



**INDIANA  
MICHIGAN  
POWER**

*A unit of American Electric Power*

**Indiana Michigan Power**  
Cook Nuclear Plant  
One Cook Place  
Bridgman, MI 49106  
AEP.com

August 3, 2006

AEP:NRC:6331-03  
10 CFR 50.90

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Mail Stop O-P1-17  
Washington, DC 20555-0001

**SUBJECT:** Donald C. Cook Nuclear Plant Units 1 and 2  
Docket Nos. 50-315 and 50-316  
Response to Request for Additional Information and Supplement Regarding  
Technical Specification Change of Interlock for a Reactor Trip on Turbine Trip

**References:**

1. Letter from Joseph N. Jensen, Indiana Michigan Power Company (I&M), to U. S. Nuclear Regulatory Commission (NRC) Document Control Desk, "Technical Specification Change of Interlock for a Reactor Trip on Turbine Trip," AEP:NRC:6331, dated March 7, 2006 (ML060760532).
2. Electronic mail message from Peter Tam, NRC, to Michael Scarpello, I&M, et al., "Draft RAI re. Cook Proposed Amendment, P-7 to P-8 (TAC MD0496, 7)," dated June 1, 2006 (ML061520098).
3. NRC Regulatory Issue Summary 2005-29, "Anticipated Transients That Could Develop into More Serious Events," dated December 14, 2006 (ML051890212).

Dear Sir or Madam:

By Reference 1, Indiana Michigan Power Company (I&M), the licensee for Donald C. Cook Nuclear Plant Units 1 and 2, proposed to amend Facility Operating Licenses DPR-58 and DPR-74. I&M proposed to modify Technical Specifications (TS) to change the reactor trip on turbine trip interlock from P-7 to P-8. By Reference 2, the U. S. Nuclear Regulatory Commission (NRC) staff proposed questions that were discussed in a conference call with I&M personnel on June 8, 2006. The NRC staff requested that a response associated with Regulatory Issue Summary 2005-29, "Anticipated Transients That Could Develop into More Serious Events," (Reference 3) be provided formally.

During a recent review of TS 3.3.1, Reactor Trip System Instrumentation, I&M determined that, upon approval of the proposed changes in Reference 1, a more restrictive Required Action would be required should the Required Action or associated Completion Time of Condition D not be met. This is an unintended consequence of the changes proposed in the original amendment request (Reference 1). Therefore, additional TS changes are proposed to align TS Required Actions with the changes proposed in Reference 1.

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Enclosure 1 provides an affirmation statement pertaining to this letter. Enclosure 2 provides a detailed description of additional TS changes that are proposed to eliminate the unintended consequence. Enclosure 3 provides the information requested in the June 8, 2006, conference call. Attachments 1A and 1B to this letter provide new marked-up TS pages to replace, in their entirety, the corresponding pages submitted in Attachments 1A and 1B to Reference 1. Attachments 2A and 2B provide new TS pages, with the changes incorporated, to replace, in their entirety, the corresponding pages submitted in Attachments 2A and 2B to Reference 1. The proposed TS changes, as supplemented by this letter, remain within the scope of the amendment previously proposed by Reference 1. Therefore, the No Significant Hazards Consideration evaluation and the evaluation of Environmental Considerations provided in Enclosure 2 to Reference 1 continue to bound the proposed changes.

Copies of this letter and its attachments are being transmitted to the Michigan Public Service Commission and Michigan Department of Environmental Quality, in accordance with the requirements of 10 CFR 50.91.

There are no commitments made in this letter. Should you have any questions, please contact Ms. Susan D. Simpson, Regulatory Affairs Manager, at (269) 466-2428.

Sincerely,



Joseph N. Jensen  
Site Support Services Vice President

KS/rdw

- Enclosures:
1. Affirmation
  2. Regulatory Issue Summary 2005-29 Information Pertaining to Donald C. Cook Nuclear Plant
  3. Detailed Description and Technical Evaluation of Proposed Change
- Attachments:
- 1A. Donald C. Cook Nuclear Plant Unit 1 Technical Specification Pages Marked To Show Changes
  - 1B. Donald C. Cook Nuclear Plant Unit 2 Technical Specification Pages Marked To Show Changes
  - 2A. Donald C. Cook Nuclear Plant Unit 1 Technical Specification Pages With the Proposed Changes Incorporated
  - 2B. Donald C. Cook Nuclear Plant Unit 2 Technical Specification Pages With the Proposed Changes Incorporated

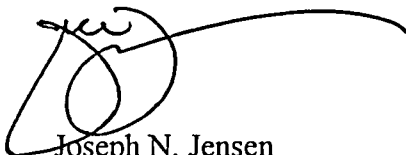
c: J. L. Caldwell, NRC Region III  
K. D. Curry, Ft. Wayne AEP, w/o enclosures/attachments  
J. T. King, MPSC  
MDEQ – WHMD/RPMWS  
NRC Resident Inspector  
P. S. Tam, NRC Washington, DC

