

ATTACHMENT TO AEP:NRC:0856H
PROPOSED CHANGES TO THE
DONALD C. COOK NUCLEAR PLANT UNIT NOS. 1 AND 2
TECHNICAL SPECIFICATIONS

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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>
6. MOTOR DRIVEN AUXILIARY FEEDWATER PUMPS					
a. Steam Generator Water Level -- Low-Low	3/Stm. Gen.	2/Stm. Gen. any Stm. Gen.	2/Stm. Gen.	1, 2, 3	14*
b. 4 kv Bus Loss of Voltage	2/Bus	2/Bus	2/Bus	1, 2, 3	14*
c. Safety Injection	2	1	2	1, 2, 3	18*
d. Loss of Main Feedwater Pumps	2	2	2	1, 2	18*
7. TURBINE DRIVEN AUXILIARY FEEDWATER PUMPS					
a. Steam Generator Water Level -- Low-Low	3/Stm. Gen.	2/Stm. Gen. any 2 Stm. Gen.	2/Stm. Gen.	1, 2, 3	14*
b. Reactor Coolant Pump Bus Undervoltage	4-1/Bus	2	3	1, 2, 3	19*
8. LOSS OF POWER					
a. 4 kv Bus Loss of Voltage	3/Bus	2/Bus	2/Bus	1, 2, 3, 4	14*
b. 4 kv Bus Degraded Voltage	3/Bus	2/Bus	2/Bus	1, 2, 3, 4	14*

PLANT SYSTEMS

AUXILIARY FEEDWATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.1.2 At least three independent steam generator auxiliary feedwater pumps and associated flow paths shall be OPERABLE with:

- a. Two feedwater pumps, each capable of being powered from separate emergency busses, and
- b. One feedwater pump capable of being powered from an OPERABLE steam supply system.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

- a. With one auxiliary feedwater pump inoperable, restore the required auxiliary feedwater pumps to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- b. With two auxiliary feedwater pumps inoperable, be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours.
- c. With three auxiliary feedwater pumps inoperable, immediately initiate corrective action to restore at least one auxiliary feedwater pump to OPERABLE status as soon as possible.

SURVEILLANCE REQUIREMENTS

4.7.1.2 Each auxiliary feedwater pump shall be demonstrated OPERABLE:

- a. At least once per 31 days by:
 1. Verifying that each motor driven pump develops an equivalent discharge pressure of ≥ 1375 psig at 60°F on recirculation flow.
 2. Verifying that the steam turbine driven pump develops an equivalent discharge pressure of ≥ 1285 psig at 60°F and at a flow of ≥ 700 gpm when the secondary steam supply pressure is greater than 310 psig. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

3. Verifying that each non-automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in its correct position.
 4. Verifying that when above 10% RATED THERMAL POWER each automatic valve in the flow path is in the fully open position and that each auxiliary feedwater pump is in automatic control (capable of automatic actuation).
- b. At least once per 18 months during shutdown by:
1. Verifying that each automatic valve in the flow path actuates to its correct position upon receipt of the appropriate engineered safety features actuation test signal required by Specification 3/4.3.2.
 2. Verifying that each auxiliary feedwater pump starts as designed automatically upon receipt of the appropriate engineered safety features actuation test signal required by Specification 3/4.3.2.

PLANT SYSTEMS

BASES

- U = maximum number of inoperable safety valves per operating steam line = 1, 2 or 3.
- (109) = Power Range Neutron Flux-High Trip Setpoint for 4 loop operation.
- (76) = Maximum percent of RATED THERMAL POWER permissible by P-8 Setpoint for 3 loop operation.
- X = Total relieving capacity of all safety valves per steam line = 4,288,450 lbs/hour.
- Y = Maximum relieving capacity of any one safety valve = 857,690 lbs/hour.

3/4.7.1.2 AUXILIARY FEEDWATER SYSTEM

The OPERABILITY of the auxiliary feedwater system ensures that the Reactor Coolant System can be cooled down to less than 350°F from normal operating conditions in the event of a total loss of off-site power.

Each electric driven auxiliary feedwater pump is capable of delivering a total feedwater flow of 450 gpm at a pressure of 1065 psig to the entrance of the steam generators. The steam driven auxiliary feedwater pump is capable of delivering a total feedwater flow of 900 gpm at a pressure of 1065 psig to the entrance of the steam generators. This capacity is sufficient to ensure that adequate feedwater flow is available to remove decay heat and reduce the Reactor Coolant System temperature to less than 350°F when the Residual Heat Removal System may be placed into operation.

