North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.3 Fuel Oil and Starting Air

See Revised Submittal Pages for RAI 3.8.3-03.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.3 Fuel Oil and Starting Air

3.8.3-07 ITS Action A.3
STS N/A
CTS Unit 2 Action 3.8.1.2 b.2
DOC LA.2

NRC RAI: Comment: Required Action A.3 requires verification that the aboveground tank contains □100,000 gallons of fuel. Provide the relationship of the aboveground tank to the EDG fuel oil systems, and indicate whether the new fuel is delivered to the aboveground tank and transferred to the underground tanks. In addition, describe how the fuel oil in the aboveground tanks is verified for acceptability for use in the EDGs.

Response: The above ground tank is the tank where new fuel oil is initially delivered. The new fuel oil is sampled before the fuel is unloaded from the tanker. This sample provides an acceptable or unacceptable determination for the fuel oil. If acceptable, the fuel oil may then be placed in the above ground tank and if necessary, transferred to the below ground tanks to be used by the EDGs. If unacceptable, the new fuel oil would not be added to the above ground tank. The initial sample is sent off for additional testing that may take several weeks to receive results. The above ground, below ground and each EDG day tank are checked every 92 days to ensure their fuel oil remains acceptable.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.3 Fuel Oil and Starting Air

3.8.3-08 ITS N/A
STS SR 3.8.3.6
CTS SR 4.8.1.1.4
DOC L.2

NRC RAI: See RAI 3.8.3-01 **Comment:** Technical Specifications Task Force (TSTF)-002 was approved for inclusion in the NUREG on the basis that this CTS requirement would be relocated to a licensee-controlled document such as the TRM. Complete deletion of this SR is not acceptable. The licensee should revise the submittal accordingly.

Response: The Company agrees with the Comment. DOC L.2 has been deleted and DOC LA.4 has been added to require the surveillance requirement to be moved to the Technical Requirement Manual. Also see the response to Questions 1 and 4.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.3 Fuel Oil and Starting Air

See Revised Submittal Pages for RAI 3.8.3-01.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.3 Fuel Oil and Starting Air

3.8.3-09 ITS Bases Page B.3.8 – 41 Background
STS Bases Page B.3.8 – 41 Background
CTS N/A
JFD None

NRC RAI: Comment: The second paragraph of the Background discussion does not appear to reflect the North Anna design. At North Anna, there is one pump per EDG on each of the two storage tanks, not two per tank for each EDG as indicated in the NUREG Bases. This Bases discussion should be revised to reflect the North Anna design.

Response: The Company agrees with the Comment and changes the second paragraph to provide plant specific details. This paragraph is changed to read, "Fuel oil is transferred from an underground tank to each EDG day tank by a lead fuel oil transfer pump. An additional underground tank and fuel oil transfer pump is associated with each EDG day tank to provide a redundant subsystem. Independent level switches from the lead subsystem operate the backup fuel oil transfer subsystem. All outside tanks, pumps, and piping are located underground or in a missile protected area."

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.3 Diesel Fuel Oil and Starting Air

BASES

BACKGROUND

The four Emergency Diesel Generators (EDGs) are provided with two storage tanks, each having a fuel oil capacity sufficient to operate an EDG for a period of 7 days while it is supplying maximum post loss of coolant accident load demand discussed in the UFSAR, Section 9.5.4.2 (Ref. 1). The maximum load demand is calculated using the assumption that a minimum of one EDG on a unit is available. This onsite fuel oil capacity is sufficient to operate the EDGs for longer than the time to replenish the onsite supply from outside sources.

Fuel oil is transferred from an underground tank to each EDG day tank by a lead fuel oil transfer pump. An additional underground tank and fuel oil transfer pump is associated with each EDG day tank to provide a redundant subsystem. Independent level switches from the lead subsystem operate the backup fuel oil transfer subsystem. All outside tanks, pumps, and piping are located underground or in a missile protected area.

RAI 3.8.3-09 R3

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

Each EDG has an air start system that contains two separate and independent subsystems. Normally, each subsystem is aligned to provide starting air to the associated EDG. Each subsystem consists of a receiver and a compressor. Only one air start subsystem is required to be OPERABLE for the EDG to be considered OPERABLE.

APPLICABLE SAFETY ANALYSES

The initial conditions of Design Basis Accident (DBA) and transient analyses in the UFSAR, Chapter 6 (Ref. 4), and in the UFSAR, Chapter 15 (Ref. 5), assume Engineered Safety Feature (ESF) systems are OPERABLE. The EDGs are designed to provide sufficient capacity, capability, redundancy, and

(continued)

B 3.8 ELECTRICAL POWER SYSTEMS

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

BASES

BACKGROUND Each diesel generator (DG) is provided with a storage tank having a fuel oil capacity sufficient to operate that diesel for a period of 7 days while the DG is supplying maximum post loss of coolant accident load demand discussed in the FSAR, Section 9.5.4.2 (Ref. 1). The maximum load demand is calculated using the assumption that a minimum of any two DGs is available. This onsite fuel oil capacity is sufficient to operate the DGs for longer than the time to replenish the onsite supply from outside sources.

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

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

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

Each DG has an air start system with adequate capacity for five successive start attempts on the DG without recharging the air start receiver(s).

(continued)

Rev. 3

INSERT 1

a lead fuel oil transfer pump. An additional underground tank and fuel oil transfer pump is associated with each EDG day tank to provide a redundant subsystem. Independent level switches from the lead subsystem operate the backup fuel oil transfer subsystem.

RAI 3.8.3-09 Rev 3

INSERT 2

Each EDG has an air start system that contains two separate and independent subsystems. Normally, each subsystem is aligned to provide starting air to the associated EDG. Each subsystem consists of a receiver and a compressor. Only one air start subsystem is required to be OPERABLE for the EDG to be considered OPERABLE.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.3 Fuel Oil and Starting Air

3.8.3-10 ITS Action A.1
STS N/A
CTS Unit 1 Action 3.8.1.2 b.2
DOC LA.2

NRC RAI: Comment: The Bases discussion of Actions A.1, A.2, A.3, and A.4 includes a requirement to verify 50,000 gallons of fuel and transportation are available. This requirement is not covered by the Actions of Condition A. This needs to be corrected. See RAI 3.8.3-03.

Response: The Company disagrees with the Comment. ITS Action A.1 requires verification that replacement oil is available. The Bases for Action A states, "verify 50,000 gallons of replacement fuel oil is available offsite and transportation is available to deliver that volume of fuel oil within 48 hours." This clearly maintains the requirement for replacement fuel oil, while moving the detail, "50,000 gallons within 48 hours," to the Bases. Also see the response to Questions 3 and 6.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.3 Fuel Oil and Starting Air

See Revised Submittal Pages for RAI 3.8.3-03.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.3 Fuel Oil and Starting Air

3.8.3-11 ITS Bases Page B.3.8 – 44 Action E
STS Bases Page B.3.8 – 44 Action D
CTS N/A
JFD None

NRC RAI: Comment: The proposed changes to this Bases discussion make it inconsistent with LCO Condition E. Condition E is entered when it is determined that the "other" properties of new fuel are not within limits. The Required Action is to determine whether or not the new fuel, when mixed with the stored fuel already in the tank, causes the combined volume to be not within limits. This is what the NUREG Bases is explaining, and what has been eliminated because of the proposed changes. The licensee should withdraw the proposed changes and retain the NUREG Bases.

Response: The Company agrees with the Comment. The wording for the Bases for Condition E is restored to the NUREG text.

BASES

ACTIONS (continued)

E.1

With the new fuel oil properties defined in the Bases for SR 3.8.3.2 not within the required limits, a period of 30 days is allowed for restoring the stored fuel oil properties. This period provides sufficient time to test the stored fuel oil to determine that the new fuel oil, when mixed with previously stored fuel oil, remains acceptable, or to restore the stored fuel oil properties. This restoration may involve feed and bleed procedures, filtering, or combinations of these procedures. Even if an EDG start and load was required during this time interval and the fuel oil properties were outside limits, there is a high likelihood that the EDG would still be capable of performing its intended function.

RAI 3.8.3-11 R3

RAI 3.8.3-11 R3

F.1

With the one required starting air receiver pressure < 175 psig, sufficient capacity for several EDG start attempts does not exist. However, as long as the receiver pressure is > 150 psig, there is adequate capacity for at least one start attempt, and the EDG can be considered OPERABLE while the air receiver pressure is restored to the required limit. A period of 48 hours is considered sufficient to complete restoration to the required pressure prior to declaring the EDG inoperable. This period is acceptable based on the remaining air start capacity, the fact that most EDG starts are accomplished on the first attempt, and the low probability of an event during this brief period.

G.1

With a Required Action and associated Completion Time not met, or one or more EDG's fuel oil or the required starting air subsystem not within limits for reasons other than addressed by Conditions C, D, E, or F, the associated EDG may be incapable of performing its intended function and must be immediately declared inoperable. Only one starting air subsystem is required to be OPERABLE.

BASES

ACTIONS

B.1 (continued)

restoration of the required volume prior to declaring the DG inoperable. This period is acceptable based on the remaining capacity (> 6 days), the low rate of usage, the fact that procedures will be initiated to obtain replenishment, and the low probability of an event during this brief period.

D.1

This Condition is entered as a result of a failure to meet the acceptance criterion of SR 3.8.3.5. Normally, trending of particulate levels allows sufficient time to correct high particulate levels prior to reaching the limit of acceptability. Poor sample procedures (bottom sampling), contaminated sampling equipment, and errors in laboratory analysis can produce failures that do not follow a trend. Since the presence of particulates does not mean failure of the fuel oil to burn properly in the diesel engine, and particulate concentration is unlikely to change significantly between Surveillance Frequency intervals, and proper engine performance has been recently demonstrated (within 31 days), it is prudent to allow a brief period prior to declaring the associated DG inoperable. The 7 day Completion Time allows for further evaluation, resampling and re-analysis of the DG fuel oil. stored in the below ground tanks

E.1

With the new fuel oil properties defined in the Bases for SR 3.8.3.6 not within the required limits, a period of 30 days is allowed for restoring the stored fuel oil properties. This period provides sufficient time to test the stored fuel oil to determine that the new fuel oil, when mixed with previously stored fuel oil, remains acceptable, or to restore the stored fuel oil properties. This restoration may involve feed and bleed procedures, filtering, or combinations of these procedures. Even if a DG start and load was required during this time interval and the fuel oil properties were outside limits, there is a high likelihood that the DG would still be capable of performing its intended function.

RAI 3.8.3-11 R3

(continued)

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North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.3 Fuel Oil and Starting Air

3.8.3-12 ITS Bases Page B.3.8 – 45 Action G
STS Bases Page B.3.8 – 45 Action F
CTS N/A
JFD 1

NRC RAI: Comment: In this Bases discussion as well as in the Background discussion, the licensee states that only one air start subsystem per EDG is required to be OPERABLE. This is acceptable provided the licensee has test data which shows that one subsystem is capable of starting the EDG within the 10 seconds required. The licensee is requested to verify that such test data exist.

Response: The Company has verified that test data exists. Tests of the Unit 1 EDGs, using one air tank to start the EDG, were conducted in September 1975 and tests of the Unit 2 EDGs were completed in December 1978.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.4 DC Source – Operating

3.8.4-01 ITS SR 3.8.4.2
STS SR 3.8.4.2
CTS Unit 1 4.8.2.3.2.b.2
DOC L.2

NRC RAI: Comment: The DOC does not adequately explain why the proposed change is acceptable. The DOC should be revised to provide an adequate justification. Some things to consider when revising the DOC include whether or not a battery discharge or an overcharge would in any way affect battery terminal corrosion, and whether or not the CTS requirement provides any meaningful data following a discharge or an overcharge.

Response: The Company agrees with the Comment. DOC L.2 is modified to state "A battery discharge or an overcharge does not affect battery terminal corrosion. Therefore, the terminal corrosion requirement following an overcharge or discharge is deleted. The Category B limits require electrolyte level, float voltage, and specific gravity be maintained within specific ranges, and are a measure to ensure the OPERABILITY of the batteries for the required function. No meaningful data is provided following an over or under change." Also see the response to Questions 2, 3, and 4.

every 60 months that the station and EDG battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. ITS SR 3.8.4.9 requires verification that the station and EDG battery capacity is ≥ 80% of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test. This changes the CTS by allowing a modified performance discharge test to be substituted for a performance discharge test.

This change is acceptable because it has been determined that the relaxed Surveillance Requirement acceptance criteria are not necessary for verification that the equipment used to meet the LCO can perform its required functions. This modified test has been shown to be as effective in determining battery capacity as the standard discharge test. This change is designated as less restrictive because less stringent Surveillance Requirements are being applied in the ITS than were applied in the CTS.

L.2 *(Category 6 – Relaxation of Surveillance Requirement Acceptance Criteria)* CTS Surveillance Requirements 4.8.2.3.2 b.2 and 4.8.1.1.3 b.2 require, for the station and EDG batteries that no visible corrosion is detected at either terminals or connectors within 7 days after a battery discharge below 110 volts or overcharge above 115 volts. The connection resistance of these items is limited to less than 150 micro-ohms. ITS SR 3.8.4.2 requires, for the station and EDG batteries, no visible corrosion at the battery terminal connections and connectors be detected, or the battery connection resistance is ≤ 1.5 E-4 ohms for the inter-cell, inter-rack, inter-tier, or terminal connections. This changes the CTS by eliminating the verification of visible corrosion or connection resistance after a battery discharge or overcharge.

RAI 3.8.4-01 R3

This change is acceptable because it has been determined that the relaxed Surveillance Requirement acceptance criteria are not necessary for verification that the equipment used to meet the LCO can perform its required functions. ITS SR 3.8.6.2 verifies that the station and EDG batteries that the Category B limits within 24 hours after an overcharge to greater that 150 volts or a discharge to less than 110 volts. A battery discharge or an overcharge does not affect battery terminal corrosion. Therefore, the terminal corrosion requirement following an overcharge or discharge is deleted. The Category B limits require electrolyte level, float voltage, and specific gravity be maintained within specific ranges, and are a measure to ensure the OPERABILITY of the batteries for the required function. No meaningful data is provided following an over or under change. This change is designated as less restrictive because less stringent Surveillance Requirements are being applied in the ITS than were applied in the CTS.

L.3 *(Category 6 – Relaxation of Surveillance Requirement Acceptance Criteria)* CTS Surveillance Requirements 4.8.2.3.2 d, e, and f, and 4.8.1.1.3 d. and e. contain the requirement to perform various tests for batteries "during shutdown." ITS SRs 3.8.4.8 and 3.8.4.9 are modified in a Note that states the Surveillance shall not normally be performed in specific MODES. An additional statement modifies the Note. It allows

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.4 DC Source – Operating

3.8.4-02 ITS SR 3.8.4.2
STS SR 3.8.4.2
CTS Unit 1 4.8.1.1.3.b.2
DOC L.2

NRC RAI: See RAI 3.8.4-01 **Comment**: The DOC does not adequately explain why the proposed change is acceptable. The DOC should be revised to provide an adequate justification. Some things to consider when revising the DOC include whether or not a battery discharge or an overcharge would in any way affect battery terminal corrosion, and whether or not the CTS requirement provides any meaningful data following a discharge or an overcharge.