Enclosure 1 to AEP:NRC:6331-03

AFFIRMATION

I, Joseph N. Jensen, being duly sworn, state that I am Site Support Services Vice President of Indiana Michigan Power Company (I&M), that I am authorized to sign and file this request with the 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



Joseph N. Jensen  
Site Support Services Vice President

SWORN TO AND SUBSCRIBED BEFORE ME

THIS 3 DAY OF August, 2006

 Danielle M. Burgoyne  
Notary Public

My Commission Expires Apr. 4, 2008

**Enclosure 2 to AEP:NRC:6331-03**

**REGULATORY ISSUE SUMMARY 2005-29 INFORMATION PERTAINING TO  
DONALD C. COOK NUCLEAR PLANT**

By Reference 1, Indiana Michigan Power Company (I&M) proposed to modify Technical Specifications (TS) to change the reactor trip on turbine trip interlock from P-7 to P-8. By electronic mail message (Reference 2), Nuclear Regulatory Commission (NRC) staff provided I&M personnel with draft questions to discuss by conference call. Following discussions with I&M personnel on June 8, 2006, members of the NRC staff requested the response to Question 5 pertaining to Regulatory Issue Summary (RIS) 2005-29, "Anticipated Transients That Could Develop into More Serious Events," (Reference 3) be provided formally. The question is addressed below.

**NRC Question 5**

The Cook UFSAR states, "ANS Condition II occurrences are faults that may occur with moderate frequency during the life of the plant. They are accommodated with, at most, a reactor shutdown with the plant being capable of returning to operation after a corrective action. In addition, no ANS Condition II occurrence shall cause consequential loss of function of fuel cladding and reactor coolant system barriers." Show that inadvertent actuation of the emergency core cooling system would not cause a consequential loss of the reactor coolant system barrier (by filling the pressurizer; causing the pressurizer power-operated relief valves to open, to discharge water, and consequently, to fail to reseal properly). See RIS 2005-29 for more information.

**I&M Response to NRC Question 5**

Analysis of an inadvertent emergency core cooling systems (ECCS) actuation is not part of the Donald C. Cook Nuclear Plant (CNP) Unit 1 or Unit 2 licensing basis. Nevertheless, I&M has taken action to ensure both units are protected from such a transient. RIS 2005-29 states in part:

Justifying and crediting timely operator actions to mitigate the inadvertent ECCS actuation would be another way to address this issue. Some licensees have shown there is sufficient time for an operator to shut off the ECCS flow before the pressurizer is filled, demonstrating that any pressurizer PORVs or safety valves that open during the event would relieve only steam. Licensees using this approach verify that assumed operator action times are reasonable and consistent with plant procedures and operator capabilities.

Best estimate analyses for Unit 1 and Unit 2 have been performed which predict the time available until the pressurizer will fill, thereby defining the time frame available for mitigating

actions. The analysis assumptions for both units have the first of the two centrifugal charging pumps removed from service within 15 minutes and the boron injection tank (BIT) flow path isolated within 17 minutes. After BIT isolation, the emergency operating procedures (EOP) require that minimal charging flow be maintained to provide reactor coolant pump (RCP) seal injection flow in preparation for re-establishing letdown. The analyses bound the EOP prescribed actions by assuming a higher than minimal charging flow and conservatively assuming that all RCP seal injection flow is injected into the reactor coolant system. Both analyses demonstrate that sufficient time is provided for the operators to take the necessary actions such that the pressurizer does not fill following an inadvertent ECCS actuation at power. The assumed operator action times have been incorporated into EOPs and verified as consistent with operator capabilities using the CNP simulator.

#### References for this Enclosure

1. Letter from Joseph N. Jensen, I&M, to NRC Document Control Desk, "Technical Specification Change of Interlock for a Reactor Trip on Turbine Trip," AEP:NRC:6331, dated March 7, 2006 (ML060760532).
2. Electronic mail message from Peter Tam, NRC, to Michael Scarpello, I&M, et al., "Draft RAI re. Cook Proposed Amendment, P-7 to P-8 (TAC MD0496, 7)," dated June 1, 2006 (ML061520098).
3. NRC RIS 2005-29, "Anticipated Transients That Could Develop into More Serious Events," dated December 14, 2006 (ML051890212).

**Enclosure 3 to AEP:NRC:6331-03**

**DETAILED DESCRIPTION AND TECHNICAL EVALUATION OF PROPOSED CHANGE**

**1.0 DESCRIPTION**

In the referenced letter, Indiana Michigan Power Company (I&M) proposed to amend the Donald C. Cook Nuclear Plant (CNP) Unit 1 and Unit 2 Technical Specifications (TS) to change the reactor trip on turbine trip interlock from P-7 to P-8. I&M proposed changing TS 3.3.1, Reactor Trip System Instrumentation, Table 3.3.1-1, Function 16.a, Turbine Trip – Low Fluid Oil Pressure, and Function 16.b, Turbine Trip – Turbine Stop Valve Closure, footnotes from “(c)” to “(h).” In addition, a new footnote, (h), was proposed which states, “Above the P-8 (Power Range Neutron Flux) interlock.” Additional changes are proposed to align CNP TS Conditions and Required Actions to the applicable mode or other specified conditions for Function 16.a and 16.b.

