the predetermined voltage limits. The DG full load rejection may occur because of a 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 following a full load rejection and verifies that the DG does not trip upon loss of the load. These acceptance criteria provide 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.

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.

(continued)

PA3

BASES

SURVEILLANCE REQUIREMENTS

CLB2

SR 3.8.1.10 (continued)

The [18 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.

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 would challenge continued steady state operation and, as a result, plant safety systems. Credit may be taken for unplanned events that satisfy this SR.

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.

PA1

9 CLB2

SR

onsite

due to an emergency bus

Consistent with

SR 3.8.1.11

~~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 ~~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.

power (LOP) signal

required following receipt of

E

subsystem

The DG auto-start time of 12 seconds is derived from requirements of the accident analysis for responding to a

11 x10

LOP signal

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.1 (continued)

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 has been achieved.

The requirement to verify the connection and power supply of permanent and auto-connected 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 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 the connection and loading of these 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 is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(1), takes into consideration plant conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths.

This SR is modified by 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 shall be started from standby conditions, that is, with the engine coolant and oil being continuously circulated and temperature maintained 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 systems. Credit may be taken for unplanned events that satisfy this SR.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.12

This Surveillance demonstrates that the DG automatically starts and achieves the required voltage and frequency within the specified time (12 seconds) from the design basis actuation signal (LOCA signal) and operates for ≥ 60 minutes. The 60 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 a LOCA signal without loss of offsite power.

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 loading logic for loading onto offsite power. 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, 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 the connection and loading of these 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 plant conditions required to perform the Surveillance and is intended to be consistent with the 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 is acceptable from a reliability standpoint.

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 being continuously circulated and temperature maintained consistent with manufacturer recommendations. The reason for Note 2 is that during operation with the reactor critical,

(continued)

Revision G

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.10 (continued)

performance of this Surveillance could potentially cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems. Credit may be taken for unplanned events that satisfy this SR.

SR 3.8.1.13

This Surveillance demonstrates that DG non-critical protective functions (e.g., high jacket water temperature) are bypassed on an ECCS initiation test signal and critical protective functions (engine overspeed, generator differential current, and low lubricating oil pressure) trip the DG to avert substantial damage to the DG unit. The non-critical 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 [18 month] Frequency is based on engineering judgment, takes into consideration plant 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.

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.

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;

(continued)

Revision 6

PA3

BASES

CLB2

SURVEILLANCE REQUIREMENTS

SR 3.8.1.13 (continued)

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.

Consistent with IEEE-387 DB18

SR 3.8.1.14 11 CLB2 14 DB18 Section 7.5.9 and Table 3

Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(3), this SR requires demonstration once per 18 months that the DGs can start and run continuously at full load capability for an interval of not less than 24 hours—22 hours of which is at a load equivalent to the continuous rating of the DG, and 2 hours of which is at a load equivalent to 110% of the continuous duty rating of the DG. Plant Hatch has taken an exception to this requirement and performs the 2 hour run at the 2000 hour rating (3100 kW). The DG starts for this Surveillance can be performed either from standby or hot conditions. The provisions for prelube 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.

XII 90-100% of 105% to XII PA1 DB4

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 ≤ [0.9]. This power factor is chosen to be representative of the actual design basis inductive loading that the DG could experience. A 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.

subsystem

XII 24

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

IEEE-387 (Ref. 14) Section 7.5.9 and Table 3 which DB18

(continued)

BASES

CLB2

SURVEILLANCE REQUIREMENTS

SR 3.8.1.14 (continued)

11 is

This Surveillance has been modified by two Notes. Note 1 states that momentary transients due to changing bus loads do not invalidate this test. Similarly, momentary power factor transients above the limit do 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 would challenge continued steady state operation and, as a result, plant safety systems. Credit may be taken for unplanned events that satisfy this SR.

6 RAI 3.8.1-18

CLB8

X4

Insert SR 3.8.1.11

TA1

6 RAI 3.8.1-18

CLB2

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 [12] seconds. The [12] 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 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. 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. 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.

CLB2

SR 3.8.1.16

As required by Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(6), this Surveillance ensures that the manual synchronization and automatic load transfer from the DG to the offsite source can be made and that the DG can be returned

(continued)

Revision 6

K4

Insert SR 3.8.1.11

Note 2 is provided in recognition that when grid conditions do not permit, the power factor limit is not required to be met. In this condition, the test is performed with a power factor as close to the design rating of the machine as practicable. This is permitted since, with a high grid voltage it may not be possible to raise the EDG output voltage sufficiently to obtain the required power factor without creating an overvoltage condition on the emergency bus.

G
RAI
3.8.1-18

BASES

SURVEILLANCE REQUIREMENTS

CLB2

SR 3.8.1.16 (continued)

to ready-to-load status when offsite power is restored. It also ensures that the auto-start logic is reset to allow the DG to reload if a subsequent loss of offsite power occurs. The DG is considered to be in ready-to-load status when the DG is at rated speed and voltage, the output breaker is open and can receive an auto-close signal on bus undervoltage, and the load sequence timers are reset.

The Frequency of [18 months] is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(6), and takes into consideration plant conditions required to perform the Surveillance.

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned events that satisfy this SR.

CLB2

SR 3.8.1.17

Demonstration of the test mode override ensures that the DG availability under accident conditions is not compromised as the result of testing. Interlocks to the LOCA sensing circuits cause the DG to automatically reset to ready-to-load operation if an ECCS initiation signal is received during operation in the test mode. Ready-to-load operation is defined as the DG running at rated speed and voltage with the DG output breaker open. These provisions for automatic switchover are required by IEEE-308 (Ref. 14), paragraph 6.2.6(2).

The requirement to automatically energize the emergency loads with offsite power is essentially identical to that of SR 3.8.1.12. The intent in the requirements associated with SR 3.8.1.17.b is to show that the emergency loading is not affected by the DG operation in test mode. In lieu of actual demonstration of connection and loading of loads, testing that adequately shows the capability of the emergency loads 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.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

CLB2

SR 3.8.1.17 (continued)

The [18 month] Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(8); takes into consideration plant conditions required to perform the Surveillance; and is intended to be consistent with expected fuel cycle lengths.

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned events that satisfy this SR.

move to proper location

SR 3.8.1.18 13 CLB2

Under accident conditions [and loss of offsite power] loads are sequentially connected to the bus by the automatic load sequenser. The sequencing logic controls the permissive and starting signals to motor breakers to prevent overloading of the DGs due to high motor starting currents. The [10] % load sequence time interval tolerance ensures that sufficient time exists for the DG to restore frequency and voltage prior to applying the next load and that safety analysis assumptions regarding ESF equipment time delays are not violated. Reference 2 provides a summary of the automatic loading of ESF buses.

PA3

individual time delay relays

E

PA3

emergency safeguards

Insert SR3.8.1.13

PA1

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

24 Minimum PA3 PA3

CLB8

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned events that satisfy this SR.

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)

RAI 3.8.1-19 RAI 3.8.1-29

Revision 6

PA1 Insert SR 3.8.1.13

There is no upper limit for the load sequence time interval since, for a single load interval (i.e., the time between two load blocks), the capability of the EDG to restore frequency and voltage prior to applying the second load is not negatively affected by a longer than designed load interval, and if there are additional load blocks (i.e., the design includes multiple load intervals), then the lower limit requirements will ensure that sufficient time exists for the EDG to restore frequency and voltage prior to applying the remaining load blocks (i.e., all load intervals must be greater than or equal to the minimum design interval).

G

RAI 3.8.1-19

BASES

DB6 PA 3

SURVEILLANCE REQUIREMENTS

SR 3.8.1.18 (continued)

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.~~19~~ 12 DB6

an emergency bus

signal

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.

engineered safeguards

E

SR

E subsystem

This ~~surveillance~~ demonstrates DG operation, as discussed in the Bases for SR 3.8.1.~~7~~, during ~~a loss of offsite power actuation test~~ signal in conjunction with an ECCS initiation signal. 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.

an emergency bus LOP

E

Sub

The Frequency of ~~18~~ 24 months takes into consideration plant conditions required to perform the Surveillance and is intended to be consistent with an expected fuel cycle length of ~~18~~ 24 months.

CLB6

This SR is modified by ~~two~~ 4 Notes. The reason for the 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 being continuously circulated and temperature maintained 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

E

G RAI 3.8.1-12

G RAI 3.8.1-15

CLB8

(continued)

Revision G

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.19 (continued)

distribution system, and challenge safety systems. Credit may be taken for unplanned events that satisfy this SR.

SR 3.8.1.20

This Surveillance demonstrates that the DG starting independence has not been compromised. Also, this Surveillance demonstrates that each engine can achieve proper speed within the specified time when the DGs are started simultaneously.

The 10 year frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9).

This SR is modified by a Note. The reason for the Note is to minimize wear on the DG 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.

Diesel Generator Test Schedule

The DG test schedule (Table 3.8.1-1) implements the recommendations of Revision 3 to Regulatory Guide 1.9 (Ref. 3). The purpose of this test schedule is to provide timely test data to establish a confidence level associated with the goal to maintain DG reliability at > 0.95 per test.

According to Regulatory Guide 1.9 (Ref. 3), Revision 3, each DG unit should be tested at least once every 31 days. Whenever a DG has experienced 4 or more valid failures in the last 25 valid tests, the maximum time between tests is reduced to 7 days. Four failures in 25 valid tests is a failure rate of 0.16, or the threshold of acceptable DG performance, and hence may be an early indication of the degradation of DG reliability. When considered in the light of a long history of tests, however, 4 failures in the last 25 valid tests may only be a statistically probable distribution of random events. Increasing the test Frequency allows a more timely accumulation of additional test data upon which to base judgment of the reliability of the DG. The

(continued)

Revision 6

PA 3

BASES

SURVEILLANCE REQUIREMENTS

CLB3

Diesel Generator Test Schedule (continued)

increased test frequency must be maintained until seven consecutive failure free tests have been performed.

