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10 CFR 50.90

2CAN052103

May 24, 2021

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Response to Request for Additional Information Related to License Amendment Request to Adopt a Safety Function Determination Program (SFDP)

Arkansas Nuclear One, Unit 2
NRC Docket No. 50-368
Renewed Facility Operating License No. NPF-6

By application dated November 17, 2020 (Reference 1), Entergy Operations, Inc. (Entergy) submitted a license amendment request (LAR) for Arkansas Nuclear One, Unit 2 (ANO-2). The proposed amendment would modify the ANO-2 Technical Specifications (TSs) to incorporate the provisions of Limiting Condition for Operation (LCO) 3.0.6 of the Improved Standard Technical Specifications (ISTS), which provide the actions to be taken when the inoperability of a TS support system results in the inoperability of a related TS supported system(s). During the course of review, the Nuclear Regulatory Commission (NRC) determined additional information was required to complete the review process.

The NRC notified Entergy of the request for additional information (RAI) on April 9, 2021 (Reference 2).

Enclosed are Entergy's responses. The responses do not impact the no significant hazards consideration provided in the original amendment request (Reference 1).

No new regulatory commitments are included in this submittal.

In accordance with 10 CFR 50.91, "Notice for public comment; State consultation," paragraph (b), Entergy is notifying the State of Arkansas of the RAI response by transmitting a copy of this letter and enclosure to the designated State Official.

If there are any questions or if additional information is needed, please contact Riley Keele, Manager, Regulatory Assurance, Arkansas Nuclear One, at 479-858-7826.

I declare under penalty of perjury that the foregoing is true and correct.
Executed on May 24, 2021.

Respectfully,

Ron Gaston

RWG/mar

Enclosure: Response to Request for Additional Information Related to License Amendment Request to Adopt a Safety Function Determination Program (SFDP)

Attachments to Enclosure:

1. Technical Specification Page Markups
2. Retyped Technical Specification Pages

References:

1. Entergy Operations, Inc. (Entergy) letter to U. S. Nuclear Regulatory Commission (NRC), "License Amendment Request – Application to Adopt a Safety Function Determination Program (SFDP)," Arkansas Nuclear One, Unit 2 (ML20322A426) (2CAN112004), dated November 17, 2020.

2. NRC email to Entergy, "ANO-2 Final RAI RE: License Amendment Request to Adopt a Safety Function Determination Program (EPID L-2020-LLA-0252)," (ML21105A012) (2CNA042101), dated April 9, 2021.

3. NUREG-1432, "Standard Technical Specifications - Combustion Engineering Plants: Specifications," Rev. 4.0, Vol. 1, (ML12102A165), dated April 2012.

cc: NRC Region IV Regional Administrator

NRC Senior Resident Inspector – Arkansas Nuclear One

NRC Project Manager – Arkansas Nuclear One

Designated Arkansas State Official

Enclosure

2CAN052103

Response to Request for Additional Information Related to License Amendment Request to Adopt a Safety Function Determination Program (SFDP)

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION RELATED TO LICENSE AMENDMENT REQUEST TO ADOPT A SAFETY FUNCTION DETERMINATION PROGRAM (SFDP)

By application dated November 17, 2020 (Reference 1), Entergy Operations, Inc. (Entergy) submitted a license amendment request (LAR) for Arkansas Nuclear One, Unit 2 (ANO-2). The proposed amendment would modify the ANO-2 Technical Specifications (TSs) to incorporate the provisions of Limiting Condition for Operation (LCO) 3.0.6 of the Improved Standard Technical Specifications (ISTS), which provide the actions to be taken when the inoperability of a TS support system results in the inoperability of a related TS supported system(s). During the course of review, the Nuclear Regulatory Commission (NRC) determined additional information was required to complete the review process.

The NRC notified Entergy of the request for additional information (RAI) on April 9, 2021 (Reference 2).

Each question associated with the subject RAI is repeated below followed immediately by Entergy's response to the specific question.

RAI-1

In the LAR dated November 17, 2020, the licensee proposes to change LCO 3.3.2.1 to require entry into applicable Actions of the associated emergency diesel generator (EDG) for inoperable Loss of Voltage (LOV) and Degraded Voltage (DV) channels when any DV relay (channel) or both LOV relays on a respective safety bus are inoperable. To address this condition, a new Action 14 is proposed for LCO 3.3.2.1, Table 3.3-3. New Action 14 states in part, "With the number of 460-volt Degraded Voltage (Functional Unit 7.b) channels …". The licensee explains that while Action 14 is a new action, it was developed from Action 9. Action 9 includes OPERABLE in its description of the channel's condition as follows: "With the number of OPERABLE channels…". In addition, all of the Table 3.3-3 Actions consistently include OPERABLE when describing a channel's condition. Explain why proposed new Action 14 does not include "OPERABLE" to describe the condition of the 460-volt Degraded Voltage channels.

