JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.5

DC Sources Shutdown

MARKUP OF NUREG-1433, REVISION 1, BASES

PA1

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."

DB1 Safeguards

APPLICABLE SAFETY ANALYSES

DB2 14

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.

emergency

E

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

and during movement of irradiated fuel assemblies in the secondary containment

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

in the secondary containment

PA2

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

plant

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.

refueling

TA2

Insert A5A Bases

G TSTF-204

The DC sources satisfy Criterion 3 of the NRC Policy Statement.

X1

10 CFR 50.36 (c)(2)(ii) (Ref. 3)

TA2

LCO

125 V

TA2 One

The DC electrical power subsystems switch station service DC subsystem consisting of two 125 V batteries two sets, two battery chargers, and the corresponding control

TA2 required [the required]

DB3

one

(continued)

Revision G

TA2

Insert ASA Bases

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 power is not required. The rationale for this is based on the fact that many Design basis Accidents (DBAs) that are analyzed in MODES [~~1, 2, 3, and 4 {for PWRs}~~]1, 2, and 3 {~~for BWRs~~} have no specific analyses in MODES [~~5 and 6 {for PWRs}~~]4 and 5 {~~for BWRs~~}. Worst case bounding events are deemed not credible in MODES [~~5 and 6 {for PWRs}~~]4 and 5 {~~for BWRs~~} 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. PA1

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 Design Basis Accidents 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 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. G TSTF-204

BASES

LCO (continued)

equipment and interconnecting cabling, 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 support required DC distribution subsystems 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 and inadvertent reactor vessel draindown).

APPLICABILITY

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

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;

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

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

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

~~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~~

(continued)

Revision G

TA1

Insert ACTION A NOTE

(6) RAI 3.8.5-1

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.

(6) RAI 3.8.5-1

PA1

BASES

ACTIONS

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

TA2 TSTF-204 G

capable of supporting sufficient required features to allow continuation of CORE ALTERATIONS, 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 irradiated fuel assemblies, and any activities that could result in inadvertent draining of the reactor vessel).

PA2

electrical power subsystems

PA4

However

PA2

in the secondary containment

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

TA2

G TSTF-204

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.

SURVEILLANCE REQUIREMENTS

SR 3.8.5.1

H PA5

SR 3.8.5.1 requires performance of all Surveillances required by SR 3.8.4.1 through SR 3.8.4.8. 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

(continued)

Revision 6

PA1

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.5.1 (continued)

still be capable of being met, but actual performance is not required.

REFERENCES

4 1. FSAR, Chapter [6]. DB1

2. FSAR, Chapter [15]. 14 DB2

3. 10 CFR 50.36 (c)(2)(ii) X1

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.5

DC Sources Shutdown

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

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS BASES: 3.8.5 - DC SOURCES - SHUTDOWN

RETENTION OF EXISTING REQUIREMENT (CLB)

None

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

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

PA2 Editorial changes have been made for enhanced clarity or to correct a grammatical/typographical error.

PA3 NUREG-1433, Revision 1, ISTS LCOs 3.8.7 and 3.8.8 have been deleted. Therefore, NUREG-1433, Revision 1, ISTS LCO 3.8.9 and LCO 3.8.10 have been renumbered, as JAFNPP ITS 3.8.7 and 3.8.8 respectively, to reflect this change.

PA4 The word "sources" has been replaced with "electrical power subsystems" to be consistent with the wording of the LCO and ACTION.

PA5 ITS SR 3.8.5.1 has been revised to reflect changes for ITS 3.8.4 SR numbers.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB1 ITS 3.8.5 has been revised to reflect the specific JAFNPP reference requirements of, UFSAR, Chapter 6.

DB2 ITS 3.8.5 has been revised to reflect the specific JAFNPP reference requirements of, UFSAR, Chapter 14.

DB3 ITS 3.8.5 has been revised to reflect the JAFNPP specific design. Each DC electrical power subsystem includes one battery and one charger.

DB4 ITS 3.8.5 has been revised to reflect the JAFNPP DC electrical design does not include a separate DG DC subsystem. Therefore, references to DG DC subsystems have been deleted.

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS BASES: 3.8.5 - DC SOURCES - SHUTDOWN

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

TA1 The changes presented in Technical Specification Task Force (TSTF) Technical Specification Change Traveler Number 36, Revision 4, have been incorporated into the revised Improved Technical Specifications. TSTF-36, Revision 4, adds a Note at the beginning of the ITS 3.8.5 ACTIONS Table, stating that "LCO 3.0.3 is not applicable", to clarify that the requirements apply only to the Modes or other specified conditions in the applicability.

TA2 The changes presented in Technical Specification Task Force (TSTF) Technical Specification Change Traveler Number 204, Revision 1, have been incorporated into the revised Improved Technical Specifications. In addition, appropriate changes have been made due to the use of the second LCO option.

TSTF-204 / RAI 3.8.5-01

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

None

RAI 3.8.5-01

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

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

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.5

DC Sources Shutdown

RETYPED PROPOSED IMPROVED TECHNICAL SPECIFICATIONS (ITS) AND BASES

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources – Shutdown

LCO 3.8.5 One 125 VDC electrical power subsystem shall be OPERABLE to support one division of the onsite Class IE DC Electrical Power Distribution System required by LCO 3.8.8, "Distribution Systems – Shutdown." TSTF-204

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

ACTIONS

----------NOTE----------
LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required DC electrical power subsystem inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	OR	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	A.2.2 Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	AND	
		(continued)

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ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately
	AND	
	A.2.4 Initiate action to restore required DC electrical power subsystems to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.5.1	----------NOTE---------- The following SRs are not required to be performed: SR 3.8.4.2, SR 3.8.4.3, and SR 3.8.4.4. ---------- For DC electrical power subsystems required to be OPERABLE the following SRs are applicable: SR 3.8.4.1, SR 3.8.4.2, SR 3.8.4.3, and SR 3.8.4.4.	In accordance with applicable SRs

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 UFSAR, Chapter 6 (Ref. 1) and Chapter 14 (Ref. 2), assume that Engineered Safeguards systems are OPERABLE. The DC electrical power system provides normal and emergency DC electrical power for the emergency diesel generators (EDGs), emergency auxiliaries, and control and switching during all MODES of operation and during movement of irradiated fuel assemblies in the secondary containment.

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 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 plant 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 refueling accident.

In general, when the unit is shutdown, 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.

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(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

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 occurence 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 Design Basis Accidents 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 availabe 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.

TSTF-204

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

LCO

One 125 VDC electrical power subsystem consisting of one 125 V battery, one battery charger, and the corresponding control equipment and interconnecting cabling supplying power to the associated bus is required to be OPERABLE to support one DC distribution subsystem required OPERABLE by LCO 3.8.8, "Distribution Systems – Shutdown." This requirement ensures the availability of sufficient DC electrical power sources to operate the plant in a safe manner and to mitigate the consequences of postulated events during shutdown (e.g., refueling accidents and inadvertent reactor vessel draindown).

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(continued)

BASES (continued)

APPLICABILITY

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

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;

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

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 plant 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.2.1, A.2.2, A.2.3, and A.2.4

By allowance of the option to declare required features inoperable with associated DC electrical power subsystems inoperable, appropriate restrictions are implemented in accordance with the affected system LCOs' ACTIONS. However in many instances, this option may involve undesired administrative efforts. Therefore, the allowance for

TSE-204 RAI 3.8-5-01

(continued)

BASES

ACTIONS

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

sufficiently conservative actions is made (i.e., to suspend CORE ALTERATIONS, movement of irradiated fuel assemblies in the secondary containment, and any activities that could result in inadvertent draining of the reactor vessel).

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 and to continue this action until restoration is accomplished in order to provide the necessary DC electrical 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 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.

TSTF-204

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 3.8.4.4. 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. UFSAR, Chapter 6.
2. UFSAR, Chapter 14.
3. 10 CFR 50.36(c)(2)(ii).

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.6

Battery Cell Parameters

MARKUP OF CURRENT TECHNICAL SPECIFICATIONS (CTS)

DISCUSSION OF CHANGES (DOCs) TO THE CTS

NO SIGNIFICANT HAZARDS CONSIDERATION (NSHC) FOR LESS RESTRICTIVE CHANGES

MARKUP OF NUREG-1433, REVISION 1, SPECIFICATION

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

MARKUP OF NUREG-1433, REVISION 1, BASES

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

RETYPED PROPOSED IMPROVED TECHNICAL SPECIFICATIONS (ITS) AND BASES

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.6

Battery Cell Parameters

MARKUP OF CURRENT TECHNICAL SPECIFICATIONS (CTS)

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.6

Battery Cell Parameters

DISCUSSION OF CHANGES (DOCs) TO THE CTS

DISCUSSION OF CHANGES
ITS: 3.8.6 - BATTERY CELL PARAMETERS

ADMINISTRATIVE CHANGES

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

A2 LCO 3.8.6 for Battery Cell Parameters states, Battery cell parameters for the 125 VDC and 419 VDC LPCI MOV independent power supply batteries shall be within the limits of Table 3.8.6-1. The addition of these LCO statements explicitly require the battery cell parameters to be within the limits of ITS Table 3.8.6-1 (M5), and average cell temperatures to be within required limits (M6). These changes separate the existing battery parameter measuring requirements from other reasons for battery unavailability. Changes to individual battery parameters are addressed in the CTS 3.9.E, 3.9.F, 4.9.E, and 4.9.F markups. This change is a presentation preference, consistent with NUREG-1433, Revision 1, and is considered administrative.

A3 The detail in CTS 4.9.E.2.a and 4.9.F.2.a, to measure the voltage of each cell to nearest 0.01 V, is being deleted. The proposed Float Voltage requirements of Table 3.8.6-1 specify a level of measurement tolerance corresponding to 0.01 V (i.e. 2.13 V and 2.07 V). This change represents a presentation preference, consistent with NUREG-1433, Revision 1, and is considered administrative.

A4 A Note has been added to CTS 3.9.E station battery requirements. The ITS 3.8.6 ACTIONS Note will allow separate Condition entry for each battery. This change provides more explicit instructions for proper application of the ACTIONS for Technical Specification compliance. In conjunction with the proposed Specification 1.3 - "Completion Times," the Note ("Separate Condition entry ...") and the Conditions of ITS 3.8.6 provide more explicit direction consistent with the intent of the existing Specification ACTIONS for a battery parameter not within limits. This change, is consistent with NUREG-1433, Revision 1 and, is considered administrative.

TECHNICAL CHANGES - MORE RESTRICTIVE

M1 CTS 3.9.E.1 and 3.9.F.1, requirements that the reactor shall not be made critical unless both station batteries and both LPCI MOV Independent

TECHNICAL CHANGES - MORE RESTRICTIVE

M1 (continued)

Power Supplies (batteries) are in service with exceptions noted, are being revised. ITS LCO 3.8.6 APPLICABILITY requires the battery cell parameters to be within limits (i.e., batteries OPERABLE) consistent with associated DC electrical power subsystem requirements to be OPERABLE during MODES 1 through 5 and during movement of irradiated fuel assemblies in secondary containment. This requirement adds Modes 3, 4, and 5, and whenever moving irradiated fuel assemblies in the secondary containment. The addition of MODE 3 is required because the reactor has enough energy for postulated accidents to occur and mitigation by ECCS may be required. The addition of MODES 4 and 5, and whenever moving irradiated fuel in the secondary containment ensures that there is power available for equipment required to mitigate refueling accidents, cool the irradiated fuel, and provide power for monitoring instruments required to insure that the plant is maintained in MODE 4 or 5. The addition of new MODEs and condition restrictions, is consistent with NUREG-1433, Revision 1, imposes additional operational requirements and, is considered to be more restrictive. This change is considered to have no adverse impact on safety.

M2 CTS 3.9.E and 3.9.F do not address requirements for a battery cell parameter not with limits. ITS 3.8.6 ACTION A, establishes the Condition, Required Actions and associated Completion Times, for one or more batteries with one or more battery cell parameters not within Category A or B limits. ACTION A is required to identify and respond to a degraded battery capacity which if not corrected could require the battery to be declared inoperable. The addition, of ACTION A, is consistent with NUREG-1433 Revision 1, imposes additional operational requirements and, is considered to be more restrictive. This change is considered to have no adverse impact on safety.

M3 ITS 3.8.6 ACTION B is added to establish the Condition requirement, Required Actions and associated Completion Times for Required Actions and associated Completion Times of Category A not met or, one or more batteries with average electrolyte temperature of the representative cells not within limits or, one or more batteries with one or more battery cell parameters are not within Category C values. Since no similar Specification exists, ACTION B is required to define the specific requirements for declaring the battery inoperable. The addition of ACTION B, is consistent with NUREG-1433, Revision 1, imposes additional operational requirements and, is considered to be more restrictive. This change is considered to have no adverse impact on safety.

TECHNICAL CHANGES - MORE RESTRICTIVE

M4 CTS 4.9.E.1, 4.9.E.2, 4.9.F.1 and 4.9.F.2 Surveillance Requirements, to measure battery cell specific gravity and voltage, are being supplemented. ITS SR 3.8.6.1 to verify battery cell parameters meet ITS Table 3.8.6-1 Category A requirements and, ITS SR 3.8.6.2 to verify battery cell parameters meet Table 3.8.6-1 Category B requirements, includes a requirement to verify electrolyte level of connected battery cells. Although current surveillance tests perform electrolyte level verification (per IEEE-450-1995), since no similar Specification exists, the addition of electrolyte level verification in ITS Table 3.8.6-1 is required to ensure that the battery cell plates suffer no physical damage, and that adequate electron transfer capability is maintained in the event of transient conditions. The addition of electrolyte level verification in ITS Table 3.8.6-1, is consistent with NUREG-1433, Revision 1, imposes additional operational requirements and, is considered to be more restrictive. This change is considered to have no adverse impact on safety.

M5 CTS 4.9.E.1, 4.9.E.2, 4.9.F.1 and 4.9.F.2, Surveillance Requirements for station batteries and LPCI MOV independent power supply batteries, are being supplemented. ITS Table 3.8.6-1, Battery Cell Parameter Requirements, establishes the acceptance criteria for the Category A, B, and C, electrolyte level, float voltage and specific gravity (or charging current) used as acceptance criteria for ITS 3.8.6 Surveillance Requirements. These Category values and limits establish acceptance criteria for CTS 4.9.E.1 and 4.9.E.2, requirements to measure battery cell specific gravity, float voltage and electrolyte level (M4). ITS SR 3.8.6.1 and SR 3.8.6.2 verify battery cell parameters meet Table 3.8.6-1 Category A and B requirements respectively. Although current surveillance tests perform similar verifications (per IEEE-450-1995), since no similar Specification requirement exists, the addition of these verification requirements and ITS Table 3.8.6-1 is required to verify that the battery remains within acceptable limits which will ensure the availability of required DC power to shutdown the reactor and maintain it in a safe condition after an anticipated operational transient or postulated DBA. The addition of ITS Table 3.8.6-1, is consistent with NUREG-1433, Revision 1, imposes additional operational requirements and, is considered to be more restrictive. This change is considered to have no adverse impact on safety.

M6 The CTS 4.9.E.2.c and 4.9.F.2.c, requirement to measure cell temperature, is being changed. ITS SR 3.8.6.3, adds the requirement to verify that the average electrolyte temperature of representative cells for the 125 VDC batteries is equal to or greater than 60 degrees F, and for the 419 VDC LPCI MOV independent power supply batteries the average representative cell electrolyte temperature is equal to or greater than

TECHNICAL CHANGES - MORE RESTRICTIVE

M6 (continued)

50 degrees F. Although current surveillance tests verify cell electrolyte temperatures are within a range, since no similar Specification requirement exists, the verification of average battery cell electrolyte temperature is required to ensure that the battery is not at low temperatures which would act to inhibit or reduce battery capacity. The addition of limits to cell electrolyte temperature verification in ITS SR 3.8.6.3, is consistent with NUREG-1433, Revision 1, imposes additional operational requirements and, is considered to be more restrictive. This change is considered to have no adverse impact on safety.

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

LA1 Details of the CTS 4.9.E.2.c and 4.9.F.2.c requirement, for measuring temperature of every fifth cell (L3), are being relocated to the Bases for ITS SR 3.8.6.3. These are operational details that are not necessary to be included in the Technical Specifications to ensure battery OPERABILITY, since the OPERABILITY requirements are adequately addressed in ITS 3.8.6. Therefore, these details are not required to be in the ITS to provide adequate protection of the public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the Technical Specifications.

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 Not Used.

L2 The CTS 4.9.E.1 and 4.9.F.1 requirements, to measure electrolyte temperature of each pilot cell every 7 days, are being deleted. ITS SR 3.8.6.1 each 31 days, and SR 3.8.6.2 each 92 days, require specific gravity verification to be corrected for temperature (ITS Table 3.8.6-1 Note (b)), therefore indirectly determining the temperature of the battery cells. In addition ITS SR 3.8.6.3 requires determining the average representative cell electrolyte temperature each 92 days, consistent with IEEE-450-1995. This change is acceptable based on implementation of the ITS 3.8.6 Battery Cell Parameters Specification, consistent with the requirements of NUREG-1433 Revision 1, which monitors battery cell electrolyte temperatures in various Surveillances and will provide adequate verification of battery cell electrolyte temperatures. Since this change reduces operational requirements, to independently measure pilot cell electrolyte temperature, it is considered to be less restrictive.

