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April 7, 2020

AEP-NRC-2020-09  
10 CFR 50.90

Docket Nos.: 50-315  
50-316

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

**Donald C. Cook Nuclear Plant, Unit 1 and Unit 2  
Application to Revise Technical Specifications to Adopt TSTF-412, Revision 3 "Provide Actions for  
One Steam Supply to Turbine Driven AFW/EFW Pump Inoperable."**

In accordance with the provisions of 10 CFR 50.90 of Title 10 of the Code of Federal Regulations (10 CFR), Indiana Michigan Power Company (I&M), the licensee for Donald C. Cook Nuclear Plant (CNP), is submitting a request for an amendment to Technical Specifications (TS) for CNP Unit 1 and Unit 2.

The proposed amendment establishes Conditions, Required Actions, and Completion Times in the Standard Technical Specifications (STS) for the Condition where one steam supply to the turbine driven Auxiliary Feedwater (AFW) pump is inoperable concurrent with an inoperable motor driven AFW train. In addition, this amendment establishes changes to the STS that establish specific Actions: (1) For when two motor driven AFW trains are inoperable at the same time and; (2) for when the turbine driven AFW train is inoperable either (a) due solely to one inoperable steam supply, or (b) due to reasons other than one inoperable steam supply. The change is consistent with Nuclear Regulatory Commission (NRC)-approved Technical Specification Task Force (TSTF) Traveler, TSTF-412, Revision 3, "Provide Actions for One Steam Supply to Turbine Driven AFW/EFW Pump Inoperable." The availability of this TS improvement was announced in the *Federal Register* on July 17, 2007 as part of the consolidated line item improvement process (CLIP).

Enclosure 1 provides an affirmation statement pertaining to the information contained herein.

Enclosure 2 provides a description and assessment of the proposed changes.

Enclosures 3 and 4 provide existing Unit 1 and Unit 2 TS pages, respectively, marked up to show the proposed changes.

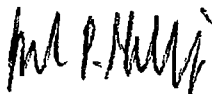
Enclosures 5 and 6 provide existing Unit 1 and Unit 2 TS Bases pages, respectively, marked up to show the proposed changes. TS Bases markups are included for information only. Changes to the existing TS Bases will be implemented under TS 5.5.12, "Technical Specifications (TS) Bases Control Program."

New, clean, Unit 1 and Unit 2 TS pages, with proposed changes incorporated will be provided to the NRC Licensing Project Manager when requested.

Approval of the proposed amendment is requested in accordance with the normal NRC review schedule for such changes. Once approved, the amendment shall be implemented within 90 days. In accordance with 10 CFR 50.91, a copy of this application, with enclosures, is being provided to the designated Michigan state officials.

There are no new regulatory commitments made in this letter. Should you have any questions, please contact Mr. Michael K. Scarpello, Regulatory Affairs Director, at (269) 466-2649.

Sincerely,



Joel P. Gebbie  
Senior Vice President &  
Chief Nuclear Officer

DLW/ml

Enclosures:

1. Affirmation
2. Description and Assessment of the Technical Specification Changes
3. Donald C. Cook Nuclear Plant Unit 1 Technical Specification Pages Marked To Show Proposed Changes
4. Donald C. Cook Nuclear Plant Unit 2 Technical Specification Pages Marked To Show Proposed Changes
5. Donald C. Cook Nuclear Plant Unit 1 Technical Specification Bases Pages Marked To Show Proposed Changes (For Information Only)
6. Donald C. Cook Nuclear Plant Unit 2 Technical Specification Bases Pages Marked To Show Proposed Changes (For Information Only)

c: R. J. Ancona – MPSC  
EGLE – RMD/RPS  
J. B. Giessner – NRC Region III  
NRC Resident Inspector  
D. J. Roberts – NRC Region III  
S.P. Wall – NRC, Washington, D.C.  
A. J. Williamson – AEP Ft. Wayne, w/o enclosures

**Enclosure 1 to AEP-NRC-2020-09**

**Affirmation**

Enclosure 1 to AEP-NRC-2020-09

AFFIRMATION

I, Joel P. Gebbie, being duly sworn, state that I am the Senior Vice President and Chief Nuclear Officer of Indiana Michigan Power Company (I&M), that I am authorized to sign and file this request with the U. S. Nuclear Regulatory Commission on behalf of I&M, and that the statements made and the matters set forth herein pertaining to I&M are true and correct to the best of my knowledge, information, and belief.