**2.0 PROPOSED CHANGE**

I&M proposes the following additional changes to those proposed in the referenced letter:

1. Reference to 16.a and 16.b is deleted from the list of Functions which require entry into Condition N if the Required Action and associated Completion Time of Condition D is not met.
2. A new Condition O is created which states, “Required Action and associated Completion Time of Condition D not met for Function 16.a and 16.b.” The proposed Required Action is to reduce thermal power to less than P-8 and the proposed Completion Time is 6 hours.
3. Existing Condition O is changed to Condition P and its Required Action is changed to P.1.
4. Existing Condition P is changed to Condition Q and its Required Action is changed to Q.1.
5. Existing Condition Q is changed to Condition R and its Required Action is changed to R.1.

Attachments 1A and 1B to this letter provide new marked-up TS pages to replace, in their entirety, the proposed pages submitted in Attachments 1A and 1B to the referenced letter. Attachments 2A and 2B provide new TS pages, with the changes incorporated, to replace, in their entirety, the proposed pages submitted in Attachments 2A and 2B to the referenced letter.

**3.0 TECHNICAL ANALYSIS**

The changes proposed in this license amendment request, as supplemented by this letter, are proposed to align CNP TS Conditions and Required Actions to the specified conditions for Function 16.a and 16.b. The proposed changes are bounded by the changes proposed in the referenced letter.

#### **4.0 REGULATORY SAFETY ANALYSIS**

##### No Significant Hazards Consideration

The proposed TS changes, as supplemented by this letter, remain within the scope of the amendment previously proposed by the referenced letter. Therefore, the No Significant Hazards Consideration evaluation provided in Enclosure 2 to the referenced letter bound the changes proposed in this letter and remains valid.

##### Applicable Regulatory Requirements/Criteria

The proposed TS changes, as supplemented by this letter, remain within the scope of the amendment previously proposed by the referenced letter. Therefore, discussion of applicable regulatory requirements/criteria, provided in Enclosure 2 to the referenced letter, remains valid.

#### **5.0 ENVIRONMENTAL CONSIDERATION**

The proposed TS changes, as supplemented by this letter, remain within the scope of the amendment previously proposed by the referenced letter. Therefore, the evaluation of Environmental Considerations, provided in Enclosure 2 to the referenced letter, remains valid.

#### **6.0 REFERENCE**

Letter from Joseph N. Jensen, I&M, to NRC Document Control Desk, "Donald C. Cook Nuclear Plant Units 1 and 2, Docket Nos. 50-315 and 50-316, Technical Specification Change of Interlock for a Reactor Trip on Turbine Trip," AEP:NRC:6331, dated March 7, 2006 (ML060760532).



**Attachment 1A to AEP:NRC:6331-03**

**DONALD C. COOK NUCLEAR PLANT UNIT 1 TECHNICAL SPECIFICATION PAGES  
MARKED TO SHOW CHANGES**

3.3.1-4

3.3.1-5

3.3.1-6

3.3.1-13

ACTIONS (continued)

| CONDITION  | REQUIRED ACTION  | COMPLETION TIME |
|--|--|-----------------|
| J. One train inoperable.   | <p>J.1 -----NOTE-----<br/>One train may be bypassed for up to 4 hours for surveillance testing, provided the other train is OPERABLE.</p> <p>Restore train to OPERABLE status.</p> | 6 hours         |
| K. One RTB train inoperable.   | <p>K.1 -----NOTE-----<br/>One train may be bypassed for up to 4 hours for surveillance testing, provided the other train is OPERABLE.</p> <p>Restore train to OPERABLE status.</p> | 24 hours        |
| L. One or more channels inoperable.  | L.1 Verify interlock is in required state for existing unit conditions.  | 1 hour          |
| M. One trip mechanism inoperable for one RTB.  | M.1 Restore inoperable trip mechanism to OPERABLE status.  | 48 hours        |
| N. Required Action and associated Completion Time of Condition D not met for Function 8.a, 9, 10, 11, 12, 13, 16.a, or 16.b. | N.1 Reduce THERMAL POWER to < P-7.   | 6 hours         |

ACTIONS (continued)

| CONDITION  | REQUIRED ACTION                              | COMPLETION TIME |
|--|--|-----------------|
| <p>O. Required Action and associated Completion Time of Condition D not met for Function 16.a or 16.b.</p>   | <p>O.1 Reduce THERMAL POWER to &lt; P-8.</p> | <p>6 hours</p>  |
| <p>OP. Required Action and associated Completion Time of Condition L not met for Function 18.b, 18.c, or 18.e.</p>   | <p>OP.1 Be in MODE 2.</p>                    | <p>6 hours</p>  |
| <p>PQ. Required Action and associated Completion Time of Condition B, J, K, or M not met in MODE 1 or 2.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition C not met.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition D not met for Function 2.b, 3.a, 3.b, 6, 7, 8.b, 14, or 15.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition L not met for Function 18.a or 18.d.</p> | <p>PQ.1 Be in MODE 3.</p>                    | <p>6 hours</p>  |

