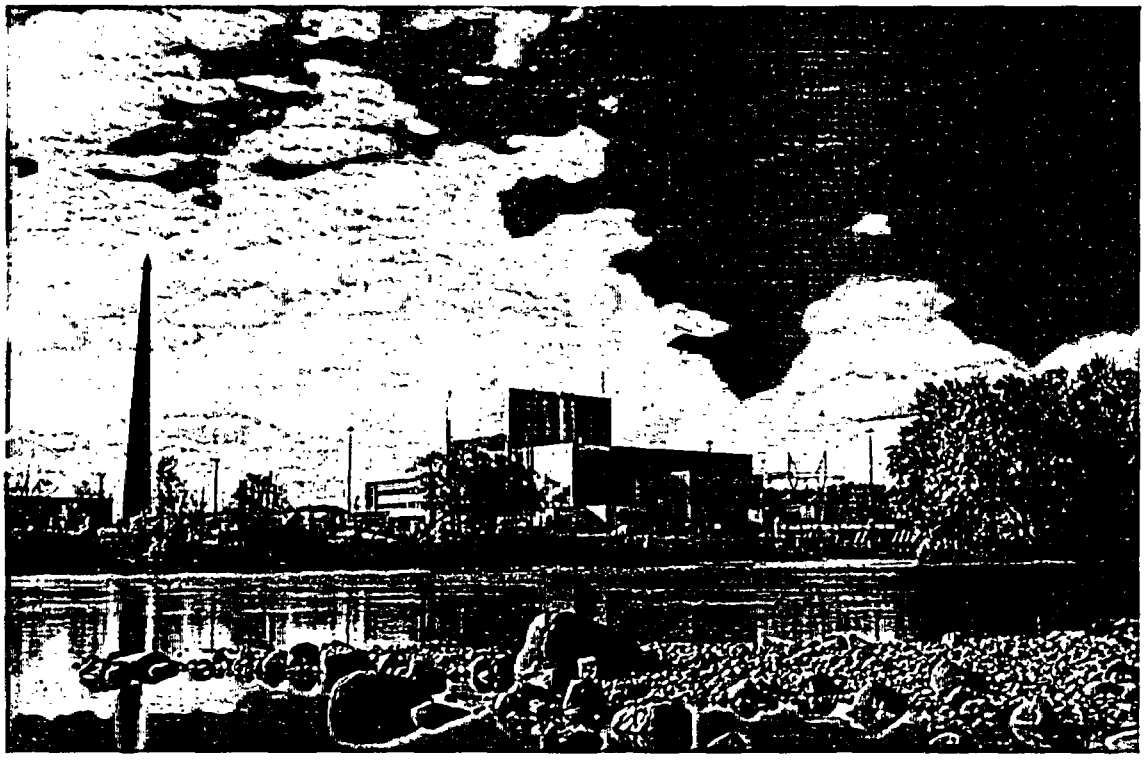
IMPROVED TECHNICAL SPECIFICATIONS



MONTICELLO NUCLEAR GENERATING PLANT

VOLUME 13

ITS Section 3.8,
Electrical Power Systems

NMC
Committed to Nuclear Excellence

ATTACHMENT 1

VOLUME 13

MONTICELLO IMPROVED TECHNICAL SPECIFICATIONS CONVERSION

ITS SECTION 3.8 ELECTRICAL POWER SYSTEMS

Revision 0

LIST OF ATTACHMENTS

1. ITS 3.8.1
2. ITS 3.8.2
3. ITS 3.8.3
4. ITS 3.8.4
5. ITS 3.8.5
6. ITS 3.8.6
7. ITS 3.8.7
8. ITS 3.8.8
9. Improved Standard Technical Specifications (ISTS) not adopted in the Monticello ITS

ATTACHMENT 1

ITS 3.8.1, AC Sources - Operating

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

A.1

ITS

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
3.8.1	
3.9 AUXILIARY ELECTRICAL SYSTEMS	**4.9 AUXILIARY ELECTRICAL SYSTEMS**
Applicability: Applies to the auxiliary electrical power system. Objective: To assure an adequate supply of electrical power during plant operation.	Applicability: Applies to the periodic testing requirements of the auxiliary electrical system. Objective: Verify the operability of the auxiliary electrical system.
Specification: (M.1)	Specification:
Applicability LCO 3.8.1 A. The reactor shall not be made critical unless all the following requirements are satisfied:	A. Surveillance testing shall be performed as follows:
LCO 3.8.1.a 1. At least two (2) NSP transmission lines, associated switchgear and at least two offsite power sources are fully operational and energized to carry power to the plant 4160V AC buses as follows: a. 2R and 1R transformers, or b. 1R and 1AR transformers, or c. 2R and 1AR transformers (source from 10 transformer)	1. Substation Switchyard Battery a. Every week the specific gravity and voltage of the pilot cell and temperature of adjacent cells and overall battery voltage shall be measured. b. Every three months the measurements shall be made of voltage of each cell to nearest 0.01 volt, specific gravity of each cell, and temperature of every fifth cell.
LA.1 (qualified circuits between the offsite transmission network and the onsite Class 1E AC Electrical Power Distribution System)	LA.1
LA.2	Add proposed SR 3.8.1.1 and SR 3.8.1.6 — M.2

3.9/4.9

199 10/16/87
Amendment No. 51

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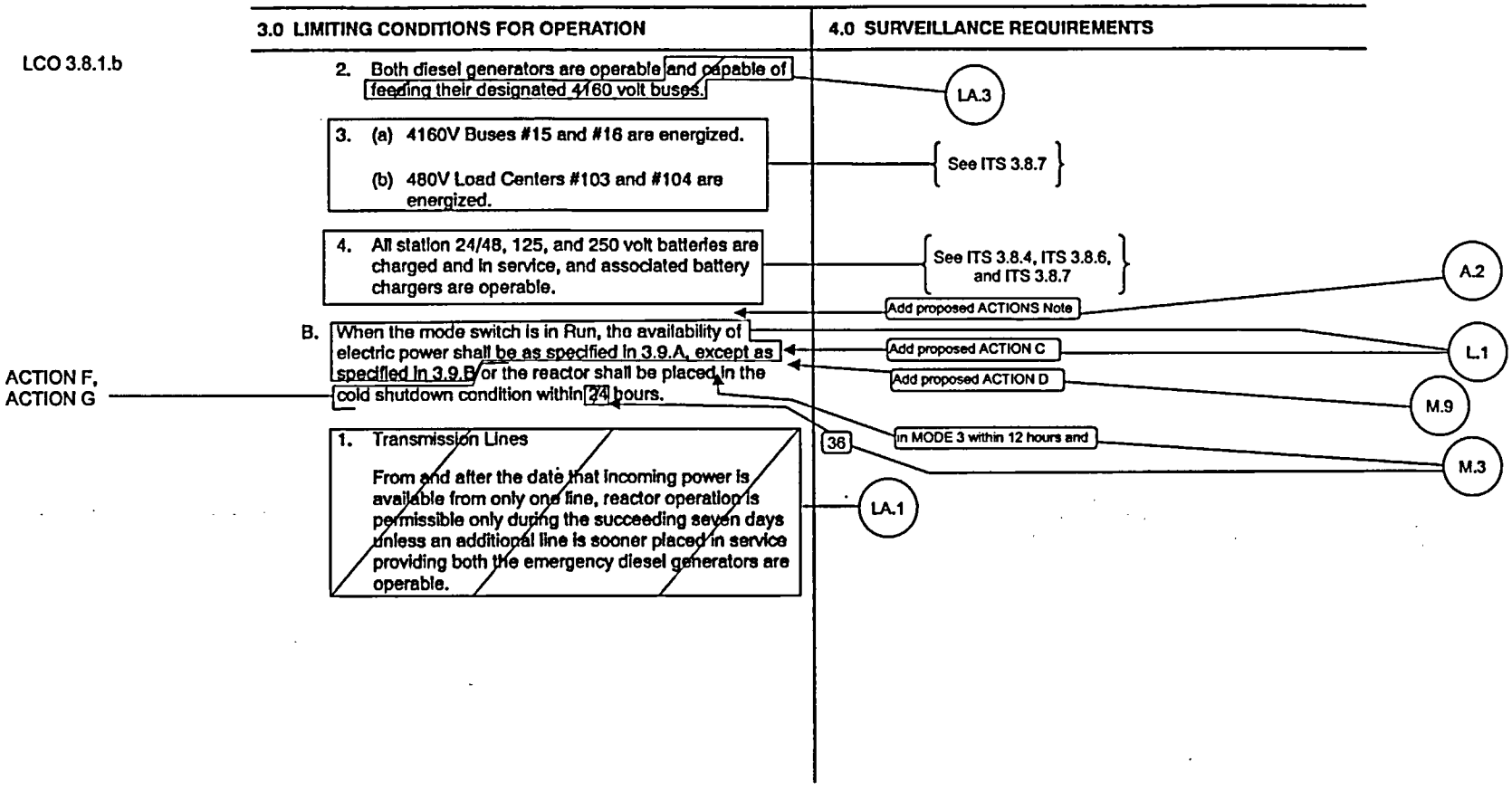
A.1

ITS



3.9/4.9

200 08/27/02
Amendment No. ~~51, 104,~~ 129

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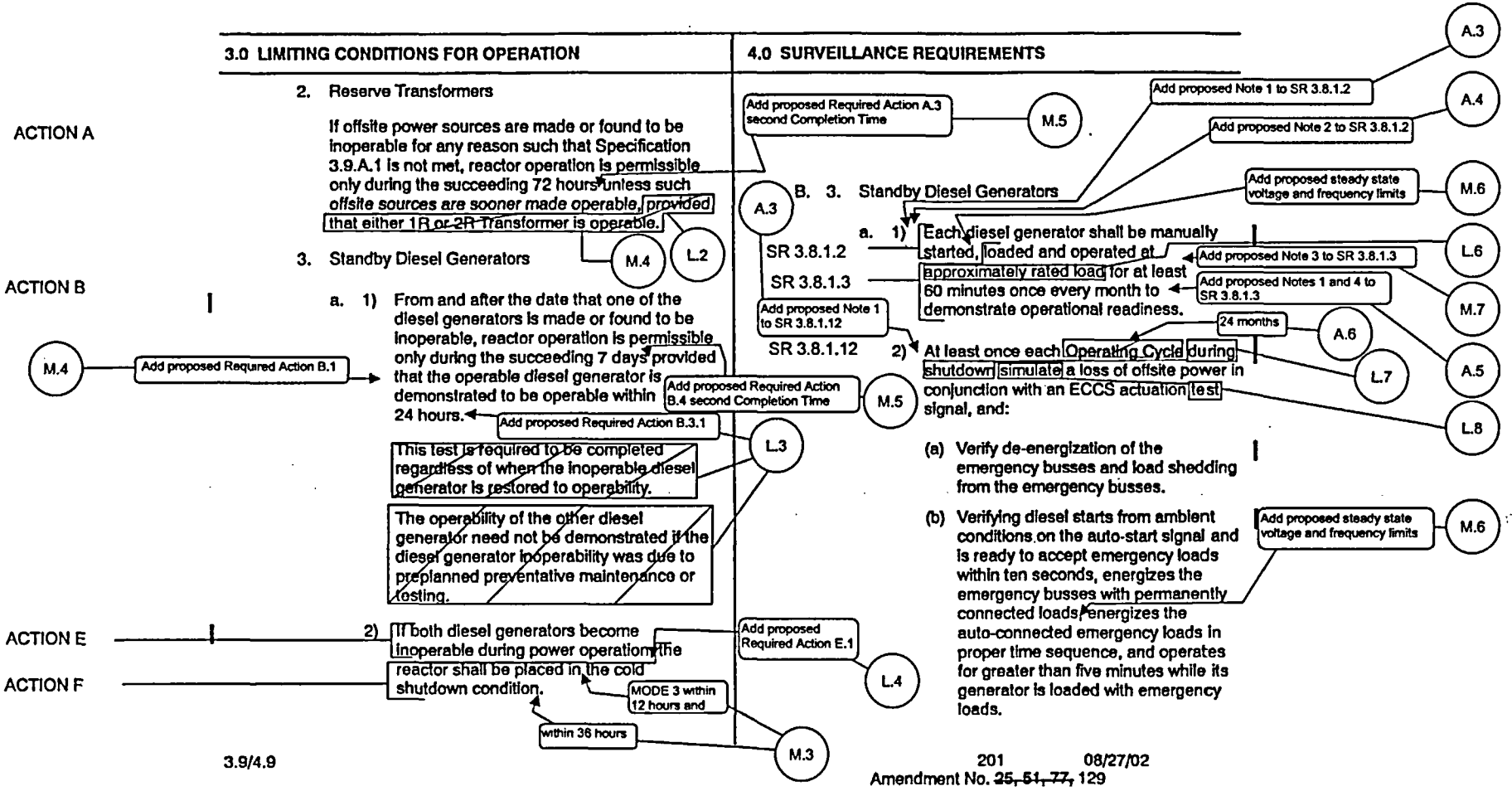
A.1

ITS

ITS



3.9/4.9

201 08/27/02

Amendment No. ~~25, 51, 77,~~ 129

A.1

ITS

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
b. For the diesel generators to be considered operable, there shall be a minimum of 38,300 gallons of diesel fuel (7 days supply for 1 diesel generator at full load @ 2500 KW) in the diesel oil storage tank.	b. 1) Once a month the quantity of diesel fuel available shall be logged. — See ITS 3.8.3 — L.9
	SR 3.8.1.5 2) During the monthly generator test, the diesel fuel oil transfer pump and diesel oil service pump shall be operated. — LA.4 — Verify the fuel oil transfer system operates to transfer fuel oil from storage tank to the day tank.
	See ITS 3.8.3 and ITS 5.5 — 3) Once a month a sample of diesel fuel shall be taken and checked for quality.
c. When a diesel generator is required to be operable, maintain air pressure for both associated air starting receivers ≥ 165 psig.	c. Verify each required operable diesel generator air start receiver pressure is ≥ 165 psig once per month. — Add requirements of fuel oil transfer system to transfer fuel oil from day tank to associated base tank — M.8
1) With one diesel generator starting air receiver pressure < 165 psig, restore both starting air receivers pressure to ≥ 165 psig within 7 days, or declare the associated diesel generator inoperable. — See ITS 3.8.3	
2) With both diesel generator starting air receivers pressure < 165 psig but ≥ 125 psig, restore one starting air receiver to ≥ 165 psig and enter TS LCO 3.9.B.3.c.1, or restore both starting air receivers pressure to ≥ 165 psig within 48 hours. If neither action can be accomplished within 48 hours, declare the associated diesel generator inoperable.	
3) With both diesel generator starting air receivers pressure < 125 psig, immediately declare the associated diesel generator inoperable.	
	Add proposed SR 3.8.1.4, SR 3.8.1.7, SR 3.8.1.8, SR 3.8.1.9, SR 3.8.1.10, and SR 3.8.1.11 — M.2

A.1

ITS

24 hours for proposed Required Action A.2
4 hours for proposed Required Action B.2
24 hours for proposed Required Action C.1 — L.5

Required Actions A.1, B.2, and C.1

When a system, subsystem, train, component or device is determined to be inoperable soley because its emergency power source is inoperable, or soley 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), trains(s), component(s) and device(s) are Operable, or likewise satisfy the requirements of this paragraph.

M. Operating - Operating means that a system or component is performing its specified functions.

N. Operating Cycle - Interval between the end of one refueling outage and the end of the next subsequent refueling outage.

O. Power Operation - Power Operation is any operation with the mode switch in the "Start-Up" or "Run" position with the reactor critical and above 1% rated thermal power.

→ See ITS Chapter 1.0

P. Primary Containment Integrity - Primary Containment Integrity means that the drywell and pressure suppression chamber are intact and all of the following conditions are satisfied.

1. All manual containment isolation valves on lines connecting to the reactor coolant system or containment which are not required to be open during accident conditions are closed.
2. At least one door in the airlock is closed and sealed.
3. All automatic containment isolation valves are operable or are deactivated in the closed position or at least one valve in each line having an inoperable valve is closed
4. All blind flanges and manways are closed.

→ See ITS Chapter 1.0, ITS 3.6.1.1, ITS 3.6.1.2, and ITS 3.6.1.3

Q. Protective Instrumentation Logic Definitions

1. Instrument Channel - An instrument channel means an arrangement of a sensor and auxiliary equipment required to generate and transmit to a trip system, a single trip signal related to the plant parameter monitored by that instrument channel.
2. Trip System - A trip system means an arrangement of instrument channel trip signals and auxiliary equipment required to initiate a protection action. A trip system may require one or more instrument channel trip signals related to one or more plant parameters to initiate trip system action. Initiation of the protective function may require tripping of a single trip system (e.g., HPCI system isolation, off-gas system isolation, reactor building isolation and standby gas treatment initiation, and rod block), or the coincident tripping of two trip systems (e.g., initiation of scram, reactor isolation, and primary containment isolation).
3. Protective Action - An action initiated by the protection system when a limit is exceeded. A protective action can be at channel or system level.

→ See ITS Chapter 1.0

3 1/23/84
Amendment No. 21

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DISCUSSION OF CHANGES
ITS 3.8.1, AC SOURCES - OPERATING

ADMINISTRATIVE CHANGES

A.1 In the conversion of the Monticello Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1433, Rev. 3, "Standard Technical Specifications General Electric Plants, BWR/4" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A.2 The ITS 3.8.1 ACTIONS include a Note that states LCO 3.0.4.b is not applicable to the emergency diesel generators (EDGs). The CTS does not include this Note. This changes the CTS by including the ACTION Note.

The purpose of the ITS 3.8.1 ACTIONS Note is to prohibit entry into the Applicability of LCO 3.8.1 with an inoperable EDG. Currently, CTS 3.9.A precludes making the reactor critical when the EDG is inoperable. ITS LCO 3.0.4 has been added in accordance with the Discussion of Changes for ITS Section 3.0, DOC L.1. Changes to the Applicability are discussed in DOC M.1. This LCO allows entry into a MODE or other specified condition in the Applicability under certain conditions when a Technical Specification required component is inoperable. ITS LCO 3.0.4.b allows entry into a MODE or other specified condition in the Applicability of a Specification if a risk assessment is performed, that determines it is acceptable to enter the Applicability, and appropriate risk management actions are established. The addition of this restriction (LCO 3.0.4.b is not applicable) is acceptable because there is an increased risk associated with entering a MODE or other specified condition in the Applicability with an inoperable EDG, and therefore the provisions of LCO 3.0.4.b should not be applied in this circumstance. The change is acceptable because the CTS 3.9.A does not currently allow this option. This change is considered administrative because it does not result in technical changes to the CTS.

A.3 CTS 4.9.B.3.a.1) requires, in part, a manual start of the EDGs while CTS 4.9.B.3.a.2) requires verification of EDG performance when simulating a loss of offsite power in conjunction with an Emergency Core Cooling System (ECCS) actuation test signal. ITS SR 3.8.1.2 also requires the EDGs to be started similar to CTS 4.9.B.3.a.1), however it includes a Note (Note 1) that states all EDG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. ITS SR 3.8.1.12 requires verification of EDG performance during the actual or simulated conditions of a loss of coolant accident (LOCA) and loss of offsite power, however it includes a Note (Note 1) that states all EDG starts may be preceded by an engine prelube period. This changes the CTS by adding Notes allowing a prelube period and a Note allowing a warmup period to the applicable Surveillance Requirements.

The purpose of the CTS Surveillances is to ensure the EDGs can perform their required function. A Note has been added to various Surveillance Requirements to allow EDG 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 Monticello run in a continuous prelube mode of operation. In addition, the Note to ITS SR 3.8.1.2 allows a warmup period prior to loading. The addition of this part of the Note is considered administrative because the EDGs are not required by the CTS to be immediately loaded upon startup. No specific time to perform the loading is specified in CTS 4.9.B.3.a.1), and normally the EDGs are allowed to warmup for a short time after startup while the operations staff performs post startup EDG checks. This change is designated as administrative because it does not result in any technical changes to the CTS.

A.4 CTS 4.9.B.3.a.1) requires, in part, a manual start of the EDGs. ITS SR 3.8.1.2 also requires the EDGs to be started, however it includes a Note (Note 2) that states the a modified EDG start involving idling and gradual acceleration to synchronous speed may be used for this SR as recommended by the manufacturer. This changes the CTS by adding the Note to the Surveillance Requirement.

The purpose of CTS 4.9.B.3.a.1), in part, is to ensure each EDG can be started from standby conditions. This change adds a specific Note that states a modified EDG start involving idling and gradual acceleration to synchronous speed may be used for this SR as recommended by the manufacturer. This change is consistent with current practice and is not precluded by the CTS. The change is acceptable since it is consistent with manufacturers recommendations. This change is designated as administrative because it does not result in a technical change to the CTS.

A.5 CTS 4.9.B.3.a.1) requires, in part, that each EDG be loaded for ≥ 60 minutes. ITS SR 3.8.1.3 requires a similar test, however it includes a Note (Note 1) that states the EDG loading may include gradual loading as recommended by the manufacturer, and a Note (Note 4) that states this SR shall be preceded by and immediately follow, without shutdown, a successful performance of SR 3.8.1.2. This changes the CTS by adding Notes to allow gradual loading and require the EDG loading test to immediately follow the EDG start test.

The purpose of CTS 4.9.B.3.a.1) is to ensure each EDG can operate at approximately rated load. This change adds a specific Note that allows gradual loading of the diesel. This change is consistent with current practice and is not precluded by the CTS. The change is also consistent with manufacturers recommendations. This change is acceptable because Note 1 to SR 3.8.1.3 simply clarifies how the EDG can be loaded prior to entering the load range for the test. CTS 4.9.B.3.a.1) is started from standby conditions and then loaded. ITS SR 3.8.1.3 Note 4 has been added and states that this SR shall be preceded by and immediately follow, without shutdown, a successful performance of SR 3.8.1.2. The Note simply reflects current practice and is therefore acceptable. This change is designated as administrative because it does not result in a technical change to the CTS.

A.6 CTS 4.9.B.3.a.2) requires the simulation of a loss of offsite power in conjunction with an ECCS actuation signal test to be performed once each operating cycle. ITS SR 3.8.1.12 requires a similar test every "24 months." This changes the CTS by changing the Frequency from once per "Operating Cycle" to "24 months."

DISCUSSION OF CHANGES
ITS 3.8.1, AC SOURCES - OPERATING

This change is acceptable because the current "operating cycle" is "24 months." In letter L-MT-04-036, from Thomas J. Palmisano (NMC) to the USNRC, dated June 30, 2004, NMC has proposed to extend the fuel cycle from 18 months to 24 months and the same time has performed an evaluation in accordance with Generic Letter 91-04 to extend the unit Surveillance Requirements from 18 months to 24 months. CTS 4.9.b.3.a.2) was included in this evaluation. This change is designated as administrative because it does not result in any technical changes to the CTS.

MORE RESTRICTIVE CHANGES

M.1 CTS 3.9.A requires the AC sources to be OPERABLE when the reactor is critical. ITS LCO 3.8.1 requires the AC sources to be OPERABLE in MODES 1, 2, and 3. This changes the CTS by requiring the AC sources to be OPERABLE in MODE 3 and in MODE 2 when the reactor is not critical.

The purpose of CTS 3.9.A, in part, is to ensure the AC sources are OPERABLE to mitigate the consequences of a transient or design basis accident. The AC sources are required to be OPERABLE in MODES 1, 2, and 3 when a design basis accident (e.g., loss of coolant accident) may occur. In MODE 1 and 2 the reactor is either critical or there is a potential for the reactor to become critical. In MODE 3 the reactor is not critical, however the reactor coolant temperature is always above 212°F and there is considerable energy in the reactor core and the electrical power distribution systems must be available to support equipment necessary to mitigate the consequences of a design basis loss of coolant accident. Therefore, it is necessary and acceptable to require the AC sources to be OPERABLE. This change is designated as more restrictive because the LCO will be applicable under more reactor operating conditions than in the CTS.

M.2 ITS SR 3.8.1.1 requires verification that each required offsite source is correctly aligned and indicated power is available every 7 days. ITS SR 3.8.1.4 requires that each day tank and base tank be checked for accumulated water and to remove it every 31 days. ITS SR 3.8.1.6 requires verification of automatic and manual transfer of unit power supply from the normal offsite circuit to the alternate offsite circuit every 24 months on a STAGGERED TEST BASIS for each division. ITS SR 3.8.1.7 requires that the frequency of each EDG does not go above the specified limit during the rejection of the largest post-accident load every 24 months. ITS SR 3.8.1.8 requires the performance of an ECCS initiation signal test every 24 months. ITS SR 3.8.1.9 requires each EDG to be loaded at the specified loads for 8 hours every 24 months. ITS SR 3.8.1.10 requires an EDG hot restart test every 24 months. ITS SR 3.8.1.11 requires verification that each EDG can synchronize with an offsite power source while loaded with emergency loads upon a simulated restoration of offsite power, and return to the ready-to-load operation every 24 months. This changes the CTS by adding these Surveillance Requirements to the Technical Specifications.

The purpose of these additional Surveillance Requirements is to ensure the EDGs and the qualified circuits are OPERABLE. This change is acceptable because it provides additional assurance that the EDGs and the qualified circuits

remain OPERABLE to perform their safety function. This change is designated as more restrictive because it adds Surveillance Requirements to the CTS.

M.3 CTS 3.9.B states that under certain conditions (i.e., requirements of CTS 3.9.A and CTS 3.9.B not met), the reactor shall be placed in the cold shutdown condition within 24 hours. Thus, when the restoration times of CTS 3.9.B.2 or CTS 3.9.B.3.a are not met, or for any other combination of AC source inoperabilities other than both EDGs inoperable (i.e., two offsite circuits), the CTS 3.9.B requirement would apply. However, the AC sources are only required to be OPERABLE when critical, as stated in CTS 3.9.A. Thus, the plant is only required to be subcritical in 24 hours. In addition, CTS 3.9.B.3.a.2) states that if both EDGs are inoperable, the reactor shall be placed in the cold shutdown condition. No time is specified to reach the cold shutdown condition. However, as stated above, since the AC Sources are only required to be OPERABLE when critical, the plant is only required to be subcritical. ITS 3.8.1 ACTION F provides the shutdown requirements when any Required Action and associated Completion Time of Condition A, B, C, D, or E is not met, and requires the unit to be in MODE 3 in 12 hours and MODE 4 in 36 hours. ITS 3.8.1 ACTION G provides the shutdown requirements when three or more required AC sources are inoperable, and requires the unit to enter LCO 3.0.3. ITS LCO 3.0.3 will require the unit to initiate action within 1 hour to place the unit in MODE 2 within 7 hours, MODE 3 within 13 hours, and MODE 4 within 37 hours. This changes the CTS by requiring the plant to be in MODE 3 in 12 hours and in cold shutdown (MODE 4) in 36 hours, in lieu of being subcritical for CTS 3.9.B.3.a.2) and in lieu of being subcritical in 24 hours for CTS 3.9.B, if any Required Action and associated Completion Time of Condition A, B, C, D, or E is not met. In addition, this changes the CTS by requiring the plant to initiate a plant shutdown within 1 hour, to be in MODE 2 in 7 hours, to be in MODE 3 in 13 hours, and to be in MODE 4 in 37 hours, in lieu of being subcritical in 24 hours, if three or more required AC sources are inoperable.

The purpose of CTS 3.9.B and CTS 3.9.B.3.a.2) is to place the plant outside the Applicability of the Specification. CTS 3.9.A requires the AC sources to be OPERABLE only when critical (MODE 1 and a portion of MODE 2). Thus, while the CTS 3.9.B and CTS 3.9.B.3.a.2) Actions require a shutdown to MODE 4, in actuality, only a shutdown to subcritical conditions is required. Once subcriticality is achieved, continuation to MODE 4 is not required since the AC sources are not required to be OPERABLE when subcritical. However, since the requirement that the AC sources be OPERABLE in MODE 2 when subcritical and in MODE 3 has been added (DOC M.1), ITS 3.8.1 ACTION F and LCO 3.0.3 (via ITS 3.8.1 ACTION G) include a shutdown to MODE 3 and to MODE 4. The allowed Completion Times are reasonable, based on operating experience, to reach required unit conditions from full power conditions in an orderly manner and without challenging unit systems. This change is acceptable because it requires the unit to be in an intermediate condition (MODE 3) sooner than is currently required (12 hours versus 24 hours or no specified time). This portion of the change reduces the time the unit would be allowed to continue to operate in MODE 1 and MODE 2 while critical once the condition is identified. The consequences of a loss of coolant accident are reduced when the reactor is shutdown and a controlled cooldown is already in progress. This change is

designated as more restrictive because less time is allowed to shut down the plant in the ITS than in the CTS.

M.4 CTS 3.9.B.2 allows one offsite circuit to be inoperable for 7 days provided one offsite circuit is OPERABLE, but does not provide any specific requirement to determine how the other offsite circuit is OPERABLE nor how often to perform the determination. CTS 3.9.B.3.a covers the condition for one inoperable EDG but does not provide any requirement to determine whether the offsite circuits are OPERABLE. ITS 3.8.1 Required Action A.1 requires the performance of SR 3.8.1.1 (the offsite circuit verification) for the OPERABLE required offsite circuit within 1 hour and once per 8 hours thereafter when a required offsite circuit is inoperable. ITS 3.8.1 Required Action B.1 also requires the performance of SR 3.8.1.1 for the OPERABLE required offsite circuit(s) within 1 hour and once per 8 hours thereafter when an EDG is inoperable. This changes the CTS by adding a specific method and time to perform the offsite circuit verification when an offsite circuit is inoperable and a verification of offsite circuit OPERABILITY when an EDG is inoperable.

The purpose of ITS 3.8.1 Required Actions A.1 and B.1 is to ensure availability and proper circuit continuity of the OPERABLE offsite circuit(s) when the applicable AC source is inoperable. This change is acceptable because it provides additional assurance that the OPERABLE offsite circuit(s) are capable of performing their function. This change is designated as more restrictive because it adds new Required Actions to the CTS.

M.5 CTS 3.9.B.2 allows 72 hours to restore an inoperable required offsite circuit, and CTS 3.9.B.3.a.1) allows 7 days to restore an inoperable EDG. The CTS does not provide a limit on the total time AC sources may be inoperable over a continuous period. ITS 3.8.1 ACTION A covers the condition when one required offsite circuit is inoperable and ITS 3.8.1 ACTION B covers the condition when one EDG is inoperable. The second Completion Time for ITS 3.8.1 Required Actions A.3 and B.4 requires the offsite circuit(s) to be restored to OPERABLE status and the EDG(s) to be restored to OPERABLE status, respectively, within "10 days from discovery of failure to meet LCO." This changes the CTS by limiting the maximum time any combination of required offsite circuit(s) or EDG(s) may be inoperable during any contiguous occurrence of failing to meet the LCO.

The purpose of CTS 3.9.B.2 is to cover inoperabilities associated with an inoperable required offsite circuit while the purpose of CTS 3.9.B.3.a.1) is to cover inoperabilities associated with an inoperable EDG. This change limits the maximum time allowed (10 days) for any combination of inoperable required offsite circuit(s) or EDG(s) during any contiguous occurrence of failing to meet the LCO. The change is acceptable since the 10 day Completion Time is an appropriate limitation for failure to meet the AC source LCO. This change is designated as more restrictive because it limits the time the AC Source - Operating ACTIONS can be entered during any contiguous occurrence of failing to meet the LCO.

M.6 CTS 4.9.B.3.a.1), in part, requires a manual start of the EDGs while CTS 4.9.B.3.a.2) requires verification of EDG performance when simulating a loss of offsite power in conjunction with an ECCS actuation test signal. These

DISCUSSION OF CHANGES
ITS 3.8.1, AC SOURCES - OPERATING

Surveillance Requirements do not specify the steady state voltage and frequency that must be achieved by the EDG. ITS SR 3.8.1.2 and ITS SR 3.8.1.12 require, in part, that each EDG achieve a steady state voltage of ≥ 3975 V and ≤ 4400 V and a frequency of ≥ 58.8 Hz and ≤ 61.2 Hz. This changes the CTS by providing explicit steady state voltage and frequency limits.

The purpose of CTS 4.9.B.3.a.1) and CTS 4.9.B.3.a.2), in part, is to ensure that each EDG can achieve steady state voltage and frequency conditions so that they can supply the emergency loads. This change is acceptable because the added steady state values for voltage and frequency help to ensure the EDGs will be capable of supplying the emergency loads when required. This change is designated as more restrictive because it adds specific limits to the CTS where none previously existed.

M.7 CTS 4.9.B.3.a.1) requires each EDG to be loaded and operated for ≥ 60 minutes. ITS SR 3.8.1.3 requires a similar test, however a Note has been added that places restrictions on the test. ITS SR 3.8.1.3 Note 3 states that the SR shall be conducted on only one EDG at a time. This changes the CTS by adding a restriction when performing this test.

The purpose of the Note is to preclude testing both EDGs concurrently in order to avoid common cause failures that might result from offsite circuit or grid perturbations. Thus, adding the Note is acceptable since it will preclude this type of common mode failure. In addition, currently CTS 4.9.B.3.a.1) is normally conducted on one EDG at a time. This change is designated as more restrictive because explicit restrictions are added to the EDG load test.

M.8 CTS 4.9.B.3.b.2) requires verification that the diesel fuel oil transfer pump and diesel oil service pump are operated. This test verifies the fuel oil transfer system capability to transfer fuel oil from the storage tank to the day tank. The CTS does not specify any requirements to verify the transfer capability of the fuel oil transfer system to transfer fuel oil from each EDG day tank to the associated base tank. ITS SR 3.8.1.5 requires verification that the fuel oil transfer system operates to transfer fuel oil from the storage tank to the day tanks and from each day tank to the associated base tank. This changes the CTS by adding an explicit Surveillance to verify the fuel oil transfer system capability between each EDG day tank to the associated base tank.

The purpose of CTS 4.9.B.3.b.2) is to help ensure that each EDG has the capability to operate continuously for a 7 day period at rated EDG load. CTS 4.9.B.3.b.2) does not verify the complete capability of the fuel oil transfer system, since it does not cover the transfer capability of the system from each EDG day tank to its associated base tank. This change is acceptable because ITS SR 3.8.1.5 will require the verification of the complete transfer capability of the fuel oil transfer system. This change is designated as more restrictive because an additional portion of the fuel oil transfer system will be required to be tested.

M.9 CTS 3.9.B.1 allows the plant to operate 7 days with one inoperable EDG while CTS 3.9.B.2 allows the unit to operate 72 hours with one required offsite source inoperable. ITS 3.8.1 ACTION D covers the condition of one required offsite

circuit and one EDG inoperable and requires the restoration of either the required offsite circuit or the EDG to OPERABLE status within 12 hours. In addition, a Note is included that requires entry into the 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. This changes the CTS by reducing the time the plant can operate with one required offsite source and one EDG inoperable.

The purpose of CTS 3.9.B.1) is to allow the plant to operate 7 days to restore an inoperable EDG while the purpose of CTS 3.9.B.2 is to allow the plant to operate 72 hours to restore an inoperable required offsite source before commencing a reactor shutdown. This change reduces the time to restore the inoperable required offsite circuit or the EDG from 72 hours or 7 days, respectively to 12 hours. Experience has shown that the proposed restoration time is appropriate, as long as the associated 4.16 kV essential bus has AC power. This is ensured by the Note to ITS 3.8.1 ACTION D, which requires entry into applicable Conditions and Required Actions of LCO 3.8.7, "Distribution Systems - Operating," if the 4.16 kV essential bus is de-energized. During the 12 hour period, the 4.16 kV essential bus is energized and can perform its design function during a LOCA event, assuming no loss of offsite power. If the associated 4.16 kV essential bus is de-energized, ITS 3.8.7 ACTION A will require it to be re-energized within 8 hours. This change is designated as more restrictive because less time is allowed to operate when both a required offsite source and an EDG is inoperable.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA.1 *(Type 6 – Removal of LCO, SR, or other TS requirement to the TRM, USAR, ODCM, OQAP, IST Program, or IIP)* CTS 3.9.A.1 states, in part, that two NSP transmission lines and associated switchgear must be fully operational. Furthermore, a parenthetical phrase in CTS 3.9.A.1.c states that one of the sources to the required offsite circuits is the "source from 10 transformer." CTS 3.9.B.1 provides actions to be taken when one of the two required NSP transmission lines are found to be inoperable. CTS 4.9.A.1 specifies Surveillances for the substation switchyard battery that provides control power for the NSP transmission line breakers. ITS 3.8.1 does not include any requirements for the NSP transmission lines and associated switchgear and batteries. This changes the CTS by relocating the LCO, Actions, and Surveillance Requirements for the NSP transmission lines and associated switchgear and batteries to the Technical Requirements Manual (TRM).

The removal of this LCO, Action, and Surveillances from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. ITS 3.8.1 still retains requirements for the OPERABILITY of the two qualified circuits between the offsite transmission

network and the onsite Class 1E AC Electrical Power Distribution System. This will ensure adequate offsite power is available to the Class 1E Electrical Power Distribution System. Also, this change is acceptable because the LCO, Action, and Surveillance Requirements will be adequately controlled in the TRM. The TRM is incorporated by reference into the USAR and any changes to the TRM are made under 10 CFR 50.59, which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because a requirement is being removed from the Technical Specifications.

LA.2 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS 3.9.A.1 requires two offsite power sources to be fully operational and energized to carry power to the plant 4160 V AC buses and provides details of what constitutes an offsite power source. ITS 3.8.1 requires two qualified circuits between the offsite transmission network and the onsite Class 1E AC Electrical Power Distribution System to be OPERABLE, but the details of what constitutes an OPERABLE qualified circuit is contained in the ITS Bases. This changes the CTS by moving the details of what constitutes an OPERABLE qualified circuit to the ITS Bases.

The removal of these details, which are related to system design, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. ITS 3.8.1 still retains the requirement for two qualified circuits to be OPERABLE. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5 of the ITS. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LA.3 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS 3.9.A.2 specifies both diesel generators be operable and "capable of feeding their designated 4160 volt buses." ITS 3.8.1 requires both diesel generators to be OPERABLE, but the details of what constitutes an OPERABLE diesel generator is moved to the ITS Bases. This changes the CTS by moving the details of what constitutes an OPERABLE diesel generator to the ITS Bases.

The removal of these details, which are related to system design, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. ITS 3.8.1 still retains the requirement for both diesel generators to be OPERABLE. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5 of the ITS. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

DISCUSSION OF CHANGES
ITS 3.8.1, AC SOURCES - OPERATING

LA.4 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS 4.9.B.3.b.2) requires the diesel fuel oil transfer pump and diesel oil service pump to be operated. ITS SR 3.8.1.5 requires verification that the fuel oil transfer system operates to transfer fuel oil from the storage tank to the day tanks and from the day tanks to the associated base tanks. The details of what constitutes an OPERABLE diesel fuel oil transfer system is moved to the ITS Bases. This changes the CTS by moving the details of what constitutes an OPERABLE diesel generator to the ITS Bases.

The removal of these details, which are related to system design, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. ITS SR 3.8.1.5 still retains the requirement to verify that the fuel oil transfer system operates to transfer fuel oil from the storage tank to the day tanks and from the day tank to the associated base tank. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5 of the ITS. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

L.1 *(Category 4 – Relaxation of Required Action)* CTS 3.9.B requires a plant shutdown when two required offsite circuits are inoperable. ITS 3.8.1 ACTION C covers the condition of two required offsite circuits inoperable and requires the restoration of one required offsite circuit to OPERABLE status within 24 hours. This changes the CTS by providing some time to restore inoperable AC Sources prior to requiring a plant shutdown when two required offsite circuits are inoperable.

The purpose of CTS 3.9.B is to limit the time the unit can remain operating with two inoperable required offsite circuits. This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. The Required Actions are consistent with safe operation under the specified Condition, considering the OPERABLE status of the redundant systems or features. This includes the capacity and capability of remaining systems or features, a reasonable time for repairs or replacement, and the low probability of a DBA occurring during the repair period. This change provides 24 hours to restore one of two inoperable required offsite circuits to OPERABLE status when both are inoperable. 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. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.2 *(Category 4 – Relaxation of Required Action)* CTS 3.9.B.2 allows 72 hours to restore an inoperable AC source. However, this 72 hour restoration time is only allowed if transformer 1R or 2R is OPERABLE. ITS 3.8.1 ACTION A allows the 72 hour restoration time regardless of which transformer is OPERABLE (i.e., trandsformer 1AR may be the only OPERABLE transformer). This changes the CTS by allowing a 72 hour Completion Time for an inoperable required offsite circuit regardless of which transformer remains OPERABLE.