Indiana Michigan Power Company



Joel P. Gebbie  
Senior Vice President &  
Chief Nuclear Officer



SWORN TO AND SUBSCRIBED BEFORE ME

THIS 7 DAY OF April 2020

  
Notary Public

DANIELLE BURGOYNE  
Notary Public, State of Michigan  
County of Berrien  
My Commission Expires 04-04-2024  
Acting in the County of Berrien

My Commission Expires 04-04-2024

**Enclosure 2 to AEP-NRC-2020-09**

**Description and Assessment of the Technical Specification Changes**

**1.0 DESCRIPTION**

**2.0 ASSESSMENT**

**2.1 Applicability of Published Safety Evaluation**

**2.2 Optional Changes and Variations**

**3.0 REGULATORY ANALYSIS**

**3.1 No Significant Hazards Consideration Determination**

**3.2 Verification and Commitments**

**4.0 ENVIRONMENTAL EVALUATION**

## **1.0 DESCRIPTION**

The proposed License amendment establishes a new Completion Time in Standard Technical Specifications Section 3.7.5 where one steam supply to the turbine driven Auxiliary Feedwater (AFW) pump is inoperable concurrent with an inoperable motor driven AFW train. This amendment also establishes specific Conditions and Action requirements: (1) for when two motor driven AFW trains are inoperable at the same time and; (2) for when the turbine driven AFW train is inoperable either (a) due solely to one inoperable steam supply, or (b) due to reasons other than one inoperable steam supply.

The changes are consistent with Nuclear Regulatory Commission (NRC) approved Industry/Technical Specification Task Force (TSTF) Standard Technical Specification Change Traveler, TSTF-412, Revision 3, "Provide Actions for One Steam Supply to Turbine Driven AFW Pump Inoperable." The availability of this Technical Specification (TS) improvement was announced in the *Federal Register* on July 17, 2007 (72 FR 39089) as part of the consolidated line item improvement process (CLIIP).

## **2.0 ASSESSMENT**

### **2.1 Applicability of Published Safety Evaluation**

Indiana Michigan Power (I&M) the licensee for Donald C. Cook Nuclear Plant (CNP), Unit 1 and Unit 2, has reviewed the safety evaluation published on July 17, 2007 (72 FR 39089), as part of the CLIIP. This verification included a review of the NRC staff's evaluation, as well as the supporting information provided in TSTF-412, Revision 3. I&M has concluded that the justifications presented in TSTF-412 and the safety evaluation prepared by the NRC staff are applicable to CNP Unit 1 and Unit 2, including consideration of related information provided in NRC letter (ML15286A331) dated October 30, 2015, and justify this amendment for the incorporation of the changes to the CNP Unit 1 and Unit 2 TS.

### **2.2 Optional Changes and Variations**

I&M is not proposing any variations or deviations from the TS changes described in TSTF-412, Revision 3, or the NRC staff's model safety evaluation published in the *Federal Register* on July 17, 2007 (72 FR 39089).

Note that CNP Unit 1 and Unit 2 TS 3.7.5 Actions A and B still contain the second Completion Time that limits the time from discovery of a failure. TSTF-439 eliminated the second completion time and is reflected in the sample shown in TSTF-412 Revision 3. CNP has not adopted TSTF-439 and is not requesting approval to eliminate the second Completion Time in this submittal.

With respect to the Completion Times associated with new Required Actions C.1 and C.2, I&M has chosen a 24-hour Completion Time.

### **3.0 REGULATORY ANALYSIS**

A description of the proposed change and its relationship to applicable regulatory requirements and guidance was provided in the Notice of Availability published on July 17, 2007 (72 FR 39089).

#### **3.1 No Significant Hazards Consideration Determination**

I&M has reviewed the proposed no significant hazards consideration determination published on July 17, 2007, as part of the CLIIP. I&M has concluded that the proposed determination presented in the notice is applicable to CNP Unit 1 and Unit 2 and the determination is hereby incorporated by reference to satisfy the requirements of 10 CFR 50.91(a).