Entergy Response

Entergy is in agreement that Action 14 of the proposed LCO 3.3.2.1 should contain the word "OPERABLE" to describe the condition of the 460-volt Degraded Voltage channels. See Entergy's response below to RAI 2 for the revised wording of Action 14.

RAI-2

In the LAR, the licensee proposes to add Action 14 item a., which states, "Immediately declare the affected EDG inoperable …". If the proposed change is adopted, it appears that this may be the first use of the “EDG” acronym in the ANO-2 TSs. In addition, it does not appear to be consistent with other ANO-2 TSs (e.g., the term "diesel generator" is spelled out in specifications for electrical power systems). Explain why the proposed new Action introduces an acronym that is not defined and is inconsistent with the electrical power systems specifications. This similar issue also applies to the proposed Action Note for LCO 3.7.3.1, which also uses the "EDG" acronym.

Entergy Response

Entergy is in agreement that the acronym "EDG" is not defined nor used in the ANO-2 TSs. The acronym is only used in the ANO-2 TS Bases, and the appropriate term for LCO 3.3.2.1 Action 14 should be "diesel generator", since the 4.16 kV Loss of Voltage channels are only associated with the 2K-4A/B diesel generators.

Likewise, the proposed Action Note 1 for LCO 3.7.3.1, "Service Water", should use the term "diesel generator", consistent with the electrical power system TSs

With consideration of RAI 1 and RAI 2, LCO 3.3.2.1 Action 14, Item a, is modified as follows, with the changes underlined, to use the spelled out term "diesel generator" and to include the word "OPERABLE", consistent with the existing ANO-2 TSs.

ACTION 14 – With the number of OPERABLE 460 volt Degraded Voltage (Functional Unit 7.b) channels one less than the Total Number of Channels or with both 4.16 kV Loss of Voltage (Functional Unit 7.a) channels inoperable on a single bus:

a. Immediately declare the affected diesel generator inoperable, and

LCO 3.7.3.1 Action Note 1 has been modified as follows to correct the diesel generator wording with the changes underlined:

1. Enter applicable ACTION(s) of LCO 3.8.1.1, "AC Sources – Operating," for diesel generator made inoperable by service water system.

Revised markup and retyped versions of the affected TS pages are included in Attachments 1 and 2 of this enclosure, respectively.

RAI-3

In the LAR, the licensee indicates that proposed new LCO 3.8.1.1 Actions would be consistent with ISTS. New Action a.2 of LCO 3.8.1.1 is consistent with ISTS by including language that connects the specified completion time interval (24 hours) to the condition (from discovery of … concurrent with …) and then the Action (declare …) as follows: "Within 24 hours from discovery of no offsite power to one train concurrent with inoperability of redundant feature(s), declare…". However, other new Actions added to LCO 3.8.1.1, are not consistent with ISTS. For example, the licensee proposed to add new Action b.2, which states, "Within 4 hours, declare…". The ISTS wording applicable to b.2, includes language between "4 hours" and "declare," similar to new Action a.2 described above and as follows: "Within 4 hours, from discovery of … concurrent with…". Given that the ISTS connects the specified completion time interval "within 4 hours" to the condition using "from the discovery of…" and "concurrent with…", explain why Action b.2 is not written in a manner that aligns with the approach taken for new Action a.2, using similar ISTS wording, as appropriate. For example, following the new Action a.2 approach, why is not new Action b.2 written in part as: "Within 4 hours, from discovery of one diesel generator inoperable concurrent with inoperability of redundant required features, declare…"? The same logic and question apply to proposed new Action c.2 and proposed new Action d.2.

Entergy Response

Entergy agrees that the sub-Actions associated with LCO 3.8.1.1 should be worded in accordance with the guidance provided in TSTF-529 Rev. 4, "Clarify Use and Application Rules," Using the Consolidated Line Item Improvement Process (CLIIP)" (Reference 3); therefore, they have been modified as follows (changes underlined):

(LCO 3.8.1.1 Action b)

2. Within 4 hours <u>from discovery of one required diesel generator inoperable concurrent with inoperability of redundant required feature(s)</u>, declare required feature(s) supported by the inoperable diesel generator inoperable when its redundant required feature(s) is inoperable, and

(LCO 3.8.1.1 Action c)

2. Within 4 hours <u>from discovery of one required diesel generator inoperable concurrent with inoperability of redundant required feature(s),</u> declare required feature(s) supported by the inoperable diesel generator inoperable if its redundant required feature(s) is inoperable, and

(LCO 3.8.1.1 Action d)

2. Within 12 hours <u>from discovery of two required offsite A.C. circuits inoperable concurrent with inoperability of redundant required feature(s)</u>, declare required feature(s) inoperable when its redundant required feature(s) is inoperable, and

Revised markup and retyped versions of the affected TS pages are included in Attachments 1 and 2 of this enclosure, respectively.