Response: The Company agrees with the Comment. DOC L.2 is modified to state "A battery discharge or an overcharge does not affect battery terminal corrosion. Therefore, the terminal corrosion requirement following an overcharge or discharge is deleted. The Category B limits require electrolyte level, float voltage, and specific gravity be maintained within specific ranges, and are a measure to ensure the OPERABILITY of the batteries for the required function. No meaningful data is provided following an over or under change." Also see the response to Questions 1, 3, and 4.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.4 DC Source – Operating

See Revised Submittal Pages for RAI 3.8.4-01.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.4 DC Source – Operating

3.8.4-03 ITS SR 3.8.4.2
STS SR 3.8.4.2
CTS Unit 2 4.8.2.3.2.b.2
DOC L.2

NRC RAI: See RAI 3.8.4-01 **Comment:** The DOC does not adequately explain why the proposed change is acceptable. The DOC should be revised to provide an adequate justification. Some things to consider when revising the DOC include whether or not a battery discharge or an overcharge would in any way affect battery terminal corrosion, and whether or not the CTS requirement provides any meaningful data following a discharge or an overcharge.

Response: The Company agrees with the Comment. DOC L.2 is modified to state "A battery discharge or an overcharge does not affect battery terminal corrosion. Therefore, the terminal corrosion requirement following an overcharge or discharge is deleted. The Category B limits require electrolyte level, float voltage, and specific gravity be maintained within specific ranges, and are a measure to ensure the OPERABILITY of the batteries for the required function. No meaningful data is provided following an over or under change." Also see the response to Questions 1, 2, and 4.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.4 DC Source – Operating

See Revised Submittal Pages for RAI 3.8.4-01.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.4 DC Source – Operating

3.8.4-04 ITS SR 3.8.4.2
STS SR 3.8.4.2
CTS Unit 2 4.8.1.1.3.b.2
DOC L.2

NRC RAI: See RAI 3.8.4-01 **Comment:** The DOC does not adequately explain why the proposed change is acceptable. The DOC should be revised to provide an adequate justification. Some things to consider when revising the DOC include whether or not a battery discharge or an overcharge would in any way affect battery terminal corrosion, and whether or not the CTS requirement provides any meaningful data following a discharge or an overcharge.

Response: The Company agrees with the Comment. DOC L.2 is modified to state "A battery discharge or an overcharge does not affect battery terminal corrosion. Therefore, the terminal corrosion requirement following an overcharge or discharge is deleted. The Category B limits require electrolyte level, float voltage, and specific gravity be maintained within specific ranges, and are a measure to ensure the OPERABILITY of the batteries for the required function. No meaningful data is provided following an over or under change." Also see the response to Questions 1, 2, and 3.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.4 DC Source – Operating

See Revised Submittal Pages for RAI 3.8.4-01.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.4 DC Source – Operating

3.8.4-05 ITS LCO 3.8.4
STS LCO 3.8.4
CTS N/A
JFD 1

NRC RAI: Comment: What is the purpose of changing "subsystem" to "source" in the beginning of the LCO while maintaining the term subsystem in the remainder of the LCO? Should this be changed back to "subsystem"?

Response: The Company does not agree that the LCO should be changed back to subsystems instead of sources. The title of the Specification is DC Sources, just as the title of ITS 3.8.1 is AC Sources. LCO 3.8.1 states, "The following AC sources shall be OPERABLE," and then lists the required distribution subsystem and systems. LCO 3.8.4 states, "The following DC electrical power sources shall be OPERABLE," and then lists the required systems and subsystems. Therefore, "sources" is the most correct term for NAPS requirements.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.4 DC Source – Operating

3.8.4-06 ITS SR 3.8.4.4
STS SR 3.8.4.4
CTS N/A
JFD 1

NRC RAI: Comment: The SR contains a requirement that the terminal connections be "tight." This requirement has been deleted from the NUREG (unless the batteries are Ni-Cad). The licensee may wish to invoke this change for North Anna.

Response: The Company agrees with Comment. The term "tight" will be eliminated from the SR. This is acceptable because the batteries are not NI-CAD, but are lead acid. A reviewer's note in the Bases allows this deletion of this portion of the requirement for lead–acid batteries. New DOC L.6 is added to delete the CTS requirement for the battery cell and terminal connection to be "tight." New JFD 8 is added to the JFDs for the specifications to delete the word, "tight."

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.4.4	For each required Station and EDG battery, remove visible terminal corrosion, verify battery cell to cell and terminal connections are clean and coated with anti-corrosion material.	18 months
SR 3.8.4.5	Verify for each required Station and EDG battery, connection resistance is ≤ 1.5E-4 ohm for inter-cell connections, ≤ 1.5E-4 ohm for inter-rack connections, ≤ 1.5E-4 ohm for inter-tier connections, and ≤ 1.5E-4 ohm for terminal connections.	18 months
SR 3.8.4.6	Verify each required Station battery charger supplies ≥ 270 amps at ≥ 125 V for ≥ 4 hours.	18 months
SR 3.8.4.7	Verify each required EDG battery charger supplies ≥ 10 amps at ≥ 125 V for ≥ 4 hours.	18 months

RAI 3.8.4-06 R3

CTS

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY	
4.8.2.3.2 b2 4.8.1.1.3 b2	For each required station and EDG battery, there is SR 3.8.4.2 Verify no visible corrosion at battery terminals and connectors. OR Verify battery connection resistance is ≤ [1E-5 ohm] for inter-cell connections, ≤ [1E-5 ohm] for inter-rack connections, ≤ [1E-5 ohm] for inter-tier connections, and ≤ [1E-5 ohm] for terminal connections. (1.5E-4 ohm)	92 days	(6) (5)
4.8.2.3.2 c1 4.8.1.1.3 c.1	For each required station and EDG SR 3.8.4.3 Verify battery cells, cell plates, and racks show no visual indication of physical damage or abnormal deterioration that could degrade battery performance.	(18) [22] months	(6) (5) TSTF 38
4.8.2.3.2 c.2 4.8.1.1.3 c.2	For each required station and EDG battery SR 3.8.4.4 Remove visible terminal corrosion, verify battery cell to cell and terminal connections are clean and tight, and are coated with anti-corrosion material.	(18) [22] months	(6) (5) (6) RAI 3.8.4-06 R3
4.8.2.3.2 c.4 4.8.1.1.3 c.3	For each required station and EDG battery SR 3.8.4.5 Verify battery connection resistance is ≤ [1E-5 ohm] for inter-cell connections, ≤ [1E-5 ohm] for inter-rack connections, ≤ [1E-5 ohm] for inter-tier connections, and ≤ [1E-5 ohm] for terminal connections. (1.5E-4 ohm)	(18) [22] months	(6) (5)

(continued)

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3.8.4.1 through SR 3.8.4.9 are modified with the word, "required." This is acceptable because each SR may be applicable to each EDG DC system or DC subsystem on this unit for the various functions and the other unit for the shared components.

7. ISTS SR 3.9.4.7 becomes ITS 3.8.4.8 and is modified by Note 2 that allows the performance discharge test in SR 3.8.4.9 to be performed in lieu of the service test in SR 3.8.4.8 once every 60 months. This is acceptable because the CTS Surveillance Requirement 4.8.2.3.2.f allows the substitution of this requirement at the specified time interval.

8. ISTS SR 3.8.4.4 requires that battery terminal connections to be clean and tight, and coated with anti-corrosion material. The "tight" requirement is only applicable to NI-CAD batteries, according to IEEE Standard P1106. The station and EDG batteries are lead acid batteries; therefore it is acceptable to eliminate the tight portion of the requirement.

RAI 3.8.4-06 R3

ITS

LCO 3.8.4 CONDITION C

SR 3.8.4.1

SR 3.8.4.2

SR 3.8.4.3

SR 3.8.4.4

SR 3.8.4.5

SR 3.8.4.7

SR 3.8.4.9

SR 3.8.4.9

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS

4.8.1.1.3 Each emergency diesel generator 125-volt battery bank and charger shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying that:

1. The parameters in Table 4.8-3 meet Category A limits and

2. The total battery terminal voltage is greater than or equal to 129 volts on a float charge.

b. At least once per 92 days and within 7 days after a battery discharge where the battery terminal voltage decreased below 110 volts or battery overcharge above 150 volts by verifying that:

1. The parameters in Table 4.8-3 meet Category B limits and

2. There is no visible corrosion at either terminals or connectors, or the connection resistance of these items is less than 150 x 10 to the minus 6 ohms.

c. At least once per 18 months, by verifying that:

1. The cells, cell plates and battery racks show no visual indication of physical damage or abnormal deterioration.

2. The cell-to-cell and terminal connections are clean, tight and coated with anti-corrosion material.

3. The resistance of each cell-to-cell and terminal connection is less than or equal to 150 x 10^{-6} ohms.

4. The battery charger will supply at least 10 amperes at 125 volts for at least 4 hours.

d. At least once per 60 months during shutdown, by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test.

e. At least once per 18 months, during shutdown, perform a performance discharge test of battery capacity if the battery shows signs of degradation or has reached 85% of its service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average from previous performance discharge tests, or is below 90% of the manufacturer's rating.

ITS

A.1

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

b. At least once per 92 days and within 7 days after a battery discharge where the battery terminal voltage went below 110 volts or battery overcharge above 150 volts, by verifying that: L.2

1. The parameters in Table 4.8-3 meet the Category B limits, < See ITS 3.8.6 >

SR 3.8.4.2

2. There is no visible corrosion at either terminals or connectors, or the connection resistance of these items is less than 150 x 10 to the minus 6 ohms, and

3. Average electrolyte temperature of at least 10 connected cells is above 60°F. < See ITS 3.8.6 >

c. At least once per 18 months by verifying that:

SR 3.8.4.3

1. The cells, cell plates and battery racks show no visual indication of physical damage or abnormal deterioation. A.2 That could degrade battery performance
Remove visible terminal corrosion

SR 3.8.4.4

2. The cell-to-cell and terminal connections are clean, tight and coated with anti-corrosion material. L.6 | RAI 3.8.4-06 R3 M.2

SR 3.8.4.6

3. The battery charger will supply at least 270 (200) amperes at 125 volts for at least 4 hours. M.1
≥ L.5

SR 3.8.4.5

4. The resistance of each cell-to-cell and terminal connection is less than or equal to 150 x 10^{-6} ohms. Note 1 L.4
Note 2 L.3 A.3

Note 3

d. At least once per 18 months, during shutdown, by verifying that the battery capacity is adequate to supply and maintain in OPERABLE status all of the actual or simulated emergency loads for the design duty cycle when the battery is subject to a battery service test.

SR 3.8.4.8

Note

e. At least once per 60 months, during shutdown, by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. Once per 60 month interval, this performance discharge test may be performed in place of the battery service test. L.3 A.3

ITS 3.8.4.9 7.8.4.8

f. At least once per 18 months, during shutdown, perform a performance discharge test of battery capacity if the battery shows signs of degradation or has reached 85% of its service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average from previous performance discharge tests, or is below 90% of the manufacturer's rating. L.3 A.3 LA.2

or modified performance test L.1

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A.1

3-23-98

ITS 3.8.4

ITS

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

b. At least once per 92 days and within 7 days after a battery discharge where the battery terminal voltage decreased below 110 volts or battery overcharge above 150 volts, by verifying that: L.2

1. The parameters in Table 4.8-3 meet the Category B limits. <See ITS 3.8.6>

2. There is no visible corrosion at either terminals or connectors, or the connection resistance of these items is less than 150 x 10 to the minus 6 ohms, and

3. Average electrolyte temperature of at least 10 connected cells is above 60°F. <See ITS 3.8.6>

c. At least once per 18 months by verifying that:

1. The cells, cell plates and battery racks show no visual indication of physical damage or abnormal deterioration. A.2 That could degrade battery performance

2. The cell-to-cell and terminal connections are clean, tight, and coated with anti-corrosion material. Remove visible terminal corrosion L.6 M.2 RAI 3.8.4-06 R3

3. The resistance of each cell-to-cell and terminal connection is less than or equal to 150 x 10^{-6} ohms. M.1

4. The battery charger will supply at least 270 ≥ 200 amperes at 125 volts for at least 4 hours. L.5 L.4 Note 2 Note 3

d. At least once per 18 months, during shutdown, by verifying that the battery capacity is adequate to supply and maintain in OPERABLE status all of the actual or simulated emergency loads for the design duty cycle when the battery is subjected to a battery service test. Note L.3 A.3

e. At least once per 60 months, during shutdown, by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. Once per 60 month interval, this discharge performance test may be performed in place of the battery service test. or modified performance test L.3 A.3 A.3 L.1

f. At least once per 18 months, during shutdown, perform a performance discharge test of battery capacity if the battery shows signs of degradation or has reached 85% of its service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average from previous performance discharge tests, or is below 90% of the manufacturer's rating. L.3 A.3 L A.2

SR 3.8.4.2

SR 3.8.4.3

SR 3.8.4.4

SR 3.8.4.5

SR 3.8.4.6

SR 3.8.4.8

SR 3.8.4.9

SR 3.8.4.9

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ITS

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS

4.8.1.1.3 (continued)

b. At least once per 92 days and within 7 days after a battery discharge where the battery terminal voltage decreased below 110 volts or battery overcharge above 150 volts, by verifying that: L.2

1. The parameters in Table 4.8-3 meet Category B limits and <See ITS 3.8.6>
2. There is no visible corrosion at either terminals or connectors, or the connection resistance of these items is less than 150 x 10 to the minus 6 ohms.

SR 3.8.4.2

c. At least once per 18 months by verifying that:

1. The cells, cell plates and battery racks show no visual indication of physical damage or abnormal deterioration. that could degrade battery performance A.2
2. Remove visible corrosion. The cell-to-cell and terminal connections are clean, tight and coated with anti-corrosion material. M.2
3. The resistance of each cell-to-cell and terminal connection is less than or equal to 150 x 10^{-6} ohms. L.6 RAI 3.8.4-06 R3
4. The battery charger will supply at least ten amperes at 125 volts for at least ~~4 hours~~.

SR 3.8.4.3 SR 3.8.4.4 SR 3.8.4.5 SR 3.8.4.7

Note

d. At least once per 60 months, during shutdown, by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. or modified performance test L.3 A.3 L.1

SR 3.8.4.9

e. At least once per 18 months, during shutdown, perform a performance discharge test of battery capacity if the battery shows signs of degradation or has reached 85% of its service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average from previous performance discharge tests, or is below 90% of the manufacturer's rating. L.3 A.3 LA.2

SR 3.8.4.9

4.8.1.1.4 For each underground EDG fuel oil storage tank perform the following at least once per 10 years:

1. Drain each fuel oil storage tank
2. Remove sediment from each fuel oil storage tank
3. Inspect each fuel oil storage tank for integrity <See ITS 3.8.3>
4. Clean each fuel oil storage tank

125 volts or greater ensures the battery charger meets the minimum standard for the test requirements. This change is designated as less restrictive because less stringent Surveillance Requirements are being applied in the ITS than were applied in the CTS.