#### **3.2 Verification and Commitments**

There are no new regulatory commitments associated with this proposed change.

### **4.0 ENVIRONMENTAL EVALUATION**

I&M has reviewed the environmental evaluation included in the model safety evaluation published in the *Federal Register* on July 17, 2007 (72 FR 39089), as part of the CLIIP. I&M has concluded that the NRC staff's findings presented in that evaluation are applicable to CNP Unit 1 and Unit 2, and the evaluation is hereby incorporated by reference for this application.



**Enclosure 3 to AEP-NRC-2020-09**

**Donald C. Cook Nuclear Plant Unit 1 Technical Specification Pages Marked to Show  
Proposed Changes**

**3.7.5-1**

**3.7.5-2**

**3.7.5-3**

### 3.7 PLANT SYSTEMS

#### 3.7.5 Auxiliary Feedwater (AFW) System

LCO 3.7.5 Three AFW trains shall be OPERABLE.

-----NOTE-----

Only one AFW train, which includes a motor driven pump, is required to be OPERABLE in MODE 4.

APPLICABILITY: MODES 1, 2, and 3,  
MODE 4 when steam generator is relied upon for heat removal.

#### ACTIONS

-----NOTE-----

LCO 3.0.4.b is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. <u>Turbine driven AFW train inoperable due to one inoperable steam supply. One steam supply to turbine driven AFW pump inoperable.</u></p> <p><u>OR</u></p> <p>-----NOTE----- Only applicable if MODE 2 has not been entered following refueling. -----</p> <p>Turbine driven AFW pump inoperable in MODE 3 following refueling.</p>	<p>A.1 Restore affected equipment to OPERABLE status.</p>	<p>7 days</p> <p><u>AND</u></p> <p>10 days from discovery of failure to meet the LCO</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One AFW train inoperable in MODE 1, 2, or 3 for reasons other than Condition A.	B.1 Restore AFW train to OPERABLE status.	72 hours  <u>AND</u> 10 days from discovery of failure to meet the LCO
<u>C. Turbine driven AFW train inoperable due to one inoperable steam supply.</u>  <u>AND</u> <u>One motor driven AFW train inoperable.</u>	<u>C.1 Restore the steam supply to the turbine driven train to OPERABLE status.</u>  <u>OR</u> <u>C.2 Restore the motor driven AFW train to OPERABLE status.</u>	<u>24 hours</u>  <u>24 hours</u>
<u>GD.</u> Required Action and associated Completion Time <del>for</del> of Condition A, <u>B</u> , or <u>BC</u> not met.  <u>OR</u>  Two AFW trains inoperable in MODE 1, 2, or 3 <u>for reasons other than Condition C.</u>	<u>GD.1</u> Be in MODE 3.  <u>AND</u> <u>GD.2</u> Be in MODE 4.	6 hours  18 hours
<u>DE.</u> Three AFW trains inoperable in MODE 1, 2, or 3.	<u>DE.1</u> -----NOTE----- LCO 3.0.3 and all other LCO Required Actions requiring MODE changes are suspended until one AFW train is restored to OPERABLE status. -----  Initiate action to restore one AFW train to OPERABLE status.	Immediately

CONDITION	REQUIRED ACTION	COMPLETION TIME
EE. Required AFW train inoperable in MODE 4.	EE.1 Initiate action to restore AFW train to OPERABLE status.	Immediately

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	<p>-----NOTE-----</p> <p>AFW train(s) may be considered OPERABLE during alignment and operation for steam generator level control, if it is capable of being manually realigned to the AFW mode of operation.</p> <p>-----</p> <p>Verify each required AFW manual, power operated, and automatic valve in each water flow path, and in both steam supply flow paths to the steam turbine driven pump, that is not locked, sealed, or otherwise secured in position, is in the correct position.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.7.5.2	<p>-----NOTE-----</p> <p>Not required to be performed for the turbine driven AFW pump until 24 hours after <math>\geq 850</math> psig in the steam generator.</p> <p>-----</p> <p>Verify the developed head of each required AFW pump at the flow test point is greater than or equal to the required developed head.</p>	In accordance with the INSERVICE TESTING PROGRAM
SR 3.7.5.3	<p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>AFW train(s) may be considered OPERABLE during alignment and operation for steam generator level control, if it is capable of being manually realigned to the AFW mode of operation.</li> <li>Only required to be met in MODES 1, 2, and 3.</li> </ol> <p>-----</p>	

**Enclosure 4 to AEP-NRC-2020-09**

**Donald C. Cook Nuclear Plant Unit 2 Technical Specification Pages Marked to Show  
Proposed Changes**

**3.7.5-1**

**3.7.5-2**

**3.7.5-3**

### 3.7 PLANT SYSTEMS

#### 3.7.5 Auxiliary Feedwater (AFW) System

LCO 3.7.5 Three AFW trains shall be OPERABLE.