RAI-4

In the LAR, the licensee describes the addition of a Note to LCO 3.8.1.2 as similar to the ISTS. The ISTS Note states, "Enter applicable Conditions and Required Actions of LCO 3.8.10, with one required train de-energized as a result of Condition A." Condition A is an inoperable offsite power circuit. In contrast with the ISTS, the proposed ANO-2 Note stops at "de-energized," leaving off the last few words: "as a result of an inoperable offsite power circuit." The LAR discussion on the addition of the Note to LCO 3.8.1.2 indicates that the Note would apply with one required train de-energized "as a result of an inoperable offsite circuit." Explain why the Note was not written, for example, as "Enter applicable ACTIONs of LCO … with one required train de-energized as a result of an inoperable offsite power circuit," which would be as described in the LAR and similar to the ISTS. As part of the response, provide an assessment as to whether leaving out the words "as a result of an inoperable offsite circuit" is more or less restrictive as compared to the ISTS. In either case (i.e., more or less restrictive), provide a justification for the omission.

Entergy Response

The purpose of ISTS 3.8.2 Required Actions A.2.3 and B.3 is to promptly initiate action to restore the LCO requirements (required offsite power circuit and required diesel generator to operable status, respectively). The proposed note, which omits the phrase "… as a result of an inoperable offsite circuit", is considered more restrictive than the ISTS because it does not require the cause of the loss of the required train to be due to an inoperable offsite circuit. It is more conservative since it applies any time the required train is de-energized regardless of the status of the required offsite power source. Entergy believes it is prudent to enter the applicable actions of LCO 3.8.2.2 and LCO 3.8.2.4 (as modified by responses to RAI 5, 6, and 7 below) in any conceived scenario where the required train is de-energized to ensure that the Shutdown Cooling loop is returned to operable status as soon as possible. This includes immediately taking action to return any inoperable distribution systems to operable status. It is also important to suspend all operations involving core alterations or positive reactivity changes during the recovery period. As such, Entergy does not propose additional changes to the LCO 3.8.1.2 Action Note.

RAI-5

In the LAR (Enclosure pages 6-7 and 23 of 32), the licensee describes a proposed revision to LCO 3.8.2.2, modifying and reformatting the single Action into an Action a and a new Action b. The licensee proposes to add the phrase "declare affected required features inoperable OR:" to the introductory statement of the Actions. There is no specified completion time associated with the Action to "declare." In addition, new Action b. states "Initiate actions to restore …". Again, there is no specified completion time associated with the Action to "Initiate…". Currently (i.e., with the single Action), there is a specified completion time ("immediately") in the TSs associated with the single Action. Please include the specified completion time or provide justification for the proposed approach.

Entergy Response

Entergy agrees that the completion times for the Action and sub-Actions associated with LCO 3.8.2.2 should be performed "immediately" and are subsequently modified as follows (changes underlined):

ACTION

With less than the above complement of A.C. busses OPERABLE and energized, immediately declare affected required features inoperable OR:

a. Immediately suspend core alterations, the movement of irradiated fuel assemblies, and any operations involving positive reactivity additions, and

b. Immediately initiate actions to restore required AC, DC, and AC vital bus electrical power distribution subsystems to OPERABLE status.

A revised markup and retyped version of the affected TS page are included in Attachments 1 and 2 of this enclosure, respectively.

RAI-6

In the LAR (Enclosure pages 7 and 24 of 32), the licensee proposes a revision to LCO 3.8.2.4 Action b, which would add Actions (and reformat the existing Action). The licensee proposes to add the phrase "declare affected required features inoperable OR:" to the introductory text for Action b. However, there is no specified completion time associated with the Action to "declare." In addition, new Action b.ii states "Initiate actions to restore…" Again, there is no specified completion time associated with the Action to "Initiate…" Currently, there is a specified time ("immediately") in the TSs associated with Action b. Please include the specified completion time or provide justification for the proposed approach.

Entergy Response

Entergy agrees that the completion times for the Action and sub-Actions associated with LCO 3.8.2.4 should be performed immediately and are modified as follows (changes underlined):

b. With the requirements of ACTION 'a' not met or with the above complement of DC equipment and bus otherwise inoperable, immediately declare affected required features inoperable OR:

    i. Immediately suspend core alterations, the movement of irradiated fuel assemblies, and any operations involving positive reactivity additions, and

    ii. Immediately initiate actions to restore required AC, DC, and AC vital bus electrical power distribution subsystems to OPERABLE status.