The Frequency for accelerated testing is 7 days, but no less than 24 hours. Tests conducted at intervals of less than 24 hours may be credited for compliance with Required Actions. However, for the purpose of re-establishing the normal 31-day Frequency, a successful test at an interval of less than 24 hours should be considered an invalid test and not count towards the seven consecutive failure free starts, and the consecutive test count is not reset.

A test interval in excess of 7 days (or 31 days, as appropriate) constitutes a failure to meet SRs and results in the associated DG being declared inoperable. It does not, however, constitute a valid test or failure of the DG, and any consecutive test count is not reset.

DB1

REFERENCES

1. 10 CFR 50, Appendix A, GDC 17. (UFSAR Section 16.6)
2. FSAR, Section 8.2. (Chapter 4) DB7
3. Regulatory Guide 1.9. (Safety) DB9
4. FSAR, Chapter 6. (4) DB10
5. FSAR, Chapter 15. (14)
6. Regulatory Guide 1.93. (5)
7. Generic Letter 84-15.
8. 10 CFR 50, Appendix A, GDC 18. (DB1)
9. Regulatory Guide 1.108. (DB12)
10. Regulatory Guide 1.137. (DB13)
11. ANSI C84.1, 1982. (DB14)

DB8 Selection of Diesel Generator Set Capacity for Stand by Power Supplies, March 1971

X1 6. 10 CFR 50.36(c)(2)(ii)

DB11 Availability Of Electric Power Sources, December 1974

Proposed Staff Actions To Improve And maintain Diesel Generator Reliability, July 1984

Revision 1 Periodic Testing of Diesel Generator Units Used As Onsite Electric Power Systems At Nuclear Power Plants, August 1977

Fuel-Oil Systems for Stand by Diesel Generators, October 1979

Revision 1 Voltage Ratings for Electric Power Systems and Equipment,

(continued)

PA3

BASES

REFERENCES (continued)

12. FSAR, Section 6.5. DB15

13. ASME Boiler and Pressure Vessel Code, Section XI. DB17

~~14. IEEE Standard 308~~ CLB2

DB18 14. IEEE-387, IEEE Standard Criteria for Diesel-Generator Units Applied as Standby Power Supplies for Nuclear Power Generating Stations, 1995.

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.1

AC Sources - Operating

JUSTIFICATION FOR DIFFERENCES (JFDs)
FROM NUREG-1433, REVISION 1, BASES

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS BASES: 3.8.1 - AC SOURCES - OPERATING

RETENTION OF EXISTING REQUIREMENT (CLB)

CLB1 BASES for ITS 3.8.1 Required Actions A.3 and B.4 Completion Times have been revised consistent with the JAFNPP current licensing requirements, and references to Regulatory Guide 1.93 have been deleted. The changes are consistent with the current licensing basis for an inoperable reserve circuit (7 days) or EDG subsystem (14 days). First and second Completion Times of Required Action A.3 have been changed from 72 hours to 7 days, and 6 days to 21 days respectively. The first and second Completion Times of Required Action B.4 have been changed from 72 hours to 14 days, and 6 days to 21 days respectively. The second Completion Time, associated with Required Actions A.3 and B.4, has been included based on Discussion of Changes M4 for this Specification.

CLB2 The following NUREG-1433, Revision 1, Surveillance Requirements are generally based upon the recommendations of Regulatory Guide 1.108. JAFNPP has not committed to fully implement this Regulatory Guide, but has used its guidance where appropriate consistent with the JAFNPP design and licensing basis, and the recommendations of the EDG manufacturer for testing of the JAFNPP EDGs. Therefore, the NUREG-1433, Revision 1, Bases for these SRs are not included in the JAFNPP ITS, and subsequent SRs have been renumbered where applicable.

ISTS SR 3.8.1.10 is not included in the JAFNPP ITS since it is not consistent with current testing practices for the EDGs and tests a design feature (EDG capability to reject a full load without overspeed tripping or exceeding the predetermined voltage limits) that is not credited in the JAFNPP accident analysis, although it was satisfactorily tested during initial Startup Testing. No postulated design basis event results in a full load rejection, and the potential consequences of any postulated single active component failure or single Operator failure (such as tripping open the EDG output circuit breaker) that results in full load rejection, are bounded by the potential consequences that would result from an immediate failure of the EDG subsystem itself. Furthermore, if the EDG rejects the full load, operator action would be required to re-establish these loads, regardless of whether or not the EDG overspeeds. Since the accident analysis assumes no operator actions take place in the first 10 minutes following an accident, verification of this design feature does not materially contribute to the demonstration of EDG Operability.

ISTS SR 3.8.1.13 is not included in the JAFNPP ITS since it tests a design feature (the bypassing of certain EDG automatic trips) that is not credited in the JAFNPP accident analysis. There is no reason to expect that the EDG will not run continuously, as long as it has fuel, once it reaches steady state.

RETENTION OF EXISTING REQUIREMENT (CLB)

CLB2 (continued)

ISTS SR 3.8.1.15 is not included in the JAFNPP ITS since it is not consistent with current testing practices for the EDGs. This SR demonstrates that the EDG can be restarted and fully loaded from a "hot" condition (i.e., after any routine surveillance test). Since the routine monthly EDG tests (SRs 3.8.1.2 and 3.8.1.3) require the EDGs to be operated under fully loaded conditions for period of time that is sufficient to cause all monitored critical parameters (e.g., temperatures and pressures) to stabilize within limits, there is no reason to expect that any of these critical parameters would exceed any of the applicable limits during the period immediately after the EDGs are shutdown, causing the EDGs to be unable to be restarted. Furthermore, the ability of the EDGs to successfully restart under "hot" conditions was verified during initial plant Startup Testing, when the EDGs were started and loaded 10 times (five hot, five cold). Therefore, since the EDGs designed ability to restart under "hot" conditions was successfully verified during plant Startup Testing, and since the routine monthly SRs verify critical parameters have stabilized within limits, performance of this SR would not materially contribute to the demonstration of EDG Operability.

ISTS SR 3.8.1.16 is not included in the JAFNPP ITS since it tests a design feature (restoration of load to a reserve source when restored) that is not credited in the JAFNPP accident analysis. The capability to transfer load to a restored reserve source is not a JAFNPP accident analysis assumption and needn't be included in the Technical Specifications. Operator action would be required at JAFNPP to transfer loads from the EDGs to a restored reserve source. Since the accident analysis does not assume operator actions take place, verification of this design feature does not demonstrate EDG Operability.

ISTS SR 3.8.1.17 is not included in the JAFNPP ITS since this design does not exist. This SR demonstrates that with an EDG operating in the test mode and connected to its bus, an ECCS initiation signal overrides the test mode and returns the EDG to ready-to-load operation. At JAFNPP for this test condition, the EDG would stay connected to its bus. Furthermore, the EDGs do not perform any safety-related function for a LOCA event (i.e., ECCS initiation), when the reserve sources remain available. Also, the current licensing basis does not require postulating that a loss of reserve power event occurs some time subsequent to when a LOCA occurs (i.e., the licensing basis only requires mitigating a simultaneous loss of reserve power and LOCA). Therefore, this SR is not applicable.

RETENTION OF EXISTING REQUIREMENT (CLB)

CLB2 (continued)

ISTS SR 3.8.1.20 is not included in the JAFNPP ITS. This SR is intended to periodically verify acceptable electrical and physical independence of the EDGs and associated electrical distribution systems. Adequate independence (both electrical and physical) of the EDGs and associated electrical distribution systems was a requirement (and has been established in) the original plant design (ref. UFSAR Chapter 8). Furthermore, existing maintenance practices and configuration control practices are judged to be sufficient to ensure continued acceptable separation and independence. Thus, there is no need to periodically perform this SR to demonstrate continued acceptable independence or simultaneous start capability.

CLB3 NUREG Bases for the Diesel Generator Test Schedule (Table 3.8.1-1) are not included in the JAFNPP ITS. This is acceptable since JAFNPP is not committed to the accelerated EDG testing required by Regulatory Guide 1.9, Revision 3. This change deletes accelerated testing required by NUREG-1433, Revision 1. This change is consistent with the changes proposed in TSTF-37, which is acceptable based on the implementation of a maintenance rule monitoring program for EDG performance, pursuant to 10 CFR 50.65, which ensures adequate EDG reliability. Changes to this program will be controlled by the provisions of 10 CFR 50.59.

CLB4 The ISTS SR 3.8.1.9, limits imposed on return to steady state frequency and voltage following a single load rejection, are controlled by plant procedures, and are not presented as specific TS requirements in ITS SR 3.8.1.8. The specific criteria referenced would not be appropriate for certain methods of performing this test, e.g., if performed while the EDG was loaded only with the single largest load. Furthermore, this criteria is not included in the JAFNPP Current Licensing Basis. In addition, due to this deletion, the load reject maximum frequency requirement has been made part of the first paragraph, instead of leaving it as part a.

CLB5 ITS SR 3.8.1.10 brackets have been removed and the Frequency has been revised to reflect the current licensing requirements of JAFNPP, CTS 4.9.B.4 of once per operating cycle equivalent to 24 months.

CLB6 ITS SR 3.8.1.9 and SR 3.8.1.12 bracketed Frequency has been revised to reflect the current licensing requirements of JAFNPP, CTS 4.9.B.4 of once per operating cycle equivalent to 24 months.