-----NOTE-----

Only one AFW train, which includes a motor driven pump, is required to be OPERABLE in MODE 4.

APPLICABILITY: MODES 1, 2, and 3,  
MODE 4 when steam generator is relied upon for heat removal.

#### ACTIONS

-----NOTE-----

LCO 3.0.4.b is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. <del>Turbine driven AFW train inoperable due to one inoperable steam supply. One steam supply to turbine driven AFW pump inoperable.</del></p> <p><u>OR</u></p> <p>-----NOTE----- Only applicable if MODE 2 has not been entered following refueling. -----</p> <p>Turbine driven AFW pump inoperable in MODE 3 following refueling.</p>	<p>A.1 Restore affected equipment to OPERABLE status.</p>	<p>7 days</p> <p><u>AND</u></p> <p>10 days from discovery of failure to meet the LCO</p>



ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One AFW train inoperable in MODE 1, 2, or 3 for reasons other than Condition A.	B.1 Restore AFW train to OPERABLE status.	72 hours  <u>AND</u> 10 days from discovery of failure to meet the LCO
<u>C. Turbine driven AFW train inoperable due to one inoperable steam supply.</u>  <u>AND</u> <u>One motor driven AFW train inoperable.</u>	<u>C.1 Restore the steam supply to the turbine driven train to OPERABLE status.</u>  <u>OR</u> <u>C.2 Restore the motor driven AFW train to OPERABLE status.</u>	<u>24 hours</u>  <u>24 hours</u>
<u>GD</u> . Required Action and associated Completion Time <del>for</del> of Condition A <u>B</u> , or <u>B C</u> not met.  <u>OR</u> Two AFW trains inoperable in MODE 1, 2, or 3 <u>for reasons other than Condition C.</u>	<u>GD</u> .1 Be in MODE 3.  <u>AND</u> <u>GD</u> .2 Be in MODE 4.	6 hours  18 hours
<u>DE</u> . Three AFW trains inoperable in MODE 1, 2, or 3.	<u>DE</u> .1 -----NOTE----- LCO 3.0.3 and all other LCO Required Actions requiring MODE changes are suspended until one AFW train is restored to OPERABLE status. ----- Initiate action to restore one AFW train to OPERABLE status.	Immediately

CONDITION	REQUIRED ACTION	COMPLETION TIME
EF. Required AFW train inoperable in MODE 4.	EF.1 Initiate action to restore AFW train to OPERABLE status.	Immediately

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	<p>-----NOTE-----</p> <p>AFW train(s) may be considered OPERABLE during alignment and operation for steam generator level control, if it is capable of being manually realigned to the AFW mode of operation.</p> <p>-----</p> <p>Verify each required AFW manual, power operated, and automatic valve in each water flow path, and in both steam supply flow paths to the steam turbine driven pump, that is not locked, sealed, or otherwise secured in position, is in the correct position.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.7.5.2	<p>-----NOTE-----</p> <p>Not required to be performed for the turbine driven AFW pump until 24 hours after <math>\geq 850</math> psig in the steam generator.</p> <p>-----</p> <p>Verify the developed head of each required AFW pump at the flow test point is greater than or equal to the required developed head.</p>	In accordance with the INSERVICE TESTING PROGRAM



**Enclosure 5 to AEP-NRC-2020-09**

**Donald C. Cook Nuclear Plant Unit 1 Technical Specification Bases Pages Marked to  
Show Proposed Changes (For Information Only)**

**B3.7.5-4**

**B3.7.5-5**

**B3.7.5-6**

**B3.7.5-7**

## BASES

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### LCO (continued)

The AFW System is configured into three trains. The AFW System is considered OPERABLE when the components and flow paths required to provide redundant AFW flow to the steam generators are OPERABLE. This requires that the two motor driven AFW pumps be OPERABLE in two independent discharge paths, each supplying AFW to separate steam generators. The turbine driven AFW pump is required to be OPERABLE with redundant steam supplies from each of two main steam lines upstream of the SGSVs, and shall be capable of supplying AFW to all of the steam generators. The piping, valves, instrumentation, and controls required to perform the safety related function also are required to be OPERABLE.