ACTIONS (continued)

| CONDITION  | REQUIRED ACTION  | COMPLETION TIME                  |
|--|--|----------------------------------|
| <p><u>QR</u>. Required Action and associated Completion Time of Condition B not met in MODE 3, 4, or 5.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition L not met in MODE 3, 4, or 5 for Function 18.a.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition I not met.</p> | <p><u>QR.1</u> Initiate action to fully insert all rods.</p> <p><u>AND</u></p> <p><u>QR.2</u> Place the Rod Control System in a condition incapable of rod withdrawal.</p> | <p>Immediately</p> <p>1 hour</p> |

SURVEILLANCE REQUIREMENTS

NOTE

Refer to Table 3.3.1-1 to determine which SRs apply for each RTS Function.

| SURVEILLANCE |                        | FREQUENCY |
|--------------|------------------------|-----------|
| SR 3.3.1.1   | Perform CHANNEL CHECK. | 12 hours  |

Table 3.3.1-1 (page 3 of 6)  
Reactor Trip System Instrumentation

| FUNCTION  | APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS                            | REQUIRED CHANNELS | CONDITIONS       | SURVEILLANCE REQUIREMENTS                | ALLOWABLE VALUE                  |
|---|---|-------------------|------------------|--|----------------------------------|
| 15. SG Water Level – Low (per SG)   | 1,2   | 2                 | D <sup>(f)</sup> | SR 3.3.1.1<br>SR 3.3.1.11<br>SR 3.3.1.13 | ≥ 9.7%                           |
| Coincident with Steam Flow/Feedwater Flow Mismatch (per SG)                             | 1,2   | 2                 | D <sup>(f)</sup> | SR 3.3.1.1<br>SR 3.3.1.11<br>SR 3.3.1.13 | ≤ 0.73E6 lb/hr steam flow at RTP |
| 16. Turbine Trip  |   |                   |                  |  |                                  |
| a. Low Fluid Oil Pressure   | 1 <sup>(e)(h)</sup>   | 3                 | D                | SR 3.3.1.13<br>SR 3.3.1.18               | ≥ 750 psig                       |
| b. Turbine Stop Valve Closure (per train)   | 1 <sup>(e)(h)</sup>   | 4                 | D                | SR 3.3.1.13<br>SR 3.3.1.18               | ≥ 1% open                        |
| 17. Safety Injection (SI) Input from Engineered Safety Feature Actuation System (ESFAS) | 1,2   | 2 trains          | J                | SR 3.3.1.6<br>SR 3.3.1.19                | NA                               |
| 18. Reactor Trip System Interlocks  |   |                   |                  |  |                                  |
| a. Intermediate Range Neutron Flux, P-6   | 2 <sup>(d)</sup> , 3 <sup>(a)</sup> , 4 <sup>(a)</sup> , 5 <sup>(a)</sup> | 2                 | L                | SR 3.3.1.14<br>SR 3.3.1.16               | ≥ 6E-11 amp                      |
| b. Low Power Reactor Trips Block, P-7   | 1   | 1 per train       | L                | SR 3.3.1.5                               | NA                               |
| c. Power Range Neutron Flux, P-8  | 1   | 4                 | L                | SR 3.3.1.14<br>SR 3.3.1.16               | ≤ 31% RTP                        |
| d. Power Range Neutron Flux, P-10   | 1,2   | 4                 | L                | SR 3.3.1.14<br>SR 3.3.1.16               | ≥ 9% RTP and ≤ 11% RTP           |
| e. Turbine First Stage Pressure, P-13   | 1   | 2                 | L                | SR 3.3.1.1<br>SR 3.3.1.13<br>SR 3.3.1.16 | ≤ 37 psig                        |

(a) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.

(d) Below the P-6 (Intermediate Range Neutron Flux) interlock.

(e) Above the P-7 (Low Power Reactor Trips Block) interlock.

(f) Separate condition entry is allowed per SG for only 1 of the 4 total Reactor Trip System Instrumentation Function 15 channels inoperable on each SG (i.e., for only 1 of 2 SG Water Level – Low channels or 1 of 2 Steam Flow/Feedwater Flow Mismatch channels inoperable on each SG). Any combination of 2 or more inoperable Reactor Trip System Instrumentation Function 15 channels on any SG requires immediate entry into LCO 3.0.3.

(h) Above the P-8 (Power Range Neutron Flux) interlock.