L.6 (Category 6 – Relaxation Of Surveillance Requirement Acceptance Criteria) CTS 4.8.2.3.2.c.2 and 4.8.1.1.3.c.2 require that the cell-to-cell and terminal connections for the station and EDG batteries be clean, tight and coated with anti-corrosion material. ITS SR 3.8.4.4 in part states, "For each required station and EDG battery . . . verify battery cell to cell and terminal connections are clean and coated with anti-corrosion material." This changes the CTS by deleting the "tight" requirement from the surveillance requirement.

RAI 3.8.4-06 R3

This change is acceptable because it has been determined that the relaxed Surveillance Requirement acceptance criteria are not necessary for verification that the equipment used to meet the LCO can perform its required functions. The deletion of the tight requirement is acceptable because IEEE Standard P1106 does not require the terminal connection for lead acid batteries to be "tight". This requirement is intended to apply to NI–CAD batteries only. This change is designated as less restrictive because less stringent Surveillance Requirements are being applied in the ITS than were applied in the CTS.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.4 DC Source – Operating

3.8.4-07 ITS SR 3.8.4.7
STS N/A
CTS 4.8.1.1.3.c.4
JFD 1

NRC RAI: Comment: Is there a spare battery charger for each of the EDG batteries? If not, the Note regarding not performing the SR in Modes 1-4 from SR 3.8.4.6 must be included here.

Response: There is no spare battery charger for the EDG batteries. The Note is not appropriate because the 14-day EDG outage allowance provides for sufficient time to conduct a complete EDG rebuild and the performance of this test in MODES 1, 2, 3, or 4. If the NOTE were added, it would prevent the performance of the test in required MODES. The test will not be performed with the EDG OPERABLE. Also see the response to Question 12.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.4 DC Source – Operating

3.8.4-08 ITS Bases Page B 3.8 – 51 Background
STS Bases Page B 3.8 – 51 Background
CTS N/A
JFD 2

NRC RAI: Comment: The last part of the second paragraph is deleted. JFD 2 does not provide an adequate justification for the deletion. The licensee is requested to provide an adequate justification, or retain the NUREG.

Response: The Company agrees with Comment. The NUREG Bases markup is revised to add JFD 10, which states, "The deletion is justified because the UFSAR Chapter 8 and the current testing requirements do not discuss or require three complete cycles of intermittent loads during a capacity test for the station batteries."

BASES

BACKGROUND (continued)

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

Each battery has adequate storage capacity to carry the required load continuously for at least 2 hours and to perform three complete cycles of intermittent loads discussed in the FSAR, Chapter [8] (Ref. 4).

RAI 3.8.4-08 R3

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

The batteries for Train A and Train B DC electrical power subsystems are sized to produce required capacity at 80% of nameplate rating, corresponding to warranted capacity at end of life cycles and the 100% design demand. Battery size is based on 125% of required capacity and, after selection of an available commercial battery, results in a battery capacity in excess of 150% of required capacity. The voltage limit is 2.13 V per cell, which corresponds to a total minimum voltage output of 128 V per battery discussed in the FSAR, Chapter [8] (Ref. 4). The criteria for sizing large lead storage batteries are defined in IEEE-485 (Ref. 5).

Each Train A and Train B DC electrical power subsystem has ample power output capacity for the steady state operation of connected loads required during normal operation, while at the same time maintaining its battery bank fully charged. Each battery charger also has sufficient capacity to restore the battery from the design minimum charge to its fully charged state within 24 hours while supplying normal steady state loads discussed in the FSAR, Chapter [8] (Ref. 4).

<INSERT>

APPLICABLE SAFETY ANALYSES

The initial conditions of Design Basis Accident (DBA) and transient analyses in the FSAR, Chapter [6] (Ref. 6), and in the FSAR, Chapter [15] (Ref. 7), assume that Engineered Safety Feature (ESF) systems are OPERABLE. The DC

(continued)

Rev 3

10. The deletion is justified because the UFSAR Section 8 and the current testing requirements do not discuss or require three complete cycles of intermittent loads during a capacity test for the station batteries. RAI 3.8.4-08 R3

11. SRs 3.8.4.2, 3.8.4.4, and 3.8.4.5 in the Specifications do not contain the "20 % above . . ." requirement. The CTS does not require the "20 % above . . ." requirement. The paragraph is viewed as an additional requirements contained only in the Bases sections and is not justified. Therefore, the paragraphs are deleted. RAI 3.8.4-10 R3

12. An equalize charge is normally performed prior to the performance of this test. The equalize charge is allowed by IEEE – 450 – 1995. Therefore, "normally done in the as found condition" is incorrect and it is eliminated from the Bases. RAI 3.8.4-14 R3

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.4 DC Source – Operating

3.8.4-09 ITS Bases Page B 3.8 – 52 LCO
STS Bases Page B 3.8 – 52 LCO
CTS N/A
JFD N/A

NRC RAI: Comment: The Bases for the LCO does not include any discussion of the opposite unit's DC subsystems. The Bases should be revised to include this discussion.

Response: The Company agrees with Comment. A discussion is added to the LCO section that states, " Additionally, the unit's electrical sources must include DC sources from the other unit that are required to support the SW, MCR/ESGR, or Auxiliary Building central exhaust system safety functions. Control power for breakers and electrical power for solenoid operated valves are examples of support systems required to be OPERABLE that are needed for the operation of each required SW pump, MCR/ ESGR EVS fan, and Auxiliary Building central exhaust fan. SW, MCR/ESGR EVS, and Auxiliary Building central exhaust system are shared systems."

BASES

APPLICABLE SAFETY ANALYSES (continued)

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

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

b. A worst case single failure.

The OPERABILITY of the EDG DC electrical power system ensures the EDG may perform its required safety function.

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

LCO

The DC electrical power subsystems, each subsystem consisting of two batteries, battery charger for each battery and the corresponding control equipment and interconnecting cabling supplying power to the associated bus within the train are required to be OPERABLE to ensure the availability of the required power to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence (AOO) or a postulated DBA. Loss of any train DC electrical power subsystem does not prevent the minimum safety function from being performed (Ref. 4).

The EDG DC electrical power system consists of the battery, battery charger, and interconnecting cabling to supply the required DC voltage to allow the associated EDG components to perform the required safety function.

An OPERABLE DC electrical power subsystem requires all required batteries and respective chargers to be operating and connected to the associated DC bus(es).

Additionally, the unit's electrical sources must include DC sources from the other unit that are required to support the SW, MCR/ESGR EVS, or Auxiliary Building central exhaust system safety functions. Control power for breakers and electrical power for solenoid operated valves are examples of support systems required to be OPERABLE that are needed for the operation of each required SW pump, MCR/ESGR EVS fan,

RAI 3.8.4-0 R3

(continued)

BASES

LCO (continued)

and Auxiliary Building central exhaust fan. SW, MCR/ESGR EVS, and Auxiliary Building central exhaust system are shared systems.

RAI 3.8.4-09 R3

APPLICABILITY

The DC electrical power sources are required to be OPERABLE in MODES 1, 2, 3, and 4 to ensure safe unit operation and to ensure that:

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

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

The EDG DC system is required to be OPERABLE in MODES 1, 2, 3, and 4 to ensure the OPERABILITY of the associated EDG in accordance with LCO 3.8.1. In MODES 5 or 6, the OPERABILITY requirements of the EDG DC system are determined by the EDGs that they support in accordance with LCO 3.8.2.

The DC electrical power requirements for MODES 5 and 6 are addressed in the Bases for LCO 3.8.5, "DC Sources–Shutdown."

ACTIONS

A.1

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

If one of the required LCO 3.8.4.a DC electrical power subsystems is inoperable (e.g., inoperable battery, inoperable battery charger(s), or inoperable battery charger and associated inoperable battery), the remaining LCO 3.8.4.a DC electrical power subsystem has the capacity to support a safe shutdown and to mitigate an accident condition. For the Station batteries, a spare battery charger may be substituted for the normal charger without

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

electrical power system provides normal and emergency DC electrical power for the DGs, emergency auxiliaries, and control and switching during all MODES of operation. (4)

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

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

b. A worst case single failure.

<INSERT 1> (5)

The DC sources satisfy Criterion 3 of the NRC Policy Statement. 10 CFR 50.36(c)(2)(ii). (1)

LCO

The DC electrical power subsystems, each subsystem consisting of two batteries, battery charger for each battery, and the corresponding control equipment and interconnecting cabling supplying power to the associated bus within the train are required to be OPERABLE to ensure the availability of the required power to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence (AOO) or a postulated DBA. Loss of any train DC electrical power subsystem does not prevent the minimum safety function from being performed (Ref. 4). (3)

<INSERT 2> (5)

An OPERABLE DC electrical power subsystem requires all required batteries and respective chargers to be operating and connected to the associated DC bus(es).

<INSERT 3> (5)

RAI 3.8.4-09 R3

APPLICABILITY

The DC electrical power sources are required to be OPERABLE in MODES 1, 2, 3, and 4 to ensure safe unit operation and to ensure that:

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

(continued)

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INSERT 1

The OPERABILITY of the EDG DC electrical power system ensures the EDG may perform its required safety function.

INSERT 2

The EDG DC electrical power system consists of the battery, battery charger, and interconnecting cabling to supply the required DC voltage to allow the associated EDG components to perform the required safety function.

INSERT 3

Additionally, the unit's electrical sources must include DC sources from the other unit that are required to support the SW, MCR/ ESGR EVS, or Auxiliary Building central exhaust system safety functions. Control power for breakers and electrical power for solenoid operated valves are examples of support systems required to be OPERABLE that are needed for the operation of each required SW pump, MCR/ ESGR EVS fan, and Auxiliary Building central exhaust fan. SW, MCR/ESGR EVS, and Auxiliary Building central exhaust system are shared systems.

RAI 3.8.4-09 R3

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.4 DC Source – Operating

3.8.4-10 ITS Bases Page B 3.8 – 54 SR 3.8.4.2
STS Bases Page B 3.8 – 54 SR 3.8.4.2
CTS N/A
JFD 2

NRC RAI: Comment: The second paragraph of the Bases discussion is deleted. JFD 2 does not provide an adequate justification for this deletion. The licensee is requested to provide an adequate justification, or retain the NUREG.

Response: The Company agrees with the Comment. The paragraph in question is in the Bases sections for SRs 3.8.4.2, 3.8.4.4, and 3.8.4.5 and states the following, "The limits established for this SR must be no more than 20% above the resistance as measured during installation or not above the ceiling value established by the manufacturer." The Company believes that this constitutes an additional requirement that is only required in the Bases and not in the specifications. JFD 11 is added and states, "SRs 3.8.4.2, 3.8.4.4, and 3.8.4.5 in the Specifications do not contain the "20 % above . . ." requirement. The CTS does not require the "20 % above . . ." requirement. The paragraph is viewed as an additional requirement contained only in the Bases sections and is not justified. Therefore, the paragraphs are deleted." Also see the response to Question 11.

BASES

ACTIONS

B.1 and B.2 (continued)

within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging plant systems. The Completion Time to bring the unit to MODE 5 is consistent with the time required in Regulatory Guide 1.93 (Ref. 8).

UNIT (2) R3

(5)

INSERT

SURVEILLANCE REQUIREMENTS

SR 3.8.4.1

Verifying battery terminal voltage while on float charge for the batteries helps to ensure the effectiveness of the charging system and the ability of the batteries to perform their intended function. Float charge is the condition in which the charger is supplying the continuous charge required to overcome the internal losses of a battery (or battery cell) and maintain the battery (or a battery cell) in a fully charged state. The voltage requirements are based on the nominal design voltage of the battery and are consistent with the initial voltages assumed in the battery sizing calculations. The 7 day Frequency is consistent with manufacturer recommendations and IEEE-450 (Ref. 9).

For station and EDG batteries,

(5)

SR 3.8.4.2

of both STATION and EDG batteries

(5)

Visual inspection to detect corrosion of the battery cells and connections, or measurement of the resistance of each intercell, interrack, intertier, and terminal connection, provides an indication of physical damage or abnormal deterioration that could potentially degrade battery performance.

RAI 3.8.4-10 R3

The limits established for this SR must be no more than 20% above the resistance as measured during installation or not above the ceiling value established by the manufacturer.

(11)

(6)

INSERT FROM SR 3.8.4.4

The Surveillance Frequency for these inspections, which can detect conditions that can cause power losses due to resistance heating, is 92 days. This Frequency is considered acceptable based on operating experience related to detecting corrosion trends.

(continued)

Rev. 3

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.4.3

Visual inspection of the battery cells, cell plates, and battery racks provides an indication of physical damage or abnormal deterioration that could potentially degrade battery performance. TSTF 38 INSERT

The 12 month Frequency for this SR is consistent with IEEE-450 (Ref. 9), which recommends detailed visual inspection of cell condition and rack integrity on a yearly basis. (5)

SR 3.8.4.4 and SR 3.8.4.5 (5)

Station and EDG battery

Visual inspection and resistance measurements of intercell, interrack, intertier, and terminal connections provide an indication of physical damage or abnormal deterioration that could indicate degraded battery condition. The anticorrosion material is used to help ensure good electrical connections and to reduce terminal deterioration. The visual inspection for corrosion is not intended to require removal of and inspection under each terminal connection. The removal of visible corrosion is a preventive maintenance SR. The presence of visible corrosion does not necessarily represent a failure of this SR provided visible corrosion is removed during performance of SR 3.8.4.4. (8)

move to SR 3.8.4.2

Reviewer's Note: The requirement to verify that terminal connections are clean and tight applies only to nickel cadmium batteries as per IEEE Standard P1106, "IEEE Recommended Practice for Installation, Maintenance, Testing and Replacement of Vented Nickel - Cadmium Batteries for Stationary Applications." This requirement may be removed for lead acid batteries. (4)

RAI 3.8.4-10 R3

The connection resistance limits for SR 3.8.4.5 shall be no more than 20% above the resistance as measured during installation, or not above the ceiling value established by the manufacturer. (11)

The Surveillance Frequencies of 12 months is consistent with IEEE-450 (Ref. 9), which recommends cell to cell and terminal connection resistance measurement on a yearly basis. (5)

(continued)

Rev 3

10. The deletion is justified because the UFSAR Section 8 and the current testing requirements do not discuss or require three complete cycles of intermittent loads during a capacity test for the station batteries.

RAI 3.8.4-08 R3

11. SRs 3.8.4.2, 3.8.4.4, and 3.8.4.5 in the Specifications do not contain the "20 % above . . ." requirement. The CTS does not require the "20 % above . . ." requirement. The paragraph is viewed as an additional requirements contained only in the Bases sections and is not justified. Therefore, the paragraphs are deleted.

RAI 3.8.4-10 R3

12. An equalize charge is normally performed prior to the performance of this test. The equalize charge is allowed by IEEE – 450 – 1995. Therefore, "normally done in the as found condition" is incorrect and it is eliminated from the Bases.