The LCO is modified by a Note indicating that only one AFW train, which includes a motor driven pump, is required to be OPERABLE in MODE 4. This is because of the reduced heat removal requirements and short period of time in MODE 4 during which the AFW is required and the insufficient steam available in MODE 4 to power the turbine driven AFW pump.

### APPLICABILITY

In MODES 1, 2, and 3, the AFW System is required to be OPERABLE in the event that it is called upon to function when the MFW is lost. In addition, the AFW System is required to supply enough makeup water to replace the steam generator secondary inventory, lost as the unit cools to MODE 4 conditions.

In MODE 4 the AFW System may be used for heat removal via the steam generators.

In MODE 5 or 6, the steam generators are not normally used for heat removal, and the AFW System is not required.

### ACTIONS

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

#### A.1

If ~~one of the two steam supplies to~~ the turbine driven AFW train is inoperable ~~due to one inoperable steam supply~~, or if a turbine driven pump is inoperable ~~for any reason~~ while in MODE 3 immediately following refueling, action must be taken to restore the

## BASES

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### ACTIONS (continued)

inoperable equipment to an OPERABLE status within 7 days. The 7 day Completion Time is reasonable, based on the following reasons:

- a. For the inoperability of ~~a steam supply to~~ the turbine driven AFW pump due to one inoperable steam supply, the 7 day Completion Time is reasonable since there is a redundant steam supply line for the turbine driven pump and the turbine driven train is still capable of performing its specified function for most postulated events.
- b. For the inoperability of a turbine driven AFW pump while in MODE 3 immediately subsequent to a refueling, the 7 day Completion Time is reasonable due to the minimal decay heat levels in this situation.
- c. For both the inoperability of ~~a steam supply line to~~ the turbine driven pump due to one inoperable steam supply and an inoperable turbine driven AFW pump while in MODE 3 immediately following a refueling outage, the 7 day Completion Time is reasonable due to the availability of redundant OPERABLE motor driven AFW pumps, and due to the low probability of an event requiring the use of the turbine driven AFW pump.

The second Completion Time for Required Action A.1 establishes a limit on the maximum time allowed for any combination of Conditions to be inoperable during any continuous failure to meet this LCO.

The 10 day Completion Time provides a limitation time allowed in this specified Condition after discovery of failure to meet the LCO. This limit is considered reasonable for situations in which Conditions A and B are entered concurrently. The AND connector between 7 days and 10 days dictates that both Completion Times apply simultaneously, and the more restrictive must be met.

Condition A is modified by a Note which limits the applicability of the Condition for an inoperable turbine driven AFW pump in MODE 3 to when the unit is in MODE 3 following a refueling. Condition A allows the turbine driven AFW train to be inoperable for 7 days vice the 72 hour Completion Time in Condition B. This longer Completion Time is based on the reduced decay heat following refueling and prior to the reactor being critical.

#### B.1

With one of the required AFW trains (pump or flow path) inoperable in MODE 1, 2, or 3 for reasons other than Condition A, action must be taken to restore OPERABLE status within 72 hours. This Condition includes the



loss of two steam supply lines to the turbine driven AFW pump. The 72 hour Completion Time is reasonable, based on the redundant capabilities afforded by the AFW System, the time needed for repairs, and the low probability of a DBA occurring during this time period.

The second Completion Time for Required Action B.1 establishes a limit on the maximum time allowed for any combination of Conditions to be inoperable during any continuous failure to meet this LCO.

The 10 day Completion Time provides a limitation time allowed in this specified Condition after discovery of failure to meet the LCO. This limit is considered reasonable for situations in which Conditions A and B are entered concurrently. The AND connector between 72 hours and 10 days dictates that both Completion Times apply simultaneously, and the more restrictive must be met.

