# Enclosure

# ITS Section 3.3
# Instrumentation
# Revision 3

**Enclosure Contents**

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# SUMMARY DESCRIPTION of ITS/BASES CHANGES
# ITS SECTION 3.3 - INSTRUMENTATION
# REVISION 3

TVA is submitting a proposed supplement to TS-362 to ITS Section 3.3.8.1, Loss of Power (LOP) Instrumentation, as described below.

LCO 3.3.8.1 LCO, Actions, and Associated Bases

In response to NRC Section 3.3 reviewer comments, ITS Section 3.3.8.1 has been modified to better reflect Current Technical Specifications requirements for loss of power instrumentation requirements in Standard Technical Specifications, NUREG-1433, Revision 1 format.

BROWNS FERRY NUCLEAR PLANT - IMPROVED TECHNICAL SPECIFICATIONS
SECTION 3.3
REVISION 3
LIST OF REVISED PAGES

UNIT 1 ITS LCO SECTION (Revised pages marked *R3)

Replaced 3.3-67 Revision 2 with 3.3-67 Revision 3
Replaced 3.3-68 Revision 2 with 3.3-68 Revision 3

## 3.3 INSTRUMENTATION

### 3.3.8.1 Loss of Power (LOP) Instrumentation

LCO 3.3.8.1 The LOP instrumentation for each Table 3.3.8.1-1 Function on 4 kV shutdown boards A, B, C, and D shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
When the associated diesel generator is required to be OPERABLE by LCO 3.8.2, "AC Sources – Shutdown."

ACTIONS

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

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. One degraded voltage relay channel inoperable on one or more shutdown board(s).<br><br>AND<br><br>The loss of voltage relay channels on the affected shutdown board(s) are OPERABLE. | A.1 Verify by administrative means that the other two degraded voltage relay channels and associated timers on the affected shutdown board(s) are OPERABLE.<br><br>AND<br><br>A.2 Place the degraded voltage relay channel in trip. | Immediately<br><br>15 days |

(continued)

ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| B. Two or more degraded voltage relay channels inoperable on one or more shutdown board(s) or one or more associated timer(s) inoperable on one or more shutdown board(s).<br><br>AND<br><br>The loss of voltage relay channels on each affected shutdown board are OPERABLE. | B.1 Place the inoperable degraded voltage relay channel(s) in trip. | 10 days |
| C. One or more loss of voltage relay channels inoperable on one or more shutdown board(s).<br><br>AND<br><br>Two or more degraded voltage relay channels and associated timers on each affected shutdown board are OPERABLE. | C.1 Place the inoperable loss of voltage relay channel(s) in trip. | 10 days |

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UNIT 2 ITS LCO SECTION (Revised pages marked *R3)

Replaced 3.3-67 Revision 2 with 3.3-67 Revision 3
Replaced 3.3-68 Revision 2 with 3.3-68 Revision 3

## 3.3 INSTRUMENTATION

### 3.3.8.1 Loss of Power (LOP) Instrumentation

LCO 3.3.8.1 The LOP instrumentation for each Table 3.3.8.1-1 Function on 4 kV shutdown boards A, B, C, and D shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
When the associated diesel generator is required to be OPERABLE by LCO 3.8.2, "AC Sources – Shutdown."

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each channel.
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| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. One degraded voltage relay channel inoperable on one or more shutdown board(s).<br><br>AND<br><br>The loss of voltage relay channels on the affected shutdown board(s) are OPERABLE. | A.1 Verify by administrative means that the other two degraded voltage relay channels and associated timers on the affected shutdown board(s) are OPERABLE.<br><br>AND<br><br>A.2 Place the degraded voltage relay channel in trip. | Immediately<br><br>15 days |

(continued)

ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| B. Two or more degraded voltage relay channels on one or more shutdown board(s) or one or more associated timer(s) inoperable on one or more shutdown board(s).<br><br>AND<br><br>The loss of voltage relay channels on each affected shutdown board are OPERABLE. | B.1 Place the inoperable degraded voltage relay channel(s) in trip. | 10 days |
| C. One or more loss of voltage relay channels inoperable on one or more shutdown board(s).<br><br>AND<br><br>Two or more degraded voltage relay channels and associated timers on each affected shutdown board are OPERABLE. | C.1 Place the inoperable loss of voltage relay channel(s) in trip. | 10 days |

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UNIT 3 ITS LCO SECTION (Revised pages marked *R3)

Replaced 3.3-67 Revision 2 with 3.3-67 Revision 3
Replaced 3.3-68 Revision 2 with 3.3-68 Revision 3

## 3.3 INSTRUMENTATION

### 3.3.8.1 Loss of Power (LOP) Instrumentation

LCO 3.3.8.1 The LOP instrumentation for each Table 3.3.8.1-1 Function on 4 kV shutdown boards 3EA, 3EB, 3EC, and 3ED shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
When the associated diesel generator is required to be OPERABLE by LCO 3.8.2, "AC Sources – Shutdown."

ACTIONS

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

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. One degraded voltage relay channel inoperable on one or more shutdown board(s).<br><br>AND<br><br>The loss of voltage relay channels on the affected shutdown board(s) are OPERABLE. | A.1 Verify by administrative means that the other two degraded voltage relay channels and associated timers on the affected shutdown board(s) are OPERABLE.<br><br>AND<br><br>A.2 Place the degraded voltage relay channel in trip. | Immediately<br><br>15 days |

(continued)

ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| B. Two or more degraded voltage relay channels inoperable on one or more shutdown board(s) or one or more associated timer(s) inoperable on one or more shutdown board(s).<br><br>AND<br><br>The loss of voltage relay channels on each affected shutdown board are OPERABLE. | B.1 Place the inoperable degraded voltage relay channel(s) in trip. | 10 days |
| C. One or more loss of voltage relay channels inoperable on one or more shutdown board(s).<br><br>AND<br><br>Two or more degraded voltage relay channels and associated timers on each affected shutdown board are OPERABLE. | C.1 Place the inoperable loss of voltage relay channel(s) in trip. | 10 days |

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Replaced B 3.3-119 Revision 1 with B 3.3-119 Revision 3 (Change discussed in Rev. 2)
Replaced B 3.3-204 Revision 2 with B 3.3-204 Revision 3
Replaced B 3.3-205 Revision 2 with B 3.3-205 Revision 3
Replaced B 3.3-206 Revision 2 with B 3.3-206 Revision 3

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

3.e. Suppression Pool Water Level - High (LS-73-57A and B) (continued)

Suppression Pool Water Level - High signals are initiated from two level switches. The logic is arranged such that either switch can cause the suppression pool suction valves to open and the CST suction valve to close. The Allowable Value for the Suppression Pool Water Level - High Function is chosen to ensure that HPCI will be aligned for suction from the suppression pool before the water level reaches the point at which suppression pool design loads would be exceeded.