DISCUSSION OF CHANGES
ITS: 3.8.6 - BATTERY CELL PARAMETERS

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L3 The CTS 4.9.E.2.c and 4.9.F.2.c requirements, to measure temperature of every fifth cell every 92 days, is being changed. ITS SR 3.8.6.3 requires the average electrolyte temperature of representative cells (10% of the total) be verified within limits every 92 days. This change reduces the number of cells tested from 12 to 6 based on a total of 60 cells in the 125 VDC batteries and from 38 to 19 based on a total of 186 cells in the 419 VDC LPCI MOV independent power supply batteries. This change is consistent with the recommendations of IEEE-450-1995 which states that the average electrolyte temperature of the representative cells should be determined quarterly. This change is acceptable based on implementation of the ITS 3.8.6 Battery Cell Parameters Specification, consistent with the requirements of NUREG-1433, Revision 1, which continues to monitor battery cell electrolyte temperatures to ensure that these temperatures remain within acceptable operating limits. Since this change reduces operational requirements, by decreasing the total number of cells monitored, it is considered to be less restrictive.

TECHNICAL CHANGES - RELOCATIONS

None

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.6

Battery Cell Parameters

NO SIGNIFICANT HAZARDS CONSIDERATION (NSHC) FOR LESS RESTRICTIVE CHANGES

NO SIGNIFICANT HAZARDS CONSIDERATION
ITS: 3.8.6 - BATTERY CELL PARAMETERS

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 CHANGE

Not Used.

RAI 3.8.6-01

NO SIGNIFICANT HAZARDS CONSIDERATION
ITS: 3.8.6 - BATTERY CELL PARAMETERS

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L2 CHANGE

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

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

   The proposed change does not involve any physical alteration of plant systems, structures or components, changes in parameters governing normal plant operation, or methods of operation. The proposed change will delete the specific Surveillance Requirement to measure electrolyte temperature of each pilot cell every 7 days. Proposed Specifications continue to require corrected specific gravity readings for pilot cells and individual cells. The remaining Surveillance Requirements for obtaining corrected specific gravity readings require determining the electrolyte temperature and adjusting the specific gravity for non standard temperatures, consistent with the requirements identified in IEEE-450, 1995, and therefore provide adequate electrolyte temperature monitoring. The battery is necessary to support the equipment used to mitigate the consequences of an accident; however, the battery is not considered the initiator of any previously analyzed accident. As such, this change will not increase the probability or consequences of any accident previously evaluated.

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

   The proposed change does not involve any physical alteration of plant systems, structures or components, changes in parameters governing normal plant operation, or methods of operation. Therefore, it does not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

   The proposed change does not involve any physical alteration of plant systems, structures or components, changes in parameters governing normal plant operation, or methods of operation. The proposed change deletes the specific Surveillance Requirement to measure pilot cell electrolyte temperature every 7 days. The remaining Surveillance

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L2 CHANGE

3. (continued)

Requirements for obtaining corrected specific gravity readings require determining the electrolyte temperature and adjusting the specific gravity for non standard temperatures, consistent with the requirements identified in IEEE-450, 1995, and therefore provide adequate electrolyte temperature monitoring to ensure OPERABILITY. Therefore, this change does not involve a significant reduction in a margin of safety.

NO SIGNIFICANT HAZARDS CONSIDERATION
ITS: 3.8.6 - BATTERY CELL PARAMETERS

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L3 CHANGE

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

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

   The proposed change does not involve any physical alteration of plant systems, structures or components, changes in parameters governing normal plant operation, or methods of operation. The proposed change will reduce the number of battery cells in which the electrolyte temperature will be verified from 12 to 6 for the 60 cell 125 VDC Division 1 and 2 batteries and from 38 to 19 for the 186 cell 419 VDC LPCI MOV independent power supply batteries. The use of representative cells (10% of the total) is consistent with the guidelines presented in IEEE-450, 1995. The battery is necessary to support the equipment used to mitigate the consequences of an accident; however, the battery is not considered the initiator of any previously analyzed accident. As such, this change will not increase the probability or consequences of any accident previously evaluated.

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

   The proposed change does not involve any physical alteration of plant systems, structures or components, changes in parameters governing normal plant operation, or methods of operation. Therefore, it does not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

   The proposed change does not involve any physical alteration of plant systems, structures or components, changes in parameters governing normal plant operation, or methods of operation. The proposed change retains the electrolyte temperature verification but reduces the number of battery cells in which the electrolyte temperature is verified. In addition, the electrolyte temperature is integral to other Surveillance Requirements which are retained consistent with the requirements of IEEE-450, 1995. Therefore, this change does not involve a significant reduction in a margin of safety.

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.6

Battery Cell Parameters

MARKUP OF NUREG-1433, REVISION 1
SPECIFICATION

4/19 VDC LPCI MOV independent power supply

3.8 ELECTRICAL POWER SYSTEMS

3.8.6 Battery Cell Parameters

125 VDC

[3.9.F]
[3.9.E]
[A2]

LCO 3.8.6 Battery cell parameters for the ~~station service~~ and ~~DG~~ batteries shall be within the limits of Table 3.8.6-1.

PA1

X1 INSERT L386-LCO

[3.9.E.1]
[3.9.F.1]
[M1]

APPLICABILITY: When associated DC electrical power subsystems are required to be OPERABLE.

ACTIONS

[A4]

NOTE
Separate Condition entry is allowed for each battery.

[M2]

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more batteries with one or more battery cell parameters not within Category A or B limits.	A.1 Verify pilot cells electrolyte level and float voltage meet Table 3.8.6-1 Category C limits.	1 hour
	AND	
	A.2 Verify battery cell parameters meet Table 3.8.6-1 Category C limits.	24 hours AND Once per 7 days thereafter
	AND	
	A.3 Restore battery cell parameters to Category A and B limits of Table 3.8.6-1.	31 days

(continued)

(X1) INSERT L386-LCO

AND

Battery cell average electrolyte temperature for the 125 VDC and 419 VDC LPCI MOV independent power supply batteries shall be within required limits.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
[M3] B. Required Action and associated Completion Time of Condition A not met. OR One or more batteries with average electrolyte temperature of the representative cells not within limits. OR One or more batteries with one or more battery cell parameters not within Category C ~~values~~ limits.	B.1 Declare associated battery inoperable.	Immediately

X2

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
[M4] [1.9.E.1] [1.9.F.1] [L2] [M5] SR 3.8.6.1	Verify battery cell parameters meet Table 3.8.6-1 Category A limits.	7 days

(6) RAI 3.8.6-1

(continued)

Revision 6

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE		FREQUENCY
[4.9.E.2] [4.9.F.2] [M4] [M5]	SR 3.8.6.2	Verify battery cell parameters meet Table 3.8.6-1 Category B limits.	92 days CLB1 ~~AND~~ ~~Once within 24 hours after battery discharge < [110] V~~ ~~AND~~ ~~Once within 24 hours after battery overcharge > [150] V~~
[4.9.E.2.c] [4.9.F.2.c] [L3] [M4]	SR 3.8.6.3	Verify average electrolyte temperature of representative cells is ≥ ~~65~~ 60°F for each ~~station service~~ battery, and ≥ ~~55~~ 50°F for each ~~DG~~ battery~~s~~.	92 days DB1

4/19 VDC LPCI MOV independent power supply

125 VDC

PA1

Table 3.8.6-1 (page 1 of 1)
Battery Cell Parameter Requirements

[M5] [4.9.E.1, 4.9.F.1] [4.9.E.2, 4.9.F.2] [M3, M5]

PARAMETER	CATEGORY A: LIMITS FOR EACH DESIGNATED PILOT CELL	CATEGORY B: LIMITS FOR EACH CONNECTED CELL	CATEGORY C: ~~ALLOWABLE~~ LIMITS FOR EACH CONNECTED CELL (X2)
Electrolyte Level [M4]	> Minimum level indication mark, and ≤ ¼ inch above maximum level indication mark(a)	> Minimum level indication mark, and ≤ ¼ inch above maximum level indication mark(a)	Above top of plates, and not overflowing
Float Voltage [M5]	≥ 2.13 V	≥ 2.13 V	> 2.07 V
Specific Gravity(b)(c) [M5]	≥ [1.195]	≥ [1.195] **AND** Average of all connected cells > [1.205]	Not more than 0.020 below average of all connected cells **AND** Average of all connected cells ≥ [1.195] (DB2)

(a) It is acceptable for the electrolyte level to temporarily increase above the specified maximum level during equalizing charges provided it is not overflowing. (X3) (and, for a limited time, following) (X3) (DB3) (1) (RAI 3.8.6-2)

(b) Corrected for electrolyte temperature and level. Level correction is not required, however, when on float charge, battery charging current is < {1} amp for ~~station service~~ batteries and < 0.25 amp for [125 VDC] batteries}. (2) (5) (PA1)

(c) A battery charging current of < {1} amp for ~~station service~~ batteries and < 0.25 amp for [125 VDC] batteries} when on float charge is acceptable for meeting specific gravity limits following a battery recharge, for a maximum of {7} days. When charging current is used to satisfy specific gravity requirements, specific gravity of each connected cell shall be measured prior to expiration of the {7} day allowance. (DB3) (1) (X4)

4.19 VDC LPCI MOV independent power supply (PA1)

Revision 6

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.6

Battery Cell Parameters

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

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS: 3.8.6 - BATTERY CELL PARAMETERS

RETENTION OF EXISTING REQUIREMENT (CLB)

CLB1 SR 3.8.6.2 is revised to omit the Frequencies of "Once within 24 hours after a battery discharge < [110]V" and "Once within 24 hours after a battery overcharge > [150]V." since no similar CTS Surveillance Requirement exists at JAFNPP. The Frequencies associated with a battery discharge or overcharge are omitted since, they are inconsistent with the content of typical STS Surveillances, revised ISTS Surveillances do not typically contain "abnormal condition" related frequencies and, battery discharge or overcharge are adequately covered by administrative controls. In addition, this change is currently submitted as a Technical Specification Task Force Change Traveler, TSTF-201, and is pending.

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

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

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB1 ITS SR 3.8.6.3 brackets have been removed and values revised to reflect specific JAFNPP requirements of, ≥ 60°F for 125 VDC batteries and ≥ 50°F for 419 VDC LPCI MOV independent power supply batteries based on JAF Electrical Calculations.

DB2 ITS Table 3.8.6-1 Specific Gravity, brackets have been removed and the values revised to reflect JAFNPP requirements of, Category: A ≥ 1.195, B ≥ 1.195 for each cell and > 1.205 for average connected cells, and C ≥ 1.195 for the applicable battery specific gravities.

DB3 ITS Table 3.8.6-1 footnotes (b) and (c), brackets have been removed and the values revised to reflect JAFNPP requirements of, < 2 amps for the 125 VDC and < 1 amp for the 419 VDC LPCI MOV independent power supply battery charging currents.

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

None

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS: 3.8.6 - BATTERY CELL PARAMETERS

RAI 3.8.6-01

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

None

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X1 To be consistent with the NUREG-1433 format, the requirement to maintain battery cell average electrolyte temperature within the required limit is added to ITS 3.8.6 LCO since average electrolyte temperature of the battery cells supports OPERABILITY of the DC power subsystems. The additional requirement to the LCO statement is made since NUREG-1433 LCO 3.8.6 states that battery cell parameters shall be within the limits of Table 3.8.6-1. However average electrolyte temperature is not included in this Table, but is verified in ITS SR 3.8.6.3 (M1).

X2 The word "values" in ITS 3.8.6 Condition B part three has been changed to "limits" consistent with the LCO description. In addition, the word "ALLOWABLE" in Table 3.8.6-1 Category C has been deleted consistent with the term Category C "limits" contained in the ACTIONS. This change also aids to avoid confusion with the term "Allowable Value" used in the instrumentation Section.

RAI 3.8.6-02

X3 The words "and, for a limited time, following" have been added to ITS Table 3.8.6-1 footnote (a) to allow electrolyte level to be temporarily above the limit following, as well as during, the equalize charge. As stated in the Bases for this footnote, IEEE-450, 1995 recommends that electrolyte level readings not be taken until 72 hours after the equalize charge. The 72 hours allows time for the electrolyte temperature to stabilize and the level reading to be a "true" reading. Without the added words, the limit may not be met upon completion of the charge and unnecessary ACTIONS would be taken.

X4 ITS Table 3.8.6-1 footnote (c), brackets have been removed and the value of 7 days has been entered. The period of 7 days has been provided to allow a reasonable time for specific gravity gradients to diffuse, before requiring that specific gravities be taken to determine the charge status of the battery.

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.6

Battery Cell Parameters

MARKUP OF NUREG-1433, REVISION 1, BASES

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.6 Battery Cell Parameters

BASES

BACKGROUND

This LCO delineates the limits on electrolyte temperature, level, float voltage, and specific gravity 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."

DB3 14 U PA1 DB2 PA1

APPLICABLE SAFETY ANALYSES

The initial conditions of Design Basis Accident (DBA) and transient analyses in FSAR, Chapter ~~[6]~~ 14 (Ref. 1) and Chapter ~~[15]~~ 15 (Ref. 2), assume Engineered ~~Safety Feature~~ Safeguards 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.

PA1 E emergency

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~~ plant. This includes maintaining at least one division of DC sources OPERABLE during accident conditions, in the event of:

PA1 PA2 as discussed in the Bases for LCO 3.8.4 and LCO 3.8.5

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

b. A worst case single failure.

Since battery cell parameters support the operation of the DC electrical power subsystems, they satisfy Criterion 3 of ~~the NRC Policy Statement~~. 10 CFR 50.36 (c)(2)(ii) (Ref. 3) X1

LCO

Battery cell 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~~ transient or a postulated DBA. Electrolyte limits are conservatively established, allowing continued DC electrical system function even with Category A and B limits not met.

PA1 transient abnormal

(continued)

BASES (continued)

PA3

APPLICABILITY

these battery cell parameters are

electrical power subsystem

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

associated

TP1

ACTIONS

INSERT B386-A1

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

With parameters of one or more cells in one or more batteries not within limits (i.e., Category A limits not met or Category B limits not met, or Category A and B limits not met) but within the Category C limits specified in Table 3.8.6-1, the battery is degraded but there is still sufficient capacity to perform the intended function. Therefore, the affected battery is not required to be considered inoperable solely as a result of Category A or B limits not met, and continued operation is permitted for a limited period.

(S) PA3

The pilot cell electrolyte level and float voltage are required to be verified to meet the Category C limits within 1 hour (Required Action A.1). This check provides a quick indication of the status of the remainder of the battery cells. One hour provides time to inspect the electrolyte level and to confirm the float voltage of the pilot cells. One hour is considered a reasonable amount of time to perform the required verification.

(1) (2) PA3

Verification that the Category C limits are met (Required Action A.2) provides assurance that during the time needed to restore the parameters to the Category A and B limits, the battery is still capable of performing its intended function. A period of 24 hours is allowed to complete the initial verification because specific gravity measurements must be obtained for each connected cell. Taking into consideration both the time required to perform the required verification and the assurance that the battery cell parameters are not severely degraded, this time is considered reasonable. The verification is repeated at 7 day intervals until the parameters are restored to Category A and B limits. This periodic verification is consistent with the normal frequency of pilot cell surveillances.

X5

INSERT B386-A2

(continued)

TP1

Insert B386-A1

The ACTIONS Table is modified by a Note which indicates that separate Condition entry is allowed for each battery. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable DC subsystem. Complying with the Required Actions for one inoperable DC subsystem may allow for continued operation, and subsequent inoperable DC subsystems are governed by separate Condition entry and application of associated Required Actions.

Insert B386-A2

X5

guidance provided in IEEE-450 (Ref. 4) of monitoring battery conditions at regular intervals (not to exceed one week) while completing corrective actions

BASES

ACTIONS

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

Continued operation is only permitted for 31 days before battery cell parameters must be restored to within Category A and B limits. Taking into consideration that, while battery capacity is degraded, sufficient capacity exists to perform the intended function and to allow time to fully restore the battery cell parameters to normal limits, this time is acceptable for operation prior to declaring the DC batteries inoperable.

B.1

When any battery parameter is outside the Category C limit for any connected cell, sufficient capacity to supply the maximum expected load requirement is not ensured and the corresponding DC electrical power subsystem must be declared inoperable. Additionally, other potentially extreme conditions, such as not completing the Required Actions of Condition A within the required Completion Time, or average electrolyte temperature of representative cells falling below 60°F, also are cause for immediately declaring the associated DC electrical power subsystem inoperable.

PA3 and associated

any PA3

not met,

< for each 125 VDC battery, or < 50°F for each 419 VDC LACS MOV independent power supply battery

DB1

SURVEILLANCE REQUIREMENTS

SR 3.8.6.1

This SR verifies that Category A battery cell parameters are consistent with IEEE-450 (Ref. 2), which recommends regular battery inspections (at least one per month) including voltage, specific gravity, and electrolyte temperature of pilot cells.

4 DB4

SR 3.8.6.2

The quarterly inspection of specific gravity and voltage is consistent with IEEE-450 (Ref. 2). In addition, within 24 hours of a battery discharge < [110] V or a battery overcharge > [150] V, the battery must be demonstrated to meet Category B limits. Transients, such as motor starting transients, which may momentarily cause battery voltage to drop to ≤ [110] V, do not constitute a battery discharge provided the battery terminal voltage and float current

4 DB4

CLB1

INSERT B 3862

(continued)

CLB1

INSERT B3862

which recommends augmentation of the battery inspections conducted in SR 3.8.6.1 at least once per quarter by checking voltage, specific gravity and electrolyte temperature of each connected cell.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.6.2 (continued)

CLB 1

return to pre-transient values. This inspection is also consistent with IEEE-450 (Ref. 3), which recommends special inspections following a severe discharge or overcharge, to ensure that no significant degradation of the battery occurs as a consequence of such discharge or overcharge.