The purpose of CTS 3.9.B.2 is to allow a 72 hour restoration time for an inoperable offsite circuit as long 1R or 2R transformer is OPERABLE. This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. The Required Actions are consistent with safe operation under the specified Condition, considering the OPERABLE status of the redundant systems or features. This includes the capacity and capability of remaining systems or features, a reasonable time for repairs or replacement, and the low probability of a DBA occurring during the repair period. This change allows the 72 hour Completion Time for an inoperable offsite circuit regardless of which transformer remains OPERABLE. The offsite circuits that utilize transformers 1R or 2R supply equipment needed for the normal operation of the unit (i.e., the reactor recirculation pumps and feedwater pumps). The offsite circuit that utilizes transformer 1AR does not supply these loads required for normal operation. Therefore, to maintain the plant at power conditions, either 1R or 2R transformers must be OPERABLE and supplying power to the components needed during normal operations. In the CTS and ITS, the qualified circuits must be able to supply the essential buses. It may be possible that the offsite circuit (1R or 2R) has the capability to supply the normal plant loads (i.e., the reactor recirculation pumps and feedwater pumps) and not be able to supply the essential bus. In this case, both circuits (i.e., 1R and 2R) are inoperable by Technical Specifications since they are not capable of supplying the essential bus. In this situation (i.e., 1AR supplying essential buses and either 1R or 2R supplying the non-essential buses), the plant should not be required to be shut down. In other situations, when there is no power available to support the normal plant loads, the plant will either automatically scram or plant procedures will require the plant to be shut down. This change is acceptable because the plant may be able to operate safely with both 1R and 2R inoperable. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.3 *(Category 4 – Relaxation of Required Action)* When an EDG is found to be inoperable, CTS 3.9.B.3.a.1) requires a demonstration that the remaining EDG is OPERABLE within 24 hours. CTS 3.9.B.3.a.1) also states that the test is required to be completed regardless of when the inoperable EDG is restored to OPERABILITY. CTS 3.9.B.3.a.1) further states that the OPERABILITY of the other EDG need not be demonstrated if the EDG inoperability was due to

preplanned preventative maintenance or testing. ITS 3.8.1 Required Action B.3.2 includes a requirement to perform SR 3.8.1.2, which requires the verification that the EDG starts from standby conditions and achieves steady state voltage and frequency. In addition, ITS 3.8.1 Required Action B.3.1 has been added and provides the option to determine OPERABLE EDG(s) are not inoperable due to a common cause failure. This changes the CTS by providing an allowance to not start an OPERABLE EDG as long as it can be shown that there is no common mode failure for any reason, not just due to preplanned preventative maintenance or testing, and deletes the requirement to perform the OPERABILITY demonstration within 24 hours even if the other EDG is restored to OPERABLE status.

The purpose of CTS 3.9.B.3.a.1) is to demonstrate that the remaining EDG is OPERABLE. This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. The Required Actions are consistent with safe operation under the specified Condition, considering the OPERABLE status of the redundant systems or features. This includes the capacity and capability of remaining systems or features, a reasonable time for repairs or replacement, and the low probability of a DBA occurring during the repair period. The CTS requires a test of the remaining EDG to demonstrate OPERABILITY when it is determined that an EDG is inoperable. This change adds an option to determine the OPERABLE EDG is not inoperable due to a common cause failure rather than to perform a demonstration of OPERABILITY, even if the inoperability of the EDG is not due to preplanned preventative maintenance or testing. This is acceptable because it avoids unnecessary testing of the EDG while at the same time ensures the EDG is OPERABLE. The change also deletes the requirement to test the EDG within 24 hours regardless of when the inoperable EDG is restored to OPERABILITY. This is acceptable because ITS 3.8.1 Required Actions B.3.1 and B.3.2 Bases states that in the event the inoperable EDG 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. However, this continued evaluation is no longer under the 24 hour constraint imposed while in ITS 3.8.1 Condition B. This change also deletes the statement that the OPERABILITY of the other EDG need not be demonstrated if the EDG inoperability was due to preplanned preventative maintenance or testing. This statement is no longer necessary because optional allowances in ITS 3.8.1 Required Action B.3.1 will effectively not require the testing to be performed (i.e., preplanned preventative maintenance or testing does not constitute a common mode failure mechanism). This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.4 *(Category 3 – Relaxation of Completion Time)* CTS 3.9.B.3.a.2) requires the plant to be placed in cold shutdown when both EDGs are inoperable. ITS 3.8.1 ACTION E covers the condition when two EDGs are inoperable and allows 2 hours to restore one EDG to OPERABLE status prior to requiring a plant shutdown per ITS 3.8.1 ACTION F. This changes the CTS by providing 2 hours to restore one EDG to OPERABLE status when it is discovered that both EDG subsystems are inoperable prior to requiring a unit shutdown.

DISCUSSION OF CHANGES
ITS 3.8.1, AC SOURCES - OPERATING

The purpose of CTS 3.9.B.3.a.2) is to shut down the unit when both EDGs are inoperable. ITS 3.8.1 ACTION E will now allow 2 hours to restore one inoperable EDG prior to requiring a plant shutdown. This change is acceptable because the Completion Time is consistent with safe operation under the specified condition, considering the capacity and capability of remaining features, a reasonable time for repairs or replacement of required features, and the low probability of a design basis accident occurring during the allowed Completion Time. The ITS 3.8.1 Required Action E.1 Completion Time of 2 hours is considered acceptable to avoid the risk associated with an immediate controlled shutdown and to minimize the risk associated with this level of degradation. According to Regulatory Guide 1.93 (Ref. 6), with both EDGs inoperable, operation may continue for a period that should not exceed 2 hours. This change is designated as less restrictive because time is allowed to restore an EDG to OPERABLE status prior to requiring a plant shutdown.

L.5 *(Category 3 – Relaxation of Completion Time)* CTS 1.0.L allows a system, subsystem, train, component, or device to be considered OPERABLE with an inoperable emergency or normal power source, provided its corresponding normal or emergency power source is OPERABLE and its redundant system(s), subsystem(s), train(s), component(s), and device(s) are OPERABLE. CTS 1.0.L requires the equipment to be declared inoperable immediately when these requirements are not met. ITS 3.8.1 Required Action A.2 (which applies when one required offsite source is inoperable) requires the declaration of required feature(s) with no offsite power available inoperable when the redundant required feature(s) are inoperable. The Completion Time for ITS 3.8.1 Required Action A.2 is 24 hours from discovery of no offsite power to one division concurrent with inoperability of redundant required feature(s). ITS 3.8.1 Required Action B.2 (which applies when one required EDG is inoperable) requires the declaration of required feature(s), supported by the inoperable EDG, inoperable when the required redundant feature(s) are inoperable. The Completion Time allowed for ITS 3.8.1 Required Action B.2 is 4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s). ITS 3.8.1 Required Action C.1 (which applies when two required offsite circuits are inoperable) requires the declaration of required feature(s) inoperable when the redundant required feature(s) are inoperable. The Completion Time for ITS 3.8.1 Required Action C.1 is 12 hours from discovery of Condition C concurrent with inoperability of redundant required feature(s). This changes the CTS by allowing more time to restore inoperable equipment.

The purpose of CTS 1.0.L is to ensure adequate power is available to required equipment so that the equipment can perform its safety function(s) during DBAs and transients. This change is acceptable because the Completion Time is consistent with safe operation under the specified Condition, considering the OPERABLE status of the redundant systems or features. This includes the capacity and capability of remaining systems or features, a reasonable time for repairs or replacement, and the low probability of a DBA occurring during the allowed Completion Time. This change allows more time to restore inoperable equipment when required AC Sources are inoperable concurrent with inoperabilities of redundant required features. By declaring the affected supported equipment inoperable, and as a result, taking the Technical Specifications ACTIONS of the affected supported equipment, unit operation is

maintained within the bounds of the Technical Specifications and approved ACTIONS. Since the AC Sources support the OPERABILITY of the affected equipment, it is appropriate that the proper action, in this condition, would be to declare that affected supported equipment inoperable. CTS 1.0.L is overly restrictive, in that if the associated supported equipment were inoperable for other reasons and the redundant equipment was also inoperable, a restoration time is sometimes provided, in other CTS sections. The 24 hour Completion Time when one required offsite circuit is inoperable is acceptable because: a) the redundant counterpart to the inoperable required feature is still OPERABLE although single failure protection may have been lost; b) the capacity and capability of the remaining AC Sources is still available; c) a reasonable time for repairs is provided for restoration before the unit is subjected to transients associated with a shutdown; and d) the low probability of a DBA occurring during this period. The 12 hour Completion Time when two required offsite circuits are inoperable is acceptable because Regulatory Guide 1.93 allows a Completion Time of 24 hours for two required offsite circuits inoperable. When a concurrent redundant required function is inoperable, a shorter Completion Time of 12 hours is appropriate. The 4 hour Completion Time with one required EDG inoperable takes into account the component OPERABILITY of the redundant counterpart to the inoperable required feature and is considered to be less of a risk than subjecting the unit to transients associated with shutdown. Additionally, the 4 hour Completion Time takes into account the capacity and capability of the remaining AC Sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period. This change is designated as less restrictive because additional time is allowed to restore equipment to OPERABLE status.

L.6 *(Category 6 – Relaxation Of Surveillance Requirement Acceptance Criteria)* CTS 4.9.B.3.a.1) requires, in part, a verification that each EDG is capable of operating at "approximately rated load" for at least 60 minutes. ITS SR 3.8.1.3 requires the same verification, however the test is allowed to be performed at a load of 2250 kW to 2500 kW, which corresponds to 90% and 100% of rated load. In addition, Note 2 to SR 3.8.1.3 states that momentary transients outside the load range do not invalidate this test. This changes the CTS by allowing the EDGs to be tested at a slightly lower load during this Surveillance.

The purpose of CTS 4.9.B.3.a.1), in part, is to ensure the EDGs can operate at the rated load. This change allows the EDGs to be tested at a lower load during this Surveillance. This change is acceptable because it has been determined that the relaxed Surveillance Requirement acceptance criteria are not necessary for verification that the equipment used to meet the LCO can perform its required functions. The proposed minimum value is consistent with Regulatory Guide 1.9, Rev. 3 (paragraph C.2.2.2), which recommends a load range of 90% to 100% for the load-run test. The proposed values are 90% to 100% of the continuous load rating and therefore are considered to be consistent with the recommendations of Regulatory Guide 1.9, Rev. 3. The values will preclude routine overloading of the EDG and the lower value will still ensure the EDG is at operating temperatures and that the maximum loads assumed in the safety analyses can be supported. The addition of the Note is considered administrative because CTS 4.9.B.3.a.1) only requires the load to be "approximately" rated load, not at rated load. This change is designated as less restrictive because less stringent Surveillance Requirements are being applied in the ITS than were applied in the CTS.

DISCUSSION OF CHANGES
ITS 3.8.1, AC SOURCES - OPERATING

L.7 *(Category 9 – Deletion of Surveillance Requirement Shutdown Performance Requirements)* CTS 4.9.B.3.a.2) contains a requirement to simulate a loss of offsite power in conjunction with an ECCS actuation test signal "during shutdown." ITS SR 3.8.1.12 requires a similar test, and includes a Note (Note 2) that states the Surveillance shall not normally be performed in MODE 1, 2, or 3. The Note also states that portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. It further states that credit may be taken for unplanned events that satisfy this SR. This changes the CTS by allowing the Surveillances to be performed in the operating MODES, provided the Surveillance is performed to reestablish OPERABILITY and an assessment is performed to determine plant safety is maintained or enhanced, or provided that it is an unplanned event that satisfies the requirements of the SR.

The purpose of CTS 4.9.B.3.a.2) is to ensure that the EDG operates correctly upon receipt of an actuation signal. This change is acceptable because the new Surveillance Frequency has been evaluated to ensure that it provides an acceptable level of equipment reliability. The proposed Surveillance does not include the restriction on unit conditions at all times. The control of the unit conditions appropriate to perform the test is an issue for procedures and scheduling, and has been determined by the NRC Staff to be unnecessary as a Technical Specification restriction. As indicated in Generic Letter 91-04, allowing this control is consistent with the vast majority of other Technical Specification Surveillances that do not dictate unit conditions for the Surveillance. This change is designated as less restrictive because the Surveillance may be performed during plant conditions other than shutdown.

L.8 *(Category 6 – Relaxation Of Surveillance Requirement Acceptance Criteria)* CTS 4.9.B.3.a.2) requires verification of EDG performance following a "simulated" loss of offsite power in conjunction with an ECCS actuation "test" signal. ITS SR 3.8.1.12 performs a similar test, but specifies that each signal may be from either an "actual" or "simulated" (i.e., test) signal. This changes the CTS by explicitly allowing the use of an actual signal for the test.

The purpose of CTS 4.9.B.3.a.2) is to ensure that the EDG operates correctly upon receipt of an actuation signal. This change is acceptable because it has been determined that the relaxed Surveillance Requirement acceptance criteria are not necessary for verification that the equipment used to meet the LCO can perform its required functions. Equipment cannot discriminate between an "actual," "simulated," or "test" signal and, therefore, the results of the testing are unaffected by the type of signal used to initiate the test. This change allows taking credit for unplanned actuation if sufficient information is collected to satisfy the Surveillance test requirements. This change is designated as less restrictive because less stringent Surveillance Requirements are being applied in the ITS than were applied in the CTS.

L.9 *(Category 7 – Relaxation Of Surveillance Frequency, Non-24 Month Type Change)* CTS 4.9.B.3.b.2) requires the diesel fuel oil transfer system to be tested "during the monthly generator test." ITS SR 3.8.1.5, which requires the same Surveillance to be performed once per 31 days, does not include the requirement that it be performed "during the monthly generator test." This

DISCUSSION OF CHANGES
ITS 3.8.1, AC SOURCES - OPERATING

changes the CTS by deleting the requirement to test the diesel fuel oil transfer system during the monthly generator test, and allowing it to be tested any time during the 31 day period.

The purpose of CTS 4.9.B.3.b.2) is to provide assurance that the diesel fuel oil transfer system is OPERABLE. This change is acceptable because the new Surveillance Frequency has been evaluated to ensure that it provides an acceptable level of equipment reliability. The test will continue to be performed on a 31 day Frequency (i.e., monthly). The OPERABILITY of the diesel fuel oil transfer system is independent of EDG operation. Although the system will start during the EDG monthly test and it is convenient to perform the test during EDG operation, it is not absolutely necessary. This change is designated as less restrictive because the explicit requirement to perform the test during the monthly generator test has been deleted.

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

CTS

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources - Operating

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

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

3.9.A.2 b. Three diesel generators (DGs) and

c. ~~Three automatic sequencers.~~

3.9.A APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

NOTE

DOC A.2 LCO 3.0.4.b is not applicable to DGs.

CONDITION	REQUIRED ACTION	COMPLETION TIME
3.9.B.2, 1.0.L A. One required offsite circuit inoperable.	A.1 Perform SR 3.8.1.1 for OPERABLE required 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	

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ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME
3.9.B.2		A.3 Restore [required] offsite circuit to OPERABLE status.	72 hours (1) AND 10 [6] days from discovery of failure to meet LCO (5)
3.9.B.3.a.1), 1.0.L	B. One [required] DG inoperable. (E)	B.1 Perform SR 3.8.1.1 for OPERABLE [required] offsite circuit(s).	1 hour (1) (3) (1) AND Once per 8 hours thereafter
		AND B.2 Declare required feature(s), supported by the inoperable DG, inoperable when the redundant required feature(s) are inoperable. (E)	4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s) (3)
		AND B.3.1 Determine OPERABLE DG(s) are not inoperable due to common cause failure. (E)	[24] hours (1) (3)
		OR B.3.2 Perform SR 3.8.1.2 for OPERABLE DG(s). (E)	[24] hours (1) (3)
		AND	

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ACTIONS (continued)

	CONDITION	REQUIRED ACTION		COMPLETION TIME	
3.9.B.3.a.1)		B.4	Restore [required] DG to OPERABLE status. (E)	72 hours (7 days) AND 6 days (10) from discovery of failure to meet LCO	1 3 5 5
3.9.B, DOC L.1, 1.0.L	C. Two [required] 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)	1
		AND			
		C.2	Restore one [required] offsite circuit to OPERABLE status.	24 hours	1
3.9.B	D. One [required] offsite circuit inoperable. AND One [required] DG inoperable. (E)	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.9 (7), "Distribution Systems - Operating," when Condition D is entered with no AC power source to any division. ----------			1 6 1 3
		D.1	Restore [required] offsite circuit to OPERABLE status.	12 hours	1
		OR			
		D.2	Restore [required] DG to OPERABLE status. (E)	12 hours	1 3
3.9.B.3.a.2)	E. Two [or three] [required] DGs inoperable. (E)	E.1	Restore one [required] DG to OPERABLE status. (E)	2 hours	1 3 3

CTS

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]	4
3.9.B, 3.9.B.3.a.2) F G. Required Action and associated Completion Time of Condition A, B, C, D, E [or] [F] not met. or	F G.1 Be in MODE 3. AND F G.2 Be in MODE 4.	12 hours 36 hours	4
3.9.B G H. Three or more [required] AC sources inoperable [for reasons other than Condition E].	G H.1 Enter LCO 3.0.3.	Immediately	4 1 1

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY	
DOC M.2	SR 3.8.1.1	Verify correct breaker alignment and indicated power availability for each [required] offsite circuit.	7 days	1

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SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY	
4.9.B.3.a.1)	SR 3.8.1.2		
	E NOTES 1. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading.		3
	E [2. 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.]		1 3 16 1
	E Verify each DG starts from standby conditions and achieves steady state voltage ≥ [3740] V and ≤ [4580] V and frequency ≥ [58.8] Hz and ≤ [61.2] Hz. (3975; 4400)	31 days	3 1
4.9.B.3.a.1)	SR 3.8.1.3		
	E NOTES 1. DG loadings may include gradual loading as recommended by the manufacturer.		3
	2. Momentary transients outside the load range do not invalidate this test.		
	3. This Surveillance shall be conducted on only one DG at a time.		3
	E 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.		16
	E Verify each DG is synchronized and loaded and operates for ≥ 60 minutes at a load ≥ [1710] kW and ≤ [2000] kW. (2250; 2500)	31 days	3 1
	SR 3.8.1.4 Verify each day tank [and engine mounted tank] contain[s] ≥ [900] gal of fuel oil.	31 days	15

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SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
DOC M.2	SR 3.8.1.5 (4) Check for and remove accumulated water from each day tank [and engine mounted tank]. (base)	[31] days (15) (1)
4.9.B.3.b.2), DOC M.8	SR 3.8.1.6 (5) Verify the fuel oil transfer system operates to [automatically] transfer fuel oil from storage tank [s] to the day tank [and engine mounted tank]. (the) (s)	[92] days (31) (15) (1) (1) and from each day tank to the associated base tank
	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: a. In ≤ [12] seconds, voltage ≥ [3740] V and frequency ≥ [58.8] Hz and b. Steady state voltage ≥ [3740] V and ≤ [4580] V and frequency ≥ [58.8] Hz and ≤ [61.2] Hz.	184 days (16)
DOC M.2	SR 3.8.1.8 (6) ----------NOTE---------- [This Surveillance shall not normally be performed in MODE 1 or 2. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. 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.	(16) (1) [18] months (24) (1) on a STAGGERED TEST BASIS for each division (14)

CTS

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY	
DOC M.2 SR 3.8.1.9 [7]	----------NOTES----------	(16)
	[1]1. This Surveillance shall not normally be performed in MODE 1 or 2. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR.	(1)
	[E] 2. If performed with DG synchronized with offsite power, it shall be performed at a power factor ≤ [0.95] [0.9]. 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.[7]	(3) (1) (1)
	[E] Verify each DG rejects a load greater than or equal to its associated single largest post-accident load, and[1]	[24] [18] months (3) (1)
	[a.] Following load rejection, the frequency is ≤ [65.5] [67.5] Hz[7].	(1) (7)
	b. Within [3] seconds following load rejection, the voltage is ≥ [3740] V and ≤ [4580] V, and	(7)
	[c. Within [6] seconds following load rejection, the frequency is ≥ [58.8] Hz and ≤ [61.2] Hz.]	

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.8.1.10 ----------NOTES---------- [1. This Surveillance shall not normally be performed in MODE 1 or 2. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. 2. If performed with DG synchronized with offsite power, it shall be performed at a power factor ≤ [0.9]. 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 DG does not trip and voltage is maintained ≤ [4800] V during and following a load rejection of ≥ [1710] kW and ≤ [2000] kW.	[18] months

(8)

CTS

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY	
SR 3.8.1.11	----------NOTES---------- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not normally be performed in MODE 1, 2, or 3. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. ---------- Verify on an actual or simulated loss of offsite power signal: a. De-energization of emergency buses, b. Load shedding from emergency buses, and c. DG auto-starts from standby condition and: 1. Energizes permanently connected loads in ≤ [12] seconds, 2. Energizes auto-connected shutdown loads through [automatic load sequencer], 3. Maintains steady state voltage ≥ [3740] V and ≤ [4580] 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.	[18] months	(17)

CTS

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
DOC M.2 SR 3.8.1.12 (8)	(17) (1) (3)
E ----------NOTES---------- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not normally be performed in MODE 1 or 2. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. ----------	(24) [18] months (1)
Verify on an actual or simulated Emergency Core Cooling System (ECCS) initiation signal each DG auto-starts from standby condition and: a. In ≤ [12] seconds after auto-start and during tests, achieves voltage ≥ [3740] V and frequency ≥ [58.8] Hz, b. Achieves steady state voltage ≥ [3740] V and ≤ [4580] V and frequency ≥ [58.8] Hz and ≤ [61.2] Hz, c. Operates for ≥ [5] minutes,	(18)
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. (time delay relays)	(18) (1)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.13	----------NOTE---------- [This Surveillance shall not normally be performed in MODE 1, 2, or 3. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. 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, b. Generator differential current, [c. Low lube oil pressure, d. High crankcase pressure, and e. Start failure relay.]	[18] months (9)

CTS

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
DOC M.2 SR 3.8.1.14 (9)	(9)
----------NOTES---------- 1. Momentary transients outside the load and power factor ranges do not invalidate this test. 2. This Surveillance shall not normally be performed in MODE 1 or 2. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. 3. (E) If performed with DG synchronized with offsite power, it shall be performed at a power factor ≤ [0.9] (0.95). 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. ----------	(3) (1)
(E) Verify each DG operates for ≥ 24 (8) hours:	[18] (24) months (10) (3) (1)
a. For ≥ [2] hours loaded ≥ [3100] (2625) kW and ≤ [3400] kW and (2750)	(1)
b. For the remaining hours of the test loaded ≥ [2850] (2250) kW and ≤ [3150] (2500) kW.	(2) (1)

CTS

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
DOC M.2 SR 3.8.1.15 (10) ----------NOTES---------- 1. This Surveillance shall be performed within (E) 5 minutes of shutting down the DG after the DG has operated ≥ [2] hours loaded ≥ [1710] (2250) kW and ≤ [2000] (2500) kW. Momentary transients outside of load range do not invalidate this test. (E) 2. All DG starts may be preceded by an engine prelube period. ---------- (E) Verify each DG starts and achieves:	[18] (24) months
a. In ≤ [12] (10) seconds, voltage ≥ [3740] (3975) V and frequency ≥ [58.8] Hz and	
b. Steady state voltage ≥ [3740] (3975) V and ≤ [4580] (4400) V and frequency ≥ [58.8] Hz and ≤ [61.2] Hz.	
DOC M.2 SR 3.8.1.16 (11) ----------NOTE---------- This Surveillance shall not normally be performed in MODE 1, 2, or 3. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. ---------- (E) Verify each DG:	[18] (24) months
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.	

CTS

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.17	----------NOTE---------- [This Surveillance shall not normally be performed in MODE 1, 2, or 3. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. 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]
SR 3.8.1.18	----------NOTE---------- [This Surveillance shall not normally be performed in MODE 1, 2, or 3. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR.] ---------- [Verify interval between each sequenced load block is within ± [10% of design interval] [for each load sequencer timer].	[18] months]

(11)

(12)

CTS

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
3.9.B.3.a.2) SR 3.8.1.19 (12)	(12) (3)
E ----------NOTES---------- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not normally be performed in MODE 1, 2, or 3. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. ----------	
Verify, on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated ECCS initiation signal:	(24) [18] months (1)
a. De-energization of emergency buses;	(2)
b. Load shedding from emergency buses; and	
E c. DG auto-starts from standby condition and:	(3)
1. Energizes permanently connected loads in ≤ [12] seconds;	(10) (1) (2)
2. Energizes auto-connected emergency loads through [load sequencer];	time delay relays (1)
3. Achieves steady state voltage ≥ [3740] V and ≤ [4580] V;	(4400) (3975) (1) (2)
4. Achieves steady state frequency ≥ [58.8] Hz and ≤ [61.2] Hz; and	(1)
5. Supplies permanently connected and auto-connected emergency loads for ≥ [5] minutes.	(1)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
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: a. In ≤ [12] seconds, voltage ≥ [3740] V and frequency ≥ [58.8] Hz and b. Steady state voltage ≥ [3740] V and ≤ [4580] V and frequency ≥ [58.8] Hz and ≤ [61.2] Hz.	10 years (13)

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.1, AC SOURCES - OPERATING

1. The brackets are removed and the proper plant specific information/value is provided.

2. These punctuation corrections have been made consistent with the Writer's Guide for the Improved Standard Technical Specifications, NEI 01-03, Section 5.1.3.

3. Changes are made (additions, deletions, and/or changes) to the ISTS, which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

4. The bracketed items specified in ISTS LCO 3.8.1.c and ISTS 3.8.1 ACTION F have been deleted since the Monticello design does not include automatic sequencers. The LCO has been modified and subsequent Conditions and Required Actions have been renumbered, as applicable.

5. The ISTS 3.8.1 Required Action B.4 first Completion Time of "72 hours" has been extended to "7 days," consistent with the Monticello current licensing basis, which allows 7 days to restore an inoperable EDG (CTS 3.9.B.3.a.1)). Due to this change, the second Completion Time for ITS 3.8.1 Required Actions A.3 and B.4 has been changed to reflect the sum of the Completion Times for an inoperable offsite circuit (72 hours) and emergency diesel generator (7 days) and is consistent with the intent of ISTS.

6. The reference to ISTS LCO 3.8.9 is changed to LCO 3.8.7 as a result of the renumbering of Specifications.

7. The ISTS SR 3.8.1.9.b and c limits imposed on return to steady state frequency and voltage following a single load rejection are to be controlled by plant procedures and are not presented as specific TS requirements in ITS SR 3.8.1.7. 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 Monticello 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. This change was previously approved in the ITS conversion for the James A. FitzPatrick Nuclear Power Plant.

8. As stated in the ISTS SR 3.8.1.10 Bases, ISTS SR 3.8.1.10 is based upon the recommendations of Regulatory Guide 1.108. Monticello has not committed to fully implement this Regulatory Guide, but has used its guidance where appropriate consistent with the Monticello design and licensing basis, and the recommendations of the EDG manufacturer for testing of the Monticello EDGs. ISTS SR 3.8.1.10 has not been included in the Monticello 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 Monticello accident analysis. 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

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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.

9. ISTS SR 3.8.1.13 has not been included in the Monticello ITS since it is not applicable to the Monticello EDG design. The Monticello EDG design does not include emergency diesel generator trips that are bypassed on a loss of voltage signal on the emergency bus concurrent with an ECCS initiation signal. Subsequent Surveillances have been renumbered, as applicable.

10. ISTS SR 3.8.1.14 requires each EDG to operate for ≥ 24 hours. ITS SR 3.8.1.9, which is a new requirement (see DOC M.2), requires each EDG 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.

11. ISTS SR 3.8.1.17 is not included in the Monticello ITS since this feature was not included in the Monticello 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 Monticello, with an EDG connected to its bus, if an ECCS initiation signal were received, 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) since the offsite circuits remain available. Therefore, this SR is not applicable.

12. ISTS SR 3.8.1.18 has not been included in the Monticello ITS since the load timers are verified as part of ISTS SR 3.8.1.12.e (ITS SR 3.8.1.8) and ISTS SR 3.8.1.19.c.2 (ITS SR 3.8.1.12.c.2). Subsequent Surveillances have been renumbered, as applicable.

13. ISTS SR 3.8.1.20 is not included in the Monticello 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. 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.

14. ISTS SR 3.8.1.8 requires verification of automatic and manual transfer of unit power supply from the normal offsite circuit to the alternate offsite circuit at a Frequency of 18 months. The Frequency of 18 months is bracketed. ITS SR 3.8.1.6 requires a

similar Surveillance, however the Frequency has been changed to 24 months on a STAGGERED TEST BASIS for each division. This Surveillance is not currently required by the CTS, however testing is performed periodically to test these features and all features perform as required. Furthermore, the current Frequency for these tests are no more frequent than every second outage. Thus, the Frequency of 24 months on a STAGGERED BASIS for each division maintains this current Frequency. The proposed Frequency of 24 months on a STAGGERED TEST BASIS for each division is considered to be appropriate based on the reliability of the equipment.

15. ISTS SR 3.8.1.4 requires verification that the fuel oil level in the day tank and engine mounted tank is within a specified limit. This Surveillance has not been adopted in the Monticello ITS. At Monticello, the fuel oil in the day tank and the base tank (i.e., the engine mounted tank) is not necessary to meet the 7 day fuel oil requirement. Only the fuel oil in the common storage tank is used to meet the 7 day fuel oil requirement. This 7 day limit is verified in ISTS SR 3.8.3.1 (ITS SR 3.8.3.1). The fuel oil transfer system includes two pumps that are capable of transferring fuel oil from the common storage tank to each day tank, and two pumps per EDG that are capable of transferring fuel oil from the associated day tank to the associated base tank. ISTS SR 3.8.1.6 (ITS SR 3.8.1.5) verifies that the fuel oil transfer system can operate as designed at the same Frequency as ISTS SR 3.8.1.4. Provided the fuel oil transfer pumps are properly operating, the fuel oil level in each day tank and base tank will be adequately maintained to support EDG OPERABILITY. In addition, an alarm is provided to alert the operator to a problem with the fuel oil transfer pumps associated with the common storage tank. Therefore, ISTS SR 3.8.1.4 is redundant to the fuel oil transfer pumps Surveillance (ISTS SR 3.8.1.6) and is not necessary to be included in the Monticello ITS. This is also consistent with the current licensing basis, since this Surveillance is not included in the CTS. Subsequent Surveillances have been renumbered, as applicable.

16. ISTS SR 3.8.1.7 requires verification each EDG starts from standby conditions and achieves minimum voltage and frequency within the specified time and then achieves steady state frequency and voltage. The Surveillance Frequency is 184 days. This Surveillance has not been adopted in the Monticello ITS and all references to it have been deleted. ISTS 3.8.1.19, the LOOP-LOCA Surveillance (ITS SR 3.8.1.12), verifies each requirement specified in ISTS SR 3.8.1.7 at a 24 month Frequency. Performance of the test provides no additional or unique insights into EDG OPERABILITY other than performing the fast start portion at a more frequent basis. Both EDGs at Monticello have demonstrated excellent performance at the current EDG fast start Frequency (i.e., each refueling cycle) and increasing the test Frequency would pose an unnecessary requirement with limited benefit. The Surveillance test history shows that both EDGs started and accepted loads within the 10 second Surveillance Requirement in the last 5 tests. Finally, performing this test is contrary to the goal of minimizing unnecessary wear and tear that can result from fast starts. This is also consistent with the current licensing basis, since this Surveillance is not included in the CTS. Subsequent Surveillances have been renumbered, as applicable.

17. ISTS SR 3.8.1.11 requires verification of proper performance of the emergency buses and the EDGs on an actual or simulated loss of offsite power (LOOP) signal every 24 months. This Surveillance has not been adopted in the Monticello ITS.

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.1, AC SOURCES - OPERATING

ISTS SR 3.8.1.19, the LOCA-LOOP Surveillance (ITS SR 3.8.1.12), verifies each aspect of the requirements specified in ISTS SR 3.8.1.11 at a 24 month Frequency. Thus, there is no need to periodically perform this SR to demonstrate the proper operation of the emergency buses and EDGs on a LOOP signal. This is also consistent with the current licensing basis, since this Surveillance is not included in the CTS. Subsequent Surveillances have been renumbered, as applicable.

18. ISTS SR 3.8.1.12 requires verification that on an actual or simulated Emergency Core Cooling System initiation signal each EDG auto-starts from standby conditions and achieves the specified voltage and frequency at the required time, achieves steady state voltage and frequency, operates for > 5 minutes, permanently connected loads remain energized from the offsite power system, and the emergency loads are powered from the offsite power system. ITS SR 3.8.1.8 does not include the requirements associated with the EDG, since similar requirements are verified in ISTS SR 3.8.1.19 (ITS SR 3.8.1.12). Thus, these ISTS SR 3.8.1.12 requirements are redundant to the requirement of ISTS SR 3.8.1.19 (ITS SR 3.8.1.12) and are not necessary to be included in ITS SR 3.8.1.8. This is also consistent with the current licensing basis, since this Surveillance is not included in the CTS.

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.1 AC Sources - Operating

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 Feature (ESF) 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 two preferred offsite power supplies and a single DG.

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).

An 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.

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.

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.

1

INSERT 1

Monticello switchyard via two 345 kV and three 115 kV transmission line connections. From the switchyard, independent and redundant circuits provide AC power to the 4.16 kV auxiliary buses and essential buses. The 4.16 kV essential buses 15 and 16 are capable of being supplied from the 345 kV bus via transformer 2R, from the 115 kV substation via transformer 1R, and from either the 345 kV or 115 kV system via transformer 1AR.

1

INSERT 2

Transformer 2R provides the normal source of power to the 4.16 kV auxiliary buses and essential buses 15 and 16. If normal power from transformer 2R is lost, transformer 1R will automatically energize all plant buses, including 4.16 kV essential buses 15 and 16. If power from transformer 1R is lost, transformer 1AR will automatically energize only the 4.16 kV essential buses 15 and 16.

BASES

BACKGROUND (continued)

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 46 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.

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 - 300 hours,

d. 3500 kW - 30 minutes.

DG 1B has the following ratings:

a. 2850 kW - continuous,

b. 3250 kW - 168 hours.

INSERT 3

6 **INSERT 2A**

a Core Spray System Reactor Vessel Water Level - Low low or Drywell Pressure - High

6 **INSERT 2B**

4.16 kV Essential Bus Loss of Voltage or 4.16 kV Essential Bus Degraded Voltage

1 **INSERT 3**

Each EDG has its own day tank and base tank. Both EDGs utilize a common fuel oil storage tank. The fuel oil transfer system, which includes a fuel oil transfer pump and a fuel oil service pump, is capable of transferring fuel oil from the fuel oil storage tank to both day tanks. Both the fuel oil transfer pump and the fuel oil service pump are individually capable of maintaining the level in the day tank when both EDGs are operating at full load. The fuel oil transfer system also includes two day tank fuel oil transfer subsystems. Each day tank fuel oil transfer subsystem is capable of automatically transferring fuel oil from the day tank to the associated base tank. Each day tank fuel oil transfer subsystem includes two pumps, and each pump starts automatically on a level signal from one the base tank level switch. One pump starts when the level in the base tank drops below the normal level and the second pump starts when the base tank level drops to the low level.

BASES

APPLICABLE SAFETY ANALYSES

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

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

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

b. A worst case single failure.

AC sources - Operating satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

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

Qualified offsite circuits are those that are described in the FSAR, and are part of the licensing basis for the unit. [In addition, [one required automatic load sequencer per ESF bus] shall be OPERABLE.]

Each offsite circuit must be capable of maintaining rated frequency and voltage, and accepting required loads during an accident, while connected to the 4.16 kV essential 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 2F 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.

INSERT 3A

1 **INSERT 3A**

One offsite circuit consists of incoming disconnects to the 2R transformer, associated 2R transformer, and the respective circuit path including buses and feeder breakers to both 4.16 kV essential buses. The second circuit consists of incoming disconnects to the 1R transformer, associated 1R transformer, and the respective circuit path including buses and feeder breakers to both 4.16 kV essential buses. The third qualified offsite circuit consists of incoming disconnects to the 1AR transformer (source from transformer 10), associated 1AR transformer, and the respective circuit path including feeder breakers to both 4.16 kV essential buses.

BASES

LCO (continued)

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 12 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.

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

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.

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

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."

1

INSERT 4

In addition, fuel oil level in the day tank and base tank must be met for each EDG. The portion of the fuel oil transfer system that transfers fuel oil from the fuel oil storage tank to the day tanks must have two OPERABLE pumps for both EDGs to be considered OPERABLE. If either the fuel oil transfer pump or fuel oil service pump is inoperable, one EDG is considered inoperable. For each day tank fuel oil transfer subsystem, only one of the two transfer pumps must be capable of transferring fuel from the day tank to the associated base tank.

BASES

ACTIONS

A Note prohibits the application of LCO 3.0.4.b to an inoperable DG. There is an increased risk associated with entering a MODE or other specified condition in the Applicability with an inoperable DG and the provisions of LCO 3.0.4.b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance.

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.

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 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.

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 power supplying its loads; and

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

BASES

ACTIONS (continued)

required

redundant

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. 12 10 6

4.16 kV essential

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. 1 6 1 12

redundant

the other 4.16 kV essential

required

E

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. 10 1

A.3

Consistent with

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 required 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 DGs are adequate to supply electrical power to the onsite Class 1E Distribution System. 1 10 10 1

E

required

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, a 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 1 7 10 1

E

7 days

10 days

required

nE

BASES

ACTIONS (continued)

required offsite 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.

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 redundant required feature on the other division (Division 1 or 2) is inoperable.

BASES

ACTIONS (continued)

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

The remaining OPERABLE DGs and offsite circuits are adequate to supply electrical power to the onsite 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.

B.3.1 and B.3.2

Required Action B.3.1 provides an allowance to avoid unnecessary testing of OPERABLE DGs. 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.

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] hours is a reasonable time to confirm that the OPERABLE DGs are not affected by the same problem as the inoperable DG.

BASES

ACTIONS (continued)

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.

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 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 hour and 6 day Completion Times means that both Completion Times apply simultaneously, and the more restrictive must be met.

As in Required Action B.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 that the LCO was initially not met, instead of the time that Condition B was entered.

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

BASES

ACTIONS (continued)

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 for two required offsite circuits inoperable, 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. All required offsite circuits are inoperable and (4)

redundant

b. A required feature is inoperable. (6)

required

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. (12) (10) (6)

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition C for a period that should not exceed 24 hours. This level of degradation means that the offsite electrical power system does not have the capability to effect a safe shutdown and to mitigate the effects of an accident; however, the onsite AC sources have not been degraded. This level of degradation generally corresponds to a total loss of the immediately accessible offsite power sources.

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: (E) (1)

BASES

ACTIONS (continued)

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.

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 System ACTIONS would not be entered even if all AC sources to it were inoperable, resulting in de-energization. Therefore, the Required Actions of Condition D are modified by a Note to indicate that 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.

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

ACTIONS (continued)

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.

E.1

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 associated with an immediate controlled shutdown and to minimize the risk associated with this level of degradation. According to Regulatory Guide 1.93 (Ref. 6), with both DGs inoperable, operation may continue for a period that should not exceed 2 hours.

[F.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.

BASES

ACTIONS (continued)

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.] (7)

F

G.1 and G.2 (7)

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 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

H.1 (7)

(7)

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.

SURVEILLANCE REQUIREMENTS

USAR, Chapter 8

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. (1)

E

consistent (1)

(1)

BASES

SURVEILLANCE REQUIREMENTS (continued)

Where the SRs discussed herein specify voltage and frequency tolerances, the following summary is applicable. The minimum steady state output voltage of [3740] V is 90% 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 [4576] V is equal to the maximum operating voltage specified for 4000 V motors. It ensures that for a lightly loaded distribution system, the voltage at the terminals of 4000 V motors is no more than the maximum rated operating voltages. The specified minimum and maximum frequencies of the DG are 58.8 Hz and 61.2 Hz, respectively. These values are equal to ± 2% of the 60 Hz nominal frequency and are derived from the recommendations found in Regulatory Guide 1.9 (Ref. 3).

3975 | based on the degraded voltage setpoint | 4400 | E | 2 | 1 | 2 | 1

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.

