

ATTACHMENT NO. 2 TO AEP:NRC:0659D

DONALD C. COOK NUCLEAR PLANT UNIT NO. 2

REASONS AND 10 CFR 50.92 JUSTIFICATIONS FOR THE
PROPOSED TECHNICAL SPECIFICATION CHANGES

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For clarity the Unit 2 T/S proposed changes are grouped into several categories. Many of these changes are to achieve consistency with the Unit 1 T/S and the STS. Page references to these documents are given where appropriate.

- A) The purpose of the first group of proposed changes is to make the Unit 2 Action Statements 2 and 6 like the Unit 1 T/S and the STS. Specifically we would like to change the phrase "one additional" to "the inoperable." This change is one that constitutes an additional restriction not presently included in the T/S. Therefore this change does not involve a significant hazards consideration as defined in 10 CFR 50.92.

Page References:

Action Statement 2; Unit 2 3/4 3-5
Unit 1 3/4 3-6
STS 3/4 3-7

Action Statement 6; Unit 2 3/4 3-6
Unit 1 3/4 3-7
STS 3/4 3-8

- B) The second group of proposed changes to Unit 2 T/S requests an extension to the period of time in which one channel of our solid state protection system can be bypassed for surveillance testing. Specifically, we are requesting the one-hour time limit be extended to two hours in Action Statement 1 and Action Statement 13. The reasons for these changes are the same as those proposed for Unit 1 Category C. Although the changes may result in some increase to the probability or consequences of a previously analyzed accident or may reduce in some way a safety margin, the results of the change are clearly within all acceptable criteria with respect to the systems specified in the STS. Therefore, we believe that these changes do not involve significant hazards considerations as defined by 10 CFR 50.92.

Page References:

Action Statement 1; Unit 2 3/4 3-5
STS 3/4 3-9 (Action Statement 12)

Action Statement 13; Unit 2 3/4 3-21
STS 3/4 3-29 (Action Statement 14)

- C) The third proposed change to the Unit 2 T/S is an editorial change to Action Statement 2, part C on page 3/4 3-5. This change adds a reference clearly defining the specification by which the quadrant power tilt ratio is to be measured. This change is purely administrative in nature and is intended to achieve consistency with the Unit 1 T/S and with the STS. Therefore, we believe this change does not involve significant hazards consideration as defined in 10 CFR 50.92.

Page References: Unit 1 3/4 3-6
STS 3/4 3-7

- D) The fourth proposed change to the Unit 2 T/S is a change to Action Statement 16 on page 3/4 3-21. This change updates the T/S regarding the conditions under which operation may proceed with the number of operable channels less than total number of channels. The proposed change will achieve consistency with the STS. Although it is a change which may result in some increase to the probability or consequence of a previously analyzed accident or may reduce in some way a safety margin, the result of the change is clearly within all acceptable criteria with respect to the systems specified in the STS. Therefore, we believe that this change does not involve significant hazard consideration as defined by 10 CFR 50.92.

Page Reference: STS 3/4 3-29 (Action 17)

ATTACHMENT NO. 3 TO AEP:NRC:0659D
DONALD C. COOK NUCLEAR PLANT UNIT NO. 1
THE PROPOSED REVISIONS TO UNIT NO. 1
TECHNICAL SPECIFICATIONS

3/4.3 INSTRUMENTATION

3/4.3.1 REACTOR TRIP SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.1.1 As a minimum, the reactor trip system instrumentation channels and interlocks of Table 3.3-1 shall be OPERABLE with RESPONSE TIMES as shown in Table 3.3-2.

APPLICABILITY: As shown in Table 3.3-1.

ACTION:

As shown in Table 3.3-1.

SURVEILLANCE REQUIREMENTS

4.3.1.1.1 Each reactor trip system instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations for the MODES and at the frequencies shown in Table 4.3-1.

4.3.1.1.2 The logic for the interlocks shall be demonstrated OPERABLE prior to each reactor startup unless performed during the preceding 92 days. The total interlock function shall be demonstrated OPERABLE at least once per 18 months during CHANNEL CALIBRATION testing of each channel affected by interlock operation.