PA3

SR 3.8.6.3

4 DB4 electrolyte

This Surveillance verification that the average temperature of representative cells is within limits is consistent with a recommendation of IEEE-450 (Ref. 3) that states that the temperature of electrolyte in representative cells should be determined on a quarterly basis.

PA3

Lower than normal temperatures act to inhibit or reduce battery capacity. This SR ensures that the operating temperatures remain within an acceptable operating range. This limit is based on manufacturer's recommendations.

Table 3.8.6-1

PA3

This table delineates the limits on electrolyte level, float voltage, and specific gravity for three different categories. The meaning of each category is discussed below.

PA3 designated

Category A defines the normal parameter limit for each designed pilot cell in each battery. The cells selected as pilot cells are those whose temperature, voltage, and electrolyte specific gravity approximate the state of charge of the entire battery.

4 DB4

The Category A limits specified for electrolyte level are based on manufacturer's recommendations and are consistent with the guidance in IEEE-450 (Ref. 3), with the extra ¼ inch allowance above the high water level indication for operating margin to account for temperature and charge effects. In addition to this allowance, footnote (a) to Table 3.8.6-1 permits the electrolyte level to be temporarily above the specified maximum level during equalizing charge, provided it is not overflowing. These limits ensure that the plates suffer no physical damage, and that adequate electron

X3 (Normally up to 3 days following the completion of an equalization charge to allow electrolyte stabilization)

X3 and, for a limited time, following an

X3

(continued)

RAI 3.8.6-2

Revision G

BASES

SURVEILLANCE REQUIREMENTS

Table 3.8.6-1 (continued)

transfer capability is maintained in the event of transient conditions. IEEE-450 (Ref. 3) recommends that electrolyte level readings should be made only after the battery has been at float charge for at least 72 hours.

The Category A limit specified for float voltage is ≥ 2.13 V per cell. This value is based on the recommendation of IEEE-450 (Ref. 3), which states that prolonged operation of cells below 2.13 V can reduce the life expectancy of cells. The Category A limit specified for specific gravity for each pilot cell is ≥ 1.200 (0.015 below the manufacturer's fully charged nominal specific gravity or a battery charging current that had stabilized at a low value). This value is characteristic of a charged cell with adequate capacity. According to IEEE-450 (Ref. 3), the specific gravity readings are based on a temperature of 77°F (25°C).

The specific gravity readings are corrected for actual electrolyte temperature and level. For each 3°F (1.67°C) above 77°F (25°C), 1 point (0.001) is added to the reading; 1 point is subtracted for each 3°F below 77°F. The specific gravity of the electrolyte in a cell increases with a loss of water due to electrolysis or evaporation. Level correction will be in accordance with manufacturer's recommendations.

Category B defines the normal parameter limits for each connected cell. The term "connected cell" excludes any battery cell that may be jumpered out.

The Category B limits specified for electrolyte level and float voltage are the same as those specified for Category A and have been discussed above. The Category B limit specified for specific gravity for each connected cell is ≥ 1.195 (0.020 below the manufacturer's fully charged, nominal specific gravity) with the average of all connected cells ≥ 1.205 (0.010 below the manufacturer's fully charged, nominal specific gravity). These values are based on manufacturer's recommendations. The minimum specific gravity value required for each cell ensures that the effects of a highly charged or newly installed cell do not mask overall degradation of the battery.

(continued)

pA3

INSERT T386-1-A

a cell with a marginal or unnacceptable specific gravity is not masked by averaging with cells having higher specific gravities.

BASES

SURVEILLANCE REQUIREMENTS

Table 3.8.6-1 (continued)

Category C defines the limits for each connected cell. These values, although reduced, provide assurance that sufficient capacity exists to perform the intended function and maintain a margin of safety. When any battery parameter is outside the Category C limits, the assurance of sufficient capacity described above no longer exists, and the battery must be declared inoperable.

The Category C limit specified for electrolyte level (above the top of the plates and not overflowing) ensures that the plates suffer no physical damage and maintain adequate electron transfer capability. The Category C Allowable Value for voltage is based on IEEE-450 (Ref. 3), which states that a cell voltage of 2.07 V or below, under float conditions and not caused by elevated temperature of the cell, indicates internal cell problems and may require cell replacement.

The Category C limit on average specific gravity (≥ 1.195), is based on manufacturer's recommendations (0.020 below the manufacturer's recommended fully charged, nominal specific gravity). In addition to that limit, it is required that the specific gravity for each connected cell must be no less than 0.020 below the average of all connected cells. This limit ensures that the effect of a highly charged or new cell does not mask overall degradation of the battery.

The footnotes to Table 3.8.6-1 that apply to specific gravity are applicable to Category A, B, and C specific gravity. Footnote (b) of Table 3.8.6-1 requires the above mentioned correction for electrolyte level and temperature, with the exception that level correction is not required when battery charging current, while on float charge, is < 2 amp for station service batteries and < 0.5 amp for DG batteries. This current provides, in general, an indication of overall battery condition.

Because of specific gravity gradients that are produced during the recharging process, delays of several days may occur while waiting for the specific gravity to stabilize. A stabilized charging current is an acceptable alternative to specific gravity measurement for determining the state of charge of the designated pilot cell. This phenomenon is discussed in IEEE-450 (Ref. 3). Footnote (c) to Table 3.8.6-1

(continued)

PA3

INSERT T386-1-B

a cell with a marginal or unnacceptable specific gravity is not masked by averaging with cells having higher specific gravities.

BASES

SURVEILLANCE REQUIREMENTS

Table 3.8.6-1 (continued)

allows the float charge current to be used as an alternate to specific gravity for up to 7 days following a battery recharge. Within ~~[7]~~ days, each connected cell's specific gravity must be measured to confirm the state of charge. Following a minor battery recharge (such as equalizing charge that does not follow a deep discharge) specific gravity gradients are not significant, and confirming measurements may be made in less than ~~[7]~~ days. X4

X 6

~~Reviewer's Note: The value of [2] amps used in footnote (b) and (c) is the nominal value for float current established by the battery vendor as representing a fully charged battery with an allowance for overall battery condition.~~

REFERENCES PA3

1. FSAR, Chapter ~~[6]~~. DB2
2. FSAR, Chapter ~~[15]~~. 14 DB3
3. IEEE Standard 450, ~~1987~~. 1995 DB4

IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications.

3. 10 CFR 50.36 (c) (2) (ii) X1

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.6

Battery Cell Parameters

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

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS BASES: 3.8.6 - BATTERY CELL PARAMETERS

RETENTION OF EXISTING REQUIREMENT (CLB)

CLB1 SR 3.8.6.2 is revised to omit the Frequencies of "Once within 24 hours after a battery discharge < 110 V" and "Once within 24 hours after a battery overcharge > 150 V" since no similar CTS Surveillance Requirement exists at JAFNPP. The Frequencies associated with a battery discharge or overcharge are omitted since, they are inconsistent with the content of typical STS Surveillances, revised ISTS Surveillances do not typically contain "abnormal condition" related frequencies and, battery discharge or overcharge are adequately covered by administrative controls. In addition, this change is currently submitted as a Technical Specification Task Force Change Traveler, TSTF-201, and is pending.

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

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

PA2 Battery Cell Parameters support the operation of the DC electrical power subsystems and the Battery Cell Parameter Specification is required to be applicable during the same MODES and conditions as in LCO 3.8.4, "DC Sources – Operating," and LCO 3.8.5, "DC Sources – Shutdown." The same safety analyses discussions as those discussed in the Bases for LCO 3.8.4 and LCO 3.8.5 are also applicable to the Battery Cell Parameter Specification. As a result, the Bases for the Battery Cell Parameter Specification in the Applicable Safety Analyses Section have been revised accordingly.

PA3 Editorial changes have been made for enhanced clarity or to correct a grammatical/typographical error.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB1 ITS 3.8.6.3 Condition B.1 has been revised to reflect specific JAFNPP requirements of, ≥ 60°F for 125 VDC batteries and ≥ 50°F for 419 VDC LPCI MOV independent power supply batteries based on JAF Electrical Calculations.

DB2 ITS 3.8.6 has been revised to reflect the specific JAFNPP requirements of, UFSAR Chapter 6, Emergency Core Cooling System.

DB3 ITS 3.8.6 has been revised to reflect the specific JAFNPP requirements of, UFSAR Chapter 14, Safety Analyses.

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS BASES: 3.8.6 - BATTERY CELL PARAMETERS

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB4 ITS 3.8.6 has been revised to reflect the specific JAFNPP requirements of, IEEE Standard 450, 1995, IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications.

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

None

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

TP1 The changes presented in Technical Specification Task Force (TSTF) Technical Specification Change Traveler Number 203, Revision 0, have been incorporated into revised Improved Technical Specifications. The TSTF modifies Bases 3.8.6 to provide the Bases for the ITS 3.8.6 ACTIONS Note which indicates that separate condition entry is allowed for each battery. This change is consistent with ITS NUREG Bases format requirements.

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

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

X2 The word "value" in ITS 3.8.6 has been changed to "limit" consistent with the LCO description. In addition, the word "ALLOWABLE" in Table 3.8.6-1 Category C has been deleted consistent with the term Category C "limits" contained in the ACTIONS. This change also aids to avoid confusion with the term "Allowable Value" used in the instrumentation Section.

X3 ITS 3.8.6 Bases Table 3.8.6-1 footnote (a) has been revised to allow electrolyte level to be temporarily above the limit during and, for a limited time, following an equalizing charge. As stated in the Bases for this footnote, IEEE-450, 1995 recommends that electrolyte level readings not be taken until 72 hours after the equalize charge. The 72 hours allows time for the electrolyte temperature to stabilize and the level reading to be a "true" reading. Without the added words, the limit may not be met upon completion of the charge and unnecessary ACTIONS would be taken.

RAI-3.8.6-02

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X4 ITS Table 3.8.6-1 footnote (c), brackets have been removed and the value of 7 days has been entered. The period of 7 days is consistent with the value provided in NUREG-1433, Revision 1. The 7 days is provided to allow a reasonable time for specific gravity gradients to diffuse, before requiring that specific gravities be taken to determine the charge status of the battery.

X5 ITS 3.8.6 Bases A.1, A.2, and A.3 discussion of the bases for the second Completion Time associated with Required Action A.2 which references "normal Frequency of pilot cell Surveillances", has been revised to reflect the guidance provided in IEEE-450, 1995, of monitoring battery conditions at regular intervals (not to exceed one week) while completing corrective actions. This change was made in response to the proposed ITS SR 3.8.6.1 Frequency change from 7 days to 31 days for the referenced pilot cell Surveillances (L1).

X6 The Reviewer's Note has been deleted. This information is for the NRC reviewer to be keyed in to what is needed to meet the requirement. This is not meant to be retained in the final version of the plant specific submittal.

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.6

Battery Cell Parameters

RETYPED PROPOSED IMPROVED TECHNICAL SPECIFICATIONS (ITS) AND BASES

3.8 ELECTRICAL POWER SYSTEMS

3.8.6 Battery Cell Parameters

LCO 3.8.6 Battery cell parameters for the 125 VDC and 419 VDC LPCI MOV independent power supply batteries shall be within the limits of Table 3.8.6-1.

AND

Battery cell average electrolyte temperature for the 125 VDC and 419 VDC LPCI MOV independent power supply batteries shall be within required limits.

APPLICABILITY: When associated DC electrical power subsystems are required to be OPERABLE.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more batteries with one or more battery cell parameters not within Category A or B limits.	A.1 Verify pilot cells electrolyte level and float voltage meet Table 3.8.6-1 Category C limits.	1 hour
	AND	
	A.2 Verify battery cell parameters meet Table 3.8.6-1 Category C limits.	24 hours AND Once per 7 days thereafter
	AND	
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.3 Restore battery cell parameters to Category A and B limits of Table 3.8.6-1.	31 days
B. Required Action and associated Completion Time of Condition A not met. OR One or more batteries with average electrolyte temperature of the representative cells not within limits. OR One or more batteries with one or more battery cell parameters not within Category C limits.	B.1 Declare associated battery inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.6.1	Verify battery cell parameters meet Table 3.8.6-1 Category A limits.	7 days

RAI 3.8.6-01

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.6.2	Verify battery cell parameters meet Table 3.8.6-1 Category B limits.	92 days
SR 3.8.6.3	Verify average electrolyte temperature of representative cells is ≥ 60°F for each 125 VDC battery, and ≥ 50°F for each 419 VDC LPCI MOV independent power supply battery.	92 days

Table 3.8.6-1 (page 1 of 1)
Battery Cell Parameter Requirements

PARAMETER	CATEGORY A: LIMITS FOR EACH DESIGNATED PILOT CELL	CATEGORY B: LIMITS FOR EACH CONNECTED CELL	CATEGORY C: LIMITS FOR EACH CONNECTED CELL
Electrolyte Level	> Minimum level indication mark, and ≤ ¼ inch above maximum level indication mark[a]	> Minimum level indication mark, and ≤ ¼ inch above maximum level indication mark[a]	Above top of plates, and not overflowing
Float Voltage	≥ 2.13 V	≥ 2.13 V	> 2.07 V
Specific Gravity[b][c]	≥ 1.195	≥ 1.195 AND Average of all connected cells > 1.205	Not more than 0.020 below average of all connected cells AND Average of all connected cells ≥ 1.195

(a) It is acceptable for the electrolyte level to temporarily increase above the specified maximum level during and, for a limited time, following equalizing charges provided it is not overflowing.

(b) Corrected for electrolyte temperature and level. Level correction is not required, however, when on float charge and battery charging current is < 2 amps for 125 VDC batteries and < 1 amp for 419 VDC LPCI MOV independent power supply batteries.

(c) A battery charging current of < 2 amps for 125 VDC batteries and < 1 amp for 419 VDC LPCI MOV independent power supply batteries when on float charge is acceptable for meeting specific gravity limits following a battery recharge, for a maximum of 7 days. When charging current is used to satisfy specific gravity requirements, specific gravity of each connected cell shall be measured prior to expiration of the 7 day allowance.

RAI 3.8.6-2

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.6 Battery Cell Parameters

BASES

BACKGROUND	This LCO delineates the limits on electrolyte temperature, level, float voltage, and specific gravity 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."
APPLICABLE SAFETY ANALYSES	The initial conditions of Design Basis Accident (DBA) and transient analyses in UFSAR, Chapter 6 (Ref. 1) and Chapter 14 (Ref. 2), assume Engineered Safeguards systems are OPERABLE. The DC electrical power subsystems provide normal and emergency DC electrical power for the emergency diesel generators (EDGs), 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 plant as discussed in the Bases for LCO 3.8.4 and LCO 3.8.5. Since battery cell parameters support the operation of the DC electrical power subsystems, they satisfy Criterion 3 of 10 CFR 50.36(c)(2)(11) (Ref. 3).
LCO	Battery cell 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 abnormal operational transient or a postulated DBA. Electrolyte limits are conservatively established, allowing continued DC electrical system function even with Category A and B limits not met.

(continued)

BASES (continued)

APPLICABILITY

The battery cell parameters are required solely for the support of the associated DC electrical power subsystem. Therefore, these battery cell parameters are only required when the associated DC electrical power subsystem is required to be OPERABLE. Refer to the Applicability discussions in Bases for LCO 3.8.4 and LCO 3.8.5.

ACTIONS

The ACTIONS Table is modified by a Note which indicates that separate Condition entry is allowed for each battery. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable DC subsystem. Complying with the Required Actions for one inoperable DC subsystem may allow for continued operation, and subsequent inoperable DC subsystems are governed by separate Condition entry and application of associated Required Actions.

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

With parameters of one or more cells in one or more batteries not within limits (i.e., Category A limits not met or Category B limits not met, or Category A and B limits not met) but within the Category C limits specified in Table 3.8.6-1, the battery is degraded but there is still sufficient capacity to perform the intended function. Therefore, the affected battery is not required to be considered inoperable solely as a result of Category A or B limits not met, and continued operation is permitted for a limited period.

The pilot cell(s) electrolyte level and float voltage are required to be verified to meet the Category C limits within 1 hour (Required Action A.1). This check provides a quick indication of the status of the remainder of the battery cells. One hour provides time to inspect the electrolyte level and to confirm the float voltage of the pilot cell(s). One hour is considered a reasonable amount of time to perform the required verification.

Verification that the Category C limits are met (Required Action A.2) provides assurance that during the time needed to restore the parameters to the Category A and B limits, the battery is still capable of performing its intended function. A period of 24 hours is allowed to complete the

(continued)

BASES

ACTIONS

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

initial verification because specific gravity measurements must be obtained for each connected cell. Taking into consideration both the time required to perform the required verification and the assurance that the battery cell parameters are not severely degraded, this time is considered reasonable. The verification is repeated at 7 day intervals until the parameters are restored to Category A and B limits. This periodic verification is consistent with the guidance provided in IEEE-450 (Ref. 4) of monitoring battery conditions at regular intervals (not to exceed one week) while completing corrective actions.

Continued operation is only permitted for 31 days before battery cell parameters must be restored to within Category A and B limits. Taking into consideration that, while battery capacity is degraded, sufficient capacity exists to perform the intended function and to allow time to fully restore the battery cell parameters to normal limits, this time is acceptable for operation prior to declaring the DC batteries inoperable.

B.1

When any battery parameter is outside the Category C limit for any connected cell, sufficient capacity to supply the maximum expected load requirement is not ensured and the corresponding DC electrical power subsystem must be declared inoperable. Additionally, other potential conditions, such as any Required Action of Condition A and associated Completion Time not met, or average electrolyte temperature of representative cells < 60°F for each 125 VDC battery, or < 50°F for each 419 VDC LPCI MOV independent power supply battery, also are cause for immediately declaring the associated DC electrical power subsystem inoperable.