**Attachment 1B to AEP:NRC:6331-03**

**DONALD C. COOK NUCLEAR PLANT UNIT 2 TECHNICAL SPECIFICATION PAGES  
MARKED TO SHOW CHANGES**

3.3.1-4

3.3.1-5

3.3.1-6

3.3.1-13

ACTIONS (continued)

| CONDITION   | REQUIRED ACTION   | COMPLETION TIME |
|---|---|-----------------|
| J. One train inoperable.  | <p>J.1 -----NOTE-----<br/>One train may be bypassed for up to 4 hours for surveillance testing, provided the other train is OPERABLE.<br/>-----<br/>Restore train to OPERABLE status.</p> | 6 hours         |
| K. One RTB train inoperable.  | <p>K.1 -----NOTE-----<br/>One train may be bypassed for up to 4 hours for surveillance testing, provided the other train is OPERABLE.<br/>-----<br/>Restore train to OPERABLE status.</p> | 24 hours        |
| L. One or more channels inoperable.   | L.1 Verify interlock is in required state for existing unit conditions.   | 1 hour          |
| M. One trip mechanism inoperable for one RTB.   | M.1 Restore inoperable trip mechanism to OPERABLE status.   | 48 hours        |
| N. Required Action and associated Completion Time of Condition D not met for Function 8.a, 9, 10, 11, 12, or 13, 16.a, or 16.b. | N.1 Reduce THERMAL POWER to < P-7.  | 6 hours         |

ACTIONS (continued)

| CONDITION   | REQUIRED ACTION                             | COMPLETION TIME |
|---|---|-----------------|
| <p>O Required Action and associated Completion Time of Condition L not met for Function 16.a or 16.b</p>  | <p>O.1 Reduce THERMAL POWER to &lt; P-8</p> | <p>6 hours</p>  |
| <p>OP Required Action and associated Completion Time of Condition L not met for Function 18.b, 18.c, or 18.e.</p>   | <p>OP.1 Be in MODE 2.</p>                   | <p>6 hours</p>  |
| <p>PQ Required Action and associated Completion Time of Condition B, J, K, or M not met in MODE 1 or 2.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition C not met.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition D not met for Function 2.b, 3.a, 3.b, 6, 7, 8.b, 14, or 15.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition L not met for Function 18.a or 18.d.</p> | <p>PQ.1 Be in MODE 3.</p>                   | <p>6 hours</p>  |



ACTIONS (continued)

| CONDITION  | REQUIRED ACTION  | COMPLETION TIME                     |
|--|--|-------------------------------------|
| <p><del>QR</del>. Required Action and associated Completion Time of Condition B not met in MODE 3, 4, or 5.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition L not met in MODE 3, 4, or 5 for Function 18.a.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition I not met.</p> | <p><del>QR</del>.1 Initiate action to fully insert all rods.</p> <p><u>AND</u></p> <p><del>QR</del>.2 Place the Rod Control System in a condition incapable of rod withdrawal.</p> | <p>Immediately</p><br><p>1 hour</p> |

SURVEILLANCE REQUIREMENTS

NOTE

Refer to Table 3.3.1-1 to determine which SRs apply for each RTS Function.

| SURVEILLANCE |                        | FREQUENCY |
|--------------|------------------------|-----------|
| SR 3.3.1.1   | Perform CHANNEL CHECK. | 12 hours  |

Table 3.3.1-1 (page 3 of 6)  
Reactor Trip System Instrumentation

| FUNCTION  | APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS                            | REQUIRED CHANNELS | CONDITIONS       | SURVEILLANCE REQUIREMENTS                | ALLOWABLE VALUE                  |
|---|---|-------------------|------------------|--|----------------------------------|
| 15. SG Water Level – Low (per SG)   | 1,2   | 2                 | D <sup>(f)</sup> | SR 3.3.1.1<br>SR 3.3.1.11<br>SR 3.3.1.13 | ≥ 25.0%                          |
| Coincident with Steam Flow/Feedwater Flow Mismatch (per SG)                             | 1,2   | 2                 | D <sup>(f)</sup> | SR 3.3.1.1<br>SR 3.3.1.11<br>SR 3.3.1.13 | ≤ 1.56E6 lb/hr steam flow at RTP |
| 16. Turbine Trip  |   |                   |                  |  |                                  |
| a. Low Fluid Oil Pressure   | 1 <sup>(e)(h)</sup>   | 3                 | D                | SR 3.3.1.13<br>SR 3.3.1.18               | ≥ 57 psig                        |
| b. Turbine Stop Valve Closure (per train)   | 1 <sup>(e)(h)</sup>   | 4                 | D                | SR 3.3.1.13<br>SR 3.3.1.18               | ≥ 1% open                        |
| 17. Safety Injection (SI) Input from Engineered Safety Feature Actuation System (ESFAS) | 1,2   | 2 trains          | J                | SR 3.3.1.6<br>SR 3.3.1.19                | NA                               |
| 18. Reactor Trip System Interlocks  |   |                   |                  |  |                                  |
| a. Intermediate Range Neutron Flux, P-6   | 2 <sup>(d)</sup> , 3 <sup>(a)</sup> , 4 <sup>(a)</sup> , 5 <sup>(a)</sup> | 2                 | L                | SR 3.3.1.14<br>SR 3.3.1.16               | ≥ 6E-11 amp                      |
| b. Low Power Reactor Trips Block, P-7   | 1   | 1 per train       | L                | SR 3.3.1.5                               | NA                               |
| c. Power Range Neutron Flux, P-8  | 1   | 4                 | L                | SR 3.3.1.14<br>SR 3.3.1.16               | ≤ 31% RTP                        |
| d. Power Range Neutron Flux, P-10   | 1,2   | 4                 | L                | SR 3.3.1.14<br>SR 3.3.1.16               | ≥ 9% RTP and<br>≤ 11% RTP        |
| e. Turbine First Stage Pressure, P-13   | 1   | 2                 | L                | SR 3.3.1.1<br>SR 3.3.1.13<br>SR 3.3.1.16 | ≤ 51 psig                        |