4.3.1.1.3 The REACTOR TRIP SYSTEM RESPONSE TIME of each reactor trip function shall be demonstrated to be within its limit at least once per 18 months. Each test shall include at least one logic train such that both logic trains are tested at least once per 36 months and one channel per function such that all channels are tested at least once every N times 18 months where N is the total number of redundant channels in a specific reactor trip function as shown in the "Total No. of Channels" column of Table 3.3-1.

TABLE 3.3-2

REACTOR TRIP SYSTEM INSTRUMENTATION RESPONSE TIMES

<u>FUNCTIONAL UNIT</u>	<u>RESPONSE TIME</u>
1. Manual Reactor Trip	NOT APPLICABLE
2. Power Range, Neutron Flux	≤ 0.5 seconds*
3. Power Range, Neutron Flux, High Positive Rate	NOT APPLICABLE
4. Power Range, Neutron Flux, High Negative Rate	≤ 0.5 seconds*
5. Intermediate Range, Neutron Flux	NOT APPLICABLE
6. Source Range, Neutron Flux	NOT APPLICABLE
7. Overtemperature ΔT	≤ 6.0 seconds*
8. Overpower ΔT	NOT APPLICABLE
9. Pressurizer Pressure--Low	≤ 1.0 seconds
10. Pressurizer Pressure--High	≤ 1.0 seconds
11. Pressurizer Water Level--High	NOT APPLICABLE

* Neutron detectors are exempt from response time testing. Response time of the neutron flux signal portion of the channel shall be measured from detector output or input of first electronic component in channel.

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TABLE 4.3-1 (Continued)

NOTATION

- * - With the reactor trip system breakers closed and the control rod drive system capable of rod withdrawal.
- (1) - If not performed in previous 7 days.
- (2) - Heat balance only, above 15% of RATED THERMAL POWER. Adjust channel if absolute difference > 2 percent.
- (3) - Compare incore to excore axial imbalance above 15% of RATED THERMAL POWER. Recalibrate if absolute difference \geq 3 percent.
- (4) - Manual ESF functional input check every 18 months.
- (5) - Each train tested every other month.
- (6) - Neutron detectors may be excluded from CHANNEL CALIBRATION.
- (7) - Below P-6 (BLOCK OF SOURCE RANGE REACTOR TRIP) setpoint.

INSTRUMENTATION

3/4.3.2 ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.2.1 The Engineered Safety Feature Actuation System (ESFAS) instrumentation channels and interlocks shown in Table 3.3-3 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3-4 and with RESPONSE TIMES as shown in Table 3.3-5.

APPLICABILITY: As shown in Table 3.3-3.

ACTION:

- a. With an ESFAS instrumentation channel trip setpoint less conservative than the value shown in the Allowable Values column of Table 3.3-4, declare the channel inoperable and apply the applicable ACTION requirement of Table 3.3-3 until the channel is restored to OPERABLE status with the trip setpoint adjusted consistent with the Trip Setpoint value.
- b. With an ESFAS instrumentation channel inoperable, take the ACTION shown in Table 3.3-3.

SURVEILLANCE REQUIREMENTS

4.3.2.1.1 Each ESFAS instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations for the MODES and at the frequencies shown in Table 4.3-2.

4.3.2.1.2 The logic for the interlocks shall be demonstrated OPERABLE during the automatic actuation logic test. The total interlock function shall be demonstrated OPERABLE at least once per 18 months during CHANNEL CALIBRATION testing of each channel affected by interlock operation.

4.3.2.1.3 The ENGINEERED SAFETY FEATURES RESPONSE TIME of each ESFAS function shall be demonstrated to be within the limit at least once per 18 months. Each test shall include at least one logic train such that both logic trains are tested at least once per 36 months and one channel per function such that all channels are tested at least once per N times 18 months where N is the total number of redundant channels in a specific ESFAS function as shown in the "Total No. of Channels" Column of Table 3.3-3.