SURVEILLANCE REQUIREMENTS

SR 3.8.6.1

This SR verifies that Category A battery cell parameters are consistent with IEEE-450 (Ref. 4), which recommends regular battery inspections (at least one per month) including

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.6.1 (continued)

voltage, specific gravity, and electrolyte temperature of pilot cells.

SR 3.8.6.2

The quarterly inspection of specific gravity and voltage is consistent with IEEE-450 (Ref. 4), which recommends augmentation of the battery inspections conducted in SR 3.8.6.1 at least once per quarter by checking voltage, specific gravity and electrolyte temperature of each connected cell.

SR 3.8.6.3

This Surveillance verification that the average temperature of representative cells is within limits is consistent with a recommendation of IEEE-450 (Ref. 4) that states that the temperature of electrolytes in representative cells should be determined on a quarterly basis.

Lower than normal temperatures act to inhibit or reduce battery capacity. This SR ensures that the operating temperatures remain within an acceptable operating range. This limit is based on manufacturer's recommendations.

Table 3.8.6-1

This Table delineates the limits on electrolyte level, float voltage, and specific gravity for three different categories. The meaning of each category is discussed below.

Category A defines the normal parameter limit for each designated pilot cell in each battery. The cells selected as pilot cells are those whose temperature, voltage, and electrolyte specific gravity approximate the state of charge of the entire battery.

The Category A limits specified for electrolyte level are based on manufacturer's recommendations and are consistent with the guidance in IEEE-450 (Ref. 4), with the extra

(continued)

BASES

SURVEILLANCE REQUIREMENTS

Table 3.8.6-1 (continued)

¼ inch allowance above the high water level indication for operating margin to account for temperature and charge effects. In addition to this allowance, footnote (a) to Table 3.8.6-1 permits the electrolyte level to be temporarily above the specified maximum level during and, for a limited time, following an equalizing charge (normally up to 3 days following the completion of an equalization charge) to allow electrolyte stabilization, provided it is not overflowing. These limits ensure that the plates suffer no physical damage, and that adequate electron transfer capability is maintained in the event of transient conditions. IEEE-450 (Ref. 4) recommends that electrolyte level readings should be made only after the battery has been at float charge for at least 72 hours.

The Category A limit specified for float voltage is ≥ 2.13 V per cell. This value is based on the recommendation of IEEE-450 (Ref. 4), which states that prolonged operation of cells below 2.13 V can reduce the life expectancy of cells. The Category A limit specified for specific gravity for each pilot cell is ≥ 1.195 (0.020 below the manufacturer's fully charged nominal specific gravity or a battery charging current that had stabilized at a low value). This value is characteristic of a charged cell with adequate capacity. According to IEEE-450 (Ref. 4), the specific gravity readings are based on a temperature of 77°F (25°C).

The specific gravity readings are corrected for actual electrolyte temperature and level. For each 3°F (1.67°C) above 77°F (25°C), 1 point (0.001) is added to the reading; 1 point is subtracted for each 3°F below 77°F. The specific gravity of the electrolyte in a cell increases with a loss of water due to electrolysis or evaporation. Level correction will be in accordance with manufacturer's recommendations.

Category B defines the normal parameter limits for each connected cell. The term "connected cell" excludes any battery cell that may be jumpered out.

The Category B limits specified for electrolyte level and float voltage are the same as those specified for Category A and have been discussed above. The Category B limit specified for specific gravity for each connected cell is ≥ 1.195 (0.020 below the manufacturer's fully charged,

(continued)

BASES

SURVEILLANCE REQUIREMENTS

Table 3.8.6-1 (continued)

nominal specific gravity) with the average of all connected cells 1.205 (0.010 below the manufacturer's fully charged, nominal specific gravity). These values are based on manufacturer's recommendations. The minimum specific gravity value required for each cell ensures that a cell with a marginal or unacceptable specific gravity is not masked by averaging with cells having higher specific gravities.

Category C defines the limits for each connected cell. These values, although reduced, provide assurance that sufficient capacity exists to perform the intended function and maintain a margin of safety. When any battery parameter is outside the Category C limits, the assurance of sufficient capacity described above no longer exists, and the battery must be declared inoperable.

The Category C limit specified for electrolyte level (above the top of the plates and not overflowing) ensures that the plates suffer no physical damage and maintain adequate electron transfer capability. The Category C limit for voltage is based on IEEE-450 Appendix C (Ref. 4), which states that a cell voltage of 2.07 V or below, under float conditions and not caused by elevated temperature of the cell, indicates internal cell problems and may require cell replacement.

The Category C limit on average specific gravity ≥ 1.195, is based on manufacturer's recommendations (0.020 below the manufacturer's recommended fully charged, nominal specific gravity). In addition to that limit, it is required that the specific gravity for each connected cell must be no less than 0.020 below the average of all connected cells. This limit ensures that a cell with a marginal or unacceptable specific gravity is not masked by averaging with cells having higher specific gravities.

The footnotes to Table 3.8.6-1 that apply to specific gravity are applicable to Category A, B, and C specific gravity. Footnote (b) of Table 3.8.6-1 requires the above mentioned correction for electrolyte level and temperature, with the exception that level correction is not required when battery charging current, while on float charge, is < 2 amps for 125 VDC batteries and < 1 amp for 419 VDC

(continued)

BASES

SURVEILLANCE REQUIREMENTS

Table 3.8.6-1 (continued)

LPCI MOV independent power supply batteries. This current provides, in general, an indication of acceptable overall battery condition.

Because of specific gravity gradients that are produced during the recharging process, delays of several days may occur while waiting for the specific gravity to stabilize. A stabilized charging current is an acceptable alternative to specific gravity measurement for determining the state of charge of the designated pilot cell. This phenomenon is discussed in IEEE-450 (Ref. 4). Footnote (c) to Table 3.8.6-1 allows the float charge current to be used as an alternate to specific gravity for up to 7 days following a battery recharge. Within 7 days, each connected cell's specific gravity must be measured to confirm the state of charge. Following a minor battery recharge (such as equalizing charge that does not follow a deep discharge) specific gravity gradients are not significant, and confirming measurements may be made in less than 7 days.

REFERENCES

1. UFSAR, Chapter 6.

2. UFSAR, Chapter 14.

3. 10 CFR 50.36(c)(2)(ii).

4. IEEE Standard 450, IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead - Acid Batteries for Stationary Applications, 1995.

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.7

Distribution Systems Operating

MARKUP OF CURRENT TECHNICAL SPECIFICATIONS (CTS)

DISCUSSION OF CHANGES (DOCs) TO THE CTS

NO SIGNIFICANT HAZARDS CONSIDERATION (NSHC) FOR LESS RESTRICTIVE CHANGES

MARKUP OF NUREG-1433, REVISION 1, SPECIFICATION

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

MARKUP OF NUREG-1433, REVISION 1, BASES

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

RETYPED PROPOSED IMPROVED TECHNICAL SPECIFICATIONS (ITS) AND BASES

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.7

Distribution Systems Operating

MARKUP OF CURRENT TECHNICAL SPECIFICATIONS (CTS)

Specification 3.8.7

A1

3.9 LIMITING CONDITIONS FOR OPERATION

3.9 AUXILIARY ELECTRICAL SYSTEMS

Applicability:

Applies to the auxiliary electrical systems.

Objective:

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

Specification:

Distribution Systems - Operating

[3.8.7] A. Normal and Reserve AC Power Systems

[Applicability] The reactor shall not be made critical unless all of the following requirements are satisfied:

Modes 1, 2, and 3

M1

[SR 3.8.7.1] 1. Power is available to the emergency buses from the following power sources:

a. the two 115 kv lines and reserve station service transformers

b. the two Emergency Diesel Generator Systems.

See ITS: 3.8.1

every 7 days

M2

LA1

Division 1 and 2 AC electrical power distribution subsystems

[LCO 3.8.7]

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

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

LA1

A2

OPERABLE

LA1

L1

add ACTION A to restore in 8 hours AND 16 hours from failure to meet LCO

M3

add ACTION C.1 to MODE 3 within 12 hours

L2

add ACTION C.2 to MODE 4 within 36 hours

add ACTION D for loss of function

A3

4.9 SURVEILLANCE REQUIREMENTS

4.9 AUXILIARY ELECTRICAL SYSTEMS

Applicability:

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

Objective:

Verify the operability of the auxiliary electrical system.

Specification:

A. Deleted

Specification 3.8.7 (A1)

Distribution Systems - Operating

~~3.9 (cont'd)~~

[3.8.7] E. Station Batteries

[Applicability] 1. The reactor shall not be made critical unless both station batteries and associated chargers and d-c buses are ~~in service~~ OPERABLE (A2) (LA) ~~except as specified below~~. Division 1 and 2 125 VDC electrical power distribution subsystems

(M1) MODES 1, 2 and 3

See ITS: 3.8.4

[Lo 3.8.7]

2. During power operation, if one battery becomes unavailable, repairs shall be made immediately, and continued reactor operation is permissible for a period not to exceed 7 days total/calendar-month provided that:

a. The other battery including its battery charger, and distribution systems is operable.

b. Pilot cell voltage, specific gravity, and overall voltage and temperature is measured immediately and daily thereafter for the operable battery.

c. The availability of the unaffected Emergency Diesel Generator System shall be demonstrated in accordance with Specification 4.9.B.5.

(L1) add ACTION B

add ACTION C (L2) (M3)

(A3) add ACTION D for loss of function

See ITS: 3.8.4

~~4.9~~ (cont'd)

[3.8.7] Station Batteries

see ITS: 3.8.4 3.8.6

1. Every week the specific gravity, voltage and temperature of the pilot cell and overall battery voltage shall be measured.

2. Every three months the following measurements shall be made: a) voltage of each cell to nearest 0.01 v, b) specific gravity of each cell, c) temperature of every fifth cell.

See ITS: 3.8.6

add SR 3.8.7.1 for DC buses (M2)

Page 2 of 2

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.7

Distribution Systems Operating

DISCUSSION OF CHANGES (DOCs) TO THE CTS

DISCUSSION OF CHANGES
ITS: 3.8.7 - DISTRIBUTION SYSTEMS - OPERATING

ADMINISTRATIVE CHANGES

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

A2 CTS 3.9.A and 3.9.E terms, "energized" and "in service," have been replaced by the word "OPERABLE" in ITS 3.8.7. Bus OPERABILITY is implied in CTS 3.9 by the requirement for the buses to be energized or in service. This change is a presentation preference and therefore, is considered administrative.

A3 A new ACTION (ITS 3.8.7 ACTION D) has been added to the requirements in CTS 3.9.A (for loss of AC buses) and CTS 3.9.F (for loss of 125 VDC buses) requiring entry into LCO 3.0.3 if two or more electrical power distribution subsystems are inoperable that result in a loss of function. Since any AC or DC electrical power distribution subsystem inoperability currently requires entry into CTS LCO 3.0.C, the addition of this ACTION is considered administrative. Changes to the CTS 3.0.C definition of Limiting Conditions for Operation (ITS LCO 3.0.3) are addressed in Discussion of Changes for ITS: Section 3.0. Allowances for one or more inoperable AC electrical power distribution subsystem and one inoperable 125 VDC electrical power distribution has been added to the CTS in accordance with L1 (ACTIONS A and B). Therefore, since these new ACTIONs will allow operation to continue for a short period with inoperable electrical power distribution subsystems (buses), this added requirement (ACTION D) is necessary to ensure timely actions is taken to place the plant in a safe condition when a required safety function is lost.

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TECHNICAL CHANGES - MORE RESTRICTIVE

M1 CTS 3.9.A and 3.9.E Applicability, conditions of the reactor shall not be made critical unless ..., effectively MODES 1 and 2, are being supplemented. ITS 3.8.7 Applicability requires AC and DC electrical power distribution subsystems be OPERABLE in MODES 1, 2, and 3. This change expands the Applicability of AC and DC electrical power distribution subsystems OPERABILITY requirements to more MODES of operation. The addition of MODE 3 establishes requirements for the OPERABILITY of AC and DC electrical power distribution subsystems

TECHNICAL CHANGES - MORE RESTRICTIVE

M1 (continued)

consistent with the OPERABILITY requirements for the functions that these subsystems are required to support such as the Emergency Core Cooling Systems and Containment Cooling Ssytems. The addition of MODE 3, is consistent with NUREG-1433, Revision 1, imposes additional operational requirements, and is considered more restrictive. This change is considered to have no adverse impact on safety.

M2 The CTS 3.9.A.1 requirement for power to be available to the emergency AC buses does not require verification on a regular basis. CTS 4.9.F does not include any verification for the DC electrical power distribution subsystem (125 VDC buses). ITS SR 3.8.7.1 requires verifying correct indicated power availability and breaker alignment of the required AC and 125 VDC electrical power distribution subsystems at a Frequency of every 7 days. The addition of SR 3.8.7.1 and proposed Frequency imposes new requirements on operations, necessary to ensure the required AC and DC electrical power distribution subsystems are maintained OPERABLE, and is considered more restrictive. This change is considered to have no adverse impact on safety.

M3 CTS 3.9.A and 3.9.E will require entry into LCO 3.0.C, that the plant be placed in cold shutdown (MODE 4) within 24 hours, if the corresponding power distribution buses are not OPERABLE. ITS 3.8.1 Required Action C.1 requires the plant to be in MODE 3 (Hot Shutdown) within 12 hours, as an interim step to Required Action C.2 to be in MODE 4 in 36 hours (L2). This action will ensure that the plant is placed in a MODE outside of the Applicability in a timely manner. Based on operating experience, the 12 hour Completion Time limit is acceptable since it allows sufficient time for an orderly transition to MODE 3 without challenging plant systems. The additional requirement, to be in MODE 3 in 12 hours, is consistent with NUREG-1433, Revision 1, imposes additional operational requirements, and is considered more restrictive. This change is considered to have no adverse impact on safety.

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

LA1 The details in CTS 3.9.A.2 related to the specific buses required to be Operable (e.g., buses 10500 and 10600) and the details in CTS 3.9.A.2 and 3.9.F.1 what "OPERABLE" means (e.g., energized, in service) are proposed to be relocated to the Bases in the form of a description or included in Table B 3.8.7-1. The details for system OPERABILITY are not necessary in the LCO. The requirements in ITS LCO 3.8.7 that the Division 1 and 2 AC and 125 DC electrical power distribution subsystems

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

LA1 (continued)

shall be Operable and the definition of Operability suffices. Therefore, these details are not required to be in the ITS to provide adequate protection of the public health and safety. Changes to the Bases will be controlled in accordance with the proposed Bases Control Program in Chapter 5 of the Technical Specifications.

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 CTS 3.9.A does not provide specific Actions for inoperable AC buses, and therefore an inoperable bus would require entry into CTS LCO 3.0.C and the plant placed in COLD SHUTDOWN within 24 hours (L2). CTS 3.9.E does not provide specific Actions for inoperable 125 VDC buses, and therefore an inoperable DC bus would require the same action. ITS 3.8.7 ACTION A has been added for one or more AC electrical power distribution subsystems inoperable while Action B has been added for one 125 VDC electrical power distribution system.

ITS 3.8.7 Required Action A.1 provides a Completion Time of 8 hours to restore the AC power distribution subsystems to OPERABLE status. ITS 3.8.7 Required ACTION B.1 requires restoration of the 125 VDC electrical power distribution subsystem within 8 hours. Each Required Action also includes a second Completion of within 16 hours from discovery of failure to meet the LCO. The 8 hour Completion Time is based on the capacity and capability of the remaining sources, reasonable time for repairs, the low probability of a DBA occurring during this period, and taking into account the reduced overall reliability because a single failure in the remaining power distribution system could result in the minimum required engineered safeguards functions not being supported. The second Completion Time establishes a maximum time allowed for any combination of distribution subsystems listed to be inoperable during any single contiguous occurrence of failing to meet the LCO. If a Division 1 AC distribution subsystem is inoperable while, for instance, a Division 2 125 VDC 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 16 hours since initial failure of the LCO to restore the Division 2 125 VDC distribution system. Then, a Division 1 AC subsystem could again become inoperable, and the DC distribution restored OPERABLE. This could continue indefinitely. Therefore, to preclude this situation and place an appropriate restriction on any such unusual situation, the additional Completion Time of "16 hours from discovery of failure to meet the LCO" is provided as an acceptable limitation on the potential

RAI 3.8.7-01

RAI 3.8.7-02

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 (continued)

to fail to meet the LCO indefinitely.

ITS 3.8.7 ACTION A allows entry for one or more inoperable AC electrical power distribution subsystems; however if a loss of function exists, entry into ITS 3.8.7 ACTION D will be necessary. This in turn requires entry into LCO 3.0.3. In Bases Table B 3.8.7-1, each division of the AC distribution subsystems includes one 4160 V bus and two 600 V buses. Buses in both divisions can be inoperable without a loss of function, therefore the 8 hours Completion Time in Required Action A.1 is acceptable. ITS 3.8.7 ACTION B allows entry for only one 125 DC electrical power distribution subsystem. Entry into ITS 3.8.7 ACTION D will be required when two 125 VDC electrical power distribution are inoperable since a loss of function will exist. Table B 3.8.7-1 only includes one bus for each division. If both buses are inoperable a loss of function will exist since all of the divisional load are supplied by this one bus. The 8 hours for an inoperable 125 VDC subsystem is also acceptable since the loss of a 125 VDC subsystem was analyzed as the most limiting single failure and was found to be acceptable (no loss of function occurs).

These changes are appropriate based upon the capabilities of the available systems to support the required equipment to bring the plant to a safe shutdown condition during an abnormal operational transient or a design bases accident and assuming no single failure.