One channel of Suppression Pool Water Level - High Function is required to be OPERABLE only when HPCI is required to be OPERABLE. Refer to LCO 3.5.1 for HPCI Applicability Bases.

3.f. High Pressure Coolant Injection Pump Discharge Flow - Low (Bypass) (FIS-73-33)

The minimum flow instrument is provided to protect the HPCI pump from overheating when the pump is operating at reduced flow. The minimum flow line valve is opened when low flow is sensed, and the valve is automatically closed when the flow rate is adequate to protect the pump. The High Pressure Coolant Injection Pump Discharge Flow - Low Function will close the minimum flow valve, but is not required to ensure that the ECCS flow assumed during the transients and accidents analyzed in References 2 and 3 is met. The core cooling function of the ECCS, along with the scram action of the RPS, ensures that the fuel peak cladding temperature remains below the limits of 10 CFR 50.46.

One flow switch is used to detect the HPCI System's flow rate. The logic is arranged such that the switch causes the minimum flow valve to open. The logic will close the minimum flow valve once the closure setpoint is exceeded.

The High Pressure Coolant Injection Pump Discharge Flow - Low Allowable Value is high enough to ensure that pump flow rate is sufficient to protect the pump, yet low enough

(continued)

BASES

ACTIONS (continued)

As such, a Note has been provided that allows separate Condition entry for each inoperable LOP instrumentation channel.

A.1 and A.2

With one of the degraded voltage relay channels inoperable on one or more shutdown boards and with the loss of voltage relay channels on the affected shutdown board(s) OPERABLE, Required Action A.2 provides a 15 day allowable out of service time to restore the relay channel to OPERABLE status provided the other two degraded voltage relay channels and associated timers are OPERABLE. Immediate verification of the OPERABILITY of the other degraded voltage relay channels and associated timers is therefore required (Required Action A.1). This may be performed as an administrative check by examining logs or other information to determine if this equipment is out of service for maintenance or other reasons. It does not mean to perform the Surveillances needed to demonstrate OPERABILITY of this equipment. If the OPERABILITY of this equipment cannot be verified, however, Condition C or D, as applicable, must be entered immediately. The 15 day allowable out of service time is justified based on the two-out-of-three permissive logic scheme provided for these relays. If the inoperable relay channel cannot be restored to OPERABLE status within the allowable out of service time, the degraded voltage relay channel must be placed in the tripped condition per Required Action A.2. Placing the inoperable channel in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure (within the LOP instrumentation), and allow operation to continue. Alternately, if it is not desired to place the channel in trip (e.g., as in the case where placing the channel in trip would result in a DG initiation), Condition E must be entered and its Required Action taken.

(continued)

BASES

ACTIONS (continued)

B.1

With two or more degraded voltage relay channels or one or more associated timers inoperable on one or more shutdown boards, the Function is not capable of performing the intended function. Required Action B.1 provides a 10 day allowable out of service time provided the loss of voltage relay channels on the affected shutdown board(s) are OPERABLE.

The 10 day allowable out of service time is justified since the loss of voltage relay channels on the same shutdown board are independent of the degraded voltage relay channel(s) and will continue to function and start the diesel generators on a complete loss of voltage. If the inoperable channel(s) cannot be restored to OPERABLE status within the allowable out of service time, the channel(s) must be placed in the tripped condition per Required Action B.1. Placing the inoperable channel(s) in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure (within the LOP instrumentation), and allow operation to continue. Alternately, if it is not desired to place the channel(s) in trip (e.g., as in the case where placing the channel(s) in trip would result in a DG initiation), Condition E must be entered and its Required Action taken.

C.1.

With one or more loss of voltage relay channels inoperable on one or more shutdown boards, the Function is not capable of performing the intended function. Required Action C.1 provides a 10 day allowable out of service time provided two or more degraded voltage relay channels and associated timers on the affected shutdown board(s) are OPERABLE. The 10 day allowable out of service time is justified since the degraded voltage relay channels on the same shutdown board are independent of the loss of voltage relay channels and will continue to function and start the diesel generators on a complete loss of voltage. If the inoperable channels

(continued)

BASES

ACTIONS

C.1 (continued)

cannot be restored to OPERABLE status within the allowable out of service time, the channel(s) must be placed in the tripped condition per Required Action C.1. Placing the inoperable channel(s) in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure (within the LOP instrumentation), and allow operation to continue. Alternately, if it is not desired to place the channel(s) in trip (e.g., as in the case where placing the channel(s) in trip would result in a DG initiation), Condition E must be entered and its Required Action taken.

D.1 and D.2

With two or more degraded voltage relay channels or one or more associated timers and the loss of voltage relay channel(s) inoperable on the same shutdown board, the associated diesel generator will not automatically start upon degraded voltage or complete loss of voltage on that shutdown board. In this situation, Required Action D.2 provides a 5 day allowable out of service time provided the other shutdown boards and undervoltage relay channels are OPERABLE. Immediate verification of the OPERABILITY of the other shutdown boards and undervoltage relay channels is therefore required (Required Action D.1). This may be performed as an administrative check by examining logs or other information to determine if this equipment is out of service for maintenance or other reasons. It does not mean to perform the Surveillances needed to demonstrate OPERABILITY of this equipment. If the OPERABILITY of this equipment cannot be verified, however, Condition E must be entered immediately. The 5 day allowable out of service time is justified based on the remaining redundancy of the 4.16 kV Shutdown Boards. The 4.16 kV Shutdown Boards have a

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Replaced B 3.3-119 Revision 1 with B 3.3-119 Revision 3 (Change discussed in Rev. 2)
Replaced B 3.3-204 Revision 2 with B 3.3-204 Revision 3
Replaced B 3.3-205 Revision 2 with B 3.3-205 Revision 3
Replaced B 3.3-206 Revision 2 with B 3.3-206 Revision 3

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

3.e. Suppression Pool Water Level - High (LS-73-57A and B) (continued)

Suppression Pool Water Level - High signals are initiated from two level switches. The logic is arranged such that either switch can cause the suppression pool suction valves to open and the CST suction valve to close. The Allowable Value for the Suppression Pool Water Level - High Function is chosen to ensure that HPCI will be aligned for suction from the suppression pool before the water level reaches the point at which suppression pool design loads would be exceeded.

One channel of Suppression Pool Water Level - High Function is required to be OPERABLE only when HPCI is required to be OPERABLE. Refer to LCO 3.5.1 for HPCI Applicability Bases.

3.f. High Pressure Coolant Injection Pump Discharge Flow - Low (Bypass) (FIS-73-33)

The minimum flow instrument is provided to protect the HPCI pump from overheating when the pump is operating at reduced flow. The minimum flow line valve is opened when low flow is sensed, and the valve is automatically closed when the flow rate is adequate to protect the pump. The High Pressure Coolant Injection Pump Discharge Flow - Low Function will close the minimum flow valve, but is not required to ensure that the ECCS flow assumed during the transients and accidents analyzed in References 2 and 3 is met. The core cooling function of the ECCS, along with the scram action of the RPS, ensures that the fuel peak cladding temperature remains below the limits of 10 CFR 50.46.