The acceptance discharge pressures for the auxiliary feedwater pumps are based on a fluid temperature of 60°F. Water density corrections are permitted to allow comparison of test results which vary depending on ambient conditions.

In addition to its safety design function, the AFW system is used to maintain steam generator level during startup (including low power operation). During this time, the system design allows for automatic initiation of the auxiliary feedwater pumps and their related automatic valves in the flow path.

PLANT SYSTEMS

BASES

3/4.7.1.3 CONDENSATE STORAGE TANK

The OPERABILITY of the condensate storage tank with the minimum water volume ensures that sufficient water is available to maintain the RCS at HOT STANDBY conditions for 9 hours with steam discharge to the atmosphere concurrent with total loss of off-site power.

3/4.7.1.4 ACTIVITY

The limitations on secondary system specific activity ensure that the resultant off-site radiation dose will be limited to a small fraction of 10 CFR Part 100 limits in the event of a steam line rupture. This dose also includes the effects of a coincident 1.0 gpm primary to secondary tube leak in the steam generator of the affected steam line. These values are consistent with the assumptions used in the accident analyses.

3/4.7.1.5 STEAM GENERATOR STOP VALVES

The OPERABILITY of the steam generator stop valves ensures that no more than one steam generator will blowdown in the event of a steam line rupture. This restriction is required to 1) minimize the positive reactivity effects of the Reactor Coolant System cooldown associated with the blowdown, and 2) limit the pressure rise within containment in the event the steam line rupture occurs within containment. The OPERABILITY of the steam generator stop valves within the closure times of the surveillance requirements are consistent with the assumptions used in the accident analyses.

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>
6. MOTOR DRIVEN AUXILIARY FEEDWATER PUMPS					
a. Steam Generator Water Level -- Low-Low	3/Stm. Gen.	2/Stm. Gen. any Stm. Gen.	2/Stm. Gen.	1, 2, 3	14*
b. 4 kv Bus Loss of Voltage	2/Bus	2/Bus	2/Bus	1, 2, 3	14*
c. Safety Injection	2	1	2	1, 2, 3	18*
d. Loss of Main Feedwater Pumps	2	2	2	1, 2	18*
7. TURBINE DRIVEN AUXILIARY FEEDWATER PUMPS					
a. Steam Generator Water Level -- Low-Low	3/Stm. Gen.	2/Stm. Gen. any 2 Stm. Gen.	2/Stm. Gen.	1, 2, 3	14*
b. Reactor Coolant Pump Bus Undervoltage	4-1/Bus	2	3	1, 2, 3	19*
8. LOSS OF POWER					
a. 4 kv Bus Loss of Voltage	3/Bus	2/Bus	2/Bus	1, 2, 3, 4	14*
b. 4 kv Bus Degraded Voltage	3/Bus	2/Bus	2/Bus	1, 2, 3, 4	14*

PLANT SYSTEMS

AUXILIARY FEEDWATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.1.2 At least three independent steam generator auxiliary feedwater pumps and associated flow paths shall be OPERABLE with:

- a. Two feedwater pumps, each capable of being powered from separate emergency busses, and
- b. One feedwater pump capable of being powered from an OPERABLE steam supply system.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

- a. With one auxiliary feedwater pump inoperable, restore the required auxiliary feedwater pumps to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- b. With two auxiliary feedwater pumps inoperable, be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours.
- c. With three auxiliary feedwater pumps inoperable, immediately initiate corrective action to restore at least one auxiliary feedwater pump to OPERABLE status as soon as possible.

SURVEILLANCE REQUIREMENTS

4.7.1.2 Each auxiliary feedwater pump shall be demonstrated OPERABLE:

- a. At least once per 31 days by:
 1. Verifying that each motor driven pump develops an equivalent discharge pressure of ≥ 1375 psig at 60°F on recirculation flow.
 2. Verifying that the steam turbine driven pump develops an equivalent discharge pressure of ≥ 1285 psig at 60°F and at a flow of ≥ 700 gpm when the secondary steam supply pressure is greater than 310 psig. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

3. Verifying that each non-automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in its correct position.
 4. Verifying that when above 10% RATED THERMAL POWER each automatic valve in the flow path is in the fully open position and that each auxiliary feedwater pump is in automatic control (capable of automatic actuation).
- b. At least once per 18 months during shutdown by:
1. Verifying that each automatic valve in the flow path actuates to its correct position upon receipt of the appropriate engineered safety features actuation test signal required by Specification 3/4.3.2.
 2. Verifying that each auxiliary feedwater pump starts as designed automatically upon receipt of the appropriate engineered safety features actuation test signal required by Specification 3/4.3.2.