RAI 3.8.7-01 / RAI 3.8.7-03

L2 CTS 3.9.A and 3.9.E will require entry into CTS LCO 3.0.C, plant in cold shutdown (MODE 4) within 24 hours, for the condition of one or more power distribution subsystems inoperable or not restored to OPERABLE within the prescribed time. ITS 3.8.7 Required Action C.2, Required Action and associated Completion Time of Condition A or B not met, extends the time allowed for the plant to be in MODE 4 from 24 to 36 hours. This change is in association with the addition of a new interim requirement, ITS 3.8.7 Required Action C.1, which requires the plant to be in MODE 3 in 12 hours (M3). The 36 hour Completion Time is based on providing the necessary time for the plant to cool down and reduce pressure in a controlled and orderly manner, and the low probability of a DBA occurring during this period. The additional time to reach MODE 4 (36 hours) in association with the interim requirement to be in MODE 3 (12 hours) reduces the potential for a plant event that could challenge plant safety systems, and is considered to be less restrictive.

TECHNICAL CHANGES - RELOCATIONS

None

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.7

Distribution Systems Operating

NO SIGNIFICANT HAZARDS CONSIDERATION (NSHC) FOR LESS RESTRICTIVE CHANGES

NO SIGNIFICANT HAZARDS CONSIDERATION
ITS: 3.8.7 - DISTRIBUTION SYSTEMS - OPERATING

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 CHANGE

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

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

   ITS 3.8.1 ACTION A will allow additional time to operate with inoperable AC electrical power distribution subsystem(s), while ACTION B will allow additional time to operate with an inoperable 125 DC electrical power distribution subsystem, before commencing a shutdown if the equipment is not restored to service. In addition, a second Completion Time of 16 hours has been added to limit the time allowed to be in the ACTIONs from discovery to meet the LCO. Allowing an additional 8 hours for inoperabilities associated with the electrical distribution subsystems, and 16 hours from discovery of failure to meet the LCO does not increase the probability of an accident previously evaluated since operating with inoperable AC or DC buses does not cause an accident to occur. The remaining AC or DC electrical power distribution subsystem(s) are adequate to supply the equipment necessary to bring the plant to safe shutdown conditions during a DBA or transient. ITS 3.8.7 ACTION D will require the plant to enter LCO 3.0.3 when a loss of function exists due to multiple electrical power distribution subsystem inoperabilities. The consequences of an accident will be the same as the consequences of an accident when CTS 3.0.C is entered for inoperabilities for both AC and 125 VDC buses. The consequences will be bounded by the UFSAR analyses if safety function is maintained. Therefore, this change does not significantly increase the probability or consequences of an accident previously evaluated.

   RAI 3.8.7-03

   RAI 3.8.7-03

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

   The proposed change does not involve any physical alteration of plant systems, structures or components, changes in parameters governing normal plant operation, or methods of operation. The proposed change provides additional time to repair inoperable electrical power distribution subsystem(s). Therefore, the possibility of a new or

   RAI 3.8.7-03

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 CHANGE

2. (continued)

different kind of accident from any accident previously evaluated is not created.

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

The proposed change provides additional time to repair inoperable AC buses or a DC bus. The requirements will still assure that adequate AC and DC electrical power is available to operate the minimum required equipment. Therefore, this change does not involve a significant reduction in a margin of safety.

RAIS 3.8.7-03
RAI 3.8.7-01

NO SIGNIFICANT HAZARDS CONSIDERATION
ITS: 3.8.7 - DISTRIBUTION SYSTEMS - OPERATING

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L2 CHANGE

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

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

   The proposed change extends the time to Cold Shutdown when AC and DC electrical power distribution subsystems are inoperable. Shutdown Completion Times are not assumed in the initiation of any analyzed event. The change will not allow continuous operation with an inoperable AC or DC electrical power distribution subsystem. The consequences of an accident are not increased because LCO 3.8.7 Required Action C.1 will require that the plant be placed in MODE 3 within 12 hours once the determination is made that the Required Actions or Completion Time associated with an inoperable AC or DC electrical power distribution subsystems cannot be satisfied. This change reduces the time the reactor would be allowed to continue to operate once the condition is identified. The consequences of a LOCA are significantly mitigated when the reactor is shutdown and a controlled cooldown is already in progress. In addition, the consequences of an event occurring during the proposed shutdown Completion Time are the same as the consequences of an event occurring during the existing shutdown Completion Time. Therefore, the change does not involve a significant increase in the probability or consequences of an event previously evaluated.

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

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

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L2 CHANGE

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

The change extends the Completion Time to reach Cold Shutdown when the AC or DC distribution subsystems are inoperable. The remaining AC and DC distribution subsystems are adequate to supply the equipment necessary to bring the plant to safe shutdown conditions during a LOCA or transient therefore there is still an adequate margin of safety. The probability of an event or accident occurring during this extended time period is small. In addition, this change provides the benefit of a reduced potential for a plant event that could challenge safety systems by providing additional time to reduce pressure in a controlled and orderly manner. Therefore, this change does not involve a significant reduction in a margin of safety.

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.7

Distribution Systems Operating

MARKUP OF NUREG-1433, REVISION 1
SPECIFICATION

3.8 ELECTRICAL POWER SYSTEMS

3.8.9 Distribution Systems—Operating

[3.9.A.2] LCO 3.8.9 The Division 1 and Division 2 AC, DC, and 125 V [and AC vital bus] electrical power distribution subsystems shall be OPERABLE.

[3.9.E.1]

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more AC electrical power distribution subsystems inoperable. [L1]	A.1 Restore AC electrical power distribution subsystems 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 subsystems to OPERABLE status.~~	~~2 hours~~ ~~AND~~ ~~16 hours from discovery of failure to meet LCO~~
B. One or more station service DC electrical power distribution subsystems inoperable. [L1]	B.1 Restore DC electrical power distribution subsystems to OPERABLE status.	2 hours AND 16 hours from discovery of failure to meet LCO

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1 Be in MODE 3.	12 hours
	AND	
	D.2 Be in MODE 4.	36 hours
~~E. One or more DG DC electrical power distribution subsystems inoperable.~~	~~E.1 Declare associated DG(s) inoperable.~~	~~Immediately~~
B. Two or more electrical power distribution subsystems inoperable that result in a loss of function.	B.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
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

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.7

Distribution Systems Operating

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

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS: 3.8.7 - DISTRIBUTION SYSTEMS - OPERATING

RETENTION OF EXISTING REQUIREMENT (CLB)

None

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

PA1 NUREG-1433, Revision 1, LCOs 3.8.7 and 3.8.8 have been deleted. Therefore NUREG-1433, Revision 1, ISTS LCO 3.8.9 has been renumbered as ITS LCO 3.8.7 to reflect this change, and ISTS LCO 3.8.10 has been renumbered as ITS LCO 3.8.8.

PA2 Changes have been made (additions, deletions and/or changes to the NUREG) to reflect the plant specific system/structure/component nomenclature, equipment identification or description.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB1 ITS 3.8.7 has been revised to reflect the specific design for JAFNPP, which does not include AC vital buses. NUREG-1433, Revision 1, ISTS 3.8.9 ACTION B, one or more vital buses inoperable and all references to AC vital buses have been deleted. Subsequent Actions have been renumbered as applicable.

DB2 ITS 3.8.7 has been revised to reflect the specific design for JAFNPP, which does not include a separate DC electrical power distribution subsystem to support the JAFNPP Emergency Diesel Generators. NUREG-1433, Revision 1, ISTS 3.8.9 ACTION E, one or more DG DC electrical power distribution subsystems inoperable, and all references to a DG DC electrical power distribution subsystem have been deleted. Subsequent Actions have been renumbered as applicable.

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

None

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

None

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X1 ISTS 3.8.9 Required Action C.1 (ITS 3.8.7 Required Action B.1) Completion Time of 2 hours has been extended to 8 hours. This is slightly longer than the time allowed in the ISTS. The 8 hour Completion Time has been selected because it allows sufficient time for operator assessment and action for restoring the division of 125 VDC electrical power distribution system while remaining free from the distractions of performing actions associated with shutting down the plant that would be required after 2 hours. The 8 hour Completion Time is justifiable since 1) With a loss of one division of 125 VDC, a loss of function has not occurred; only a loss of single failure tolerance. Some reasonable period of time (longer than 2 hours) is typically allowed in the NUREG for such situations. 2) It is equivalent to the Completion TIme allowed in the ISTS 3.8.9 for an inoperable division of AC distribution, which results in a similar compliment of inoperable ECCS subsystems

X2 ISTS 3.8.9 CONDITION C (ITS 3.8.7 CONDITION B) and the associated Required Action have been revised to limit the Condition to only division of the 125 DC electrical power distribution system. Table B 3.8.7-1 only includes one bus for each division, therefore with a loss of two buses both 125 VDC electrical power distribution systems will be inoperable. In this situation, ISTS CONDITION F (ITS CONDITION D) will require entry since a loss of function exists. RAI 3.8.7-03

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.7

Distribution Systems Operating

MARKUP OF NUREG-1433, REVISION 1, BASES

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.9 Distribution Systems—Operating

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.

The primary AC distribution system consists of three 4.16 kV Engineered Safety Feature (ESF) buses each 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.

The secondary plant distribution system includes 600 VAC emergency buses 2C and 2D and associated load centers, and transformers.

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.

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.

The list of all distribution buses is presented in Table B 3.8.9-1.

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

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

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 the NRC Policy Statement.

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 to be energized to their proper voltages. OPERABLE DC electrical power distribution subsystems require the associated buses to be energized to their proper voltage from either the associated

(continued)

PA1

PA2

BASES

LCO (continued)

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 LCO-1

X2

DB1

In addition, tie breakers between redundant safety related AC, DC, and AC vital bus power distribution subsystems, 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 IE 4.16 kV ESF buses from being powered from the same offsite circuit.

do not

125 V

DB3

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 operational transients; and

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

PA4

and other conditions in which AC and 125 VDC 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."

PA1

PA5

ACTIONS

A.1

electrical power distribution subsystems

With one or more required AC buses, load centers, motor control centers, or distribution panels in one division inoperable, the remaining AC electrical power distribution subsystems are capable of supporting the minimum safety functions necessary to shut down the reactor and maintain it

RAI 3.8.7-9

RAI 3.8.7-9

and a loss of function has not occurred

PA5

(continued)

Revision 6

X2

ITS Insert LCO-1

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. Other buses, such as motor control centers (MCC) and distribution panels, which help comprise the AC and 125 VDC 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 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 failure not affecting the OPERABILITY of a bus listed in Table B 3.8.7-1 (e.g., a breaker supplying a single MCC fails open), the individual loads on the bus would be considered 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 a 4.16 kV emergency bus, which results in de-energization of all buses powered from the 4.16 kV emergency 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 emergency bus).

BASES

ACTIONS

A.1 (continued)

in a safe shutdown condition, assuming no single failure. The overall reliability is reduced, however, because a single failure in the remaining power distribution subsystems could result in the minimum required ESF functions not being supported. Therefore, the required AC buses, 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 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.

b. The 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 8 hours. This situation could lead to a total duration of 16 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

(continued)

Revision 6

BASES

ACTIONS

A.1 (continued)

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.

B.1

With one AC vital bus inoperable, 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 AC vital bus 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.

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:

(continued)

BASES

ACTIONS

B.1 (continued)

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 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.

(continued)

BASES

ACTIONS (continued)

A.1

With one station service DC bus inoperable, 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 must be restored to OPERABLE status within 2 hours by powering the bus from the associated battery or charger.

Condition A represents one division 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;

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

(continued)

BASES

ACTIONS

D.1 (continued)

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

The second Completion Time for Required Action D.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 D 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 16 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.

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 D was entered. The 16 hour Completion Time is an acceptable limitation on this potential of failing to meet the LCO indefinitely.

D.1 and D.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 DC buses inoperable, the associated DG(s) may be incapable of performing their intended functions. In this situation the DG(s) must be immediately

(continued)

BASES

ACTIONS

E.1 (continued)

declared inoperable. This action also requires entry into applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources—Operating."

Condition 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.

SURVEILLANCE REQUIREMENTS

SR 3.8.1

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 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. 10 CFR 50.36 (c)(2)(ii)
3. Regulatory Guide 1.93, December 1974.

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 [division] of the AC and DC electrical power distribution systems is a subsystem.

PA2

Insert Table B 3.8.7-1

PA2

Insert Table B 3.8.7-1

Table B 3.8.7-1 (page 1 of 1)
AC and 125 VDC Electrical Power Distribution Systems

TYPE	VOLTAGE	DIVISION 1*	DIVISION 2*
AC safety buses	4160 V 600 V	Emergency Bus 71H05 Load Centers 71L15,71L25	Emergency Bus 71H06 Load Centers 71L16,71L26
125 VDC buses	125 VDC	Bus 71BCB-2A	Bus 71BCB-2B

* Each division of the AC and 125 VDC electrical power distribution systems is a subsystem.

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.7

Distribution Systems Operating

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

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS BASES: 3.8.7 - DISTRIBUTION SYSTEMS - OPERATING

RETENTION OF EXISTING REQUIREMENT (CLB)

None

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

PA1 NUREG-1433, Revision 1, LCOs 3.8.7 and 3.8.8 have been deleted. Therefore NUREG-1433, Revision 1, ISTS LCO 3.8.9 has been renumbered as ITS LCO 3.8.7 to reflect this change, and ISTS LCO 3.8.10 has been renumbered as ITS LCO 3.8.8.

PA2 Changes have been made (additions, deletions and/or changes to the NUREG) to reflect the plant specific system/structure/component nomenclature, equipment identification or description.

PA3 This change in the ASA has been made since Section 3.5, "ECCS and RCIC System" provides the appropriate limits that are affected by the systems in the LCO.

PA4 This change in the APPLICABILITY has been made to reflect the Applicability of ITS LCO 3.8.8.

PA5 Editorial changes have been made for enhanced clarity or to correct a grammatical/typographical error.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB1 ITS 3.8.7 has been revised to reflect the specific design for JAFNPP, which does not include AC vital buses. NUREG-1433, Revision 1, ISTS 3.8.9 ACTION B, one or more vital buses inoperable and all references to AC vital buses have been deleted. Subsequent Actions have been renumbered as applicable.

DB2 ITS 3.8.7 has been revised to reflect the specific design for JAFNPP, which does not include a separate DC electrical power distribution subsystem to support the JAFNPP Emergency Diesel Generators. NUREG-1433, Revision 1, ISTS 3.8.9 ACTION E, one or more DG DC electrical power distribution subsystems inoperable, and all references to a DG DC electrical power distribution subsystem have been deleted. Subsequent Actions have been renumbered as applicable.

DB3 ITS 3.8.7 LCO Bases has been revised to reflect the specific design for JAFNPP, which does not include tie breakers between redundant electrical power subsystems.

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS BASES: 3.8.7 - DISTRIBUTION SYSTEMS - OPERATING

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB4 ITS 3.8.7 has been revised to reflect the specific JAFNPP reference requirements of, UFSAR, Chapter 6.

DB5 ITS 3.8.7 has been revised to reflect the specific JAFNPP reference requirements of, UFSAR, Chapter 14.

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

None

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

None

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

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

X2 This addition has been added to clarify the proper actions to take for those buses which are not listed in proposed Table B 3.8.7-1.

X3 ISTS 3.8.9 Required Action C.1 (ITS 3.8.7 Required Action B.1) Completion Time of 2 hours has been extended to 8 hours. This is slightly longer than the time allowed in the ISTS. The 8 hour Completion Time has been selected because it allows sufficient time for operator assessment and action for restoring the division of 125 VDC electrical power distribution system while remaining free from the distractions of performing actions associated with shutting down the plant that would be required after 2 hours. The 8 hour Completion Time is justifiable since 1) With a loss of one division of 125 VDC, a loss of function has not occurred; only a loss of single failure tolerance. Some reasonable period of time (longer than 2 hours) is typically allowed in the NUREG for such situations. 2) It is equivalent to the Completion TIme allowed in the ISTS 3.8.9 for an inoperable division of AC distribution, which results in a similar compliment of inoperable ECCS subsystems. The Bases has been revised to reflect this change.

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.7

Distribution Systems Operating

RETYPED PROPOSED IMPROVED TECHNICAL SPECIFICATIONS (ITS) AND BASES

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 Distribution Systems – Operating

LCO 3.8.7 The Division 1 and Division 2 AC and 125 VDC electrical power distribution subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more AC electrical power distribution subsystems inoperable.	A.1	Restore AC electrical power distribution subsystems to OPERABLE status.	8 hours AND 16 hours from discovery of failure to meet LCO
B. One 125 VDC electrical power distribution subsystem inoperable.	B.1	Restore 125 VDC electrical power distribution subsystem to OPERABLE status.	8 hours AND 16 hours from discovery of failure to meet LCO
C. Required Action and associated Completion Time of Condition A, or B not met.	C.1	Be in MODE 3.	12 hours
	AND		
	C.2	Be in MODE 4.	36 hours

RAI 3.8.7-03

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two or more electrical power distribution subsystems inoperable that result in a loss of function.	D.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.7.1	Verify correct breaker alignments and voltage to required AC, and 125 VDC electrical power distribution subsystems.	7 days

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.7 Distribution Systems – Operating

BASES

BACKGROUND

The plant Class 1E AC and 125 VDC electrical power distribution system is divided into redundant and independent AC, and 125 VDC electrical power distribution subsystems.