RETENTION OF EXISTING REQUIREMENT (CLB)

CLB7 The Required Actions and Completion Times of ITS 3.8.1 Condition C for two inoperable offsite circuits have been modified to reflect the current licensing basis. The Completion Time to restore one reserve circuit has been extended from 24 hours to 7 days consistent with CTS 3.9.B.2. G RAI 3.8.1-1

CLB8 ITS SR 3.8.1.7, SR 3.8.1.8, SR 3.8.1.9, SR 3.8.1.10, SR 3.8.1.11, SR 3.8.1.12, and SR 3.8.1.13 Notes, which specify these Surveillances shall not be performed in MODE 1, 2, or 3, as applicable, are being deleted. This change is consistent with the current JAFNPP licensing basis which does not restrict the MODE in which these Surveillances may be performed. RAI 3.8.1-15 RAI 3.8.1-19 RAI 3.8.1-25

In addition this change is consistent with Generic Letter (GL) 91-04, Changes in Technical Specification Surveillance Intervals to Accommodate a 24 Month Fuel Cycle, which states in part:

"licensees may omit the TS qualification that an 18-month surveillance is to be performed "during shutdown" when specifying the surveillance interval as "...at least once per REFUELING INTERVAL." Because the terms "Hot" and "Cold Shutdown" are defined in the TS as operating modes or conditions, the added restriction to perform certain surveillances during shutdown may be mis-interpreted. This restriction ensures that a surveillance would only be performed when it is consistent with safe plant operation. However, this consideration is valid for other surveillances that are performed during power operation, plant startup, or shutdown, but is not addressed by restricting the conduct of these surveillances.

The staff concludes that the TS need not restrict surveillances as only being performed during shutdown. Nevertheless, safety dictates that when refueling interval surveillances are performed during power operation, licensees give proper regard for their effect on the safe operation of the plant. If the performance of a refueling interval surveillance during plant operation would adversely affect safety, the licensee should postpone the surveillance until the unit is shutdown for the refueling or is in a condition or mode that is consistent with the safe conduct of that surveillance".

CLB9 ITS 3.8.1, Required Action B.4 Bases has been modified to reflect License Amendment 253 dated July 30, 1999 (TAC No. M94611), which approved a 14 day completion time for the restoration of an inoperable EDG subsystem based on a risk-informed assessment of the inoperable EDG subsystem and other inoperable plant equipment in accordance with CTS 6.21 (ITS 5.5.13), Configuration Risk Management Program (CRMP).

CLB10 ITS 3.8.1.6 Bases brackets have been removed and the basis for the 31 day Frequency has been included to reflect the current design and licensing basis at JAFNPP. RAI 3.8.1-5

PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT (PA)

PA1 Editorial changes have been made for enhanced clarity or to correct a grammatical/typographical error.

PA2 NUREG-1433, Revision 1, ISTS LCOs 3.8.7 and 3.8.8 have been deleted. Therefore, NUREG-1433, Revision 1, ISTS LCO 3.8.9 and LCO 3.8.10 have been renumbered, as JAFNPP ITS 3.8.7 and 3.8.8 respectively, to reflect this change.

PA3 Changes have been made (additions, deletions and/or changes to the NUREG) to reflect the plant specific system/structure/component nomenclature, equipment identification or description.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB1 JAFNPP was designed and under construction prior to the promulgation of Appendix A to 10 CFR 50 - General Design Criteria for Nuclear Power Plants. The JAFNPP Construction Permit was issued on May 20, 1970. The proposed General Design Criteria (GDC) were initially published for comment in the Federal Register on July 11, 1967 (32 FR 10213) and published in final form in the Federal Register on February 20, 1971 (36 FR 3256), and amended on July 7, 1971 (36 FR 12733). UFSAR Section 16.6, "Conformance to AEC Design Criteria", describes the JAFNPP current licensing basis with regard to the GDC. ISTS statements concerning the GDC are modified in the ITS to reference UFSAR Section 16.6.

DB2 Not used.

DB3 NUREG-1433, Revision 1, Bases 3.8.1 has been modified to reflect the JAFNPP AC sources design. The onsite source of AC electrical power at JAFNPP is provided by two redundant emergency diesel generator (EDG) subsystems, Division 1 and Division 2. Each EDG subsystem consists of two Emergency Diesel Generators. This change is reflected in ITS LCO 3.8.1.b, in the proposed ACTIONS as well as the associated Surveillances. Based on these differences in design, each EDG subsystem is tested in a forced parallel configuration. These changes reflect changes made to the associated Specification.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB4 NUREG-1433, Revision 1, Bases SR 3.8.1.2 Note 1 and Note 3 have been deleted since the idling and gradual acceleration feature is not included in the JAFNPP EDG design. ISTS SR 3.8.1.7 has been deleted since the quick start (i.e., starting and accelerating to rated speed and voltage within a specific time period) will be performed every 31 days, however, the ISTS SR 3.8.1.7 requirement to reach rated speed and voltage in ≤ 10 seconds has been added to ITS SR 3.8.1.2. In addition, the Bases description of Note 2 to ISTS SR 3.8.1.2 and Note 1 to ISTS SR 3.8.1.7 has been modified to be consistent with the JAFNPP design and the actual SR. These changes reflect changes made to the associated Specification. Subsequent Surveillances have been renumbered as applicable.

RAI 3.8.1-12

DB5 Not Used.

DB6 NUREG-1433, Revision 1, Bases 3.8.1 has been modified to reflect the JAFNPP AC sources design. The JAFNPP AC Sources do not include an automatic sequencer. The LCO, associated ACTIONS, and Surveillances have been deleted. The verification that the emergency loads are auto-connected in the prescribed sequence will be evaluated in accordance with the ITS SR 3.8.1.10, SR 3.8.1.12, LCO 3.3.5.1 and LCO 3.5.1. These changes reflect changes made to the associated Specification. The subsequent requirements have been renumbered where applicable to reflect this change.

DB7 ITS 3.8.1 has been revised to reflect the specific JAFNPP reference requirements of, UFSAR, Chapter 8.

DB8 ITS 3.8.1 has been revised to reflect the specific JAFNPP reference requirements of, Safety Guide 9, Selection of Diesel Generator Set Capacity for Standby Power Supplies, March 1971.

DB9 ITS 3.8.1 has been revised to reflect the specific JAFNPP reference requirements of, UFSAR, Chapter 6.

DB10 ITS 3.8.1 has been revised to reflect the specific JAFNPP reference requirements of, UFSAR, Chapter 14.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB11 ITS 3.8.1 has been revised to reflect the specific JAFNPP reference requirements of, Regulatory Guide 1.93, Availability of Electric Power Sources, December 1974.

DB12 ITS 3.8.1 has been revised to reflect the specific JAFNPP reference requirements of, Regulatory Guide 1.108, Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants, Revision 1, August 1977.

DB13 ITS 3.8.1 has been revised to reflect the specific JAFNPP reference requirements of, Regulatory Guide 1.137, Revision 1, Fuel-Oil Systems for Standby Diesel Generators, October 1979.

DB14 ITS 3.8.1 has been revised to reflect the specific JAFNPP reference requirements of, ANSI C84.1, Voltage Ratings for Electric Power Systems and Equipment, 1982.

DB15 ITS 3.8.1 has been revised to reflect the specific JAFNPP reference requirements of, UFSAR, Section 6.5.

DB16 Words have been changed to properly reflect the JAFNPP fuel oil transfer system. Each EDG is considered to have its own dedicated system even though the systems within an EDG subsystem can be manually tied together. In addition, the EDGs do not have an engine mounted tank.

DB17 ITS 3.8.1 has been revised to reflect the specific JAFNPP reference requirements of, ASME Boiler and Pressure Vessel Code, Section XI.

DB18 ITS 3.8.1 has been revised to reflect the specific JAFNPP reference requirements of, IEEE-387, IEEE Standard Criteria for Diesel-Generator Units Applied as Standby Power Supplies for Nuclear Power Generations Stations, 1995.

DB19 NUREG 1433, Revision 1, ISTS SR 3.8.1.12 (ITS SR 3.8.1.10) has been revised to reflect JAFNPP AC sources design. The verification of auto connected loads reference to high pressure injection (systems) has been deleted since JAFNPP high pressure injection system (HPCI) is not powered by an AC source.

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

TA1 The changes presented in Technical Specification Task Force (TSTF) Technical Specification Change Traveler Number 8, Revision 2, have been incorporated into the revised Improved Technical Specifications Bases.

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

TA1 (continued)

TSTF-8, Revision 2, revises NUREG-1433, Revision 1, SR 3.8.1.8 Note, SR 3.8.1.9 Note 1, SR 3.8.1.11 Note 2, SR 3.8.1.12 Note 2, SR 3.8.1.14 Note 2, and SR 3.8.1.19 Note 2 by deleting the statement allowing credit to be taken for unplanned events that satisfy this SR. The removal of this statement is consistent with additional changes to the Bases for ITS SR 3.0.1 which clarify that credit may be taken for unplanned events to satisfy any SR, not just those in Section 3.8.

TA2 The changes presented in Technical Specification Task Force (TSTF) Technical Specification Change Traveler 163, Revision 2, have been incorporated into revised Improved Technical Specifications. TSTF-163, Revision 2, revises EDG SR start acceptance criteria to specify only minimum voltage and frequency within 10 seconds. The minimum and maximum voltage and frequency ranges are applicable only to steady state operation.

DIFFERENCE BASED ON A SUBMITTED, BUT PENDING TRAVELER (TP)

None

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X1 NUREG-1433, Revision 1, Bases reference to "the NRC Policy Statement" has been replaced with 10 CFR 50.36(c)(2)(ii), in accordance with 60 FR 36953 effective August 18, 1995.

X2 ITS SR 3.8.1.8, a new requirement (M2), Bases has been revised and the applicable requirements to verify the capability of the EDG to reject a load greater than or equal to its associated single largest post-accident load (core spray pump) at a Frequency of 24 months has been provided consistent with the format of NUREG-1433, Revision 1.

X3 ITS 3.8.1 Required Actions B.3.1 and B.3.2 bracketed Completion Time has been revised to reflect changes to CTS 4.9.B.5, which provided the Completion Time of 24 hours (L5) to determine that OPERABLE EDGs or subsystems are not inoperable due to common cause failure or demonstrate EDG OPERABILITY.