#### C.1 and C.2

With one of the required motor driven AFW trains (pump or flow path) inoperable and the turbine driven AFW train inoperable due to one inoperable steam supply, action must be taken to restore the affected equipment to OPERABLE status within 24 hours. Assuming no single active failures when in this condition, the accident (a MSLB) could result in the loss of the remaining steam supply to the turbine driven AFW pump due to the faulted SG. In this condition, the AFW system may no longer be able to meet the required flow to the SGs assumed in the safety analysis due to the analysis requiring flow from two AFW pumps.

The 24 hour Completion Time is reasonable based on the remaining OPERABLE steam supply to the turbine driven AFW pump, the availability of the remaining OPERABLE motor driven AFW pump, and the low probability of an event occurring that would require the inoperable steam supply to be available for the turbine driven AFW pump

#### D.1 and D.2

When Required Action A.1, ~~or~~ B.1, C.1, or C.2 cannot be completed within the associated Completion Time, or if two AFW trains are inoperable in MODE 1, 2, or 3 for reasons other than Condition C, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 4 within 18 hours.

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

## BASES

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### ACTIONS (continued)

In MODE 4 with two AFW trains inoperable, operation is allowed to continue because only one motor driven pump AFW train is required in accordance with the Note that modifies the LCO. Although not required, the unit may continue to cool down and initiate RHR.

#### DE.1

If all three AFW trains are inoperable in MODE 1, 2, or 3, the unit is in a seriously degraded condition with no safety related means for conducting a cooldown, and only limited means for conducting a cooldown with nonsafety related equipment. In such a condition, the unit should not be perturbed by any action, including a power change, that might result in a trip. The seriousness of this condition requires that action be started immediately to restore one AFW train to OPERABLE status.

Required Action DE.1 is modified by a Note indicating that all required MODE changes ~~or power reductions~~ are suspended until one AFW train is restored to OPERABLE status. In this case, LCO 3.0.3 is not applicable because it could force the unit into a less safe condition.

#### EF.1

In MODE 4, either the reactor coolant pumps or the RHR loops can be used to provide forced circulation. This is addressed in LCO 3.4.6, "RCS Loops - MODE 4." With one required AFW train inoperable, action must be taken to immediately restore the inoperable train to OPERABLE status. The immediate Completion Time is consistent with LCO 3.4.6.

## SURVEILLANCE REQUIREMENTS

### SR 3.7.5.1

Verifying the correct alignment for manual, power operated, and automatic valves in the required AFW System water and steam supply flow paths provides assurance that the proper flow paths will exist for AFW operation. Verification of the AFW System water supply flow path includes both the suction (either a flow path from the CST or the Essential Service Water (ESW) System) and discharge flow paths. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since they are verified to be in the correct position prior to locking, sealing, or securing. This SR also does not apply to valves that cannot be inadvertently misaligned, such as check valves. This Surveillance does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position.

**Enclosure 6 to AEP-NRC-2020-09**

**Donald C. Cook Nuclear Plant Unit 2 Technical Specification Bases Pages Marked to  
Show Proposed Changes (For Information Only)**

**B3.7.5-5  
B3.7.5-6  
B3.7.5-7**



## BASES

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### ACTIONS

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

#### A.1

If ~~one of the two steam supplies to~~ the turbine driven AFW train is inoperable due to one inoperable steam supply, or if a turbine driven pump is inoperable for any reason while in MODE 3 immediately following refueling, action must be taken to restore the inoperable equipment to an OPERABLE status within 7 days. The 7 day Completion Time is reasonable, based on the following reasons:

- a. For the inoperability of ~~a steam supply to~~ the turbine driven AFW pump due to one inoperable steam supply, the 7 day Completion Time is reasonable since there is a redundant steam supply line for the turbine driven pump and the turbine driven train is still capable of performing its specified function for most postulated events.
- b. For the inoperability of a turbine driven AFW pump while in MODE 3 immediately subsequent to a refueling, the 7 day Completion Time is reasonable due to the minimal decay heat levels in this situation.
- c. For both the inoperability of ~~a steam supply line to~~ the turbine driven pump due to one inoperable steam supply and an inoperable turbine driven AFW pump while in MODE 3 immediately following a refueling outage, the 7 day Completion Time is reasonable due to the availability of redundant OPERABLE motor driven AFW pumps, and due to the low probability of an event requiring the use of the turbine driven AFW pump.