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 1 for SR 3.8.1.2 and Note 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.

is | s | 7 | 7

is | has | is | E | 1 | 7

BASES

SURVEILLANCE REQUIREMENTS (continued)

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 2, which is only applicable when such modified start procedures are recommended by the manufacturer.

SR 3.8.1.7 requires that, at a 184 day Frequency, the DG starts from standby conditions and achieves required voltage and frequency within 12 seconds. The 12 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 2 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.

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.

In addition to the SR requirements, the time for the DG to reach steady state operation, unless the modified DG start method is employed, 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 1.9 (Ref. 3). 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.

SR 3.8.1.3

Consistent with Regulatory Guide 1.9 (Ref. 3),

loads 90% to 100% of the continuous rating of the EDG

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.

BASES

SURVEILLANCE REQUIREMENTS (continued)

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.

The 31 day Frequency for this Surveillance is consistent with Regulatory Guide 1.9 (Ref. 3).

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.

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.

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.

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

SR 3.8.1.4

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

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.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.5 ← 4

Microbiological fouling is a major cause of fuel oil degradation. There are numerous bacteria that can grow in fuel oil and cause fouling, but all must have a water environment in order to survive. Removal of water from the fuel oil day [and engine mounted] tanks once every [31] days eliminates the necessary environment for bacterial survival. This is the most effective means of controlling microbiological fouling. In addition, it eliminates the potential for water entrainment in the fuel oil during DG operation. Water may come from any of several sources, including condensation, ground water, rain water, contaminated fuel oil, and breakdown of the fuel oil by bacteria. Frequent checking for and removal of accumulated water minimizes fouling and provides data regarding the watertight integrity of the fuel oil system. The Surveillance Frequencies are established by Regulatory Guide 1.137 (Ref. 10). This SR is for 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.

base

E

7 2 1

SR 3.8.1.6 ← 5

This Surveillance demonstrates that each required fuel oil transfer pump operates and transfers fuel oil from its associated storage tank to its associated day tank. 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.

the

both the

and the fuel oil service pump

This Surveillance also demonstrates that each day tank fuel oil transfer subsystem can transfer fuel oil from its associated day tank to its associated base tank with one pump.

s

s

are

both

required

7 1

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

consistent with the Frequency for testing the EDGs in SR 3.8.1.2.

2

SR 3.8.1.7

See SR 3.8.1.2.

7

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.8

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

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. This restriction from normally performing the Surveillance in MODE 1 or 2 is further amplified to allow the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed Surveillance, a successful Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or enhanced when the Surveillance is performed in MODE 1 or 2. Risk insights or deterministic methods may be used for this assessment. Credit may be taken for unplanned events that satisfy this SR.

SR 3.8.1.9

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 hp). This Surveillance may be accomplished by either:

BASES

SURVEILLANCE REQUIREMENTS (continued)

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

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

Consistent with Regulatory Guide 1.9

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.

nominal

115% of nominal

67.5

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).

based on engineering judgment, taking 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 24 month Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.

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. This restriction from normally performing the Surveillance in MODE 1 or 2 is further amplified to allow the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed Surveillance, a successful Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the

BASES

SURVEILLANCE REQUIREMENTS (continued)

Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or enhanced when the Surveillance is performed in MODE 1 or 2. Risk insights or deterministic methods may be used for this assessment. Credit may be taken for unplanned events that satisfy this SR. Note 2 ensures that the DG is tested under load conditions that are as close to design basis conditions as possible. When synchronized with offsite power, testing should be performed at a power factor of ≤ [0.9]. This power factor is representative of the actual inductive loading a DG would see under design basis accident conditions. Under certain conditions, however, Note 2 allows the surveillance to be conducted at a power factor other than ≤ [0.9]. These conditions occur when grid voltage is high, and the additional field excitation needed to get the power factor to ≤ [0.9] results in voltages on the emergency busses that are too high. Under these conditions, the power factor should be maintained as close as practicable to [0.9] while still maintaining acceptable voltage limits on the emergency busses. In other circumstances, the grid voltage may be such that the DG excitation levels needed to obtain a power factor of [0.9] may not cause unacceptable voltages on the emergency busses, but the excitation levels are in excess of those recommended for the DG. In such cases, the power factor shall be maintained as close as practicable to [0.9] without exceeding the DG excitation limits.

---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.

SURVEILLANCE REQUIREMENTS (continued)

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.

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 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 would challenge continued steady state operation and, as a result, plant safety systems. This restriction from normally performing the Surveillance in MODE 1 or 2 is further amplified to allow the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed Surveillance, a successful Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or enhanced when the Surveillance is performed in MODE 1 or 2. Risk insights or deterministic methods may be used for this assessment. Credit may be taken for unplanned events that satisfy this SR. Note 2 ensures that the DG is tested under load conditions that are as close to design basis conditions as possible. When synchronized with offsite

(7)

BASES

SURVEILLANCE REQUIREMENTS (continued)

power, testing should be performed at a power factor of ≤ [0.9]. This power factor is representative of the actual inductive loading a DG would see under design basis accident conditions. Under certain conditions, however, Note 2 allows the surveillance to be conducted at a power factor other than ≤ [0.9]. These conditions occur when grid voltage is high, and the additional field excitation needed to get the power factor to ≤ [0.9] results in voltages on the emergency busses that are too high. Under these conditions, the power factor should be maintained as close as practicable to [0.9] while still maintaining acceptable voltage limits on the emergency busses. In other circumstances, the grid voltage may be such that the DG excitation levels needed to obtain a power factor of [0.9] may not cause unacceptable voltages on the emergency busses, but the excitation levels are in excess of those recommended for the DG. In such cases, the power factor shall be maintained as close as practicable to [0.9] without exceeding the DG excitation limits. (7)

----------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: (9)

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

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

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

SR 3.8.1.11

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. (7)

SURVEILLANCE REQUIREMENTS (continued)

The DG auto-start time of 12 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 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.

(7)

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 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 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. This restriction from normally performing the Surveillance in MODE 1 or 2 is further amplified to allow portions of the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients

BASES

SURVEILLANCE REQUIREMENTS (continued)

associated with a failed partial Surveillance, a successful partial Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the partial Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or enhanced when portions of the Surveillance are performed in MODE 1 or 2. Risk insights or deterministic methods may be used for this assessment. Credit may be taken for unplanned events that satisfy this SR. (7)

(10) Consistent with Regulatory Guide 1.9 (Ref. 3) paragraph c.2.2.5,

(8) SR 3.8.1.[1/2] (7)

[T]his 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 ≥ [5] minutes. The [5] minute period provides sufficient time to demonstrate stability. SR 3.8.1.12.d and SR 3.8.1.12.e ensure that (7)

remain energized from the offsite circuit

permanently connected loads and emergency loads are energized from (10) (7)

the offsite electrical power system on a LOCA signal without loss of offsite power.

auto-connected through the time delay relays

(-) The requirement to verify the connection and power supply of permanent and autoconnected loads is intended to satisfactorily show the (12)
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.

(E) In lieu of actual demonstration of the connection and loading of these (1)
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.

(24) is based on engineering judgment, taking

The Frequency of [18 months] takes into consideration plant conditions (2) (1)
required to perform the Surveillance and is intended to be consistent with
(24) the expected fuel cycle lengths. Operating experience has shown that
these components usually pass the SR when performed at the [18 month] (2)
Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.

BASES

SURVEILLANCE REQUIREMENTS (continued)

This SR is modified by two Notes. The reason for Note 1 is to minimize wear and tear on the DGs during testing. For the purpose of this testing, the DGs must be started from standby conditions, that is, with the engine coolant and oil being continuously circulated and temperature maintained consistent with manufacturer recommendations. The reason for Note 2 is that during operation with the reactor critical, performance of this Surveillance could potentially cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems. This restriction from normally performing the Surveillance in MODE 1 or 2 is further amplified to allow portions of the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed partial Surveillance, a successful partial Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the partial Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or enhanced when portions of the Surveillance are performed in MODE 1 or 2. Risk insights or deterministic methods may be used for the assessment. 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. 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.

BASES

SURVEILLANCE REQUIREMENTS (continued)

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. This restriction from normally performing the Surveillance in MODE 1 or 2 is further amplified to allow the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed Surveillance, a successful Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or enhanced when the Surveillance is performed in MODE 1 or 2. Risk insights or deterministic methods may be used for this assessment. Credit may be taken for unplanned events that satisfy this SR. (7)

----------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 (9)

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.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.14

This Surveillance demonstrates

Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(3), 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.

(90% to 100% of the EDG continuous rating)

90% to 100% of

105% to

The run duration of 8 hours and the load ranges and duration are consistent with IEEE Standard 387-1995 (Ref. 13).

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.

based on engineering judgment, taking

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.

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 Surveillance has been modified by three 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. This restriction from normally performing the Surveillance in MODE 1 or 2 is further amplified to allow the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed Surveillance, a successful Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the

BASES

SURVEILLANCE REQUIREMENTS (continued)

Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or enhanced when the Surveillance is performed in MODE 1 or 2. Risk insights or deterministic methods may be used for this assessment. Credit may be taken for unplanned events that satisfy this SR. Note 3 ensures that the DG is tested under load conditions that are as close to design basis conditions as possible. When synchronized with offsite power, testing should be performed at a power factor of ≤ [0.9]. This power factor is representative of the actual inductive loading a DG would see under design basis accident conditions. Under certain conditions, however, Note 3 allows the surveillance to be conducted at a power factor other than ≤ [0.9]. These conditions occur when grid voltage is high, and the additional field excitation needed to get the power factor to ≤ [0.9] results in voltages on the emergency busses that are too high. Under these conditions, the power factor should be maintained as close as practicable to [0.9] while still maintaining acceptable voltage limits on the emergency busses. In other circumstances, the grid voltage may be such that the DG excitation levels needed to obtain a power factor of [0.9] may not cause unacceptable voltages on the emergency busses, but the excitation levels are in excess of those recommended for the DG. In such cases, the power factor shall be maintained as close as practicable to [0.9] without exceeding the DG excitation limits.

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).

based on engineering judgment, taking 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 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 approximately

BASES

SURVEILLANCE REQUIREMENTS (continued)

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.

SR 3.8.1.16

Consistent with

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 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.

associated individual

delay relays

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,

based on engineering judgment, taking

, 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 that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. This restriction from normally performing the Surveillance in MODE 1 or 2 is further amplified to allow the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed Surveillance, a successful Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or enhanced when the Surveillance is performed in MODE 1 or 2. Risk insights or deterministic methods may be used for this assessment. Credit may be taken for unplanned events that satisfy this SR.

BASES

SURVEILLANCE REQUIREMENTS (continued)

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.

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. (7)

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. This restriction from normally performing the Surveillance in MODE 1 or 2 is further amplified to allow portions of the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed partial Surveillance, a successful partial Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the partial Surveillance; as well as the operator

BASES

SURVEILLANCE REQUIREMENTS (continued)

procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or enhanced when portions of the Surveillance are performed in MODE 1 or 2. Risk insights or deterministic methods may be used for the assessment. Credit may be taken for unplanned events that satisfy this SR. (7)

SR 3.8.1.18

Under accident conditions [and loss of offsite power] loads are sequentially connected to the bus by the automatic load sequencer. 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.

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. (7)

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. This restriction from normally performing the Surveillance in MODE 1 or 2 is further amplified to allow the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed Surveillance, a successful Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or enhanced when the Surveillance is performed in MODE 1 or 2. Risk insights or deterministic methods may be used for this assessment. Credit may be taken for unplanned events that satisfy this SR.

BASES

SURVEILLANCE REQUIREMENTS (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.

---

(9)

(12) (7)

SR 3.8.1.19

(E) (1)

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.

verifies all actions encountered from

(7)

This Surveillance demonstrates DG operation, as discussed in the Bases for SR 3.8.1.11, 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.

(E) INSERT 5 (1)

(24) is based on engineering judgment, taking

The Frequency of [18 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 months].

(2) (1) (6) (1)

(5)

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.

(E) (1)

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 performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge

7

INSERT 5

, including de-energization of emergency buses, load shedding from emergency buses, and energization of the emergency buses and respective loads from the EDG. It further demonstrates the capability of the EDG to automatically achieve the required voltage and frequency within the specified time.

The EDG auto-start and energization of permanently connected loads time of 10 seconds is derived from requirements of the accident analysis for responding to a design basis large break LOCA (Ref. 12). 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 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.

SURVEILLANCE REQUIREMENTS (continued)

, or 3 safety systems. This restriction from normally performing the Surveillance in MODE 1 or 2 is further amplified to allow portions of the . Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed partial Surveillance, a successful partial Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the partial Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or enhanced , or 3 when portions of the Surveillance are performed in MODE 1 or 2. Risk insights or deterministic methods may be used for the assessment. . Credit may be taken for unplanned events that satisfy this SR. (10) (10)

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). (7)

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.

BASES

REFERENCES

1. ~~10 CFR 50, Appendix A, GDC 17.~~ ← USAR, Section 1.2.6 (1)
2. (U) FSAR, Section [8.2]. (1) (2)
3. Regulatory Guide 1.9.
4. (U) FSAR, Chapter [6]. ← 5 (1) (2)
5. (U) FSAR, Chapter [15]. ← 14 (1) (2)
6. Regulatory Guide 1.93.
7. Generic Letter 84-15.
8. ~~10 CFR 50, Appendix A, GDC 18.~~ ← USAR, Chapter 8 (1)
9. Regulatory Guide 1.108.
10. Regulatory Guide 1.137.
11. ANSI C84.1, 1982.
12. (U) FSAR, Section [6.3]. ← 14.7.2 (1) (2)
13. ~~ASME Boiler and Pressure Vessel Code, Section XI.~~ (1)
14. ~~IEEE Standard 308.~~ (1)

13. IEEE Standard 387-1995. (1)

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.1 BASES, AC SOURCES - OPERATING

1. Changes are made (additions, deletions, and/or changes) to the ISTS Bases, which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The brackets are removed and the proper plant specific information/value is provided.

3. This change has been made since Section 3.5, "ECCS and RCIC System" provides the appropriate limits that are affected by the systems in this LCO.

4. These punctuation corrections have been made consistent with the Writer's Guide for the Improved Standard Technical Specifications, NEI 01-03, Section 5.1.3.

5. This change is made to be consistent with the Applicability of LCO 3.8.2.

6. Editorial change made for enhanced clarity or to be consistent with similar statements in other places in the Bases.

7. Changes are made to the Bases that reflect changes made to the Specification.

8. The reference to ISTS LCO 3.8.9 is changed to LCO 3.8.7 as a result of the renumbering of Specifications.

9. The Reviewer's Note is deleted because it is not intended to be included in the plant specific ITS submittal.

10. Changes are made to be consistent with the Specification.

11. Changes are made to be consistent with the name of the Specification.

12. Typographical/grammatical error corrected.

13. This statement has been deleted since the LCO requirements for the qualified offsite circuits are described in the third paragraph of the LCO Section.

14. Changes are made to be consistent with Regulatory Guide 1.9, Rev. 3 recommendations.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.8.1, AC SOURCES - OPERATING

There are no specific NSHC discussions for this Specification.

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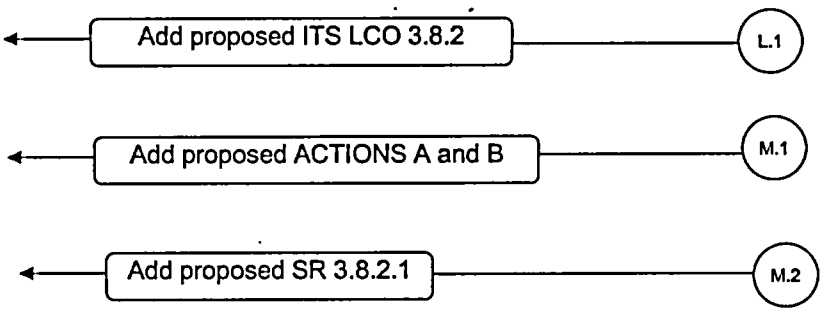
ATTACHMENT 2

ITS 3.8.2, AC Sources - Shutdown

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)


Add proposed ITS LCO 3.8.2
L.1
Add proposed ACTIONS A and B
M.1
Add proposed SR 3.8.2.1
M.2

DISCUSSION OF CHANGES
ITS 3.8.2, AC SOURCES - SHUTDOWN

ADMINISTRATIVE CHANGES

None

MORE RESTRICTIVE CHANGES

M.1 CTS 3.9 does not contain any explicit Action requirements for qualified circuits and emergency diesel generators (EDGs) when these AC Sources are inoperable but are required to be OPERABLE. However, the CTS 1.0.W definition of OPERABLE requires that, for all equipment required to be OPERABLE, "all necessary attendant ... normal and emergency electrical power sources... that are required for the system, subsystem, train, component or device to perform its function(s) are also capable of performing their related support function(s)." Furthermore, the definition states that if the normal or emergency power source is inoperable, the system, subsystem, train, component or device may be considered OPERABLE provided the corresponding normal or emergency power source is OPERABLE and all of its redundant system(s), subsystem(s), train(s), component(s) and device(s) are OPERABLE. ITS 3.8.2 ACTIONS A and B have been added to cover the situation when the qualified offsite circuit or EDG is inoperable, respectively. If the required offsite circuit is inoperable, ITS 3.8.2 ACTION A requires either the declaration that affected required feature(s), with no offsite power available, inoperable, or to suspend certain activities (CORE ALTERATIONS, movement of irradiated fuel assemblies in the secondary containment, and operations with a potential for draining the reactor vessel (OPDRVs)) and to initiate action to restore required offsite power circuit to OPERABLE status. If the required EDG is inoperable, ITS 3.8.2 ACTION B requires the immediate suspension of certain activities (CORE ALTERATIONS, movement of irradiated fuel assemblies in the secondary containment, and OPDRVs) and to initiate action to restore required EDG to OPERABLE status. In addition, a Note that states LCO 3.0.3 in not applicable has been added. This change adds compensatory actions for the inoperable required AC Source.

The purpose of ITS 3.8.2 ACTIONS A and B are to limit the time the unit can perform certain activities (CORE ALTERATIONS, movement of irradiated fuel assemblies in the secondary containment, and OPDRVs) with an inoperable AC Source. CTS 1.0.W would allow continuous operation with an inoperable AC source as long as its corresponding normal or emergency power source is OPERABLE and all redundant required features are OPERABLE. The proposed change is acceptable because ITS 3.8.2 will require immediate action to be taken when the required AC source is inoperable regardless of the status of the other source (qualified offsite circuit or EDG) or status of the redundant equipment. If the required offsite circuit is inoperable, ITS 3.8.2 ACTION A requires either the declaration that affected required feature(s), with no offsite power available, inoperable, or to suspend certain activities (CORE ALTERATIONS, movement of irradiated fuel assemblies in the secondary containment, and OPDRVs) and to initiate action to restore required offsite power circuit to OPERABLE status. If the required EDG is inoperable, ITS 3.8.2 ACTION B requires the immediate suspension of certain activities (CORE ALTERATIONS, movement of irradiated fuel assemblies in the secondary containment, and OPDRVs) and to initiate

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DISCUSSION OF CHANGES
ITS 3.8.2, AC SOURCES - SHUTDOWN

action to restore required EDG to OPERABLE status. These ACTIONS are more restrictive than the current requirement, however it ensures measures are taken to limit the time the certain activities (CORE ALTERATIONS, movement of irradiated fuel assemblies in the secondary containment, and OPDRVs) are allowed to take place with any required AC source inoperable. This change also adds a Note that states LCO 3.0.3 is not applicable. This Note has been added because ITS LCO 3.0.3 has been added to ITS Section 3.0 in accordance with ITS Section 3.0 DOC M.1. This Note is necessary because if moving irradiated fuel assemblies while in MODE 4 or 5, LCO 3.0.3 would not specify any action. If moving irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, in either case, inability to suspend movement of irradiated fuel assemblies would not be a sufficient reason to require a reactor shutdown. Since ITS LCO 3.0.3 is not currently included in the CTS, this portion of the change is considered administrative. However, it is discussed here for convenience. This change is designated as more restrictive because when a required AC source is inoperable, immediate action must be taken instead of allowing an AC source to be inoperable indefinitely as long as the corresponding normal or emergency power source is OPERABLE and all redundant required features are OPERABLE.

M.2 CTS 4.9 does not contain any specific Surveillance Requirements for qualified circuits and EDGs when these AC Sources are required to support equipment required to be OPERABLE in MODES 4 and 5 and during movement of irradiated fuel assemblies in the secondary containment. ITS SR 3.8.2.1 requires the SRs of Specification 3.8.1, except SR 3.8.1.6 to be applicable. The Surveillance includes a Note allowing certain Surveillances to not be performed to preclude requiring the OPERABLE EDG from being paralleled with the offsite power network or otherwise rendered inoperable during the performance of the SR, or to preclude de-energizing a required 4.16 kV essential bus or disconnecting a required offsite circuit during performance of the SR. In addition, Surveillances associated with an ECCS automatic initiation signal are not required when ECCS is not required to be OPERABLE. This changes the CTS by adding explicit Surveillances for the AC Sources required to be OPERABLE in MODES 4 and 5 and during movement of irradiated fuel assemblies in the secondary containment.

The purpose of ITS SR 3.8.2.1 is to ensure the AC Sources are OPERABLE. The proposed Surveillances are consistent with those requirements that apply while the unit is operating, except for the requirement to transfer from the normal offsite circuit to the alternate offsite circuit (SR 3.8.1.6). The Surveillance includes a Note allowing certain Surveillances to not be performed to preclude requiring the OPERABLE EDG from being paralleled with the offsite power network or otherwise rendered inoperable during the performance of the SR, and to preclude de-energizing a required 4.16 kV essential bus or disconnecting a required offsite circuit during performance of the SR. In addition, Surveillances associated with an ECCS automatic initiation signal are not required when ECCS is not required to be OPERABLE. The change is acceptable because the proposed Surveillance Requirements will help ensure the AC Sources are OPERABLE. This change is designated as more restrictive because some operating AC Sources Surveillances have been made applicable during shutdown conditions.

DISCUSSION OF CHANGES
ITS 3.8.2, AC SOURCES - SHUTDOWN

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

None

LESS RESTRICTIVE CHANGES

L.1 *(Category 1 – Relaxation of LCO Requirements)* CTS 3/4.9 does not contain any specific OPERABILITY requirements for the qualified offsite circuits and EDGs during shutdown conditions. However, the CTS 1.0.W definition of OPERABLE requires that, for all equipment required to be OPERABLE, "all necessary attendant ... normal and emergency electrical power sources... that are required for the system, subsystem, train, component or device to perform its function(s) are also capable of performing their related support function(s)." Furthermore, the definition states that if the normal or emergency power source is inoperable, the system, subsystem, train, component or device may be considered OPERABLE provided the corresponding normal or emergency power source is OPERABLE and all of its redundant system(s), subsystem(s), train(s), component(s) and device(s) are OPERABLE. New requirements were added as ITS LCO 3.8.2.a and LCO 3.8.2.b. ITS LCO 3.8.2.a requires one qualified circuit between the offsite transmission network and the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.8, "Distribution Systems - Shutdown," and ITS LCO 3.8.2.b requires one EDG capable of supplying one division of the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.8. ITS 3.8.2 is required in MODES 4 and 5 and during the movement of irradiated fuel assemblies in the secondary containment. This changes the CTS by adding an explicit LCO for an offsite circuit and emergency source during shutdown conditions (i.e., MODES 4 and 5 and during the movement of irradiated fuel assemblies in the secondary containment).

The purpose of ITS LCO 3.8.2 is to ensure that all required equipment has a source of normal power and at least one division has an emergency source of power (i.e., EDGs). This change is acceptable because the LCO requirements continue to ensure that the structures, systems, and components are maintained consistent with the safety analyses. However, unlike the CTS 1.0.W definition, which could require both EDGs to be OPERABLE (depending upon what equipment is required OPERABLE), the ITS only requires one EDG to be OPERABLE as long as it supplies required equipment in one division. This requirement is less restrictive since it eliminates the requirement to declare supported equipment inoperable when its associated EDG is inoperable and redundant equipment is inoperable. In other words, when all required equipment of a given safety function is powered from a single electrical power distribution subsystem (i.e., the same division), the ITS does not necessarily require an EDG to be OPERABLE to supply power to this required equipment. The OPERABLE EDG may be the EDG that is supplying power to the other division, provided equipment powered from the other division is required OPERABLE. As long as a

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DISCUSSION OF CHANGES
ITS 3.8.2, AC SOURCES - SHUTDOWN

source of AC power is available, the equipment is considered OPERABLE. This change is acceptable since, in general, when the unit is shut down the Technical Specification requirements ensure that the unit has the capability to mitigate the consequences of postulated accidents. However, assuming a single failure and concurrent loss of all offsite or loss of all onsite power is not required, as stated in the ISTS 3.8.2 Bases. The rationale for this is based on the fact that many Design Basis Accidents (DBAs) that are analyzed in MODES 1, 2, and 3 have no specific analyses in MODES 4 and 5. Worst case bounding events are deemed not credible in MODES 4 and 5 because the energy contained within the reactor pressure boundary, reactor coolant temperature and pressure, and corresponding stresses result in the probabilities of occurrences significantly reduced or eliminated, and minimal consequences. These deviations from DBA analysis assumptions and design requirements during shutdown conditions are therefore allowed by this LCO. This change is designated as less restrictive because less stringent LCO requirements are being applied in the ITS than were applied in the CTS.

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Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

CTS

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources - Shutdown

DOC L.1

LCO 3.8.2 The following AC electrical power sources shall be OPERABLE:

a. One qualified circuit between the offsite transmission network and the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems - Shutdown"; and (1) (2)

emergency (E) (8)

b. One diesel generator (DG) capable of supplying one division of the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10. (5) (1) (8)

DOC L.1

APPLICABILITY: MODES 4 and 5,
During movement of [recently] irradiated fuel assemblies in the [secondary] containment. (3)

ACTIONS

----------NOTE----------

DOC M.1

LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
DOC M.1 A. One required offsite circuit inoperable.	----------NOTE---------- Enter applicable Condition and Required Actions of LCO 3.8.10, with one required division de-energized as a result of Condition A. (8) --- A.1 Declare affected required feature(s), with no offsite power available, inoperable. OR	Immediately (1)

CTS

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
DOC M.1	A.2.1 Suspend CORE ALTERATIONS. AND	Immediately
	A.2.2 Suspend movement of [recently] irradiated fuel assemblies in the [secondary] containment. AND	Immediately (3)
	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel (OPDRVs). AND	Immediately
	A.2.4 Initiate action to restore required offsite power circuit to OPERABLE status.	Immediately
DOC M.1 B. One required DG inoperable. (E)	B.1 Suspend CORE ALTERATIONS. AND	Immediately (5)
	B.2 Suspend movement of [recently] irradiated fuel assemblies in [secondary] containment. (the) (3) (6) AND	Immediately
	B.3 Initiate action to suspend OPDRVs. AND	Immediately

CTS

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
DOC M.1	B.4 Initiate action to restore required DG to OPERABLE status. [E]	Immediately (5)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
DOC M.2 SR 3.8.2.1 ----------NOTES---------- 1. The following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.8 through SR 3.8.1.11, SR 3.8.1.13 through SR 3.8.1.16, [SR 3.8.1.18], and SR 3.8.1.19. 2. SR 3.8.1.12 and SR 3.8.1.19 are not required to be met when associated ECCS subsystem(s) are not required to be OPERABLE per LCO 3.5.2, "ECCS-Shutdown." ----------	(4)
For AC sources required to be OPERABLE the SRs of Specification 3.8.1, except SR 3.8.1.3, SR 3.8.1.17, and SR 3.8.1.20, are applicable.	In accordance with applicable SRs (4)

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.2, AC SOURCES - SHUTDOWN

1. ISTS 3.8.10 is renumbered as ITS 3.8.8 since ISTS 3.8.7, "Inverters - Operating," and ISTS 3.8.8, "Inverters - Shutdown," are not included in the Monticello ITS.

2. These punctuation corrections have been made consistent with the Writer's Guide for the Improved Standard Technical Specifications, NEI 01-03, Section 5.1.3.

3. The brackets have been removed and the proper plant specific information/value has been provided.

4. The proper SR numbers have been used, based on changes made in ITS 3.8.1.

5. Changes are made (additions, deletions, and/or changes) to the ISTS Bases, which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

6. Typographical/grammatical error corrected.

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Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.2 AC Sources - Shutdown

BASES

BACKGROUND

A description of the AC sources is provided in the Bases for LCO 3.8.1, "AC Sources - Operating."

APPLICABLE SAFETY ANALYSES

The OPERABILITY of the minimum AC sources during MODES 4 and 5 and during movement of [recently] irradiated fuel assemblies in the secondary containment ensures that: (1) (7)

a. The facility can be maintained in the shutdown or refueling condition for extended periods[;] (2)

b. Sufficient instrumentation and control capability is available for monitoring and maintaining the unit status[,] and

c. Adequate AC electrical power is provided to mitigate events postulated during shutdown, such as an inadvertent draindown of the vessel or a fuel handling accident [involving handling recently irradiated fuel. Due to radioactive decay, AC electrical power is only required to mitigate fuel handling accidents involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days)]. (1) (1)

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

During MODES 1, 2, and 3, various deviations from the analysis assumptions and design requirements are allowed within the ACTIONS. This allowance is in recognition that certain testing and

BASES

APPLICABLE SAFETY ANALYSES (continued)

maintenance activities must be conducted, provided an acceptable level of risk is not exceeded. During MODES 4 and 5, performance of a significant number of required testing and maintenance activities is also required. In MODES 4 and 5, the activities are generally planned and administratively controlled. Relaxations from typical MODES 1, 2, and 3 LCO requirements are acceptable during shutdown MODES, based on:

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

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

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

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

In the event of an accident during shutdown, this LCO ensures the capability of supporting systems necessary for avoiding immediate difficulty, assuming either a loss of all offsite power or a loss of all onsite (diesel generator (DG)) power. (emergency) (E) (- Shutdown) (5)

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

LCO

One offsite circuit capable of supplying the onsite Class 1E power distribution subsystem(s) of LCO 3.8.10, "Distribution Systems - Shutdown," (8) (E) ensures that all required loads are powered from offsite power. An OPERABLE DG, associated with a Distribution System (4.16 kV essential) Engineered Safety Feature (ESF) bus required OPERABLE by LCO 3.8.10 (8), ensures that a diverse power source is available for (E) providing electrical power support assuming a loss of the offsite circuit. Together, OPERABILITY of the required offsite circuit and DG ensures the availability of sufficient AC sources to operate the plant in a safe manner and to mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents involving handling recently irradiated fuel) and reactor vessel draindown). Automatic initiation of the (E) required DG during shutdown conditions is specified in LCO 3.3.5.1, "ECCS Instrumentation," and LCO 3.3.8.1, "LOP Instrumentation."

(8) (5) (5) (8) (5) (1) (5)

BASES

LCO (continued)

The qualified offsite circuit(s) must be capable of maintaining rated frequency and voltage while connected to their respective ESF bus(es), and of accepting required loads during an accident. Qualified offsite circuits are those that are described in the FSAR and are part of the licensing basis for the unit. [The offsite circuit consists of incoming breaker and disconnect to the 2C or 2D startup auxiliary transformer (SAT), associated 2C or 2D SAT, and the respective circuit path including feeder breakers to all 4.16 kV ESF buses required by LCO 3.8.10.]

The required DG must be capable of starting, accelerating to rated speed and voltage, connecting to its respective ESF bus on detection of bus undervoltage, and accepting required loads. This sequence must be accomplished within [12] 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 engine hot and DG in standby with engine at ambient conditions. 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.

Proper sequencing of loads, including tripping of nonessential loads, is a required function for DG OPERABILITY. [In addition, proper sequence operation is an integral part of offsite circuit OPERABILITY since its inoperability impacts the ability to start and maintain energized loads required OPERABLE by LCO 3.8.10.]

It is acceptable for divisions to be cross tied during shutdown conditions, permitting a single offsite power circuit to supply all required divisions. No fast transfer capability is required for offsite circuits to be considered OPERABLE.

APPLICABILITY The AC sources are required to be OPERABLE in MODES 4 and 5 and during movement of [recently] irradiated fuel assemblies in the secondary containment to provide assurance that:

a. Systems providing adequate coolant inventory makeup are available for the irradiated fuel assemblies in the core in case of an inadvertent draindown of the reactor vessel;

b. Systems needed to mitigate a fuel handling accident [involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days)] are available.

5

INSERT 1

The primary AC electrical power distribution subsystem for each division consists of a 4.16 kV essential bus (essential bus 15 for Division 1 and essential bus 16 for Division 2) having several offsite sources of power available. One offsite circuit consists of incoming disconnects to the 2R transformer, associated 2R transformer, and the respective circuit path including buses and feeder breakers to all 4.16 kV essential buses required by LCO 3.8.8. The second circuit consists of incoming disconnects to the 1R transformer, associated 1R transformer, and the respective circuit path including buses and feeder breakers to all 4.16 kV essential buses required by LCO 3.8.8. The third qualified offsite circuit consists of incoming disconnects to the 1AR transformer (source from transformer 10), associated 1AR transformer, and the respective circuit path including feeder breakers to all 4.16 kV essential buses required by LCO 3.8.8.

5

INSERT 2

The necessary portions of the Emergency Diesel Generator - Emergency Service Water System capable of providing cooling to the required EDG are also required.

BASES

APPLICABILITY (continued)

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

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

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

ACTIONS

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

A.1

An offsite circuit is considered inoperable if it is not available to one essential required ESF division. If two or more ESF 4.16 kV buses are required per LCO 3.8.10, one division with offsite power available may be capable of supporting sufficient required features to allow continuation of CORE ALTERATIONS, [recently] irradiated fuel movement, and operations with a potential for draining the reactor vessel. By the allowance of the option to declare required features inoperable with no offsite power available, appropriate restrictions can be implemented in accordance with the affected required feature(s) LCOs' ACTIONS.

A.2.1, A.2.2, A.2.3, A.2.4, B.1, B.2, B.3, and B.4

With the offsite circuit not available to all required divisions, the option still exists to declare all required features inoperable. Since this option may involve undesired administrative efforts, the allowance for sufficiently conservative actions is made. With the required DG inoperable, the minimum required diversity of AC power sources is not available. It is, therefore, required to suspend CORE ALTERATIONS, movement of [recently] irradiated fuel assemblies in the [secondary] containment, and activities that could result in inadvertent draining of the reactor vessel.

BASES

ACTIONS (continued)

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

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required AC electrical power sources should be completed as quickly as possible in order to minimize the time during which the plant safety systems may be without sufficient power.

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

SURVEILLANCE REQUIREMENTS

SR 3.8.2.1

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

This SR is modified by two Notes. The reason for Note 1 is to preclude requiring the OPERABLE DG(s) from being paralleled with the offsite power network or otherwise rendered inoperable during the performance of SRs, and to preclude deenergizing a required 4160 V ESF bus or disconnecting a required offsite circuit during performance of SRs. With limited AC sources available, a single event could compromise both the required circuit and the DG. It is the intent that these SRs must still be capable of being met, but actual performance is not required during

BASES

SURVEILLANCE REQUIREMENTS (continued)

periods when the DG and offsite circuit is required to be OPERABLE. Note 2 states that SRs 3.8.1.12 and 3.8.1.19 are not required to be met when its associated ECCS subsystem(s) are not required to be OPERABLE. These SRs demonstrate the DG response to an ECCS signal (either alone or in conjunction with a loss-of-power signal). This is consistent with the ECCS instrumentation requirements that do not require the ECCS signals when the ECCS System is not required to be OPERABLE per LCO 3.5.2, "ECCS-Shutdown."

REFERENCES None.

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.2 BASES, AC SOURCES - SHUTDOWN

1. The brackets are removed and the proper plant specific information/value is provided.

2. These punctuation corrections have been made consistent with the Writer's Guide for the Improved Standard Technical Specifications, NEI 01-03, Section 5.1.3.

3. Changes are made to be consistent with the name of the Specification.

4. Typographical error corrected.

5. Changes are made (additions, deletions, and/or changes) to the ISTS Bases, which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

6. This statement is discussing the cross-tieing of distribution buses and is not applicable to this AC Sources Specification. Therefore it has been deleted. This allowance has been described in the Bases for ITS LCO 3.8.8, "Distribution Systems - Shutdown."

7. Changes made to be consistent with the Specification.

8. Changes made to be consistent with changes made to the Specifications.

9. This statement has been deleted since the LCO requirements for the qualified offsite circuits are described in the remaining sentences of the paragraph.

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.8.2, AC SOURCES - SHUTDOWN

There are no specific NSHC discussions for this Specification.

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ATTACHMENT 3

ITS 3.8.3, Diesel Fuel Oil, Lube Oil, and Starting Air

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

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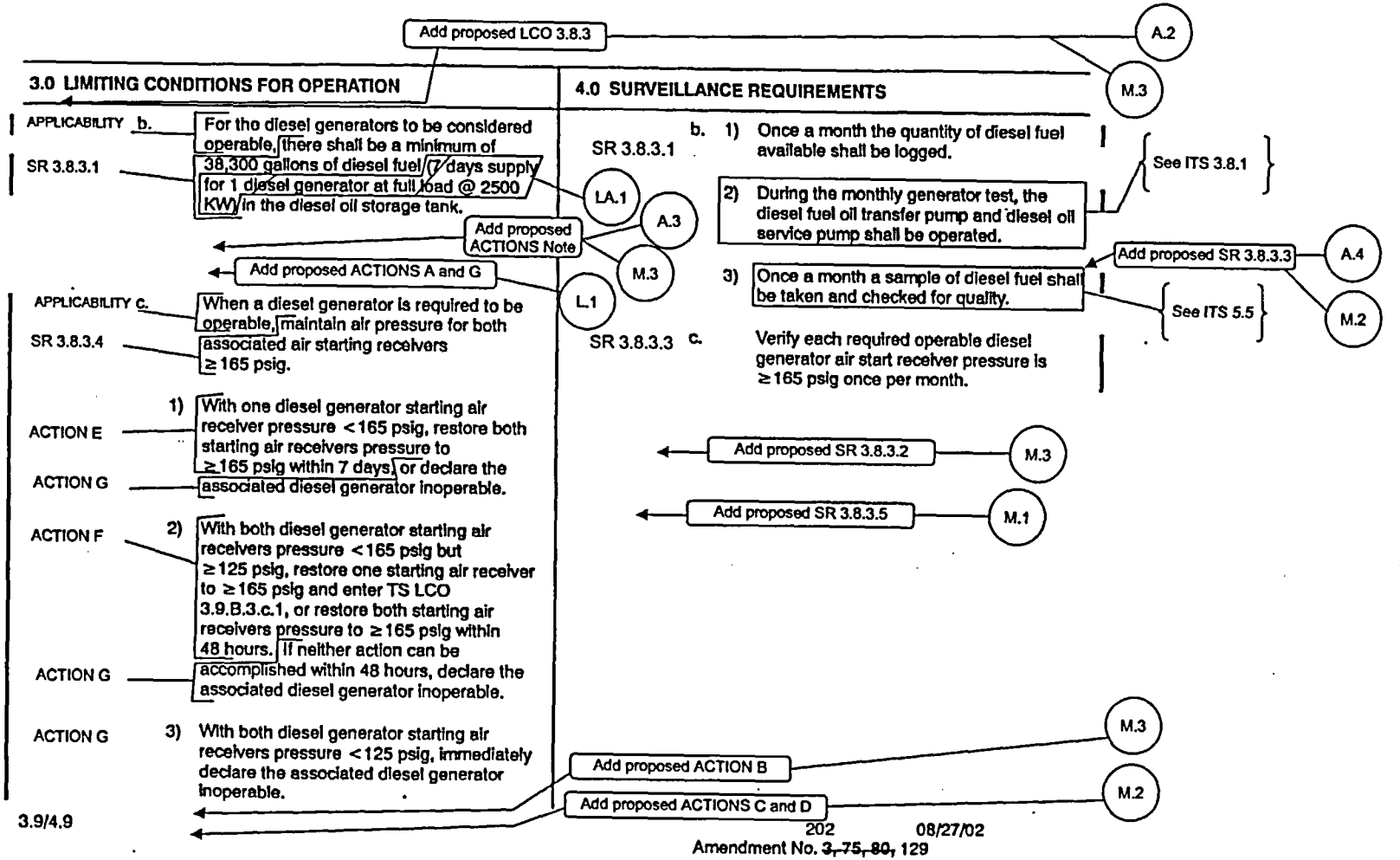
ITS

A.1

ITS



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Amendment No. ~~3, 75, 80,~~ 129

DISCUSSION OF CHANGES
ITS 3.8.3, DIESEL FUEL OIL, LUBE OIL, AND STARTING AIR

ADMINISTRATIVE CHANGES

A.1 In the conversion of the Monticello Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1433, Rev. 3, "Standard Technical Specifications General Electric Plants, BWR/4" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A.2 CTS 3.9.B.3.b specifies requirements for diesel oil stored in the diesel oil storage tank. CTS 3.9.B.3.c specified requirements for the emergency diesel generator (EDG) air starting receivers. CTS 3.9.B.3.b and CTS 3.9.B.3.c state that these requirements are required to consider the associated EDG to be OPERABLE. ITS LCO 3.8.3 states, in part, that the stored diesel fuel oil and starting air subsystems shall be within limits for each required EDG. The Applicability for this requirement is when associated EDG is required to be OPERABLE. This changes the CTS by combining the requirements for diesel fuel oil and starting air into one Specification.