PLANT SYSTEMS

BASES

- U = maximum number of inoperable safety valves per operating steam line
- 109 = Power Range Neutron Flux-High Trip Setpoint for 4 loop operation
- 76 = Maximum percent of RATED THERMAL POWER permissible by P-8 Setpoint for 3 loop operation.
- X = Total relieving capacity of all safety valves per steam line in lbs./hours = 4,288,450
- Y = Maximum relieving capacity of any one safety valve in lbs/hour = 857,690.

3/4.7.1.2 AUXILIARY FEEDWATER SYSTEM

The OPERABILITY of the auxiliary feedwater system ensures that the Reactor Coolant System can be cooled down to less than 350°F from normal operating conditions in the event of a total loss of off-site power.

Each electric driven auxiliary feedwater pump is capable of delivering a total feedwater flow of 450 gpm at a pressure of 1065 psig to the entrance of the steam generators. The steam driven auxiliary feedwater pump is capable of delivering a total feedwater flow of 900 gpm at a pressure of 1065 psig to the entrance of the steam generators. This capacity is sufficient to ensure that adequate feedwater flow is available to remove decay heat and reduce the Reactor Coolant System temperature to less than 350°F when the Residual Heat Removal System may be placed into operation.

The acceptance discharge pressures for the auxiliary feedwater pumps are based on a fluid temperature of 60°F. Water density corrections are permitted to allow comparison of test results which vary depending on ambient conditions.

In addition to its safety design function, the AFW system is used to maintain steam generator level during startup (including low power operation). During this time, the system design allows for automatic initiation of the auxiliary feedwater pumps and their related automatic valves in the flow path.

PLANT SYSTEMS

BASES

3/4.7.1.3 CONDENSATE STORAGE TANK

The OPERABILITY of the condensate storage tank with the minimum water volume ensures that sufficient water is available to maintain the RCS at HOT STANDBY conditions for 9 hours with steam discharge to the atmosphere concurrent with total loss of off-site power. The contained water volume limit includes an allowance for water not usable because of tank discharge line location or other physical characteristics.

3/4.7.1.4 ACTIVITY

The limitations on secondary system specific activity ensure that the resultant off-site radiation dose will be limited to a small fraction of 10 CFR Part 100 limits in the event of a steam line rupture. This dose also includes the effects of a coincident 1.0 gpm primary to secondary tube leak in the steam generator of the affected steam line. These values are consistent with the assumptions used in the accident analyses.

3/4.7.1.5 STEAM GENERATOR STOP VALVES

The OPERABILITY of the steam generator stop valves ensures that no more than one steam generator will blowdown in the event of a steam line rupture. This restriction is required to 1) minimize the positive reactivity effects of the Reactor Coolant System cooldown associated with the blowdown, and 2) limit the pressure rise within containment in the event the steam line rupture occurs within containment. The OPERABILITY of the steam generator stop valves within the closure times of the surveillance requirements are consistent with the assumptions used in the accident analyses.

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>
6. MOTOR DRIVEN AUXILIARY FEEDWATER PUMPS					
a. Steam Generator Water Level -- Low-Low	3/Stm. Gen.	2/Stm. Gen. any Stm. Gen.	2/Stm. Gen.	1, 2, 3	14*
b. 4 kv Bus Loss of Voltage	2/Bus	2/Bus	2/Bus	1, 2, 3	14*
c. Safety Injection	2	1	2	1, 2, 3	18*
d. Loss of Main Feedwater Pumps	2	2	2	1, 2	18*
7. TURBINE DRIVEN AUXILIARY FEEDWATER PUMPS					
a. Steam Generator Water Level -- Low-Low	3/Stm. Gen.	2/Stm. Gen. any 2 Stm. Gen.	2/Stm. Gen.	1, 2, 3	14*
b. Reactor Coolant Pump Bus Undervoltage	4-1/Bus	2	3	1, 2, 3	19*
8. LOSS OF POWER					
a. 4 kv Bus Loss of Voltage	3/Bus	2/Bus	2/Bus	1, 2, 3, 4	14*
b. 4 kv Bus Degraded Voltage	3/Bus	2/Bus	2/Bus	1, 2, 3, 4	14*

D. C. COOK - UNIT 1

3/4 3-21a

Amendment No.