RAI 3.8.4-14 R3

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.4 DC Source – Operating

3.8.4-11 ITS Bases Page B 3.8 – 55 SR 3.8.4.4 and 3.8.4.5
STS Bases Page B 3.8 – 55 SR 3.8.4.4 and 3.8.4.5
CTS N/A
JFD 2

NRC RAI: Comment: The next to last paragraph of this Bases discussion is deleted, but JFD 2 does not provide an adequate justification for this deletion. The licensee should provide an adequate justification, or retain the NUREG.

Response: The Company agrees with the Comment. The paragraph in question is in the Bases sections for SRs 3.8.4.2, 3.8.4.4, and 3.8.4.5 and states the following, "The limits established for this SR must be no more than 20% above the resistance as measured during installation or not above the ceiling value established by the manufacturer." The Company believes that this constitutes an additional requirement that is only required in the Bases and not in the specifications. JFD 11 is added and states, "SRs 3.8.4.2, 3.8.4.4, and 3.8.4.5 in the Specifications do not contain the "20 % above . . ." requirement. The CTS does not require the "20 % above . . ." requirement. The paragraph is viewed as an additional requirement contained only in the Bases sections and is not justified. Therefore, the paragraphs are deleted." Also see the response to Question 10.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.4 DC Source – Operating

See Revised Submittal Pages for RAI 3.8.3-10.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.4 DC Source – Operating

3.8.4-12 ITS Bases for SR 3.8.4.7
STS Bases Page B 3.8 - 56
CTS N/A
JFD N/A

NRC RAI: Comment: See RAI 3.8.4-07 regarding the EDG battery charger. This applies to the next to last paragraph in the Bases discussion.

Response: The Company disagrees with Comment for the reasons stated in the response to RAI 3.8.4-07.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.4 DC Source – Operating

3.8.4-13 ITS SR 3.8.4.8
STS Bases Page B 3.8 - 57
CTS N/A
JFD N/A

NRC RAI: Comment: The Bases discussion that states that the modified performance discharge test consists of just two rates is changed to state the test "may" consist of just two rates. Provide the purpose of this change and the justification. Absent an adequate justification, the licensee should retain the NUREG.

Response: The Company disagrees with Comment. This change is made by approved TSTF – 360.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.4 DC Source – Operating

3.8.4-14 ITS Bases for SR 3.8.4.9
STS Bases Page B 3.8 - 57
CTS N/A
JFD N/A

NRC RAI: Comment: The portion of the Bases discussion that states the test is "normally done in the as found condition" is deleted. JFD 2 does not provide an adequate justification for this change. The Bases is consistent with IEEE-450(95). Therefore, the licensee should provide an adequate justification for the change, or retain the NUREG.

Response: The Company agrees with Comment. JFD 12 is added and states, "An equalize charge is normally performed prior to a performance capacity test that is used to reflect baseline capacity of a battery. The equalize charge is allowed by IEEE – 450 – 1995. Therefore, "normally done in the as found condition" is incorrect and it is eliminated from the Bases.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.4.8 (continued)

This SR is modified by two Notes. Note 1 allows the performance of a modified performance discharge test in lieu of a service test once per 60 months.

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

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

The reason for Note 2 is that performing the Surveillance would perturb the electrical distribution system and challenge safety systems. Credit may be taken for unplanned events that satisfy this SR.

SR 3.8.4.6

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

(continued)

Rev. 3

10. The deletion is justified because the UFSAR Section 8 and the current testing requirements do not discuss or require three complete cycles of intermittent loads during a capacity test for the station batteries.

RAI 3.8.4-08 R3

11. SRs 3.8.4.2, 3.8.4.4, and 3.8.4.5 in the Specifications do not contain the "20 % above . . ." requirement. The CTS does not require the "20 % above . . ." requirement. The paragraph is viewed as an additional requirements contained only in the Bases sections and is not justified. Therefore, the paragraphs are deleted.

RAI 3.8.4-10 R3

12. An equalize charge is normally performed prior to the performance of this test. The equalize charge is allowed by IEEE – 450 – 1995. Therefore, "normally done in the as found condition" is incorrect and it is eliminated from the Bases.

RAI 3.8.4-14 R3

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.4 DC Source – Operating

3.8.4-15 ITS Bases for Battery Test
STS N/A
CTS N/A
JFD N/A

NRC RAI: Comment: The LCO and the Bases do not address any testing of the EDG batteries. The licensee is requested to provide a discussion on why no tests are required for the EDG batteries. The emphasis of the discussion should be on performance testing to demonstrate battery capacity.

Response: The Company disagrees with Comment. CTS SRs 4.8.1.1.3.d and 4.8.1.1.3.e require the EDG battery capacity test. The EDG service test is not required by the CTS because the EDG battery only provides the initial flash of the field, then all DC requirements are provided from the output of the EDG. ITS SR 3.8.4.9 will continue to require the capacity test for the EDG battery.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.5 DC Sources – Shutdown

3.8.5-01 Not used

3.8.5-02 ITS N/A
STS N/A
CTS Unit 1 3.8.2.2 Applicability b and Action
DOC L.1

NRC RAI: Comment: Deletion of the CTS requirement will be considered acceptable when the licensee confirms that load handling at North Anna is conducted in accordance with the recommendations of NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants."

Response: In response to NRC Bulletin 96-02, Movement of Heavy Loads over Spent Fuel, Over Fuel in the Reactor Core, or Over Safety-Related Equipment, North Anna corresponded with the NRC via letter, dated May 13, 1996. The letter stated how the plant was in compliance with the requirements of the Bulletin. NRC issued a letter on May 6, 1998 that stated that the North Anna responses to NRCB-96-02 were acceptable (TAC NOS M95611 and M95612). Also see the response to Question 3.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.5 DC Sources – Shutdown

3.8.5-03 ITS N/A
STS N/A
CTS Unit 2 3.8.2.2 Applicability b and Action
DOC L.1

NRC RAI: See RAI 3.8.5-02 **Comment:** Deletion of the CTS requirement will be considered acceptable when the licensee confirms that load handling at North Anna is conducted in accordance with the recommendations of NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants."

Response: In response to NRC Bulletin 96-02, Movement of Heavy Loads over Spent Fuel, Over Fuel in the Reactor Core, or Over Safety-Related Equipment, North Anna corresponded with the NRC via letter, dated May 13, 1996. The letter stated how the plant was in compliance with the requirements of the Bulletin. NRC issued a letter on May 6, 1998 that stated that the North Anna responses to NRCB-96-02 were acceptable (TAC NOS M95611 and M95612). Also see the response to Question 2.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.6 Battery Cell Parameters

3.8.6-01 ITS N/A
STS N/A
CTS Unit 1 Table 4.8 - 3
DOC LA.2

NRC RAI: Comment: CTS Note (c) can have both positive and negative effects. With a lower temperature, the voltage can be corrected upward a specific amount for each degree of temperature difference. With a higher temperature, the voltage can be corrected downward a specific amount for each degree of temperature difference. If the licensee wishes retain the positive aspects of the Note, it must be included in TS. It cannot be imposed by the Bases. If the licensee wishes to delete the negative aspects of the Note, the licensee must provide a specific justification for doing so. In either case, however, relocation to the Bases is not acceptable.

Response: The Company agrees with the Comment. DOC LA.2 is deleted and temperature correction is deleted from the Bases. DOC L.3 is added and states that ITS retains the requirement to verify Category B parameter for float voltage as $\geq$ 2.13 volts. This will continue to require the battery cell to maintain an acceptable state of charge to meet the overall requirement for terminal voltage to be greater than 129 volts and the battery will remain capable of performing its required function. This is acceptable to monitor these parameters and eliminate the temperature correction factor for the parameters. Also see the response to Questions 3 and 6.

BASES

SURVEILLANCE REQUIREMENTS

Table 3.8.6-1 (continued)

The Category A limit specified for float voltage is ≥ 2.13 V per cell. This value is based on the recommendations of IEEE-450 (Ref. 3), which states that prolonged operation of cells < 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 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.

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 fully charged, nominal specific gravity) with the average of all connected cells > 1.205 (0.010 below the manufacturer 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 will not mask overall degradation of the battery.

RAI 3.8.6-01 R3

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.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

Table 3.8.6-1 (continued)

suffer no physical damage, and that adequate electron 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 recommendations of IEEE-450 (Ref. 3), which states that prolonged operation of cells < 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 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). (2)

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.

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 fully charged, nominal specific gravity) with the average of all connected cells > [1.205] (0.010 below the manufacturer 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 will not mask overall degradation of the battery. RAI 3.8.6-01 R3 (2)

(continued)

Rev 3

RAI 3.8.6-01 R3

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.6 BASES - BATTERY CELL PARAMETERS

1. Changes are made to reflect those changes made to the ISTS. The following requirements are renumbered or revised, where applicable, to reflect the changes.

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

3. The criteria of the NRC Final Policy Statement on Technical Specifications Improvements have been included in 10 CFR 50.36(c)(2)(ii). Therefore, references in the ISTS Bases to the NRC Final Policy Statement are revised in the ITS Bases to reference 10 CFR 50.36.

RAI 3.8.6-01 R3

4. Not used.

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

6. This is an editorial change for clarity, for consistency with the Improved Technical Specifications Writer's Guide, or for consistency with similar statements in the other ITS Bases.

A.1

TABLE 4.8-3

BATTERY SURVEILLANCE REQUIREMENTS

ITS Table 3.8.6-1

Parameter	CATEGORY A(1) Limits for each designated pilot cell	CATEGORY B(2) Limits for each connected cell	CATEGORY C Allowable value for each connected cell
Electrolyte Level	>Minimum level indication mark, and ≤ 1/4" above maximum level indication mark (a)	>Minimum level indication mark, and ≤ 1/4" above maximum level indication mark (a)	Above top of plates, and not overflowing
Float Voltage	≥ 2.13 volts	≥ 2.13 volts (c)	> 2.07 volts
Specific Gravity (b) (c) (a)	≥ 1.200 (b)	≥ 1.195 (b) Average of all connected cells > 1.205	Not more than .020 below the average of all connected cells Average of all connected cells ≥ 1.195 (b)

(a) Corrected for electrolyte temperature and level. (2)

(b) Or battery charging current is less than (12) amps when on charge (station batteries only).

(c) For any cell with voltage below the limit and electrolyte temperature > 3°F from the average electrolyte temperature, correct the cell voltage for average electrolyte temperature.

Action A/B (C)

(1) For any Category A parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that within 24 hours all the Category B measurements are taken and found to be within their allowable values, and provided all Category A and B parameter(s) are restored to within limits within the next 6 days.

(2) For any Category B parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that the Category B parameters are within their allowable values and provided the Category B parameter(s) are restored to within limits within 7 days.

Category C (3) Any Category B parameter not within its allowable value indicates an inoperable battery.

(a) INSERT PROPOSED Notation (a)

A.1

TABLE 4.8-3

BATTERY SURVEILLANCE REQUIREMENTS

ITS TABLE 3.8.6-1

Parameter	CATEGORY A(1) Limits for each designated pilot cell	CATEGORY B(2) Limits for each connected cell	Category C Allowable value for each connected cell
Electrolyte Level	>Minimum level indication mark, and ≤ 1/4" above maximum level indication mark (a)	>Minimum level indication mark, and ≤ 1/4" above maximum level indication mark (a)	Above top of plates, and not over-flowing
Float Voltage	≥ 2.13 volts	≥ 2.13 volts	> 2.07 volts
Specific Gravity (a)	≥ 1.200 (b)	≥ 1.195 (b)	Not more than .020 below the average of all connected cells
		Average of all connected cells > 1.205	Average of all connected cells ≥ 1.195 (b)

A.3 L.2 L.3 A.1 RAI 3.8.6-12 R3 RAI 3.8.6-01 R3 M.3 L.3

(a) Corrected for electrolyte temperature and level. (2)

(b) Or battery charging current is less than (2) amps when on charge (station batteries only).

(c) For any cell with voltage below the limit and electrolyte temperature > 3°F from the average electrolyte temperature, correct the cell voltage for average electrolyte temperature.

Action A/B (c)

(1) For any Category A parameters(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that within 24 hours all the Category B measurements are taken and found to be within their allowable values, and provided all Category A and B parameter(s) are restored to within limits within the next 6 days.

(2) For any Category B parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that the Category B parameter(s) are within their allowable values and provided the Category B parameter(s) are restored to within limits within 7 days.

(3) Any Category B parameter not within its allowable value indicates an inoperable battery.

A.3

Category C

(a) INSERT proposed Notation (a)

L.2

REMOVED DETAIL CHANGES

LA.1 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS surveillance requirement 4.8.2.3.2 b.3 states, "Average electrolyte temperature of a least 10 connected cells is above 60 °F." ITS Action B and SR 3.8.6.3 require the "electrolyte temperature of representative cells" to be > 60 °F. This changes the CTS by replacing "10" cells with "representative" cells and moving the 10 cell requirement from the Specification to the ITS Bases.

The removal of these details, which are related to specific number of cells that are required to be verified, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement to verify average electrolyte temperature from representative cell to provide assurance that all cells temperature will not be less than 60 °F. This change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LA.2 Not used.

RAI 3.8.6-01 R3

LESS RESTRICTIVE CHANGES

L.1 *(Category 3 – Relaxation of Completion Time)* CTS Table 4.8-3 notes (1) and (2) specify actions for Category A and B parameters not within limits. Note 1 states, "For any Category A parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that within 24 hours all the Category B measurements are taken and found to be within their allowable values, and provided all Category A and B parameter(s) are restored to within limits within the next six days." Note 2 states, "For any Category B parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that the Category B parameters are restored to within limits within 7 days." ITS Condition A states, "One or more station or EDG batteries with one or more battery cell parameters not within Table 3.8.6-1 Category A or B limits." If this condition is entered, Required Action A.2 requires the verification of battery cell parameters in Table 3.8.6-1 meet Category C limits and Required Action A.3 requires the restoration of battery cell parameters to Table 3.8.6-1 Category A and B limits. Category C limit verification is required within 24 hours and once per 7 days thereafter. The time limit for restoring the cell parameters to within the Category A and B limits is 31 days. This changes the CTS by allowing the Category A and B limits to be exceeded for a period of 31 days where the CTS only allows 7 days.

The purpose of ITS Required Actions A.2 and A.3 are to provide sufficient time to restore the battery cell parameters within Category A and B limits and continues to periodically monitor the required parameters. This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features and monitoring the parameters that are not within limits. The Required Actions are consistent with safe operation under the specified Condition, considering the OPERABILITY status of the redundant systems of required features, the capacity and capability of remaining features, a reasonable time for repairs or replacement of required features, and the low probability of a DBA occurring during the repair period. The allowance to restore the battery cell parameters within the specified limits is acceptable because the battery remains fully capable of performing its design function. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.2 *(Category 6 – Relaxation Of Surveillance Requirement Acceptance Criteria)* CTS Table 4.8-3 Battery Surveillance Requirement limits for the electrolyte level, in the Category A and B columns, is greater than the minimum level indication mark, and ≤ ¼ inch mark above the maximum level indication mark. ITS Table 3.8.6-1 states for the Category A and B limits, "> Minimum level indication mark, and ≤ ¼ inch above maximum level indication mark [(a)]." Note [(a)] states, "It is acceptable for the electrolyte level to temporarily increase above the specified maximum during equalizing charges provided it is not overflowing." This changes the CTS by allowing the electrolyte level to exceed the specified limit under specific conditions.