X4 ITS SR 3.8.1.8 and ITS SR 3.8.1.11 Bases have been revised to reflect changes in ISTS SR 3.8.1.9, Note 2 and ISTS SR 3.8.1.14 Note (CLB3) concerning conditions where the power factor of $\leq$ 0.9 cannot be achieved due to grid conditions or limitations.

RAI 3.8.1-18

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X5 ITS SR 3.8.1.2 bracketed EDG voltage and frequency requirements at steady state conditions have been provided consistent with changes identified in CTS 4.9.B.1 (M7). The Bases wording has been revised to reflect plant specific values.

X6 ITS SR 3.8.1.5, a new requirement (M2), bracketed Frequency (31 days) requirement to check the EDG day tank for water has been provided consistent with the format of NUREG-1433, Revision 1.

X7 ITS SR 3.8.1.6, Bases has been revised and the requirement to verify automatic operation of each fuel oil transfer system has been included consistent with changes identified in CS 4.9.C.2 (M13).

X8 ITS SR 3.8.1.7, a new requirement (M2), brackets have been removed and the requirements to verify automatic and manual transfer of the plant power supplies from the normal station service transformer to each offsite circuit (for each offsite circuit that is not energizing its respective 4.16 kV emergency bus) at a Frequency of 24 months has been provided consistent with the format of NUREG-1433, Revision 1. 16 RAI 3.8.1-27

X9 The bracketed Reviewer's type Note has been deleted since it was not intended to be maintained in the plant specific ITS.

X10 ITS SR 3.8.1.9, SR 3.8.1.10, and SR 3.8.1.12, bracketed EDG voltage and frequency and load time requirements have been provided consistent with changes identified in CTS 4.9.B.4 (M11).

X11 ISTS SR 3.8.1.14 requires each EDG operating at the required power factor to operate for ≥ 24 hours. ITS SR 3.8.1.11, a new requirement (M2), requires each EDG operating at the required power factor to operate for ≥ 8 hours. The 8 hour duration for this test is considered sufficient to demonstrate EDG Operability. This change is based on the requirements of IEEE Standard 387-1995, "IEEE Standard Criteria for Diesel Generator Units Applied as Standby Power Supplies for Nuclear Power Generating Stations." IEEE Standard 387-1995, Section 7.5.9 and Table 3 for the endurance and load test conducted during shutdown/refueling once every two years, state to demonstrate the load carrying capability for an interval of not less than 8 hours, of which 2 hours should be at a load equivalent to the short time rating of the diesel generator and 6 hours at a load equivalent to the 90-100% of the continuous rating. The IEEE Standard 387-1995, Section 7.5.9 and Table 3, state for the pre-operational test, to use 2 hours and 22 hours. Since the pre-operational test of the diesel generators has been completed at JAFNPP and 24 hour duration testing has been successfully

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X11 (continued)

performed, an 8 hour duration has been included in ITS SR 3.8.1.11 instead of the 24 hours duration included in ISTS SR 3.8.1.14 for this test.

X12 ITS 3.8.1 Required Actions A.3 and B.4 second Completion Times have been revised to reflect changes to CTS 3.9.B.1 and 3.9.B.5, which added the second Completion Time of 21 days from discovery of failure to meet the LCO (M4).

RAI 3.8.1-05

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.1

AC Sources - Operating

RETYPED PROPOSED IMPROVED TECHNICAL SPECIFICATIONS (ITS) AND BASES

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources – Operating

LCO 3.8.1 The following AC electrical power sources shall be OPERABLE:

a. Two qualified circuits between the offsite transmission network and the plant Class 1E AC Electrical Power Distribution System; and

b. Two emergency diesel generator (EDG) subsystems.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One offsite circuit inoperable.	A.1 Perform SR 3.8.1.1 for OPERABLE offsite circuit.	1 hour AND Once per 8 hours thereafter
	AND	
	A.2 Declare required feature(s) with no offsite power available inoperable when the redundant required feature(s) are inoperable.	24 hours from discovery of no offsite power to one division concurrent with inoperability of redundant required feature(s)
	AND	(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.3	Restore offsite circuit to OPERABLE status.	7 days AND 21 days from discovery of failure to meet LCO
B. One EDG subsystem inoperable.	B.1	Perform SR 3.8.1.1 for OPERABLE offsite circuit(s).	1 hour AND Once per 8 hours thereafter
	AND		
	B.2	Declare required feature(s), supported by the inoperable EDG subsystem, inoperable when the redundant required feature(s) are inoperable.	4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)
	AND		
			(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.3.1	Determine OPERABLE EDG subsystem is not inoperable due to common cause failure.	24 hours
	OR		
	B.3.2	Perform SR 3.8.1.2 for OPERABLE EDG subsystem.	24 hours
	AND		
	B.4	Restore EDG subsystem to OPERABLE status.	14 days AND 21 days from discovery of failure to meet LCO
C. Two offsite circuits inoperable.	C.1	Declare required feature(s) inoperable when the redundant required feature(s) are inoperable.	12 hours from discovery of Condition C concurrent with inoperability of redundant required feature(s)
	AND		
	C.2	Restore one offsite circuit to OPERABLE status.	7 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One offsite circuit inoperable. AND One EDG subsystem inoperable.	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.7, "Distribution Systems – Operating," when Condition D is entered with no AC power source to any division. ----------	
	D.1 Restore offsite circuit to OPERABLE status.	12 hours
	OR	
	D.2 Restore EDG subsystem to OPERABLE status.	12 hours
E. Two EDG subsystems inoperable.	E.1 Restore one EDG subsystem to OPERABLE status.	2 hours
F. Required Action and Associated Completion Time of Condition A, B, C, D, or E not met.	F.1 Be in MODE 3.	12 hours
	AND	
	F.2 Be in MODE 4.	36 hours
G. Three or more AC Sources inoperable.	G.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.1	Verify correct breaker alignment and indicated power availability for each offsite circuit.	7 days
SR 3.8.1.2	----------NOTE---------- All EDG subsystem starts may be preceded by an engine prelube period. ----------	
	Verify each EDG subsystem starts from standby conditions, force parallels, and achieves: a. in ≤ 10 seconds voltage ≥ 3900 V and frequency ≥ 58.8 Hz; and b. steady state voltage ≥ 3900 V and ≤ 4400 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.	31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.3	----------NOTES---------- 1. EDG loadings may include gradual loading as recommended by the manufacturer. 2. Momentary transients outside the load range do not invalidate this test. 3. This Surveillance shall be conducted on only one EDG subsystem at a time. 4. This SR shall be preceded by and immediately follow, without shutdown, a successful performance of SR 3.8.1.2. ---------- Verify each EDG subsystem is paralleled with normal, reserve or backfeed power and each EDG is loaded and operates for ≥ 60 minutes at a load ≥ 2340 kW and ≤ 2600 kW.	31 days
SR 3.8.1.4	Verify each day tank contains ≥ 327 gal of fuel oil.	31 days
SR 3.8.1.5	Check for and remove accumulated water from each day tank.	31 days
SR 3.8.1.6	Verify that each EDG fuel oil transfer system operates to automatically transfer fuel oil from its storage tank to the associated day tank.	31 days

RAI 28.1-05
RAI 3.8.1-14

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.7	----------NOTE---------- Only required to be met for each offsite circuit that is not energizing its respective 4.16 kV emergency bus. ---------- Verify automatic and manual transfer of plant power supply from the normal station service transformer to each offsite circuit.	24 months
SR 3.8.1.8	----------NOTE---------- If performed with the EDG paralleled with normal, reserve or backfeed power, it shall be performed within the power factor limit. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition the power factor shall be maintained as close to the limit as practicable. ---------- Verify each EDG subsystem rejects a load greater than or equal to its associated single largest post-accident load, and following load rejection, the frequency is ≤ 66.75 Hz.	24 months

RAI 3.8.1-17 G G

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.9	----------NOTE---------- All EDG subsystem starts may be preceded by an engine prelube period. ---------- Verify on an actual or simulated loss of power signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; and c. EDG subsystem auto-starts from standby condition, force parallels, and: 1. energizes permanently connected loads in ≤ 11 seconds, 2. energizes auto-connected shutdown loads, 3. maintains steady state voltage ≥ 3900 V and ≤ 4400 V, 4. maintains steady state frequency ≥ 58.8 Hz and ≤ 61.2 Hz, and 5. supplies permanently connected and auto-connected shutdown loads for ≥ 5 minutes.	24 months

RAI 3.8.1-12
RAI 3.8.1-15

RAI 3.8.1-17

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.10	----------NOTE---------- All EDG subsystem starts may be preceded by an engine prelube period. ---------- Verify on an actual or simulated Emergency Core Cooling System (ECCS) initiation signal each EDG subsystem auto-starts from standby condition, force parallels, and: a. In ≤ 10 seconds after auto-start and during tests, achieves voltage ≥ 3900 V, frequency ≥ 58.8 Hz; b. Achieves steady state voltage ≥ 3900 V and ≤ 4400 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz; c. Operates for ≥ 5 minutes; d. Permanently connected loads remain energized from the reserve or backfeed power system; and e. Emergency loads are auto-connected in the prescribed sequence from the reserve or backfeed power system.	24 months

RAI 3.8.1-12
RAI 3.8.1-15
RAI 3.8.1-17

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.11	----------NOTES---------- 1. Momentary transients outside the load and power factor ranges do not invalidate this test. 2. If grid conditions do not permit, the power factor limit is not required to be met. Under this condition, the power factor shall be maintained as close to the limit as practicable. ---------- Verify each EDG subsystem operating within the power factor limit operates for ≥ 8 hours: a. For ≥ 2 hours each EDG loaded ≥ 2730 kW and ≤ 2860 kW; and b. For the remaining hours of the test each EDG loaded ≥ 2340 kW and ≤ 2600 kW.	24 months

RAI 3.8.1-18

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.12	----------NOTE---------- All EDG subsystem starts may be preceded by an engine prelube period. ---------- Verify, on an actual or simulated loss of power signal in conjunction with an actual or simulated ECCS initiation signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; and c. EDG subsystem auto-starts from standby condition, force parallels, and: 1. energizes permanently connected loads in ≤ 11 seconds, 2. energizes auto-connected emergency loads in the prescribed sequence, 3. achieves steady state voltage ≥ 3900 V and ≤ 4400 V, 4. achieves steady state frequency ≥ 58.8 Hz and ≤ 61.2 Hz, and 5. supplies permanently connected and auto-connected emergency loads for ≥ 5 minutes.	24 months
SR 3.8.1.13	Verify interval between each sequenced load block is greater than or equal to the minimum design load interval.	24 months

RAI 3.8.1-12
RAI 3.8.1-15
RAI 3.8.1-17
RAI 3.8.1-15

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.1 AC Sources – Operating

BASES

BACKGROUND

The AC Sources for the plant Class 1E AC Electrical Power Distribution System consist of the Main Generator (normal), 115 kV transmission network (reserve), 345 kV transmission network (backfeed), and emergency diesel generators (EDGs) A, B, C, and D (onsite). As required by JAFNPP design criteria (Ref. 1), the design of the AC electrical power system provides independence and redundancy to ensure an available source of power to the Engineered Safeguards systems.