This change is acceptable because the current requirements are translated into ITS form with no technical changes. Diesel fuel oil and starting air is a support system for each EDG. The CTS and ITS maintain this relationship between the EDGs and the diesel fuel oil and starting air systems without any changes in the technical requirements. This change is designated as administrative because it does not result in a technical change to the CTS.

A.3 CTS 3.9.B.3.c.1), CTS 3.9.B.3.c.2), and CTS 3.9.B.c.3) specify the compensatory actions to take when the starting air pressure is not within limits for the associated EDG. ITS ACTIONS E, F, and G specify similar compensatory actions under the same condition. However, ITS 3.8.3 ACTIONS Note has been added and allows separate Condition entry for each EDG. This changes the CTS by explicitly stating that the Actions are to be taken separately for each required EDG.

The purpose of the Note is to provide explicit instructions for proper application of the ACTION for Technical Specification compliance. In conjunction with proposed Specification 1.3, "Completion Times," this Note provides direction consistent with the intent of the existing Action for starting air subsystems not within limit. The CTS intent is to allow the CTS Actions to apply to each EDG starting air receiver, therefore this change is acceptable. This change is designated as administrative because it does not result in technical changes to the CTS.

A.4 CTS 4.9.B.3.b.3) specifies a requirement to sample the diesel fuel and check for quality once a month. ITS SR 3.8.3.3 requires the verification that fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program. This changes CTS by requiring testing in accordance with the Diesel Fuel Oil Testing Program, whose requirements are being moved to ITS 5.5.8.

DISCUSSION OF CHANGES
ITS 3.8.3, DIESEL FUEL OIL, LUBE OIL, AND STARTING AIR

This change is acceptable because Diesel Fuel Oil Testing Program requirements are being moved to the Diesel Fuel Oil Testing Program as part of ITS 5.5.8 and ITS SR 3.8.3.3 references the Diesel Fuel Oil Testing Program for performing these tests. This change is designated as administrative because it does not result in technical changes to the CTS.

MORE RESTRICTIVE CHANGES

M.1 While CTS 4.9.B.3.b.3) specifies a requirement to sample the diesel fuel and check for quality once a month, the CTS does not provide any specific testing requirements to check for and remove accumulated water from the fuel oil storage tank. ITS SR 3.8.3.5 requires this verification very 31 days. This changes the CTS by requiring a new Surveillance Requirement to check for and remove accumulated water from the fuel oil storage tank.

The purpose of ITS SR 3.8.3.5 is to ensure that the environment for microbiological fouling does not exist. This change is acceptable because it provides additional assurance that accumulated water is removed on a regular basis to ensure an environment does not exist for microbiological fouling. This change is designated as more restrictive because it adds a new Surveillance Requirement to the CTS.

M.2 CTS 4.9.B.3.b.3) specifies a requirement to sample the stored diesel fuel oil and check for quality once a month. The CTS does not provide any specific guidance for when the plant specific quality requirements are not met. Furthermore, the CTS does not contain any requirements concerning the acceptance criteria limits for new fuel oil, which is sampled prior to its addition to the fuel oil storage tank, but the results of the sample are not known until after the new fuel oil is added to the fuel oil storage tank. ITS 3.8.3 ACTION C specifies the compensatory actions for stored fuel oil total particulates not within limits, and requires the restoration of the fuel oil total particulates to within limits in 7 days. ITS 3.8.3 ACTION D specifies the compensatory actions for new fuel oil properties not within limits, and requires the restoration of the stored fuel oil properties to within limits within 30 days. If these new ACTIONS are not met, ITS 3.8.3 ACTION G requires both EDGs to be declared inoperable (and the ACTIONS of ITS 3.8.1 taken). In addition, ITS SR 3.8.3.3 requires a verification that the fuel oil properties of new fuel oil are tested in accordance with, and maintained within the limits of the Diesel Fuel Oil Storage Program. This changes the CTS by providing an explicit ACTION for when the fuel oil total particulates limit is not met, a new Surveillance Requirement to verify new fuel oil limits are met, and an ACTION if they are not met.

The purpose of 4.9.B.3.b.3) is to provide the appropriate property limits for stored fuel. ITS 3.8.3 ACTION C is entered as a result of a stored fuel oil total particulates not within limit. Normally, trending of particulate levels allows sufficient time to correct high particulate levels prior to reaching the limit of acceptability. Poor sample procedures (bottom sampling), contaminated sampling equipment, and errors in laboratory analysis can produce failures that do not follow a trend. Since the presence of particulates does not mean failure of the fuel oil to burn properly in the diesel engine, particulate concentration is

unlikely to change significantly between Surveillance Frequency intervals, and proper engine performance has been recently demonstrated (within 31 days), it is prudent to allow a brief period prior to declaring the associated EDG inoperable. The 7 day Completion Time allows for further evaluation, re-sampling and re-analysis of the EDG fuel oil. ITS SR 3.8.3.3 requires a verification that the fuel oil properties of new fuel oil are tested in accordance with, and maintained within the limits of the Diesel Fuel Oil Storage Program. This ensures that new fuel oil, once added to the fuel oil storage tank, does not result in out of specification fuel oil limits. ITS 3.8.3 ACTION D is entered as a result of failure to meet the new fuel oil property limits. With the new fuel oil properties not within the required limits, a period of 30 days is allowed for restoring the stored fuel oil properties. This period provides sufficient time to test the stored fuel oil to determine that the added new fuel oil did not cause the stored fuel oil to be outside of the required limits, or to restore the stored fuel oil properties to within limits. This restoration may involve feed and bleed procedures, filtering, or combinations of these procedures. Even if a EDG start and load was required during this time interval and the stored fuel oil properties were outside limits, there is a high likelihood that the EDG would still be capable of performing its intended function. This change is designated as more restrictive because explicit Required Actions and Completion Times for stored fuel oil total particulates and new fuel oil properties not within limits and a new Surveillance Requirement to verify new fuel oil properties are within limits have been added.

M.3 The CTS does not provide any EDG lube oil requirements. ITS LCO 3.8.3, in part, requires the lube oil inventory to be within limits for each required EDG. The Applicability for this requirement is when the associated EDG is required to be OPERABLE. ITS SR 3.8.3.2 requires a verification that the lube oil inventory is $\geq$ 165 gallons for each EDG. ITS 3.8.3 ACTION B provides an ACTION if the limit of ITS SR 3.8.3.2 is not met. This changes the CTS by adding a lube oil inventory requirement, and an appropriate ACTIONS and Surveillance Requirement.

The purpose of the lube oil inventory requirement in ITS LCO 3.8.3 and SR 3.8.3.2 is to ensure a 7 day lube oil inventory for each EDG is on site. The proposed ITS SR 3.8.3.2 value, 165 gallons, will ensure the 7 day inventory requirement is met. In addition, ITS 3.8.3 ACTION B will allow the 7 day limit to not be met for each EDG for up to 48 hours, provided sufficient lube oil inventory is available for 6 days. If the lube oil inventory is not restored within 48 hours, or if the 6 day limit is not met, then the associated EDG is required to be declared inoperable immediately. Furthermore, as stated in the ITS 3.8.3 ACTIONS Note, ITS 3.8.3 ACTION B is allowed to be separately entered for each EDG. Therefore, this change is acceptable. This change is considered more restrictive because it adds a new requirement to maintain a 7 day lube oil inventory for each EDG.

RELOCATED SPECIFICATIONS

None

DISCUSSION OF CHANGES
ITS 3.8.3, DIESEL FUEL OIL, LUBE OIL, AND STARTING AIR

REMOVED DETAIL CHANGES

LA.1 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS 3.9.B.3.b states that the minimum specified diesel fuel volume in the diesel oil storage tank is adequate to supply 7 days of operation for one EDG at full load (2500 kW). ITS 3.8.3 does not include this statement. This changes the CTS by relocating the details of the system design ITS Bases.

The removal of this detail, which is related to system design, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. ITS LCO 3.8.3 retains the requirement for stored diesel fuel oil to be within limit and ITS SR 3.8.3.1 retains the requirement that the fuel oil storage tank contains $\geq$ 38,300 gallons of fuel. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

L.1 *(Category 4 – Relaxation of Required Action)* The CTS 3.9.B.3.b does not provide explicit compensatory actions if the volume of fuel oil in the storage tank is less than the specified limit. Thus, if the minimum indicated volume is not met, both EDGs must be declared inoperable and CTS 3.9.B.3.a.2), which requires a plant shutdown, must be entered. ITS 3.8.3 ACTION A allows the unit to not declare the EDGs inoperable provided the volume of stored fuel oil is greater than that needed to operate a EDG for 6 days at full load (i.e., > 33,600 gallons). In this situation, ITS 3.8.3 Required Action A.1 allows 48 hours to restore the fuel oil volume to within limits. If this Required Action and associated Completion Time is not met or if the EDG fuel oil storage tank volume is $\leq$ 33,600 gallons, both EDGs must be declared inoperable immediately and appropriate ACTIONS taken per ITS 3.8.1 (ITS 3.8.3 ACTION G). Any changes to the Actions taken after the EDGs are declared inoperable are discussed in the Discussion of Changes in ITS 3.8.1.

The purpose of ITS 3.8.3 ACTION A is to allow time to restore the stored diesel fuel oil volume to within the specified limit. This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. The Required Actions are consistent with safe operation under the specified Condition, considering the OPERABLE status of the redundant systems or features. This includes the capacity and capability of remaining systems or features, a reasonable time for repairs or replacement, and the low probability of a DBA occurring during the repair period. The addition of ITS 3.8.3 ACTION A will allow the EDGs not to be declared inoperable with the stored diesel fuel oil volume not within the specified Surveillance limit as long as one EDG has

DISCUSSION OF CHANGES
ITS 3.8.3, DIESEL FUEL OIL, LUBE OIL, AND STARTING AIR

enough fuel oil for 6 days operation at full load. In this Condition, the 7 day fuel oil supply is not available. However, the Condition is restricted to fuel oil volume reductions that maintain at least a 6 day supply. These circumstances may be caused by events such as full load operation required after an inadvertent start while at minimum required level, or feed and bleed operations, which may be necessitated by increasing particulate levels or any number of other oil quality degradations. This restriction allows sufficient time for obtaining the requisite replacement volume and performing the analyses required prior to addition of diesel fuel oil to the tank. A period of 48 hours is considered sufficient to complete restoration of the required volume prior to declaring both EDGs inoperable. This period is acceptable based on the remaining capacity (> 6 days), the fact that procedures will be initiated to obtain replenishment, and the low probability of an event during this brief period. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

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Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

CTS 3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

3.9.B.3.b, 3.9.B.3.c LCO 3.8.3 The stored diesel fuel oil, lube oil, and starting air subsystem shall be within limits for each required diesel generator (DG). [S] [4] [emergency] [E] [E] [1]

3.9.B.3.b, 3.9.B.3.c APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

[E] NOTE [1]

DOC A.3 Separate Condition entry is allowed for each DG.

	CONDITION		REQUIRED ACTION	COMPLETION TIME
DOC L.1	A. One or more DGs with fuel oil level < [33,000] gal and > [28,285] gal in storage tank. [38,300] [33,600]	A.1	Restore fuel oil level to within limits.	48 hours [4] [2]
DOC M.3	B. [E] One or more DGs with lube oil inventory < [500] gal and > [425] gal. [165] [142]	B.1	Restore lube oil inventory to within limits.	48 hours [1] [2]
DOC M.2	C. One or more DGs with stored fuel oil total particulates not within limit.	C.1	Restore fuel oil total particulates to within limit.	7 days [4]
DOC M.2	D. One or more DGs with new fuel oil properties not within limits.	D.1	Restore stored fuel oil properties to within limits.	30 days [4]

CTS

ACTIONS (continued)

INSERT 1

CONDITION	REQUIRED ACTION	COMPLETION TIME
3.9.B.3.c.2) B. One or more DGs with starting air receiver pressure < [225] psig and ≥ [125] psig in both starting air subsystems.	B.1 Restore starting air receiver pressure to ≥ [225] psig.	48 hours in one starting air subsystem
3.9.B.3.c.1), 3.9.B.3.c.2), DOC M.2 F. Required Action and associated Completion Time not met. OR	F.1 Declare associated DG inoperable.	Immediately
3.9.B.3.c.3), DOC L.1 One or more DGs with diesel fuel oil, lube oil, or starting air subsystem(s) not within limits for reasons other than Condition A, B, C, D, or E, or F.		

SURVEILLANCE REQUIREMENTS

		SURVEILLANCE	FREQUENCY
3.9.B.3.b, 4.9.B.3.b.1)	SR 3.8.3.1	Verify [each] the fuel oil storage tank contains ≥ [33,000] 38,300 gal of fuel.	31 days
DOC M.3	SR 3.8.3.2	Verify , for each EDG, lube oil inventory is ≥ [500] 165 gal.	31 days
4.9.B.3.b.3), DOC M.2	SR 3.8.3.3	Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
3.9.B.3.c, 4.9.B.3.c	SR 3.8.3.4	Verify each DG air start receiver pressure is ≥ [225] 165 psig.	31 days

3

INSERT 1

3.9.B.3.c.1)	E. One or more EDGs with starting air receiver pressure in one starting air subsystem < 165 psig.	E.1 Restore starting air receiver pressure to ≥ 165 psig.	7 days

CTS

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE		FREQUENCY	
DOC M.1	SR 3.8.3.5	Check for and remove accumulated water from the each fuel oil storage tank.	[31] days	(4) (2)

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.3, DIESEL FUEL OIL, LUBE OIL, AND STARTING AIR

1. Changes are made (additions, deletions, and/or changes) to the ISTS, which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The brackets are removed and the proper plant specific information/value is provided.

3. ITS 3.8.3 ACTION E has been added and ISTS 3.8.3 ACTION E (ITS 3.8.3 ACTION F) has been modified in accordance with the current licensing basis. These requirements were approved by the NRC in License Amendment 129, dated August 27, 2002. Subsequent ACTIONS have also been renumbered.

4. Each EDG at Monticello has two starting air subsystems. In addition, Monticello has a common fuel oil storage tank for both EDGs. Therefore, ISTS LCO 3.8.3, ISTS 3.8.3 ACTIONS A, C, D, and F, ISTS SR 3.8.3.1, and ISTS SR 3.8.3.5 have been modified to account for these design differences.

5. Changes have been made to be consistent with the Specification and ACTIONS.

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Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.8 ELECTRICAL POWER SYSTEMS

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

BASES

BACKGROUND Each diesel generator (DG) is provided with a storage tank having a fuel oil capacity sufficient to operate that DG for a period of 7 days while the DG is supplying maximum post loss of coolant accident (LOCA) load demand discussed in FSAR, Section [9.5.2] (Ref. 1). The maximum load demand is calculated using the assumption that at least two DGs are available. This onsite fuel oil capacity is sufficient to operate the DGs for longer than the time to replenish the onsite supply from outside sources.

Fuel oil is transferred from storage tank to day tank by either of two transfer pumps associated with each storage tank. Redundancy of pumps and piping precludes the failure of one pump, or the rupture of any pipe, valve, or tank to result in the loss of more than one DG. All outside tanks, pumps, and piping are located underground.

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

The DG lubrication system is designed to provide sufficient lubrication to permit proper operation of its associated DG under all loading conditions. The system is required to circulate the lube oil to the diesel engine working surfaces and to remove excess heat generated by friction during operation. Each engine oil sump contains an inventory capable of supporting a minimum of [7] days of operation. [The onsite storage in addition to the engine oil sump is sufficient to ensure 7 days' continuous operation.] This supply is sufficient to allow the operator to replenish lube oil from outside sources.

Each DG has an air start system with adequate capacity for five successive start attempts on the DG without recharging the air start receiver[s]. INSERT 1

APPLICABLE SAFETY ANALYSES The initial conditions of Design Basis Accident (DBA) and transient analyses in FSAR, Chapter [6] (Ref. 4), and Chapter [15] (Ref. 5), assume Engineered Safety Feature (ESF) systems are OPERABLE. The DGs are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ESF

2 **INSERT 1**

Each EDG air start subsystem includes three starting air receivers. The automatic start logic for each EDG will provide a cranking sequence to ensure two start attempts from each subsystem staggered such that there are a total of three start attempts on the EDG. The first attempt will use the selected air start subsystem, the second attempt will use both air start subsystems, while the third attempt will use the air start subsystem that is not selected or not used on the first attempt. The third start attempt may not occur within enough time for the engine to be ready to accept load within 10 seconds of a demand requirement.

BASES

APPLICABLE SAFETY ANALYSES (continued)

systems so that fuel, Reactor Coolant System, and containment design limits are not exceeded. These limits are discussed in more detail in the Bases for Section 3.2, Power Distribution Limits; Section 3.4, Reactor Coolant System (RCS); and Section 3.6, Containment Systems. (4)

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

Since diesel fuel oil, lube oil, and starting air subsystem support the operation of the standby AC power sources, they satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii). (5)

LCO

Stored diesel fuel oil is required to have sufficient supply for 7 days of full load operation. It is also required to meet specific standards for quality. (1)

for one EDG

Additionally, sufficient lube oil supply must be available to ensure the capability to operate at full load for 7 days. This requirement, in conjunction with an ability to obtain replacement supplies within 7 days, supports the availability of DGs required to shut down the reactor and to maintain it in a safe condition for an anticipated operational occurrence (AOO) or a postulated DBA with loss of offsite power. DG day tank fuel oil requirements, as well as transfer capability from the storage tank to the day tank, are addressed in LCO 3.8.1, "AC Sources - Operating," and LCO 3.8.2, "AC Sources - Shutdown." (2)

both EDGs

and from the day tank to the base tank

The starting air system is required to have a minimum capacity for five successive DG start attempts without recharging the air start receivers. (2)

APPLICABILITY

The AC sources (LCO 3.8.1 and LCO 3.8.2) are required to ensure the availability of the required power to shut down the reactor and maintain it in a safe shutdown condition after an AOO or a postulated DBA. Because stored diesel fuel oil, lube oil, and starting air subsystem support LCO 3.8.1 and LCO 3.8.2, stored diesel fuel oil, lube oil, and starting air are required to be within limits when the associated DG is required to be OPERABLE. (2)

ACTIONS

The ACTIONS Table is modified by a Note indicating that separate Condition entry is allowed for each DG. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable DG subsystem. Complying with the Required Actions for one inoperable DG subsystem may allow for continued operation, and subsequent inoperable DG subsystem(s) governed by separate Condition entry and application of associated Required Actions. (2)

BASES

ACTIONS (continued)

A.1

In this Condition, the 7 day fuel oil supply for a DG is not available. an EDG (2)
However, the Condition is restricted to fuel oil level reductions that maintain at least a 6 day supply. These circumstances may be caused by events such as either:

a. Full load operation required for an inadvertent start while at minimum required level; or (6)

b. Feed and bleed operations that may be necessitated by increasing particulate levels or any number of other oil quality degradations.

This restriction allows sufficient time for obtaining the requisite replacement volume and performing the analyses required prior to addition of the fuel oil to the tank. A period of 48 hours is considered sufficient to complete restoration of the required level prior to declaring the DG inoperable. This period is acceptable based on the remaining capacity (> 6 days), the fact that procedures will be initiated to obtain replenishment, and the low probability of an event during this brief period. (2)

s / both / E

B.1

With lube oil inventory < 500 gal, sufficient lube oil to support 7 days of continuous DG operation at full load conditions may not be available. However, the Condition is restricted to lube oil volume reductions that maintain at least a 6 day supply. This restriction allows sufficient time for obtaining the requisite replacement volume. A period of 48 hours is considered sufficient to complete restoration of the required volume prior to declaring the DG inoperable. This period is acceptable based on the remaining capacity (> 6 days), the low rate of usage, the fact that procedures will be initiated to obtain replenishment, and the low probability of an event during this brief period. (1)

165

C.1

This Condition is entered as a result of a failure to meet the acceptance criterion for particulates. Normally, trending of particulate levels allows sufficient time to correct high particulate levels prior to reaching the limit of acceptability. Poor sample procedures (bottom sampling),

BASES

ACTIONS (continued)

contaminated sampling equipment, and errors in laboratory analysis can produce failures that do not follow a trend. Since the presence of particulates does not mean failure of the fuel oil to burn properly in the diesel engine, since particulate concentration is unlikely to change significantly between Surveillance Frequency intervals, and since proper engine performance has been recently demonstrated (within 31 days), it is prudent to allow a brief period prior to declaring the associated DG inoperable. The 7 day Completion Time allows for further evaluation, resampling, and re-analysis of the DG fuel oil.

D.1

With the new fuel oil properties defined in the Bases for SR 3.8.3.3 not within the required limits, a period of 30 days is allowed for restoring the stored fuel oil properties. This period provides sufficient time to test the stored fuel oil to determine that the new fuel oil, when mixed with previously stored fuel oil, remains acceptable, or to restore the stored fuel oil properties. This restoration may involve feed and bleed procedures, filtering, or combination of these procedures. Even if a DG start and load was required during this time interval and the fuel oil properties were outside limits, there is high likelihood that the DG would still be capable of performing its intended function.

INSERT 2

F.1

in at least one starting air subsystem,

165

in both starting air subsystems,

three

With starting air receiver pressure < [225] psig, sufficient capacity for five successive DG start attempts does not exist. However, as long as the receiver pressure is > [125] psig, there is adequate capacity for at least one start attempt, and the DG can be considered OPERABLE while the air receiver pressure is restored to the required limit. A period of 48 hours is considered sufficient to complete restoration to the required pressure prior to declaring the DG inoperable. This period is acceptable based on the remaining air start capacity, the fact that most DG starts are accomplished on the first attempt, and the low probability of an event during this brief period.

1

INSERT 2

E.1

With starting air receiver pressure < 165 psig in one air starting subsystem, sufficient capacity for three successive EDG start attempts does not exist. However, as long as the other starting air receiver subsystem pressure is ≥ 165 psig, there is adequate capacity for two start attempts, and the EDG can be considered OPERABLE while the air receiver pressure is restored to the required limit. A period of 7 days is considered sufficient to complete restoration to the required pressure prior to declaring the EDG inoperable. This period is acceptable based on the remaining air start capacity in the other starting air subsystem, the fact that most EDG starts are accomplished on the first attempt, and the low probability of an event during the 7day period.

BASES

ACTIONS (continued)

G → F.1

With a Required Action and associated Completion Time not met, or the stored diesel fuel oil, lube oil, or starting air subsystem not within limits for reasons other than addressed by Conditions A through E, the associated DG may be incapable of performing its intended function and must be immediately declared inoperable.

SURVEILLANCE REQUIREMENTS

SR 3.8.3.1

This SR provides verification that there is an adequate inventory of fuel oil in the storage tanks to support one DG's operation for 7 days at full load. The 7 day period is sufficient time to place the unit in a safe shutdown condition and to bring in replenishment fuel from an offsite location.

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

SR 3.8.3.2

This Surveillance ensures that sufficient lubricating oil inventory is available to support at least 7 days of full load operation for each DG. The 500 gal requirement is based on the DG manufacturer's consumption values for the run time of the DG. Implicit in this SR is the requirement to verify the capability to transfer the lube oil from its storage location to the DG, when the DG lube oil sump does not hold adequate inventory for 7 days of full load operation without the level reaching the manufacturer's recommended minimum level.

A 31 day Frequency is adequate to ensure that a sufficient lube oil supply is onsite, since DG starts and run time are closely monitored by the plant staff.

SR 3.8.3.3

of new fuel oil prior to addition to the storage tank

The tests listed below are a means of determining whether new fuel oil is of the appropriate grade and has not been contaminated with substances that would have an immediate detrimental impact on diesel engine combustion. If results from these tests are within acceptable limits, the fuel oil may be added to the storage tanks without concern for

BASES

SURVEILLANCE REQUIREMENTS (continued)

contaminating the entire volume of fuel oil in the storage tanks. These tests are to be conducted prior to adding the new fuel to the storage tank(s), but in no case is the time between receipt of new fuel and conducting the tests to exceed 31 days. The tests, limits, and applicable ASTM Standards are as follows:

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

b. Verify in accordance with the tests specified in ASTM D975-[ ] (Ref. 6) that the sample has an absolute specific gravity at 60/60°F of ≥ 0.83 and ≤ 0.89 or an API gravity at 60°F of ≥ 27 and ≤ 39 when tested in accordance with ASTM D1298-[ ] (Ref. 6), a kinematic viscosity at 40°C of ≥ 1.9 centistokes and ≤ 4.1 centistokes, and a flash point of ≥ 125°F; and

c. Verify that the new fuel oil has a clear and bright appearance with proper color when tested in accordance with ASTM D4176-[ ] or a water and sediment content within limits when tested in accordance with [ASTM D2709-[ ]] (Ref. 6).

Failure to meet any of the above limits is cause for rejecting the new fuel oil, but does not represent a failure to meet the LCO concern since the fuel oil is not added to the storage tanks.

Within [31] days following the initial new fuel oil sample, the fuel oil is analyzed to establish that the other properties specified in Table 1 of ASTM D975-[/] (Ref. 6) are met for new fuel oil when tested in accordance with ASTM D975-[/] (Ref. 6), except that the analysis for sulfur may be performed in accordance with ASTM D1552-[/], ASTM D2622-[ ], or ASTM D4294-[ ] (Ref. 6). The [31] day period is acceptable because the fuel oil properties of interest, even if they were not within stated limits, would not have an immediate effect on DG operation. This Surveillance ensures the availability of high quality fuel oil for the DGs.

Fuel oil degradation during long term storage shows up as an increase in particulate, mostly due to oxidation. The presence of particulate does not mean that the fuel oil will not burn properly in a diesel engine. The particulate can cause fouling of filters and fuel oil injection equipment, however, which can cause engine failure.

BASES

SURVEILLANCE REQUIREMENTS (continued)

6217-98

Particulate concentrations should be determined in accordance with 5 ASTM D5452-[ ] (Ref. 6). This method involves a gravimetric determination of total particulate concentration in the fuel oil and has a limit of 10 mg/l. It is acceptable to obtain a field sample for subsequent laboratory testing in lieu of field testing. [For those designs in which the total volume of stored fuel oil is contained in two or more interconnected tanks, each tank must be considered and tested separately.] 3 2 10

The Frequency of this test takes into consideration fuel oil degradation trends that indicate that particulate concentration is unlikely to change significantly between Frequency intervals.

SR 3.8.3.4

This Surveillance ensures that, without E the aid of the refill compressor, sufficient air start capacity for each DG is available. The system design requirements provide for a minimum of [five] engine start cycles without recharging. [A start cycle is defined by the DG vendor, but usually is measured in terms of time (seconds of cranking) or engine cranking speed.] The pressure specified in this SR is intended to reflect the lowest value at which the [five] starts can be accomplished. three 2 3 up to three 3 3

The [31] day Frequency takes into account the capacity, capability, redundancy, and diversity of the AC sources and other indications available in the control room, including alarms, to alert the operator to below normal air start pressure. 3

SR 3.8.3.5

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 storage 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 E come from any of several sources, including condensation, ground water, rain water, contaminated fuel oil, and from breakdown of the fuel oil by 3 2

BASES

SURVEILLANCE REQUIREMENTS (continued)

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. 2). This SR is for preventive maintenance. The presence of water does not necessarily represent failure of this SR, provided the accumulated water is removed during performance of the Surveillance.

REFERENCES

1. FSAR, Section [9.5.2]. (U; 8.4.1.1; 2; 3)
2. Regulatory Guide 1.137.
3. ANSI N195, 1976.
4. FSAR, Chapter [6]. (U; 2)
5. FSAR, Chapter [15]. (4; 14; 2; 3)
6. ASTM Standards: D4057-[/]; D975-[ ]; D1298-[ ]; D4176-[ ]; [D2709-[ ]]; D1552-[/]; D2622-[ ]; D4294-[ ]; D5452-[ ]. (5; 88; D287-92; D445-96; D93-97; 2; 3)

D1796-90; 95; D975-91; 6217-98

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.3 BASES, DIESEL FUEL OIL, LUBE OIL, AND STARTING AIR

1. Changes are made to the Bases that reflect changes made to the Specifications.

2. Changes are made (additions, deletions, and/or changes) to the ISTS Bases, which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

3. The brackets are removed and the proper plant specific information/value is provided.

4. This change has been made since Section 3.5, "ECCS and RCIC System" provides the appropriate limits that are affected by the systems in this LCO.

5. Changes are made to be consistent with the name of the Specification.

6. These punctuation corrections have been made consistent with the Writer's Guide for the Improved Standard Technical Specifications, NEI 01-03, Section 5.1.3.

7. Editorial change made for enhanced clarity or to be consistent with similar statements in other places in the Bases.

8. Changes are made to be consistent with the Specification.

9. Typographical error corrected.

10. The bracketed requirement/information has been deleted because it is not applicable to Monticello.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.8.3, DIESEL FUEL OIL, LUBE OIL, AND STARTING AIR

There are no specific NSHC discussions for this Specification.

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ATTACHMENT 4

ITS 3.8.4, DC Sources - Operating

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

A.1

ITS

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
3.9 AUXILIARY ELECTRICAL SYSTEMS Applicability: Applies to the auxiliary electrical power system. Objective: To assure an adequate supply of electrical power during plant operation.	4.9 AUXILIARY ELECTRICAL SYSTEMS Applicability: Applies to the periodic testing requirements of the auxiliary electrical system. Objective: Verify the operability of the auxiliary electrical system.
3.8.4 Specification:	Specification: M.1
Applicability A. The reactor shall not be made critical unless all the following requirements are satisfied:	A. Surveillance testing shall be performed as follows:
1. At least two (2) NSP transmission lines, associated switchgear, and at least two offsite power sources are fully operational and energized to carry power to the plant 4160V AC buses as follows: a. 2R and 1R transformers, or b. 1R and 1AR transformers, or c. 2R and 1AR transformers (source from 10 transformer)	1. Substation Switchyard Battery a. Every week the specific gravity and voltage of the pilot cell and temperature of adjacent cells and overall battery voltage shall be measured. { See ITS 3.8.1 } b. Every three months the measurements shall be made of voltage of each cell to nearest 0.01 volt, specific gravity of each cell, and temperature of every fifth cell.

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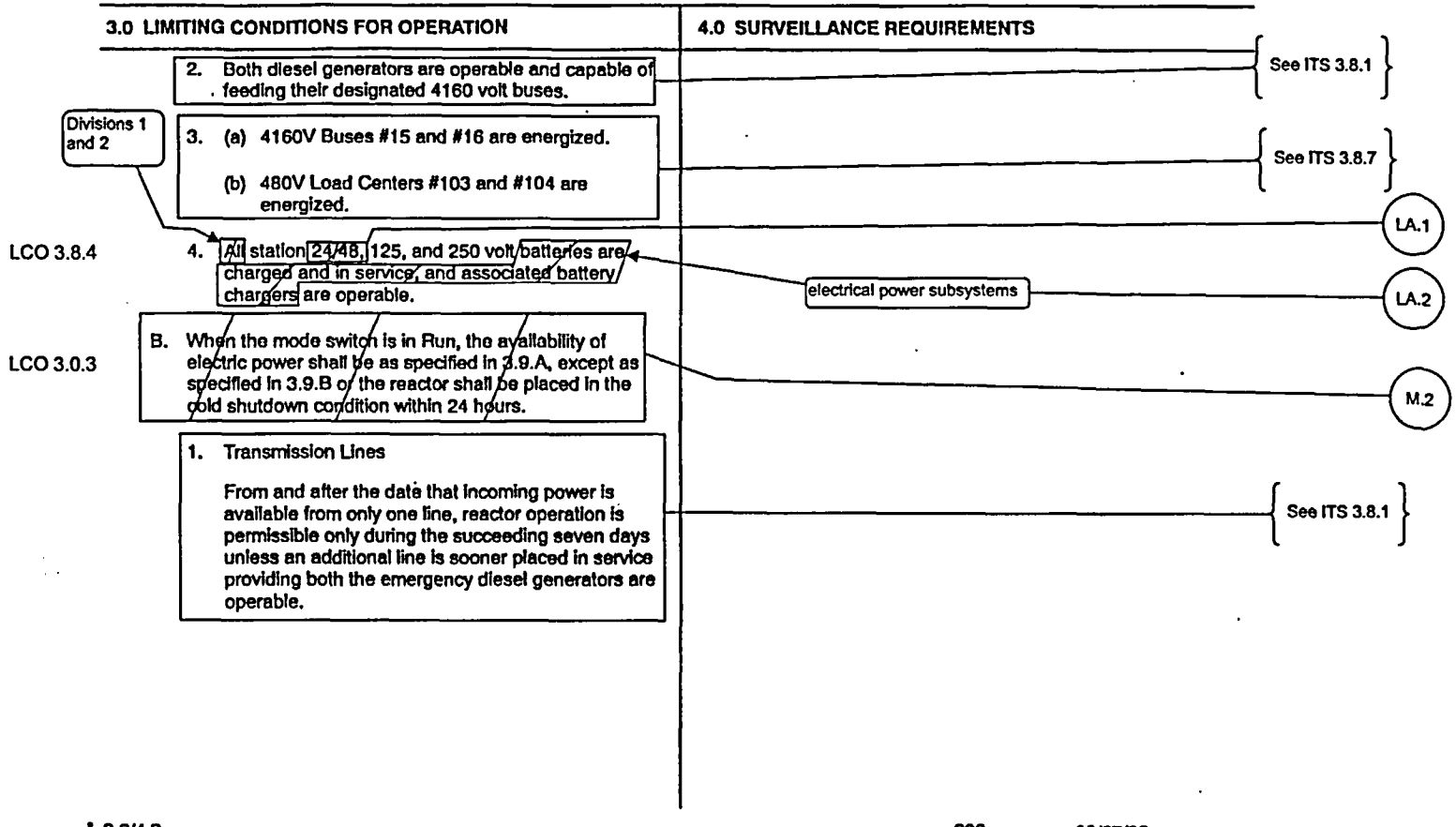
A.1

ITS



3.9/4.9

200 08/27/02
Amendment No. ~~51, 104,~~ 129

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ITS

A.1

ITS

L.1

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
4. Station Battery System	4. Station Battery System
Add proposed ACTION A and B	
If one of the two 125 V battery systems or one of the two 250 V battery systems is made or found to be inoperable for any reason, an orderly shutdown of the reactor shall be initiated and the reactor water temperature shall be reduced to less than 212°F within 24 hours unless such battery systems are sooner made operable	SR 3.8.4.1 a. Every week the specific gravity and voltage of the pilot cell and temperature of the adjacent cells and overall battery voltage shall be measured.
ACTION C	See ITS 3.8.6
	b. Every three months the measurements shall be made of voltage of each cell to nearest 0.01 volt, specific gravity of each cell, and temperature of every fifth cell.
	Add proposed SR 3.8.4.2 — M.3
	Add proposed SR 3.8.4.3 — M.4
In MODE 3 within 12 hours and in MODE 4	c. Every refueling outage, the station batteries shall be subjected to a rated load discharge test. Determine specific gravity and voltage of each cell after the discharge.
36 — M.2	See ITS 3.8.6
5. 24V Battery Systems From and after the date that one of the two 24V battery systems is made or found to be inoperable for any reason, refer to Specification 3.2 for appropriate action.	5. 24V Battery Systems a. Every week the specific gravity and voltage of the pilot cell and temperature of adjacent cells and overall battery voltage shall be measured. b. Every three months the measurements shall be made of voltage of each cell to nearest 0.01 volt, specific gravity of each cell, and temperature of every fifth cell. — LA.1

DISCUSSION OF CHANGES
ITS 3.8.4, DC SOURCES - OPERATING

ADMINISTRATIVE CHANGES

A.1 In the conversion of the Monticello Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1433, Rev. 3, "Standard Technical Specifications General Electric Plants, BWR/4" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

MORE RESTRICTIVE CHANGES

M.1 CTS 3.9.A requires the station batteries specified in CTS 3.9.A.4 to be OPERABLE when the reactor is critical. ITS LCO 3.8.4 requires the station batteries to be OPERABLE in MODES 1, 2, and 3. This changes the CTS by requiring the batteries to be OPERABLE in MODE 3 and in MODE 2 when the reactor is not critical.

The purpose of CTS 3.9.A, in part, is to ensure the station batteries are OPERABLE to mitigate the consequences of a transient or design basis accident. The station batteries are required to be OPERABLE in MODES 1, 2, and 3 when a design basis accident (e.g., loss of coolant accident) may occur. In MODE 1 and 2 the reactor is either critical or there is a potential for the reactor to become critical. In MODE 3 the reactor is not critical, however the reactor coolant temperature is always above 212°F and there is considerable energy in the reactor core and the station batteries must be available to support equipment necessary to mitigate the consequences of a pipe break. Therefore, it is necessary and acceptable to require the batteries to be OPERABLE. This change is designated as more restrictive because the LCO will be applicable under more reactor operating conditions than in the CTS.

M.2 CTS 3.9.B.4 states that when one of the two 125 VDC battery systems or one of the two 250 V battery systems is made or found to be inoperable for any reason, an orderly shutdown of the reactor shall be initiated and the reactor water temperature shall be reduced to less than 212°F within 24 hours unless such battery system are sooner made OPERABLE. CTS 3.9.B states that when the reactor mode switch is in Run, the availability of electric power shall be as specified in CTS 3.9.A, except as specified in CTS 3.9.B or the reactor shall be placed in the cold shutdown condition within 24 hours. Thus, when more than one 125V or 250V battery systems are inoperable, the CTS 3.9.B requirement would apply. However, the CTS 3.9.A.4 125V and 250V battery systems are only required to be OPERABLE when critical, as stated in CTS 3.9.A. Thus, the plant is only required to be subcritical in 24 hours. ITS 3.8.4 ACTION C provides the shutdown requirement when one 125V or 250V battery system is inoperable and requires the unit to be in MODE 3 within 12 hours and MODE 4 within 36 hours. If there are inoperable DC Sources in both Division 1 and Division 2, entry into ITS LCO 3.0.3 is required since a Condition does not exist for this condition in ITS 3.8.4. ITS LCO 3.0.3 will require the unit to initiate action within

DISCUSSION OF CHANGES
ITS 3.8.4, DC SOURCES - OPERATING

1 hour to place the unit in MODE 2 within 7 hours, MODE 3 within 13 hours, and MODE 4 within 37 hours. This changes the CTS by requiring the plant to be in MODE 3 in 12 hours and in cold shutdown (MODE 4) in 36 hours, in lieu of being subcritical in 24 hours, if one 125V or 250V battery system is inoperable. In addition, this changes the CTS by requiring the plant to initiate a plant shutdown within 1 hour, to be in MODE 2 in 7 hours, to be in MODE 3 in 13 hours, and to be in MODE 4 in 37 hours, in lieu of being subcritical in 24 hours, if more than one 125V or 250V battery system is inoperable.

The purpose of CTS 3.9.B and CTS 3.9.B.4 is to place the plant outside the Applicability of the Specification. CTS 3.9.A requires the 125V and 250V battery systems to be OPERABLE only when critical (MODE 1 and a portion of MODE 2). Thus, while the CTS 3.9.B and 3.9.B.4 Actions require a shutdown to MODE 4, in actuality, only a shutdown to subcritical conditions is required. Once subcriticality is achieved, continuation to MODE 4 is not required since the 125V and 250V battery systems are not required to be OPERABLE when subcritical. However, since the requirement that the 125V and 250V battery systems be OPERABLE in MODE 2 when subcritical and in MODE 3 has been added (DOC M.1), ITS 3.8.4 ACTION C and LCO 3.0.3 include a shutdown to MODE 3 and to MODE 4. The allowed Completion Times are reasonable, based on operating experience, to reach required unit conditions from full power conditions in an orderly manner and without challenging unit systems. This change is acceptable because it requires the unit to be in an intermediate condition sooner than is currently required (12 hours or 13 hours versus 24 hours). This portion of the change reduces the time the unit would be allowed to continue to operate in MODE 1 and MODE 2 while critical once the condition is identified. The consequences of a loss of coolant accident are reduced when the reactor is shutdown and a controlled cooldown is already in progress. This change is designated as more restrictive because less time is allowed to shut down the plant in the ITS than is allowed in the CTS.