The purpose of ITS Note [(a)] is to provide an allowance during equalizing charge for level to increase due to a normal increase in level from the charging of the battery. This change is acceptable because it has been determined that the relaxed Surveillance Requirement acceptance criteria are not necessary for verification that the equipment used to meet the LCO can perform its required functions. This change is acceptable because the electrolyte level normally increases with an increased charging rate provided by an equalized charge, and returns within limits after the re-charge. This change is designated as less restrictive because less stringent Surveillance Requirements are being applied in the ITS than were applied in the CTS.

L.3 *(Category 6 – Relaxation Of Surveillance Requirement Acceptance Criteria)* CTS Table 4.8-3, Battery Cell Parameters, note (c) states, "For any cell with voltage below the limit and electrolyte temperature > 3 °F from the average electrolyte temperature, correct the cell voltage for the average temperature." This note applies to Category B for the battery cells' float voltage of ≥ 2.13 volts. ITS 3.8.6 does not require this correction. This changes the CTS by deleting the requirement for cell voltage to be corrected by temperature.

RAI 3.8.6-01 R3

This change is acceptable because it has been determined that the relaxed Surveillance Requirement acceptance criteria are not necessary for verification that the equipment used to meet the LCO can perform its required functions. ITS retains the requirement to verify Category B parameter for float voltage as ≥ 2.13 volts. This will continue to require the battery cell to maintain an acceptable state of charge to meet the overall requirement for terminal voltage to be greater than 129 volts and the battery will remain capable of performing its required function. This change is designated as less restrictive because less stringent Surveillance Requirements are being applied in the ITS than were applied in the CTS.

RAI 3.8.6-01 R3

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.6 Battery Cell Parameters

3.8.6-02 ITS N/A
STS N/A
CTS Units 1 and 2 Tables 4.8 - 3
DOC L.3

NRC RAI: Comment: There is no DOC L.3 in the submittal. What is the associated change for the DOC? The licensee should provide this DOC.

Response: The Company agrees with the Comment in that DOC L.3 is not required. The notation on the CTS Tables is replaced with an A.1 notation.

A.1

TABLE 4.8-3

BATTERY SURVEILLANCE REQUIREMENTS

ITS Table 3.8.6-1

	CATEGORY A(1)	CATEGORY B(2)	CATEGORY C A.3
Parameter	Limits for each designated pilot cell	Limits for each connected cell	Allowable value for each connected cell
Electrolyte Level	>Minimum level indication mark, and ≤ 1/4" above maximum level indication mark (a)	>Minimum level indication mark, and ≤ 1/4" above maximum level indication mark (a)	Above top of plates, and not over-flowing L.2
Float Voltage	≥ 2.13 volts	≥ 2.13 volts (c)	> 2.07 volts L.3
Specific Gravity (b) (c) (6) (c)	≥ 1.200 (b)	≥ 1.195 (b) Average of all connected cells > 1.205	Not more than .020 below the average of all connected cells A.1 RAI 3.8.6-02 R3 Average of all connected cells ≥ 1.195 (b) RAI 38.6-01 R3

(a) Corrected for electrolyte temperature and level. (2)

(b) Or battery charging current is less than (12) amps when on charge (station batteries only). M.3

(c) For any cell with voltage below the limit and electrolyte temperature > 3°F from the average electrolyte temperature, correct the cell voltage for average electrolyte temperature. L.3

Action A/B (c)

(1) For any Category A parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that within 24 hours all the Category B measurements are taken and found to be within their allowable values, and provided all Category A and B parameter(s) are restored to within limits within the next 6 days.

(2) For any Category B parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that the Category B parameters are within their allowable values and provided the Category B parameter(s) are restored to within limits within 7 days.

Category C (3) Any Category B parameter not within its allowable value indicates an inoperable battery. A.3

(a) INSERT PROPOSED Notation (a) L.2

ITS 3.8.6

3-10-88

A.1

TABLE 4.8-3

BATTERY SURVEILLANCE REQUIREMENTS

ITS TABLE 3.8.6-1

Parameter	CATEGORY A(1) Limits for each designated pilot cell	CATEGORY B(2) Limits for each connected cell	Category C Allowable value for each connected cell
Electrolyte Level	>Minimum level indication mark, and ≤ 1/4" above maximum level indication mark (a)	>Minimum level indication mark, and ≤ 1/4" above maximum level indication mark (a)	Above top of plates, and not overflowing
Float Voltage	≥ 2.13 volts	≥ 2.13 volts	> 2.07 volts
Specific Gravity (a)	≥ 1.200 (b)	≥ 1.195 (b)	Not more than .020 below the average of all connected cells
		Average of all connected cells > 1.205	Average of all connected cells ≥ 1.195 (b)

A.3 L.2 L.3 A.1 RAI 3.8.6-02 R3 RAI 3.8.6-01 R3 M.3 L.3

(a) Corrected for electrolyte temperature and level. (2)

(b) Or battery charging current is less than (2) amps when on charge (station batteries only).

(c) For any cell with voltage below the limit and electrolyte temperature > 3°F from the average electrolyte temperature, correct the cell voltage for average electrolyte temperature.

Action A/B (c)

(1) For any Category A parameters(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that within 24 hours all the Category B measurements are taken and found to be within their allowable values, and provided all Category A and B parameter(s) are restored to within limits within the next 6 days.

(2) For any Category B parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that the Category B parameter(s) are within their allowable values and provided the Category B parameter(s) are restored to within limits within 7 days.

(3) Any Category B parameter not within its allowable value indicates an inoperable battery.

Category C

A.3

(a) INSERT proposed Notation (a)

L.2

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.6 Battery Cell Parameters

3.8.6-03 ITS N/A
STS N/A
CTS Unit 2 Table 4.8 - 3
DOC LA.2

NRC RAI: See RAI 3.8.6-01 **Comment:** CTS Note (c) can have both positive and negative effects. With a lower temperature, the voltage can be corrected upward a specific amount for each degree of temperature difference. With a higher temperature, the voltage can be corrected downward a specific amount for each degree of temperature difference. If the licensee wishes retain the positive aspects of the Note, it must be included in TS. It cannot be imposed by the Bases. If the licensee wishes to delete the negative aspects of the Note, the licensee must provide a specific justification for doing so. In either case, however, relocation to the Bases is not acceptable.

Response: The Company agrees with the Comment. DOC LA.2 is deleted and temperature correction is deleted from the Bases. DOC L.3 is added and states that ITS retains the requirement to verify Category B parameter for float voltage as $\geq$ 2.13 volts. This will continue to require the battery cell to maintain an acceptable state of charge to meet the overall requirement for terminal voltage to be greater than 129 volts and the battery will remain capable of performing its required function. This is acceptable to monitor these parameters and eliminate the temperature correction factor for the parameters. Also see the response to Questions 1 and 6.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.6 Battery Cell Parameters

See Revised Submittal Pages for RAI 3.8.6-01.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.6 Battery Cell Parameters

3.8.6-04 ITS 3.8.6 Condition B and SR 3.8.6.3
STS 3.8.6 Condition B and SR 3.8.6.3
CTS Units 1 and 2
DOC N/A

NRC RAI: Comment: The EDG batteries are not included in Condition B or SR 3.8.6.3 with respect to electrolyte. The licensee is requested to provide a justification for why the EDG batteries have no associated temperature requirements.

Response: The Company agrees with the Comment in that a more specific justification is required. Technical Specification changes #97 for Unit 1 and #84 for Unit 2 provided a modification to the CTS requirement 4.8.1.1.3 (diesel generator 125-volt battery and charger requirements). This change deleted the temperature monitoring of electrolyte requirement for the EDG battery. The NRC staff in its safety evaluation discussion (part e.) stated, "Electrolyte temperature measurements are not made for the EDG batteries; winter temperatures in the EDG rooms frequently drop below 60 degrees F. It is the licensee's position that satisfying the total battery terminal voltage requirement and the requirement of Table 4.8-3 are sufficient to demonstrate operability of EDG batteries, as verified by their experience. The staff finds this acceptable." Therefore, there are no current TS requirements to monitor temperature for the EDG batteries and none are proposed for the ITS specifications. Also see the response to Question 5.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.6 Battery Cell Parameters

3.8.6-05 ITS Bases Page B3.8-67 SR 3.8.6.3
STS Bases Page B3.8-67 SR 3.8.6.3
CTS N/A
DOC N/A

NRC RAI: See RAI 3.8.6-04 **Comment:** The EDG batteries are not included in Condition B or SR 3.8.6.3 with respect to electrolyte. The licensee is requested to provide a justification for why the EDG batteries have no associated temperature requirements.

Response: The Company agrees with the Comment in that a more specific justification is required. Technical Specification changes #97 for Unit 1 and #84 for Unit 2 provided a modification to the CTS requirement 4.8.1.1.3 (diesel generator 125-volt battery and charger requirements). This change deleted the temperature monitoring of electrolyte requirement for the EDG battery. The NRC staff in its safety evaluation discussion (part e.) stated, "Electrolyte temperature measurements are not made for the EDG batteries; winter temperatures in the EDG rooms frequently drop below 60 degrees F. It is the licensee's position that satisfying the total battery terminal voltage requirement and the requirement of Table 4.8-3 are sufficient to demonstrate operability of EDG batteries, as verified by their experience. The staff finds this acceptable." Therefore, there are no current TS requirements to monitor temperature for the EDG batteries and none are proposed for the ITS specifications. Also see the response to Question 4.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.6 Battery Cell Parameters

3.8.6-06 ITS Bases Page 3.8 - 68
STS Bases Page 3.8 - 68
CTS N/A
JFD 4

NRC RAI: See RAI 3.8.6-01 **Comment:** CTS Note (c) can have both positive and negative effects. With a lower temperature, the voltage can be corrected upward a specific amount for each degree of temperature difference. With a higher temperature, the voltage can be corrected downward a specific amount for each degree of temperature difference. If the licensee wishes retain the positive aspects of the Note, it must be included in TS. It cannot be imposed by the Bases. If the licensee wishes to delete the negative aspects of the Note, the licensee must provide a specific justification for doing so. In either case, however, relocation to the Bases is not acceptable.

Response: The Company agrees with the Comment. DOC LA.2 is deleted and temperature correction is deleted from the Bases. Also see the response to Questions 1 and 3.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.6 Battery Cell Parameters

See Revised Submittal Pages for RAI 3.8.6-01.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.7 Inverters – Operating

No RAIs for this section.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.8 Inverters – Shutdown

3.8.8-01 ITS N/A
STS N/A
CTS Unit 1 3.8.2.2 Applicability b and Action
DOC L.1

NRC RAI: Comment: Deletion of the CTS requirement will be considered acceptable when the licensee confirms that load handling at North Anna is conducted in accordance with the recommendations of NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants."

Response: In response to NRC Bulletin 96-02, Movement of Heavy Loads over Spent Fuel, Over Fuel in the Reactor Core, or Over Safety-Related Equipment, North Anna corresponded with the NRC via letter, dated May 13, 1996. The letter stated how the plant was in compliance with the requirements of the Bulletin. NRC issued a letter on May 6, 1998 that stated that the North Anna responses to NRCB-96-02 were acceptable (TAC NOS M95611 and M95612). Also see the response to Question 3.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.8 Inverters – Shutdown

3.8.8-02 ITS N/A
STS N/A
CTS Unit 1 3.8.2.2 Action
DOC

NRC RAI: Comment: The change regarding suspension of positive changes is not supported by a DOC. In the Unit 2 markup, this change is supported by DOC L.3. Does this need to be added to the Unit 1 markup?

Response: The Company agrees with the Comment. DOC L.3 has been added to the Unit 1 markup.

ITS 3.8.8

A.1

4-21-92

recently

L.4

ITS

ACTION:

See ITS 3.8.5 and 3.8.10

Action A.2

With the above required train of A.C. and D.C. electrical equipment and busses not fully OPERABLE, immediately suspend all operations involving CORE ALTERATIONS, positive reactivity changes, movement of irradiated fuel assemblies, and movement of loads over irradiated fuel assemblies. Initiate corrective action to restore the required train of A.C. and D.C. electrical equipment and busses to OPERABLE status as soon as possible.

inverters

inverter

L.1

SURVEILLANCE REQUIREMENTS

inverters

SR 3.8.8.1

4.8.2.2.1 The specified busses shall be determined energized in the required manner once per 7 days by verifying correct breaker alignment and indicated voltage on the busses.

M.1

4.8.2.2.2 The above required 125-volt battery bank and chargers shall be demonstrated OPERABLE per Surveillance Requirement 4.8.2.3.2.

See ITS 3.8.5

suspend operations involving positive reactivity additions that could result in a loss of required SDM or boron concentration

L.3

RAF 3.8.8-02 A3

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.8 Inverters – Shutdown

3.8.8-03 ITS N/A
STS N/A
CTS Unit 2 3.8.2.2 Applicability b and Action
DOC L.1

NRC RAI: See RAI 3.8.8-01 **Comment:** Deletion of the CTS requirement will be considered acceptable when the licensee confirms that load handling at North Anna is conducted in accordance with the recommendations of NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants."

Response: In response to NRC Bulletin 96-02, Movement of Heavy Loads over Spent Fuel, Over Fuel in the Reactor Core, or Over Safety-Related Equipment, North Anna corresponded with the NRC via letter, dated May 13, 1996. The letter stated how the plant was in compliance with the requirements of the Bulletin. NRC issued a letter on May 6, 1998 that stated that the North Anna responses to NRCB-96-02 were acceptable (TAC NOS M95611 and M95612). Also see the response to Question 1.

North Anna Improved Technical Specifications (ITS) Review Comments
ITS Section 3.8, Electrical Power System
3.8.9 Distribution Systems – Operating

3.8.9-01 ITS Bases Page B 3.8-70
STS Bases Page B 3.8-70
CTS N/A
JFD N/A

NRC RAI: Comment: The staff understanding of the North Anna offsite power system is a follows. Unit 1 has a normal offsite source and an alternate offsite source. Transfer to the alternate offsite source is a manual operation. Unit 2 has a normal offsite source, and no alternate source. In the event of a loss of offsite power, the EDGs for the affected buses will start and load. The EDGs for Unit 1 will continue to run until a) the safety bus is transferred to the alternate offsite source, or b) the normal offsite source is restored. The Unit 2 EDGs will continue to run until the normal offsite source is restored. If this staff understanding is correct, it should be incorporated into the Bases background discussion. As currently proposed, the background discussion does not accurately reflect the North Anna design.