The primary AC distribution system consists of two 4.16 kV emergency buses each having an offsite source of power as well as a dedicated onsite emergency diesel generator (EDG) source. Each 4.16 kV emergency bus is normally connected to the normal station service transformer T4. During a loss of the normal power source to the 4.16 kV emergency buses, each emergency bus will be automatically transferred to its associated reserve station service transformer (T2 or T3). The normal and reserve sources feed their associated 4.16 kV emergency bus via a non-emergency bus and the associated breakers. If both normal and reserve sources are unavailable, the onsite EDGs supply power to the 4.16 kV emergency buses.

The secondary plant distribution system includes 600 VAC emergency buses, and associated load centers, and transformers.

There are two independent 125 VDC electrical power distribution subsystems that support the necessary power for engineered safeguards functions.

The list of required distribution buses is presented in Table B 3.8.7-1.

APPLICABLE SAFETY ANALYSES

The initial conditions of Design Basis Accident (DBA) and transient analyses in the UFSAR, Chapter 6 (Ref. 1) and Chapter 14 (Ref. 2), assume engineered safeguards systems are OPERABLE. The AC and 125 VDC electrical power distribution subsystems are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to Engineered Safeguards systems so that the fuel, Reactor Coolant System, and

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

containment design limits are not exceeded. These limits are discussed in more detail in the Bases for Section 3.2, Power Distribution Limits; Section 3.5, Emergency Core Cooling Systems (ECCS) and Reactor Core Isolation Cooling(RCIC) System; and Section 3.6 Containment Systems. The OPERABILITY of the AC, and 125 VDC electrical power distribution subsystems is consistent with the initial assumptions of the accident analyses and is based upon meeting the design basis of the plant. This includes maintaining distribution systems OPERABLE during accident conditions in the event of:

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

b. A worst case single active component failure.

The AC and 125 VDC electrical power distribution subsystems satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii) (Ref. 3).

LCO

The required electrical power distribution subsystems listed in Table B 3.8.7-1 ensure the availability of AC, and 125 VDC electrical power for the systems required to shut down the reactor and maintain it in a safe condition after an abnormal operational transient or a postulated DBA. The AC and 125 VDC electrical power distribution subsystems are required to be OPERABLE.

Maintaining the Division 1 and 2 AC and 125 VDC electrical power distribution subsystems OPERABLE ensures that the redundancy incorporated into the design of Engineered Safeguards systems is not defeated. Therefore, a single active component failure within any system or a single failure 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 to be energized to their proper voltages. OPERABLE 125 VDC electrical power distribution subsystems require the associated buses to be energized to their proper voltage from either the associated battery or charger.

(continued)

BASES

LCO (continued)

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. Other buses, such as motor control centers (MCC) and distribution panels, which help comprise the AC and 125 VDC 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 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 failure not affecting the OPERABILITY of a bus listed in Table B 3.8.7-1 (e.g., a breaker supplying a single MCC fails open), the individual loads on the bus would be considered 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 a 4.16 kV emergency bus, which results in de-energization of all buses powered from the 4.16 kV emergency 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 emergency bus).

In addition, tie breakers between redundant safety related AC, and 125 VDC power distribution subsystems, do not exist. 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).

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 abnormal operational transients; and

(continued)

BASES

APPLICABILITY (continued)

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

Electrical power distribution subsystem requirements for MODES 4 and 5 and other conditions in which AC and 125 VDC electrical power distribution subsystems are required are covered in the Bases for LCO 3.8.8, "Distribution Systems – Shutdown."

ACTIONS

A.1

With one or more required AC electrical power distribution subsystems inoperable and a loss of function has not yet 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 failure in the remaining power distribution subsystems could result in the minimum required engineered safeguards functions not being supported. Therefore, the required AC electrical power distribution subsystems must be restored to OPERABLE status within 8 hours.

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

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

(continued)

BASES

ACTIONS

A.1 (continued)

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).")

RAI 3.8.7-04

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 125 VDC bus is inoperable and subsequently returned OPERABLE, this LCO may already have been not met for up to 8 hours. This situation could lead to a total duration of 16 hours, since initial failure of the LCO, to restore the AC electrical power distribution system. At this time a 125 VDC bus could again become inoperable, and the AC electrical power distribution system 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.

B.1

RAI 3.8.7-06

With one 125 VDC electrical power distribution subsystems inoperable, the remaining 125 VDC 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 125 VDC electrical power distribution subsystem could result in the minimum required engineered safeguards functions not being supported. Therefore, the required 125 VDC electrical power distribution subsystem must be restored to OPERABLE status

(continued)

BASES

ACTIONS

B.1 (continued)

within 8 hours by powering the bus from the associated battery or charger.

Condition B represents one division without adequate 125 VDC power, potentially with both a battery significantly degraded and the associated charger nonfunctioning. In this situation the plant is significantly more vulnerable to a complete loss of all 125 VDC 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 8 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 125 VDC power, which would have Required Action Completion Times shorter than 8 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 125 VDC power, while not providing sufficient time for the operators to perform the necessary evaluations and actions for restoring power to the affected division;

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

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

(continued)

BASES

ACTIONS

B.1 (continued)

restored OPERABLE, the LCO may already have been not met for up to 8 hours. This situation could lead to a total duration of 16 hours, since initial failure of the LCO, torestore the 125 VDC electrical power distribution subsystem. At this time, an AC bus could again become inoperable, and 125 VDC electrical power 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 the LCO was initially not met, instead of at the time Condition B 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 plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

D.1

Condition D corresponds to a level of degradation in the electrical power distribution system that causes a required safety function to be lost. When more than one AC or 125 VDC 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.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.7.1

This Surveillance verifies that the AC and 125 VDC, 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, and 125 VDC electrical power distribution subsystems, and other indications available in the control room that alert the operator to subsystem malfunctions.

REFERENCES

1. UFSAR, Chapter 6.
2. UFSAR, Chapter 14.
3. 10 CFR 50.36(c)(2)(ii).

Table B 3.8.7-1 (page 1 of 1)
AC and 125 VDC Electrical Power Distribution Systems

TYPE	VOLTAGE	DIVISION 1*	DIVISION 2*
AC safety buses	4160 V 600 V	Emergency Bus 71H05 Load Centers 71L15, 71L25	Emergency Bus 71H06 Load Centers 71L16, 71L26
125 VDC buses	125 VDC	Bus 71BCB-2A	Bus 71BCB-2B

* Each division of the AC and 125 VDC electrical power distribution systems is a subsystem.

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.8

Distribution Systems Shutdown

MARKUP OF CURRENT TECHNICAL SPECIFICATIONS (CTS)

DISCUSSION OF CHANGES (DOCs) TO THE CTS

NO SIGNIFICANT HAZARDS CONSIDERATION (NSHC) FOR LESS RESTRICTIVE CHANGES

MARKUP OF NUREG-1433, REVISION 1, SPECIFICATION

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

MARKUP OF NUREG-1433, REVISION 1, BASES

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

RETYPED PROPOSED IMPROVED TECHNICAL SPECIFICATIONS (ITS) AND BASES

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.8

Distribution Systems Shutdown

MARKUP OF CURRENT TECHNICAL SPECIFICATIONS (CTS)

Insert New Specification 3.8.8

Insert new Specification 3.8.8, "Distribution Systems - Shutdown," as shown in the JAFNPP Improved Technical Specifications.

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.8

Distribution Systems Shutdown

DISCUSSION OF CHANGES (DOCs) TO THE CTS

DISCUSSION OF CHANGES
ITS: 3.8.8 - DISTRIBUTION SYSTEMS - SHUTDOWN

ADMINISTRATIVE CHANGES

None

TECHNICAL CHANGES - MORE RESTRICTIVE

M1 ISTS LCO 3.8.10 "Distribution Systems – Shutdown" is adopted as JAFNPP ITS 3.8.8. ITS 3.8.8 requires necessary portions of the AC and 125 VDC electrical power distribution subsystems to be OPERABLE in MODES 4 and 5 as well as during the movement of irradiated fuel assemblies in the secondary containment to support equipment required to be OPERABLE. This ensures the equipment needed to mitigate a design basis event is available in MODES 4 and 5 and during movement of irradiated fuel assemblies in secondary containment. Since the 419 VDC LPCI MOV independent power supply subsystems are not necessary to mitigate a design basis accident in MODES 4 and 5 or during movement of irradiated fuel assemblies, no requirements have been included in this Specification. The 125 VDC power distribution subsystems (buses) provide a support function to the requirements of CTS 3.9.D OPERABILITY requirements of the Emergency Diesel Generators (EDGs) and reserve circuits. Therefore, the OPERABILITY of the 125 VDC electrical power distribution subsystems is currently implied in CTS 3.9.D. Changes to the Applicability and associated Actions specified in CTS 3.9.D are discussed in the Discussion of Changes for ITS 3.8.2, in this section. The addition of a new Specification with specific LCO, associated ACTIONS and Surveillance Requirements, necessary to ensure the required AC and 125 VDC electrical power distribution subsystems are maintained OPERABLE, imposes new requirements on operations, is consistent with NUREG-1433, Revision 1 and is considered more restrictive. This change is considered to have no adverse impact on safety.

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

None

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

None

TECHNICAL CHANGES - RELOCATIONS

None

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.8

Distribution Systems Shutdown

NO SIGNIFICANT HAZARDS CONSIDERATION (NSHC) FOR LESS RESTRICTIVE CHANGES

NO SIGNIFICANT HAZARDS CONSIDERATION
ITS: 3.8.8 - DISTRIBUTION SYSTEMS - OPERATING

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

There are no plant specific less restrictive changes for this Specification.

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.8

Distribution Systems Shutdown

MARKUP OF NUREG-1433, REVISION 1
SPECIFICATION

PA1 — 8 → PA2

3.8 ELECTRICAL POWER SYSTEMS

3.8.10 Distribution Systems—Shutdown

PA1 — 8

and 125 V

DB1

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.

[M1] 8 PA1

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

[M1]

NOTE
LCO 3.0.3 is not applicable

TA1 | 6 RAI 3.8-1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required AC, DC, or AC vital bus electrical power distribution subsystems inoperable. (or 125 V)	A.1 Declare associated supported required feature(s) inoperable. (DB1)	Immediately
	OR	
[M1]	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	A.2.2 Suspend handling (movement) of irradiated fuel assemblies in the secondary containment. (PA3)	Immediately
	AND	
	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately
	AND	
		(continued)

PA1 — 8 PA2

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued) [M1]	A.2.4 Initiate actions to restore required AC, DC, and AC vital bus electrical power distribution subsystems to OPERABLE status. (and 125 V) (PA2) (DB1)	Immediately
	AND	
	A.2.5 Declare associated required shutdown cooling subsystem(s) inoperable and not in operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
PA1 — 8 SR 3.8.10.1 [M1]	Verify correct breaker alignments and voltage to required AC, DC, and AC vital bus electrical power distribution subsystems. (125 V) (PA2) (DB1)	7 days

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.8

Distribution Systems Shutdown

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

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS: 3.8.8 - DISTRIBUTION SYSTEMS - SHUTDOWN

RETENTION OF EXISTING REQUIREMENT (CLB)

None

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

PA1 NUREG-1433, Revision 1, ISTS LCOs 3.8.7 and 3.8.8 have been deleted. Therefore, NUREG-1433, Revision 1, ISTS LCO 3.8.9 and LCO 3.8.10 have been renumbered, as JAFNPP ITS 3.8.7 and 3.8.8 respectively, to reflect this change.

PA2 Changes have been made (additions, deletions, and/or changes to the NUREG) to reflect the plant specific system/structure/component nomenclature, equipment identification or description.

PA3 ITS 3.8.8 Required Action A.2.2, the word "handling" has been replaced with movement to be consistent with the Applicability.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB1 ITS 3.8.8 has been revised to reflect the specific design for JAFNPP, which does not include AC vital buses. NUREG-1433, Revision 1, ISTS 3.8.8 ACTION A, and ITS SR 3.8.8.1 references to AC vital buses have been deleted.

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

TA1 The changes presented in Technical Specification Task Force (TSTF) Technical Specification Change Traveler Number 36, Revision 4, have been incorporated into the revised Improved Technical Specifications. TSTF-36, Revision 4, adds a Note at the beginning of the ITS 3.8.8 ACTIONS Table, stating that "LCO 3.0.3 is not applicable", to clarify that the requirements apply only to the Modes or other specified conditions in the Applicability.

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

None

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

None

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.8

Distribution Systems Shutdown

MARKUP OF NUREG-1433, REVISION 1, BASES

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 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.

The AC and DC electrical power distribution systems satisfy Criterion 3 of the NRC Policy Statement.

(continued)

PA1 — 8 PA2

BASES (continued)

LCO

Various combinations of subsystems, equipment, and components are required OPERABLE by other LCOs, depending on the specific plant condition. Implicit in those requirements is the required OPERABILITY of necessary support required features. This LCO explicitly requires energization of the portions of the electrical distribution system 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.

PA3

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 and inadvertent reactor vessel draindown).

APPLICABILITY

The AC and 125 V DC electrical power distribution subsystems required to be OPERABLE in MODES 4 and 5 and during movement of 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 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~~ plant in a cold shutdown condition or refueling condition.

DB1

and 125 V

PA3

The AC, DC, and AC vital bus electrical power distribution subsystem requirements for MODES 1, 2, and 3 are covered in LCO 3.8.7.

PA1

(continued)

BASES (continued)

ACTIONS

INSERT ACTIONS NOTE

TA1

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, 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 irradiated fuel assemblies in the secondary containment, and any activities that could result in inadvertent draining of the reactor vessel).

RAI 3.8.8-1

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.

125 V

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.

(continued)

TA1

Insert ACTIONS NOTE

G RAI 3.8.8-1

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.

G RAI 3.8.8-1

PA1 B PA2

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.10.1

and 125V same PA3

PA3 This Surveillance verifies that the AC, DC, and AC vital bus electrical power distribution subsystems are 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. DB1

PA2 DB2

REFERENCES

1. FSAR, Chapter 6. 14 DB3
2. FSAR, Chapter 15.
3. 10 CFR 50.36 (c)(2)(ii) X1

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.8

Distribution Systems Shutdown

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

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS BASES: 3.8.8 - DISTRIBUTION SYSTEMS - SHUTDOWN

RETENTION OF EXISTING REQUIREMENT (CLB)

None

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

PA1 NUREG-1433, Revision 1, ISTS LCOs 3.8.7 and 3.8.8 have been deleted. Therefore, NUREG-1433, Revision 1, ISTS LCO 3.8.9 and LCO 3.8.10 have been renumbered, as JAFNPP ITS 3.8.7 and 3.8.8 respectively, to reflect this change.

PA2 Changes have been made (additions, deletions, and/or changes to the NUREG) to reflect the plant specific system/structure/component nomenclature, equipment identification or description.

PA3 Editorial changes have been made for enhanced clarity or to correct a grammatical/typographical error.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB1 ITS 3.8.8 has been revised to reflect the specific design for JAFNPP, which does not include AC vital buses. References to AC vital buses have been deleted.

DB2 ITS 3.8.8 has been revised to reflect the specific JAFNPP reference requirements of, UFSAR, Chapter 6.

DB3 ITS 3.8.8 has been revised to reflect the specific JAFNPP reference requirements of, UFSAR, Chapter 14.

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

TA1 The changes presented in Technical Specification Task Force (TSTF) Technical Specification Change Traveler Number 36, Revision 4, have been incorporated into the revised Improved Technical Specifications. TSTF-36, Revision 4, adds a Note at the beginning of the ITS 3.8.8 ACTIONS Table, stating that "LCO 3.0.3 is not applicable", to clarify that the requirements apply only to the Modes or other specified conditions in the Applicability. The Bases are modified to reflect these changes.

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

None

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS BASES: 3.8.8 - DISTRIBUTION SYSTEMS - SHUTDOWN

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

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

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.8.8

Distribution Systems Shutdown

RETYPED PROPOSED IMPROVED TECHNICAL SPECIFICATIONS (ITS) AND BASES

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Distribution Systems – Shutdown

LCO 3.8.8 The necessary portions of the AC and 125 VDC electrical power distribution subsystems shall be OPERABLE to support equipment required to be OPERABLE.

APPLICABILITY: MODES 4 and 5,
During movement of 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 AC or 125 VDC electrical power distribution subsystems inoperable.	A.1 Declare associated supported required feature(s) inoperable.	Immediately
	OR	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	A.2.2 Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	AND	
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately
	AND	
	A.2.4 Initiate actions to restore required AC, 125 VDC electrical power distribution subsystems to OPERABLE status.	Immediately
	AND	
	A.2.5 Declare associated required shutdown cooling subsystem(s) inoperable and not in operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.8.1	Verify correct breaker alignments and voltage to required AC, and 125 VDC electrical power distribution subsystems.	7 days

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.8 Distribution Systems – Shutdown

BASES

BACKGROUND

A description of the AC and 125 VDC electrical power distribution system is provided in the Bases for LCO 3.8.7, "Distribution Systems – Operating."

APPLICABLE SAFETY ANALYSES

The initial conditions of Design Basis Accident and transient analyses in the UFSAR, Chapter 6 (Ref. 1) and Chapter 14 (Ref. 2), assume Engineered Safeguards systems are OPERABLE. The AC and 125 VDC electrical power distribution systems are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to Engineered Safeguards systems so that the fuel, Reactor Coolant System, and containment design limits are not exceeded.

The OPERABILITY of the AC and 125 VDC electrical power distribution systems is consistent with the initial assumptions of the accident analyses and the requirements for the supported systems' OPERABILITY.

The OPERABILITY of the minimum AC and 125 VDC electrical power sources and associated power distribution subsystems during MODES 4 and 5, and during movement of 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 plant 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.

The AC and 125 VDC electrical power distribution systems satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii) (Ref. 3).