The Class 1E AC distribution system is divided into redundant load groups, so loss of any one group does not prevent the minimum safety functions from being performed. Each load group has connections to the normal main generator source, two 115 kV transmission network sources through the associated reserve circuits, one EDG subsystem onsite source consisting of two EDGs, and the 345 kV transmission network backfeed source.

Offsite power is supplied to the 115 kV and 345 kV switchyards from the transmission network by four transmission lines. The 115 kV switchyard is supplied by two independent 115 kV transmission lines and associated breakers. One transmission line, the Lighthouse Hill-FitzPatrick line 3 (breaker 10022), connects the South 115 kV bus to the Lighthouse Hill substation. The other transmission line, Nine Mile-FitzPatrick line 4 (breaker 10012), connects the North 115 kV bus to the Nine Mile Point Unit One Nuclear Station 115 kV switchyard which is then connected to the South Oswego substation. The South 115 kV bus and the North 115 kV bus are connected by a normally closed electrically operated disconnect (10017). Each circuit breaker and disconnect is provided with two complete sets of protective relaying for tripping. In the event of a fault on a 115 kV bus the associated breaker and disconnects will open to de-energize the bus and isolate the faulted bus section. The 115 kV reserve power source is stepped down to 4.16 kV by Reserve Station Service Transformers (RSSTs) 71T-2 and 71T-3. RSST 71T-2 supplies 4.16 kV buses 10200, 10400, and 10600 for plant startup and shutdown. RSST 71T-3 supplies 4.16 kV buses 10100, 10300, and 10500 for plant

(continued)

BASES

BACKGROUND (continued)

startup and shutdown. The lines connecting the RSSTs to the 115 kV transmission lines are arranged so that a failure of either line does not result in the loss of the other line. The 345 kV switchyard is connected to the Niagara Mohawk Power Corporation's Edic Substation and the Niagara Mohawk Power Corporation's Scriba Substation. The Main Generator provides power at 24 kV to two main transformers (T1A and T1B) connected in parallel, and to the Normal Station Service Transformer (NSST) 71T-4. NSST 71T-4 steps down voltage to supply power to the 4.16 kV buses 10100, 10200, 10300, 10400 and 10700. Normal (from the Main Generator) or reserve power is supplied to emergency buses 10500 and 10600 through tie connections from buses 10300 and 10400, respectively. If normal power from NSST 71T-4 is lost, the reserve power, RSSTs 71T-2 and 71T-3, will automatically energize all plant buses via the fast or residual transfer, except bus 10700. The only power source to bus 10700 is NSST 71T-4 because the bus has no connected loads necessary for startup or safe shutdown of the plant. If the RSSTs were to fail, the EDG subsystems would automatically energize their respective buses. The 345 kV switchyard is sometimes used to backfeed NSST 71T-4. This operation requires the main generator leads to be manually disconnected and therefore can only be used during plant outages. A detailed description of the 115 kV and 345 kV transmission networks and the normal, reserve, and backfeed AC power supply circuits to the plant Class 1E emergency buses is found in the UFSAR, Chapter 8 (Ref. 2).

A qualified offsite circuit consists of one independent 115 kV transmission network source, all breakers, transformers, switches, interrupting devices, cabling, and controls required to transmit power from the 115 kV transmission network source to the plant Class 1E emergency bus or buses. During normal plant operation, with the main generator on line, emergency buses 10500 and 10600 are energized by the normal AC power source from NSST 71T-4 via buses 10300 and 10400, respectively. Loss or degradation of the normal AC power source results in an automatic fast transfer or automatic residual transfer to the reserve AC power source through RSSTs 71T-2 and 71T-3. Each RSST is sized to supply all loads on its associated emergency and non-emergency service buses. 16

(continued)

BASES

BACKGROUND (continued)

The onsite standby AC power sources for 4.16 kV emergency buses 10500 and 10600 consist of two independent and redundant EDG subsystems that are self contained and independent of normal, backfeed, and reserve sources. Each EDG subsystem consists of two EDGs which operate in parallel and are dedicated to an emergency power division (1 or 2). The Division 1 EDG subsystem consists of EDGs A and C and is dedicated to emergency bus 10500. The Division 2 EDG subsystem consists of EDGs B and D and is dedicated to emergency bus 10600. The EDGs start automatically on an emergency bus degraded voltage signal, an emergency bus undervoltage (LOP) signal, or a loss of coolant accident (LOCA) signal (i.e., low-low-low reactor water level signal or high drywell pressure signal). As a consequence of a LOP or degraded voltage signal, independent of or coincident with a LOCA signal, the emergency bus undervoltage control logic starts the EDGs. Coincident with the EDG starting and force paralleling, the emergency bus undervoltage control logic trips the 4.16 kV emergency bus tie breakers, trips the emergency bus load breakers (except for the 600 V emergency substations), and provides a close permissive signal to the EDG output breakers. The EDGs are automatically tied to their respective emergency buses and if a LOCA condition exists loads are sequentially connected to the emergency buses by the programmed restart time delay relays. The programmed restart time delay relays control the permissive and starting signals to motor breakers to prevent overloading the EDGs. On a LOCA signal alone the EDGs start, force parallel, and operate in the standby mode without tying to the emergency bus.

Certain required plant loads are returned to service in a predetermined sequence in the presence of a LOCA signal in order to prevent overloading of the EDGs in the process. Within 27 seconds after the initiating signal is received, all automatic and permanently connected loads needed to recover the plant or maintain it in a safe condition are returned to service. While each emergency power division is designed to be supplied by an EDG pair, each individual EDG is sized to supply the necessary loads to accommodate a LOP (without a LOCA), and to provide for safe reactor shutdown during a transient. If an EDG were to fail during a LOCA event in conjunction with a LOP, the programmed restart logic will not start the second residual heat removal pump powered from the 4.16KV emergency bus associated with the failed EDG so that the OPERABLE EDG is not overloaded.

(continued)

BASES

BACKGROUND (continued)

Ratings for the EDGs satisfy the requirements of Safety Guide 9 (Ref. 3). EDGs A, B, C and D have the following ratings:

a. 2600 kW – continuous,

b. 2850 kW – 2000 hours,

c. 2950 kW – 160 hours,

d. 3050 kW – 30 minutes.

APPLICABLE SAFETY ANALYSES

The initial conditions of DBA and transient analyses in the UFSAR, Chapter 6 (Ref. 4) and Chapter 14 (Ref. 5), assume Emergency Safeguards 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 emergency safeguards systems so that the 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 3.5, Emergency Core Cooling System (ECCS) and Reactor Core Isolation Cooling (RCIC) System; 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 plant. This includes maintaining the onsite (EDGs) or qualified offsite AC sources OPERABLE during accident conditions in the event of: 16

a. An assumed loss of all offsite power or all onsite AC power; and 16

b. A worst case single active component failure.

AC sources satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii) (Ref. 6).

(continued)

BASES (continued)

LCO

Two qualified circuits between the offsite transmission network and the plant Class 1E Distribution System and two separate and independent EDG subsystems each consisting of two EDGs ensure availability of the required power to shut down the reactor and maintain it in a safe shutdown condition after an abnormal operational transient or a postulated DBA. 1G

Qualified offsite circuits are those that are described in the UFSAR, and are part of the licensing basis for the plant. 1G

Each qualified offsite circuit must be capable of maintaining rated frequency and voltage, and accepting required loads during an accident, while connected to the emergency buses. Each qualified offsite circuit consists of the incoming switchyard breakers and disconnect devices to reserve station service transformer (RSST) 71T-2 or 71T-3, and the respective circuit path including feeder breakers to the 4.16 kV emergency bus 10500 or 10600. In addition, to ensure a fault on one qualified offsite circuit does not adversely impact the other qualified offsite circuit, the 115 kV North and South bus disconnect (10017) automatic opening feature must be OPERABLE if the disconnect is closed. 1G 1G 1 MCAI 3.8.1-21

Each EDG subsystem must be capable of starting, accelerating to rated speed and voltage, force paralleling and connecting to its respective emergency bus on detection of bus undervoltage. This sequence must be accomplished within 10 seconds. Each EDG subsystem must also be capable of accepting required loads within the assumed loading sequence intervals, and must continue to operate until offsite power can be restored to the emergency buses. These capabilities are required to be met with the EDGs in standby with the engines at ambient conditions. Additional EDG capabilities must be demonstrated to meet required Surveillances, e.g., capability of each EDG to reject a load greater than or equal to the load of a core spray pump. Proper sequencing of loads, including tripping of nonessential loads, is a required function for EDG OPERABILITY. 1G

The AC sources must be separate and independent (to the extent possible) of other AC sources. For the EDGs, the separation and independence are complete. For the offsite AC sources, the separation and independence are to the extent practical. A qualified offsite circuit that is not connected to an emergency bus is required to have OPERABLE 1G

(continued)

BASES (continued)

LCO (continued)

automatic transfer interlock mechanisms to its associated emergency bus to support OPERABILITY of that circuit.