Response: The cited page for this comment should be B 3.8 – 79. The Company agrees with the Comment. The following has been added to page B 3.8 – 79, "Unit 1 has a normal offsite source and an alternate offsite source. Transfer to the alternate offsite source is a manual operation. Unit 2 has a normal offsite source, and no alternate source. In the event of a loss of offsite power, the EDGs for the affected buses will start and load. The EDGs for Unit 1 will continue to run until a) the safety bus is transferred to the alternate offsite source, or b) the normal offsite source is restored. The Unit 2 EDGs will continue to run until the normal offsite source is restored."

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.9 Distribution Systems–Operating

BASES

BACKGROUND

The onsite Class 1E AC, DC, and AC vital bus electrical power distribution systems are divided by train into two redundant and independent AC, DC, and AC vital bus electrical power distribution subsystems.

The AC electrical power subsystem for each train consists of a primary Engineered Safety Feature (ESF) 4.16 kV bus and secondary 480 V buses and load centers. Each 4.16 kV ESF bus has at least one separate and independent offsite source of power as well as a dedicated onsite emergency diesel generator (EDG) source. Unit 1 has a normal offsite source and an alternate offsite source. Transfer to the alternate offsite source is a manual operation. Unit 2 has a normal offsite source, and no alternate source. In the event of a loss of offsite power, the EDGs for the affected buses will start and load. The EDGs for Unit 1 will continue to run until (a) the safety bus is transferred to the alternate offsite source, or (b) the normal offsite source is restored. The Unit 2 EDGs will continue to run until the normal offside source is restored. If offsite sources are unavailable, the onsite EDG supplies power to the 4.16 kV ESF bus. Control power for the 4.16 kV breakers is supplied from the Class 1E batteries. Additional description of this system may be found in the Bases for LCO 3.8.1, "AC Sources–Operating," and the Bases for LCO 3.8.4, "DC Sources–Operating." RAI 3.8.9-01 R3

The secondary AC electrical power distribution subsystem for each train includes the safety related buses and load centers shown in Table B 3.8.9-1.

The 120 VAC vital buses are arranged in two load groups per train and are normally powered from the inverters. The alternate power supply for the vital buses are constant voltage source transformers powered from the same train as the associated inverter, and its use is governed by LCO 3.8.7, "Inverters–Operating." Each constant voltage source transformer is powered from a Class 1E AC bus.

There are two independent 125 VDC electrical power distribution subsystems for each train.

(continued)

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.9 Distribution Systems—Operating

BASES

BACKGROUND

The onsite Class 1E AC, DC, and AC vital bus electrical power distribution systems are divided by train into two redundant and independent AC, DC, and AC vital bus electrical power distribution subsystems.

The AC electrical power subsystem for each train consists of a primary Engineered Safety Feature (ESF) 4.16 kV bus and secondary 480 and 120 V buses, distribution panels, motor control centers, and load centers. Each 4.16 kV ESF bus has at least one separate and independent 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 preferred offsite source. After a loss of the preferred offsite power source to a 4.16 kV ESF bus, a transfer to the alternate offsite source is accomplished by utilizing a time delayed bus undervoltage relay. If all offsite sources are unavailable, the onsite emergency DG supplies power to the 4.16 kV ESF bus. Control power for the 4.16 kV breakers is supplied from the Class 1E batteries. Additional description of this system may be found in the Bases for LCO 3.8.1, "AC Sources—Operating," and the Bases for LCO 3.8.4, "DC Sources—Operating."

The secondary AC electrical power distribution system for each train includes the safety related load centers, motor control centers, and distribution panels shown in Table B 3.8.9-1.

The 120 VAC vital buses are arranged in two load groups per train and are normally powered from the inverters. The alternate power supply for the vital buses are Class 1E constant voltage source transformers powered from the same train as the associated inverter, and its use is governed by LCO 3.8.7, "Inverters—Operating." Each constant voltage source transformer is powered from a Class 1E AC bus.

There are two independent 125/250 VDC electrical power distribution subsystems for each train.

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

(continued)

Rev 3

INSERT 1

Unit 1 has a normal offsite source and an alternate offsite source. Transfer to the alternate offsite source is a manual operation. Unit 2 has a normal offsite source, and no alternate source. In the event of a loss of offsite power, the EDGs for the affected buses will start and load. The EDGs for Unit 1 will continue to run until a) the safety bus is transferred to the alternate offsite source, or b) the normal offsite source is restored. The Unit 2 EDGs will continue to run until the normal offsite source is restored.

RAI 3.8.9-01 R3

INSERT 2

For the other unit, one AC and DC bus on that unit is needed to support operation of each required Service Water (SW) pump, Main Control Room (MCR)/Emergency Switchgear Room (ESGR) Emergency Ventilation System (EVS) fan, and Auxiliary Building central exhaust fan. SW, MCR/ESGR EVS, and Auxiliary Building central exhaust system are shared systems.

3.8.10-01ITS N/A
STS N/A
CTS Unit 1 3.8.2.2 Applicability b and Action
DOC L.1

NRC RAI: Comment: Deletion of the CTS requirement will be considered acceptable when the licensee confirms that load handling at North Anna is conducted in accordance with the recommendations of NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants."

Response: In response to NRC Bulletin 96-02, Movement of Heavy Loads over Spent Fuel, Over Fuel in the Reactor Core, or Over Safety-Related Equipment, North Anna corresponded with the NRC via letter, dated May 13, 1996. The letter stated how the plant was in compliance with the requirements of the Bulletin. NRC issued a letter on May 6, 1998 that stated that the North Anna responses to NRCB-96-02 were acceptable (TAC NOS M95611 and M95612). Also see the response to Question 2.

3.8.10-02ITS N/A
STS N/A
CTS Unit 2 3.8.2.2 Applicability b and Action
DOC L.1

NRC RAI: See RAI 3.8.10-01 **Comment:** Deletion of the CTS requirement will be considered acceptable when the licensee confirms that load handling at North Anna is conducted in accordance with the recommendations of NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants."

Response: In response to NRC Bulletin 96-02, Movement of Heavy Loads over Spent Fuel, Over Fuel in the Reactor Core, or Over Safety-Related Equipment, North Anna corresponded with the NRC via letter, dated May 13, 1996. The letter stated how the plant was in compliance with the requirements of the Bulletin. NRC issued a letter on May 6, 1998 that stated that the North Anna responses to NRCB-96-02 were acceptable (TAC NOS M95611 and M95612). Also see the response to Question 1.

ITS AND BASES CHANGES NOT ASSOCIATED WITH RAI RESPONSES

LCO 3.8.1

1. Bases section for Action A.2: The letter "s" is added to power train at the end of the second sentence.

2. Bases section for Action A.3: A dash is removed between "72" and "hour" from the ISTS markup.

3. Bases section for Action D: A line return is removed.

4. Bases section for Action J: A line return is removed and the word "be" is added after the word "immediately" in the last sentence.

5. Bases section for SR 3.8.1.4: In the last sentence, the word "facility" is deleted as a descriptive word for operators.

6. Bases section for SR 3.8.1.15: The first sentence is changed from, "As required by," to "Consistent with the recommendations of."

7. The word "plant" is replaced with "unit" for SRs 3.8.1.15 and 3.8.1.16 in the Bases.

8. Note to Action F modified.

LCO 3.8.2

9. ISTS markup for LCO part b adds the word, "emergency."

LCO 3.8.3

10. Unit 2 CTS markup page 5 of 5 Action b: The word, "underground," is lined out.

11. ISTS insert for Action A contained two A.2 actions. The second "A.2" is changed to "A.3."

LCO 3.8.4

12. The word "plant" is replaced with "unit" for Required Actions B.1 and B.2 in the Bases and SRs 3.8.4.8 and 3.8.4.9 in the Specification and Bases.

LCO 3.8.9

13. Action D the sentence, "The bus is de-energized," is deleted in the Bases.

14. The word "plant" is replaced with "unit" for Action G in the Bases.

ITS AND BASES CHANGES NOT ASSOCIATED WITH RAI RESPONSES

LCO 3.8.1

1. Bases section for Action A.2: The letter "s" is added to power train at the end of the second sentence.

BASES

LCO (continued)

For the offsite AC sources, separation and independence are to the extent practical.

APPLICABILITY

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

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

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

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

ACTIONS

A.1

To ensure a highly reliable power source remains with one offsite circuit inoperable, it is necessary to verify the OPERABILITY of the remaining required offsite circuit(s) on a more frequent basis. Since the Required Action only specifies "perform," a failure of SR 3.8.1.1 acceptance criteria does not result in a Required Action not met. However, if a second required circuit fails SR 3.8.1.1, the second offsite circuit is inoperable, and Condition G, for two offsite circuits inoperable, is entered.

A.2

Required Action A.2, which only applies if the train cannot be powered from an offsite source, is intended to provide assurance that an event coincident with a single failure of the associated EDG will not result in a complete loss of safety function of critical redundant required features. These features are powered from the redundant AC electrical power trains. R3

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

(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.

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

ACTIONS

A.1

To ensure a highly reliable power source remains with one offsite circuit inoperable, it is necessary to verify the OPERABILITY of the remaining required offsite circuit on a more frequent basis. Since the Required Action only specifies "perform," a failure of SR 3.8.1.1 acceptance criteria does not result in a Required Action not met. However, if a second required circuit fails SR 3.8.1.1, the second offsite circuit is inoperable, and Condition C, for two offsite circuits inoperable, is entered.

Reviewer's Note: The turbine driven auxiliary feedwater pump is only required to be considered a redundant required feature, and, therefore, required to be determined OPERABLE by this Required Action, if the design is such that the remaining OPERABLE motor or turbine driven auxiliary feedwater pump(s) is not by itself capable (without any reliance on the motor driven auxiliary feedwater pump powered by the emergency bus associated with the inoperable diesel generator) of providing 100% of the auxiliary feedwater flow assumed in the safety analysis.

A.2

Required Action A.2, which only applies if the train cannot be powered from an offsite source, is intended to provide assurance that an event coincident with a single failure of the associated DG will not result in a complete loss of safety function of critical redundant required features. These features are powered from the redundant AC electrical power train. This includes motor driven auxiliary feedwater pumps. Single train systems, such as turbine driven auxiliary feedwater pumps, may not be included.

(continued)

Rev. 3

ITS AND BASES CHANGES NOT ASSOCIATED WITH RAI RESPONSES

LCO 3.8.1

2. Bases section for Action A.3: A dash is removed between "72" and "hour" from the ISTS markup.

BASES

ACTIONS

A.3 (continued)

potential for a loss of offsite power is increased, with attendant potential for a challenge to the unit safety systems. In this Condition, however, the remaining OPERABLE offsite circuit and DGs are adequate to supply electrical power to the onsite Class 1E Distribution System.

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

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

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

<INSERT>

B.1

To ensure a highly reliable power source remains with an inoperable DG, it is necessary to verify the availability of

(continued)

Rev 3

ITS AND BASES CHANGES NOT ASSOCIATED WITH RAI RESPONSES

LCO 3.8.1

3. Bases section for Action D: A line return is removed.

INSERT (continued)

If at any time during the existence of Condition D (one offsite circuit inoperable on the other unit needed to supply electrical power for a required shared component) another required shared component in the same system subsequently becomes inoperable, this Completion Time begins to be tracked.

Discovering no offsite power on the other unit that supports a required shared component and an additional required shared component in the same system inoperable, results in starting the Completion Times for the Required Action. Twenty-four hours is acceptable because it minimizes risk while allowing time for restoration before subjecting the unit to transients associated with shutdown.

The remaining OPERABLE offsite circuits and EDGs that power the required shared components are adequate to support the SW, MCR/ESGR EVS, and Auxiliary Building central exhaust system Functions. The 24 hour Completion Time takes into account the component OPERABILITY of the remaining shared component(s), a reasonable time for repairs, and the low probability of a DBA occurring during this period.

Operation may continue in Condition D for a period of 72 hours. With one offsite circuit inoperable on the other unit supplying electrical power to a required shared component, the reliability of the SW, MCR/ESGR EVS, and Auxiliary Building central exhaust system Functions are degraded. The potential for the loss of offsite power to the other required shared components is increased, with the attendant potential for a challenge to SW, MCR/ESGR EVS, and Auxiliary Building central exhaust system Functions. R3

The required offsite circuit must be returned to OPERABLE status within 72 hours, or the support function for the associated shared component is considered inoperable. At that time, the required shared component must be declared inoperable and the appropriate Conditions of the LCO 3.7.8, "Service Water System," LCO 3.7.10, "MCR/ESGR Emergency Ventilation System," and LCO 3.7.12, "Emergency Core Cooling System (ECCS) Pump Room Exhaust Air Cleanup System," must be entered. The 72 hour Completion Time takes into account the capacity and capability of the remaining AC sources providing electrical power to the required shared components, a reasonable time for repairs and the low probability of a DBA occurring during this period of time.

E.1, E.2, and E.3

To ensure a highly reliable power source remains with an inoperable EDG, it is necessary to verify the availability of the required offsite circuits on a more frequent basis. Since the Required Action only specifies "perform," a failure of SR 3.8.1.1 acceptance criteria does not result in a Required Action being not met. Required Action E.1 verifies the OPERABILITY of the required offsite sources within an hour of the inoperability and every 8 hours thereafter. However, if a circuit fails to pass SR 3.8.1.1, it is inoperable. Upon offsite circuit inoperability, additional Conditions and Required Actions must be entered.

ITS AND BASES CHANGES NOT ASSOCIATED WITH RAI RESPONSES

LCO 3.8.1

4. Bases section for Action J: A line return is removed and the word "be" is added after the word "immediately" in the last sentence.

BASES

ACTIONS (continued)

I.1

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

According to Reference 6, with both EDGs inoperable, operation may continue for a period that should not exceed 2 hours.

J.1

With two LCO 3.8.1.c required EDGs inoperable, as many as two required shared and potentially required components have no remaining standby AC sources. Thus, with an assumed loss of offsite power condition, the required shared components powered from the other unit would be significantly degraded. Therefore, the required shared component would immediately be declared inoperable and LCOs 3.7.8, 3.7.10, and 3.7.12 would provide the appropriate restrictions. |R3

K.1 and K.2

Condition K is modified by a Note indicating that separate Condition entry is allowed for each inoperable sequencing timing relay.

Condition K is entered any time a required sequencing timing relay (STR) becomes inoperable. Required Action K.1 directs the entry into the Required Actions and Completion Times associated for the individual component served by the inoperable relay. The instrumentation signals that provide the actuation are governed by LCO 3.3.2, "Engineered Safety Features Actuation System Instrumentation" for safety

(continued)

INSERT

J.1

With two LCO 3.8.1.c required EDGs inoperable, as many as two required shared and potentially required components have no remaining standby AC sources. Thus, with an assumed loss of offsite power condition, the required shared components powered from the other unit would be significantly degraded. Therefore, the required shared component would immediately be declared inoperable and LCOs 3.7.8, 3.7.10, and 3.7.12 would provide the appropriate restrictions. | R3

K.1 and K.2

Condition K is modified by a Note indicating that separate Condition entry is allowed for each inoperable sequencing timing relay.