TABLE 3.3-3

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
1. SAFETY INJECTION; TURBINE TRIP, FEEDWATER ISOLATION, AND MOTOR DRIVEN FEEDWATER PUMPS					
a. Manual Initiation	2	1	2	1, 2, 3, 4	18
b. Automatic Actuation Logic	2	1	2	1, 2, 3, 4	13
c. Containment Pressure-High	3	2	2	1, 2, 3	14*
d. Pressurizer Pressure - Low	3	2	2	1, 2, 3#	14*
e. Differential Pressure Between Steam Lines - High				1, 2, 3##	
Four Loops Operating	3/steam line	2/steam line any steam line	2/steam line		14*
Three Loops Operating	3/operating steam line	1###/steam line, any operating steam line	2/operating steam line		15

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
f. Steam Flow in Two Steam Lines-High				1, 2, 3 ^{##}	
Four Loops Operating	2/steam line	1/steam line any 2 steam lines	1/steam line		14*
Three Loops Operating	2/operating steam line	1 ^{###} /any operating steam line	1/operating steam line		15
COINCIDENT WITH EITHER					
T _{avg} --Low-Low				1, 2, 3 ^{##}	
Four Loops Operating	1 T _{avg} /loop	2 T _{avg} any loops	1 T _{avg} any 3 loops		14*
Three Loops Operating	1 T _{avg} / operating loop	1 ^{###} T _{avg} in any operating loop	1 T _{avg} in any two operating loops		15

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
OR, COINCIDENT WITH					
Steam Line Pressure-Low				1, 2, 3 ^{##}	
Four Loops Operating	1 pressure/ loop	2 pressures any loops	1 pressure any 3 loops		14*
Three Loops Operating	1 pressure/ operating loop	1 ^{###} pressure in any oper- ating loop	1 pressure in any 2 operating loops		15
2. CONTAINMENT SPRAY					
a. Manual	2	2	2	1, 2, 3, 4	18
b. Automatic Actuation Logic	2	1	2	1, 2, 3, 4	13
c. Containment Pressure-- High-High	4	2	3	1, 2, 3	16

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TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
4. STEAM LINE ISOLATION					
a. Manual	1/steam line	1/steam line	1/operating steam line	1, 2, 3	18
b. Automatic Actuation Logic	2	1	2	1, 2, 3	13
c. Containment Pressure-- High-High	4	2	3	1, 2, 3	16
d. Steam Flow in Two Steam Lines--High				1, 2, 3 ^{##}	
Four Loops Operating	2/steam line	1/steam line any 2 steam lines	1/steam line		14*
Three Loops Operating	2/operating steam line	1 ^{###} /any operating steam line	1/operating steam line		15

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
COINCIDENT WITH EITHER T _{avg} --Low-Low				1, 2, 3 ^{##}	
Four Loops Operating	1 T _{avg} /loop	2 T _{avg} any loops	1 T _{avg} any 3 loops		14*
Three Loops Operating	1 T _{avg} /oper- ating loop	1 ^{###} T _{avg} in any operating loop	1 T _{avg} in any two operating loops		15
OR, COINCIDENT WITH Steam Line Pressure- Low				1, 2, 3 ^{##}	
Four Loops Operating	1 pressure/ loop	2 pressures any loops	1 pressure any 3 loops		14*
Three Loops Operating	1 pressure/ operating loop	1 ^{###} pressure in any oper- ating loop	1 pressure in any 2 oper- ating loops		15
5. TURBINE TRIP & FEEDWATER ISOLATION					
a. Steam Generator Water Level-- High-High	3/loop	2/loop in any oper- ating loop	2/loop in each oper- ating loop	1, 2, 3	14*

TABLE 3.3-3 (Continued)

TABLE NOTATION

#Trip function may be bypassed in this MODE below P-11.

##Trip function may be bypassed in this MODE below P-12.

###The channel(s) associated with the protective functions derived from the out of service Reactor Coolant Loop shall be placed in the tripped mode.

*The provision of Specification 3.0.4 are not applicable.