(a) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.

(d) Below the P-6 (Intermediate Range Neutron Flux) interlock.

~~(e) Above the P-7 (Low Power Reactor Trips Block) interlock.~~

(f) Separate condition entry is allowed per SG for only 1 of the 4 total Reactor Trip System Instrumentation Function 15 channels inoperable on each SG (i.e., for only 1 of 2 SG Water Level – Low channels or 1 of 2 Steam Flow/Feedwater Flow Mismatch channels inoperable on each SG). Any combination of 2 or more inoperable Reactor Trip System Instrumentation Function 15 channels on any SG requires immediate entry into LCO 3.0.3.

~~(h) Above the P-8 (Power Range Neutron Flux) interlock.~~

**Attachment 2A to AEP:NRC:6331-03**

**DONALD C. COOK NUCLEAR PLANT UNIT 1 TECHNICAL SPECIFICATION PAGES  
WITH THE PROPOSED CHANGES INCORPORATED**

3.3.1-4

3.3.1-5

3.3.1-6

3.3.1-13

ACTIONS (continued)

| CONDITION  | REQUIRED ACTION   | COMPLETION TIME |
|--|---|-----------------|
| J. One train inoperable.   | <p>J.1 -----NOTE-----<br/>One train may be bypassed for up to 4 hours for surveillance testing, provided the other train is OPERABLE.<br/>-----<br/>Restore train to OPERABLE status.</p> | 6 hours         |
| K. One RTB train inoperable.   | <p>K.1 -----NOTE-----<br/>One train may be bypassed for up to 4 hours for surveillance testing, provided the other train is OPERABLE.<br/>-----<br/>Restore train to OPERABLE status.</p> | 24 hours        |
| L. One or more channels inoperable.  | <p>L.1 Verify interlock is in required state for existing unit conditions.</p>  | 1 hour          |
| M. One trip mechanism inoperable for one RTB.  | <p>M.1 Restore inoperable trip mechanism to OPERABLE status.</p>  | 48 hours        |
| N. Required Action and associated Completion Time of Condition D not met for Function 8.a, 9, 10, 11, 12, or 13. | <p>N.1 Reduce THERMAL POWER to &lt; P-7.</p>  | 6 hours         |

ACTIONS (continued)

| CONDITION   | REQUIRED ACTION                              | COMPLETION TIME |
|---|--|-----------------|
| <p>O. Required Action and associated Completion Time of Condition D not met for Function 16.a or 16.b.</p>  | <p>O.1 Reduce THERMAL POWER to &lt; P-8.</p> | <p>6 hours</p>  |
| <p>P. Required Action and associated Completion Time of Condition L not met for Function 18.b, 18.c, or 18.e.</p>   | <p>P.1 Be in MODE 2.</p>                     | <p>6 hours</p>  |
| <p>Q. Required Action and associated Completion Time of Condition B, J, K, or M not met in MODE 1 or 2.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition C not met.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition D not met for Function 2.b, 3.a, 3.b, 6, 7, 8.b, 14, or 15.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition L not met for Function 18.a or 18.d.</p> | <p>Q.1 Be in MODE 3.</p>                     | <p>6 hours</p>  |

ACTIONS (continued)

| CONDITION  | REQUIRED ACTION   | COMPLETION TIME    |
|--|---|--------------------|
| <p>R. Required Action and associated Completion Time of Condition B not met in MODE 3, 4, or 5.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition L not met in MODE 3, 4, or 5 for Function 18.a.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition I not met.</p> | <p>R.1 Initiate action to fully insert all rods.</p> <p><u>AND</u></p>              | <p>Immediately</p> |
|  | <p>R.2 Place the Rod Control System in a condition incapable of rod withdrawal.</p> | <p>1 hour</p>      |

SURVEILLANCE REQUIREMENTS

-----NOTE-----

Refer to Table 3.3.1-1 to determine which SRs apply for each RTS Function.

| SURVEILLANCE                      | FREQUENCY |
|-----------------------------------|-----------|
| SR 3.3.1.1 Perform CHANNEL CHECK. | 12 hours  |