One flow switch is used to detect the HPCI System's flow rate. The logic is arranged such that the switch causes the minimum flow valve to open. The logic will close the minimum flow valve once the closure setpoint is exceeded.

The High Pressure Coolant Injection Pump Discharge Flow - Low Allowable Value is high enough to ensure that pump flow rate is sufficient to protect the pump, yet low enough

(continued)

BASES

ACTIONS (continued)

As such, a Note has been provided that allows separate Condition entry for each inoperable LOP instrumentation channel.

A.1 and A.2

With one of the degraded voltage relay channels inoperable on one or more shutdown boards and with the loss of voltage relay channels on the affected shutdown board(s) OPERABLE, Required Action A.2 provides a 15 day allowable out of service time to restore the relay channel to OPERABLE status provided the other two degraded voltage relay channels and associated timers are OPERABLE. Immediate verification of the OPERABILITY of the other degraded voltage relay channels and associated timers is therefore required (Required Action A.1). This may be performed as an administrative check by examining logs or other information to determine if this equipment is out of service for maintenance or other reasons. It does not mean to perform the Surveillances needed to demonstrate OPERABILITY of this equipment. If the OPERABILITY of this equipment cannot be verified, however, Condition C or D, as applicable, must be entered immediately. The 15 day allowable out of service time is justified based on the two-out-of-three permissive logic scheme provided for these relays. If the inoperable relay channel cannot be restored to OPERABLE status within the allowable out of service time, the degraded voltage relay channel must be placed in the tripped condition per Required Action A.2. Placing the inoperable channel in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure (within the LOP instrumentation), and allow operation to continue. Alternately, if it is not desired to place the channel in trip (e.g., as in the case where placing the channel in trip would result in a DG initiation), Condition E must be entered and its Required Action taken.

(continued)

BASES

ACTIONS (continued)

B.1

With two or more degraded voltage relay channels or one or more associated timers inoperable on one or more shutdown boards, the Function is not capable of performing the intended function. Required Action B.1 provides a 10 day allowable out of service time provided the loss of voltage relay channels on the affected shutdown board(s) are OPERABLE.

The 10 day allowable out of service time is justified since the loss of voltage relay channels on the same shutdown board are independent of the degraded voltage relay channel(s) and will continue to function and start the diesel generators on a complete loss of voltage. If the inoperable channel(s) cannot be restored to OPERABLE status within the allowable out of service time, the channel(s) must be placed in the tripped condition per Required Action B.1. Placing the inoperable channel(s) in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure (within the LOP instrumentation), and allow operation to continue. Alternately, if it is not desired to place the channel(s) in trip (e.g., as in the case where placing the channel(s) in trip would result in a DG initiation), Condition E must be entered and its Required Action taken.

C.1

With one or more loss of voltage relay channels inoperable on one or more shutdown boards, the Function is not capable of performing the intended function. Required Action C.1 provides a 10 day allowable out of service time provided two or more degraded voltage relay channels and associated timers on the affected shutdown board(s) are OPERABLE. The 10 day allowable out of service time is justified since the degraded voltage relay channels on the same shutdown board are independent of the loss of voltage relay channels and will continue to function and start the diesel generators on a complete loss of voltage. If the inoperable channels

(continued)

BASES

ACTIONS

C.1 (continued)

cannot be restored to OPERABLE status within the allowable out of service time, the channel(s) must be placed in the tripped condition per Required Action C.1. Placing the inoperable channel(s) in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure (within the LOP instrumentation), and allow operation to continue. Alternately, if it is not desired to place the channel(s) in trip (e.g., as in the case where placing the channel(s) in trip would result in a DG initiation), Condition E must be entered and its Required Action taken.

D.1 and D.2

With two or more degraded voltage relay channels or one or more associated timers and the loss of voltage relay channel(s) inoperable on the same shutdown board, the associated diesel generator will not automatically start upon degraded voltage or complete loss of voltage on that shutdown board. In this situation, Required Action D.2 provides a 5 day allowable out of service time provided the other shutdown boards and undervoltage relay channels are OPERABLE. Immediate verification of the OPERABILITY of the other shutdown boards and undervoltage relay channels is therefore required (Required Action D.1). This may be performed as an administrative check by examining logs or other information to determine if this equipment is out of service for maintenance or other reasons. It does not mean to perform the Surveillances needed to demonstrate OPERABILITY of this equipment. If the OPERABILITY of this equipment cannot be verified, however, Condition E must be entered immediately. The 5 day allowable out of service time is justified based on the remaining redundancy of the 4.16 kV Shutdown Boards. The 4.16 kV Shutdown Boards have a

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UNIT 3 ITS BASES (Revised pages marked *R3)

Replaced B 3.3-119 Revision 1 with B 3.3-119 Revision 3 (Change discussed in Rev. 2)
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Replaced B 3.3-205 Revision 2 with B 3.3-205 Revision 3
Replaced B 3.3-206 Revision 2 with B 3.3-206 Revision 3

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

3.e. Suppression Pool Water Level - High (LS-73-57A and B) (continued)

Suppression Pool Water Level - High signals are initiated from two level switches. The logic is arranged such that either switch can cause the suppression pool suction valves to open and the CST suction valve to close. The Allowable Value for the Suppression Pool Water Level - High Function is chosen to ensure that HPCI will be aligned for suction from the suppression pool before the water level reaches the point at which suppression pool design loads would be exceeded.

One channel of Suppression Pool Water Level - High Function is required to be OPERABLE only when HPCI is required to be OPERABLE. Refer to LCO 3.5.1 for HPCI Applicability Bases.

3.f. High Pressure Coolant Injection Pump Discharge Flow - Low (Bypass) (FIS-73-33)

The minimum flow instrument is provided to protect the HPCI pump from overheating when the pump is operating at reduced flow. The minimum flow line valve is opened when low flow is sensed, and the valve is automatically closed when the flow rate is adequate to protect the pump. The High Pressure Coolant Injection Pump Discharge Flow - Low Function will close the minimum flow valve but is not required to ensure that the ECCS flow assumed during the transients and accidents analyzed in References 2 and 3 is met. The core cooling function of the ECCS, along with the scram action of the RPS, ensures that the fuel peak cladding temperature remains below the limits of 10 CFR 50.46.

One flow switch is used to detect the HPCI System's flow rate. The logic is arranged such that the switch causes the minimum flow valve to open. The logic will close the minimum flow valve once the closure setpoint is exceeded.