8504260197

PLANT SYSTEMS

AUXILIARY FEEDWATER SYSTEM

LIMITING CONDITION FOR OPERATION

- 3.7.1.2 At least three independent steam generator auxiliary feedwater pumps and associated flow paths shall be OPERABLE with:
- Two feedwater pumps, each capable of being powered from separate emergency busses, and
 - One feedwater pump capable of being powered from an OPERABLE steam supply system.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

- With one auxiliary feedwater pump inoperable, restore the required auxiliary feedwater pumps to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- With two auxiliary feedwater pumps inoperable, be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours.
- With three auxiliary feedwater pumps inoperable, immediately initiate corrective action to restore at least one auxiliary feedwater pump to OPERABLE status as soon as possible.

SURVEILLANCE REQUIREMENTS

- 4.7.1.2 Each auxiliary feedwater pump shall be demonstrated OPERABLE:
- At least once per 31 days by:
 - Verifying that each motor driven pump develops an equivalent discharge pressure of ≥ 1375 psig at 60°F on recirculation flow.
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PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

3. Verifying that each non-automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in its correct position.
 4. Verifying that when above 10% RATED THERMAL POWER each automatic valve in the flow path is in the fully open position and that each auxiliary feedwater pump is in automatic control (capable of automatic actuation).
- b. At least once per 18 months during shutdown by:
1. Verifying that each automatic valve in the flow path actuates to its correct position upon receipt of the appropriate engineered safety features actuation.. test signal required by Specification 3/4.3.2.
 2. Verifying that each auxiliary feedwater pump starts as designed automatically upon receipt of the appropriate engineered safety features actuation test signal required by Specification 3/4.3.2.

PLANT SYSTEMS

BASES

- U = maximum number of inoperable safety valves per operating steam line = 1, 2 or 3.
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- X = Total relieving capacity of all safety valves per steam line = 4,288,450 lbs/hour.
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3/4.7.1.2 AUXILIARY FEEDWATER SYSTEM

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Each electric driven auxiliary feedwater pump is capable of delivering a total feedwater flow of 450 gpm at a pressure of 1065 psig to the entrance of the steam generators. The steam driven auxiliary feedwater pump is capable of delivering a total feedwater flow of 900 gpm at a pressure of 1065 psig to the entrance of the steam generators. This capacity is sufficient to ensure that adequate feedwater flow is available to remove decay heat and reduce the Reactor Coolant System temperature to less than 350°F when the Residual Heat Removal System may be placed into operation.

The acceptance discharge pressures for the auxiliary feedwater pumps are based on a fluid temperature of 60°F. Water density corrections are permitted to allow comparison of test results which vary depending on ambient conditions.

In addition to its safety design function, the AFW system is used to maintain steam generator level during startup (including low power operation). During this time, the system design allows for automatic initiation of the auxiliary feedwater pumps and their related automatic valves in the flow path.

PLANT SYSTEMS

BASES

3/4.7.1.3 CONDENSATE STORAGE TANK

The OPERABILITY of the condensate storage tank with the minimum water volume ensures that sufficient water is available to maintain the RCS at HOT STANDBY conditions for 9 hours with steam discharge to the atmosphere concurrent with total loss of off-site power.

3/4.7.1.4 ACTIVITY

The limitations on secondary system specific activity ensure that the resultant off-site radiation dose will be limited to a small fraction of 10 CFR Part 100 limits in the event of a steam line rupture. This dose also includes the effects of a coincident 1.0 gpm primary to secondary tube leak in the steam generator of the affected steam line. These values are consistent with the assumptions used in the accident analyses.

3/4.7.1.5 STEAM GENERATOR STOP VALVES

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TABLE 3.3-3 (Continued)

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<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>
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b. 4 kv Bus Loss of Voltage	2/Bus	2/Bus	2/Bus	1, 2, 3	14*
c. Safety Injection	2	1	2	1, 2, 3	18*
d. Loss of Main Feedwater Pumps	2	2	2	1, 2	18*
7. TURBINE DRIVEN AUXILIARY FEEDWATER PUMPS					
a. Steam Generator Water Level -- Low-Low	3/Stm. Gen.	2/Stm. Gen. any 2 Stm. Gen.	2/Stm. Gen.	1, 2, 3	14*
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PLANT SYSTEMS

AUXILIARY FEEDWATER SYSTEM

LIMITING CONDITION FOR OPERATION

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PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

3. Verifying that each non-automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in its correct position.
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PLANT SYSTEMS

BASES

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PLANT SYSTEMS

BASES

3/4.7.1.3 CONDENSATE STORAGE TANK

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