A revised markup and retyped version of the affected TS page are included in Attachments 1 and 2 of this enclosure, respectively.

RAI-7

In the introduction to Section 3.5 of the LAR (Enclosure page 16 of 32) states, in part, that "[T]he proposed Actions are consistent with those included in the ISTS …". As described in the LAR (Enclosure page 23 of 32), ISTS LCO 3.8.10 provides an option to "[D]eclare associated support feature(s) inoperable" (Required Action A.1) OR alternatively in part, initiate actions to restore required alternating current (AC), direct current (DC), and AC vital bus electrical power distribution subsystems to operable status (A.2.3) AND declare associated required shutdown cooling (SDC) inoperable (A.2.4). In the LAR (Enclosure page 23 of 32), the licensee states, "… ANO-2 TSs do not currently have corresponding Actions in LCO 3.8.2.2 and LCO 3.8.2.4 which initiate actions to restore the required buses electrical power to operable status and which declare the associated required SDC subsystem(s) inoperable as directed by Required Actions A.2.3 and A.2.4 in ISTS LCO 3.8.10."

In addition, in the LAR (Enclosure page 24 of 32) the licensee states, "No specific Action is added regarding the SDC system as the added Action to declare affected required features inoperable in both LCO 3.8.2.2 and LCO 3.8.2.4 envelops this requirement."

Like the ISTS, the licensee proposes to provide the option to "declare affected features inoperable" OR alternatively in part, initiate actions to restore required AC, DC, and AC vital bus electrical power distribution subsystems (3.8.2.2 Action b. and 3.8.2.4 Action b.ii) to operable status. However, unlike the ISTS, the proposed ANO-2 Actions after the OR logical connector do not include the statement declaring SDC inoperable. According to ISTS LCO 3.8.10 Bases, ISTS Required Actions (e.g., A.2.1 through A.2.3) do not adequately address the concerns relating to coolant circulation and heat removal. Pursuant to LCO 3.0.6, the SDC Actions would not be entered. Therefore, a Required Action (A.2.4) is provided to direct declaring SDC inoperable, which results in taking the appropriate SDC actions.

Explain how the proposed ANO-2 option to "declare affected features inoperable" envelops the SDC requirement (i.e., declaring the associated SDC system inoperable), given that the ISTS contains a similar option to declare affected features inoperable OR alternate actions in part, that declare SDC inoperable. In the response, please address the proposed use of logical connectors and how the added Action to declare affected required features inoperable, which precedes the OR logical connector, would extend to actions that follow the OR logical connector.

Entergy Response

Entergy agrees that an Action to declare the affected SDC train inoperable should be included following the "OR" conjunction in the proposed changes to LCOs 3.8.2.2 and 3.8.2.4, consistent with the ISTS as described in RAI 7 above. Subsequently, the Actions of LCOs 3.8.2.2 and 3.8.2.4 are modified as follows (changes). The examples below include changes made in response to RAIs 5 and 6 above.

(LCO 3.8.2.2)

ACTION

With less than the above complement of A.C. busses OPERABLE and energized, immediately declare affected required features inoperable OR:

a. Immediately suspend core alterations, the movement of irradiated fuel assemblies, and any operations involving positive reactivity additions, and

b. Immediately initiate actions to restore required AC, DC, and AC vital bus electrical power distribution subsystems to OPERABLE status, and

c. Immediately declare associated required shutdown cooling subsystem(s) inoperable and not in operation.

(LCO 3.8.2.4)

b. With the requirements of ACTION 'a' not met or with the above complement of DC equipment and bus otherwise inoperable, immediately declare affected required features inoperable OR:

i. Immediately suspend core alterations, the movement of irradiated fuel assemblies, and any operations involving positive reactivity additions, and

ii. Immediately initiate actions to restore required AC, DC, and AC vital bus electrical power distribution subsystems to OPERABLE status, and

iii. Immediately declare associated required shutdown cooling subsystem(s) inoperable and not in operation.

A revised markup and retyped version of the affected TS page are included in Attachments 1 and 2 of this enclosure, respectively.

References

1. Entergy Operations, Inc. (Entergy) letter to U. S. Nuclear Regulatory Commission (NRC), "License Amendment Request – Application to Adopt a Safety Function Determination Program (SFDP)," Arkansas Nuclear One, Unit 2 (2CAN112004) (ML20322A426), dated November 17, 2020.

2. NRC email to Entergy, "ANO-2 Final RAI RE: License Amendment Request to Adopt a Safety Function Determination Program (EPID L-2020-LLA-0252)," (2CNA042101) (ML21105A012), dated April 9, 2021.