The High Pressure Coolant Injection Pump Discharge Flow - Low Allowable Value is high enough to ensure that pump flow rate is sufficient to protect the pump, yet low enough

(continued)

BASES

ACTION (continued)

As such, a Note has been provided that allows separate Condition entry for each inoperable LOP instrumentation channel.

A.1 and A.2

With one of the degraded voltage relay channels inoperable on one or more shutdown boards and with the loss of voltage relay channels on the affected shutdown board(s) OPERABLE, Required Action A.2 provides a 15 day allowable out of service time to restore the relay channel to OPERABLE status provided the other two degraded voltage relay channels and associated timers are OPERABLE. Immediate verification of the OPERABILITY of the other degraded voltage relay channels and associated timers is therefore required (Required Action A.1). This may be performed as an administrative check by examining logs or other information to determine if this equipment is out of service for maintenance or other reasons. It does not mean to perform the Surveillances needed to demonstrate OPERABILITY of this equipment. If the OPERABILITY of this equipment cannot be verified, however, Condition C or D, as applicable, must be entered immediately. The 15 day allowable out of service time is justified based on the two-out-of-three permissive logic scheme provided for these relays. If the inoperable relay channel cannot be restored to OPERABLE status within the allowable out of service time, the degraded voltage relay channel must be placed in the tripped condition per Required Action A.2. Placing the inoperable channel in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure (within the LOP instrumentation), and allow operation to continue. Alternately, if it is not desired to place the channel in trip (e.g., as in the case where placing the channel in trip would result in a DG initiation), Condition E must be entered and its Required Action taken.

(continued)

BASES

ACTIONS (continued)

B.1

With two or more degraded voltage relay channels or one or more associated timers inoperable on one or more shutdown boards, the Function is not capable of performing the intended function. Required Action B.1 provides a 10 day allowable out of service time provided the loss of voltage relay channels on the affected shutdown board(s) are OPERABLE.

The 10 day allowable out of service time is justified since the loss of voltage relay channels on the same shutdown board are independent of the degraded voltage relay channel(s) and will continue to function and start the diesel generators on a complete loss of voltage. If the inoperable channel(s) cannot be restored to OPERABLE status within the allowable out of service time, the channel(s) must be placed in the tripped condition per Required Action B.1. Placing the inoperable channel(s) in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure (within the LOP instrumentation), and allow operation to continue. Alternately, if it is not desired to place the channel(s) in trip (e.g., as in the case where placing the channel(s) in trip would result in a DG initiation), Condition E must be entered and its Required Action taken.

C.1

With one or more loss of voltage relay channels inoperable on one or more shutdown boards, the Function is not capable of performing the intended function. Required Action C.1 provides a 10 day allowable out of service time provided two or more degraded voltage relay channels and associated timers on the affected shutdown board(s) are OPERABLE. The 10 day allowable out of service time is justified since the degraded voltage relay channels on the same shutdown board are independent of the loss of voltage relay channels and will continue to function and start the diesel generators on a complete loss of voltage. If the inoperable channels

(continued)

BASES

ACTIONS

C.1 (continued)

cannot be restored to OPERABLE status within the allowable out of service time, the channel(s) must be placed in the tripped condition per Required Action C.1. Placing the inoperable channel(s) in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure (within the LOP instrumentation), and allow operation to continue. Alternately, if it is not desired to place the channel(s) in trip (e.g., as in the case where placing the channel(s) in trip would result in a DG initiation), Condition E must be entered and its Required Action taken.

D.1 and D.2

With two or more degraded voltage relay channels or one or more associated timers and the loss of voltage relay channel(s) inoperable on the same shutdown board, the associated diesel generator will not automatically start upon degraded voltage or complete loss of voltage on that shutdown board. In this situation, Required Action D.2 provides a 5 day allowable out of service time provided the other shutdown boards and undervoltage relay channels are OPERABLE. Immediate verification of the OPERABILITY of the other shutdown boards and undervoltage relay channels is therefore required (Required Action D.1). This may be performed as an administrative check by examining logs or other information to determine if this equipment is out of service for maintenance or other reasons. It does not mean to perform the Surveillances needed to demonstrate OPERABILITY of this equipment. If the OPERABILITY of this equipment cannot be verified, however, Condition E must be entered immediately. The 5 day allowable out of service time is justified based on the remaining redundancy of the 4.16 kV Shutdown Boards. The 4.16 kV Shutdown Boards have a

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UNIT 1 CURRENT TECHNICAL SPECIFICATIONS MARKUP

Replaced Section 3.3.8.1 page 7 of 10 (3.9/4.9-12) Rev. 1 with page 7 of 10 (3.9/4.9-12) Rev. 3
Replaced Section 3.3.8.1 page 8 of 10 (3.9/4.9-13) Rev. 1 with page 8 of 10 (3.9/4.9-13) Rev. 3

~~LIMITING CONDITIONS FOR OPERATION~~ ~~SURVEILLANCE REQUIREMENTS~~

~~3.9.B. Operation With Inoperable Equipment~~

~~3.9.B.11 (Cont'd)~~

ACTION B C a. The loss of voltage relay channel which starts the diesel generator for a complete loss of voltage on a 4-kV shutdown board may be INOPERABLE for 10 days provided the degraded voltage relay channel on that shutdown board is OPERABLE (within the surveillance schedule of 4.9.A.4.b).

A2 → e Stet

ACTION A & B b. The degraded voltage relay channel which starts the diesel generator for degraded voltage on a 4-kV shutdown board may be INOPERABLE for 10 days provided the loss of voltage relay channel on that shutdown board is OPERABLE (within the surveillance schedule of 4.9.A.4.b).

A2 → e Stet

ACTION A c. One of the three phase-to-phase degraded voltage relays provided to detect a degraded voltage on a 4-kV shutdown board may be INOPERABLE for 15 days provided both of the following conditions are satisfied.

A2 → e Stet

A1

Rev 3 ~~Rev 1~~
Specification 3.3.8.1

~~3.9/4.9 AUXILIARY ELECTRICAL SYSTEM~~ (A1)

~~LIMITING CONDITIONS FOR OPERATION~~ ~~SURVEILLANCE REQUIREMENTS~~

~~3.9.B. Operation With Inoperable Equipment~~

~~3.9.B.11.c. (Cont'd)~~

1. The other two phase-to-phase degraded voltage relays on that 4-kV shutdown board are OPERABLE (within the surveillance schedule of 4.9.A.4.b).

2. The loss of voltage relay channel on that shutdown board is OPERABLE (within the surveillance schedule of 4.9.A.4.b).

(A2) → (A1) Stet

ACTION D

d. The degraded voltage relay channel and the loss of voltage relay channel on a 4-kV shutdown board may be INOPERABLE for 5 days provided the other shutdown boards and undervoltage relays are OPERABLE (within the surveillance schedule of 4.9.A.4.b).