ACTION STATEMENTS

- ACTION 13 - With the number of OPERABLE Channels one less than the Total Number of Channels, be in HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours; however, one channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.
- ACTION 14 - With the number of OPERABLE Channels one less than the Total Number of Channels, operations may proceed until performance of the next required CHANNEL FUNCTIONAL TEST provided the inoperable channel is placed in the tripped condition within 1 hour.
- ACTION 15 - With a channel associated with an operating loop inoperable, restore the inoperable channel to OPERABLE status within 2 hours or be in HOT SHUTDOWN within the following 12 hours; however, one channel associated with an operating loop may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.
- ACTION 16 - With the number of OPERABLE Channels one less than the Total Number of Channels, operation may proceed provided the inoperable channel is placed in the bypassed condition and the Minimum Channels OPERABLE requirement is met; one additional channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.

TABLE 3.3-3 (Continued)

- ACTION 17 - With less than the Minimum Channels OPERABLE, operation may continue provided the containment purge and exhaust valves are maintained closed.
- ACTION 18 - 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 COLD SHUTDOWN within the following 30 hours.
- ACTION 19 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:
- a. The inoperable channel is placed in the tripped condition within 1 hour.
 - b. The Minimum Channels OPERABLE requirements is met; however, one additional channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.

ENGINEERED SAFETY FEATURES INTERLOCKS

<u>DESIGNATION</u>	<u>CONDITION AND SETPOINT</u>	<u>FUNCTION</u>
P-11	With 2 of 3 pressurizer pressure channels ≥ 1915 psig.	P-11 prevents or defeats manual block of safety injection actuation on low pressurizer pressure.
P-12	With 3 of 4 T_{avg} channels $\geq 544^{\circ}\text{F}$.	P-12 prevents or defeats manual block of safety injection actuation high steam line flow and low steam line pressure.
	With 2 of 4 T_{avg} channels $< 540^{\circ}\text{F}$.	Allows manual block of safety injection actuation on high steam line flow and low steam line pressure. Causes steam line isolation on high steam flow. Affects steam dump blocks.

ATTACHMENT NO. 4 TO AEP:NRC:0659D

DONALD C. COOK NUCLEAR PLANT UNIT NO. 2

THE PROPOSED REVISIONS TO UNIT NO. 2

TECHNICAL SPECIFICATIONS

TABLE 3.3-1 (Continued)

TABLE NOTATION

*With the reactor trip system breakers in the closed position and the control rod drive system capable of rod withdrawal.

**The channel(s) associated with the protective functions derived from the out of service Reactor Coolant Loop shall be placed in the tripped condition.

#The provisions of Specification 3.0.4 are not applicable.

##High voltage to detector may be de-energized above P-6.

ACTION STATEMENTS

- ACTION 1 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, be in HOT STANDBY within 6 hours; however, one channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.1.1.1.
- ACTION 2 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:
- a. The inoperable channel is placed in the tripped condition within 1 hour.
 - b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.1.1.1.
 - c. Either, THERMAL POWER is restricted to $\leq 75\%$ of RATED THERMAL POWER and the Power Range, Neutron Flux trip setpoint is reduced to $\leq 85\%$ of RATED THERMAL POWER within 4 hours; or, the QUADRANT POWER TILT RATIO is monitored at least once per 12 hours per Specification 4.2.4.c.
- ACTION 3 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:

TABLE 3.3-1 (Continued)

- a. Below P-6, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 Setpoint.
 - b. Above P-6 but below 5% of RATED THERMAL POWER, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above 5% of RATED THERMAL POWER.
 - c. Above 5% of RATED THERMAL POWER, POWER OPERATION may continue.
- ACTION 4 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:
- a. Below P-6, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 Setpoint.
 - b. Above P-6, operation may continue.
- ACTION 5 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, verify compliance with the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 or 3.1.1.2, as applicable, within 1 hour and at least once per 12 hours thereafter.
- ACTION 6 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:
- a. The inoperable channel is placed in the tripped condition within 1 hour.
 - b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 2 hours for surveillance testing of the other channels per Specification 4.3.1.1.1.
- ACTION 7 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed until performance of the next required CHANNEL FUNCTIONAL TEST provided the inoperable channel is placed in the tripped condition within 1 hour.