Condition K is entered any time a required sequencing timing relay (STR) becomes inoperable. Required Action K.1 directs the entry into the Required Actions and Completion Times associated for the individual component served by the inoperable relay. The instrumentation signals that provide the actuation are governed by LCO 3.3.2, "Engineered Safety Features Actuation System Instrumentation" for safety injection (SI), Containment Spray (Containment Depressurization Actuation (CDA)) and LCO 3.3.5, "Loss of Power (LOP) Emergency Diesel Generator (EDG) Start Instrumentation" for the LOP.

The STRs provide a time delay for the individual component to close its breaker to the associated emergency electrical bus. Each component is sequenced onto the emergency bus by an initiating signal. Required Action K.2.1 provides for the immediate isolation of the component(s) ability to automatically load on an emergency bus with an inoperable STR. This provides an assurance that the component will not be loaded onto an emergency bus at an incorrect time. Improper loading sequence may cause the emergency bus to become inoperable rendering a component with an inoperable STR incapable of load to the emergency bus prevents a possible overload condition. Required Action K.2.2 provides an alternative option for isolating the component with an inoperable STR from the emergency bus by allowing the associated EDG to be declared inoperable.

ITS AND BASES CHANGES NOT ASSOCIATED WITH RAI RESPONSES

LCO 3.8.1

5. Bases section for SR 3.8.1.4: In the last sentence, the word "facility" is deleted as a descriptive word for operators.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.4

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

The 31 day Frequency is adequate to assure that a sufficient supply of fuel oil is available, since low level alarms are provided and operators would be aware of any large uses of fuel oil during this period. |R3

SR 3.8.1.5

Microbiological fouling is a major cause of fuel oil degradation. There are numerous bacteria that can grow in fuel oil and cause fouling, but all must have a water environment in order to survive. Removal of water from the fuel oil day tanks once every 92 days eliminates the necessary environment for bacterial survival. This is the most effective means of controlling microbiological fouling. In addition, it eliminates the potential for water entrainment in the fuel oil during EDG operation. Water may come from any of several sources, including condensation, ground water, rain water, contaminated fuel oil, and breakdown of the fuel oil by bacteria. Frequent checking for and removal of accumulated water minimizes fouling and provides data regarding the watertight integrity of the fuel oil system. The Surveillance Frequencies are consistent with the recommendations of Regulatory Guide 1.137 (Ref. 9). This SR is for preventative maintenance. The presence of water does not necessarily represent failure of this SR, provided the accumulated water is removed during the performance of this Surveillance.

SR 3.8.1.6

This Surveillance demonstrates that each required fuel oil transfer pump operates and transfers fuel oil from its associated storage tank to its associated day tank. This is required to support continuous operation of standby power sources. This Surveillance provides assurance that the fuel oil transfer pump is OPERABLE, the fuel oil piping system is

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.4 (continued)

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

SR 3.8.1.5

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

consistent with the recommendations of

SR 3.8.1.6

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

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

(continued)

Rev 3

ITS AND BASES CHANGES NOT ASSOCIATED WITH RAI RESPONSES

LCO 3.8.1

6. Bases section for SR 3.8.1.15: The first sentence is changed from, "As required by," to "Consistent with the recommendations of."

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.13 (continued)

the EDG. In such cases, the power factor shall be maintained as close as practicable to 0.9 without exceeding the EDG excitation limits.

SR 3.8.1.14

This Surveillance demonstrates that the diesel engine can restart from a hot condition, such as subsequent to shutdown from normal Surveillances, and achieve the required voltage and frequency within 10 seconds. The 10 second time is derived from the requirements of the accident analysis to respond to a design basis large break LOCA. The 18 month Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 8), paragraph 2.a.(5).

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

SR 3.8.1.15

Consistent with the recommendations of Regulatory Guide 1.108 (Ref. 8), paragraph 2.a.(6), this Surveillance ensures that the manual synchronization and automatic load transfer from the EDG to the offsite source can be made and the EDG can be returned to ready to load status when offsite power is restored. It also ensures that the autostart logic is reset to allow the EDG to reload if a subsequent loss of offsite power occurs. The EDG is considered to be in ready to load status when the EDG is at rated speed and voltage, the output breaker is open and can receive an autoclose signal on bus undervoltage, and the load sequencing timing relays are reset. EDG loading of the emergency bus is limited to normal energized loads. |R3

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.16

Consistent with the recommendations of Regulatory Guide 1.108 (Ref. 8), paragraph 2.a.(6), this Surveillance ensures that the manual synchronization and automatic load transfer from the DG to the offsite source can be made and the DG can be returned to ready to load status when offsite power is restored. It also ensures that the autostart logic is reset to allow the DG to reload if a subsequent loss of offsite power occurs. The DG is considered to be in ready to load status when the DG is at rated speed and voltage, the output breaker is open and can receive an autoclose signal on bus undervoltage, and the load sequencing relays are reset.

The Frequency of 18 months is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 8), paragraph 2.a.(6), and takes into consideration unit conditions required to perform the Surveillance.

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

SR 3.8.1.17

Demonstration of the test mode override ensures that the DG availability under accident conditions will not be compromised as the result of testing and the DG will automatically reset to ready to load operation if a LOCA actuation signal is received during operation in the test mode. Ready to load operation is defined as the DG running at rated speed and voltage with the DG output breaker open. These provisions for automatic switchover are required by IEEE-308 (Ref. 13), paragraph 6.2.6(2).

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

(continued)

Rev 3

ITS AND BASES CHANGES NOT ASSOCIATED WITH RAI RESPONSES

LCO 3.8.1

7. The word "plant" is replaced with "unit" for SRs 3.8.1.15 and 3.8.1.16 in the Bases.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.15 (continued)

The Frequency of 18 months is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 8), paragraph 2.a.(6), and takes into consideration unit conditions required to perform the Surveillance.

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. This restriction from normally performing the Surveillance in MODE 1, 2, 3, or 4 is further amplified to allow the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines unit safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed Surveillance, a successful Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a unit shutdown and startup to determine that unit safety is maintained or enhanced when the Surveillance is performed in MODE 1, 2, 3, or 4. Risk insights or deterministic methods may be used for this assessment. R3

SR 3.8.1.16

Under accident conditions, with a loss of offsite power, safety injection, containment spray, or recirculation spray, loads are sequentially connected to the bus by the automatic load sequencing timing relays. The sequencing timing relays control the permissive and starting signals to motor breakers to prevent overloading of the EDGs due to high motor starting currents. The load sequence time interval tolerances, listed in the Technical Requirements Manual (Ref. 12), ensure that sufficient time exists for the EDG to restore frequency and voltage prior to applying the next load and that safety analysis assumptions regarding ESF equipment time delays are not violated. Reference 2 provides a summary of the automatic loading of ESF buses. RAI 3.8.1-38 R3

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.16 (continued)

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

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. This restriction from normally performing the Surveillance in MODE 1, 2, 3, or 4 is further amplified to allow the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines unit safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed Surveillance, a successful Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a unit shutdown and startup to determine that unit safety is maintained or enhanced when the Surveillance is performed in MODE 1, 2, 3, or 4. Risk insights or deterministic methods may be used for this assessment. R3

SR 3.8.1.17

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

This Surveillance demonstrates the EDG operation, as discussed in the Bases for SR 3.8.1.10, during a loss of offsite power actuation test signal in conjunction with an ESF actuation signal. In lieu of actual demonstration of connection and loading of loads, testing that adequately shows the capability of the EDG system to perform these

(continued)

INSERT 1

EDG loading of the emergency bus is limited to normally energized loads.

INSERT 2

This restriction from normally performing the Surveillance in MODE 1, 2, 3, or 4 is further amplified to allow the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines unit safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed Surveillance, a successful Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a unit shutdown and startup to determine that unit safety is maintained or enhanced when the Surveillance is performed in MODE 1, 2, 3, or 4. Risk insights or deterministic methods may be used for this assessment. R3

INSERT 1

, listed in the Technical Requirements Manual (Ref. 12)

INSERT 2

This restriction from normally performing the Surveillance in MODE 1, 2, 3, or 4 is further amplified to allow the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines unit safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed Surveillance, a successful Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a unit shutdown and startup to determine that unit safety is maintained or enhanced when the Surveillance is performed in MODE 1, 2, 3, or 4. Risk insights or deterministic methods may be used for this assessment. R3

ITS AND BASES CHANGES NOT ASSOCIATED WITH RAI RESPONSES

LCO 3.8.1

8. Note to Action F modified.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One required LCO 3.8.1.c EDG inoperable.	E.1 Perform SR 3.8.1.1 for required offsite circuit(s).	1 hour AND Once per 8 hours thereafter
	AND	
	E.2 Declare required feature(s) supported by the inoperable EDG inoperable when its redundant required feature(s) is inoperable.	4 hours from discovery of Condition E concurrent with inoperability of redundant required feature(s)
	AND	
	E.3 Declare associated shared component inoperable.	14 days
F. --------NOTE---------- Only applicable if one or more LCO 3.8.1.b EDG(s) or AAC DG is inoperable. ---------- One required LCO 3.8.1.c EDG inoperable.	F.1.1 Restore inoperable AAC DG to OPERABLE status.	72 hours
	AND	
	F.1.2 Restore inoperable LCO 3.8.1.b EDG (s) to OPERABLE status.	72 hours
	OR	
	F.2 Declare associated shared component inoperable.	72 hours

R3

INSERT (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One required LCO 3.8.1.c EDG inoperable.	E.1 Perform SR 3.8.1.1 for required offsite circuit(s). AND	1 hour AND Once per 8 hours thereafter
	E.2 Declare required feature(s) supported by the inoperable EDG inoperable when its redundant required feature(s) is inoperable. AND	4 hours from discovery of Condition E concurrent with inoperability of redundant required feature(s)
	E.3 Declare associated shared component(s) inoperable.	14 days
F. ----------NOTE---------- Only applicable if one or more LCO 3.8.1.b EDG(s) or AAC DG is inoperable. ---------- One required LCO 3.8.1.c EDG inoperable.	F.1.1 Restore inoperable AAC DG to OPERABLE status. AND	72 hours
	F.1.2 Restore inoperable LCO 3.8.1.b EDG(s) to OPERABLE status. OR	72 hours
	F.2 Declare associated shared component(s) inoperable.	72 hours

R3

ITS AND BASES CHANGES NOT ASSOCIATED WITH RAI RESPONSES

LCO 3.8.2

9. ISTS markup for LCO part b adds the word, "emergency."

CTS

3.8 ELECTRICAL POWER SYSTEMS

3.8.1.2 ### 3.8.2 AC Sources—Shutdown

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

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

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

(1) R3

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

TSTF 51

TSTF 36 (4)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
New Action b A. One required offsite circuit inoperable.	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.10, with one required train de-energized as a result of Condition A. ----------	
NEW	A.1 Declare affected required feature(s) with no offsite power available inoperable.	Immediately
	OR	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
		(continued)

Rev 3

ITS AND BASES CHANGES NOT ASSOCIATED WITH RAI RESPONSES

LCO 3.8.3

10. Unit 2 CTS markup page 5 of 5 Action b: The word, "underground," is lined out.

A.1

ITS ELECTRICAL POWER SYSTEMS

SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.1.2 As a minimum, one of the following trains of A.C. electrical power sources shall be OPERABLE:

a. One circuit between the offsite transmission network and the onsite Class 1E distribution system, and

b. One emergency diesel generator with:

1. A day tank containing a minimum volume of 450 gallons of fuel;

2. A fuel storage system consisting of two underground storage tanks each containing a minimum volume of 45,000 gallons of fuel (This is a shared system with Unit 1), and

3. A fuel transfer system.

LA.1

See ITS SR 3.8.3.1

APPLICABILITY:

a. Modes 5 and 6

b. During movement of irradiated fuel assemblies or loads over irradiated fuel assemblies when no fuel assemblies are in the reactor vessel.

See ITS 3.8.2

ACTION:

a. With less than the above minimum required A.C. electrical power sources OPERABLE, immediately suspend all operations involving CORE ALTERATIONS, positive reactivity changes, movement of irradiated fuel assemblies, and movement of loads over irradiated fuel assemblies until the minimum required A.C. electrical power sources are restored to OPERABLE status.

b. With one underground fuel oil storage tank of 3.8.1.2.b.2 inoperable for the performance of Surveillance Requirement 4.8.1.1.4 or for tank repairs:

LA.1 R3

LA.4

LA.1

Action A

A.2 1. Verify 45,000 gallons of fuel is available in the operable underground fuel oil storage tank at least once per 12 hours,

A.3 2. Verify a minimum of 100,000 gallons of fuel oil is maintained in the above ground main fuel oil storage tank at least once per 12 hours,

RAI 3.8.3-01 R3

A.1 3. Verify an available source of fuel oil and transportation to supply 50,000 gallons of fuel in less than a 48 hour period, and

LA.2

Action B

A.4 4. Restore the storage tank to OPERABLE status within 7 days or place both Units in at least HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours, and perform ACTION a. above.

the UNIT

A.1

SURVEILLANCE REQUIREMENTS

4.8.1.2 The above required A.C. electrical power sources shall be demonstrated OPERABLE by the performance of each of the Surveillance Requirements of 4.8.1.1.1, 4.8.1.1.2, 4.8.1.1.3 and 4.8.1.1.4.

See ITS 3.8.2

See ITS 3.8.1.5

LA.4

RAI 3.8.3-01 R3

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ITS AND BASES CHANGES NOT ASSOCIATED WITH RAI RESPONSES

LCO 3.8.3

11. ISTS insert for Action A contained two A.2 actions. The second "A.2" is changed to "A.3."

INSERT

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One fuel oil storage tank not within limits.	A.1 Verify replacement fuel oil is available. AND A.2 Verify remaining fuel oil storage tank contains ≥ 45,000 gal. AND A.3 Verify above ground fuel oil tank contains ≥ 100,000 gal. AND A.4 Restore fuel oil storage tank to within limits.	Prior to removing tank from service Once per 12 hours Once per 12 hours 7 days
B. Required Action and associated Completion Time for Condition A not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

R3

ITS AND BASES CHANGES NOT ASSOCIATED WITH RAI RESPONSES

LCO 3.8.4

12. The word "plant" is replaced with "unit" for Required Actions B.1 and B.2 in the Bases and SRs 3.8.4.8 and 3.8.4.9 in the Specification and Bases.

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.4.8	----------NOTES---------- 1. The modified performance discharge test in SR 3.8.4.9 may be performed in lieu of the service test in SR 3.8.4.8. 2. The performance discharge test in SR 3.8.4.9 may be performed in lieu of the service test in SR 3.8.4.8 once every 60 months. 3. This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the unit is maintained or enhanced. ----------	
	Verify for each required Station battery, capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.	18 months
SR 3.8.4.9	----------NOTE---------- This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4 for Station batteries. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the unit is maintained or enhanced. ----------	
	Verify for each required Station and EDG battery, capacity is ≥ 80% of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test.	60 months AND 18 months when battery shows degradation or has reached 85% of expected life

BASES

ACTIONS

A.1 (continued)

Regulatory Guide 1.93 (Ref. 8) and reflects a reasonable time to assess unit status as a function of the inoperable DC electrical power subsystem and, if the DC electrical power subsystem is not restored to OPERABLE status, to prepare to effect an orderly and safe unit shutdown.