Required ACTION D.2

Required Action D.1

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UNIT 2 CURRENT TECHNICAL SPECIFICATIONS MARKUP

Replaced Section 3.3.8.1 page 7 of 10 (3.9/4.9-12) Rev. 1 with page 7 of 10 (3.9/4.9-12) Rev. 3
Replaced Section 3.3.8.1 page 8 of 10 (3.9/4.9-13) Rev. 1 with page 8 of 10 (3.9/4.9-13) Rev. 3

~~3.9/4.9 AUXILIARY ELECTRICAL SYSTEM~~

~~LIMITING CONDITIONS FOR OPERATION~~ (A1) ~~SURVEILLANCE REQUIREMENTS~~

~~3.9.B. Operation With Inoperable Equipment~~

~~3.9.B.11 (Cont'd)~~

ACTION B, C

a. The loss of voltage relay channel which starts the diesel generator for a complete loss of voltage on a 4-kV shutdown board may be INOPERABLE for 10 days provided the degraded voltage relay channel on that shutdown board is OPERABLE (within the surveillance schedule of 4.9.A.4.b). (A2) — Start

b. The degraded voltage relay channel which starts the diesel generator for degraded voltage on a 4-kV shutdown board may be INOPERABLE for 10 days provided the loss of voltage relay channel on that shutdown board is OPERABLE (within the surveillance schedule of 4.9.A.4.b). (A2) — Start

ACTION A

c. One of the three phase-to-phase degraded voltage relays provided to detect a degraded voltage on a 4-kV shutdown board may be INOPERABLE for 15 days provided both of the following conditions are satisfied. (A2) — Start

(A1)

~~3.9/4.9 AUXILIARY ELECTRICAL SYSTEM~~

~~LIMITING CONDITIONS FOR OPERATION~~ (A1) ~~SURVEILLANCE REQUIREMENTS~~

~~3.9.B. Operation With Inoperable Equipment~~

~~3.9.B.11.c. (Cont'd)~~

1. The other two phase-to-phase degraded voltage relays on that 4-kV shutdown board are OPERABLE (within the surveillance schedule of 4.9.A.4.b).

2. The loss of voltage relay channel on that shutdown board is OPERABLE (within the surveillance schedule of 4.9.A.4.b).

e Stet (A1)

ACTION D

d. The degraded voltage relay channel and the loss of voltage relay channel on a 4-kV shutdown board may be INOPERABLE for 5 days provided the other shutdown boards and undervoltage relays are OPERABLE. (Within the surveillance schedule of 4.9.A.4.b).

Required Action D.2

Required Action D.1

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UNIT 3 CURRENT TECHNICAL SPECIFICATIONS MARKUP

Replaced Section 3.3.8.1 page 6 of 9 (3.9/4.9-11) Rev. 1 with page 6 of 9 (3.9/4.9-11) Rev. 3
Replaced Section 3.3.8.1 page 7 of 9 (3.9/4.9-12) Rev. 1 with page 7 of 9 (3.9/4.9-12) Rev. 3

RGL-1 Rev 3

Specification 3.3.8.1

~~3.9/4.9 AUXILIARY ELECTRICAL SYSTEM~~

| ~~LIMITING CONDITIONS FOR OPERATION~~ (A1) | SURVEILLANCE REQUIREMENTS |
|---|---|
| ~~3.9.B Operation With Inoperable Equipment~~ | |
| 8. (Deleted) | |
| LCO 3.3.8.1 9. The following limiting conditions for operation exists for the undervoltage relays which start the diesel generator on the 4-kV shutdown boards. (A2) Proposed Actions Note → | |
| ACTION B & C a. The loss of voltage relay channel which starts the diesel generator for a complete loss of voltage on a 4-kV shutdown board may be INOPERABLE for 10 days provided the degraded voltage relay channel on that shutdown board is OPERABLE (within the surveillance schedule of 4.9.A.4.b). (A2) | e Start (A1) |
| ACTION A & B b. The degraded voltage relay channel which starts the diesel generator for degraded voltage on a 4-kV shutdown board may be INOPERABLE for 10 days provided the loss of voltage relay channel on that shutdown board is OPERABLE (within the surveillance schedule of 4.9.A.4.b). (A2) | e Start |

~~3.9/4.9 AUXILIARY ELECTRICAL SYSTEM~~ Rev 0 ~~Draft~~ Specification 3.3.8.1

~~LIMITING CONDITIONS FOR OPERATION~~ (A1) ~~SURVEILLANCE REQUIREMENTS~~

~~3.9.B Operation With Inoperable Equipment~~

~~3.9.B.9 (Cont'd)~~

ACTION A. c. One of the three phase-to-phase degraded voltage relays provided to detect a degraded voltage on a 4-kV shutdown board may be INOPERABLE for 15 days provided both of the following conditions are satisfied.

(A2)

1. The other two phase-to-phase degraded voltage relays on that 4-kV shutdown board are OPERABLE (within the surveillance schedule of 4.9.A.4.b).

2. The loss of voltage relay channel on that shutdown board is OPERABLE (within the surveillance schedule of 4.9.A.4.b).

(A1)

Stet

ACTION D d. The degraded voltage relay channel and the loss of voltage relay channel on a 4-kV shutdown board may be INOPERABLE for 5 days provided the other shutdown boards and undervoltage relays are OPERABLE. (Within the surveillance schedule of 4.9.A.4.b).

Required Action D.2

Required Action D.1

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CURRENT TECHNICAL SPECIFICATIONS JUSTIFICATION FOR CHANGES

Replaced ITS 3.3.8.1 pages 1 through 3 Revision 2 with ITS 3.3.8.1 pages 1 through 3 Revision 3

JUSTIFICATION FOR CHANGES
BFN ISTS 3.3.8.1 - LOSS OF POWER (LOP) INSTRUMENTATION

ADMINISTRATIVE

A1 Reformatting and renumbering are in accordance with the BWR Standard Technical Specifications, NUREG 1433. As a result the Technical Specifications should be more readily readable, and therefore, understandable by plant operators as well as other users. The reformatting, renumbering, and rewording process involves no technical changes to existing Technical Specifications.

Editorial rewording (either adding or deleting) is done to make consistent with NUREG-1433. During ISTS development certain wording preferences or English language conventions were adopted which resulted in no technical changes (either actual or interpretational) to the Technical Specifications. Additional information has also been added to more fully describe each subsection. This wording is consistent with the BWR Standard Technical Specifications, NUREG-1433. Since the design is already approved, adding more detail does not result in a technical change.

The Loss of Power Instrumentation conditions and required actions were reformatted to align the definition for channel with industry standards. The CTS utilized channel to describe the logic function of the instrumentation whereas ITS has redefined channel to be the devices (relays) that detect loss of voltage or degraded voltage and initiate a series of timers to start the diesel generator and initiate 4 kV shutdown board power system isolation and load shedding. To make this conversion where, for instance, CTS used "relay channel," ITS used "two or more relays channels" to describe the same function that CTS described. Or where CTS used "one of the three phase-to-phase degraded voltage relays. . .," ITS used "one degraded voltage relay channel. . ." to describe the same function. This is an administrative change to clarify nomenclature to be more consistent with accepted standards.