APPLICABILITY

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

a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of abnormal operational transients; 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 4 and 5 are covered in LCO 3.8.2, "AC Sources – Shutdown."

ACTIONS

A.1

To ensure a highly reliable power source remains with one offsite circuit inoperable, it is necessary to verify the availability of the remaining offsite circuit 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 a second offsite circuit fails SR 3.8.1.1, the second offsite circuit is inoperable, and Condition C, for two offsite circuits inoperable, is entered. G G

A.2

Required Action A.2, which only applies if the division cannot be powered from an offsite source, is intended to provide assurance that an event with a coincident single active failure of the associated EDG subsystem does not result in a complete loss of safety function of critical systems. These features are designed with redundant safety related divisions (i.e., single division systems are not included). Redundant required features failures consist of inoperable features associated with a division redundant to the division that has no power from an offsite circuit. G G G

(continued)

BASES (continued)

ACTIONS

A.2 (continued)

The Completion Time for Required Action A.2 is intended to allow time for the operator to evaluate and repair any discovered inoperabilities. This Completion Time also allows 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. The division has no offsite circuit OPERABLE to supply its loads; and 1G

b. A redundant required feature on the other division is inoperable.

If, at any time during the existence of this Condition (one offsite circuit inoperable) a redundant required feature subsequently becomes inoperable, this Completion Time would begin to be tracked. 1G

Discovering no offsite power to one 4.16 kV emergency bus of the plant Class 1E Power Distribution System coincident with one or more inoperable required support or supported features, or both, that are associated with any other emergency bus that has offsite power, results in starting the Completion Times for the Required Action. Twenty-four hours is acceptable because it minimizes risk while allowing time for restoration before the plant is subjected to transients associated with shutdown. 1G 1G

The remaining OPERABLE offsite circuit and EDGs are adequate to supply electrical power to the plant Class 1E Distribution System. Thus, on a component basis, single active failure protection may have been lost for the required feature's function; however, function is not lost. The 24 hour Completion Time takes into account the component OPERABILITY of the redundant counterpart to the inoperable required feature. Additionally, the 24 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. 1G

(continued)

BASES (continued)

ACTIONS (continued)

A.3

With one offsite circuit 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 plant safety systems. In this condition, however, the remaining OPERABLE offsite circuit and EDGs are adequate to supply electrical power to the plant Class 1E Distribution System. G

The 7 day Completion Time takes into account the redundancy, capacity and capability of the remaining AC sources, reasonable time for repairs, and the low probability of a DBA occurring during this period.

The second Completion Time for Required Action A.3 establishes a limit on the maximum time allowed for any combination of required AC power sources to be inoperable during any single contiguous occurrence of failing to meet the LCO. If Condition A is entered while, for instance, an EDG subsystem is inoperable, and that EDG subsystem is subsequently restored OPERABLE, the LCO may already have been not met for up to 14 days. This situation could lead to a total of 21 days, since initial failure to meet the LCO, to restore the offsite circuit. At this time, an EDG subsystem could again become inoperable, the reserve circuit restored OPERABLE, and an additional 14 days (for a total of 35 days) allowed prior to complete restoration of the LCO. The 21 day Completion Time provides a limit on the time allowed in a specified condition after discovery of failure to meet the LCO. This limit is considered reasonable for situations in which Conditions A and B are entered concurrently. The "AND" connector between the 7 day and 21 day Completion Times means that both Completion Times apply simultaneously, and the more restrictive Completion Time must be met. G

Similar to Required Action A.2, the second Completion Time of Required Action A.3 allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." This exception results in establishing the "time zero" at the time the LCO was initially not met, instead of at the time that Condition A was entered.

(continued)

BASES (continued)

ACTIONS (continued)

B.1

To ensure a highly reliable power source remains with one EDG subsystem inoperable, it is necessary to verify the availability of the reserve circuits 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 circuit fails to pass SR 3.8.1.1, it is inoperable. Upon reserve circuit inoperability, additional Conditions must then be entered.

B.2

Required Action B.2 is intended to provide assurance that a loss of reserve power, during the period that an EDG subsystem is inoperable, does not result in a complete loss of safety function of critical systems. These features are designed with redundant safety related divisions (i.e., single division systems are not included) equipment. Redundant required features failures consist of inoperable features associated with a division redundant to the division that has an inoperable EDG subsystem.

The Completion Time 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 EDG subsystem exists; and

b. A redundant required feature on the other division is inoperable.

If, at any time during the existence of this Condition (one EDG subsystem inoperable), a redundant required emergency core cooling or containment cooling feature subsequently becomes inoperable, this Completion Time begins to be tracked.

Discovering one EDG subsystem inoperable coincident with one or more inoperable required support or supported features, or both, that are associated with the OPERABLE EDG subsystem results in starting the Completion Time for the Required Action. Four hours from the discovery of these events

(continued)

BASES (continued)

ACTIONS

B.2 (continued)

existing concurrently is acceptable because it minimizes risk while allowing time for restoration before subjecting the plant to transients associated with shutdown.

The remaining OPERABLE EDG subsystem and reserve circuits are adequate to supply electrical power to the plant Class 1E Distribution System. Thus, on a component basis, single active 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 component 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, reasonable time for repairs, and 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 EDG subsystem. If it can be determined that the cause of the inoperable EDG subsystem does not exist on the OPERABLE EDG subsystem, SR 3.8.1.2 does not have to be performed. If the cause of inoperability exists on other EDG subsystem, the EDG subsystem is declared inoperable upon discovery, and Condition E of LCO 3.8.1 is entered.

Once the failure is repaired, and the common cause failure no longer exists, Required Action B.3.1 is satisfied. If the cause of the initial inoperable EDG subsystem cannot be confirmed not to exist on the remaining EDG subsystem, performance of SR 3.8.1.2 suffices to provide assurance of continued OPERABILITY of the remaining EDG subsystem.

In the event the inoperable EDG subsystem 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.

According to Generic Letter 84-15 (Ref. 7), 24 hours is a reasonable time to confirm that the remaining OPERABLE EDG subsystem is not affected by the same problem as the inoperable EDG.

(continued)

BASES

ACTIONS (continued)

B.4

The design of the AC Sources allows operation to continue in Condition B for a period that should not exceed 14 days. In Condition B, the remaining OPERABLE EDG subsystem and reserve circuits are adequate to supply electrical power to the plant Class 1E Distribution System. The 14 day Completion Time takes into account the capacity and capability of the remaining AC sources, reasonable time for repairs, and low probability of a DBA occurring during this period. In addition, the 14 day completion time is based on a risk-informed assessment of the EDG subsystem inoperability. EDG subsystem inoperability and the simultaneous inoperability of other plant equipment is addressed in accordance with Specification 5.5.13, Configuration Risk Management Program (CRMP).

The second Completion Time for Required Action B.4 establishes a limit on the maximum time allowed for any combination of required AC power sources to be inoperable during any single contiguous occurrence of failing to meet the LCO. If Condition B is entered while, for instance, a reserve circuit is inoperable and that circuit is subsequently restored to OPERABLE, the LCO may already have been not met for up to 7 days. This situation could lead to a total of 21 days, since initial failure of the LCO, to restore the EDG subsystem. At this time, a reserve circuit could again become inoperable, the EDG subsystem restored OPERABLE, and an additional 7 days (for a total of 28 days) allowed prior to complete restoration of the LCO. The 21 day Completion Time provides a limit on the time allowed in a specified condition after discovery of failure to meet the LCO. This limit is considered reasonable for situations in which Conditions A and B are entered concurrently. The "AND" connector between the 14 day and 21 day Completion Times means that both Completion Times apply simultaneously, and the more restrictive must be met.

Similar to Required Action B.2, the second Completion Time of Required Action B.4 allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." This exception results in establishing the "time zero" at the time that the LCO was initially not met, instead of the time that Condition B was entered.

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BASES (continued)

ACTIONS (continued)

C.1 and C.2

Required Action C.1 addresses actions to be taken in the event of inoperability of redundant required features concurrent with inoperability of two offsite circuits. Required Action C.1 reduces the vulnerability to a loss of function. The Completion Time for taking these actions is reduced to 12 hours from that allowed with one division without offsite power (Required Action A.2). The rationale for the reduction to 12 hours is that a Completion Time of 7 days for two required offsite circuits inoperable is acceptable based upon the assumption that two complete safety divisions are OPERABLE. When a concurrent redundant required feature failure exists, this assumption is not the case, and a shorter Completion Time of 12 hours is appropriate. These features are designed with redundant safety related divisions, (i.e., single division systems are not included in the list). Redundant required features failures consist of any of these features that are inoperable because any inoperability is on a division redundant to a division with inoperable offsite circuits.

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 offsite circuits are inoperable; and

b. A redundant required feature is inoperable.

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

Operation may continue in Condition C for a period that should not exceed 7 days. 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 reserve power sources.

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BASES (continued)

ACTIONS

C.1 and C.2 (continued)

Because of the normally high availability of the reserve sources, this level of degradation may appear to be more severe than other combinations of two AC sources inoperable that involve one or more EDG subsystems inoperable. However, two factors tend to decrease the severity of this degradation level:

a. The configuration of the redundant AC electrical power system that remains available is not susceptible to a single bus or switching failure; and

b. The time required to detect and restore an unavailable offsite power source is generally much less than that required to detect and restore an unavailable onsite AC source.