Table 3.3.1-1 (page 3 of 6)  
Reactor Trip System Instrumentation

| FUNCTION  | APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS                            | REQUIRED CHANNELS | CONDITIONS       | SURVEILLANCE REQUIREMENTS                | ALLOWABLE VALUE                  |
|---|---|-------------------|------------------|--|----------------------------------|
| 15. SG Water Level – Low (per SG)   | 1,2   | 2                 | D <sup>(f)</sup> | SR 3.3.1.1<br>SR 3.3.1.11<br>SR 3.3.1.13 | ≥ 9.7%                           |
| Coincident with Steam Flow/Feedwater Flow Mismatch (per SG)                             | 1,2   | 2                 | D <sup>(f)</sup> | SR 3.3.1.1<br>SR 3.3.1.11<br>SR 3.3.1.13 | ≤ 0.73E6 lb/hr steam flow at RTP |
| 16. Turbine Trip  |   |                   |                  |  |                                  |
| a. Low Fluid Oil Pressure   | 1 <sup>(h)</sup>  | 3                 | D                | SR 3.3.1.13<br>SR 3.3.1.18               | ≥ 750 psig                       |
| b. Turbine Stop Valve Closure (per train)   | 1 <sup>(h)</sup>  | 4                 | D                | SR 3.3.1.13<br>SR 3.3.1.18               | ≥ 1% open                        |
| 17. Safety Injection (SI) Input from Engineered Safety Feature Actuation System (ESFAS) | 1,2   | 2 trains          | J                | SR 3.3.1.6<br>SR 3.3.1.19                | NA                               |
| 18. Reactor Trip System Interlocks  |   |                   |                  |  |                                  |
| a. Intermediate Range Neutron Flux, P-6   | 2 <sup>(d)</sup> , 3 <sup>(a)</sup> , 4 <sup>(a)</sup> , 5 <sup>(a)</sup> | 2                 | L                | SR 3.3.1.14<br>SR 3.3.1.16               | ≥ 6E-11 amp                      |
| b. Low Power Reactor Trips Block, P-7   | 1   | 1 per train       | L                | SR 3.3.1.5                               | NA                               |
| c. Power Range Neutron Flux, P-8  | 1   | 4                 | L                | SR 3.3.1.14<br>SR 3.3.1.16               | ≤ 31% RTP                        |
| d. Power Range Neutron Flux, P-10   | 1,2   | 4                 | L                | SR 3.3.1.14<br>SR 3.3.1.16               | ≥ 9% RTP and ≤ 11% RTP           |
| e. Turbine First Stage Pressure, P-13   | 1   | 2                 | L                | SR 3.3.1.1<br>SR 3.3.1.13<br>SR 3.3.1.16 | ≤ 37 psig                        |

(a) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.

(d) Below the P-6 (Intermediate Range Neutron Flux) interlock.

(f) Separate condition entry is allowed per SG for only 1 of the 4 total Reactor Trip System Instrumentation Function 15 channels inoperable on each SG (i.e., for only 1 of 2 SG Water Level – Low channels or 1 of 2 Steam Flow/Feedwater Flow Mismatch channels inoperable on each SG). Any combination of 2 or more inoperable Reactor Trip System Instrumentation Function 15 channels on any SG requires immediate entry into LCO 3.0.3.

(h) Above the P-8 (Power Range Neutron Flux) Interlock.

**Attachment 2B to AEP:NRC:6331-03**

**DONALD C. COOK NUCLEAR PLANT UNIT 2 TECHNICAL SPECIFICATION PAGES  
WITH THE PROPOSED CHANGES INCORPORATED**

3.3.1-4

3.3.1-5

3.3.1-6

3.3.1-13



ACTIONS (continued)

| CONDITION  | REQUIRED ACTION   | COMPLETION TIME |
|--|---|-----------------|
| J. One train inoperable.   | <p>J.1 -----NOTE-----<br/>One train may be bypassed for up to 4 hours for surveillance testing, provided the other train is OPERABLE.<br/>-----<br/>Restore train to OPERABLE status.</p> | 6 hours         |
| K. One RTB train inoperable.   | <p>K.1 -----NOTE-----<br/>One train may be bypassed for up to 4 hours for surveillance testing, provided the other train is OPERABLE.<br/>-----<br/>Restore train to OPERABLE status.</p> | 24 hours        |
| L. One or more channels inoperable.  | L.1 Verify interlock is in required state for existing unit conditions.   | 1 hour          |
| M. One trip mechanism inoperable for one RTB.  | M.1 Restore inoperable trip mechanism to OPERABLE status.   | 48 hours        |
| N. Required Action and associated Completion Time of Condition D not met for Function 8.a, 9, 10, 11, 12, or 13. | N.1 Reduce THERMAL POWER to < P-7.  | 6 hours         |