A2 This change proposes to add a Note which will allow separate Condition entry for each channel. This change provides more explicit instructions for proper applications of the Actions for Technical Specifications compliance. In conjunction with the proposed Specification 1.3 - "Completion Times," the Note ("Separate Condition entry ...") and "in one or more Functions" provides more explicit direction of the current interpretation of the existing Specifications. This change is considered administrative and is consistent with NUREG-1433.

JUSTIFICATION FOR CHANGES
BFN ISTS 3.3.8.1 - LOSS OF POWER (LOP) INSTRUMENTATION

TECHNICAL CHANGE - MORE RESTRICTIVE

Those items that are identified as More Restrictive (M type JFCs) contain requirements that are more restrictive than the Current Technical Specifications. These Requirements are based on the Standard Technical Specifications for BWR/4, NUREG-1433, modified to reflect BFN specific design. These additional requirements have been determined to be appropriate for BFN based on a review of the current design bases. Adoption of these More Restrictive requirements will provide additional assurance of conditions which will protect the health and safety of plant personnel and the public. Based on this, it is concluded that these enhancements to the Technical Specifications should be included in the ITS.

M1 An additional Applicability has been added, requiring the instruments to be OPERABLE when the associated diesel generators (DGs) are required to be OPERABLE by LCO 3.8.2, AC Sources–Shutdown. This essentially adds a MODE 4 and 5 applicability when the DGs are required in these MODES. This is consistent with the BWR Standard Technical Specifications, NUREG 1433 and is an additional restriction on plant operation.

M2 Current TS 4.9.A.4.c requires degraded voltage relays to be calibrated annually. BFN has been performing this calibration every 184 days due to recent operating performance of these relays. As such, the TS calibration interval has been reduced to 184 days (proposed SR 3.3.8.1.1).

TECHNICAL CHANGE - LESS RESTRICTIVE

"Generic"

LA1 System design and operational details have been relocated to the Bases and procedures. Trip setpoints and the reset functions are operational details that are not directly related to the operability of the required instrumentation. The Allowable Value is the required limitation for the parameter and this value is retained in SR 3.3.8.1.2. The CTS "trip level settings" are equivalent to ITS "allowable Values." TVA's methodology for determination of setpoints utilizes the CTS "trip level settings" as the allowable value in establishing the nominal trip setpoint. The selection of nominal trip setpoints plus associated inaccuracies ensures the CTS "trip level settings" are not exceeded. TVA's setpoint methodology is consistent with RG 1.105 which endorses ISA Standard ISA-S67.04-1982 "Setpoints for Nuclear Safety Related Instrumentation Used in Nuclear Power Plants" and has been reviewed by the NRC in previous submittals, e.g. NRC letter to Mr. Oliver D. Kingsley dated January 2, 1991, Issuance of Amendment (TAC No. 77279)(TS291). CTS Table 4.9.A.4.C included setpoints for the 4 kV shutdown board timers (ITS Function 2.b). These setpoints were

converted to Allowable Values to be consistent with NUREG 1433 format. Trip setpoints are operational details that are not directly related to the operability of the required instrumentation. The Allowable Values is the required limitation for this parameter and were developed using the same methodology described above.

Details relating to system design and operation (e.g., description of action of instrumentation) are also unnecessary in the LCO and have been relocated to the Bases and procedures. The design features and system operation are also described in the FSAR. In addition, requirements to record values during Surveillance Requirements have been relocated to plant procedures. Changes to the Bases will be controlled by the provisions of the proposed Bases Control Process in Chapter 5 of the Technical Specifications. Changes to the FSAR and procedures will be controlled by the provisions of 10 CFR 50.59.

LA2 Details of the methods for performing surveillances are relocated to the Bases and procedures. The design features and system operation which dictate the methods are described in the FSAR. Changes to the Bases will be controlled by the provisions of the proposed Bases Control Process in Chapter 5 of the Technical Specifications. Changes to the FSAR and procedures will be controlled by the provisions of 10 CFR 50.59.

"Specific"

L1 A new ACTION has been added (proposed ACTION E) to require declaring the DG inoperable (and taking the appropriate actions in the associated DG Specification) if a channel is not restored when required. Current Technical Specifications 3.9.B.15 (Units 1 and 2) and 3.9.B.13 (Unit 3) require an orderly shutdown be initiated and the reactor to be in Cold Shutdown within 24 hours. Since these instruments provide start signals to the DGs (i.e., it supports DG OPERABILITY), it is more appropriate to declare the DG inoperable (proposed ACTION E). The current requirements are overly restrictive, in that if the diesel were inoperable for other reasons, a 7 day restoration time is provided; yet currently if the ACTION for the instruments can not be met but the diesel is otherwise fully OPERABLE, a shutdown is required.

L2 Deleted (NRC Question 3.3.8.1-2).

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NUREG-1433 BWR/4 STANDARD TECHNICAL SPECIFICATIONS MARKUP

Replaced page 167 of 478 Rev. 2 with page 167 of 478 Rev. 3
Replaced page 167a of 478 Rev. 2 with page 167a of 478 Rev. 3
Inserted new page 167b of 478 Rev. 3

Rev 3 ~~Rev. 2~~ ~~Rev. X.2~~

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INSERT 3.3-75A

INSERT 3.3-75B - Item A

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. One ~~of three phase-to-phase~~ degraded voltage relay ~~s~~ channel inoperable on a shutdown board. | A.1 ~~Add Insert A (R3~~<br>A.~~1~~2 Place the degraded voltage relay channel in trip. | 15 days |
| B. One or more of the loss of voltage relay channels inoperable. | B.1 INSERT 3.3-75B-Item B<br>B.~~1~~2 Place the inoperable loss of voltage relay channel(s) in trip. | 10 days |
| C. ~~One~~ Two or more of the degraded voltage relay channels, or one or more associated timers, inoperable. | C.1 INSERT 3.3-75B-Item C<br>C.~~1~~2 Place the inoperable degraded voltage relay channel(s) in trip. | 10 days |
| D. ~~The~~ Two or more degraded voltage relay channels inoperable on one shutdown board, or one or more associated timers.<br>AND<br>The loss of voltage relay channel(s) inoperable on the same shutdown board. | D.1 Verify by administrative means that the other shutdown boards and undervoltage relay channels, and associated timers are OPERABLE.<br>AND<br>D.2 Place the inoperable channels in trip. | Immediately<br>5 days |