M.3 CTS 4.9.B.4 does not provide any specific testing requirements for the Division 1 and 2 250 VDC and 125 VDC battery chargers. ITS SR 3.8.4.2 requires verification, every 24 months, each required battery charger can supply $\geq$ 150 amps for the station 250 VDC subsystem and $\geq$ 50 amps for station 125 VDC subsystems at greater than or equal to the minimum established float voltage for $\geq$ 4 hours or to verify each required battery charger can recharge the battery to the fully charged state within 24 hours for 250 VDC subsystems and 8 hours for 125 VDC subsystems while supplying the largest combined demands of the various continuous steady state loads, after a battery discharge to the bounding design basis discharge state. This changes the CTS by requiring a new Surveillance Requirement for verifying the OPERABILITY of the required battery chargers associated with the Division 1 and Division 2 125 VDC and 250 VDC electrical power subsystems.

The purpose of ITS SR 3.8.4.2 is to ensure that the battery chargers associated with the Division 1 and Division 2 125 VDC and 250 VDC electrical power subsystems are OPERABLE. This change is acceptable because it provides additional assurance that the battery chargers associated with the Division 1 and

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DISCUSSION OF CHANGES
ITS 3.8.4, DC SOURCES - OPERATING

Division 2 125 VDC and 250 VDC electrical power subsystems are OPERABLE. This change is designated as more restrictive because it adds a new Surveillance Requirement to the CTS.

M.4 CTS 4.9.B.4 does not provide any specific testing requirements to perform a battery service test for the Division 1 and Division 2 125 VDC and 250 VDC batteries. ITS SR 3.8.4.3 requires the verification that battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test every 24 months. ITS SR 3.8.4.3 includes an allowance (Note 1) to perform a modified performance discharge test (ITS SR 3.8.6.6) in lieu of the battery service test. In addition, Note 2 includes a restriction that the Surveillance shall not normally be performed in MODE 1, 2, or 3, but allows credit to be taken for unplanned events that satisfy the SR. This changes the CTS by requiring a new Surveillance Requirement for verifying the OPERABILITY of the Division 1 and Division 2 125 VDC and 250 VDC batteries.

The purpose of ITS SR 3.8.4.3 is to ensure the batteries can satisfy the design requirements (battery duty cycle) of the DC electrical power system. The discharge rate and test length corresponds to the design duty cycle requirements to satisfy the design basis duty cycle. This change is acceptable because it provides additional assurance the batteries associated with the Division 1 and Division 2 125 VDC and 250 VDC electrical power subsystems are OPERABLE. This change is designated as more restrictive because it adds a new Surveillance Requirement to the CTS.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA.1 *(Type 6 – Removal of LCO, SR, or other TS requirement to the TRM, USAR, ODCM, OQAP, IST Program, or IIP)* CTS 3.9.A.4 states that the 24/48 volt batteries must be charged and inservice and the associated battery chargers must be OPERABLE. CTS 3.9.B.5 provides the Actions to take when one of the two 24 V battery systems are found to be inoperable and CTS 4.9.B.5 includes Surveillance Requirements for the station 24 volt batteries. ITS 3.8.4 does not include any requirements for the station 24/48 VDC batteries or chargers. This changes the CTS by relocating the LCO, Actions, and Surveillances Requirements to the Technical Requirements Manual (TRM).

The removal of this LCO and associated Actions and Surveillance Requirements from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The only Technical Specification equipment these batteries support is the SRMs, IRMs, and the PCIV indication in the H_2/O_2 monitors penetration flow paths. ITS 3.3 still retains requirements for the OPERABILITY requirements associated with the equipment supported by the

DISCUSSION OF CHANGES
ITS 3.8.4, DC SOURCES - OPERATING

24/48 VDC batteries and chargers. Also, this change is acceptable because the LCO, Actions, and Surveillance Requirements will be adequately controlled in the TRM. The TRM is incorporated by reference into the USAR and any changes to the TRM are made under 10 CFR 50.59, which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because a requirement is being removed from the Technical Specifications.

LA.2 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS 3.9.A.4, in part, requires the 125 V and 250 V batteries to be charged and in service, and the associated battery chargers to be OPERABLE. ITS LCO 3.8.4 requires the Division 1 and Division 2 125 VDC and 250 VDC electrical power subsystems to be OPERABLE. This changes the CTS by relocating the details of the system design (i.e., batteries are charged and in service and the batteries chargers are OPERABLE) ITS Bases.

The removal of this detail, which is related to system design, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. ITS LCO 3.8.4 still retains the requirement that the Division 1 and Division 2 125 VDC and 250 VDC electrical power subsystems to be OPERABLE. In addition, ITS 3.8.4 includes Surveillance Requirements to test both the chargers and batteries. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

L.1 *(Category 4 – Relaxation of Required Action)* When one of the two 125 VDC battery systems or one of the two 250 V battery systems is made or found to be inoperable, CTS 3.9.B.4 requires a plant shutdown; no time is provided to restore the inoperable battery systems. ITS 3.8.4 ACTION A covers the condition for one or more Division 1 or Division 2 required battery chargers inoperable and requires the restoration of battery terminal voltage to greater than or equal to the minimum established float voltage within 2 hours, the verification that battery float current is $\leq$ 2 amps for 250 VDC batteries and $\leq$ 1 amp for 125 VDC batteries once per 12 hours, and the restoration of the inoperable battery charger(s) to OPERABLE status within 7 days. If one Division 1 or Division 2 DC electrical power subsystem is inoperable for reasons other than those specified in ITS 3.8.4 ACTION A, ITS 3.8.4 ACTION B requires the restoration of the inoperable DC electrical power subsystem within 2 hours. This changes the CTS by providing a restoration time for inoperable Division 1 or Division 2 battery chargers and inoperable Division 1 or Division 2 battery subsystem for reasons other than for inoperable chargers (i.e., an inoperable battery or batteries) prior to requiring a plant shutdown.

DISCUSSION OF CHANGES
ITS 3.8.4, DC SOURCES - OPERATING

The purpose of CTS 3.9.B.4 is to place the plant in a condition where the DC electrical power subsystem is no longer required. This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. The Required Actions are consistent with safe operation under the specified Condition, considering the OPERABLE status of the redundant systems or features. This includes the capacity and capability of remaining systems or features, a reasonable time for repairs or replacement, and the low probability of a DBA occurring during the repair period. Proposed ITS 3.8.4 ACTION A provides a 7 day restoration time for one or more required battery chargers inoperable on Division 1 or Division 2. However, this time is contingent on a focused and tiered approach to assuring adequate battery capability is maintained. The first priority for the operator is to minimize the battery discharge, which is required to be terminated within 2 hours (ITS 3.8.4 Required Action A.1). Presuming that the battery discharge (if occurring) can be terminated and that the DC bus remains energized (as required by a separate LCO), there is reasonable basis for extending the restoration time for an inoperable charger beyond the 2 hour limit. The second tiered action proposes 12 hours to establish that the battery has sufficient capacity to perform its assumed duty cycle (which may involve some recharging of lost capacity that occurred during the initial hours). Given the choice of a unit shutdown in this condition (as currently required) versus a 12 hour determination (at the end of which it is reasonable to assume the battery can be shown to have its assumed capacity) followed by a 7 day restoration period, this appears to be an acceptable relaxation. Since the focus of this allowance is that battery capacity be preserved and assured, the means of accomplishing this may be to utilize the spare battery charger that could be employed within the initial 2 hours, while in other cases it may be the degraded inservice charger that can continue to float the battery. Proposed ITS 3.8.4 ACTION B provides a 2 hour restoration time for a Division 1 or Division 2 DC electrical power subsystem inoperable for reasons other than Condition A. This ACTION covers the inoperabilities associated with one or more batteries associated with Division 1 or Division 2 and any combination of batteries or charges associated with one division. If one of the required DC electrical power subsystems is inoperable, the remaining DC electrical power subsystems have the capacity to support a safe shutdown and to mitigate an accident condition. Since a subsequent worst case single failure could, however, result in the loss of minimum necessary DC electrical subsystems to mitigate a worst case accident, continued power operation should not exceed 2 hours. The 2 hour Completion Time is based on Regulatory Guide 1.93 (Ref. 7) and reflects a reasonable time to assess plant status as a function of the inoperable DC electrical power subsystem and, if the DC electrical power subsystem is not restored to OPERABLE status, to prepare to effect an orderly and safe unit shutdown. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

CTS 3.8 ELECTRICAL POWER SYSTEMS

3.8.4 DC Sources - Operating

125 VDC and 250 VDC

3.9.A.4 LCO 3.8.4 The [Division 1 and Division 2 ~~station service, and DG 1B, 2A, and 2C~~] DC electrical power subsystems shall be OPERABLE. (1)

3.9.A APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
DOC L.1 A. One [or two] battery charger[s] on one division] inoperable. (more required)	A.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage.	2 hours (1)
	AND	
	A.2 Verify battery float current ≤ [2] amps. (for 250 VDC batteries and ≤ 1 amp for 125 VDC batteries)	Once per [12] hours (1)
	AND	(1)
Division 1 or Division 2 (4)	A.3 Restore battery charger[s] to OPERABLE status. (required)	7 days (2)
[B. One [or two] batter[y][ies] on one division] inoperable.	B.1 Restore batter[y][ies] to OPERABLE status.	[2] hours] (3)
DOC L.1 C. (B) One DC electrical power subsystem inoperable for reasons other than Condition A [or B].	C.1 (B) Restore DC electrical power subsystem to OPERABLE status.	[2] hours (3) (1) (3)
Division 1 or Division 2		(4)

CTS

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
3.9.B.4 C D. Required Action and Associated Completion Time of Condition A[, B, or C] not met for station service DC subsystem.	C D.1 Be in MODE 3.	12 hours (3) (6) (5)
	AND	
	C D.2 Be in MODE 4.	36 hours (3)
E. [Required Action and associated Completion Time of Condition A[, B, or C] not met for DG DC subsystem.	E.1 Declare associated DG inoperable.	Immediately] (5)

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
4.9.B.4.a	SR 3.8.4.1 Verify battery terminal voltage is greater than or equal to the minimum established float voltage.	7 days
DOC M.3	SR 3.8.4.2 Verify each required battery charger supplies (250 VDC) (150) ≥ [400] amps for station service subsystems, and (125 VDC) ≥ 100 amps for DG subsystems[] at greater than or equal to the minimum established float voltage for (50) ≥ [4] hours. OR (required) Verify each battery charger can recharge the battery to the fully charged state within [24] hours while supplying the largest combined demands of the various continuous steady state loads, after a battery discharge to the bounding design basis event discharge state. (for 250 VDC subsystems and 8 hours for 125 VDC subsystems)	[[18] months[] (24) (1) (2) (1)

CTS

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
DOC M.4 SR 3.8.4.3 ----------NOTES---------- 1. The modified performance discharge test in SR 3.8.6.6 may be performed in lieu of SR 3.8.4.3. 2. This Surveillance shall not normally be performed in MODE 1, 2, or 3. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. ----------	
Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.	[18] months [24] (1)

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.4, DC SOURCES - OPERATING

1. The brackets have been removed and the proper plant specific information/value has been provided.

2. The term "required" has been added since each 250 VDC subsystem has two battery chargers and a spare, but only two are required to be OPERABLE in each 250 VDC subsystem. In addition, each 125 VDC subsystem has one battery charger, with a spare battery charger that is common to both 125 VDC subsystems.

3. The bracketed ISTS 3.8.4 ACTION B has been deleted since it is not necessary. ISTS 3.8.4 ACTION C (ITS 3.8.4 ACTION B) covers the condition of an inoperable battery. Due to this deletion, the subsequent ACTIONS have been modified and renumbered, as necessary.

4. Changes are made (additions, deletions, and/or changes) to the ISTS, which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

5. ISTS 3.8.4 ACTION E covers the default condition for an inoperable DG DC subsystem. The Monticello design does not include the DG DC subsystem, therefore the bracketed requirement has been deleted. In addition, due to this deletion, ISTS 3.8.4 Condition D (ITS 3.8.4 Condition C) has been modified accordingly. Specifically, the words "of Condition A, [B, or C]" have been deleted since the ACTION applies to all previous ACTIONS and there are no subsequent ACTIONS, and the words "for station service DC subsystem" has been deleted since the ACTION applies to all DC subsystem required by the LCO.

6. Typographical error corrected.

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.4 DC Sources - Operating

BASES

BACKGROUND

The DC electrical power system provides the AC emergency power system with control power. It also provides both motive and control power to selected safety related equipment. Also, these DC subsystems provide DC electrical power to inverters, which in turn power the AC vital buses. As required by 10 CFR 50, Appendix A, GDC 17 (Ref. 1), the DC electrical power system is designed to have sufficient independence, redundancy, and testability to perform its safety functions, assuming a single failure. The DC electrical power system also conforms to the recommendations of Regulatory Guide 1.6 (Ref. 2) and IEEE-308 (Ref. 3).

instrument loads

and

USAR Section 1.2.6, USAR Section 1.2.10, and USAR Section 1.2.11 (Refs. 1, 2, and 3, respectively)

1

INSERT 1

1

The station service DC power sources provide both motive and control power to selected safety related equipment, as well as circuit breaker control power for the nonsafety related 4160 V, and all 600 V and lower, AC distribution systems. Each DC subsystem is energized by one 125/250 V station service battery and three 125 V battery chargers (two normally in service chargers and one spare charger). Each battery is exclusively associated with a single 125/250 VDC bus. Each set of battery chargers exclusively associated with a 125/250 VDC subsystem cannot be interconnected with any other 125/250 VDC subsystem. The normal and backup chargers are supplied from the same AC load groups for which the associated DC subsystem supplies the control power. The loads between the redundant 125/250 VDC subsystem are not transferable except for the Automatic Depressurization System, the logic circuits and valves of which are normally fed from the Division 1 DC system.

1

The diesel generator (DG) DC power sources provide control and instrumentation power for their respective DG. In addition, DG 2A and 2C DC power sources provide circuit breaker control power for the loads on the 4160 V 2E, 2F, and 2G emergency buses. Each DG DC subsystem is energized by one 125 V battery and one 125 V battery charger. Provisions exist for connecting a portable alternate battery charger.

1

During normal operation, the DC loads are powered from the battery chargers with the batteries floating on the system. In case of loss of normal power to the battery charger, the DC loads are automatically powered from the station batteries.

1

INSERT 1

The Division 1 and Division 2 250 VDC electrical power subsystems provide power to the associated uninterruptible AC power supply (UPS). The Division 1 electrical power subsystem also provides power to support the Reactor Core Isolation Cooling (RCIC) System motor operated valves, the RCIC turbine pumps, and other non-critical loads. The Division 2 electrical power subsystem supplies power for the High Pressure Coolant Injection (HPCI) System motor operated valves, the HPCI auxiliary oil pumps, and the Control Room Ventilation System control circuits. Each 250 VDC electrical power subsystem consists of two in series 125 VDC batteries, two normally inservice 125 VDC chargers, a spare 125 VDC charger, and all of the control equipment and interconnecting cabling to the associated distribution cabinet. Each battery is exclusively associated with a single division. Each set of battery chargers exclusively associated with a 250 VDC electrical power subsystem cannot be interconnected with the other 250 VDC electrical power subsystem. The inservice and spare chargers are supplied from the associated AC load group.

Division 1 and Division 2 125 VDC electrical power subsystems provide control power to the associated 4.16 kV essential bus and for each of the two 480 VAC essential load centers. Each 125 VDC electrical power subsystem consists of a battery, a charger, and all the control equipment and interconnecting cabling up to the associated distribution panels. The inservice chargers are supplied from the associated AC load group. The design includes a spare charger that can be used for either the Division 1 or Division 2 125 VDC electrical power subsystem. However, the spare charger is supplied from the Division 2 AC load group. The two battery buses can be connected to each other only by manually operating two disconnect switches in series; one switch is located at each battery bus. When two independent divisions of 125 VDC power are required, the two battery buses are not operated in a cross-connected configuration.

BASES

BACKGROUND (continued)

The DC power distribution system is described in more detail in Bases for LCO 3.8.9, "Distribution System - Operating," and LCO 3.8.10, "Distribution System - Shutdown."

Each DC battery subsystem is separately housed in a ventilated room apart from its charger and distribution centers. Each subsystem is located in an area separated physically and electrically from the other subsystems to ensure that a single failure in one subsystem does not cause a failure in a redundant subsystem. There is no sharing between redundant Class 1E subsystems such as batteries, battery chargers, or distribution panels, except the common standby 125 VDC battery charger may be shared between the Division 1 and Division 2 125 VDC electrical power subsystems.

Each battery has adequate storage capacity to meet the duty cycle(s) discussed in the FSAR, Chapter [8] (Ref 4). The battery is designed with additional capacity above that required by the design duty cycle to allow for temperature variations and other factors. Each Division 1 and Division 2 125 VDC battery has adequate storage capacity to meet the duty cycle(s) discussed in USAR, Section 8.5.2.1 (Ref 5).

The batteries for DC electrical power subsystems are sized to produce required capacity at 80% of nameplate rating, corresponding to warranted capacity at end of life cycles and the 100% design demand. The minimum design voltage limit is 105/210 V.

The battery cells are of flooded lead acid construction with a nominal specific gravity of [1.215]. This specific gravity corresponds to an open circuit battery voltage of approximately 120 V for a [58] cell battery (i.e., cell voltage of [2.065] volts per cell (Vpc)). The open circuit voltage is the voltage maintained when there is no charging or discharging. Once fully charged with its open circuit voltage ≥ [2.065] Vpc, the battery cell will maintain its capacity for [30] days without further charging per manufacturer's instructions. Optimal long term performance however, is obtained by maintaining a float voltage [2.20 to 2.25] Vpc. This provides adequate over-potential, which limits the formation of lead sulfate and self discharge. The nominal float voltage of [2.22] Vpc corresponds to a total float voltage output of [128.8] V for a [58] cell battery as discussed in the FSAR, Chapter [8] (Ref. 4).

Each battery charger of DC electrical power subsystem has ample power output capacity for the steady state operation of connected loads required during normal operation, while at the same time maintaining its battery bank fully charged. Each station service battery charger has sufficient excess capacity to restore the battery from the design minimum charge to its fully charged state within 24 hours while supplying normal steady state loads [Ref. 4].

1

INSERT 1A

The common standby 125 VDC battery charger is located in a room separate from the other 125 VDC battery chargers electrical power subsystems.

1

INSERT 1B

greater than required for a design basis accident and monitored to ensure battery capacity will remain > 90% during the operating cycle.

BASES

BACKGROUND (continued)

The battery charger is normally in the float-charge mode. Float-charge is the condition in which the charger is supplying the connected loads and the battery cells are receiving adequate current to optimally charge the battery. This assures the internal losses of a battery are overcome and the battery is maintained in a fully charged state.

When desired, the charger can be placed in the equalize mode. The equalize mode is at a higher voltage than the float mode and charging current is correspondingly higher. The battery charger is operated in the equalize mode after a battery discharge or for routine maintenance. Following a battery discharge, the battery recharge characteristic accepts current at the current limit of the battery charger (if the discharge was significant, e.g., following a battery service test) until the battery terminal voltage approaches the charger voltage setpoint. Charging current then reduces exponentially during the remainder of the recharge cycle. Lead-calcium batteries have recharge efficiencies of greater than 95%, so once at least 105% of the ampere-hours discharged have been returned, the battery capacity would be restored to the same condition as it was prior to the discharge. This can be monitored by direct observation of the exponentially decaying charging current or by evaluating the amp-hours discharged from the battery and amp-hours returned to the battery.

APPLICABLE SAFETY ANALYSES

U

The initial conditions of Design Basis Accident (DBA) and transient analyses in the FSAR, Chapter [6] (Ref. 5) and Chapter [15] (Ref. 6), assume that Engineered Safety Feature (ESF) systems are OPERABLE. The DC electrical power system provides normal and emergency DC electrical power for the DGs, emergency auxiliaries, and control and switching during all MODES of operation. The OPERABILITY of the DC subsystems is consistent with the initial assumptions of the accident analyses and is based upon meeting the design basis of the unit. This includes maintaining DC sources OPERABLE during accident conditions in the event of:

14 1 2

a. An assumed loss of all offsite AC power or all onsite AC power and 4

b. A worst case single failure.

The DC sources satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii). 8

- Operating

BASES

LCO

The DC electrical power subsystems - with: 1) each station service DC subsystem consisting of two 125 V batteries in series two battery chargers and the corresponding control equipment and interconnecting cabling supplying power to the associated bus and 2) each DG DC subsystem consisting of one battery bank, one battery charger, and the corresponding control equipment and interconnecting cabling are required to be OPERABLE to ensure the availability of the required power to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence (AOO) or a postulated DBA. Loss of any DC electrical power subsystem does not prevent the minimum safety function from being performed (Ref. 4).

Division 1 and Division 2 250 V

Division 1 and Division 2 125 V

supplying power to the associated bus

INSERT 2

APPLICABILITY

The DC electrical power sources are required to be OPERABLE in MODES 1, 2, and 3 to ensure safe unit operation and 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

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

safety

The DC electrical power requirements for MODES 4 and 5 are addressed in the Bases for LCO 3.8.5, "DC Sources - Shutdown."

ACTIONS

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

more

required

Condition A represents one division with one or two battery chargers inoperable (e.g., the voltage limit of SR 3.8.4.1 is not maintained). The ACTIONS provide a tiered response that focuses on returning the battery to the fully charged state and restoring a fully qualified charger to OPERABLE status in a reasonable time period. Required Action A.1 requires that the battery terminal voltage be restored to greater than or equal to the minimum established float voltage within 2 hours. This time provides for returning the inoperable charger to OPERABLE status or providing an alternate means of restoring battery terminal voltage to greater than or equal to the minimum established float voltage. Restoring the battery terminal voltage to greater than or equal to the minimum established float voltage provides good assurance that, within 12 hours, the battery will be restored to its fully charged condition (Required Action A.2) from any discharge that might have occurred due to the charger inoperability.

1 **INSERT 2**

While the spare Division 2 125 VDC battery charger can be used to supply either the Division 1 or Division 2 125 VDC subsystem, it can be used to meet the LCO requirements only for the Division 2 125 VDC subsystem. If it is supplying the Division 1 125 VDC subsystem, the Division 1 125 VDC subsystem is inoperable.

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BASES

ACTIONS (continued)

---REVIEWER'S NOTE---
A plant that cannot meet the 12 hour Completion Time due to an inherent battery charging characteristic can propose an alternate time equal to 2 hours plus the time experienced to accomplish the exponential charging current portion of the battery charge profile following the service test (SR 3.8.4.3). (5)

A discharged battery having terminal voltage of at least the minimum established float voltage indicates that the battery is on the exponential charging current portion (the second part) of its recharge cycle. The time to return a battery to its fully charged state under this condition is simply a function of the amount of the previous discharge and the recharge characteristic of the battery. Thus there is good assurance of fully recharging the battery within [12] hours, avoiding a premature shutdown with its own attendant risk. (2)

If established battery terminal float voltage cannot be restored to greater than or equal to the minimum established float voltage within 2 hours, and the charger is not operating in the current-limiting mode, a faulty charger is indicated. A faulty charger that is incapable of maintaining established battery terminal float voltage does not provide assurance that it can revert to and operate properly in the current limit mode that is necessary during the recovery period following a battery discharge event that the DC system is designed for.

If the charger is operating in the current limit mode after 2 hours that is an indication that the battery is partially discharged and its capacity margins will be reduced. The time to return the battery to its fully charged condition in this case is a function of the battery charger capacity, the amount of loads on the associated DC system, the amount of the previous discharge, and the recharge characteristic of the battery. The charge time can be extensive, and there is not adequate assurance that it can be recharged within [12] hours (Required Action A.2). (2)

for 250 VDC batteries and less than or equal to 1 amp for 125 VDC batteries

Required Action A.2 requires that the battery float current be verified as less than or equal to [2] amps. This indicates that, if the battery had been discharged as the result of the inoperable battery charger, it has now been fully recharged. If at the expiration of the initial [12] hour period the battery float current is not less than or equal to [2] amps this indicates there may be additional battery problems and the battery must be declared inoperable. (2) (2) (2)

BASES

ACTIONS (continued)

Required Action A.3 limits the restoration time for the inoperable battery charger to 7 days. This action is applicable if an alternate means of restoring battery terminal voltage to greater than or equal to the minimum established float voltage has been used (e.g., balance of plant non-Class 1E battery charger). The 7 day Completion Time reflects a reasonable time to effect restoration of the qualified battery charger to OPERABLE status.

B.1

----------REVIEWER'S NOTE----------
The 2 hour Completion Times of Required Actions B.1 and C.1 are in brackets. Any licensee wishing to request a longer Completion Time will need to demonstrate that the longer Completion Time is appropriate for the plant in accordance with the guidance in Regulatory Guide (RG) 1.177, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications."

Condition B represents one division with one [or two] batter[y][ies] inoperable. With one [or two] batter[y][ies] inoperable, the DC bus is being supplied by the OPERABLE battery charger[s]. Any event that results in a loss of the AC bus supporting the battery charger[s] will also result in loss of DC to that division. Recovery of the AC bus, especially if it is due to a loss of offsite power, will be hampered by the fact that many of the components necessary for the recovery (e.g., diesel generator control and field flash, AC load shed and diesel generator output circuit breakers, etc.) likely rely upon the batter[y][ies]. In addition the energization transients of any DC loads that are beyond the capability of the battery charger[s] and normally require the assistance of the batter[y][ies] will not be able to be brought online. The [2] hour limit allows sufficient time to effect restoration of an inoperable battery given that the majority of the conditions that lead to battery inoperability (e.g., loss of battery charger, battery cell voltage less than [2.07] V, etc.) are identified in Specifications 3.8.4, 3.8.5, and 3.8.6 together with additional specific completion times.

3

BASES

ACTIONS (continued)

B
C.1

3

B
Condition C represents one division with a loss of ability to completely respond to an event, and a potential loss of ability to remain energized during normal operation. It is therefore imperative that the operator's attention focus on stabilizing the unit, minimizing the potential for complete loss of DC power to the affected division. The 2 hour limit is consistent with the allowed time for an inoperable DC Distribution System division. 3

If one of the required DC electrical power subsystems is inoperable for (s) reasons other than Condition A or B (e.g., inoperable battery charger and les associated inoperable battery), the remaining DC electrical power subsystems have the capacity to support a safe shutdown and to mitigate an accident condition. Since a subsequent worst case single failure could, however, result in the loss of minimum necessary DC electrical subsystems to mitigate a worst case accident, continued power operation should not exceed 2 hours. The 2 hour Completion Time is based on Regulatory Guide 1.93 (Ref. 7) and reflects a reasonable time to assess unit status as a function of the inoperable DC electrical power subsystem and, if the DC electrical power subsystem is not restored to OPERABLE status, to prepare to effect an orderly and safe unit shutdown. 3 8 1

C
D.1 and D.2

3

125 VDC or 250 V
If the inoperable station service DC electrical power subsystem cannot be restored to OPERABLE status within the required Completion Time, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to at least MODE 3 within 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. The Completion Time to bring the unit to MODE 4 is consistent with the time required in Regulatory Guide 1.93 (Ref. 7). 3 8 1

BASES

ACTIONS (continued)

E.1

If the DG DC electrical power subsystem cannot be restored to OPERABLE status in the associated Completion Time, the associated DG may be incapable of performing its intended function and must be immediately declared inoperable. This declaration also requires entry into applicable Conditions and Required Actions for an inoperable DG, LCO 3.8.1, "AC Sources - Operating." (3)

SURVEILLANCE REQUIREMENTS

SR 3.8.4.1

Verifying battery terminal voltage while on float charge helps to ensure the effectiveness of the battery chargers, which support the ability of the batteries to perform their intended function. Float charge is the condition in which the charger is supplying the continuous charge required to overcome the internal losses of a battery and maintain the battery in a fully charged state while supplying the continuous steady state loads of the associated DC subsystem. On float charge, battery cells will receive adequate current to optimally charge the battery. The voltage requirements are based on the nominal design voltage of the battery and are consistent with the minimum float voltage established by the battery manufacturer ([2.20] Vpc or [127.6] V at the battery terminals). This voltage maintains the battery plates in a condition that supports maintaining the grid life (expected to be approximately 20 years). The 7 day Frequency is [consistent] with manufacturer recommendations and IEEE-450 (Ref. [8]). (2) (1)

(for each 250 VDC subsystem battery) and 127.6 V (for each 125 VDC subsystem battery)

132

conservative when compared

9

SR 3.8.4.2

This SR verifies the design capacity of the battery chargers. According to Regulatory Guide 1.32 (Ref. [9]), the battery charger supply is recommended to be based on the largest combined demands of the various steady state loads and the charging capacity to restore the battery from the design minimum charge state to the fully charged state, irrespective of the status of the unit during these demand occurrences. The minimum required amperes and duration ensures that these requirements can be satisfied. (1)

10

BASES

SURVEILLANCE REQUIREMENTS (continued)

for the 250 VDC subsystems and ≥ 50 amps for the 125 VDC subsystems

150

≥

This SR provides two options. One option requires that each battery charger be capable of supplying [400] amps at the minimum established float voltage for [8] hours. The ampere requirements are based on the output rating of the chargers. The voltage requirements are based on the charger voltage level after a response to a loss of AC power. The time period is sufficient for the charger temperature to have stabilized and to have been maintained for at least [2] hours.

4

2 3 2

2

The other option requires that each battery charger be capable of recharging the battery after a service test coincident with supplying the largest coincident demands of the various continuous steady state loads (irrespective of the status of the plant during which these demands occur). This level of loading may not normally be available following the battery service test and will need to be supplemented with additional loads. The duration for this test may be longer than the charger sizing criteria since the battery recharge is affected by float voltage, temperature, and the exponential decay in charging current. The battery is recharged when the measured charging current is ≤ [2] amps.

2

for 250 VDC batteries and ≤ 1 amp for 125 VDC batteries

The Frequency is acceptable, given the unit conditions required to perform the test and the other administrative controls existing to ensure adequate charger performance during these [18 month] intervals. In addition, this Frequency is intended to be consistent with expected fuel cycle lengths.

24

2

for the 250 VDC electrical power system and Reference 5 for the 125 VDC electrical power system

SR 3.8.4.3

A battery service test is a special test of the battery's capability, as found, to satisfy the design requirements (battery duty cycle) of the DC electrical power system. The discharge rate and test length corresponds to the design duty cycle requirements as specified in Reference 4.

1

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2

The Frequency of [18 months] is consistent with the recommendations of Regulatory Guide 1.32 (Ref. 9) and Regulatory Guide 1.129 (Ref. 10), which state that the battery service test should be performed during refueling operations or at some other outage, with intervals between tests not to exceed [18 months].

This SR is modified by two Notes. Note 1 allows the performance of a modified performance discharge test in lieu of a service test.

acceptable, given plant conditions required to perform the test and the other requirements existing to ensure adequate battery performance during the 24 months intervals. In addition, this Frequency is intended to be consistent with expected fuel cycle lengths.

1

BASES

SURVEILLANCE REQUIREMENTS (continued)

The reason for Note 2 is that performing the Surveillance would remove a required DC electrical power subsystem from service, perturb the electrical distribution system, and challenge safety systems. This restriction from normally performing the Surveillance in MODE 1 or 2 is further amplified to allow portions of the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed partial Surveillance, a successful partial Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the partial Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or enhanced when portions of the Surveillance are performed in MODE 1 or 2. Risk insights or deterministic methods may be used for the assessment. Credit may be taken for unplanned events that satisfy this SR.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 17.
2. Regulatory Guide 1.6, March 10, 1971.
3. IEEE Standard 308, 1978.
4. FSAR, Chapter [8].
5. FSAR, Chapter [6].
6. FSAR, Chapter [15].
7. Regulatory Guide 1.93.
8. IEEE Standard 450, 1995.
9. Regulatory Guide 1.32, February 1977.
10. Regulatory Guide 1.129, December 1974.

1. USAR, Section 1.2.6.
2. USAR, Section 1.2.10.
3. USAR, Section 1.2.11.

U

Section 8.5.1.1

5. USAR, Section 8.5.2.1.

U

14

7. USAR, Section 14.7.2.3.2.

8

9

10

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.4 BASES, DC SOURCES - OPERATING

1. Changes are made (additions, deletions, and/or changes) to the ISTS Bases, which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The brackets are removed and the proper plant specific information/value is provided.

3. Changes are made to reflect changes made to the Specifications.

4. These punctuation corrections have been made consistent with the Writer's Guide for the Improved Standard Technical Specifications, NEI 01-03, Section 5.1.3.

5. The Reviewer's Note is deleted as it is not part of the plant-specific ITS.

6. These battery design values have been deleted because they are more specific than necessary and are not required to provide sufficient background for this Specification.

7. Typographical error corrected.

8. Changes are made to be consistent with the name of the Specification.

Specific No Significant Hazards Considerations (NSHCs)

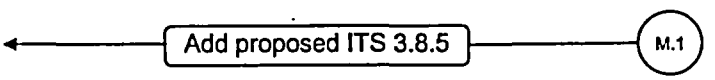
DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.8.4, DC SOURCES - OPERATING

There are no specific NSHC discussions for this Specification.

ATTACHMENT 5

ITS 3.8.5, DC Sources - Shutdown

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)



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DISCUSSION OF CHANGES
ITS 3.8.5, DC SOURCES - SHUTDOWN

ADMINISTRATIVE CHANGES

None

MORE RESTRICTIVE CHANGES

M.1 The CTS does not have any requirements for the DC Sources in MODES 4 and 5 and during movement of irradiated fuel assemblies in the secondary containment. ITS LCO 3.8.5 requires Division 1 or Division 2 125 VDC electrical power subsystem to be OPERABLE. An appropriate ACTION and a Surveillance Requirement are also provided. This changes the CTS by incorporating the requirements of ITS 3.8.5.

The DC electrical power system provides emergency DC electrical power to mitigate events postulated during shutdown, such as an inadvertent draindown of the vessel or a fuel handling accident involving movement of irradiated fuel in the secondary containment. This change is acceptable since the DC Sources - Shutdown satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii). This change is designated as more restrictive because it adds new requirements to the CTS.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

None

LESS RESTRICTIVE CHANGES

None

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

CTS 3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources - Shutdown

DOC M.1 LCO 3.8.5

[DC electrical power subsystems shall be OPERABLE to support the DC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems - Shutdown."] (1)

Division 1 or Division 2 125 V

[One DC electrical power subsystem shall be OPERABLE.] (3)

----------REVIEWER'S NOTE----------
This second option above applies for plants having a pre-ITS licensing basis (CTS) for electrical power requirements during shutdown conditions that required only one DC electrical power subsystem to be OPERABLE. Action A and the bracketed optional wording in Condition B are also eliminated for this case. The first option above is adopted for plants that have a CTS requiring the same level of DC electrical power subsystem support as is required for power operating conditions. (1)
---

to support one division of the DC Electrical Power Distribution System required by LCO 3.8.8, "Distribution Systems - Shutdown." (2)

DOC M.1 APPLICABILITY: MODES 4 and 5,
During movement of [recently] irradiated fuel assemblies in the [secondary] containment. (3)

ACTIONS

----------NOTE----------
DOC M.1 LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
[A. One [or two] battery charger[s on one division] inoperable. AND The redundant division battery and charger[s] OPERABLE.	A.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage. AND	2 hours (1)

CTS

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME	
	A.2 Verify battery float current ≤ [2] amps. AND A.3 Restore battery charger[s] to OPERABLE status.	Once per [12] hours 7 days]	1
DOC M.1 B. One [or more] required DC electrical power subsystem[s] inoperable [for reasons other than Condition A].	B.1 Declare affected required feature(s) inoperable. OR	Immediately	1 3 4
	A B.2.1 Suspend CORE ALTERATIONS.	Immediately	1 4 1
OR Required Action and associated Completion Time of Condition A not met.]	AND A B.2.2 Suspend movement of [recently] irradiated fuel assemblies in the [secondary] containment.	Immediately	4 1 4 3
	AND A B.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately	4 1 4
	AND A B.2.4 Initiate action to restore required DC electrical power subsystems to OPERABLE status.	Immediately	4 1 4 1

CTS

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY	
SR 3.8.5.1	----------NOTE---------- (is) The following SRs are not required to be performed: SR 3.8.4.2 and SR 3.8.4.3. ----------		6
	For DC sources required to be OPERABLE, the following SRs are applicable: SR 3.8.4.1 , SR 3.8.4.2 , and SR 3.8.4.3 .	In accordance with applicable SRs	5

DOC M.1

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.5, DC SOURCES - SHUTDOWN

1. The bracketed optional ISTS LCO 3.8.5 and "Reviewer's Note" have been deleted since the current licensing basis does not specify any requirements for the DC electrical power subsystems to be OPERABLE in MODES 4 and 5 or during movement of irradiated fuel assemblies in the secondary containment. Therefore, the option to require one complete DC electrical power subsystem will be added, consistent with the AC Sources requirements of ITS 3.8.2. ISTS 3.8.5 ACTION A and the bracketed optional wording in Condition B have also been deleted. The subsequent Condition and Required Actions have been renumbered, as applicable.

2. The second option of ISTS LCO 3.8.5 is not specific as to what the DC electrical power subsystem must be powering. The LCO has been modified to require the Division 1 or 2 125 VDC electrical power subsystem to be powering a DC train required OPERABLE by LCO 3.8.8. This is consistent with a similar change approved by the NRC in the DC Cook Units 1 and 2, Quad Cities 1 and 2, Dresden Units 2 and 3, and LaSalle Units 1 and 2 ITS conversions.

3. The brackets have been removed and the proper plant specific information/value has been provided.

4. ISTS 3.8.5 Required Action B.1 provides an option to declare affected required feature(s) inoperable with one or more required DC electrical power subsystems inoperable. The ISTS Bases states that this is acceptable because the remaining train with DC power available may be capable of supporting sufficient features to allow continuation of CORE ALTERATIONS and fuel movement. Thus, this Required Action assumes two DC power sources are required by the LCO. This option has been deleted since only Division 1 or Division 2 125 VDC electrical power subsystem is required to be OPERABLE by the LCO. Subsequent Required Actions have been renumbered and modified, as applicable.

5. Change made to be consistent with the Writers Guide for the Improved Standard Technical Specifications, NEI 01-03.

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.5 DC Sources - Shutdown

BASES

BACKGROUND

A description of the DC sources is provided in the Bases for LCO 3.8.4, "DC Sources - Operating."

APPLICABLE SAFETY ANALYSES

The initial conditions of Design Basis Accident and transient analyses in the FSAR, Chapter [6] (Ref. 1) and Chapter [15] (Ref. 2), assume that Engineered Safety Feature systems are OPERABLE. The DC electrical power system provides normal and emergency DC electrical power for the diesel generators (DGs), emergency auxiliaries, and control and switching during all MODES of operation.

The OPERABILITY of the DC subsystems is consistent with the initial assumptions of the accident analyses and the requirements for the supported systems' OPERABILITY.

The OPERABILITY of the minimum DC electrical power sources during MODES 4 and 5 and during movement of [recently] irradiated fuel assemblies ensures that:

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

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

c. Adequate DC electrical power is provided to mitigate events postulated during shutdown, such as an inadvertent draindown of the vessel or a fuel handling accident involving handling recently irradiated fuel. [Due to radioactive decay, DC electrical power is only required to mitigate fuel handling accidents involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days)].

In general, when the unit is shut down, the Technical Specifications requirements ensure that the unit has the capability to mitigate the consequences of postulated accidents. However, assuming a single failure and concurrent loss of all offsite or all onsite power is not required. The rationale for this is based on the fact that many Design Basis Accidents (DBAs) that are analyzed in MODES 1, 2, and 3 have no specific analyses in MODES 4 and 5. Worst case bounding events are deemed not credible in MODES 4 and 5 because the energy contained

BASES

APPLICABLE SAFETY ANALYSES (continued)

within the reactor pressure boundary, reactor coolant temperature and pressure, and the corresponding stresses result in the probabilities of occurrence being significantly reduced or eliminated, and in minimal consequences. These deviations from DBA analysis assumptions and design requirements during shutdown conditions are allowed by the LCO for required systems.