TABLE 3.3-3 (Continued)

TABLE NOTATION

- # Trip function may be bypassed in this MODE below P-11.
- ## Trip function may be bypassed in this MODE below P-12.
- ### The channel(s) associated with the protective functions derived from the out of service Reactor Coolant Loop shall be placed in the tripped mode.
- * The provision of Specification 3.0.4 are not applicable.

ACTION STATEMENTS

- ACTION 13 - With the number of OPERABLE Channels one less than the Total Number of Channels, be in HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours; however, one channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.
- ACTION 14 - With the number of OPERABLE Channels one less than the Total Number of Channels, operation may proceed until performance of the next required CHANNEL FUNCTIONAL TEST provided the inoperable channel is placed in the tripped condition within 1 hour.
- ACTION 15 - With a channel associated with an operating loop inoperable, restore the inoperable channel to OPERABLE status within 2 hours or be in HOT SHUTDOWN within the following 12 hours; however, one channel associated with an operating loop may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.
- ACTION 16 - With the number of OPERABLE Channels one less than the Total Number of Channels, operation may proceed provided the inoperable channel is placed in the bypassed condition and the Minimum Channels OPERABLE requirement is met; one additional channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.

ATTACHMENT NO. 3 TO AEP:NRC:0659D
DONALD C. COOK NUCLEAR PLANT UNIT NO. 1
THE PROPOSED REVISIONS TO UNIT NO. 1
TECHNICAL SPECIFICATIONS

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3/4.3 INSTRUMENTATION

3/4.3.1 REACTOR TRIP SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.1.1 As a minimum, the reactor trip system instrumentation channels and interlocks of Table 3.3-1 shall be OPERABLE with RESPONSE TIMES as shown in Table 3.3-2.

APPLICABILITY: As shown in Table 3.3-1.

ACTION:

As shown in Table 3.3-1.

SURVEILLANCE REQUIREMENTS

4.3.1.1.1 Each reactor trip system instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations for the MODES and at the frequencies shown in Table 4.3-1.

4.3.1.1.2 The logic for the interlocks shall be demonstrated OPERABLE prior to each reactor startup unless performed during the preceding 92 days. The total interlock function shall be demonstrated OPERABLE at least once per 18 months during CHANNEL CALIBRATION testing of each channel affected by interlock operation.

4.3.1.1.3 The REACTOR TRIP SYSTEM RESPONSE TIME of each reactor trip function shall be demonstrated to be within its limit at least once per 18 months. Each test shall include at least one logic train such that both logic trains are tested at least once per 36 months and one channel per function such that all channels are tested at least once every N times 18 months where N is the total number of redundant channels in a specific reactor trip function as shown in the "Total No. of Channels" column of Table 3.3-1.

TABLE 3.3-2

REACTOR TRIP SYSTEM INSTRUMENTATION RESPONSE TIMES

<u>FUNCTIONAL UNIT</u>	<u>RESPONSE TIME</u>
1. Manual Reactor Trip	NOT APPLICABLE
2. Power Range, Neutron Flux	≤ 0.5 seconds*
3. Power Range, Neutron Flux, High Positive Rate	NOT APPLICABLE
4. Power Range, Neutron Flux, High Negative Rate	≤ 0.5 seconds*
5. Intermediate Range, Neutron Flux	NOT APPLICABLE
6. Source Range, Neutron Flux	NOT APPLICABLE
7. Overtemperature ΔT	≤ 6.0 seconds*
8. Overpower ΔT	NOT APPLICABLE
9. Pressurizer Pressure--Low	≤ 1.0 seconds
10. Pressurizer Pressure--High	≤ 1.0 seconds
11. Pressurizer Water Level--High	NOT APPLICABLE

* _____
 Neutron detectors are exempt from response time testing. Response time of the neutron flux signal portion of the channel shall be measured from detector output or input of first electronic component in channel.