3. Final Safety Evaluation of Technical Specifications Task Force Traveler TSTF-529, Revision 4, “Clarify Use and Application Rules,” using the Consolidated Line Item Improvement Process (TAC Nos. MF1406 and MF1407) (ML16060A440).

4. NUREG-1432, "Standard Technical Specifications - Combustion Engineering Plants: Specifications," Rev. 4.0, Vol. 1, (ML12102A165), dated April 2012.

Enclosure, Attachment 1

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Technical Specification Page Markups
(8 pages)

TABLE 3.3-3 (Continued)

TABLE NOTATION

ACTION 12 – With the number of OPERABLE channels one less than the Minimum Channels OPERABLE, restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. LCO 3.0.4.a is not applicable when entering HOT SHUTDOWN.

ACTION 13 – With the number of OPERABLE channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours; however, one channel may be bypassed for up to 1 hour for surveillance testing provided the other channel is OPERABLE. LCO 3.0.4.a is not applicable when entering HOT SHUTDOWN.

ACTION 14 – With the number of OPERABLE 460 volt Degraded Voltage (Functional Unit 7.b) channels one less than the Total Number of Channels or with both 4.16 kv Loss of Voltage (Functional Unit 7.a) channels inoperable on a single bus:

a. Immediately declare the affected diesel generator inoperable, and

b. Restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. LCO 3.0.4.a is not applicable when entering HOT SHUTDOWN.

PLANT SYSTEMS

3/4.7.3 SERVICE WATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.3.1 At least two independent service water loops shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

Notes:

1. Enter applicable ACTION(s) of LCO 3.8.1.1, "AC Sources – Operating," for diesel generator made inoperable by service water system.

2. Enter applicable ACTION(s) of LCO 3.4.1.3, "Reactor Coolant System – Shutdown," if a required shutdown cooling loop is made inoperable by service water system.

With only one service water loop OPERABLE, restore at least two loops to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. LCO 3.0.4.a is not applicable when entering HOT SHUTDOWN.

SURVEILLANCE REQUIREMENTS

4.7.3.1 At least two service water loops shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by verifying that each valve (manual, power operated or automatic) servicing safety related equipment that is not locked, sealed, or otherwise secured in position, is in its correct position.

b. In accordance with the Surveillance Frequency Control Program during shutdown, by verifying that each automatic valve servicing safety related equipment actuates to its correct position on CCAS, MSIS and RAS test signals.

LIMITING CONDITION FOR OPERATION

b. With one diesel generator of the above required A.C. electrical power source inoperable, perform the following:

1. Demonstrate the OPERABILITY of both the offsite A.C. circuits by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter, and

2. Within 4 hours from discovery of one required diesel generator inoperable concurrent with inoperability of redundant required feature(s), declare required feature(s) supported by the inoperable diesel generator inoperable when its redundant required feature(s) is inoperable, and

3~~2~~. Demonstrate the OPERABILITY of the remaining OPERABLE diesel generator within 24 hours by:

i. Determining the OPERABLE diesel generator is not inoperable due to a common cause failure, or

ii. Perform Surveillance Requirement 4.8.1.1.2.a.4 unless:

a. The remaining diesel generator is currently in operation, or

b. The remaining diesel generator has been demonstrated OPERABLE within the previous 24 hours, and

4~~3~~. Restore the diesel generator to OPERABLE status within 14 days (See Note 1) or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. LCO 3.0.4.a is not applicable when entering HOT SHUTDOWN.

Note 1 – If the Alternate A.C. Diesel Generator (AACDG) is determined to be inoperable during this period, then a 72 hour restoration period is applicable until either the AACDG or the diesel generator is returned to operable status (not to exceed 14 days from the initial diesel generator inoperability).

3/4.8.1 A.C. SOURCES

LIMITING CONDITION FOR OPERATION

c. With one offsite A.C. circuit and one diesel generator of the above required A.C. electrical power sources inoperable (see Note 2), perform the following:

1. Demonstrate the OPERABILITY of the remaining offsite A.C. circuit by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter; and,

2. Within 4 hours from discovery of one required diesel generator inoperable concurrent with inoperability of redundant required feature(s), declare required feature(s) supported by the inoperable diesel generator inoperable if its redundant required feature(s) is inoperable, and

3~~2~~. If the diesel generator became inoperable due to any cause other than preplanned preventative maintenance or testing, then

i. Demonstrate the OPERABILITY of the remaining OPERABLE diesel generator by performing Surveillance Requirement 4.8.1.1.2.a.4 within 8 hours, except when:

a. The remaining diesel generator is currently in operation, or

b. The remaining diesel generator has been demonstrated OPERABLE within the previous 8 hours, and

4~~3~~. Restore at least one of the inoperable sources to OPERABLE status within 12 hours, and

5~~4~~. Restore the remaining inoperable A.C. Source to an OPERABLE status (Offsite A.C. Circuit within 72 hours or Diesel Generator within 14 days (see b.4~~3~~, Note 1)) based on the time of the initiating event that caused the inoperability.