(continued)

BASES (continued)

LCO

Various combinations of subsystems, equipment, and components are required OPERABLE by other LCOs, depending on the specific plant condition. Implicit in those requirements is the required OPERABILITY of necessary support required features. This LCO explicitly requires energization of the portions of the electrical distribution system necessary to support OPERABILITY of Technical Specification 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 and inadvertent reactor vessel draindown).

APPLICABILITY

The AC and 125 VDC electrical power distribution subsystems required to be OPERABLE in MODES 4 and 5 and during movement of 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 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 plant in a cold shutdown condition or refueling condition.

The AC, and 125 VDC electrical power distribution subsystem requirements for MODES 1, 2, and 3 are covered in LCO 3.8.7.

(continued)

BASES (continued)

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.

RAI 3.8-01

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, 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 irradiated fuel assemblies in the secondary containment, and any activities that could result in inadvertent draining of the reactor vessel).

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 125 VDC 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. Not withstanding 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

(continued)

BASES

ACTIONS

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

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.

SURVEILLANCE REQUIREMENTS

SR 3.8.8.1

This Surveillance verifies that the AC and 125 VDC electrical power distribution subsystems are 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. UFSAR, Chapter 6.
2. UFSAR, Chapter 14.
3. 10 CFR 50.36(c)(2)(ii).

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

NUREG: N3.8.7

Inverters Operating

THIS SPECIFICATION IS DELETED.

THERE ARE NO REQUIREMENTS FOR THIS SPECIFICATION AT JAFNPP; THEREFORE THIS MARKUP PACKAGE CONTAINS ONLY THE FOLLOWING SECTIONS:

MARKUP OF NUREG-1433, REVISION 1, SPECIFICATION

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

MARKUP OF NUREG-1433, REVISION 1, BASES

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

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

NUREG: N3.8.7

Inverters Operating

MARKUP OF NUREG-1433, REVISION 1
SPECIFICATION

D31

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.

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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 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

DBI

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

NUREG: N3.8.7

Inverters Operating

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

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
NUREG: 3.8.7 -- INVERTERS - OPERATING

RETENTION OF EXISTING REQUIREMENT (CLB)

None

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

None

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB1 This Specification has been deleted because it is not applicable to JAFNPP.

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

None

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

None

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

None

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

NUREG: N3.8.7

Inverters Operating

MARKUP OF NUREG-1433, REVISION 1, BASES

PA1

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.

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.

(continued)

BASES

PA1

APPLICABLE SAFETY ANALYSES (continued)

The inverters are a part of the distribution system and, as such, satisfy Criterion 3 of the NRC Policy Statement.

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.

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.

(continued)

PA1

BASES

LCO (continued)

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.

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.

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

(continued)

PA1

BASES

ACTIONS

A.1 (continued)

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.

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].

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

NUREG: N3.8.7

Inverters Operating

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

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
NUREG BASES: 3.8.7 -- INVERTERS - OPERATING

RETENTION OF EXISTING REQUIREMENT (CLB)

None

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

PA1 This Bases has been deleted based on changes made in the Specifications.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

None

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

None

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

None

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

None

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

NUREG: N3.8.8

Inverters Shutdown

THIS SPECIFICATION IS DELETED.

THERE ARE NO REQUIREMENTS FOR THIS SPECIFICATION AT JAFNPP; THEREFORE THIS MARKUP PACKAGE CONTAINS ONLY THE FOLLOWING SECTIONS:

MARKUP OF NUREG-1433, REVISION 1, SPECIFICATION

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

MARKUP OF NUREG-1433, REVISION 1, BASES

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

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

NUREG: N3.8.8

Inverters Shutdown

MARKUP OF NUREG-1433, REVISION 1
SPECIFICATION

DBI

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Inverters—Shutdown

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

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more [required] inverters inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	OR	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	A.2.2 Suspend handling of irradiated fuel assemblies in the [secondary] containment.	Immediately
	AND	
	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately
	AND	

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.4 Initiate action to restore [required] inverters to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

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

DBI

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

NUREG: N3.8.8

Inverters Shutdown

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

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
NUREG: 3.8.8 -- INVERTERS-SHUTDOWN

RETENTION OF EXISTING REQUIREMENT (CLB)

None

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

None

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB1 This Specification has been deleted because it is not applicable to JAFNPP.

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

None

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

None

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

None

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

NUREG: N3.8.8

Inverters Shutdown

MARKUP OF NUREG-1433, REVISION 1, BASES

DA1

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.

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.

The inverters were previously identified as part of the Distribution System and, as such, satisfy Criterion 3 of the NRC Policy Statement.

(continued)

BASES (continued)

LCO

The inverters 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 inverters provide 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 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 and inadvertent reactor vessel draindown).

APPLICABILITY

The inverters required to be OPERABLE in MODES 4 and 5 and also any time during movement of 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 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.

ACTIONS

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

(continued)

PA1

BASES

ACTIONS

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

capable of supporting sufficient required feature(s) to allow continuation of CORE ALTERATIONS, 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 irradiated fuel assemblies in the [primary or secondary] containment, and any activities that could result in inadvertent draining of the reactor vessel).

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 inverters 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.

(continued)

DA1

BASES (continued)

REFERENCES

1. FSAR, Chapter [6].
2. FSAR, Chapter [15].

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

NUREG: N3.8.8

Inverters Shutdown

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

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
NUREG BASES: 3.8.8 -- INVERTERS - SHUTDOWN

RETENTION OF EXISTING REQUIREMENT (CLB)

None

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

PA1 This Bases has been deleted based on changes made in the Specifications.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

None

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

None

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

None

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

None

MODIFIED RAI RESPONSES FOR ITS SECTION 3.8

3.8.1-04 CTS 3.9.B.3, 3.9.B.5
ITS 3.8.1, Condition H
DOC A.6

Proposed Condition H addresses three or more AC sources inoperable. However, it is not clear what constitutes three inoperable AC sources. Proposed Condition E addresses one offsite inoperable coincident with one or both EDGs in a subsystem inoperable. This appears to be 3 inoperable sources, but LCO 3.0.3 is not involved.

Comment: Under what conditions, then, is LCO 3.0.3 invoked? Is LCO 3.0.3 invoked when two offsite circuits and any one of the 4 EDGs is inoperable? Is it invoked with one offsite circuit and one EDG in each EDG subsystem inoperable? It appears that Condition H requires some rewording consistent with the language used in other 3.8.1 Conditions that will make it clear when Condition H is entered.

Licensee Response:

1. As discussed in the response to Item 3.8.1-03 above, ITS submittal Revision C resulted in what was designated Conditions "E" and "H" being changed to Conditions "D" and "G" respectively. In addition, ITS submittal Revision C reflects the deletion of CTS 3.9.B.5.

2. Regarding proposed Condition D (formerly Condition E) - consistent with the ITS 3.8.1 Bases Background discussion concerning what constitutes an EDG subsystem (see the first paragraph at the top of ITS page B 3.8-3), the inoperability of either one or both EDGs within an EDG subsystem results in the EDG subsystem being inoperable. Thus, Condition D is entered when one reserve circuit and one or both EDGs within an EDG subsystem is (are) inoperable.

3. Regarding Condition G (formerly Condition H) - consistent with the ITS 3.8.1 Bases Background discussion concerning what constitutes an EDG subsystem - inoperability of one or both EDGs within an EDG subsystem results in the EDG subsystem being inoperable. Thus, any one of the following combinations of inoperable AC Sources results in entry into Condition G:

   a) both reserve circuits inoperable plus either EDG subsystem inoperable (where the EDG subsystem is inoperable due to inoperability of one or both EDGs within the EDG subsystem as previously noted), or

   b) both EDG subsystems inoperable due to inoperability of one or both EDGs within the EDG subsystem plus the inoperability of one reserve circuit, or

c) both reserve circuits inoperable plus both EDG subsystems inoperable.

4. Since ITS 3.8.1 Bases clearly describes an EDG subsystem and the usage of the term "EDG subsystem" is consistent throughout the ITS 3.8.1 Conversion package and the use of the term is also consistent with CTS and practices that have been used for the past 25 years, NYPA does not consider any additional wording changes necessary.

[Revised Response provided with revision G Package]
The Bases will be revised to include the information in Part 3.a), b), and c) above.

3.8.1-12 SR 3.8.1.2
JFD DB6

Note 2 to this SR in NUREG-1433 is a permissive, not a requirement. Without this Note, the SR can be interpreted as not allowing prelube, and as requiring immediate EDG loading following a start.

Comment: The licensee might want to reconsider including at least part of this Note in the ITS.

Licensee Response:

1. NYPA agrees that the Note is intended to be a permissive and that deletion of the Note could result in a misinterpretation. NYPA will restore the Note and revise the JFDs, Bases, etc, to reflect retention of the Note.

   [Revised Response provided with Revision G Package]
   JAFNPP agrees that the Note is intended to be a permissive and that deletion of the Note could result in a misinterpretation. JAFNPP will restore the prelube portion of the Note and revise the JFDs, Bases, etc, to reflect retention of the Note. In addition, a similar prelube Note was also deleted from ITS SRs 3.8.1.9, 3.8.1.10, and 3.8.1.12. This Note will also be added back in to these three SRs.

3.8.1-15 JFD CLB.9
ITS SRs 3.8.1.7, 3.8.1.8, and 3.8.1.11
STS SR 3.8.1.8 Note
STS SR 3.8.1.9 Note 1
STS SR 3.8.1.14 Note 2
Bases for ITS SR 3.8.1.7, STS Bases markup page B 3.8-20
Bases for ITS SR 3.8.1.8, STS Bases markup page B 3.8-21
Bases for ITS SR 3.8.1.11, STS Bases markup page B 3.8-28

JFD CLB.9 references GL 91-04 which in turn, addresses giving proper regard for the effect of performing surveillance at power on safe operational of the plant.
Comment: JFD CLB.9 states, "This change is consistent with the current JAFNPP licensing basis which does not restrict the Mode in which these Surveillances may be performed." The licensee should provide the results of an analysis that demonstrates that these SRs can be performed at power without adversely affecting safety. Special attention should be focused on voltage perturbations during performance of these SRs.

Licensee Response:

1. TSTF-283, Revision 3, specifically addresses changes to the MODE restriction Notes in the SRs associated with ITS 3.8.1 and is currently under review by the NRC.

2. NYPA will revise the NUREG markup, associated JFDs, etc, as necessary to reflect TSTF-283, Revision 3.

   [Revised Response provided with Revision G Package - Replaces both parts 1 and 2 responses]
   As stated in CLB9, this change is consistent with the current JAFNPP licensing basis which does not restrict the Mode in which these Surveillances may be performed. At JAFNPP, current plant procedures control when these SRs can be performed, consistent with the allowances in GL 91-04. Allowing the restrictions to not be stated in the ITS has been approved at the most recently approved BWR/4 conversions (Dresden 2 and 3 and Quad Cities 1 and 2). Therefore, the Note restrictions will not be added into the ITS. In addition, these Notes were inadvertently left in for ITS SRs 3.8.1.9, 3.8.1.10, and 3.8.1.12. Thus, they will also be removed from the ITS, consistent with current licensing basis.

3.8.1-18 ITS SR 3.8.1.11
JFD CLB 3

The licensee has deleted the value for power factor (≤ 0.9) from this SR and substituted the phrase "within the power factor limit." It is assumed that the "limit" is stated in the Bases. This is not acceptable because the valve in the Bases becomes a part of the TS.

Comment: The Bases are intended to explain the TS, but should not include requirements such as has been done in this case. This SR needs to be revised to eliminate this problem.

Licensee Response:

1. NYPA provided changes in ITS Revision C. See changes made at SR 3.8.1.8 Note, associated Bases, and NUREG Bases markup JFD X4 which was included in Revision C.

   [Revised Response provided with Revision G Package]
   A value in the Bases does not necessarily become part of the Technical Specifications. The TS can state that a value must be within the limits, with the actual limits in the Bases. For example, NUREG-1433, SR 3.8.1.9 requires the DG to reject a load greater than or equal to its associated single largest post-accident load. The actual load and its value are provided in the Bases of NUREG-1433. In addition, for this specific Surveillance, this approach has been approved for the two most recent BWR/4 ITS submittals (Dresden 2 and 3 and Quad Cities 1 and 2). Currently, the actual power factor limits are under licensee control and JAFNPP desires to keep it this way. Therefore, the actual values will remain in the Bases. However, it was noted that the Note to SR 3.8.1.11 did not have similar words that were added to SR 3.8.1.8 in Revision C to the ITS submittal (an allowance to not meet the power factor limit if grid conditions do not permit, and in this case, to maintain power factor as close to the limit as practicable.) Also, SR 3.8.1.8 Bases did not provide the reason for why the power factor cannot be met under certain conditions. The ITS submittal will be revised to include these changes.

3.8.1-19 NUREG SR 3.8.1.18
JFD DB2

The licensee has proposed to delete this SR. The justification is that JAFNPP does not have sequencers, and the SR is, therefore, not applicable. JAFNPP may not have sequencers, but it does have individual load timers.

Comment: The purpose of this NUREG surveillance is to verify that the interval between load applications to the EDGs (and offsite circuit in some cases) is adequate to ensure the EDG has recovered from one load application before another load is applied. This SR is applicable to individual load timers as well as to sequencers. It should be included in the TS.

Licensee Response:

1. ITS 3.3.5.1, Functions 1.d and 2.f are the timers. CALIBRATION and LOGIC SYSTEM FUNCTIONAL TESTING is performed under ITS SR 3.3.5.1.5. and SR 3.3.5.1.6 respectively and these SRs fulfill the all of the requirements stated in NUREG SR 3.8.1.18.

2. The allowable values (AVs) for ITS 3.3.5.1, Functions 1.d and 2.f, include consideration of EDG subsystem recovery following the application of a load to ensure that the EDG subsystem is capable of starting the next load to be applied.

   [Revised Response provided with Revision G Package - Replaces both parts 1 and 2 responses]
   The SR will be added into the ITS as SR 3.8.1.13. However, it will be modified consistent with the changes allowed in the most recently approved BWR/4 ITS submittals (Dresden 2 and 3 and Quad Cities).

3.8.1-21 Bases for ITS LCO 3.8.1, STS Bases markup page B 3.8-4 (insert page)
Bases for STS LCO 3.8.1

The Bases for ITS LCO 3.8.1 states, "The Limiting Condition for Operation may be met with the 115 kV North and South bus disconnect (10017) open or closed. With the disconnect closed, the automatic opening feature must be Operable."

Comment: Identify the proposed Surveillance Requirement that verifies the Operability of the automatic opening feature, and explain how the verification is accomplished. Also provide a discussion regarding the purpose of the disconnects and under what conditions they are supposed to function.

Licensee Response:

1. No SR is provided for demonstrating Disconnect 10017 is OPERABLE.

2. The Bases discussion which indicates that the automatic opening feature of Disconnect 10017 "...must be OPERABLE." is in error. The disconnect is part of the 115 kV network and is not within the scope of equipment addressed by ITS. Thus, use of the term "OPERABLE" is inappropriate with respect to the availability or functionality of the disconnect.

   [Revised Response provided with Revision G Package]
   Disconnect 10017 is downstream of the feeder breakers to the reserve station service transformers. The purpose of the automatic opening feature is to ensure that a fault on one reserve circuit will not adversely impact the other reserve circuit. The Bases will be revised to include its purpose. In addition, the Bases discussion about the Lighthouse Hill substation and the Nine Mile Point Unit 1 substation (that they are required for Operability of the reserve circuits) is in error. The ITS LCO does not include the substations as part of Operability. Therefore, this discussion will be deleted.

3. NYPA will revise the Bases discussion to indicate that the automatic opening feature of disconnect 10017 must be functional if the disconnect is closed.

   [Revised Response provided with Revision G Package - Delete entire part 3 response]

4. UFSAR Section 7.1.16 (pages 7.1-44 through 7.1-47) and Section 8.3.2.4 (page 8.3-3) provide additional discussion regarding the operation of 115 kV bus sectionalizing disconnect 10017.

3.8.1-25 Bases Pg. B3.8-15
Condition H

This Bases discussion needs to be revised to clearly state under what circumstance the Condition is entered. For example, Condition E includes a plant status in which one reserve circuit and two EDGs in one subsystem could be inoperable, but Condition H is not invoked.

Comment: The above inconsistency needs to be addressed.

Licensee Response:

1. See Response to Item 3.8.1-11.

2. NYPA does not consider any additional clarification to be necessary.

   [Revised Response provided with Revision G Package]
   JAFNPP will revise the Bases as described in RAI 3.8.1-04.

3.8.1-27 Bases Pg. B3.8-20
SR 3.8.1.7 JFD PA1

JFD PA1 does not provide an adequate justification for inclusion of Insert BSR 3.8.1.7-A.

Comment: The licensee is requested to provide a detailed justification of the acceptability of this proposed change. Also, in order for the staff to understand this proposed change, the licensee is requested to provide a discussion of how this SR can be successfully demonstrated is a "series of sequential, overlapping, or total steps."

Licensee Response:

1. An actual residual transfer of power from normal (or backfeed) to reserve may cause a significant electrical transient on the bus that is transferred. Accordingly, it is desirable to perform the test in a manner that minimizes (or eliminates) the bus transient.

2. Testing of the residual transfer scheme will be essentially the same as testing of a logic circuit. As a result, NYPA has proposed to test in a manner similar to the testing of a logic circuit under the definition of Logic System Functional Test and has similarity stated that the test may be performed by series of sequential, overlapping, or total steps. It is not possible to provide the NRC with a copy of the test procedure at this time as this is a requirement in addition to CTS requirements and the procedure has not yet been written. (It is possible that the procedure which will be developed for this SR will not perform the test in a series of sequential or overlapping steps but that is not known at this time.)