The shutdown Technical Specification requirements are designed to ensure that the unit has the capability to mitigate the consequences of certain postulated accidents. Worst case DBAs which are analyzed for operating MODES are generally viewed not to be a significant concern during shutdown MODES due to the lower energies involved. The Technical Specifications therefore require a lesser complement of electrical equipment to be available during shutdown than is required during operating MODES. More recent work completed on the potential risks associated with shutdown, however, have found significant risk associated with certain shutdown evolutions. As a result, in addition to the requirements established in the Technical Specifications, the industry has adopted NUMARC 91-06, "Guidelines for Industry Actions to Assess Shutdown Management," as an Industry initiative to manage shutdown tasks and associated electrical support to maintain risk at an acceptable low level. This may require the availability of additional equipment beyond that required by the shutdown Technical Specifications.

The DC sources - Shutdown satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii). (5)

LCO

Division 1 or Division 2 125 V

The DC electrical power subsystems - with: 1) [each required] [the required] station service DC subsystem consisting of two 125 V batteries (y) one in series, [two] battery chargers, and the corresponding control equipment and interconnecting cabling; and 2) [each required] [the required] DG DC subsystem consisting of one battery bank, one battery charger, and the corresponding control equipment and interconnecting cabling - [are] [is] required to be OPERABLE to support [required] [one] DC distribution (2) electrical power division of the subsystem[s] [required OPERABLE by LCO 3.8.10, "Distribution Systems - Shutdown."] This requirement ensures the availability of sufficient DC electrical power sources to operate the unit in a safe manner and to mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents [involving handling recently irradiated fuel] and inadvertent reactor vessel draindown). (8) (4) (2)

BASES

APPLICABILITY

The DC electrical power sources required to be OPERABLE in MODES 4 and 5 and during movement of [recently] irradiated fuel assemblies in the secondary containment provide assurance that: (2)

a. Required features to provide adequate coolant inventory makeup are available for the irradiated fuel assemblies in the core in case of an inadvertent draindown of the reactor vessel; (3)

b. Required features needed to mitigate a fuel handling accident [involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days)] are available; (2)

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

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

The DC electrical power requirements for MODES 1, 2, and 3 are covered in LCO 3.8.4.

ACTIONS

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

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

----------REVIEWER'S NOTE----------

ACTION A is included only when plant-specific implementation of LCO 3.8.5 includes the potential to require both divisions of the DC System to be OPERABLE. If plant-specific implementation results in LCO 3.8.5 requiring only one division of the DC System to be OPERABLE, then ACTION A is omitted and ACTION B is renumbered as ACTION A. (4)

BASES

ACTIONS (continued)

Condition A represents one division with one [or two] battery chargers inoperable (e.g., the voltage limit of SR 3.8.4.1 is not maintained). The ACTIONS provide a tiered response that focuses on returning the battery to the fully charged state and restoring a fully qualified charger to OPERABLE status in a reasonable time period. Required Action A.1 requires that the battery terminal voltage be restored to greater than or equal to the minimum established float voltage within 2 hours. This time provides for returning the inoperable charger to OPERABLE status or providing an alternate means of restoring battery terminal voltage to greater than or equal to the minimum established float voltage. Restoring the battery terminal voltage to greater than or equal to the minimum established float voltage provides good assurance that, within [12] hours, the battery will be restored to its fully charged condition (Required Action A.2) from any discharge that might have occurred due to the charger inoperability.

----------REVIEWER'S NOTE----------
A plant that cannot meet the 12 hour Completion Time due to an inherent battery charging characteristic can propose an alternate time equal to 2 hours plus the time experienced to accomplish the exponential charging current portion of the battery charge profile following the service test (SR 3.8.4.3).
---------- (4)

A discharged battery having terminal voltage of at least the minimum established float voltage indicates that the battery is on the exponential charging current portion (the second part) of its recharge cycle. The time to return a battery to its fully charged state under this condition is simply a function of the amount of the previous discharge and the recharge characteristic of the battery. Thus there is good assurance of fully recharging the battery within [12] hours, avoiding a premature shutdown with its own attendant risk.

If established battery terminal float voltage cannot be restored to greater than or equal to the minimum established float voltage within 2 hours, and the charger is not operating in the current-limiting mode, a faulty charger is indicated. A faulty charger that is incapable of maintaining established battery terminal float voltage does not provide assurance that it can revert to and operate properly in the current limit mode that is necessary during the recovery period following a battery discharge event that the DC system is designed for.

BASES

ACTIONS (continued)

If the charger is operating in the current limit mode after 2 hours that is an indication that the battery is partially discharged and its capacity margins will be reduced. The time to return the battery to its fully charged condition in this case is a function of the battery charger capacity, the amount of loads on the associated DC system, the amount of the previous discharge, and the recharge characteristic of the battery. The charge time can be extensive, and there is not adequate assurance that it can be recharged within [12] hours (Required Action A.2).

Required Action A.2 requires that the battery float current be verified as less than or equal to [2] amps. This indicates that, if the battery had been discharged as the result of the inoperable battery charger, it has now been fully recharged. If at the expiration of the initial [12] hour period the battery float current is not less than or equal to [2] amps this indicates there may be additional battery problems and the battery must be declared inoperable. (4)

Required Action A.3 limits the restoration time for the inoperable battery charger to 7 days. This action is applicable if an alternate means of restoring battery terminal voltage to greater than or equal to the minimum established float voltage has been used (e.g., balance of plant non-Class 1E battery charger). The 7 day Completion Time reflects a reasonable time to effect restoration of the qualified battery charger to OPERABLE status.

A

B.1, B.2.1, B.2.2, B.2.3, and B.2.4

the required Division 1 or Division 2 125 VDC electrical power subsystem is inoperable the minimum required DC power sources are not available. Therefore, suspension of (4)

If more than one DC distribution subsystem is required according to LCO 3.8.10, the DC subsystems remaining OPERABLE with one or more DC power sources inoperable may be capable of supporting sufficient required features to allow continuation of CORE ALTERATIONS, [recently] irradiated fuel movement, and operations with a potential for draining the reactor vessel.] By allowance of the option to declare required features inoperable with associated DC power sources inoperable, appropriate restrictions are implemented in accordance with the affected system LCOs' ACTIONS. In many instances, this option may involve undesired administrative efforts. Therefore, the allowance for sufficiently conservative actions is made (i.e., to suspend CORE ALTERATIONS, movement of [recently] irradiated fuel assemblies, and any activities that could result in inadvertent draining of the reactor vessel). (4) (2) (4)

is required

BASES

ACTIONS (continued)

Suspension of these activities shall not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability of the occurrence of postulated events. It is further required to immediately initiate action to restore the required DC electrical power subsystem[s] and to continue this action until restoration is accomplished in order to provide the necessary DC electrical power to the plant safety systems. (2)

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required DC electrical power subsystems should be completed as quickly as possible in order to minimize the time during which the plant safety systems may be without sufficient power. (4)

SURVEILLANCE REQUIREMENTS

SR 3.8.5.1

SR 3.8.5.1 requires performance of all Surveillances required by SR 3.8.4.1 through SR 3.8.4.3. Therefore, see the corresponding Bases for LCO 3.8.4 for a discussion of each SR.

This SR is modified by a Note. The reason for the Note is to preclude requiring the OPERABLE DC sources from being discharged below their capability to provide the required power supply or otherwise rendered inoperable during the performance of SRs. It is the intent that these SRs must still be capable of being met, but actual performance is not required.

REFERENCES

1. FSAR, Chapter [6]. (1)
2. [U] FSAR, Chapter [15]. (1) (2)

[1] [14]

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.5 BASES, DC SOURCES - SHUTDOWN

1. Changes are made (additions, deletions, and/or changes) to the ISTS Bases, which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The brackets are removed and the proper plant specific information/value is provided.

3. These punctuation corrections have been made consistent with the Writer's Guide for the Improved Standard Technical Specifications, NEI 01-03, Section 5.1.3.

4. Changes are made to the Bases which reflect changes made to the Specifications.

5. Changes are made to be consistent with the name of the Specification.

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.8.5, DC SOURCES - SHUTDOWN

There are no specific NSHC discussions for this Specification.

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ATTACHMENT 6

ITS 3.8.6, Battery Parameters

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

A.1

ITS

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
3.9 AUXILIARY ELECTRICAL SYSTEMS	4.9 AUXILIARY ELECTRICAL SYSTEMS
Applicability: Applies to the auxiliary electrical power system.	Applicability: Applies to the periodic testing requirements of the auxiliary electrical system.
Objective: To assure an adequate supply of electrical power during plant operation.	Objective: Verify the operability of the auxiliary electrical system.
3.8.6 Specification:	Specification: A.2
Applicability A. The reactor shall not be made critical unless all the following requirements are satisfied:	A. Surveillance testing shall be performed as follows:
1. At least two (2) NSP transmission lines, associated switchgear, and at least two offsite power sources are fully operational and energized to carry power to the plant 4160V AC buses as follows:	1. Substation Switchyard Battery
a. 2R and 1R transformers, or	a. Every week the specific gravity and voltage of the pilot cell and temperature of adjacent cells and overall battery voltage shall be measured. { See ITS 3.8.1 }
b. 1R and 1AR transformers, or	b. Every three months the measurements shall be made of voltage of each cell to nearest 0.01 volt, specific gravity of each cell, and temperature of every fifth cell.
c. 2R and 1AR transformers (source from 10 transformer)	

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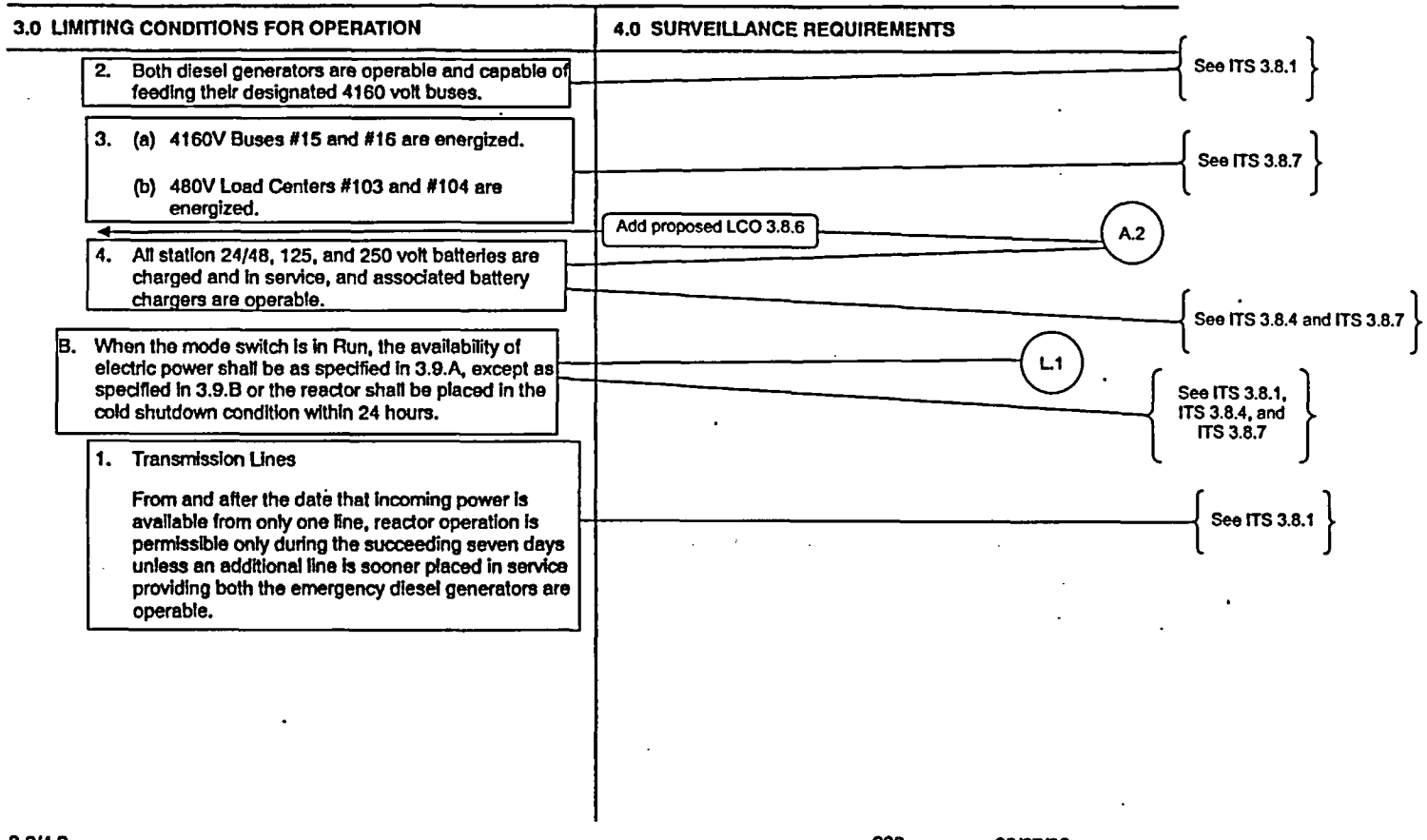
A.1


3.0 LIMITING CONDITIONS FOR OPERATION
4.0 SURVEILLANCE REQUIREMENTS
2. Both diesel generators are operable and capable of feeding their designated 4160 volt buses.
See ITS 3.8.1
3. (a) 4160V Buses #15 and #16 are energized.
(b) 480V Load Centers #103 and #104 are energized.
See ITS 3.8.7
Add proposed LCO 3.8.6
A.2
4. All station 24/48, 125, and 250 volt batteries are charged and in service, and associated battery chargers are operable.
See ITS 3.8.4 and ITS 3.8.7
B. When the mode switch is in Run, the availability of electric power shall be as specified in 3.9.A, except as specified in 3.9.B or the reactor shall be placed in the cold shutdown condition within 24 hours.
L.1
See ITS 3.8.1, ITS 3.8.4, and ITS 3.8.7
1. Transmission Lines
From and after the date that incoming power is available from only one line, reactor operation is permissible only during the succeeding seven days unless an additional line is sooner placed in service providing both the emergency diesel generators are operable.
See ITS 3.8.1

A.1

ITS

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
4. Station Battery System If one of the two 125 V battery systems or one of the two 250 V battery systems is made or found to be inoperable for any reason, an orderly shutdown of the reactor shall be initiated and the reactor water temperature shall be reduced to less than 212°F within 24 hours unless such battery systems are sooner made operable	4. Station Battery System SR 3.8.6.2, SR 3.8.6.4 a. Every week the specific gravity and voltage of the pilot cell and temperature of the adjacent cells and overall battery voltage shall be measured. SR 3.8.6.5 b. Every three months the measurements shall be made of voltage of each cell to nearest 0.01 volt, specific gravity of each cell, and temperature of every fifth cell. SR 3.8.6.6 c. Every refueling outage the station batteries shall be subjected to a rated load discharge test. Determine specific gravity and voltage of each cell after the discharge.
5. 24V Battery Systems From and after the date that one of the two 24V battery systems is made or found to be inoperable for any reason, refer to Specification 3.2 for appropriate action.	5. 24V Battery Systems a. Every week the specific gravity and voltage of the pilot cell and temperature of adjacent cells and overall battery voltage shall be measured. b. Every three months the measurements shall be made of voltage of each cell to nearest 0.01 volt, specific gravity of each cell, and temperature of every fifth cell.

Add proposed SR 3.8.6.1 — M.1

L.2

L.3

31 days

Add proposed voltage limit — M.2 — L.4

pilot

See ITS 3.8.4

Add proposed SR 3.8.6.3

Add proposed voltage limit — M.2 — L.3 — M.1

L.5

LA.1

Add proposed Note to SR 3.8.6.6 — A.3

Add proposed SR 3.8.6.6 Frequencies — L.6

L.7

A.4

Interval

Add proposed battery capacity limit — M.3

L.8

See ITS 3.8.4

Add proposed ACTIONS Note and ACTIONS A, B, C, D, E, and F

L.1

See ITS 3.8.4

3.9/4.9

203 3/24/86

Amendment No. 3, 41

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DISCUSSION OF CHANGES
ITS 3.8.6, BATTERY PARAMETERS

ADMINISTRATIVE CHANGES

A.1 In the conversion of the Monticello Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1433, Rev. 3, "Standard Technical Specifications General Electric Plants, BWR/4" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A.2 CTS 3.9.A does not allow the reactor to be made critical unless the requirements in CTS 3.9.A.4 are met. CTS 3.9.A.4, in part, requires the 125 VDC and 250 VDC batteries to be charged and in service and the associated battery chargers to be OPERABLE. Thus, the battery parameter requirements are covered by this LCO statement. ITS 3.8.6 requires the battery parameters associated with the 125 VDC and 250 VDC batteries to be within limits whenever the associated DC electrical power subsystems are required to be OPERABLE. The requirements for the batteries and chargers are included in ITS 3.8.4 and ITS 3.8.5. This changes the CTS by dividing the requirements for the battery and the requirements for battery parameters into two separate Specifications, and specifies the Applicability of the Battery Parameter requirements to be the same as the DC Sources they support.

The purpose of ITS 3.8.6 is to cover the battery parameter requirements for the Division 1 and Division 2 250 VDC and 125 VDC batteries. There are no technical changes as a result of this change since it simply converts the CTS into the format of the ITS. Any technical changes to the battery parameters are discussed below. Any changes related to the Applicability of the Division 1 and Division 2 250 VDC and 125 VDC batteries (and hence, the Applicability of the Battery Parameter requirements) are discussed in the Discussion of Changes for ITS 3.8.4 and ITS 3.8.5. This change is designated as administrative because it does not result in technical changes to the CTS.

A.3 CTS 4.9.B.4.c requires the "rated load discharge test" (i.e., a "performance discharge test" in the ITS) to be performed, but it does not provide any restrictions for when the test may be performed. ITS SR 3.8.6.6 requires the same test, however a Note to SR 3.8.6.6 specifies that this Surveillance shall not normally be performed in MODE 1, 2, or 3. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the unit is maintained or enhanced. In addition, the Note further states that credit may be taken for unplanned events that satisfy the SR. This changes the CTS by adding a specific restriction as to when the Surveillance can be performed.

Currently, this Surveillance would not normally be performed while operating (i.e., MODES 1, 2, and 3), since performing this Surveillance would result in the inoperability of the associated battery, and the Actions require a plant shutdown if the battery is inoperable. The ITS Note clearly presents the current practice on when the test may be performed and the allowance of the current practice of taking credit for unplanned events, provided the necessary data is obtained. This

change is designated as administrative because it does not result in technical changes to the CTS.

A.4 This change to CTS 4.9.B.4.c is provided in the Monticello ITS consistent with the Technical Specifications Change Request submitted to the USNRC for approval in NMC letter L-MT-04-036, from Thomas J. Palmisano (NMC) to USNRC, dated June 30, 2004. As such, this change is administrative.

MORE RESTRICTIVE CHANGES

M.1 ITS SR 3.8.6.1 requires the verification every 7 days that each battery float current is $\leq$ 2 amps for the 250 VDC batteries and $\leq$ 1 amp for the 125 VDC batteries. However, as Noted, this requirement is not required to be met when battery terminal voltage is less than the limit of SR 3.8.4.1. ITS SR 3.8.6.3 requires the verification every 31 days that each battery connected cell electrolyte level is greater than or equal to the minimum established design limits. CTS 4.9.B.4, which specifies the Surveillances for the Division 1 and Division 2 125 VDC and 250 VDC batteries, does not require these Surveillances. This changes the CTS by adding explicit Surveillances for battery float current and battery connected cell electrolyte level.

The purpose of SR 3.8.6.1 is to assist in the determination of the state of charge of the battery while the purpose of ITS SR 3.8.6.3 is to ensure the battery connected cell electrolyte level is greater than or equal to the minimum established design limits to ensure the batteries can provide the required current and voltage to meet the design requirements. The specified float current is based on the float current that is indicative of a charged battery and the required electrolyte level maintains adequate electron transfer capability. These Surveillances are consistent with IEEE 450-1995. This change is acceptable since the Surveillances are necessary to help ensure the batteries remain OPERABLE. This change is designated as more restrictive because explicit Surveillance Requirements have been added.

M.2 CTS 4.9.B.4.a requires the pilot cell voltage to be measured every week and CTS 4.9.B.4.b requires each cell voltage to be measured every 3 months. However, no voltage limit is provided in the CTS. ITS SR 3.8.6.2 requires monthly verification that each battery pilot cell voltage is $\geq$ 2.07 V and ITS SR 3.8.6.5 requires quarterly verification that each battery connected cell voltage is $\geq$ 2.07 V. This changes the CTS by specifying an acceptance criteria for pilot cell and battery connected cell voltage limits. The change in the Frequency for CTS 4.9.B.4.a is discussed in DOC L.2.

The purpose of the proposed Surveillance limit in ITS SR 3.8.6.2 and SR 3.8.6.5 is to ensure the cell voltages are greater than or equal to the short term absolute minimum voltage. This change is acceptable because a limit is specified for cell voltage where one was not previously specified. This change is designated as more restrictive because more stringent Surveillance Requirements are being applied in the ITS than were applied in the CTS.

DISCUSSION OF CHANGES
ITS 3.8.6, BATTERY PARAMETERS

M.3 CTS 4.9.B.4.c requires the "rated load discharge test" (i.e., a "performance discharge test" in the ITS) to be performed, but it does not provide a capacity limit. ITS SR 3.8.6.6 requires the same test, but provides a limit of $\geq$ 90% of the manufacturer's rating. This changes the CTS by specifying the battery capacity limit.

The purpose of CTS 4.9.B.4.c is to verify the capacities of the batteries are acceptable. The proposed limit is consistent with a commitment in a letter from the Northern States Power Company to the NRC dated November 22, 1991 in a letter concerning the Monticello Station Blackout Evaluation. Since the proposed limit is consistent with current practice and with the letter the change is considered acceptable. This change is designated as more restrictive because it adds a specific limit to the CTS where non previously existed.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA.1 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS 4.9.B.4.b requires each cell voltage to be measured "to the nearest 0.01 volt." ITS SR 3.8.6.5 requires verification that each battery connected cell voltage is within a specified limit. This changes the CTS by relocating the details that the cell voltage measurement be "to the nearest 0.01 volt" to the ITS Bases.

The removal of this detail for performing Surveillance Requirements from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement that the cell voltage be measured. The details of how the cell voltages are measured does not need to appear in the Specification in order for the requirement to apply. Also, this change is acceptable because this type of procedural detail will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because a procedural detail for meeting Technical Specification requirements is being removed from the CTS.

LESS RESTRICTIVE CHANGES

L.1 *(Category 4 – Relaxation of Required Action)* CTS 3.9.B.4 requires a reactor shutdown if one of the two 125 VDC battery systems or 250 VDC battery systems is inoperable. In addition, when more than one 125 VDC or 250 VDC battery system is inoperable, CTS 3.9.B also requires a reactor shutdown. These Actions are applicable when the battery systems are inoperable due to

DISCUSSION OF CHANGES
ITS 3.8.6, BATTERY PARAMETERS

battery parameters not within limits. In lieu of requiring an reactor shutdown under these conditions, the ITS 3.8.6 ACTIONS provide compensatory actions, when battery parameters are not within limits, to be taken prior to declaring the associated battery inoperable. This changes the CTS by adding compensatory actions for battery parameters not within limits.

The purpose of the ITS 3.8.6 ACTIONS is to allow a certain amount of time to restore battery parameters to within limits before declaring the associated battery inoperable. This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. The Required Actions are consistent with safe operation under the specified Condition, considering the OPERABLE status of the redundant systems or features. This includes the capacity and capability of remaining systems or features, a reasonable time for repairs or replacement, and the low probability of a DBA occurring during the repair period. ACTIONS have been added to allow a short time period to restore parameters to within limits. ITS 3.8.6 ACTION A covers the condition of one or more batteries with one or more battery cells float voltage less than the specified limit, and requires the performance of SR 3.8.4.1 within 2 hours, the performance of SR 3.8.6.1 within 2 hours, and restoration of the affected cell voltage to within limits within 24 hours. ITS 3.8.6 ACTION B covers the condition of one or more batteries with float current not within the specified limit, and requires the performance of SR 3.8.4.1 within 2 hours and restoration of the battery float current to within limits within 12 hours. ITS 3.8.6 ACTION C covers the condition of one or more batteries with one or more cells electrolyte level less than minimum established design limits, and requires the restoration of electrolyte level to above top of plates within 8 hours, verification that there is no evidence of leakage within 12 hours, and restoration of electrolyte level to greater than or equal to the minimum established design limits within 31 days. ITS 3.8.6 ACTION D covers the condition of one or more batteries with pilot cell electrolyte temperature less than the minimum established design limits, and requires the restoration of battery pilot cell temperature to greater than or equal to minimum established design limits within 12 hours. ITS 3.8.6 ACTION E covers the condition of batteries in redundant divisions with battery parameters not within limits, and requires restoration of the battery parameters for batteries in one division to within limits within 2 hours. ITS 3.8.6 ACTION F covers the conditions when a Required Action and associated Completion Time of any of the above ACTIONS could not be met, if one or more batteries with one or more battery cells float voltage and float current are not within limits, or if ITS SR 3.8.6.6 is not met, and requires the immediate declaration that the associated battery is inoperable. ITS 3.8.4 ACTIONS Note is also included and allows separate Condition entry for each battery. The allowances are considered acceptable since only a short time is allowed to exist with battery parameters not within limits. In addition, when redundant batteries have battery parameters not within limit, only 2 hours is allowed to restore at least one redundant division before declaring the battery inoperable. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

DISCUSSION OF CHANGES
ITS 3.8.6, BATTERY PARAMETERS

L.2 *(Category 7 – Relaxation Of Surveillance Frequency, Non-24 Month Type Change)* CTS 4.9.B.4.a requires the verification that the pilot cell voltage and temperature of the adjacent cells are within limits. ITS SR 3.8.6.2 requires verification of battery pilot cell voltage every 31 days while ITS SR 3.8.6.4 requires verification of the battery pilot cell temperature every 31 days. This changes the CTS by extending the Surveillance interval for verification of pilot cell voltage and temperature from 7 days to 31 days. The change to measure the battery pilot cell temperature instead of the adjacent cells to the pilot cells is discussed in DOC L.4.

The purpose of ITS 3.8.6.2 is to ensure the cell float voltages are equal to or greater than the short term absolute minimum voltage. The purpose of ITS SR 3.8.6.4 is to ensure the pilot cell temperature is greater than or equal to the established limit of the battery sizing calculations. This change extends the Surveillance Frequency from 7 days to 31 days for verification of pilot cell voltage and temperature. This change is acceptable since ITS 5.5.12, "Battery Monitoring and Maintenance Program," has been added which requires actions to be taken to restore battery cells with float voltage < 2.13 V. This program will help ensure the cell voltage will not approach the ITS SR 3.8.6.2 limit of 2.07 V. In addition, the Frequencies are consistent with IEEE-450-1995. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

L.3 *(Category 5 – Deletion of Surveillance Requirement)* CTS 4.9.B.4.a requires verification of pilot cell specific gravity every week and CTS 4.9.B.4.b requires verification of each cell specific gravity every 3 months. ITS 3.8.6 does not include these Surveillances. This changes the CTS by deleting these Surveillances.

The purpose of CTS 4.9.B.4.a and CTS 4.9.B.4.b, the specific gravity verifications, are to ensure the state of charge of each cell. This change is acceptable because the deleted Surveillance Requirements are not necessary to verify that the equipment used to meet the LCO can perform its required functions. Thus, appropriate equipment continues to be tested in a manner and at a Frequency necessary to give confidence that the equipment can perform its assumed safety function. While the specified Surveillances have been deleted, other Surveillances are included which help to ensure the batteries will function as designed. ITS SR 3.8.6.1 (discussed in DOC M.1) requires the verification that each battery float current is $\leq$ 2 amps for the 250 VDC batteries and $\leq$ 1 amp for the 125 VDC batteries every 7 days and ITS SR 3.8.6.3 requires the verification that each battery connected cell electrolyte level is greater than or equal to minimum established design limits every 31 days. IEEE 450-1995, Section 4.5 states that the most accurate indicator of return to full charge is a stabilized charging or float current. Specific gravity readings may not be accurate when the battery is on charge following a discharge. These Surveillances give a better indication of the overall battery conditions. This change is designated as less restrictive because Surveillances which are required in the CTS will not be required in the ITS.

L.4 *(Category 6 – Relaxation Of Surveillance Requirement Acceptance Criteria)* CTS 4.9.B.4.a requires verification of electrolyte temperature of all cells adjacent

to the pilot cells. ITS SR 3.8.6.4 requires verification of each pilot cell temperature. This changes the CTS by reducing the number of cells that must be monitored for electrolyte temperature.

The purpose of CTS 4.9.B.4, in part, is to ensure a representative sample of cells are monitored to ensure the temperature of the battery cells are within acceptable levels. This change is acceptable because it has been determined that the relaxed Surveillance Requirement acceptance criteria are not necessary for verification that the equipment used to meet the LCO can perform its required functions. This changes the CTS by reducing the number of cells that must be monitored for electrolyte temperature. Monitoring only the pilot cell electrolyte temperature is sufficient to ensure the battery will be able to provide the required current and voltage to meet the design requirements. This change is designated as less restrictive because less stringent Surveillance Requirements are being applied in the ITS than were applied in the CTS.

L.5 *(Category 5 – Deletion of Surveillance Requirement)* CTS 4.9.B.4.b requires verification of the temperature of every fifth cell every 3 months. ITS 3.8.6 does not include this Surveillance. This changes the CTS by deleting this Surveillance.

The purpose of the temperature verification portion of CTS 4.9.B.4.b is to ensure the battery will be able to provide the required current and voltage to meet the design requirements. This change is acceptable because the deleted Surveillance Requirement is not necessary to verify that the equipment used to meet the LCO can perform its required functions; other Surveillances ensure the equipment continues to be tested in a manner and at a Frequency necessary to give confidence that the equipment can perform its assumed safety function. While the specified Surveillances have been deleted, other Surveillances are included which help to ensure the batteries will function as designed. ITS SR 3.8.6.4 requires verification of each battery pilot cell temperature is within limit. This Surveillance is sufficient to ensure the electrolyte temperature throughout the battery is acceptable to provide the required current and voltage to meet the design requirements. This change is designated as less restrictive because Surveillances which are required in the CTS will not be required in the ITS.

L.6 *(Category 7 – Relaxation Of Surveillance Frequency, Non-24 Month Type Change)* CTS 4.9.B.4.c requires the "rated load discharge test" (i.e., a "performance discharge test" in the ITS) to be performed every refueling interval. ITS SR 3.8.6.6 is performed every 60 months, every 12 months when the battery shows degradation or has reached 85% if the expected life with capacity < 100% of manufacturer's rating, and every 24 months when the battery has reached 85% of the expected life with capacity > 100% of manufacturer's rating. This changes the CTS by extending the Frequency from every refueling interval to 60 months, provided the battery has not reached 85% of expected life. If the battery has reached 85% of expected life, then the Frequency is maintained at the current 24 months (the term "refueling interval" is changed to "24 months"), provided the battery capacity is $\geq$ 100% of the manufacturer's rating. The CTS is also changed by adding an accelerated Frequency of 12 months if the battery has reached 85% of expected life and the capacity is < 100% of manufacturer's rating.

DISCUSSION OF CHANGES
ITS 3.8.6, BATTERY PARAMETERS

The purpose of CTS 4.9.B.4.c is to ensure the battery capacity is ≥ 90% of the manufacturer's rating. ITS SR 3.8.6.6 extends the Frequency of the performance discharge test to 60 months. However, an accelerated Frequency has been added for when the battery shows signs of degradation or when the battery has reached 85% of the expected life. The accelerated Frequency is every 12 months when the battery show degradation, or has reached 85% of the expected life with capacity < 100% of manufacturer's rating and 24 months when the battery has reached 85% of the expected life with capacity > 100% of manufacturer's rating. This change is acceptable since a battery service test has been added (ITS SR 3.8.4.3), which will ensure the batteries has enough capacity to meet the requirements of the design duty cycle every 24 months. Currently, Monticello has a commitment to change a battery that is at a battery age that is less than 85% of rated service life, or if it's capacity has dropped by more than 10% of rated capacity over the past three operating cycles, or if the battery capacity has reached 90% of rated capacity. The change retains the requirement to change the battery when it has reached 90% of manufacturer's rating. However, when the battery show signs of degradation or when it has reached 85% of its expected life the battery capacity test will be determined more often to ensure it's capacity does not go below 90% of the capacity. These changes are consistent with IEEE-450-1995. In addition, the current "refueling interval" is "24 months." In letter L-MT-04-036, from Thomas J. Palmisano (NMC) to the USNRC, dated June 30, 2004, NMC has proposed to extend the fuel cycle from 18 months to 24 months and the same time has performed an evaluation in accordance with Generic Letter 91-04 to extend the unit Surveillance Requirements from 18 months to 24 months. CTS 4.9.B.4.c was included in this evaluation. Thus this portion of the change (the use of 24 months in lieu of refueling interval) is considered administrative. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

L.7 *(Category 6 – Relaxation Of Surveillance Requirement Acceptance Criteria)*
CTS 4.9.B.4.c requires the performance of a "rated load discharge" test of the Division 1 and Division 2 250 VDC and 125 VDC batteries. ITS SR 3.8.6.6 requires the performance of a "performance discharge" test or a "modified performance discharge" test. This changes the CTS by adding the allowance to perform a modified performance discharge test instead of the performance discharge test (equivalent to the rated load discharge test).

The purpose of CTS 4.9.B.4.c is to verify the capacities of the batteries are acceptable. This change is acceptable because it has been determined, as described below, that the relaxed Surveillance Requirement test method for verification that the equipment used to meet the LCO can perform its required functions is acceptable. This changes the CTS by adding the allowance to perform a modified performance discharge test instead of the performance discharge test. The modified performance discharge test is performed by simulating the duty cycle consisting of two rates: 1 min rate published for the battery or the largest current load of the duty cycle, followed by the test rate employed for the performance test. Since the ampere-hours removed by a rated 1 min discharge represent a very small portion of the battery's capacity, the test rate can be changed to that for the performance test without compromising the results of the performance test. This change is designated as less restrictive

DISCUSSION OF CHANGES
ITS 3.8.6, BATTERY PARAMETERS

because less stringent Surveillance Requirements are being applied in the ITS than were applied in the CTS.

L.8 *(Category 6 – Relaxation Of Surveillance Requirement Acceptance Criteria)* CTS 4.9.B.4.c requires the performance of a rated load discharge test of the Division 1 and Division 2 250 VDC and 125 VDC batteries. At the completion of this test, the CTS requires the determination of specific gravity and voltage of each cell. ITS SR 3.8.6.6 does not require this verification. This changes the CTS by deleting the requirement to determine specific gravity and voltage at the completion of the test.

The purpose of ITS SR 3.8.6.6 is to ensure the battery capacity is $\geq$ 90% of the manufacturer's rating. This change is acceptable because it has been determined that the relaxed Surveillance Requirement acceptance criteria are not necessary for verification that the equipment used to meet the LCO can perform its required functions. This changes the CTS by deleting the requirement to determine specific gravity and voltage during the discharge test. ITS SR 3.8.6.6 is performed to ensure the battery capacity is within the specified limit. The determination of battery capacity does not require the values of specific gravity and voltage of each cell for this evaluation. This change is acceptable because these parameters are monitored for trending purposes and are not specifically required to determine the capacity of a battery. This change is designated as less restrictive because less stringent Surveillance Requirements are being applied in the ITS than were applied in the CTS.

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

CTS

3.8 ELECTRICAL POWER SYSTEMS

3.8.6 Battery Parameters

REVIEWER'S NOTE

Licensees must implement a program, as specified in Specification 5.5.14, to monitor battery parameters that is based on the recommendations of IEEE Standard 450-1995, "IEEE Recommended Practice For Maintenance, Testing, And Replacement Of Vented Lead-Acid Batteries For Stationary Applications." (1)

3.9.A.4 LCO 3.8.6 Battery parameters for the [station service and DG] batteries shall be within limits. (2)

Division 1 and Division 2 125 VDC and 250 VDC

3.9.A, 3.9.A.4 APPLICABILITY: When associated DC electrical power subsystems are required to be OPERABLE.

ACTIONS

NOTE

DOC L.1 Separate Condition entry is allowed for each battery.

CONDITION	REQUIRED ACTION		COMPLETION TIME
DOC L.1 A. One [or two] batter[y][ies] [on one division] with one or more battery cells float voltage < [2.07] V. (more)	A.1	Perform SR 3.8.4.1.	2 hours (2)
	AND		(3)
	A.2	Perform SR 3.8.6.1.	2 hours
	AND		
	A.3	Restore affected cell voltage ≥ [2.07] V.	24 hours (3)
DOC L.1 B. One [or two] batter[y][ies] [on one division] with float current > [2] amps (more) (for 250 VDC batteries or > 1 amp for 125 VDC batteries)	B.1	Perform SR 3.8.4.1.	2 hours (2)
	AND		(3)
	B.2	Restore battery float current to ≤ [2] amps. (for 250 VDC batteries or ≤ 1 amp for 125 VDC batteries)	[12] hours (3)

CTS

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
----------NOTE---------- Required Action C.2 shall be completed if electrolyte level was below the top of plates. ----------	----------NOTE---------- Required Actions C.1 and C.2 are only applicable if electrolyte level was below the top of plates. ----------	
DOC L.1 C. One [or two] batter[y]ies [on one division] with one or more cells electrolyte level less than minimum established design limits. (more)	C.1 Restore electrolyte level to above top of plates. AND C.2 Verify no evidence of leakage. AND C.3 Restore electrolyte level to greater than or equal to minimum established design limits.	8 hours (2) 12 hours 31 days
DOC L.1 D. One [or two] batter[y]ies [on one division] with pilot cell electrolyte temperature less than minimum established design limits. (more)	D.1 Restore battery pilot cell temperature to greater than or equal to minimum established design limits.	12 hours (2)
DOC L.1 E. [One or more] batteries in redundant divisions with battery parameters not within limits.	E.1 Restore battery parameters for batteries in one division to within limits.	2 hours (2)

CTS

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
DOC L.1 F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met. OR One [or two] batter[y][ies] [on one division] with one or more battery cells float voltage < [2.07] V and float current > [2] amps. (more; for 250 VDC batteries or > 1 amp for 125 VDC batteries) (2)	F.1 Declare associated battery inoperable. OR SR 3.8.6.6 not met. (3) (4)	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY
DOC M.1	SR 3.8.6.1	----------NOTE---------- Not required to be met when battery terminal voltage is less than the minimum established float voltage of SR 3.8.4.1. ---------- Verify each battery float current is ≤ [2] amps. (for 250 VDC batteries and ≤ 1 amp for 125 VDC batteries)	7 days (3)
4.9.B.4.a	SR 3.8.6.2	Verify each battery pilot cell voltage is ≥ [2.07] V.	31 days (3)
DOC M.1	SR 3.8.6.3	Verify each battery connected cell electrolyte level is greater than or equal to minimum established design limits.	31 days
4.9.B.4.a	SR 3.8.6.4	Verify each battery pilot cell temperature is greater than or equal to minimum established design limits.	31 days

CTS

SURVEILLANCE REQUIREMENTS (continued)

		SURVEILLANCE	FREQUENCY	
4.9.B.4.b	SR 3.8.6.5	Verify each battery connected cell voltage is ≥ [2.07] V.	92 days	(3)
4.9.B.4.c	SR 3.8.6.6	----------NOTE---------- This Surveillance shall not normally be performed in MODE 1, 2, or 3. However, portion of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. ----------		
		Verify battery capacity is ≥ [80%] (90%) of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test.	60 months AND 12 months when battery shows degradation, or has reached [85]% of the expected life with capacity < 100% of manufacturer's rating AND 24 months when battery has reached [85]% of the expected life with capacity ≥ 100% of manufacturer's rating	(3) (3) (3)

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.6, BATTERY PARAMETERS

1. The "Reviewer Note" has been deleted since it is not intended to be retained in the plant specific ITS submittal.

2. ISTS LCO 3.8.6 has been modified to be consistent with the requirements specified in ITS LCO 3.8.4. The Monticello design includes three batteries per division (two for the 250 VDC electrical power subsystem and one for the 125 VDC electrical power subsystem). In addition, due to the addition of these DC Sources, ISTS 3.8.6 Conditions A, B, C, D, and F have been modified to allow batteries in two trains to have battery parameters not within limits. ITS 3.8.6 ACTION E will ensure that if batteries in redundant trains have battery parameters not within limits, the restoration time is properly limited consistent with the intent of the ISTS 3.8.6 ACTIONS.