Otherwise, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. LCO 3.0.4.a is not applicable when entering HOT SHUTDOWN.

Note 2 – Enter applicable ACTIONs of LCO 3.8.2.1, "A.C. Distribution – Operating," when ACTION c is entered with no AC power to any train.

d. With two offsite A.C. circuits of the above required A.C. electrical power sources inoperable, perform the following:

1. Perform Surveillance Requirement 4.8.1.1.2.a.4 on the diesel generators within the next 8 hours except when:

i. The diesel generators are currently in operation, or

ii. The diesel generators have been demonstrated OPERABLE within the previous 8 hours, and

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2. Restore one of the inoperable offsite A.C. circuits to OPERABLE status within 24 hours, and

3. Restore both A.C. circuits within 72 hours of the initiating event,

Otherwise, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. LCO 3.0.4.a is not applicable when entering HOT SHUTDOWN.

3/4.8.1 A.C. SOURCES

LIMITING CONDITION FOR OPERATION

d. With two offsite A.C. circuits of the above required A.C. electrical power sources inoperable, perform the following:

1. Perform Surveillance Requirement 4.8.1.1.2.a.4 on the diesel generators within the next 8 hours except when:

i. The diesel generators are currently in operation, or

ii. The diesel generators have been demonstrated OPERABLE within the previous 8 hours, and

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2. Within 12 hours from discovery of two required offsite A.C. circuits inoperable concurrent with inoperability of redundant required feature(s), declare required feature(s) inoperable when its redundant required feature(s) is inoperable, and

32. Restore one of the inoperable offsite A.C. circuits to OPERABLE status within 24 hours, and

43. Restore both A.C. circuits within 72 hours of the initiating event,

Otherwise, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. LCO 3.0.4.a is not applicable when entering HOT SHUTDOWN.

e. With two diesel generators of the above required A.C. electrical power sources inoperable, perform the following:

1. Demonstrate the OPERABILITY of the two offsite A.C. circuits by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter, and

2. Restore one of the inoperable diesel generators to OPERABLE status within 2 hours, and

3. Restore the remaining inoperable diesel generator within 14 days (see b.43, Note 1) of the initiating event.

Otherwise, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. LCO 3.0.4.a is not applicable when entering HOT SHUTDOWN.

ELECTRICAL POWER SYSTEMS

A.C. DISTRIBUTION – SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.2.2 As a minimum, the following A.C. electrical busses shall be OPERABLE:

1 - 4160 volt Emergency Bus

1 - 480 volt Emergency Load Center Bus

4 - 480 volt Motor Control Center Busses

2 - 120 volt A.C. Vital Busses

APPLICABILITY: MODES 5 and 6

ACTION:

With less than the above complement of A.C. busses OPERABLE and energized, immediately declare affected required features inoperable OR:

a. Immediately suspend core alterations, the movement of irradiated fuel assemblies, and any operations involving positive reactivity additions, and.

b. Immediately initiate actions to restore required AC, DC, and AC vital bus electrical power distribution subsystems to OPERABLE status., and

c. Immediately declare associated required shutdown cooling subsystem(s) inoperable and not in operation.

SURVEILLANCE REQUIREMENTS

4.8.2.2 The specified A.C. busses shall be determined OPERABLE in accordance with the Surveillance Frequency Control Program by verifying correct breaker alignment and indicated power availability.

ELECTRICAL POWER SYSTEMS

DC SOURCES – SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.2.4 As a minimum, the following DC electrical equipment and bus shall be energized and OPERABLE:

1 - 125-volt DC bus, and

1 - 125-volt battery bank and charger supplying the above DC bus.

APPLICABILITY: MODES 5 and 6.

ACTION:

a. With the required battery charger inoperable:

i. Restore battery terminal voltage to greater than or equal to the minimum established float voltage within 2 hours, and

ii. Verify battery float current ≤ 2 amps once per 12 hours.

b. With the requirements of ACTION 'a' not met or with the above complement of DC equipment and bus otherwise inoperable, immediately declare affected required features inoperable OR:

i. ~~I~~Immediately suspend core alterations, the movement of irradiated fuel assemblies, and any operations involving positive reactivity additions, and

ii. Immediately initiate actions to restore required AC, DC, and AC vital bus electrical power distribution subsystems to OPERABLE status, and

iii. Immediately declare associated required shutdown cooling subsystem(s) inoperable and not in operation.