D. C. COOK-UNIT 1

3/4 3-10

Amendment No.

TABLE 4.3-1 (Continued)

NOTATION

- * - With the reactor trip system breakers closed and the control rod drive system capable of rod withdrawal.
- (1) - If not performed in previous 7 days.
- (2) - Heat balance only, above 15% of RATED THERMAL POWER. Adjust channel if absolute difference > 2 percent.
- (3) - Compare incore to excore axial imbalance above 15% of RATED THERMAL POWER. Recalibrate if absolute difference \geq 3 percent.
- (4) - Manual ESF functional input check every 18 months.
- (5) - Each train tested every other month.
- (6) - Neutron detectors may be excluded from CHANNEL CALIBRATION.
- (7) - Below P-6 (BLOCK OF SOURCE RANGE REACTOR TRIP) setpoint.

INSTRUMENTATION

3/4.3.2 ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.2.1 The Engineered Safety Feature Actuation System (ESFAS) instrumentation channels and interlocks shown in Table 3.3-3 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3-4 and with RESPONSE TIMES as shown in Table 3.3-5.

APPLICABILITY: As shown in Table 3.3-3.

ACTION:

- a. With an ESFAS instrumentation channel trip setpoint less conservative than the value shown in the Allowable Values column of Table 3.3-4, declare the channel inoperable and apply the applicable ACTION requirement of Table 3.3-3 until the channel is restored to OPERABLE status with the trip setpoint adjusted consistent with the Trip Setpoint value.
- b. With an ESFAS instrumentation channel inoperable, take the ACTION shown in Table 3.3-3.

SURVEILLANCE REQUIREMENTS

4.3.2.1.1 Each ESFAS instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations for the MODES and at the frequencies shown in Table 4.3-2.

4.3.2.1.2 The logic for the interlocks shall be demonstrated OPERABLE during the automatic actuation logic test. The total interlock function shall be demonstrated OPERABLE at least once per 18 months during CHANNEL CALIBRATION testing of each channel affected by interlock operation.

4.3.2.1.3 The ENGINEERED SAFETY FEATURES RESPONSE TIME of each ESFAS function shall be demonstrated to be within the limit at least once per 18 months. Each test shall include at least one logic train such that both logic trains are tested at least once per 36 months and one channel per function such that all channels are tested at least once per N times 18 months where N is the total number of redundant channels in a specific ESFAS function as shown in the "Total No. of Channels" Column of Table 3.3-3.

TABLE 3.3-3

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
1. SAFETY INJECTION; TURBINE TRIP, FEEDWATER ISOLATION, AND MOTOR DRIVEN FEEDWATER PUMPS					
a. Manual Initiation	2	1	2	1, 2, 3, 4	18
b. Automatic Actuation Logic	2	1	2	1, 2, 3, 4	13
c. Containment Pressure-High	3	2	2	1, 2, 3	14*
d. Pressurizer Pressure - Low	3	2	2	1, 2, 3#	14*
e. Differential Pressure Between Steam Lines - High				1, 2, 3##	
Four Loops Operating	3/steam line	2/steam line any steam line	2/steam line		14*
Three Loops Operating	3/operating steam line	1###/steam line, any operating steam line	2/operating steam line		15

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
f. Steam Flow in Two Steam Lines-High				1, 2, 3 ^{##}	
Four Loops Operating	2/steam line	1/steam line any 2 steam lines	1/steam line		14*
Three Loops Operating	2/operating steam line	1 ^{###} /any operating steam line	1/operating steam line		15
COINCIDENT WITH EITHER					
T _{avg} --Low-Low				1, 2, 3 ^{##}	
Four Loops Operating	1 T _{avg} /loop	2 T _{avg} any loops	1 T _{avg} any 3 loops		14*
Three Loops Operating	1 T _{avg} / operating loop	1 ^{###} T _{avg} in any operating loop	1 T _{avg} in any two operating loops		15

D. C. COOK-UNIT 1

3/4 3-17

Amendment No.