3. NYPA will revise the JFDs to provide additional explanation of the design and testing of the automatic residual transfer.

[Revised Response provided with Revision G Package - new Part 4 below]

4. In addition, the automatic residual transfer feature is only required to be OPERABLE when the Normal Station Service Transformer is energizing a 4.16 kV emergency bus. Therefore, a Note has been added stating this, and the actual SR has been modified to be more accurate as to what is required to be verified.

3.8.2-01 LCO 3.8.1 [LCO 3.8.2]

Part a. of LCO 3.8.2 requires one reserve circuit between the 115 kV transmission network and the plant class IE electrical power distribution subsystem (s) required by LCO 3.8.8.

Comment: Given the Fitzpatrick design (each reserve transformer can power only one division), how can one reserve circuit provide power to required loads per LCO 3.8.8 if those loads are associated with the division not connected to the one reserve circuit? Does this LCO need to be revised?

Licensee Response:

1. One Reserve transformer can provide power to only one of the AC electrical power subsystem (division) as noted in the comment above.

   [Revised Response provided with Revision G Package]
   One Reserve transformer can provide power to only one of the AC electrical power subsystem (division) as noted in the comment above. In order to maintain consistency with NUREG-1433, which requires all required AC electrical distribution subsystems to be powered from the offsite power source, ITS LCO 3.8.2 will be revised to require a second reserve circuit to be Operable, when a second AC electrical power distribution subsystem is required by LCO 3.8.8, "Distribution Systems – Shutdown." However, the Bases will be modified to allow both reserve circuits to share one of the incoming switchyard breakers, provided the North and South bus disconnect is closed. Also, while in this condition, the automatic opening feature of the disconnect is not required to be Operable. This will ensure the JAFNPP ITS is consistent with the requirements and allowances of NUREG-1433.

2. While ITS LCO 3.8.2.a requires only a single OPERABLE Reserve circuit (consistent with NUREG-1433 LCO 3.8.2.a) the other AC electrical subsystem would normally be energized by either the other Reserve circuit (which is not required to be OPERABLE) or the Backfeed AC power source. In addition, as discussed in ITS 3.8.2 Bases (see first paragraph of LCO discussion on ITS page B 3.8-31), "An OPERABLE EDG subsystem, associated with a 4.16 kV emergency bus required OPERABLE by LCO 3.8.8, ensures that a diverse power source is available..."

   [Revised Response provided with Revision G Package]
   DELETE ENTIRE RESPONSE

3. With respect to providing power to required loads per ITS LCO 3.8.8 - the plant design and licensing basis (which is consistent with the design and licensing basis for all or most other plants) only requires either an OPERABLE Reserve circuit or an OPERABLE EDG subsystem associated with each required power distribution subsystem when in MODE 4 or 5. There is no requirement that power be available from both an OPERABLE Reserve circuit and an OPERABLE EDG subsystem when in MODE 4 or 5. The design and licensing basis (for operation in MODE 4 or 5) does not require the plant be capable of mitigating an event (such as a refueling accident) coincident with a loss of the single required Reserve circuit (or loss of the single required EDG subsystem). As a result, there is no requirement to assume power loss to either power distribution subsystem (if it is assumed that an event such as a refueling accident occurs); or, if a loss of one of the required power sources is assumed, there is no requirement to assume an accident takes place. In other words, the licensing and design basis does not require consideration of coincident Reserve power loss (or loss of the OPERABLE EDG subsystem) and an accident when operating the plant in MODE 4 or 5 and requirements for a single OPERABLE Reserve circuit and single OPERABLE EDG subsystem in ITS LCO 3.8.2.a and 3.8.2.b are reflections of the licensing and design basis.

   [Revised Response provided with Revision G Package]
   DELETE ENTIRE RESPONSE

4. The requirements set forth in ITS 3.8.2 are consistent with NUREG-1433, LCO 3.8.2 and the plant design and licensing basis. The requirements of ITS 3.8.2 are also consistent with ITS 3.8.8 even when ITS 3.8.8 requires portions of both divisions to be OPERABLE since one power distribution subsystem (say division 1) may be considered to be OPERABLE if the single OPERABLE Reserve circuit required by ITS 3.8.2 is associated with that subsystem while the single OPERABLE EDG subsystem required by ITS 3.8.2 is associated with the other (division 2) power distribution subsystem. NYPA does not see any need for revision of ITS 3.8.2.

   [Revised Response provided with Revision G Package]
   DELETE ENTIRE RESPONSE

3.8.2-04 Bases Pg. B3.8-37
LCO discussion

In the second paragraph of the LCO discussion it is stated that the reserve circuits (plural) must be capable of maintaining rated frequency and voltage while connected to their respective 4.16 kV emergency bus (singular).

Comment: This seems to support the question raised in 3.8.2-01 regarding how one reserve circuit can supply loads associated with 2 divisions. Is this Bases discussion correct? Is some revision required here as well as in the LCO?

Licensee Response:

1. The discussion in the second paragraph of NUREG Bases markup page B 3.8-37 is in error. The clean-typed ITS Bases is correct. The NUREG Bases markup discussion should be essentially the same as the third paragraph discussion concerning an EDG subsystem. The discussion should indicate that the reserve circuit (singular) "...must be...while connected to its respective 4.16 kV emergency bus..."

   [Revised Response provided with Revision G Package]
   Due to the changes to the ITS LCO, as described in the revised response to RAI 3.8.2-01, the NUREG Bases markup page B 3.8-37 is correct and the clean-typed ITS Bases is incorrect. The clean-typed ITS Bases will be corrected to match the changes made by RAI 3.8.2-01.

3.8.2-06 Bases Pg. B3.8-38
Action A.1, Insert Action A.1

This Bases discussion is based on a plant design which allows one offsite circuit to power more than one 4.16 kV emergency bus. This is not the Fitzpatrick design.

Comment: (1) The Bases should be revised to make it clear that a reserve circuit is inoperable if it is not available to its associated bus (no one required bus), and that if 2 divisions are required, then both reserve circuits must be OPERABLE.

(2) The staff does not understand the purpose of proposed Insert Action A.1. How can a reserve circuit be considered inoperable because it is not powering other required features? The licensee is requested to provide a detailed explanation of what the proposed insert means.

Licensee Response:

1. Concerning first part of Comment 1: NYPA agrees that the Bases should be revised by stating that a reserve circuit is inoperable if it is not available to the associated 4.16 kV emergency bus.

2. Concerning the second part of Comment 1: NYPA does not agree that both reserve circuits must be operable if both divisions are required. As previously discussed in response to Item 3.8.2-01, if both power distribution subsystems (divisions) are required by ITS 3.8.8, ITS allows one division to be associated with the single required OPERABLE reserve circuit (which may or may not actually be in service) and the other division to be associated with the single OPERABLE EDG subsystem (which may or may not actually be in service).

   [Revised Response provided with Revision G Package]
   Concerning the second part of Comment 1, see Response to RA 3.8.2-01.I

3. Concerning Comment 2: NYPA agrees that "INSERT ACTION A.1" is inappropriate for the FitzPatrick plant design where it is not possible for a single reserve circuit to be connected to both power distribution subsystems (divisions). NYPA will revise NUREG Bases markup page B 3.8-38 and NUREG Bases markup Insert Page B 3.8-38 accordingly.

3.8.2-07 Bases Pg. B3.8-38 and B3.8-39
Action A.2.1, A.2.2, etc.

On Pg. B3.8-37, there is another reference to a single reserve circuit not being available to multiple 4.16 kV emergency busses. As discussed previously, this is not the Fitzpatrick design. The Bases should be revised accordingly. On Pg. B3.8-38 (first paragraph) the licensee has proposed to add "or the required reserve circuit inoperable and Required Action A.1 not taken" in the discussion of EDG inoperability.

Comment: The staff does not understand what the intent of this proposed addition is. The licensee is requested to provide a discussion of what the purpose of this addition is.

Licensee Response:

1. See response to item 3.8.2-04 concerning a "single reserve circuit not being available to multiple 4.16 kV busses." (The editorial error will be corrected.)

2. The first sentence of the Bases for ACTIONS A.2.1, A.2.2, A.2.3, A.2.4, B.1, B.2, B.3 and B.4 is actually in reference to ACTION A.1. The second sentence states that "Since this option...' (meaning ACTION A.1) "...may involve...the allowance for sufficiently conservative actions is made." (reference is made to the option of taking ACTIONS A.2.1 through A.2.4 in place of ACTION A.1).

   The discussion continues (in the third and last sentences of the paragraph) by noting that "With the required EDG subsystem inoperable...it is...required...to suspend..." These actions "...to suspend..." are references to ACTIONS B.1, B.2, B.3, and B.4 which are the Required Actions for inoperability of the single required EDG subsystem. Since ACTIONS B.1 through B.4 are identical to ACTIONS A.2.1 through A.2.4 (except that B.4 addresses restoration of the single required EDG subsystem while A.2.4 addresses restoration of the single required reserve circuit), the discussion in the third and last sentences of the paragraph is applicable to the condition where the single required reserve circuit is inoperable and ACTIONS A.2.1 through A.2.4 are taken (because the option to take ACTION A.1 was not selected). Thus, since the third and last sentences are applicable to the situations where the single required reserve circuit is inoperable or where the single required EDG subsystem is inoperable, the phrase in question was added for clarification.

   [Revised Response provided with Revision G Package - Add to end of second paragraph of part 2 response]
   However, since this statement does not modify the EDG discussion and could be confusing, the parenthetical statement will be deleted.

3.8.3-01 NUREG SR 3.8.3.6
JFD TA.1

The licensee has proposed to relocate this SR to licensee control in accordance with TSTF-2.

Comment: This is acceptable in concept. However, the licensee should provide information regarding where the SR will be relocated to, and the controls associated with the relocation.

Licensee Response:

1. NYPA will revise the submittal as necessary to indicate that the activities described in NUREG SR 3.8.3.6 are to be relocated to the UFSAR.

   [Revised Response provided with Revision G Package]
   The CTS does not include a requirement similar to SR 3.8.3.6, to drain, remove sediment, and clean each fuel oil storage tank. Therefore, it is not necessary for JAFNPP to commit to adding this requirement into a licensee controlled document. JFD TA1, which justified not including this SR in the JAFNPP ITS, was written to identify that the SR has been deleted from the STS by TSTF-2, and that TSTF-2 stated that it was acceptable to relocate the requirement to licensee control. It was not intended to mean that JAFNPP was committing to relocate this SR to a licensee controlled document.

3.8.3-04 Bases JFD PA.1
Bases for ITS SR 3.8.3.3, STS Bases markup insert page B 3.8-47
Bases for STS SR 3.8.3.3

The Bases for STS SR 3.8.3.3 states, "Within 31 days following the initial new fuel oil sample, the fuel oil is analyzed to establish that the other properties … ." The Bases for corresponding ITS SR 3.8.3.3 states, "These additional analyses are required by Specification 5.5.10, Diesel Fuel Oil Testing Program, to be performed within 31 days following sampling and addition."

Comment: The proposed difference does not provide a clear reference point for the additional analyses because sampling and addition are not concurrent events. Bases JFD PA.1 does not explain why the proposed difference is acceptable. Revise the Bases to clarify the intent and provide the appropriate justification for the proposed difference, or conform to the STS.

Licensee Response:

1. Sampling of the new fuel, which always is prior to the actual addition of the new fuel to the storage tank(s), provides a definitive reference point in time for the completion of the required analyses. Addition of the new fuel to the storage tank(s) can be spread over a period of hours or even days as the transport vehicle is moved and connected to the various tanks that may be filled from a single transport vehicle. As stated in ITS 3.8.3 Bases Insert B 3.8.3-2 on Insert Page B 3.8-47, requiring the sample be taken prior to addition of new fuel to the storage tank(s) results in a new fuel sample that is never more than 31 days old at the time that the new fuel is added to the storage tank(s), and even if addition of the new fuel to the storage tank(s) immediately follows sampling, the results of the sample analysis must be provided within 31 days.

   [Revised Response provided with Revision G Package]
   The STS SR 3.8.3.3 statement identified above does not match the requirements of the Diesel Fuel Oil Testing Program in STS Section 5.5. The intent of the change was to properly clarify when the sample is to be analyzed and to match the requirements in STS Section 5.5. However, it has been noted that the statement added by Insert B 3.8.3-2 (Insert Page B 3.8-47) does not provide the proper clarification and does not appear to match the requirements in STS Section 5.5. Therefore, the Insert change will be deleted. In its place, the ITS will be revised to be consistent with the requirements of the Diesel Fuel Oil Testing Program; specifically "Following the initial new fuel oil sample, the fuel oil is analyzed *within 31 days following addition of the new fuel oil to the fuel oil storage tanks* to establish that the other properties..."

3.8.4-07 Bases Pg. B3.8-54
Action C.1

The Bases discussion needs to be expanded to include a discussion of what constitutes an inoperable LPCI MOV power supply subsystem similar to what is included in the Action A.1 Bases.

Comment: Licensee to address the above staff concern.

Licensee Response:

1. NYPA does not consider any additional discussion necessary. The wording in ITS 3.8.4, Required Action C.1 Bases is essentially the same as the discussion in NUREG 3.8.4, Required Action C.1 Bases for inoperability of a Diesel Generator DC power subsystem. Inoperability of the Diesel Generator DC power subsystem (as discussed in the NUREG Bases) results in inoperability of the supported Diesel Generator. Inoperability of a 419 VDC LPCI MOV independent power supply is an analogous situation. Since the NUREG 3.8.4, Required Action C.1 Bases does not contain a lengthy discussion concerning what constitutes inoperability of the Diesel Generator DC power subsystem, NYPA does not consider a lengthy discussion of an analogous inoperability to be necessary.

   [Revised Response provided with Revision G Package]
   The additional information will be added (i.e., the phrase "(e.g, inoperable battery, inoperable battery charger, or inoperable battery charger and associated inoperable battery)" will be added to the first sentence of Required Action C.1, after the words "is inoperable.")

3.8.7-08 Bases Pg. B3.8-87
Condition D

This Bases discussion addresses more than one AC or DC electrical power distribution subsystem inoperable and the potential for loss of function.

Comment: See staff comments regarding loss of more than one DC distribution subsystem in 3.8.7-03 and 3.8.7-06. Some Bases revision may be required here.

Licensee Response:

1. NYPA agrees that ACTION D.1 Bases will need revision as a result of revisions to Condition B and the associated Bases as discussed it response to items 3.8.7-03 and 3.8.7-06.

   [Revised Response provided with Revision G Package]
   Based on the changes to the ITS submittal due to the JAFNPP response to RAI 3.8.7-03 and RAI 3.8.7-06, JAFNPP has determined that no changes to the ACTION D.1 Bases are necessary. The ACTION D.1 Bases properly describes that ACTION D is applicable when more than one AC or 125 VDC electrical power distribution subsystem is lost, and this results in the loss of a required function. The changes made to ACTION B.1 Bases do not affect the words in the ACTION D.1 Bases; they are still accurate.

3.8.7-09 Bases for Required Action A.1 for STS 3.8.9
Bases for Required Action A.1 for ITS 3.8.7, STS Bases markup page B 3.8-81, first paragraph
Bases Table B 3.8.7-1 Footnote *, STS Bases insert markup page B 3.8-88

The Bases for Required Action A.1 for STS 3.8.9 refers to "With one or more required AC buses, load centers, … in one division." "In one division" has not been adopted in the Bases for Required Action A.1 for ITS 3.8.7.

Comment: No justification has been provided to support this proposed difference. Revise the submittal to provide the appropriate justification, or conform to the STS.

Licensee Response:

1. ITS 3.8.7, Condition A is not restricted to situations involving a single division (subsystem). The "one of more...subsystems inoperable" stated in Condition A could involve both divisions (subsystems) since a division (subsystem) would be declared inoperable when any portion of the division (subsystem) is inoperable. So long as the inoperability of (portions of) both divisions (subsystems) does not result in a loss of function, Condition A and the associated Required Action and Completion Time is the correct and proper Condition. The Bases has accordingly been revised. (If a loss of function is involved, Condition D is entered and a plant shutdown is appropriately required.)

   [Revised Response provided with Revision G Package]
   ITS 3.8.7, Condition A is not restricted to situations involving a single division (subsystem). The "one of more...subsystems inoperable" stated in Condition A could involve both divisions (subsystems) since a division (subsystem) would be declared inoperable when any portion of the division (subsystem) is inoperable. So long as the inoperability of (portions of) both divisions (subsystems) does not result in a loss of function, Condition A and the associated Required Action and Completion Time is the correct and proper Condition. The Bases was accordingly revised. However, a statement will be added to the first sentence in the Bases identifying that a loss of function has not yet occurred.

2. The NUREG Bases discussion for Required Action A.1 is inconsistent with NUREG Condition A. Nothing in the Condition A indicates or implies that the Condition is limited to a single division. Deletion of the phrase "in a division" corrects the inconsistency.

   [Revised Response provided with Revision G Package]
   The NUREG Bases discussion for Required Action A.1 is inconsistent with NUREG Condition A. Nothing in the NUREG Condition A indicates or implies that the Condition is limited to a single division. It specifically states that it is "one or more...subsystems inoperable." In addition, Bases Table B 3.8.9-1, footnote * specifically states that each division is a subsystem. Therefore, deletion of the phrase "in a division" and changing it to "subsystems" corrects the inconsistency. It was noted, however, that no JFD was provided for this change. The change will be annotated with JFD PA5, which states that changes have been made to correct a typographical error.

3. Refer to previously approved ITS for Cooper and Duane Arnold which also corrected the inconsistency in the Bases by deletion of the phrase "in one Division."