SURVEILLANCE REQUIREMENTS

4.8.2.4.1 The above required 125-volt D.C. bus shall be determined OPERABLE and energized in accordance with the Surveillance Frequency Control Program by verifying correct breaker alignment and indicated power availability.

4.8.2.4.2 The above required 125-volt battery bank and charger shall be demonstrated OPERABLE per Surveillance Requirements 4.8.2.3.1, 4.8.2.3.2, and 4.8.2.3.3; however, while each of these Surveillance Requirements must be met, Surveillance Requirements 4.8.2.3.2 and 4.8.2.3.3 are not required to be performed.

Enclosure, Attachment 2

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TABLE 3.3-3 (Continued)

TABLE NOTATION

ACTION 12 – With the number of OPERABLE channels one less than the Minimum Channels OPERABLE, restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. LCO 3.0.4.a is not applicable when entering HOT SHUTDOWN.

ACTION 13 – With the number of OPERABLE channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours; however, one channel may be bypassed for up to 1 hour for surveillance testing provided the other channel is OPERABLE. LCO 3.0.4.a is not applicable when entering HOT SHUTDOWN.

ACTION 14 – With the number of OPERABLE 460 volt Degraded Voltage (Functional Unit 7.b) channels one less than the Total Number of Channels or with both 4.16 kv Loss of Voltage (Functional Unit 7.a) channels inoperable on a single bus:

a. Immediately declare the affected diesel generator inoperable, and

b. Restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. LCO 3.0.4.a is not applicable when entering HOT SHUTDOWN.

PLANT SYSTEMS

3/4.7.3 SERVICE WATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.3.1 At least two independent service water loops shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

Notes:

1. Enter applicable ACTION(s) of LCO 3.8.1.1, "AC Sources – Operating," for diesel generator made inoperable by service water system.

2. Enter applicable ACTION(s) of LCO 3.4.1.3, "Reactor Coolant System – Shutdown," if a required shutdown cooling loop is made inoperable by service water system.

With only one service water loop OPERABLE, restore at least two loops to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. LCO 3.0.4.a is not applicable when entering HOT SHUTDOWN.

SURVEILLANCE REQUIREMENTS

4.7.3.1 At least two service water loops shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by verifying that each valve (manual, power operated or automatic) servicing safety related equipment that is not locked, sealed, or otherwise secured in position, is in its correct position.

b. In accordance with the Surveillance Frequency Control Program during shutdown, by verifying that each automatic valve servicing safety related equipment actuates to its correct position on CCAS, MSIS and RAS test signals.

3/4.8.1 A.C. SOURCES

LIMITING CONDITION FOR OPERATION

b. With one diesel generator of the above required A.C. electrical power source inoperable, perform the following:

1. Demonstrate the OPERABILITY of both the offsite A.C. circuits by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter, and

2. Within 4 hours from discovery of one required diesel generator inoperable concurrent with inoperability of redundant required feature(s), declare required feature(s) supported by the inoperable diesel generator inoperable when its redundant required feature(s) is inoperable, and

3. Demonstrate the OPERABILITY of the remaining OPERABLE diesel generator within 24 hours by:

i. Determining the OPERABLE diesel generator is not inoperable due to a common cause failure, or

ii. Perform Surveillance Requirement 4.8.1.1.2.a.4 unless:

a. The remaining diesel generator is currently in operation, or

b. The remaining diesel generator has been demonstrated OPERABLE within the previous 24 hours, and

4. Restore the diesel generator to OPERABLE status within 14 days (See Note 1) or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. LCO 3.0.4.a is not applicable when entering HOT SHUTDOWN.

Note 1 – If the Alternate A.C. Diesel Generator (AACDG) is determined to be inoperable during this period, then a 72 hour restoration period is applicable until either the AACDG or the diesel generator is returned to operable status (not to exceed 14 days from the initial diesel generator inoperability).

3/4.8.1 A.C. SOURCES

LIMITING CONDITION FOR OPERATION

c. With one offsite A.C. circuit and one diesel generator of the above required A.C. electrical power sources inoperable (see Note 2), perform the following:

1. Demonstrate the OPERABILITY of the remaining offsite A.C. circuit by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter; and,

2. Within 4 hours from discovery of one required diesel generator inoperable concurrent with inoperability of redundant required feature(s), declare required feature(s) supported by the inoperable diesel generator inoperable if its redundant required feature(s) is inoperable, and

3. If the diesel generator became inoperable due to any cause other than preplanned preventative maintenance or testing, then

   i. Demonstrate the OPERABILITY of the remaining OPERABLE diesel generator by performing Surveillance Requirement 4.8.1.1.2.a.4 within 8 hours, except when:

      a. The remaining diesel generator is currently in operation, or

      b. The remaining diesel generator has been demonstrated OPERABLE within the previous 8 hours, and

4. Restore at least one of the inoperable sources to OPERABLE status within 12 hours, and

5. Restore the remaining inoperable A.C. Source to an OPERABLE status (Offsite A.C. Circuit within 72 hours or Diesel Generator within 14 days (see b.4, Note 1)) based on the time of the initiating event that caused the inoperability.