← See replacement Pg 167b

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**INSERT 3.3 - 75B**

| | | |
|---|---|---|
| Item A | | |
| A.1 | Verify by administrative means that the other two ~~phase-to-phase~~ degraded voltage relay Channels and the loss of voltage relay channel on that shutdown board are OPERABLE. | Immediately |
| | And | |
| Item B | | |
| B.1 | Verify by administrative means that ~~the~~ two or more degraded voltage relay channels on that shutdown board are OPERABLE. | Immediately |
| | And | |
| Item C | | |
| C.1 | Verify by administrative means that the loss of voltage relay channels , and associated timers, on that shutdown board are OPERABLE. | Immediately |
| | And | |

See replacement Pg 167b

| CONDITION | | REQUIRED ACTION | | COMPLETION TIME |
|---|---|---|---|---|
| A. | One degraded voltage relay channel inoperable on one or more shutdown board(s).<br><br>AND<br><br>The loss of voltage relay channels on the affected shutdown board(s) are OPERABLE. | A.1 | Verify by administrative means that the other two degraded voltage relay channels and associated timers on the affected shutdown board (s) are OPERABLE.<br><br>AND | Immediately |
| | | A.2 | Place the degraded voltage relay channel in trip. | 15 days |
| B. | Two or more degraded voltage relay channels inoperable on one or more shutdown board(s) or one or more associated timer(s) inoperable on one or more shutdown board(s).<br><br>AND<br><br>The loss of voltage relay channels on each affected shutdown board are OPERABLE. | B.1 | Place the inoperable degraded voltage relay channel(s) in trip. | 10 days |
| C. | One or more loss of voltage relay channels inoperable on one or more shutdown board(s).<br><br>AND<br><br>Two or more degraded voltage relay channels and associated timers on each affected shutdown board are OPERABLE. | C.1 | Place the inoperable loss of voltage relay channel(s) in trip. | 10 days |
| D. | Two or more degraded voltage relay channels or one or more associated timers inoperable on one shutdown board.<br><br>AND<br><br>The loss of voltage relay channel(s) inoperable on the same shutdown board. | D.1 | Verify by administrative means that the other shutdown boards and undervoltage relay channels and associated timers are OPERABLE.<br><br>AND | Immediately |
| | | D.2 | Place the inoperable channels in trip. | 5 days |
| E. | Required Action and associated Completion Time not met. | E.1 | Declare associated diesel generator (DG) inoperable. | Immediately |

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NUREG-1433 BWR/4 STANDARD TECHNICAL SPECIFICATIONS BASES MARKUP

Replaced page 383 of 939 Rev. 2 with page 383 of 939 Rev. 3
Replaced page 383a of 939 Rev. 2 with page 383a of 939 Rev. 3
Replaced page 384 of 939 Rev. 2 with page 384 of 939 Rev. 3
Replaced page 384a of 939 Rev. 2 with page 384a of 939 Rev. 3
Inserted new page 384b of 939 Rev. 3
Inserted new page 384c of 939 Rev. 3
Inserted new page 384d of 939 Rev. 3

Rev 3 ~~Rev. 2~~ ~~Rev. X~~

INSERT B3.3-223A (Page 1 of 2)

(P51)

A.1 and A.2

With one of the ~~three~~ 2 ~~phase-to-phase~~ degraded voltage relay channels inoperable, Required Action A.X provides a 15 day allowable out of service time to restore the relay to OPERABLE status. The 15 day allowable out of service time is justified based on the two-out-of-three permissive logic scheme provided for these relays. If the inoperable relay channel cannot be restored to OPERABLE status within the allowable out of service time, the degraded voltage relay channel must be placed in the tripped condition per Required Action A.X.2. Placing the inoperable channel in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure (within the LOP instrumentation), and allow operation to continue. Alternately, if it is not desired to place the channel in trip (e.g., as in the case where placing the channel in trip would result in a DG initiation), Condition E must be entered and its Required Action taken.

Insert B3.3-223A (Page 1a of 2) - Item A

B.1 and B.2

With one or more loss of voltage relay channels inoperable, the Function is not capable of performing the intended function. Required Action B.X.2 provides a 10 day allowable out of service time ~~since~~ the degraded voltage relay channel on the same shutdown board is independent of the loss of voltage relay channels and will continue to function and start the diesel generators on a complete loss of ~~voltage~~ ~~age~~. If the inoperable channel(s) cannot be restored to OPERABLE status within the allowable out of service time, the channel(s) must be placed in the tripped condition per Required Action B.X.2. Placing the inoperable channel in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure (within the LOP instrumentation), and allow operation to continue. Alternately, if it is not desired to place the channel in trip (e.g., as in the case where placing the channel in trip would result in a DG initiation), Condition E must be entered and its Required Action taken.

Insert B3.3-223A (Page 1a of 2) - Item B

See Replacement Insert B3.3-223A (Pg 384b thru 384d)

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**INSERT B3.3-223A** (Page 1a of 2) - Item A

... provided the other two ~~phase-to-phase~~ degraded voltage relay channels and the loss of voltage relay channel on that shutdown board are OPERABLE. Immediate verification of the OPERABILITY of the other ~~phase-to-phase~~ degraded voltage relay and loss of voltage relay channel are therefore required (Required Action A.1). This may be performed as an administrative check by examining logs or other information to determine if this equipment is out of service for maintenance or other reasons. It does not mean to perform the Surveillances needed to demonstrate OPERABILITY of this equipment. If the OPERABILITY of this equipment cannot be verified, however, Condition D must be entered immediately.

**INSERT B3.3-223A** (Page 1a of 2) - Item B

... provided ~~the~~ degraded voltage relay channel on that shutdown board is OPERABLE. Immediate verification of the OPERABILITY of ~~the~~ degraded voltage relay channel is therefore required (Required Action B.1). This may be performed as an administrative check by examining logs or other information to determine if this equipment is out of service for maintenance or other reasons. It does not mean to perform the Surveillances needed to demonstrate OPERABILITY of this equipment. If the OPERABILITY of this equipment cannot be verified, however, Condition D must be entered immediately. The 10 day allowable out of service time is justified since ...

See replacement Insert B3.3-223A (pg 384b thru 384d)

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(PSI)

INSERT B3.3-223A (Page 2 of 2)

C.1 and C.2

or one or more timers

Insert B3.3-223A (Page 2a of 2)

With ~~one~~ two or more degraded voltage relay channels inoperable, the Function is not capable of performing the intended function. Required Action C.1 and C.2 provides a 10 day allowable out of service time ~~since~~ the loss of voltage relay channels on the same shutdown board ~~is~~ are independent of the degraded voltage relay channels and will continue to function and start the diesel generators on a complete loss of voltage. If the inoperable channels cannot be restored to OPERABLE status within the allowable out of service time, the channel must be placed in the tripped condition per Required Action C.1 and C.2. Placing the inoperable channel in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure (within the LOP instrumentation), and allow operation to continue. Alternately, if it is not desired to place the channel in trip (e.g., as in the case where placing the channel in trip would result in a DG initiation), Condition E must be entered and its Required Action taken.