B.1 and B.2

If the inoperable DC electrical power subsystem cannot be restored to OPERABLE status within the required Completion Time, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. The Completion Time to bring the unit to MODE 5 is consistent with the time required in Regulatory Guide 1.93 (Ref. 8). |R3

C.1

Condition C represents the loss of the ability of the EDG DC system (e.g., inoperable battery charger or inoperable battery) to supply necessary power to the associated EDG. In this condition, the associated EDG is immediately declared inoperable and the associated Conditions or Required Actions of LCO 3.8.1 are followed.

D.1

Condition D represents the loss of one or more required LCO 3.8.4.c DC electrical power subsystem(s) needed to support the operation of required shared components on the other unit. SW, MCR/ESGR EVS, and Auxiliary Building central exhaust system are shared systems. In this condition, the associated required shared components are declared inoperable immediately. The associated Conditions or Required Actions of LCO 3.7.8, "Service Water System," LCO 3.7.10, "MCR/ESGR Emergency Ventilation Systems," and LCO 3.7.12, "Emergency Core Cooling System Pump Room Exhaust Air Cleanup System," are followed.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.4.8 (continued)

The reason for Note 3 is that performing the Surveillance on the Station batteries would perturb the electrical distribution system and challenge safety systems. This restriction from normally performing the Surveillance in MODE 1, 2, 3, or 4 is further amplified to allow portions of the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines unit safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed partial Surveillance, a successful partial Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the partial Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of the unit shutdown and startup to determine that unit safety is maintained or enhanced when portions of the Surveillance are performed in MODE 1, 2, 3, or 4. Risk insights or deterministic methods may be used for this assessment. R3 R3

SR 3.8.4.9

A battery performance discharge test for Station and EDG batteries is a test of constant current capacity of a battery to detect any change in the capacity determined by the acceptance test. The test is intended to determine overall battery degradation due to age and usage.

A battery modified performance discharge test is described in the Bases for SR 3.8.4.8. Either the battery performance discharge test or the modified performance discharge test is acceptable for satisfying SR 3.8.4.9.

The acceptance criteria for this Surveillance are consistent with IEEE-450 (Ref. 9) and IEEE-485 (Ref. 5). These references recommend that the battery be replaced if its capacity is below 80% of the manufacturer's rating. A capacity of 80% shows that the battery rate of deterioration is increasing, even if there is ample capacity to meet the load requirements.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.4.9 (continued)

The Surveillance Frequency for this test is normally 60 months. If the battery shows degradation, or if the battery has reached 85% of its expected life, the Surveillance Frequency is reduced to 18 months. Degradation is indicated, according to IEEE-450 (Ref. 9), when the battery capacity drops by more than 10% relative to its capacity on the previous performance test or when it is $\geq$ 10% below the manufacturer's rating. The 60 month Frequency is consistent with the recommendations in IEEE-450 (Ref. 9) and the 18 month Frequency is consistent with operating experience.

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would perturb the electrical distribution system and challenge safety systems for the Station batteries. This restriction from normally performing the Surveillance in MODE 1, 2, 3, or 4 is further amplified to allow portions of the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines unit safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed partial Surveillance, a successful partial Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the partial Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of the unit shutdown and startup to determine that unit safety is maintained or enhanced when portions of the Surveillance are performed in MODE 1, 2, 3, or 4. Risk insights or deterministic methods may be used for this assessment. |R3 |R3

REFERENCES

1. UFSAR, Chapter 3.
2. Safety Guide 6, March 10, 1971.
3. IEEE-308-1971.
4. UFSAR, Chapter 8.

CTS

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.8.4.6 ----------NOTE---------- This Surveillance shall not be performed in MODE 1, 2, 3, or 4. However, credit may be taken for unplanned events that satisfy this SR. ---------- required station Verify each battery charger supplies ≥ 400 amps at ≥ 125 V for ≥ 8 hours. SR 3.8.4.7 270 4	18 months (INSERT)
SR 3.8.4.8 ----------NOTES---------- 1. The modified performance discharge test in SR 3.8.4.8 may be performed in lieu of the service test in SR 3.8.4.7 once per 60 months. 2. This Surveillance shall not be normally performed in MODE 1, 2, 3, or 4. However, credit may be taken for unplanned events that satisfy this SR. ---------- for each required station Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.	18 months

(continued)

4.8.2.3.2.c.4

4.8.1.1.3 c.4

NEW
4.8.2.3.2.e
4.8.2.3.2.f

4.8.2.3.2.d

4 TSTF-8

6 5 1

6 TSTF-360 INSERT 7 TSTF 285 INSERT 3 TSTF 283 TSTF 8 6 5 2 R3

Rev 3

INSERT 1

SURVEILLANCE		FREQUENCY
SR 3.8.4.7	Verify each required EDG battery charger supplies ≥ 10 amps at ≥ 125 V for ≥ 4 hours.	18 months

INSERT 2

2. The performance discharge test in SR 3.8.4.9 may be performed in lieu of the service test in SR 3.8.4.8 once every 60 months.

INSERT 3

However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the unit is maintained or enhanced. R3

CTS

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.8.4 (9) (for station batteries) ----------NOTE---------- (NORMALLY) This Surveillance shall not be performed in MODE 1, 2, 3, or 4. However, credit may be taken for unplanned events that satisfy this SR. ---------- <INSERT> TSTF 283 (6) (2) R3 TSTF 8	
Verify battery capacity is ≥ 80% of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test. (for each required station and EOG)	60 months (6) (5) AND 12 (18) months when battery shows degradation or has reached 85% of expected life with capacity < 100% of manufacturer's rating (3) (5) AND 24 months when battery has reached [85]% of the expected life with capacity ≥ 100% of manufacturer's rating (3)

4.8.2.3.2 e,f
4.8.1.1.3 d,e

Rev 3

INSERT

However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the unit is maintained or enhanced. | R3

BASES

ACTIONS

B.1 and B.2 (continued)

within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging plant systems. The Completion Time to bring the unit to MODE 5 is consistent with the time required in Regulatory Guide 1.93 (Ref. 8).

SURVEILLANCE REQUIREMENTS

SR 3.8.4.1

Verifying battery terminal voltage while on float charge for the batteries helps to ensure the effectiveness of the charging system and the ability of the batteries to perform their intended function. Float charge is the condition in which the charger is supplying the continuous charge required to overcome the internal losses of a battery (or battery cell) and maintain the battery (or a battery cell) in a fully charged state. The voltage requirements are based on the nominal design voltage of the battery and are consistent with the initial voltages assumed in the battery sizing calculations. The 7 day Frequency is consistent with manufacturer recommendations and IEEE-450 (Ref. 9).

SR 3.8.4.2

Visual inspection to detect corrosion of the battery cells and connections, or measurement of the resistance of each intercell, interrack, intertier, and terminal connection, provides an indication of physical damage or abnormal deterioration that could potentially degrade battery performance.

The limits established for this SR must be no more than 20% above the resistance as measured during installation or not above the ceiling value established by the manufacturer.

The Surveillance Frequency for these inspections, which can detect conditions that can cause power losses due to resistance heating, is 92 days. This Frequency is considered acceptable based on operating experience related to detecting corrosion trends.

(continued)

Rev 3

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.4.7 (continued)

This SR is modified by two Notes. Note 1 allows the performance of a modified performance discharge test in lieu of a service test once per 60 months.

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

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

The reason for Note 2 is that performing the Surveillance would perturb the electrical distribution system and challenge safety systems. Credit may be taken for unplanned events that satisfy this SR.

SR 3.8.4.8

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

(continued)

Rev. 3

INSERT 1

Note 2 allows the performance discharge test in lieu of the service test once per 60 months.

INSERT 2

This restriction from normally performing the Surveillance in MODE 1, 2, 3, or 4 is further amplified to allow portions of the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines unit safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed partial Surveillance, a successful partial Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the partial Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of the unit shutdown and startup to determine that unit safety is maintained or enhanced when portions of the Surveillance are performed in MODE 1, 2, 3, or 4. Risk insights or deterministic methods may be used for this assessment. R3 R3

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.4.8 (continued)

A battery modified performance discharge test is described in the Bases for SR 3.8.4.7. Either the battery performance discharge test or the modified performance discharge test is acceptable for satisfying SR 3.8.4.8; however, only the modified performance discharge test may be used to satisfy SR 3.8.4.8 while satisfying the requirements of SR 3.8.4.7 at the same time.

The acceptance criteria for this Surveillance are consistent with IEEE-450 (Ref. 9) and IEEE-485 (Ref. 5). These references recommend that the battery be replaced if its capacity is below 80% of the manufacturer's rating. A capacity of 80% shows that the battery rate of deterioration is increasing, even if there is ample capacity to meet the load requirements.

The Surveillance Frequency for this test is normally 60 months. If the battery shows degradation, or if the battery has reached 85% of its expected life and capacity is < 100% of the manufacturer's rating, the Surveillance Frequency is reduced to 12 months. However, if the battery shows no degradation but has reached 85% of its expected life, the Surveillance Frequency is only reduced to 24 months for batteries that retain capacity ≥ 100% of the manufacturer's rating. Degradation is indicated, according to IEEE-450 (Ref. 9), when the battery capacity drops by more than 10% relative to its capacity on the previous performance test or when it is ≥ 10% below the manufacturer's rating. These Frequencies are consistent with the recommendations in IEEE-450 (Ref. 9).

The 60 month frequency is

and the 18 month Frequency is consistent with operating experience

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

TSTF 8

<INSERT> for the station batteries

TSTF 283 R3

REFERENCES

1. 10 CFR 50, Appendix A, GDC 17 (Safety) UFSAR, Chapter 3,
2. Regulatory Guide 1.6, March 10, 1971.
3. IEEE-308-1978. 1971

(continued)

Rev 3

INSERT

This restriction from normally performing the Surveillance in MODE 1, 2, 3, or 4 is further amplified to allow portions of the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines unit safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed partial Surveillance, a successful partial Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the partial Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of the unit shutdown and startup to determine that unit safety is maintained or enhanced when portions of the Surveillance are performed in MODE 1, 2, 3, or 4. Risk insights or deterministic methods may be used for this assessment. | R3 | R3

ITS AND BASES CHANGES NOT ASSOCIATED WITH RAI RESPONSES

LCO 3.8.9

13. Action D the sentence, "The bus is de-energized," is deleted in the Bases.

BASES

ACTIONS

C.1 (continued)

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

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

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

The second Completion Time for Required Action C.1 establishes a limit on the maximum time allowed for any combination of required distribution subsystems to be inoperable during any single contiguous occurrence of failing to meet the LCO. If Condition C is entered while, for instance, an AC bus is inoperable and subsequently returned OPERABLE, the LCO may already have been not met for up to 8 hours. This could lead to a total of 10 hours, since initial failure of the LCO, to restore the DC distribution system. At this time, an AC train could again become inoperable, and DC distribution 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 will result in establishing the "time zero" at the time the LCO was initially not met, instead of the time Condition C was entered. The 16 hour Completion Time is an acceptable limitation on this potential to fail to meet the LCO indefinitely.

D.1

With one or more required LCO 3.8.9.b AC electrical power distribution subsystem(s) inoperable, the shared component(s) on the other unit is not capable of operating. [R3] In this condition, the associated shared component is declared inoperable immediately. SW, MCR/ESGR EVS, and Auxiliary Building central exhaust system are shared systems. The associated Conditions or Required Actions of LCO 3.7.8, "Service Water System," LCO 3.7.10, "MCR/ESGR

(continued)

INSERT 1

D.1

With one or more required LCO 3.8.9.b AC electrical power distribution subsystem(s) inoperable, the shared component(s) on the other unit is not capable of operating. In this condition, the associated shared component is declared inoperable immediately. SW, MCR/ESGR EVS, and Auxiliary Building central exhaust system are shared systems. The associated Conditions or Required Actions of LCO 3.7.8, "Service Water System," LCO 3.7.10, "MCR/ESGR Emergency Ventilation System," and LCO 3.7.12, "Emergency Core Cooling System Pump Room Exhaust Air Cleanup System," are followed. | R3

E.1

With one or more required LCO 3.8.9.b DC electrical power distribution subsystem(s) inoperable, the shared component(s) on the other unit is not capable of operating. In this condition, the associated shared component is declared inoperable immediately. SW, MCR/ESGR EVS, and Auxiliary Building central exhaust system are shared systems. The associated Conditions or Required Actions of LCO 3.7.8, LCO 3.7.10, and LCO 3.7.12 are followed.

INSERT 2

Condition G 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 inoperable LCO 3.8.9.a electrical power distribution subsystem results in the loss of a required function, the unit 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. | R3

ITS AND BASES CHANGES NOT ASSOCIATED WITH RAI RESPONSES

LCO 3.8.9

14. The word "plant" is replaced with "unit" for Action G in the Bases.

BASES

ACTIONS

D.1 (continued)

Emergency Ventilation System," and LCO 3.7.12, "Emergency Core Cooling System Pump Room Exhaust Air Cleanup System," are followed.

E.1

With one or more required LCO 3.8.9.b DC electrical power distribution subsystem(s) inoperable, the shared component(s) on the other unit is not capable of operating. In this condition, the associated shared component is declared inoperable immediately. SW, MCR/ESGR EVS, and Auxiliary Building central exhaust system are shared systems. The associated Conditions or Required Actions of LCO 3.7.8, 3.7.10, and 3.7.12 are followed.

F.1 and F.2

If the inoperable LCO 3.8.9.a distribution subsystem cannot be restored to OPERABLE status within the required Completion Time, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

G.1

Condition G 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 inoperable LCO 3.8.9.a electrical power distribution subsystem results in the loss of a required function, the unit 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. R3

SURVEILLANCE REQUIREMENTS

SR 3.8.9.1

This Surveillance verifies that the required AC, DC, and AC vital bus electrical power distribution systems are functioning properly, with the correct circuit breaker

(continued)

INSERT 1

D.1

With one or more required LCO 3.8.9.b AC electrical power distribution subsystem(s) inoperable, the shared component(s) on the other unit is not capable of operating. In this condition, the associated shared component is declared inoperable immediately. SW, MCR/ESGR EVS, and Auxiliary Building central exhaust system are shared systems. The associated Conditions or Required Actions of LCO 3.7.8, "Service Water System," LCO 3.7.10, "MCR/ESGR Emergency Ventilation System," and LCO 3.7.12, "Emergency Core Cooling System Pump Room Exhaust Air Cleanup System," are followed. | R3

E.1

With one or more required LCO 3.8.9.b DC electrical power distribution subsystem(s) inoperable, the shared component(s) on the other unit is not capable of operating. In this condition, the associated shared component is declared inoperable immediately. SW, MCR/ESGR EVS, and Auxiliary Building central exhaust system are shared systems. The associated Conditions or Required Actions of LCO 3.7.8, LCO 3.7.10, and LCO 3.7.12 are followed.

INSERT 2

Condition G 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 inoperable LCO 3.8.9.a electrical power distribution subsystem results in the loss of a required function, the unit 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. | R3