3. The brackets have been removed and the proper plant specific information/value has been provided.

4. ISTS SR 3.8.6.6 requires a battery performance discharge or modified performance discharge test to be performed and provides acceptance criteria. However, no ACTION is provided in the ISTS 3.8.6 ACTIONS for when this SR is not met. Thus in the ISTS, LCO 3.0.3 would have to be entered. To preclude an LCO 3.0.3 entry, ISTS 3.8.6 Condition F has been modified to cover the case when SR 3.8.6.6 is not met. ACTION F will require the associated battery to be declared inoperable. This change has previously been approved by the NRC during the ITS conversion for DC Cook Units 1 and 2.

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Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.6 Battery Parameters

BASES

BACKGROUND

This LCO delineates the limits on battery float current as well as electrolyte temperature, level, and float voltage for the DC electrical power subsystems batteries. A discussion of these batteries and their OPERABILITY requirements is provided in the Bases for LCO 3.8.4, "DC Sources - Operating," and LCO 3.8.5, "DC Sources - Shutdown." In addition to the limitations of this Specification, the [licensee controlled program] also implements a program specified in Specification 5.5.14 for monitoring various battery parameters that is based on the recommendations of IEEE Standard 450-1995, "IEEE Recommended Practice For Maintenance, Testing, And Replacement Of Vented Lead-Acid Batteries For Stationary Applications" (Ref. 1).

The battery cells are of flooded lead acid construction with a nominal specific gravity of [1.215]. This specific gravity corresponds to an open circuit battery voltage of approximately 120 V for [58] cell battery (i.e., cell voltage of [2.065] volts per cell (Vpc)). The open circuit voltage is the voltage maintained when there is no charging or discharging. Once fully charged with its open circuit voltage ≥ [2.065] Vpc, the battery cell will maintain its capacity for [30] days without further charging per manufacturer's instructions. Optimal long term performance however, is obtained by maintaining a float voltage [2.20 to 2.25] Vpc. This provides adequate over-potential which limits the formation of lead sulfate and self discharge. The nominal float voltage of [2.22] Vpc corresponds to a total float voltage output of [128.8] V for a [58] cell battery as discussed in the FSAR, Chapter [8] (Ref. 2).

APPLICABLE SAFETY ANALYSES

The initial conditions of Design Basis Accident (DBA) and transient analyses in [FSAR, Chapter [6] (Ref. 3) and Chapter [15] (Ref. 4)], assume Engineered Safety Feature systems are OPERABLE. The DC electrical power subsystems provide normal and emergency DC electrical power for the diesel generators (DGs), emergency auxiliaries, and control and switching during all MODES of operation.

The OPERABILITY of the DC subsystems is consistent with the initial assumptions of the accident analyses and is based upon meeting the design basis of the unit. This includes maintaining at least one division of DC sources OPERABLE during accident conditions, in the event of:

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

The specific Applicable Safety Analyses for the DC Electrical Power System are provided in the Bases of LCO 3.8.4 and LCO 3.8.5.

BASES

APPLICABLE SAFETY ANALYSES (continued)

b. ~~A worst case single failure.~~ (5)

Since battery parameters support the operation of the DC electrical power subsystems, they satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii). (4)

LCO

Battery parameters must remain within acceptable limits to ensure availability of the required DC power to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence or a postulated DBA. Battery parameter limits are conservatively established, allowing continued DC electrical system function even with limits not met. Additional preventative maintenance, testing, and monitoring performed in accordance with the ~~licensee controlled program~~ Battery Monitoring and Maintenance Program (2) (6) is conducted as specified in Specification 5.5.~~14~~ 12.

APPLICABILITY

The battery parameters are required solely for the support of the associated DC electrical power subsystem. Therefore, battery parameter limits are only required when the DC ~~power source~~ electrical subsystem is required to be OPERABLE. Refer to the Applicability discussions in Bases for LCO 3.8.4 and LCO 3.8.5. (1)

ACTIONS

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

With one or more cells in one or more batteries ~~in one division~~ < [2.07] V, (6) (2) the battery cell is degraded. Within 2 hours verification of the required battery charger OPERABILITY is made by monitoring the battery terminal voltage (SR 3.8.4.1) and of the overall battery state of charge by monitoring the battery float charge current (SR 3.8.6.1). This assures that there is still sufficient battery capacity to perform the intended function. Therefore, the affected battery is not required to be considered inoperable solely as a result of one or more cells in one or more batteries < [2.07] V, (2) and continued operation is permitted for a limited period up to 24 hours.

Since the Required Actions only specify "perform," a failure of SR 3.8.4.1 or SR 3.8.6.1 acceptance criteria does not result in this Required Action not met. However, if one of the SRs is failed the appropriate Condition(s), depending on the cause of the failures, is entered. If SR 3.8.6.1 is failed then there is not assurance that there is still sufficient battery capacity to perform the intended function and the battery must be declared inoperable immediately.

BASES

ACTIONS (continued)

for 250 VDC batteries or > 1 amp for 125 VDC batteries

current

B.1 and B.2

One or more batteries in one division with float > [2] amps indicates that a partial discharge of the battery capacity has occurred. This may be due to a temporary loss of a battery charger or possibly due to one or more battery cells in a low voltage condition reflecting some loss of capacity. Within 2 hours verification of the required battery charger OPERABILITY is made by monitoring the battery terminal voltage. If the terminal voltage is found to be less than the minimum established float voltage there are two possibilities, the battery charger is inoperable or is operating in the current limit mode. Condition A addresses charger inoperability. If the charger is operating in the current limit mode after 2 hours that is an indication that the battery has been substantially discharged and likely cannot perform its required design functions. The time to return the battery to its fully charged condition in this case is a function of the battery charger capacity, the amount of loads on the associated DC system, the amount of the previous discharge, and the recharge characteristic of the battery. The charge time can be extensive, and there is not adequate assurance that it can be recharged within [12] hours (Required Action B.2). The battery must therefore be declared inoperable.

If the float voltage is found to be satisfactory but there are one or more battery cells with float voltage less than [2.07] V, the associated "OR" statement in Condition F is applicable and the battery must be declared inoperable immediately. If float voltage is satisfactory and there are no cells less than [2.07] V there is good assurance that, within [12] hours, the battery will be restored to its fully charged condition (Required Action B.2) from any discharge that might have occurred due to a temporary loss of the battery charger.

---REVIEWER'S NOTE---

A plant that cannot meet the 12 hour Completion Time due to an inherent battery charging characteristic can propose an alternate time equal to 2 hours plus the time experienced to accomplish the exponential charging current portion of the battery charge profile following the service test (SR 3.8.4.3).

BASES

ACTIONS (continued)

A discharged battery with float voltage (the charger setpoint) across its terminals indicates that the battery is on the exponential charging current portion (the second part) of its recharge cycle. The time to return a battery to its fully charged state under this condition is simply a function of the amount of the previous discharge and the recharge characteristic of the battery. Thus there is good assurance of fully recharging the battery within [12] hours, avoiding a premature shutdown with its own attendant risk. (2)

If the condition is due to one or more cells in a low voltage condition but still greater than [2.07] V and float voltage is found to be satisfactory, this is not indication of a substantially discharged battery and [12] hours is a reasonable time prior to declaring the battery inoperable. (2)

Since Required Action B.1 only specifies "perform," a failure of SR 3.8.4.1 acceptance criteria does not result in the Required Action not met. However, if SR 3.8.4.1 is failed, the appropriate Condition(s), depending on the cause of the failure, is entered.

C.1, C.2, and C.3

With one or more batteries in one division with one or more cells electrolyte level above the top of the plates, but below the minimum established design limits, the battery still retains sufficient capacity to perform the intended function. Therefore, the affected battery is not required to be considered inoperable solely as a result of electrolyte level not met. Within 31 days the minimum established design limits for electrolyte level must be re-established. (6)

With electrolyte level below the top of the plates there is a potential for dryout and plate degradation. Required Actions C.1 and C.2 address this potential (as well as provisions in Specification 5.5.14, Battery Monitoring and Maintenance Program). They are modified by a Note that indicates they are only applicable if electrolyte level is below the top of the plates. Within 8 hours level is required to be restored to above the top of the plates. The Required Action C.2 requirement to verify that there is no leakage by visual inspection and the Specification 5.5.14.b item to initiate action to equalize and test in accordance with manufacturer's recommendation are taken from Annex D of IEEE Standard 450-1995. They are performed following the restoration of the electrolyte level to above the top of the plates. Based on the results of the manufacturer's recommended testing the batter[y][ies] may have to be declared inoperable and the affected cell[s] replaced. (8) (6) (12) (requirement) (6) (8) (12) (2)

BASES

ACTIONS (continued)

D.1

With one or more batteries in one division with pilot cell temperature less than the minimum established design limits, 12 hours is allowed to restore the temperature to within limits. A low electrolyte temperature limits the current and power available. Since the battery is sized with margin, while battery capacity is degraded, sufficient capacity exists to perform the intended function and the affected battery is not required to be considered inoperable solely as a result of the pilot cell temperature not met. (6)

E.1

With one or more batteries in redundant divisions with battery parameters not within limits there is not sufficient assurance that battery capacity has not been affected to the degree that the batteries can still perform their required function, given that redundant batteries are involved. With redundant batteries involved this potential could result in a total loss of function on multiple systems that rely upon the batteries. The longer Completion Times specified for battery parameters on non-redundant batteries not within limits are therefore not appropriate, and the parameters must be restored to within limits on at least one division within 2 hours. (6)

F.1

or failure of SR 3.8.6.6,

When any battery parameter is outside the allowances of the Required Actions for Condition A, B, C, D, or E, sufficient capacity to supply the maximum expected load requirement is not ensured and the corresponding battery must be declared inoperable. Additionally, discovering one or more batteries in one division with one or more battery cells float voltage less than [2.07] V and float current greater than [2] amps indicates that the battery capacity may not be sufficient to perform the intended functions. The battery must therefore be declared inoperable immediately. (6) (2)

for 250 VDC batteries or greater than 1 amp for 125 VDC batteries

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.6.1

Verifying battery float current while on float charge is used to determine the state of charge of the battery. Float charge is the condition in which the charger is supplying the continuous charge required to overcome the internal losses of a battery and maintain the battery in a charged state. The float current requirements are based on the float current indicative of a charged battery. Use of float current to determine the state of charge of the battery is consistent with IEEE-450 (Ref. 1). The 7 day Frequency is consistent with IEEE-450 (Ref. 1). (4)

more conservative than the recommendations of

This SR is modified by a Note that states the float current requirement is not required to be met when battery terminal voltage is less than the minimum established float voltage of SR 3.8.4.1. When this float voltage is not maintained the Required Actions of LCO 3.8.4 ACTION A are being taken, which provide the necessary and appropriate verifications of the battery condition. Furthermore, the float current limit of [2] amps is established based on the nominal float voltage value and is not directly applicable when this voltage is not maintained. (2)

for 250 VDC batteries and 1 amp for 125 VDC batteries

SR 3.8.6.2 and SR 3.8.6.5

Optimal long term battery performance is obtained by maintaining a float voltage greater than or equal to the minimum established design limits provided by the battery manufacturer, which corresponds to [130.5] V at the battery terminals, or [2.25] Vpc. This provides adequate over-potential, which limits the formation of lead sulfate and self discharge, which could eventually render the battery inoperable. Float voltages in this range or less, but greater than [2.07] Vpc, are addressed in Specification 5.5.14. SRs 3.8.6.2 and 3.8.6.5 require verification that the cell float voltages are equal to or greater than the short term absolute minimum voltage of [2.07] V. The Frequency for cell voltage verification every 31 days for pilot cell and 92 days for each connected cell is consistent with IEEE-450 (Ref. 1). (2) (2) (2) (6) (2) (4) (2)

132 V for a 60 cell battery and 127.6 V for a 58 cell battery

2.20

12

, with cell voltage measured to the nearest 0.01 volt

SR 3.8.6.3

The limit specified for electrolyte level ensures that the plates suffer no physical damage and maintains adequate electron transfer capability. The Frequency is consistent with IEEE-450 (Ref. 1).

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.6.4

This Surveillance verifies that the pilot cell temperature is greater than or equal to the minimum established design limit (i.e., [40] °F). Pilot cell electrolyte temperature is maintained above this temperature to assure the battery can provided the required current and voltage to meet the design requirements. Temperatures lower than assumed in battery sizing calculations act to inhibit or reduce battery capacity. The Frequency is consistent with IEEE-450 (Ref. 1).

60

2

SR 3.8.6.6

A battery performance discharge test is a test of constant current capacity of a battery, normally done in the as found condition, after having been in service, to detect any change in the capacity determined by the acceptance test. The test is intended to determine overall battery degradation due to age and usage.

Either the battery performance discharge test or the modified performance discharge test is acceptable for satisfying SR 3.8.6.6; however, only the modified performance discharge test may be used to satisfy the battery service test requirements of SR 3.8.4.3.

A modified discharge test is a test of the battery capacity and its ability to provide a high rate, short duration load (usually the highest rate of the duty cycle). This will often confirm the battery's ability to meet the critical period of the load duty cycle, in addition to determining its percentage of rated capacity. Initial conditions for the modified performance discharge test should be identical to those specified for a service test.

performance discharge

as specified in IEEE-450 (Ref. 1)

4

It may consist of just two rates; for instance, the one minute rate for the battery or the largest current load of the duty cycle, followed by the test rate employed for the performance test, both of which envelope the duty cycle of the service test. Since the ampere-hours removed by a one minute discharge represents a very small portion of the battery capacity, the test rate can be changed to that for the performance test without compromising the results of the performance discharge test. The battery terminal voltage for the modified performance discharge test must remain above the minimum battery terminal voltage specified in the battery service test for the duration of time equal to that of the service test.

discharge

modified

4

BASES

SURVEILLANCE REQUIREMENTS (continued)

The acceptance criteria for this Surveillance are consistent with IEEE-450 (Ref. 1) and IEEE-485 (Ref. 5). These references recommend that the battery be replaced if its capacity is below 80% of the manufacturer's rating. A capacity of 80% shows that the battery rate of deterioration is increasing, even if there is ample capacity to meet the load requirements. Furthermore, the battery is sized to meet the assumed duty cycle loads when the battery design capacity reaches this 80% limit.

The Frequency for this test is normally 60 months. If the battery shows degradation, or if the battery has reached 85% of its expected life and capacity is < 100% of the manufacturer's rating, the Surveillance Frequency is reduced to 12 months. However, if the battery shows no degradation but has reached 85% of its expected life, the Surveillance Frequency is only reduced to 24 months for batteries that retain capacity ≥ 100% of the manufacturer's rating. Degradation is indicated, according to IEEE-450 (Ref. 8), when the battery capacity drops by more than 10% relative to its capacity on the previous performance test or when it is 10% below the manufacturer's rating. All these Frequencies are consistent with the recommendations in IEEE-450 (Ref. 1).

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required DC electrical power subsystem from service, perturb the electrical distribution system, and challenge safety systems. This restriction from normally performing the Surveillance in MODE 1 or 2 is further amplified to allow portions of the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed partial Surveillance, a successful partial Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the partial Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or enhanced when portions of the Surveillance are performed in MODE 1 or 2. Risk insights or deterministic methods may be used for the assessment. Credit may be taken for unplanned events that satisfy this Surveillance.

4

INSERT 1

if the battery was sized using a 1.25 aging factor. If a lesser aging factor was used, battery replacement will be required before 80% capacity is reached to ensure that the load can be served.

4

INSERT 2

The 250 VDC batteries were sized using a 1.11 aging factor, therefore a 90% capacity limit was chosen. While the 125 VDC batteries were sized using a 1.25 aging factor, a similar 90% capacity limit was chosen for conservatism.

BASES

REFERENCES

1. IEEE Standard 450, 1995.

2. FSAR, Chapter [8].

3. FSAR, Chapter [6].

4. FSAR, Chapter [15].

5. IEEE Standard 485, 1983.

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.6 BASES, BATTERY PARAMETERS

1. Changes are made to reflect the Specification.

2. The brackets have been removed and the proper plant specific information/value has been provided.

3. These battery design values have been deleted because they are more specific than necessary and are not required to provide sufficient background for this Specification.

4. Changes are made (additions, deletions, and/or changes) to the ISTS Bases which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

5. ISTS 3.8.6 is applicable when associated DC electrical power subsystems are required to be OPERABLE. The DC electrical power subsystems are required to be OPERABLE in MODES 1, 2, and 3 (ITS 3.8.4) and in MODES 4 and 5 and during movement of irradiated fuel assemblies in the secondary containment (ITS 3.8.5). The Applicable Safety Analyses Bases only discusses accident analyses related to MODES 1, 2, and 3; it does not discuss events in MODES 4 and 5 and during movement of irradiated fuel assemblies in the secondary containment. Therefore, for completeness, the Applicable Safety Analyses for MODES 4 and 5 and during movement of irradiated fuel assemblies in the secondary containment needs to be discussed. However, in lieu of adding this large description from the ITS 3.8.5 Bases, the MODES 1, 2, and 3 description has been deleted and in its place a statement has been added referencing the Applicable Safety Analyses Bases for ITS 3.8.4 and ITS 3.8.5. This is consistent with the manner in which similar information in one ISTS Bases is referenced in another ISTS Bases (e.g., the ISTS 3.8.5 Background Bases references ISTS 3.8.4 Background Bases).

6. Changes are made to reflect those changes made to the Specifications.

7. The "Reviewer's Note" has been deleted since it is not intended to be included in the plant specific ITS submittals.

8. Grammatical/editorial/spelling error corrected.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.8.6, BATTERY PARAMETERS

There are no specific NSHC discussions for this Specification.

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ATTACHMENT 7

ITS 3.8.7, Distribution Systems - Operating

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

A.1

ITS

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
3.9 AUXILIARY ELECTRICAL SYSTEMS Applicability: Applies to the auxiliary electrical power system. Objective: To assure an adequate supply of electrical power during plant operation.	**4.9 AUXILIARY ELECTRICAL SYSTEMS** Applicability: Applies to the periodic testing requirements of the auxiliary electrical system. Objective: Verify the operability of the auxiliary electrical system.
3.8.7 Specification:	Specification: (M.1)
Applicability A. The reactor shall not be made critical unless all the following requirements are satisfied:	A. Surveillance testing shall be performed as follows:
1. At least two (2) NSP transmission lines, associated switchgear, and at least two offsite power sources are fully operational and energized to carry power to the plant 4160V AC buses as follows: a. 2R and 1R transformers, or b. 1R and 1AR transformers, or c. 2R and 1AR transformers (source from 10 transformer)	1. Substation Switchyard Battery a. Every week the specific gravity and voltage of the pilot cell and temperature of adjacent cells and overall battery voltage shall be measured. (See ITS 3.8.1) b. Every three months the measurements shall be made of voltage of each cell to nearest 0.01 volt, specific gravity of each cell, and temperature of every fifth cell.

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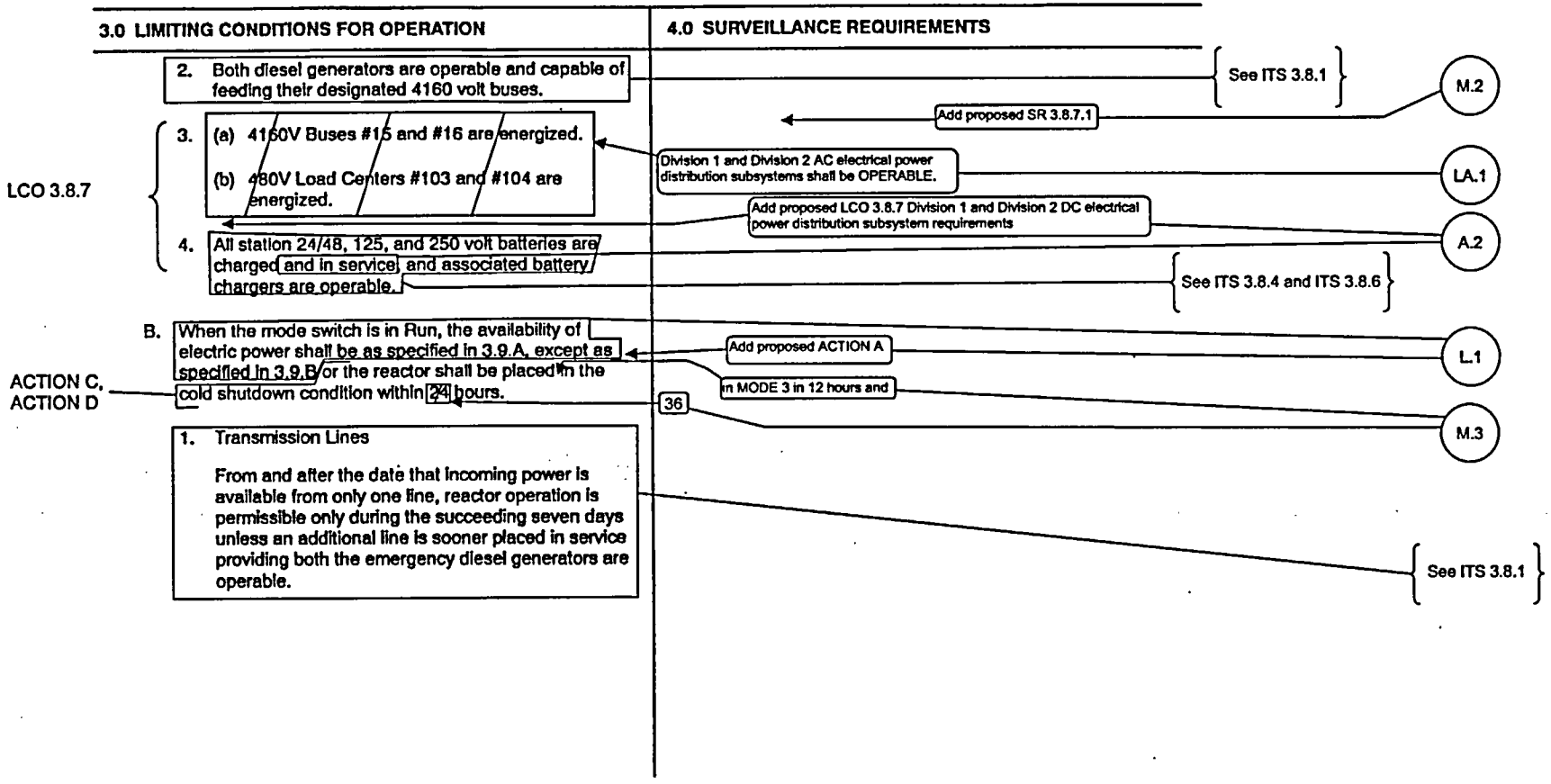
A.1

ITS



3.9/4.9

200 08/27/02
Amendment No. ~~51, 104,~~ 129

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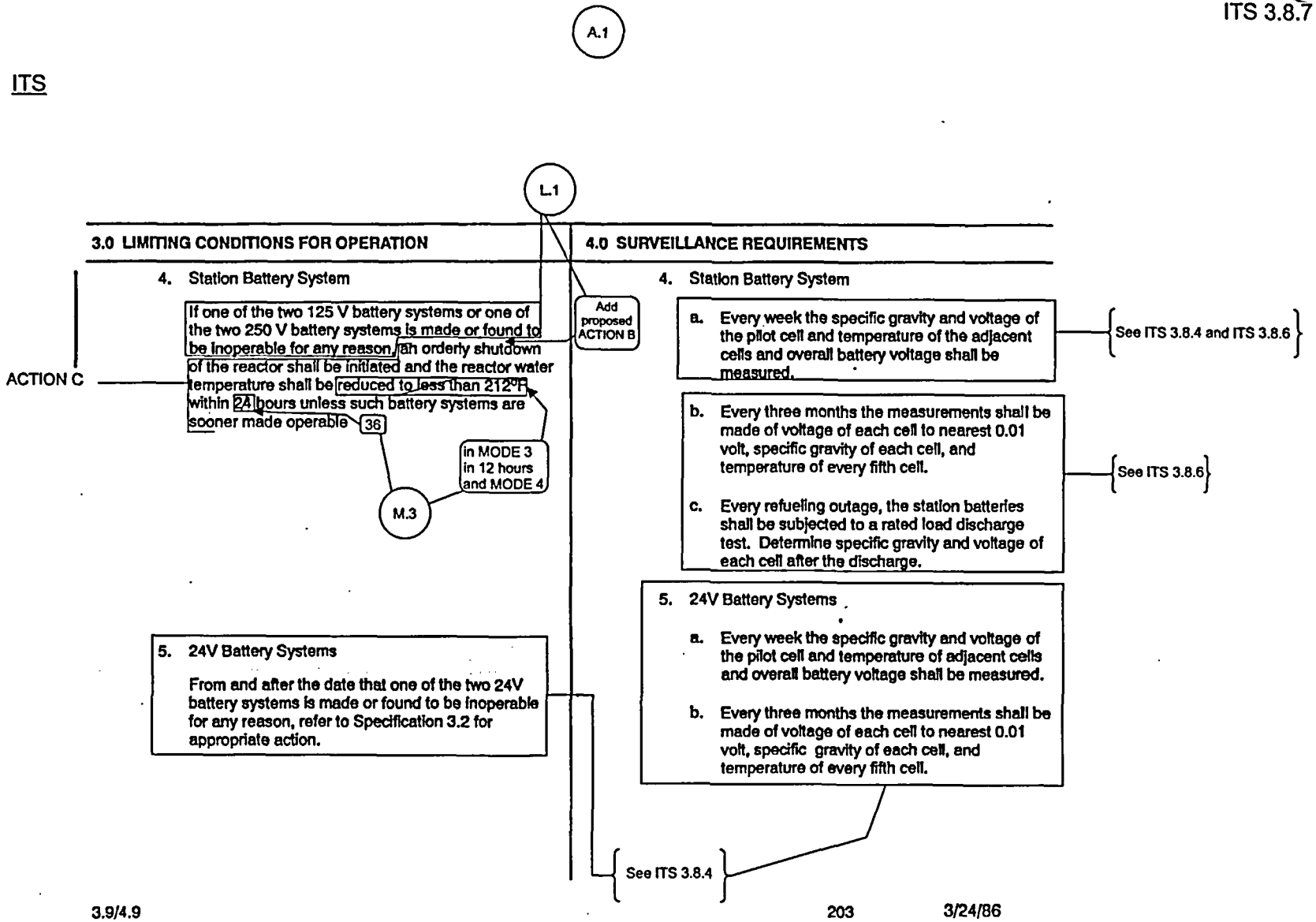
ITS



3.9/4.9

203 3/24/86

Amendment No. 3, 41

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DISCUSSION OF CHANGES
ITS 3.8.7, DISTRIBUTION SYSTEMS - OPERATING

ADMINISTRATIVE CHANGES

A.1 In the conversion of the Monticello Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1433, Rev. 3, "Standard Technical Specifications General Electric Plants, BWR/4" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A.2 CTS 3.9.A.4 requires the station 125 VDC and 250 VDC batteries to be charged and "in service," however the CTS does not explicitly require the associated DC distribution panels to be to be OPERABLE. ITS LCO 3.8.7, in part, requires the Division 1 and Division 2 DC electrical power distribution subsystems to be OPERABLE. This changes the CTS by specifying the requirements for DC distribution buses.

The purpose of CTS 3.9.A.4, in part, is to ensure the DC buses associated with the 125 VDC and 250 VDC batteries are OPERABLE. This is implicitly required since CTS 3.9.A.4 requires the 125 VDC and 250 VDC batteries to be "in service," and the only way they can be in service is to be connected to the associated DC distribution bus. The proposed change explicitly requires the Division 1 and Division 2 DC electrical power distribution subsystems to be OPERABLE. The details of which buses or distribution panels are covered by this LCO are discussed in the Bases. This change is designated as administrative because it does not result in technical changes to the CTS.

MORE RESTRICTIVE CHANGES

M.1 CTS 3.9.A requires the Division 1 and Division 2 AC and DC electrical power distribution subsystems to be OPERABLE when the reactor is critical. ITS LCO 3.8.7 requires the Division 1 and Division 2 AC and DC electrical power distribution subsystems to be OPERABLE in MODES 1, 2, and 3. This changes the CTS by requiring the Division 1 and Division 2 AC and DC electrical power distribution subsystems to be OPERABLE in MODE 3 and in MODE 2 when the reactor is not critical.

The purpose of CTS 3.9.A, in part, is to ensure the Division 1 and Division 2 AC and DC electrical power distribution subsystems are OPERABLE to mitigate the consequences of a transient or design basis accident. The Division 1 and Division 2 AC and DC electrical power distribution subsystems are required to be OPERABLE in MODES 1, 2, and 3 when a design basis accident (e.g. loss of coolant accident) may occur. In MODE 1 and 2 the reactor is either critical or there is a potential for the reactor to become critical. In MODE 3 the reactor is not critical, however the reactor coolant temperature is always above 212°F and there is considerable energy in the reactor core and the electrical power distribution systems must be available to support equipment necessary to mitigate the consequences of a pipe break. Therefore, it is necessary and acceptable to require the AC and DC electrical power distribution subsystems to

be OPERABLE. This change is designated as more restrictive because the LCO will be applicable under more reactor operating conditions than in the CTS.

M.2 CTS 4.9.A and CTS 4.9.B do not provide any specific testing requirements for the Division 1 and Division 2 AC and DC electrical power distribution subsystems. ITS SR 3.8.7.1 requires verification of correct breaker alignments and voltage to required AC and DC electrical power distribution subsystems. This changes the CTS by requiring a new Surveillance Requirement for verifying the OPERABILITY of the required Division 1 and Division 2 AC and DC electrical power distribution subsystems.

The purpose of ITS SR 3.8.7.1 is to ensure that the buses associated with the Division 1 and Division 2 AC and DC electrical power distribution subsystems are OPERABLE. This change is acceptable because it provides additional assurance that the buses associated with the Division 1 and Division 2 AC and DC electrical power distribution subsystems are OPERABLE. This change is designated as more restrictive because it adds a new Surveillance Requirement to the CTS.

M.3 CTS 3.9.B.4 states that when one of the two 125V battery systems or one of the two 250V battery systems is made or found to be inoperable for any reason an orderly shutdown of the reactor shall be initiated and the reactor water temperature shall be reduced to less than 212°F within 24 hours unless such battery system is sooner made OPERABLE. This Action applies when a 125V or 250V electrical power distribution subsystem is inoperable. CTS 3.9.B states that when the reactor mode switch is in Run, the availability of electric power shall be as specified in CTS 3.9.A, except as specified in CTS 3.9.B or the reactor shall be placed in the cold shutdown condition within 24 hours. Thus, when more than one 125V or 250V battery systems are inoperable, the CTS 3.9.B requirement would apply. This Action (CTS 3.9.B) also applies when one or more AC electrical power distribution buses required by CTS 3.9.A.3 are inoperable. However, the CTS 3.9.A.3 AC electrical power distribution subsystems and the CTS 3.9.A.4 125 VDC and 250 VDC electrical power distribution subsystems are only required to be OPERABLE when critical, as stated in CTS 3.9.A. Thus, the plant is only required to be subcritical in 24 hours. ITS 3.8.7 ACTION C provides the shutdown requirements when one or more AC electrical power distribution subsystems or one or more 125 VDC or 250 VDC electrical power distribution subsystems are inoperable and a loss of function has not occurred, and requires the unit to be in MODE 3 in 12 hours and MODE 4 in 36 hours if any Required Action and associated Completion Time of Condition A or B are not met. ITS 3.8.7 ACTION D provides the shutdown requirements when two or more electrical power distribution subsystems are inoperable that result in a loss of function, and requires the unit to enter LCO 3.0.3. ITS LCO 3.0.3 will require the unit to initiate action within 1 hour to place the unit in MODE 2 within 7 hours, MODE 3 within 13 hours, and MODE 4 within 37 hours. This changes the CTS by requiring the plant to be in MODE 3 in 12 hours and in cold shutdown (MODE 4) in 36 hours, in lieu of being subcritical in 24 hours, if one or more AC electrical power distribution subsystems or one or more 125 VDC or 250 VDC electrical power distribution subsystems are inoperable and a loss of function has not occurred and any Required Action and associated Completion Time of Condition A or B are not met. In addition, this changes the

DISCUSSION OF CHANGES
ITS 3.8.7, DISTRIBUTION SYSTEMS - OPERATING

CTS by requiring the plant to initiate a plant shutdown within 1 hour, to be in MODE 2 in 7 hours, to be in MODE 3 in 13 hours, and to be in MODE 4 in 37 hours, in lieu of being subcritical in 24 hours, if more than one AC or 125 VDC or 250 VDC electrical power distribution subsystems are inoperable and a loss of function has occurred.

The purpose of CTS 3.9.B and CTS 3.9.B.4 is to place the plant outside the Applicability of the Specification. CTS 3.9.A requires the AC and the 125V and 250V electrical power distribution subsystems to be OPERABLE only when critical (MODE 1 and a portion of MODE 2). Thus, while the CTS 3.9.B and 3.9.B.4 Actions require a shutdown to MODE 4, in actuality, only a shutdown to subcritical conditions is required. Once subcriticality is achieved, continuation to MODE 4 is not required since the AC and the 125V and 250V electrical power distribution subsystems are not required to be OPERABLE when subcritical. However, since the requirement that the AC and the 125V and 250V electrical power distribution subsystems be OPERABLE in MODE 2 when subcritical and in MODE 3 has been added (DOC M.1), ITS 3.8.7 ACTION C and LCO 3.0.3 (via ITS 3.8.7 ACTION D) include a shutdown to MODE 3 and to MODE 4. The allowed Completion Times are reasonable, based on operating experience, to reach required unit conditions from full power conditions in an orderly manner and without challenging unit systems. This change is acceptable because it requires the unit to be in an intermediate condition (MODE 3) sooner than is currently required (12 hours versus 24 hours). This portion of the change reduces the time the unit would be allowed to continue to operate in MODE 1 and MODE 2 while critical once the condition is identified. The consequences of a loss of coolant accident are reduced when the reactor is shutdown and a controlled cooldown is already in progress. This change is designated as more restrictive because less time is allowed to shut down the plant.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA.1 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS 3.9.A.3.(a) requires the 4160V Buses #15 and #16 to be energized. CTS 3.9.A.3.(b) requires the 480V Buses #103 and #104 to be energized. ITS LCO 3.8.7, in part, requires the Division 1 and Division 2 AC electrical power distribution subsystems to be OPERABLE. This changes the CTS by moving the specific names of the buses, the associated nominal bus voltages (i.e., 4160 V and 480 V), and that the buses must be energized from the CTS to the ITS Bases.

The removal of these details for meeting Technical Specification requirements from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement for the Division 1 and Division 2 AC electrical power distribution

subsystems to be OPERABLE and requires the verification of correct breaker alignments and voltage to required AC electrical power distribution subsystems. Also, this change is acceptable because these types of procedural details will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because a procedural detail for meeting Technical Specification requirements is being removed from the CTS.

LESS RESTRICTIVE CHANGES

L.1 *(Category 4 – Relaxation of Required Action)* CTS 3.9.B.4 requires a plant shutdown when one of the two 125V battery systems or one of the two 250V battery systems is made or found to be inoperable for any reason. CTS 3.9.B requires a plant shutdown when any AC electrical power distribution subsystem or more than one 125 V or 250 V DC battery system is inoperable. ITS 3.8.7 ACTION A covers the condition for one or more AC electrical power distribution subsystems inoperable, and requires the restoration of the AC electrical power distribution subsystem(s) to OPERABLE status within 8 hours and 16 hours from discovery of failure to meet the LCO. A Note to the ACTION also requires entry into LCO 3.8.4, "DC Source - Operating," for DC divisions made inoperable by the inoperable AC power distribution subsystems. ITS 3.8.7 ACTION B covers the condition for one or more DC electrical power distribution subsystems inoperable, and requires the restoration of the DC electrical power distribution subsystem(s) to OPERABLE status within 2 hours and 16 hours from discovery of failure to meet the LCO. This changes the CTS by providing some time to restore inoperable AC or DC electrical power distribution subsystems prior to requiring a plant shutdown, provided a loss of function has not occurred.

The purpose of CTS 3.9.B and 3.9.B.4 is to place the plant in a condition where AC electrical power distribution subsystems or DC battery systems are no longer required. This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. The Required Actions are consistent with safe operation under the specified Condition, considering the OPERABLE status of the redundant systems or features. This includes the capacity and capability of remaining systems or features, a reasonable time for repairs or replacement, and the low probability of a DBA occurring during the repair period. This change allows a short time period to restore inoperable AC and DC electrical power distribution subsystems to OPERABLE status. This is acceptable because there are sufficient electrical power distributions subsystems available to ensure all plant safety functions can be supported by the Division 1 or Division 2 electrical power distribution subsystems. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

CTS

3.8 ELECTRICAL POWER SYSTEMS

3.9.A.3, 3.9.A.4 3.8.9 (7) Distribution Systems - Operating (1)

3.9.A.3, 3.9.A.4 LCO 3.8.9 [Division 1] and [Division 2] AC, (and) DC, [and AC vital bus] electrical power distribution subsystems shall be OPERABLE. (2) (3)

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
3.9.B, DOC L.1 A. One or more AC electrical power distribution subsystems inoperable.	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.4, "DC Sources - Operating," for DC divisions made inoperable by inoperable power distribution subsystems. ----------	
	A.1 Restore AC electrical power distribution subsystem(s) to OPERABLE status.	8 hours AND 16 hours from discovery of failure to meet LCO
B. [One or more AC vital buses inoperable.	B.1 Restore AC vital bus distribution subsystem(s) to OPERABLE status.	2 hours AND 16 hours from discovery of failure to meet LCO] (3)

CTS

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
3.9.B.4, DOC L.1	C. One or more [station service] DC electrical power distribution subsystems inoperable.	C.1 Restore DC electrical power distribution subsystem(s) to OPERABLE status.	2 hours AND 16 hours from discovery of failure to meet LCO	3 2
3.9.B	D. Required Action and associated Completion Time of Condition A [B,] or C not met.	D.1 Be in MODE 3. AND D.2 Be in MODE 4.	12 hours 36 hours	3 3 3
	E. [One or more DG DC electrical power distribution subsystems inoperable.	E.1 Declare associated DG(s) inoperable.	Immediately]	4
3.9.B, 3.9.B.4	F. Two or more electrical power distribution subsystems inoperable that result in a loss of function.	F.1 Enter LCO 3.0.3.	Immediately	4

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY	
DOC M.2	SR 3.8.9.1 Verify correct breaker alignments and voltage to [required] AC, DC, [and AC vital bus] electrical power distribution subsystems.	7 days	2 3

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.7, DISTRIBUTION SYSTEMS - OPERATING

1. ISTS 3.8.9 is renumbered as ITS 3.8.7 since ISTS 3.8.7, "Inverters - Operating," and ISTS 3.8.8, "Inverters - Shutdown," are not included in the Monticello ITS.

2. The brackets have been removed and the proper plant specific information/value has been provided.

3. The bracketed AC vital bus requirements have not been adopted in the Monticello ITS. The change is consistent with the current requirements in the current licensing basis. Subsequent ACTIONS have been renumbered, as necessary.

4. The requirements for the DG DC electrical power distribution subsystems in ISTS 3.8.9 ACTION E has been deleted since Monticello does not have an equivalent system. The DC loads for the Diesel Generators are powered from the Division 1 and Division 2 DC electrical power distribution subsystems. The subsequent ACTION has been renumbered, as necessary.

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Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.9 Distribution Systems - Operating 1

7

BASES

BACKGROUND The onsite Class 1E AC and DC electrical power distribution system is divided into redundant and independent AC, DC, and AC vital bus electrical power distribution subsystems. 1

(essential bus 15 for Division 1 and essential bus 16 for Division 2)

The primary AC electrical power distribution subsystem for each division consists of a 4.16 kV Engineered Safety Feature (ESF) bus having an offsite source of power as well as a dedicated onsite diesel generator (DG) source. Each 4.16 kV ESF bus is normally connected to a normal source startup auxiliary transformer (SAT) (2D). During a loss of the normal offsite power source to the 4.16 kV ESF buses, the alternate supply breaker from SAT 2C attempts to close. If all offsite sources are unavailable, the onsite emergency DGs supply power to the 4.16 kV ESF buses. 2

The secondary plant distribution subsystem includes 600 VAC emergency buses 2C and 2D and associated load centers, motor control centers, distribution panels, and transformers. 2

The 120 VAC vital buses 2YV1, 2YV2, 2YV3, and 2YV4 are arranged in four load groups and are normally powered from DC. The alternate power supply for the vital buses is a Class 1E constant voltage source transformer powered from the same division as the associated inverter, and its use is governed by LCO 3.8.7, "Inverters - Operating." Each constant voltage source transformer is powered from AC. 1

There are two independent 125/250 VDC station service electrical power distribution subsystems and three independent 125 VDC DG electrical power distribution subsystems that support the necessary power for ESF functions. Each subsystem consists of a 125V and a 250V bus and associated distribution panels. 2

The list of all distribution subsystem buses, load centers, motor control centers, and distribution panels is presented in Table B 3.8.9-1. 2

2 INSERT 1

the primary station auxiliary transformer, 2R, via its associated plant auxiliary 4.16 kV bus.