With both of the offsite circuits inoperable, sufficient onsite AC sources are available to maintain the plant 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 active component failure were postulated as a part of the design basis in the safety analysis. The 7 day Completion Time in Required Action C.2 provides a period of time to effect restoration of both offsite circuits commensurate with the importance of maintaining AC electrical power system capable of meeting its design criteria.

With both offsite circuits inoperable, operation may continue for 7 days. In this situation Conditions A and C must be entered concurrently. If both offsite circuits are restored within 7 days, unrestricted operation may continue. If only one offsite source is restored within 7 days, entry into Condition F is required. If the offsite circuits were not found to be inoperable concurrently, the Completion Time of Required Action A.3 must be met for the first inoperable circuit in accordance with the guidance of Section 1.3 (Completion Times). This will ensure that the maximum time two offsite circuits could be inoperable simultaneously without entering Condition F is limited.

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BASES (continued)

ACTIONS (continued)

D.1 and D.2

Pursuant to LCO 3.0.6, the Distribution Systems – Operating 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 when Condition D is entered with no AC source to any 4.16 kV emergency bus ACTIONS for LCO 3.8.7, "Distribution Systems – Operating," must be immediately entered. This allows Condition D to provide requirements for the loss of the offsite circuit and one EDG subsystem without regard to whether a division is de-energized. LCO 3.8.7 provides the appropriate restrictions for a de-energized division.

According to recommendations in Regulatory Guide 1.93 (Ref. 8), operation may continue in Condition D for a period that should not exceed 12 hours. In Condition D, individual redundancy is lost in both the offsite 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 offsite circuits). 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, reasonable time for repairs, and the low probability of a DBA occurring during this period.

E.1

With two EDG subsystems inoperable, there is no remaining onsite AC source. Thus, with an assumed loss of offsite electrical power, insufficient onsite AC sources are available to power the minimum required engineered safeguards functions. Since the offsite electrical power system is the only source of AC power for the majority of engineered safeguards equipment at 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 any inadvertent Main Generator trip could also result in a total loss of offsite

(continued)

BASES (continued)

ACTIONS

E.1 (continued)

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.

According to the recommendations in Regulatory Guide 1.93 (Ref. 8), with both EDG subsystems inoperable, operation may continue for a period that should not exceed 2 hours.

F.1 and F.2

If the inoperable AC electrical power sources cannot be restored to OPERABLE status within the associated Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

G.1

Condition G corresponds to a level of degradation in which all redundancy in the AC electrical power supplies has been lost. Entry into Condition G is necessary when both offsite circuits and one EDG subsystem are inoperable (where the EDG subsystem is inoperable due to an inoperability of one or both EDGs within the EDG subsystem), both EDG subsystems and one offsite circuit are inoperable, or both offsite circuits and both EDG subsystems are inoperable. At this severely degraded level, any further losses in the AC electrical power system will cause a loss of function. Therefore, no additional time is justified for continued operation. The plant is required by LCO 3.0.3 to commence a controlled shutdown.

16 16 16 RAI 3.8.1-4 RAI 3.8.1-5

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, in accordance with Reference 1. Periodic component tests are supplemented by extensive functional tests during refueling outages (under

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS (continued)

simulated accident conditions). The SRs for demonstrating the OPERABILITY of the EDG subsystems are in general conformance with the recommendations of Safety Guide 9 (Ref. 3), Regulatory Guide 1.108 (Ref. 9), and Regulatory Guide 1.137 (Ref. 10). Where the SRs discussed herein specify steady state voltage and frequency tolerances, the following summary is applicable. The minimum steady state output voltage of 3900 V is approximately 94% of the nominal 4160 V output voltage. This value, which is slightly greater than that specified in ANSI C84.1 (Ref. 11), allows for voltage drop to the terminals of 4000 V motors whose minimum operating voltage 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 4400 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 EDG 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 found in Safety Guide 9 (Ref. 3).

RAI 3.8.1-17

SR 3.8.1.1

This SR ensures proper circuit continuity for the offsite AC electrical power supply to the plant distribution network and availability of offsite AC electrical power. The breaker alignment verifies that each breaker is in itscorrect position to ensure that emergency buses and loads can be or are connected to their offsite power source and that appropriate independence of offsite circuits is maintained. Offsite circuit alignment verification can be accomplished by verifying that a offsite circuit bus is energized and that the status of offsite circuit supply breakers and disconnects displayed in the control room is correct. Offsite source power availability can be verified by communication with Niagara Mohawk, for the Nine Mile Point Unit One switchyard and South Oswego substation, and the New York Power Pool for the Light House Hill substation. 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. In addition, the Frequency is adequate since administrative controls are in place which require plant notification of distribution system problems, affecting power availability, from both Niagara Mohawk and the New York Power Pool.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.2

This SR helps to ensure the availability of the onsite electrical power supply to mitigate DBAs and transients and maintain the plant in a safe shutdown condition.

To minimize the wear on moving parts, this SR has been modified by a Note to indicate that all EDG starts for this Surveillance may be preceded by an engine prelube period.

RAI 3.8.1-12

For the purposes of this testing, the EDGs are started from standby conditions. Standby conditions for an EDG mean that the diesel engine coolant and oil are being continuously circulated and temperature is being maintained consistent with manufacturer recommendations.

This SR requires that, at a 31 day Frequency, the EDG subsystem starts from standby conditions, force parallels, and achieves required voltage and frequency within 10 seconds. The 10 second start requirement supports the assumptions in the design basis LOCA analysis of UFSAR, Section 6.5 (Ref. 12).

In addition to the SR requirements, the time for the EDG to reach steady state operation is periodically monitored and the trend evaluated to identify degradation of governor and voltage regulator performance.

The 31 day Frequency for SR 3.8.1.2 is consistent with Regulatory Guide 1.108 (Ref. 9). This Frequency provides adequate assurance of EDG subsystem OPERABILITY, while minimizing degradation resulting from testing.

SR 3.8.1.3

This SR verifies that the EDG subsystems are capable of synchronizing and accepting greater than or equal to the equivalent of the maximum expected accident loads. A minimum run time of 60 minutes is required to stabilize engine temperatures, while minimizing the time that the EDG subsystem is paralleled with the normal, reserve or backfeed power source.

Although no power factor requirements are established by this SR, the EDG 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 1.0 is an operational limitation to ensure circulating currents are minimized. The load band is provided to avoid routine overloading of

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.3 (continued)

the EDG. Routine overloading may result in more frequent teardown inspections in accordance with vendor recommendations in order to maintain EDG OPERABILITY.

The 31 day Frequency for this Surveillance is consistent with Safety Guide 9 (Ref. 3).

Note 1 modifies this SR to indicate 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 modifies this SR by stating that momentary transients because of changing bus loads do not invalidate this test. Similarly, momentary power factor transients above the limit do not invalidate the test.

Note 3 indicates that this SR should be conducted on only one EDG subsystem at a time in order to avoid common cause failures that might result from normal, reserve or backfeed power source perturbations.

Note 4 stipulates a prerequisite requirement for performance of this SR. A successful EDG subsystem 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 the low level alarm is annunciated. The level is expressed as an equivalent volume in gallons, and is selected to ensure adequate fuel oil for a minimum of 1.8 hours of EDG operation at full load.

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

SR 3.8.1.5

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 tanks once every 31 days eliminates the

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.1.5 (continued)

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 EDG 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 Frequency is consistent with Regulatory Guide 1.137 (Ref. 10). This SR is for preventive maintenance. The presence of water does not necessarily represent a failure of this SR provided that accumulated water is removed during performance of this Surveillance.

SR 3.8.1.6

This SR demonstrates that at least one fuel oil transfer pump associated with each OPERABLE EDG operates and automatically transfers fuel oil from its associated storage tank to its associated day tank. It is required to support continuous operation of onsite 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 for each EDG.

The Frequency for this SR is consistent with the Frequency for testing the EDG subsystem in SR 3.8.1.3. EDG operation for SR 3.8.1.3 is normally long enough that fuel oil level in the day tank will be reduced to the point where the fuel oil transfer pump automatically starts to restore fuel oil level in the day tank. RAI 3.8-5 RAI 3.8-1-26

SR 3.8.1.7

Automatic residual transfer of each 4.16 kV emergency bus power supply from the normal or backfeed source (NSST 71T-4) to each offsite circuit demonstrates the OPERABILITY of the offsite circuit distribution network to power the shutdown loads. As Noted, the SR is only required to be met for each offsite circuit that is not energizing its respective 4.16 kV emergency bus (i.e., the bus is being energized by the NSST). The 24 month Frequency of the Surveillance is based on engineering judgment taking into consideration the plant 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 RAI 3.8-1-27

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.7 (continued)

pass the SR when performed on the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

In lieu of an actual automatic residual transfer, testing that adequately demonstrates the automatic residual transfer capability is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire automatic residual transfer function and emergency bus energization is verified.

SR 3.8.1.8

Each EDG 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 overspeed, which, if excessive, might result in a trip of the engine. This Surveillance demonstrates the EDG capability to reject the largest single load without exceeding predetermined frequency and while maintaining a specified margin to the overspeed trip. The largest single load for each EDG is a core spray pump (1250 bhp). This Surveillance may be accomplished by:

a. Tripping the EDG output breaker with the EDG subsystem carrying greater than or equal to its associated single largest post-accident load while paralleled to normal, reserve or backfeed power, or while solely supplying the bus; or

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

Consistent with Safety Guide 9 (Ref. 3), the load rejection test is acceptable if the diesel speed does not exceed the nominal (synchronous) speed plus 75% of the difference between nominal speed and the overspeed trip setpoint, or 115% of nominal speed, whichever is lower.

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

This SR is modified by a Note. In order to ensure that the EDG is tested under load conditions that are as close to design basis conditions as possible, the Note requires that, if paralleled with normal, reserve or backfeed power,

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.8 (continued)

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 EDG subsystem would experience. However, if the grid conditions do not permit, the power factor limit is not required to be met. In this condition the test is performed with a power factor as close to the design rating of the machine as practicable. This is permitted since, with a high grid voltage it may not be possible to raise the EDG output voltage sufficiently to obtain the required power factor without creating an overvoltage condition on the emergency bus.