D.1 and D.2

two or more

or one or more associated timers

With ~~the~~ degraded voltage relay channels and the loss of voltage relay channel(s) inoperable on the same shutdown board, the associated diesel generator will not automatically start upon degraded voltage or complete loss of voltage on that shutdown board. In this situation, Required Action D.2 provides a 5 day allowable out of service time provided the other shutdown boards and undervoltage relays are OPERABLE. Immediate verification of the OPERABILITY of the other shutdown boards and undervoltage relays ~~is~~ are therefore required (Required Action D.1). This may be performed as an administrative check by examining logs or other information to determine if this equipment is out of service for maintenance or other reasons. It does not mean to perform the Surveillances needed to demonstrate OPERABILITY of this equipment. If the OPERABILITY of this equipment cannot be verified, however, Condition E must be entered immediately. The 5 day allowable out of service time is justified based on the remaining redundancy of the 4.16 kV Shutdown Boards. The 4.16 kV Shutdown Boards have a similar allowable out of service time. If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, the channel must be placed in the tripped condition per Required Action D.2. Placing the inoperable channel in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure (within the LOP instrumentation), and allow operation to continue. Alternately, if it is not desired to place the channel in trip (e.g., as in the case where placing the channel in trip would result in a DG initiation), Condition E must be entered and its Required Action taken.

channels

See replacement Insert B3.3-223A (pg 384b thru 384d)

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**INSERT B3.3-223A** (Page 2a of 2)

... provided the loss of voltage relay channel~~s~~ are on that shutdown board is OPERABLE. Immediate verification of the OPERABILITY of the loss of voltage relay channel~~s~~ are therefore required (Required Action C.1). This may be performed as an administrative check by examining logs or other information to determine if this equipment is out of service for maintenance or other reasons. It does not mean to perform the Surveillances needed to demonstrate OPERABILITY of this equipment. If the OPERABILITY of this equipment cannot be verified, however, Condition D must be entered immediately. The 10 day allowable out of service time is justified since ...

← See replacement Insert B3.3-223A (Pg 384b thru 384d)

(P51)

A.1 and A.2

With one of the degraded voltage relay channels inoperable on one or more shutdown boards and with the loss of voltage relay channels on the affected shutdown board(s) OPERABLE, Required Action A.2 provides a 15 day allowable out of service time to restore the relay channel to OPERABLE status provided the other two degraded voltage relay channels and associated timers are OPERABLE. Immediate verification of the OPERABILITY of the other degraded voltage relay channels and associated timers is therefore required (Required Action A.1). This may be performed as an administrative check by examining logs or other information to determine if this equipment is out of service for maintenance or other reasons. It does not mean to perform the Surveillances needed to demonstrate OPERABILITY of this equipment. If the OPERABILITY of this equipment cannot be verified, however, Condition C or D, as applicable, must be entered immediately. The 15 day allowable out of service time is justified based on the two-out-of-three permissive logic scheme provided for these relays. If the inoperable relay channel cannot be restored to OPERABLE status within the allowable out of service time, the degraded voltage relay channel must be placed in the tripped condition per Required Action A.2. Placing the inoperable channel in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure (within the LOP instrumentation), and allow operation to continue. Alternately, if it is not desired to place the channel in trip (e.g., as in the case where placing the channel in trip would result in a DG initiation), Condition E must be entered and its Required Action taken.

B.1

With two or more degraded voltage relay channels or one or more associated timers inoperable on one or more shutdown boards, the Function is not capable of performing the intended function. Required Action B.1 provides a 10 day allowable out of service time provided the loss of voltage relay channels on the affected shutdown board(s) are OPERABLE.

The 10 day allowable out of service time is justified since the loss of voltage relay channels on the same shutdown board are independent of the degraded voltage relay channel(s) and will continue to function and start the diesel generators on a complete loss of voltage. If the inoperable channel(s) cannot be restored to OPERABLE status within the allowable out of service time, the channel(s) must be placed in the tripped condition per Required Action B.1. Placing the inoperable channel(s) in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure (within the LOP instrumentation), and allow operation to continue. Alternately, if it is not desired to place the channel(s) in trip (e.g., as in the case where placing the channel(s) in trip would result in a DG initiation), Condition E must be entered and its Required Action taken.

C.1

With one or more loss of voltage relay channels inoperable on one or more shutdown boards, the Function is not capable of performing the intended function. Required Action C.1 provides a 10 day allowable out of service time provided two or more degraded voltage relay channels and associated timers on the affected shutdown board(s) are OPERABLE. The 10 day allowable out of service time is justified since the degraded voltage relay channels on the same shutdown board are independent of the loss of voltage relay channels and will continue to function and start the diesel generators on a complete loss of voltage. If the inoperable channels cannot be restored to OPERABLE status within the allowable out of service time, the channel(s) must be placed in the tripped condition per Required Action C.1. Placing the inoperable channel(s) in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure (within the LOP instrumentation), and allow operation to continue. Alternately, if it is not desired to place the channel(s) in trip (e.g., as in the case where placing the channel(s) in trip would result in a DG initiation), Condition E must be entered and its Required Action taken.

D.1 and D.2

With two or more degraded voltage relay channels or one or more associated timers and the loss of voltage relay channel(s) inoperable on the same shutdown board, the associated diesel generator will not automatically start upon degraded voltage or complete loss of voltage on that shutdown board. In this situation, Required Action D.2 provides a 5 day allowable out of service time provided the other shutdown boards and undervoltage relay channels are OPERABLE. Immediate verification of the OPERABILITY of the other shutdown boards and undervoltage relay channels is therefore required (Required Action D.1). This may be performed as an administrative check by examining logs or other information to determine if this equipment is out of service for maintenance or other reasons. It does not mean to perform the Surveillances needed to demonstrate OPERABILITY of this equipment. If the OPERABILITY of this equipment cannot be verified, however, Condition E must be entered immediately. The 5 day allowable out of service time is justified based on the remaining redundancy of the 4.16 kV Shutdown Boards. The 4.16 kV Shutdown Boards have a similar allowable out of service time. If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, the channel must be placed in the tripped condition per Required Action D.2. Placing the inoperable channel in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure (within the LOP instrumentation), and allow operation to continue. Alternately, if it is not desired to place the channel in trip (e.g., as in the case where placing the channel in trip would result in a DG initiation), Condition E must be entered and its Required Action taken.

PSI

E.1

If any Required Action and associated Completion Time are not met, the associated Function is not capable of performing the intended function. Therefore, the associated DG(s) is declared inoperable immediately. This requires entry into applicable Conditions and Required Actions of LCO 3.8.1 and LCO 3.8.2, which provide appropriate actions for the inoperable DG(s).