2 INSERT 1A

In the event the 1R transformer is unable to accept the load, the essential buses are automatically transferred to the reserve auxiliary transformer, 1 AR. The 1AR transformer supplies power directly to the essential buses.

2 INSERT 1B

Each load center is supplied from the associated 4.16 kV essential bus via a transformer.

2 INSERT 1C

Each 125/250 VDC electrical power distribution subsystem is supplied by a Division 1 or Division 2 250 VDC electrical power subsystem.

2 INSERT 1D

There are two independent 125 VDC electrical power distribution subsystems that support the necessary power for safety functions. A Division 1 or Division 2 125 VDC electrical power subsystem supplies the associated 125 VDC electrical power distribution subsystem. Each subsystem consists of a 125 VDC distribution panel.

BASES

APPLICABLE SAFETY ANALYSES

The initial conditions of Design Basis Accident (DBA) and transient analyses in the FSAR, Chapter [6] (Ref. 1) and Chapter [15] (Ref. 2), assume ESF systems are OPERABLE. The AC and DC electrical power distribution systems are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ESF systems so that the fuel, Reactor Coolant System, and containment design limits are not exceeded. These limits are discussed in more detail in the Bases for Section 3.2, Power Distribution Limits; Section 3.4, Reactor Coolant System (RCS); and Section 3.6, Containment Systems.

The OPERABILITY of the AC, DC, and AC vital bus electrical power distribution subsystems is consistent with the initial assumptions of the accident analyses and is based upon meeting the design basis of the unit. This includes maintaining distribution systems OPERABLE during accident conditions in the event of:

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

b. A worst case single failure.

The AC and DC electrical power distribution system satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

The required electrical power distribution subsystems listed in Table B 3.8.9-1 ensure the availability of AC, DC, and AC vital bus electrical power for the systems required to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence (AOO) or a postulated DBA. The AC, DC, and AC vital bus electrical power distribution subsystems are required to be OPERABLE.

Maintaining the [Division 1 and 2] AC, DC, and AC vital bus electrical power distribution subsystems OPERABLE ensures that the redundancy incorporated into the design of ESF is not defeated. Therefore, a single failure within any system or within the electrical power distribution subsystems will not prevent safe shutdown of the reactor.

The AC electrical power distribution subsystems require the associated buses and electrical circuits, including any load centers, motor control centers, and distribution panels, to be energized to their proper voltages. OPERABLE DC electrical power distribution subsystems require the

BASES

LCO (continued)

associated buses and distribution panels to be energized to their proper voltage from either the associated battery or charger. OPERABLE vital bus electrical power distribution subsystems require the associated buses to be energized to their proper voltage from the associated [inverter via inverted DC voltage, inverter using interval AC source, or Class 1E constant voltage transformer].

INSERT 2

In addition, tie breakers between redundant safety related AC, DC, and AC vital bus power distribution subsystems, if they exist, must be open. This prevents any electrical malfunction in any power distribution subsystem from propagating to the redundant subsystem, which could cause the failure of a redundant subsystem and a loss of essential safety function(s). If any tie breakers are closed, the affected redundant electrical power distribution subsystems are considered inoperable. This applies to the onsite, safety related, redundant electrical power distribution subsystems. It does not, however, preclude redundant Class 1E 4.16 kV ESF buses from being powered from the same offsite circuit.

between redundant safety related AC or DC electrical power distribution subsystems

that is not being powered from its normal source (i.e., it is being powered from its redundant electrical power distribution subsystem) is

essential

APPLICABILITY

The electrical power distribution subsystems 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

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

safety

and other conditions in which AC and DC electrical power distribution subsystems are required

Electrical power distribution subsystem requirements for MODES 4 and 5 are covered in the Bases for LCO 3.8.10, "Distribution Systems - Shutdown."

ACTIONS

A.1

Division

or

With one or more Division 1 and 2 required AC buses, load centers, motor control centers, or distribution panels (except AC vital buses), in one division inoperable and a loss of function has not occurred, the remaining AC electrical power distribution subsystems are capable of supporting the minimum safety functions necessary to shut down the reactor and maintain it in a safe shutdown condition, assuming no single failure. The overall reliability is reduced, however, because a single

2

INSERT 2

Based on the number of safety significant electrical loads associated with each bus listed in Table B 3.8.7-1, if one or more of the buses becomes inoperable, entry into the appropriate ACTIONS of LCO 3.8.7 is required. Some buses, such as motor control centers or panels, which help comprise the AC and DC distribution systems, are not listed in Table B 3.8.7-1. The loss of electrical loads associated with these buses may not result in a complete loss of a redundant safety function necessary to shut down the reactor and maintain it in a safe condition. Therefore, should one or more of these buses become inoperable due to a failure not affecting the OPERABILITY of a bus listed in Table B 3.8.7-1 (e.g., a breaker supplying a single distribution panel fails open), the individual loads on the bus would be declared inoperable, and the appropriate Conditions and Required Actions of the LCOs governing the individual loads would be entered. However, if one or more of these buses is inoperable due to a failure also affecting the OPERABILITY of a bus listed in Table B 3.8.7-1 (e.g., loss of 4.16 kV essential bus, which results in de-energization of all buses powered from the 4.16 kV essential bus), then although the individual loads are still considered inoperable, the Conditions and Required Actions of the LCO for the individual loads are not required to be entered, since LCO 3.0.6 allows this exception (i.e., the loads are inoperable due to the inoperability of a support system governed by a Technical Specification; the 4.16 kV essential bus).

BASES

ACTIONS (continued)

failure in the remaining electrical power distribution subsystems could result in the minimum required ESF functions not being supported. Therefore, the required AC buses and load centers, motor control centers, and distribution panels must be restored to OPERABLE status within 8 hours.

The Condition A worst scenario is one division without AC power (i.e., no offsite power to the division and the associated DG inoperable). In this situation Condition, the unit is more vulnerable to a complete loss of AC power. It is, therefore, imperative that the unit operators' attention be focused on minimizing the potential for loss of power to the remaining division by stabilizing the unit and on restoring power to the affected division. The 8 hour time limit before requiring a unit shutdown in this Condition is acceptable because:

a. There is a potential for decreased safety if the unit operators' attention is diverted from the evaluations and actions necessary to restore power to the affected division to the actions associated with taking the unit to shutdown within this time limit; and

b. The low potential for an event in conjunction with a single failure of a redundant component in the division with AC power. (The redundant component is verified OPERABLE in accordance with Specification 5.5.12, "Safety Function Determination Program (SFDP).")

The second Completion Time for Required Action A.1 establishes a limit on the maximum time allowed for any combination of required distribution subsystems to be inoperable during any single contiguous occurrence of failing to meet the LCO. If Condition A is entered while, for instance, a DC bus is inoperable and subsequently returned OPERABLE, this LCO may already have been not met for up to 2 hours. This situation could lead to a total duration of 10 hours, since initial failure of the LCO, to restore the AC distribution system. At this time a DC circuit could again become inoperable, and AC distribution could be restored OPERABLE. This could continue indefinitely.

This Completion Time allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." This results in establishing the "time zero" at the time this LCO was initially not met, instead of at the time Condition A was entered. The 16 hour Completion Time is an acceptable limitation on this potential to fail to meet the LCO indefinitely.

BASES

ACTIONS (continued)

Required Action A.1 is modified by a Note that requires the applicable Conditions and Required Actions of LCO 3.8.4, "DC Sources - Operating," to be entered for DC divisions made inoperable by inoperable power distribution subsystems. This is an exception to LCO 3.0.6 and ensures the proper actions are taken for these components. Inoperability of a distribution system can result in loss of charging power to batteries and eventual loss of DC power. This Note ensures that the appropriate attention is given to restoring charging power to batteries, if necessary, after loss of distribution systems.

[B.1

With one or more AC vital buses inoperable, and a loss of function has not yet occurred, the remaining OPERABLE AC vital buses are capable of supporting the minimum safety functions necessary to shut down the unit and maintain it in the safe shutdown condition. Overall reliability is reduced, however, since an additional single failure could result in the minimum required ESF functions not being supported. Therefore, the required AC vital bus must be restored to OPERABLE status within 2 hours by powering the bus from the associated [inverter via inverted DC, inverter using internal AC source, or Class 1E constant voltage transformer].

Condition B represents one or more AC vital buses without power; potentially both the DC source and the associated AC source are nonfunctioning. In this situation the plant is significantly more vulnerable to a complete loss of all noninterruptible power. It is, therefore, imperative that the operator's attention focus on stabilizing the plant, minimizing the potential for loss of power to the remaining vital buses, and restoring power to the affected AC vital buses. 1

This 2 hour limit is more conservative than Completion Times allow for the majority of components that are without adequate vital AC power. Taking exception to LCO 3.0.2 for components without adequate vital AC power, that would have Required Action Completion Times shorter than 2 hours if declared inoperable, is acceptable because of:

[a. The potential for decreased safety when requiring a change in plant conditions (i.e., requiring a shutdown) while not allowing stable operations to continue,

BASES

ACTIONS (continued)

b. The potential for decreased safety when requiring entry into numerous applicable Conditions and Required Actions for components without adequate vital AC power, while not providing sufficient time for the operators to perform the necessary evaluations and actions to restore power to the affected division, and

c. The potential for an event in conjunction with a single failure of a redundant component.

The 2 hour Completion Time takes into account the importance to safety of restoring the AC vital bus to OPERABLE status, the redundant capability afforded by the other OPERABLE vital buses, and the low probability of a DBA occurring during this period.

The second Completion Time for Required Action B.1 establishes a limit on the maximum time allowed for any combination of required distribution subsystems to be inoperable during any single contiguous occurrence of failing to meet the LCO. If Condition B is entered while, for instance, an AC bus is inoperable and subsequently returned OPERABLE, the LCO may already have been not met for up to 8 hours. This situation could lead to a total duration of 10 hours, since initial failure of the LCO, to restore the vital bus distribution system. At this time an AC division could again become inoperable, and vital bus distribution could be restored OPERABLE. This could continue indefinitely.]

This Completion Time allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." This allowance results in establishing the "time zero" at the time that the LCO was initially not met, instead of at the time that Condition B was entered. The 16 hour Completion Time is an acceptable limitation on this potential to fail to meet the LCO indefinitely.]

B.1

With one or more ~~station service~~ DC ~~bus or~~ distribution panel(s) inoperable, and a loss of function has not yet occurred, the remaining DC electrical power distribution subsystem is capable of supporting the minimum safety functions necessary to shut down the reactor and maintain it in a safe shutdown condition, assuming no single failure. The overall reliability is reduced, however, because a single failure in the remaining DC electrical power distribution subsystem could result in the minimum required ESF functions not being supported. Therefore, the required DC ~~buses and distribution panels~~ must be restored to OPERABLE status within 2 hours by powering the bus from the associated battery or charger.

electrical power distribution subsystem(s)

BASES

ACTIONS (continued)

Condition C represents one or more DC buses or distribution panels without adequate DC power, potentially with both the battery significantly degraded and the associated charger nonfunctioning. In this situation the plant is significantly more vulnerable to a complete loss of all DC power. It is, therefore, imperative that the operator's attention focus on stabilizing the plant, minimizing the potential for loss of power to the remaining divisions, and restoring power to the affected division.

This 2 hour limit is more conservative than Completion Times allowed for the majority of components that would be without power. Taking exception to LCO 3.0.2 for components without adequate DC power, which would have Required Action Completion Times shorter than 2 hours, is acceptable because of:

a. The potential for decreased safety when requiring a change in plant conditions (i.e., requiring a shutdown) while not allowing stable operations to continue;

b. The potential for decreased safety when requiring entry into numerous applicable Conditions and Required Actions for components without DC power, while not providing sufficient time for the operators to perform the necessary evaluations and actions for restoring power to the affected division; and

c. The potential for an event in conjunction with a single failure of a redundant component.

The 2 hour Completion Time for DC buses is consistent with Regulatory Guide 1.93 (Ref. 3).

The second Completion Time for Required Action C.1 establishes a limit on the maximum time allowed for any combination of required distribution subsystems to be inoperable during any single contiguous occurrence of failing to meet the LCO. If Condition C is entered while, for instance, an AC bus is inoperable and subsequently restored OPERABLE, the LCO may already have been not met for up to 8 hours. This situation could lead to a total duration of 10 hours, since initial failure of the LCO, to restore the DC distribution system. At this time, an AC division could again become inoperable, and DC distribution could be restored OPERABLE. This could continue indefinitely.

BASES

ACTIONS (continued)

This Completion Time allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." This allowance results in establishing the "time zero" at the time the LCO was initially not met, instead of at the time Condition C was entered. The 16 hour Completion Time is an acceptable limitation on this potential of failing to meet the LCO indefinitely.

C.1 and C.2

If the inoperable distribution subsystem 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 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.

E.1

With one or more DG DC buses inoperable, the associated DG(s) may be incapable of performing their intended functions. In this situation the DG(s) must be immediately declared inoperable. This action also requires entry into applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources - Operating."

D.1

Condition E corresponds to a level of degradation in the electrical distribution system that causes a required safety function to be lost. When more than one AC or DC electrical power distribution subsystem is lost, and this results in the loss of a required function, the plant is in a condition outside the accident analysis. Therefore, no additional time is justified for continued operation. LCO 3.0.3 must be entered immediately to commence a controlled shutdown.

INSERT 2A

6

INSERT 2A

The term "combination" means that the loss of function must result from the inoperability of two or more AC and DC electrical power distribution subsystems; a loss of function solely due to a single AC or DC electrical power distribution subsystem inoperability even with another AC or DC electrical power distribution subsystem concurrently inoperable does not require entry in Condition D.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.9.1

This Surveillance verifies that the AC and DC electrical power distribution systems are functioning properly, with the correct circuit breaker alignment. The correct breaker alignment ensures the appropriate separation and independence of the electrical buses are maintained, and the appropriate voltage is available to each required bus. The verification of proper voltage availability on the buses ensures that the required voltage is readily available for motive as well as control functions for critical system loads connected to these buses. The 7 day Frequency takes into account the redundant capability of the AC, DC, and AC vital bus electrical power distribution subsystems, and other indications available in the control room that alert the operator to subsystem malfunctions.

REFERENCES

1. FSAR, Chapter [6].
2. FSAR, Chapter [15].
3. Regulatory Guide 1.93, December 1974.

Distribution Systems - Operating 7
B 3.8 9

INSERT 3

1

2

Table B 3.8.9-1 (page 1 of 1)
AC and DC Electrical Power Distribution Systems

TYPE	VOLTAGE	[DIVISION 1]*	[DIVISION 2]*
AC safety buses	[4160 V]	[ESF Bus] [NB01]	[ESF Bus] [NB02]
	[480 V]	Load Centers [NG01, NG03]	Load Centers [NG02, NG04]
	[480 V]	Motor Control Centers [NG01A, NG01I, NG01B, NG03C, NG03I, NG03D]	Motor Control Centers [NG02A, NG02I, NG02B, NG04C, NG04I, NG04D]
	[120 V]	Distribution Panels [NP01, NP03]	Distribution Panels [NP02, NP04]
DC buses	[125 V]	Bus [NK01]	Bus [NK02]
		Bus [NK03]	Bus [NK04]
		Distribution Panels [NK41, NK43, NK51]	Distribution Panels [NK42, NK44, NK52]
AC vital buses	[120 V]	Bus [NN01]	Bus [NN02]
		Bus [NN03]	Bus [NN04]

* Each train of the AC and DC electrical power distribution systems is a subsystem.

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2

INSERT 3

Table B 3.8.7-1 (page 1 of 1)
AC and DC Electrical Power Distribution Systems

TYPE	VOLTAGE	DIVISION 1[(a)]	DIVISION 2[(a)]
AC Buses	4.16 kV	Essential Bus 15	Essential Bus 16
	480 V	Load Center 103	Load Center 104
DC Buses	125/250 V	Distribution Panel D31	Distribution Panel D100
	125 V	Distribution Panel D11	Distribution Panel D21

(a) Each division of the AC and DC Electrical Power Distribution Systems is a subsystem.

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.7 BASES, DISTRIBUTION SYSTEMS - OPERATING

1. Changes have been made to reflect those changes made to the Specification.

2. Changes are made (additions, deletions, and/or changes) to the ISTS Bases, which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

3. The brackets are removed and the proper plant specific information/value is provided.

4. This change has been made since Section 3.5, "ECCS and RCIC System" provides the appropriate limits that are affected by the systems in this LCO.

5. Typographical/grammatical error corrected.

6. Editorial change made for enhanced clarity or to be consistent with similar statements in other places in the Bases.

7. These punctuation corrections have been made consistent with the Writer's Guide for the Improved Standard Technical Specifications, NEI 01-03, Section 5.1.3.

8. This change has made to be consistent with the Applicability of LCO 3.8.8.

9. The LCO Bases implies that both the electrical power distribution subsystem powering the redundant subsystem and the redundant subsystem must be declared inoperable if the associated tie breakers are closed. This action would require entry in LCO 3.0.3. In this situation, the single failure criteria may not be met since independence is not maintained, however the safety criteria may not be met since independence is no maintained, however the safety function is maintained since both subsystems are being powered. The Bases have been revised such that, when a tie breaker between redundant buses is closed, only the electrical power distribution subsystem not being powered from is normal source is declared inoperable. This adequately limits the time the plant may operate with redundant subsystems connected to each other to the time currently allowed for one inoperable subsystem. Since these two conditions are essentially equivalent, this change is acceptable.

10. Changes have been made to match the Specification.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.8.7, DISTRIBUTION SYSTEMS - OPERATING

There are no specific NSHC discussions for this Specification.

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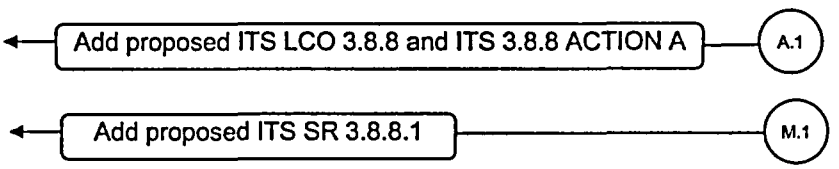
ATTACHMENT 8

ITS 3.8.8, Distribution Systems - Shutdown

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)


Add proposed ITS LCO 3.8.8 and ITS 3.8.8 ACTION A
A.1
Add proposed ITS SR 3.8.8.1
M.1

DISCUSSION OF CHANGES
ITS 3.8.8, DISTRIBUTION SYSTEMS - SHUTDOWN

ADMINISTRATIVE CHANGES

A.1 The CTS does not contain any specific OPERABILITY requirements for the Distribution Systems during shutdown conditions. However, the CTS 1.0.W definition of OPERABLE requires that, for all equipment required to be OPERABLE, "all necessary attendant ... normal and emergency electrical power sources ... that are required for the system, subsystem, train, component or device to perform its function(s) are also capable of performing their related support function(s)." ITS LCO 3.8.8 requires the necessary portions of the AC and DC electrical power distribution subsystem to be OPERABLE to support equipment required to be OPERABLE in MODES 4 and 5 and during movement of irradiated fuel assemblies in the secondary containment. If one or more required AC or DC electrical power distribution subsystems are inoperable, ITS 3.8.8 ACTION A must be entered and the associated supported required features(s) must be declared inoperable or certain activities must be suspended (CORE ALTERATIONS, movement of irradiated fuel assemblies in the secondary containment, and operations with a potential for draining the reactor vessel (OPDRVs)), action must be initiated to restore the inoperable distribution subsystem, and the required shutdown cooling subsystem(s) must be declared inoperable and not in operation. This changes the CTS by adding the explicit requirements of ITS LCO 3.8.8 and ITS 3.8.8 ACTION A.

The purpose of ITS 3.8.8 is to ensure the necessary AC and DC electrical power distribution subsystems are available to provide emergency electrical power to mitigate events postulated during shutdown, such as an inadvertent draindown of the vessel or a fuel handling accident. The change is acceptable since it is consistent with the requirements in CTS 1.0.W that all attendant equipment must be OPERABLE to support a required feature. In addition, the Required Action that allows the supported features to be declared inoperable is also acceptable because this declaration will require entry into all other Technical Specifications associated with inoperable features. This change is also consistent with the CTS since electrical power distribution system inoperabilities are currently covered by the supported system type LCOs (e.g., Control Room Ventilation System, Control Room Emergency Filtration System). ITS 3.8.8 ACTION A includes an option to the requirement to declare supported features inoperable. The option is to suspend certain activities (CORE ALTERATIONS, movement of irradiated fuel assemblies in the secondary containment, and OPDRVs), to immediately initiate action to restore the inoperable distribution subsystem(s) to OPERABLE status, and to declare the required shutdown cooling subsystem(s) inoperable and not in operation. The option to suspend the specified activities is consistent with the Required Actions in CTS 3.17.A.2 for the Control Room Ventilation System and CTS 3.17.B.1 for the Control Room Emergency Filtration System. The requirement to declare the affected shutdown cooling subsystem inoperable has been added because Shutdown Cooling System LCOs have been added to the ITS (see Discussion of Changes for ITS 3.4.7, ITS 3.4.8, ITS 3.9.7, and ITS 3.9.8) and this change ensures the proper Actions are entered if the second action is taken. The restoration of the required distribution subsystems should be completed as quickly as possible in order to minimize the time the plant safety systems may be without power. Although not explicitly stated this action is always applied due to the importance of the equipment. This change is

DISCUSSION OF CHANGES
ITS 3.8.8, DISTRIBUTION SYSTEMS - SHUTDOWN

designated as administrative because it does not result in technical changes to the CTS.

MORE RESTRICTIVE CHANGES

M.1 CTS 4.9 does not have any specific Surveillance Requirements for the Distribution Systems when they are required to be OPERABLE to support equipment required to be OPERABLE in MODES 4 and 5 and during movement of irradiated fuel assemblies in the secondary containment. ITS SR 3.8.8.1 requires verification of correct breaker alignment and voltage to required AC and DC electrical power distribution subsystems every 7 days. This changes the CTS by adding the explicit Surveillance for the portions of the electrical power distribution subsystems required to be OPERABLE in MODES 4 and 5 and during movement of irradiated fuel assemblies in the secondary containment.

The purpose of ITS SR 3.8.8.1 is to ensure the AC and DC electrical power distribution subsystems are OPERABLE to provide emergency electrical power to mitigate events postulated during shutdown, such as an inadvertent draindown of the vessel or a fuel handling accident involving handling irradiated fuel. This change is acceptable because the proposed Surveillance helps to ensure the required portions of the electrical power distribution subsystems are OPERABLE. This change is designated as more restrictive because it adds a new Surveillance Requirement to the CTS.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

None

LESS RESTRICTIVE CHANGES

None

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Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

CTS

3.8 ELECTRICAL POWER SYSTEMS

3.8.10 Distribution Systems - Shutdown

LCO 3.8.10 The necessary portions of the AC, DC, [and AC vital bus] electrical power distribution subsystems shall be OPERABLE to support equipment required to be OPERABLE.

APPLICABILITY: MODES 4 and 5,
During movement of [recently] irradiated fuel assemblies in the [secondary] containment.

ACTIONS

NOTE
LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required [or] AC, DC, [or AC vital bus] electrical power distribution subsystems inoperable.	A.1 Declare associated supported required feature(s) inoperable. OR A.2.1 Suspend CORE ALTERATIONS. AND A.2.2 Suspend handling of [recently] irradiated fuel assemblies in the [secondary] containment. AND	Immediately Immediately Immediately

CTS

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
DOC A.1	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel. AND	Immediately
	A.2.4 Initiate actions to restore (and) required AC, DC, [and AC vital bus] electrical power distribution subsystems to OPERABLE status. AND	Immediately (2)
	A.2.5 Declare associated required shutdown cooling subsystem(s) inoperable and not in operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
DOC M.1 SR 3.8.10.1 (8) (and) Verify correct breaker alignments and voltage to required AC, DC, [and AC vital bus] electrical power distribution subsystems.	7 days (1) (2)

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.8, DISTRIBUTION SYSTEMS - SHUTDOWN

1. ISTS 3.8.10 is renumbered as ITS 3.8.8 since ISTS 3.8.7, "Inverters - Operating," and ISTS 3.8.8, "Inverters - Shutdown," are not included in the Monticello ITS.

2. The bracketed requirements for the AC vital buses in ISTS LCO 3.8.10 (ITS LCO 3.8.8), ISTS 3.8.10 (ITS 3.8.8) ACTION A, and ISTS SR 3.8.10.1 (ITS SR 3.8.8.1) have been deleted. The change is consistent with the current licensing basis.

3. The brackets have been removed and the proper plant specific information/value has been provided.

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Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.10 Distribution Systems - Shutdown

BASES

BACKGROUND

A description of the AC, DC, and AC vital bus electrical power distribution system is provided in the Bases for LCO 3.8.9, "Distribution Systems - Operating."

APPLICABLE SAFETY ANALYSES

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

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

The OPERABILITY of the minimum AC, DC, and AC vital bus electrical power sources and associated power distribution subsystems during MODES 4 and 5, and during movement of [recently] irradiated fuel assemblies in the secondary containment ensures that:

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

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

c. Adequate power is provided to mitigate events postulated during shutdown, such as an inadvertent draindown of the vessel or a fuel handling accident involving handling recently irradiated fuel. Due to radioactive decay, AC and DC electrical power is only required to mitigate fuel handling accidents involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days)].

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

BASES

LCO

Various combinations of subsystems, equipment, and components are required OPERABLE by other LCOs, depending on the specific plant condition. Implicit in those requirements is the required OPERABILITY of necessary support required features. This LCO explicitly requires energization of the portions of the electrical distribution system necessary to support OPERABILITY of Technical Specifications required systems, equipment, and components - both specifically addressed by their own LCO, and implicitly required by the definition of OPERABILITY.

Maintaining these portions of the distribution system energized ensures the availability of sufficient power to operate the plant in a safe manner to mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents involving handling recently irradiated fuel and inadvertent reactor vessel draindown).

APPLICABILITY

The AC and DC electrical power distribution subsystems required to be OPERABLE in MODES 4 and 5 and during movement of recently irradiated fuel assemblies in the secondary containment provide assurance that:

a. Systems to provide adequate coolant inventory makeup are available for the irradiated fuel in the core in case of an inadvertent draindown of the reactor vessel;

b. Systems needed to mitigate a fuel handling accident involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days)] are available;

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

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

The AC, DC, and AC vital bus electrical power distribution subsystem requirements for MODES 1, 2, and 3 are covered in LCO 3.8.9.

ACTIONS

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

BASES

ACTIONS (continued)

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

Although redundant required features may require redundant divisions of electrical power distribution subsystems to be OPERABLE, one OPERABLE distribution subsystem division may be capable of supporting sufficient required features to allow continuation of CORE ALTERATIONS, [recently] irradiated fuel movement, and operations with a potential for draining the reactor vessel. By allowing the option to declare required features associated with an inoperable distribution subsystem inoperable, appropriate restrictions are implemented in accordance with the affected distribution subsystem LCO's Required Actions. In many instances this option may involve undesired administrative efforts. Therefore, the allowance for sufficiently conservative actions is made, (i.e., to suspend CORE ALTERATIONS, movement of [recently] irradiated fuel assemblies in the [secondary] containment, and any activities that could result in inadvertent draining of the reactor vessel). (2) (2)

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

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

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

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.10.1

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

REFERENCES

1. FSAR, Chapter [6].
2. FSAR, Chapter [15].

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.8 BASES, DISTRIBUTION SYSTEMS - SHUTDOWN

1. Changes are made to the Bases that reflect changes made to the Specifications.

2. The brackets are removed and the proper plant specific information/value is provided.

3. Changes are made (additions, deletions, and/or changes) to the ISTS Bases, which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

4. These punctuation corrections have been made consistent with the Writer's Guide for the Improved Standard Technical Specifications, NEI 01-03, Section 5.1.3.

5. Changes are made to be consistent with the name of the Specification.

6. This change has been made since Section 3.5, "ECCS and RCIC System," provides the appropriate limits that are affected by the systems of this LCO.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.8.8, DISTRIBUTION SYSTEMS - SHUTDOWN

There are no specific NSHC discussions for this Specification.

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ATTACHMENT 9

Improved Standard Technical Specifications (ISTS) not adopted in the Monticello ITS

ISTS 3.8.7, Inverters - Operating

ISTS 3.8.7 Markup and Justification for Deviations (JFDs)

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 Inverters - Operating

LCO 3.8.7 The [Division 1] and [Division 2] inverters shall be OPERABLE.

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

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

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

APPLICABILITY: MODES 1, 2, and 3. (1)

ACTIONS

CONDITION		REQUIRED ACTION	COMPLETION TIME
A. One [required] inverter inoperable.	A.1	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating" with any AC vital bus de-energized. ---------- Restore inverter to OPERABLE status.	24 hours
B. Required Action and associated Completion Time not met.	B.1 AND B.2	Be in MODE 3. Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.7.1	Verify correct inverter voltage, [frequency,] and alignment to required AC vital buses.	7 days

1

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JUSTIFICATION FOR DEVIATIONS
ISTS 3.8.7, INVERTERS - OPERATING

1. ISTS 3.8.7, "Inverters - Operating," has been deleted since the current licensing basis does not require the inverter to supply the associated loads. In addition, if the associated distribution panels are energized by the alternate source for extended periods, there will be no long term degradation of equipment. Therefore, this Specification is not proposed for the Monticello.

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ISTS 3.8.7 Bases Markup and Justification for Deviations (JFDs)

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.7 Inverters - Operating

BASES

BACKGROUND

The inverters are the preferred source of power for the AC vital buses because of the stability and reliability they achieve. There is one inverter per AC vital bus, making a total of four inverters. The function of the inverter is to provide AC electrical power to the vital buses. The inverter can be powered from an internal AC source/rectifier or from the station battery. The station battery provides an uninterruptible power source for the instrumentation and controls for the Reactor Protection System (RPS) and the Emergency Core Cooling Systems (ECCS) initiation.

Specific details on inverters and their operating characteristics are found in FSAR, Chapter [8] (Ref. 1).

APPLICABLE SAFETY ANALYSES

The initial conditions of Design Basis Accident (DBA) and transient analyses in the FSAR, Chapter [6] (Ref. 2) and Chapter [15] (Ref. 3), assume Engineered Safety Feature systems are OPERABLE. The inverters are designed to provide the required capacity, capability, redundancy, and reliability to ensure the availability of necessary power to the RPS and ECCS instrumentation and controls so that the fuel, Reactor Coolant System, and containment design limits are not exceeded. These limits are discussed in more detail in the Bases for Section 3.2, Power Distribution Limits; Section 3.4, Reactor Coolant System (RCS); and Section 3.6, Containment Systems. (1)

The OPERABILITY of the inverters is consistent with the initial assumptions of the accident analyses and is based on meeting the design basis of the unit. This includes maintaining electrical power sources OPERABLE during accident conditions in the event of:

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

b. A worst case single failure.

The inverters are a part of the distribution system and, as such, satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

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

BASES

LCO (continued)

Maintaining the required inverters OPERABLE ensures that the redundancy incorporated into the design of the RPS and ECCS instrumentation and controls is maintained. The four battery powered inverters ensure an uninterruptible supply of AC electrical power to the AC vital buses even if the 4.16 kV safety buses are de-energized.

OPERABLE inverters require the associated vital bus to be powered by the inverter with output voltage and frequency within tolerances, and power input to the inverter from a [125 VDC] station battery. Alternatively, power supply may be from an internal AC source via rectifier as long as the station battery is available as the uninterruptible power supply.

This LCO is modified by a Note allowing [two] inverter[s] to be disconnected from their associated DC buses for ≤ 24 hours. This allowance is provided to perform an equalizing charge on one battery. If the inverters were not disconnected, the resulting voltage condition might damage the inverters energized from their associated DC bus. Disconnecting the inverters is allowed provided that the associated AC vital buses are energized from their [Class 1E constant voltage source transformer or inverter using an internal AC source] and that the AC vital buses for the other division(s) are energized from the associated inverters connected to their DC buses. These provisions minimize the loss of equipment that occurs in the event of a loss of offsite power. The 24 hour time period for the allowance minimizes the time during which a loss of offsite power could result in the loss of equipment energized from the affected AC vital bus while it takes into consideration the time required to perform an equalizing charge on the batteries. (1)

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

BASES

APPLICABILITY

The inverters 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

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

Inverter requirement for MODES 4 and 5 are covered in the Bases for LCO 3.8.8, "Inverters - Shutdown."

ACTIONS

A.1

With a required inverter inoperable, its associated AC vital bus becomes inoperable until it is manually re-energized from its [Class 1E constant voltage source transformer or inverter using an internal AC source]. LCO 3.8.9 addresses this action; however, pursuant to LCO 3.0.6, these actions would not be entered even if the AC vital bus were de-energized. Therefore, the ACTIONS are modified by a Note to require the ACTIONS for LCO 3.8.9 be entered immediately. This ensures the vital bus is re-energized within 2 hours. (1)

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

B.1 and B.2

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

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.7.1

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

REFERENCES

1. FSAR, Chapter [8].
2. FSAR, Chapter [6].
3. FSAR, Chapter [15].

(1)

JUSTIFICATION FOR DEVIATIONS
ISTS 3.8.7 BASES, INVERTERS - OPERATING

1. Changes have been made to reflect those changes made to the Specification.

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ISTS 3.8.8, Inverters - Shutdown

ISTS 3.8.8 Markup and Justification for Deviations (JFDs)

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Inverters - Shutdown

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

[One] inverter[s] shall be OPERABLE.]

----------REVIEWER'S NOTE----------
This second option above applies for plants having a pre-ITS licensing basis (CTS) for electrical power requirements during shutdown conditions that required only [one] inverter to be OPERABLE. The "[or more]" optional wording in Condition A is also eliminated for this case. The first option above is adopted for plants that have a CTS requiring the same level of DC electrical power subsystem/inverter support as is required for power operating conditions.

APPLICABILITY: MODES 4 and 5,
During movement of [recently] irradiated fuel assemblies in the [secondary] containment.

(1)

ACTIONS

----------NOTE----------
LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [or more] [required] inverter[s] inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	OR	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	AND	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2.2 Suspend handling of [recently] irradiated fuel assemblies in the [secondary] containment. AND A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel. AND A.2.4 Initiate action to restore [required] inverters to OPERABLE status.	Immediately Immediately Immediately

(1)

SURVEILLANCE REQUIREMENTS

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

JUSTIFICATION FOR DEVIATIONS
ISTS 3.8.8, INVERTERS - SHUTDOWN

1. ISTS 3.8.8, "Shutdown - Shutdown," has been deleted since the current licensing basis does not require the inverter to supply the associated loads. In addition, if the associated distribution panels are energized by the alternate source for extended periods, there will be no long term degradation of equipment. Therefore, this Specification is not proposed for the Monticello.

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ISTS 3.8.8 Bases Markup and Justification for Deviations (JFDs)

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.8 Inverters - Shutdown

BASES

BACKGROUND

A description of the inverters is provided in the Bases for LCO 3.8.7, "Inverters - Operating."

APPLICABLE SAFETY ANALYSES

The initial conditions of Design Basis Accident (DBA) and transient analyses in the FSAR, Chapter [6] (Ref. 1) and Chapter [15] (Ref. 2), assume Engineered Safety Feature systems are OPERABLE. The DC to AC inverters are designed to provide the required capacity, capability, redundancy, and reliability to ensure the availability of necessary power to the Reactor Protection System and Emergency Core Cooling Systems instrumentation and controls so that the fuel, Reactor Coolant System, and containment design limits are not exceeded.

The OPERABILITY of the inverters is consistent with the initial assumptions of the accident analyses and the requirements for the supported systems' OPERABILITY. (1)

The OPERABILITY of the minimum inverters to each AC vital bus during MODES 4 and 5 ensures that:

a. The facility can be maintained in the shutdown or refueling condition for extended periods,

b. Sufficient instrumentation and control capability are available for monitoring and maintaining the unit status, and

c. Adequate power is available to mitigate events postulated during shutdown, such as an inadvertent draindown of the vessel or a fuel handling accident [involving handling recently irradiated fuel. Due to radioactive decay, the AC and DC inverters are only required to mitigate fuel handling accidents involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days)].

In general, when the unit is shut down, the Technical Specifications requirements ensure that the unit has the capability to mitigate the consequences of postulated accidents. However, assuming a single failure and concurrent loss of all offsite or all onsite power is not required. The rationale for this is based on the fact that many Design Basis

BASES

APPLICABLE SAFETY ANALYSES (continued)

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

The shutdown Technical Specification requirements are designed to ensure that the unit has the capability to mitigate the consequences of certain postulated accidents. Worst case DBA which are analyzed for operating MODES are generally viewed not to be a significant concern during shutdown MODES due to the lower energies involved. The Technical Specifications therefore require a lesser complement of electrical equipment to be available during shutdown than is required during operating MODES. More recent work completed on the potential risks associated with shutdown, however, have found significant risk associated with certain shutdown evolutions. As a result, in addition to the requirements established in the Technical Specifications, the industry has adopted NUMARC 91-06, "Guidelines for Industry Actions to Assess Shutdown Management," as an Industry initiative to manage shutdown tasks and associated electrical support to maintain risk at an acceptable low level. This may require the availability of additional equipment beyond that required by the shutdown Technical Specifications. (1)

The inverters were previously identified as part of the Distribution System and, as such, satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

The inverter[s] ensure the availability of electrical power for the instrumentation for systems required to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence or postulated DBA. The battery powered inverter[s] provide[s] uninterruptible supply of AC electrical power to the AC vital bus[es] even if the 4.16 kV safety buses are de-energized. OPERABLE inverter[s] require the AC vital bus be powered by the inverter through inverted DC voltage. This ensures the availability of sufficient inverter power sources to operate the plant in a safe manner and to mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents [involving handling recently irradiated fuel] and inadvertent reactor vessel draindown).

BASES

APPLICABILITY

The inverter[s] required to be OPERABLE in MODES 4 and 5 and also any time during movement of [recently] irradiated fuel assemblies in the [primary or secondary] containment provide assurance that:

a. Systems to provide adequate coolant inventory makeup are available for the irradiated fuel in the core in case of an inadvertent draindown of the reactor vessel,

b. Systems needed to mitigate a fuel handling accident [involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days)] are available,

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

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

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

ACTIONS

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

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

[If two divisions are required by LCO 3.8.10, "Distribution Systems - Shutdown," the remaining OPERABLE inverters may be capable of supporting sufficient required feature(s) to allow continuation of CORE ALTERATIONS, [recently] irradiated fuel movement, and operations with a potential for draining the reactor vessel.] By the allowance of the option to declare required feature(s) inoperable with the associated inverter(s) inoperable, appropriate restrictions are implemented in accordance with the affected required feature(s) of the LCOs' ACTIONS. In many instances, this option may involve undesired administrative efforts. Therefore, the allowance for sufficiently conservative actions is made (i.e., to suspend CORE ALTERATIONS, movement of [recently] irradiated fuel assemblies in the [primary or secondary] containment, and any activities that could result in inadvertent draining of the reactor vessel).

BASES

ACTIONS (continued)

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

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

SURVEILLANCE REQUIREMENTS

SR 3.8.8.1

This Surveillance verifies that the inverters are functioning properly with all required circuit breakers closed and AC vital buses energized from the inverter. The verification of proper voltage and frequency output ensures that the required power is readily available for the instrumentation connected to the AC vital buses. The 7 day Frequency takes into account the redundant capability of the inverters and other indications available in the control room that alert the operator to inverter malfunctions. (1)

REFERENCES

1. FSAR, Chapter [6].
2. FSAR, Chapter [15].

JUSTIFICATION FOR DEVIATIONS
ISTS 3.8.8 BASES, INVERTERS - SHUTDOWN

1. Changes have been made to reflect those changes made to the Specification.

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