Otherwise, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. LCO 3.0.4.a is not applicable when entering HOT SHUTDOWN.

Note 2 – Enter applicable ACTIONs of LCO 3.8.2.1, "A.C. Distribution – Operating," when ACTION c is entered with no AC power to any train.

3/4.8.1 A.C. SOURCES

LIMITING CONDITION FOR OPERATION

d. With two offsite A.C. circuits of the above required A.C. electrical power sources inoperable, perform the following:

1. Perform Surveillance Requirement 4.8.1.1.2.a.4 on the diesel generators within the next 8 hours except when:

i. The diesel generators are currently in operation, or

ii. The diesel generators have been demonstrated OPERABLE within the previous 8 hours, and

2. Within 12 hours from discovery of two required offsite A.C. circuits inoperable concurrent with inoperability of redundant required feature(s), declare required feature(s) inoperable when its redundant required feature(s) is inoperable, and

3. Restore one of the inoperable offsite A.C. circuits to OPERABLE status within 24 hours, and

4. Restore both A.C. circuits within 72 hours of the initiating event,

Otherwise, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. LCO 3.0.4.a is not applicable when entering HOT SHUTDOWN.

e. With two diesel generators of the above required A.C. electrical power sources inoperable, perform the following:

1. Demonstrate the OPERABILITY of the two offsite A.C. circuits by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter, and

2. Restore one of the inoperable diesel generators to OPERABLE status within 2 hours, and

3. Restore the remaining inoperable diesel generator within 14 days (see b.4, Note 1) of the initiating event.

Otherwise, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. LCO 3.0.4.a is not applicable when entering HOT SHUTDOWN.

ELECTRICAL POWER SYSTEMS

A.C. DISTRIBUTION – SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.2.2 As a minimum, the following A.C. electrical busses shall be OPERABLE:

1 - 4160 volt Emergency Bus

1 - 480 volt Emergency Load Center Bus

4 - 480 volt Motor Control Center Busses

2 - 120 volt A.C. Vital Busses

APPLICABILITY: MODES 5 and 6

ACTION:

With less than the above complement of A.C. busses OPERABLE and energized, immediately declare affected required features inoperable OR:

a. Immediately suspend core alterations, the movement of irradiated fuel assemblies, and any operations involving positive reactivity additions, and

b. Immediately initiate actions to restore required AC, DC, and AC vital bus electrical power distribution subsystems to OPERABLE status, and

c. Immediately declare associated required shutdown cooling subsystem(s) inoperable and not in operation.

SURVEILLANCE REQUIREMENTS

4.8.2.2 The specified A.C. busses shall be determined OPERABLE in accordance with the Surveillance Frequency Control Program by verifying correct breaker alignment and indicated power availability.

DC SOURCES – SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.2.4 As a minimum, the following DC electrical equipment and bus shall be energized and OPERABLE:

1 - 125-volt DC bus, and

1 - 125-volt battery bank and charger supplying the above DC bus.

APPLICABILITY: MODES 5 and 6.

ACTION:

a. With the required battery charger inoperable:

i. Restore battery terminal voltage to greater than or equal to the minimum established float voltage within 2 hours, and

ii. Verify battery float current ≤ 2 amps once per 12 hours.

b. With the requirements of ACTION 'a' not met or with the above complement of DC equipment and bus otherwise inoperable, immediately declare affected required features inoperable OR:

i. Immediately suspend core alterations, the movement of irradiated fuel assemblies, and any operations involving positive reactivity additions, and

ii. Immediately initiate actions to restore required AC, DC, and AC vital bus electrical power distribution subsystems to OPERABLE status, and

iii. Immediately declare associated required shutdown cooling subsystem(s) inoperable and not in operation.

SURVEILLANCE REQUIREMENTS

4.8.2.4.1 The above required 125-volt D.C. bus shall be determined OPERABLE and energized in accordance with the Surveillance Frequency Control Program by verifying correct breaker alignment and indicated power availability.

4.8.2.4.2 The above required 125-volt battery bank and charger shall be demonstrated OPERABLE per Surveillance Requirements 4.8.2.3.1, 4.8.2.3.2, and 4.8.2.3.3; however, while each of these Surveillance Requirements must be met, Surveillance Requirements 4.8.2.3.2 and 4.8.2.3.3 are not required to be performed.