ACTIONS (continued)

| CONDITION   | REQUIRED ACTION                              | COMPLETION TIME |
|---|--|-----------------|
| <p>O. Required Action and associated Completion Time of Condition D not met for Function 16.a or 16.b.</p>  | <p>O.1 Reduce THERMAL POWER to &lt; P-8.</p> | <p>6 hours</p>  |
| <p>P. Required Action and associated Completion Time of Condition L not met for Function 18.b, 18.c, or 18.e.</p>   | <p>P.1 Be in MODE 2.</p>                     | <p>6 hours</p>  |
| <p>Q. Required Action and associated Completion Time of Condition B, J, K, or M not met in MODE 1 or 2.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition C not met.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition D not met for Function 2.b, 3.a, 3.b, 6, 7, 8.b, 14, or 15.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition L not met for Function 18.a or 18.d.</p> | <p>Q.1 Be in MODE 3.</p>                     | <p>6 hours</p>  |

ACTIONS (continued)

| CONDITION  | REQUIRED ACTION   | COMPLETION TIME    |
|--|---|--------------------|
| <p>R. Required Action and associated Completion Time of Condition B not met in MODE 3, 4, or 5.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition L not met in MODE 3, 4, or 5 for Function 18.a.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition I not met.</p> | <p>R.1 Initiate action to fully insert all rods.</p> <p><u>AND</u></p>              | <p>Immediately</p> |
|  | <p>R.2 Place the Rod Control System in a condition incapable of rod withdrawal.</p> | <p>1 hour</p>      |

SURVEILLANCE REQUIREMENTS

NOTE

Refer to Table 3.3.1-1 to determine which SRs apply for each RTS Function.

| SURVEILLANCE |                        | FREQUENCY |
|--------------|------------------------|-----------|
| SR 3.3.1.1   | Perform CHANNEL CHECK. | 12 hours  |

Table 3.3.1-1 (page 3 of 6)  
Reactor Trip System Instrumentation

| FUNCTION  | APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS                            | REQUIRED CHANNELS | CONDITIONS       | SURVEILLANCE REQUIREMENTS                | ALLOWABLE VALUE                  |
|---|---|-------------------|------------------|--|----------------------------------|
| 15. SG Water Level – Low (per SG)   | 1,2   | 2                 | D <sup>(f)</sup> | SR 3.3.1.1<br>SR 3.3.1.11<br>SR 3.3.1.13 | ≥ 25.0%                          |
| Coincident with Steam Flow/Feedwater Flow Mismatch (per SG)                             | 1,2   | 2                 | D <sup>(f)</sup> | SR 3.3.1.1<br>SR 3.3.1.11<br>SR 3.3.1.13 | ≤ 1.56E6 lb/hr steam flow at RTP |
| 16. Turbine Trip  |   |                   |                  |  |                                  |
| a. Low Fluid Oil Pressure   | 1 <sup>(h)</sup>  | 3                 | D                | SR 3.3.1.13<br>SR 3.3.1.18               | ≥ 57 psig                        |
| b. Turbine Stop Valve Closure (per train)   | 1 <sup>(h)</sup>  | 4                 | D                | SR 3.3.1.13<br>SR 3.3.1.18               | ≥ 1% open                        |
| 17. Safety Injection (SI) Input from Engineered Safety Feature Actuation System (ESFAS) | 1,2   | 2 trains          | J                | SR 3.3.1.6<br>SR 3.3.1.19                | NA                               |
| 18. Reactor Trip System Interlocks  |   |                   |                  |  |                                  |
| a. Intermediate Range Neutron Flux, P-6   | 2 <sup>(d)</sup> , 3 <sup>(a)</sup> , 4 <sup>(a)</sup> , 5 <sup>(a)</sup> | 2                 | L                | SR 3.3.1.14<br>SR 3.3.1.16               | ≥ 6E-11 amp                      |
| b. Low Power Reactor Trips Block, P-7   | 1   | 1 per train       | L                | SR 3.3.1.5                               | NA                               |
| c. Power Range Neutron Flux, P-8  | 1   | 4                 | L                | SR 3.3.1.14<br>SR 3.3.1.16               | ≤ 31% RTP                        |
| d. Power Range Neutron Flux, P-10   | 1,2   | 4                 | L                | SR 3.3.1.14<br>SR 3.3.1.16               | ≥ 9% RTP and<br>≤ 11% RTP        |
| e. Turbine First Stage Pressure, P-13   | 1   | 2                 | L                | SR 3.3.1.1<br>SR 3.3.1.13<br>SR 3.3.1.16 | ≤ 51 psig                        |

(a) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.

(d) Below the P-6 (Intermediate Range Neutron Flux) interlock.

(f) Separate condition entry is allowed per SG for only 1 of the 4 total Reactor Trip System Instrumentation Function 15 channels inoperable on each SG (i.e., for only 1 of 2 SG Water Level – Low channels or 1 of 2 Steam Flow/Feedwater Flow Mismatch channels inoperable on each SG). Any combination of 2 or more inoperable Reactor Trip System Instrumentation Function 15 channels on any SG requires immediate entry into LCO 3.0.3.

(h) Above the P-8 (Power Range Neutron Flux) Interlock.