The second Completion Time for Required Action A.1 establishes a limit on the maximum time allowed for any combination of Conditions to be inoperable during any continuous failure to meet this LCO.

The 10 day Completion Time provides a limitation time allowed in this specified Condition after discovery of failure to meet the LCO. This limit is considered reasonable for situations in which Conditions A and B are entered concurrently. The AND connector between 7 days and 10 days

## BASES

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### ACTIONS (continued)

dictates that both Completion Times apply simultaneously, and the more restrictive must be met.

Condition A is modified by a Note which limits the applicability of the Condition for an inoperable turbine driven AFW pump in MODE 3 to when the unit is in MODE 3 following a refueling. Condition A allows the turbine driven AFW train to be inoperable for 7 days vice the 72 hour Completion Time in Condition B. This longer Completion Time is based on the reduced decay heat following refueling and prior to the reactor being critical.

#### B.1

With one of the required AFW trains (pump or flow path) inoperable in MODE 1, 2, or 3 for reasons other than Condition A, action must be taken to restore OPERABLE status within 72 hours. This Condition includes the loss of two steam supply lines to the turbine driven AFW pump. The 72 hour Completion Time is reasonable, based on the redundant capabilities afforded by the AFW System, the time needed for repairs, and the low probability of a DBA occurring during this time period.

The second Completion Time for Required Action B.1 establishes a limit on the maximum time allowed for any combination of Conditions to be inoperable during any continuous failure to meet this LCO.

The 10 day Completion Time provides a limitation time allowed in this specified Condition after discovery of failure to meet the LCO. This limit is considered reasonable for situations in which Conditions A and B are entered concurrently. The AND connector between 72 hours and 10 days dictates that both Completion Times apply simultaneously, and the more restrictive must be met.

#### C.1 and C.2

With one of the required motor driven AFW trains (pump or flow path) inoperable and the turbine driven AFW train inoperable due to one inoperable steam supply, action must be taken to restore the affected equipment to OPERABLE status within 24 hours. Assuming no single active failures when in this condition, the accident (a FLB or MSLB) could result in the loss of the remaining steam supply to the turbine driven AFW pump due to the faulted SG. In this condition, the AFW system may no longer be able to meet the required flow to the SGs assumed in the safety analysis due to the analysis requiring flow from two AFW.



## BASES

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### ACTIONS (continued)

The 24 hour Completion Time is reasonable based on the remaining OPERABLE steam supply to the turbine driven AFW pump, the availability of the remaining OPERABLE motor driven AFW pump, and the low probability of an event occurring that would require the inoperable steam supply to be available for the turbine driven AFW pump.

#### D.1 and D.2

When Required Action A.1, ~~or~~ B.1, C.1, or C.2 cannot be completed within the associated Completion Time, or if two AFW trains are inoperable in MODE 1, 2, or 3 for reasons other than Condition C, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 4 within 18 hours.

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

In MODE 4 with two AFW trains inoperable, operation is allowed to continue because only one motor driven pump AFW train is required in accordance with the Note that modifies the LCO. Although not required, the unit may continue to cool down and initiate RHR.

#### DE.1

If all three AFW trains are inoperable in MODE 1, 2, or 3, the unit is in a seriously degraded condition with no safety related means for conducting a cooldown, and only limited means for conducting a cooldown with nonsafety related equipment. In such a condition, the unit should not be perturbed by any action, including a power change, that might result in a trip. The seriousness of this condition requires that action be started immediately to restore one AFW train to OPERABLE status.

Required Action DE.1 is modified by a Note indicating that all required MODE changes ~~or power reductions~~ are suspended until one AFW train is restored to OPERABLE status. In this case, LCO 3.0.3 is not applicable because it could force the unit into a less safe condition.

#### EF.1

In MODE 4, either the reactor coolant pumps or the RHR loops can be used to provide forced circulation. This is addressed in LCO 3.4.6, "RCS Loops - MODE 4." With one required AFW train inoperable, action must be taken to immediately restore the inoperable train to OPERABLE status. The immediate Completion Time is consistent with LCO 3.4.6.