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
OR, COINCIDENT WITH					
Steam Line Pressure-Low				1, 2, 3 ^{##}	
Four Loops Operating	1 pressure/ loop	2 pressures any loops	1 pressure any 3 loops		14*
Three Loops Operating	1 pressure/ operating loop	1 ^{###} pressure in any oper- ating loop	1 pressure in any 2 operating loops		15
2. CONTAINMENT SPRAY					
a. Manual	2	2	2	1, 2, 3, 4	18
b. Automatic Actuation Logic	2	1	2	1, 2, 3, 4	13
c. Containment Pressure-- High-High	4	2	3	1, 2, 3	16

D. C. COOK-UNIT 1

3/4 3-18

Amendment No.

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
4. STEAM LINE ISOLATION					
a. Manual	1/steam line	1/steam line	1/operating steam line	1, 2, 3	18
b. Automatic Actuation Logic	2	1	2	1, 2, 3	13
c. Containment Pressure-- High-High	4	2	3	1, 2, 3	16
d. Steam Flow in Two Steam Lines--High				1, 2, 3 ^{##}	
Four Loops Operating	2/steam line	1/steam line any 2 steam lines	1/steam line		14*
Three Loops Operating	2/operating steam line	1 ^{###} /any operating steam line	1/operating steam line		15

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
COINCIDENT WITH EITHER T _{avg} --Low-Low				1, 2, 3 ^{##}	
Four Loops Operating	1 T _{avg} /loop	2 T _{avg} any loops	1 T _{avg} any 3 loops		14*
Three Loops Operating	1 T _{avg} /oper- ating loop	1 ^{###} T _{avg} in any operating loop	1 T _{avg} in any two operating loops		15
OR, COINCIDENT WITH Steam Line Pressure- Low				1, 2, 3 ^{##}	
Four Loops Operating	1 pressure/ loop	2 pressures any loops	1 pressure any 3 loops		14*
Three Loops Operating	1 pressure/ operating loop	1 ^{###} pressure in any oper- ating loop	1 pressure in any 2 oper- ating loops		15
5. TURBINE TRIP & FEEDWATER ISOLATION					
a. Steam Generator Water Level-- High-High	3/loop	2/loop in any oper- ating loop	2/loop in each oper- ating loop	1, 2, 3	14*

TABLE 3.3-3 (Continued)

TABLE NOTATION

#Trip function may be bypassed in this MODE below P-11.

##Trip function may be bypassed in this MODE below P-12.

###The channel(s) associated with the protective functions derived from the out of service Reactor Coolant Loop shall be placed in the tripped mode.

*The provision of Specification 3.0.4 are not applicable.

ACTION STATEMENTS

- ACTION 13 - With the number of OPERABLE Channels one less than the Total Number of Channels, be in HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours; however, one channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.
- ACTION 14 - With the number of OPERABLE Channels one less than the Total Number of Channels, operations may proceed until performance of the next required CHANNEL FUNCTIONAL TEST provided the inoperable channel is placed in the tripped condition within 1 hour.
- ACTION 15 - With a channel associated with an operating loop inoperable, restore the inoperable channel to OPERABLE status within 2 hours or be in HOT SHUTDOWN within the following 12 hours; however, one channel associated with an operating loop may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.
- ACTION 16 - With the number of OPERABLE Channels one less than the Total Number of Channels, operation may proceed provided the inoperable channel is placed in the bypassed condition and the Minimum Channels OPERABLE requirement is met; one additional channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.

TABLE 3.3-3 (Continued)

- ACTION 17 - With less than the Minimum Channels OPERABLE, operation may continue provided the containment purge and exhaust valves are maintained closed.
- ACTION 18 - 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 COLD SHUTDOWN within the following 30 hours.
- ACTION 19 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:
- The inoperable channel is placed in the tripped condition within 1 hour.
 - The Minimum Channels OPERABLE requirements is met; however, one additional channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.