RAI 3.8.1-18

SR 3.8.1.9

Consistent with Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(1), this SR demonstrates the as designed operation of the onsite power sources due to an emergency bus loss of power (LOP) signal. This test verifies all actions required following receipt of the LOP signal, including shedding of the nonessential loads and energization of the emergency buses and respective loads from the EDG subsystem. It further demonstrates the capability of the EDG subsystem to automatically achieve the required voltage and frequency within the specified time.

The EDG auto-start time of 11 seconds is derived from requirements of the accident analysis for responding 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 has been achieved.

The requirement to verify the connection and power supply of permanent and auto-connected loads is intended to satisfactorily show the relationship of these loads to the EDG subsystem 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 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 the connection and loading of these loads, testing that adequately shows the capability of the EDG subsystem to perform these functions is

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.9 (continued)

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 24 months, takes into consideration plant conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths.

This SR is modified by a Note. The reason for the Note is to minimize the wear and tear on the EDGs during testing. For the purpose of this testing, the EDGs must be started from standby conditions, that is, with the engine coolant and oil being continuously circulated and temperature maintained consistent with manufacturer recommendations.

RAI 3.8.1-12
RAI 3.8.1-15

SR 3.8.1.10

This SR demonstrates that the EDG subsystem automatically starts, force parallels 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 3.8.1.10.d and SR 3.8.1.10.e ensure that permanently connected loads and emergency loads are energized from the reserve power system on a LOCA signal without a LOP signal.

The requirement to verify the connection and power supply of permanent and auto-connected loads is intended to satisfactorily show the relationship of these loads to the loading logic for loading onto reserve power. 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, 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 the connection and loading of these loads, testing that adequately shows the capability of the EDG subsystem 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.

In addition to the SR requirements, the time for the EDG to reach steady state operation is periodically monitored and

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.10 (continued)

the trend evaluated to identify degradation of governor and voltage regulator performance.

The Frequency of 24 months takes into consideration plant conditions required to perform the Surveillance and is intended to be consistent with the 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 is acceptable from a reliability standpoint.

This SR is modified by a Note. The reason for the Note is to minimize the wear and tear on the EDGs during testing. For the purpose of this testing, the EDGs must be started from standby conditions, that is, with the engine coolant and oil being continuously circulated and temperature maintained consistent with manufacturer recommendations.

RAI 3.8.1-12
RAI 3.8.1-15

SR 3.8.1.11

Consistent with IEEE-387 (Ref. 14), Section 7.5.9 and Table 3, this SR requires demonstration that the EDGs can run continuously at full load capability for an interval of not less than 8 hours – 6 hours of which is at a load equivalent to 90-100% of the continuous rating of the EDG, and 2 hours of which is at a load equivalent to 105% to 110% of the continuous duty rating of the EDG. The EDG starts for this Surveillance can be performed either from standby or hot conditions. The provisions for gradual loading, discussed in SR 3.8.1.3, are applicable to this SR.

In order to ensure that the EDG subsystem is tested under load conditions that are as close to design 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 EDG subsystem could experience. A load band is provided to avoid routine overloading of the EDG subsystem. Routine overloading may result in more frequent teardown inspections in accordance with vendor recommendations in order to maintain EDG OPERABILITY.

The 24 month Frequency is consistent with the recommendations of IEEE-387 (Ref. 14), Section 7.5.9 and Table 3 which takes into consideration plant conditions required to perform the Surveillance; and is intended to be consistent with expected fuel cycle lengths.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.11 (continued)

This Surveillance is modified by two Notes. Note 1 states that momentary transients due to changing bus loads do not invalidate this test. Similarly, momentary power factor transients above the limit do not invalidate the test. Note 2 is provided in recognition that when grid conditions do not permit, the power factor limit is not required to be met. In this condition, the test is performed with a power factor as close to the design rating of the machine as practicable. This is permitted since, with a high grid voltage it may not be possible to raise the EDG output voltage sufficiently to obtain the required power factor without creating an overvoltage condition on the emergency bus.

RAI 3.8.1-18

RAI 3.8.1-18

SR 3.8.1.12

In the event of a DBA coincident with an emergency bus loss of power signal, the EDGs are required to supply the necessary power to Engineered Safeguards systems so that the fuel, RCS, and containment design limits are not exceeded.

This SR demonstrates EDG operation, as discussed in the Bases for SR 3.8.1.9, during an emergency bus LOP signal in conjunction with an ECCS initiation signal. In lieu of actual demonstration of connection and loading of loads, testing that adequately shows the capability of the EDG subsystem 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 24 months takes into consideration plant 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 a Note. The reason for the Note is to minimize the wear and tear on the EDGs during testing. For the purpose of this testing, the EDGs must be started from standby conditions, that is, with the engine coolant and oil being continuously circulated and temperature maintained consistent with manufacturer recommendations.

RAI 3.8.1-12
RAI 3.8.1-15

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.13

Under accident conditions loads are sequentially connected to the bus by the individual time delay relays. The sequencing logic controls the permissive and starting signals to motor breakers to prevent overloading of the EDGs due to high motor starting currents. The minimum load sequence time interval ensures that sufficient time exists for the EDG to restore frequency and voltage prior to applying the next load and that safety analysis assumptions regarding emergency safeguards equipment time delays are not violated. There is no upper limit for the load sequence time interval since, for a single load interval (i.e., the time between two load blocks), the capability of the EDG to restore frequency and voltage prior to applying the second load is not negatively affected by a longer than designed load interval, and if there are additional load blocks (i.e., the design includes multiple load intervals), then the lower limit requirements will ensure that sufficient time exists for the EDG to restore frequency and voltage prior to applying the remaining load blocks (i.e., all load intervals must be greater than or equal to the minimum design interval).

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

REA 3.8.1-19 and REA 3.8.1-25

REFERENCES

1. UFSAR Section 16.6.
2. UFSAR, Chapter 8.
3. Safety Guide 9, Selection Of Diesel Generator Set Capacity For Standby Power Supplies, March 1971.
4. UFSAR, Chapter 6.
5. UFSAR, Chapter 14.
6. 10 CFR 50.36(c)(2)(ii).
7. Generic Letter 84-15, Proposed Staff Actions To Improve And Maintain Diesel Generator Reliability, July 1984.

(continued)

BASES

REFERENCES (continued)

8. Regulatory Guide 1.93, Availability Of Electric Power Sources, December 1974.

9. Regulatory Guide 1.108, Revision 1, Periodic Testing of Diesel Generator Units Used As Onsite Electric Power Systems At Nuclear Power Plants, August 1977.

10. Regulatory Guide 1.137, Revision 1, Fuel-Oil Systems for Standby Diesel Generators, October 1979.

11. ANSI C84.1, Voltage Ratings for Electric Power Systems and Equipment, 1982.

12. UFSAR, Section 6.5.

13. ASME Boiler and Pressure Vessel Code, Section XI.

14. IEEE-387, IEEE Standard Criteria for Diesel-Generator Units Applied as Standby Power Supplies for Nuclear Power Generating Stations, 1995.

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.2

AC Sources Shutdown

MARKUP OF CURRENT TECHNICAL SPECIFICATIONS (CTS)

DISCUSSION OF CHANGES (DOCs) TO THE CTS

NO SIGNIFICANT HAZARDS CONSIDERATION (NSHC) FOR LESS RESTRICTIVE CHANGES

MARKUP OF NUREG-1433, REVISION 1, SPECIFICATION

JUSTIFICATION FOR DIFFERENCES (JFDs) FROM NUREG-1433, REVISION 1

MARKUP OF NUREG-1433, REVISION 1, BASES

JUSTIFICATION FOR DIFFERENCES (JFDs) FROM NUREG-1433, REVISION 1, BASES

RETYPED PROPOSED IMPROVED TECHNICAL SPECIFICATIONS (ITS) AND BASES

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.2

AC Sources Shutdown

MARKUP OF CURRENT TECHNICAL SPECIFICATIONS (CTS)

Specification 3.8.2

3.9 (cont'd)

c. From and after the time that only one fuel oil transfer pump in a Diesel Generator System is found to be operable, that Diesel Generator System shall be considered inoperable and continued reactor operation shall be in accordance with Specification 3.9.B.3 above.

See ITS 3.8.1

3. Whenever the diesel fuel on site for each operable pair of Diesel Generators decreases to less than 64,000 gallons as a result of operation of the Diesel Generators "to meet Technical Specification requirements," Specification 3.0.C does not apply. 48 hours are allowed to restore fuel oil storage tank quantity to a minimum of 64,000 gallons.

See ITS 3.8.3

4.9 (cont'd)

A1

AC Sources-Shutdown

[LCO 3.8.2]

P. AC Power Operability During Cold Shutdown or Refueling Modes

[Applicability]

Whenever the reactor is in the cold shutdown (MODE 4) or refueling (MODE 5) mode, a minimum of one offsite power source and one Emergency Diesel Generator System, capable of supporting required emergency equipment, shall be operable whenever any work is being done which has the potential for draining the vessel, secondary containment is required, or a core or containment cooling system is required. When this condition is not met, initiate actions to suspend all work that could cause draining of the vessel, suspend core alterations and handling of irradiated fuel assemblies in the secondary containment, declare required core or containment cooling systems inoperable and immediately initiate actions to restore required AC power sources.

M1

M2

[LCO]

A2

[ACTION A & B]

OR

L1

D. Not Applicable

M3

during movement of irradiated fuel assemblies in secondary containment

M4

add ACTIONS Note: LCO 3.0.3 Not Applicable

add ACTION A Note: Enter LCO 3.8.8

A3

M5

add SR 3.8.2.1

C

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