ENGINEERED SAFETY FEATURES INTERLOCKS

<u>DESIGNATION</u>	<u>CONDITION AND SETPOINT</u>	<u>FUNCTION</u>
P-11	With 2 of 3 pressurizer pressure channels ≥ 1915 psig.	P-11 prevents or defeats manual block of safety injection actuation on low pressurizer pressure.
P-12	With 3 of 4 T_{avg} channels $\geq 544^{\circ}\text{F}$.	P-12 prevents or defeats manual block of safety injection actuation high steam line flow and low steam line pressure.
	With 2 of 4 T_{avg} channels $< 540^{\circ}\text{F}$.	Allows manual block of safety injection actuation on high steam line flow and low steam line pressure. Causes steam line isolation on high steam flow. Affects steam dump blocks.

ATTACHMENT NO. 4 TO AEP:NRC:0659D
DONALD C. COOK NUCLEAR PLANT UNIT NO. 2
THE PROPOSED REVISIONS TO UNIT NO. 2
TECHNICAL SPECIFICATIONS

TABLE 3.3-1 (Continued)

TABLE NOTATION

*With the reactor trip system breakers in the closed position and the control rod drive system capable of rod withdrawal.

**The channel(s) associated with the protective functions derived from the out of service Reactor Coolant Loop shall be placed in the tripped condition.

#The provisions of Specification 3.0.4 are not applicable.

##High voltage to detector may be de-energized above P-6.

ACTION STATEMENTS

- ACTION 1 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, be in HOT STANDBY within 6 hours; however, one channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.1.1.1.
- ACTION 2 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:
- a. The inoperable channel is placed in the tripped condition within 1 hour.
 - b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.1.1.1.
 - c. Either, THERMAL POWER is restricted to $\leq 75\%$ of RATED THERMAL POWER and the Power Range, Neutron Flux trip setpoint is reduced to $\leq 85\%$ of RATED THERMAL POWER within 4 hours; or, the QUADRANT POWER TILT RATIO is monitored at least once per 12 hours per Specification 4.2.4.c.
- ACTION 3 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:

TABLE 3.3-1 (Continued)

- a. Below P-6, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 Setpoint.
 - b. Above P-6 but below 5% of RATED THERMAL POWER, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above 5% of RATED THERMAL POWER.
 - c. Above 5% of RATED THERMAL POWER, POWER OPERATION may continue.
- ACTION 4 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:
- a. Below P-6, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 Setpoint.
 - b. Above P-6, operation may continue.
- ACTION 5 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, verify compliance with the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 or 3.1.1.2, as applicable, within 1 hour and at least once per 12 hours thereafter.
- ACTION 6 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:
- a. The inoperable channel is placed in the tripped condition within 1 hour.
 - b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 2 hours for surveillance testing of the other channels per Specification 4.3.1.1.1.
- ACTION 7 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed until performance of the next required CHANNEL FUNCTIONAL TEST provided the inoperable channel is placed in the tripped condition within 1 hour.

TABLE 3.3-3 (Continued)

TABLE NOTATION

#Trip function may be bypassed in this MODE below P-11.

##Trip function may be bypassed in this MODE below P-12.

###The channel(s) associated with the protective functions derived from the out of service Reactor Coolant Loop shall be placed in the tripped mode.

* The provision of Specification 3.0.4 are not applicable.

ACTION STATEMENTS

- ACTION 13 - With the number of OPERABLE Channels one less than the Total Number of Channels, be in HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours; however, one channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.
- ACTION 14 - With the number of OPERABLE Channels one less than the Total Number of Channels, operation may proceed until performance of the next required CHANNEL FUNCTIONAL TEST provided the inoperable channel is placed in the tripped condition within 1 hour.
- ACTION 15 - With a channel associated with an operating loop inoperable, restore the inoperable channel to OPERABLE status within 2 hours or be in HOT SHUTDOWN within the following 12 hours; however, one channel associated with an operating loop may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.
- ACTION 16 - With the number of OPERABLE Channels one less than the Total Number of Channels, operation may proceed provided the inoperable channel is placed in the bypassed condition and the Minimum Channels OPERABLE requirement is met; one additional channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.