Attachment 2 to AEP:NRC:1131A

Proposed Technical Specification Changes

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REACTOR COOLANT SYSTEM

OVERPRESSURE PROTECTION SYSTEMS

LIMITING CONDITION FOR OPERATION

3.4.9.3 At least one of the following overpressure protection systems shall be OPERABLE:

a. Two power operated relief valves (PORVs) with a lift setting of less than or equal to 400 psig, or

b. One power operated relief valve (PORV) with a lift setting of less than or equal to 400 psig and the RHR safety valve with a lift setting of less than or equal to 450 psig.

APPLICABILITY: Mode 5 when the temperature of any RCS cold leg is less than or equal to 170°F, and Mode 6 when the head is on and fastened to the reactor vessel and the RCS is not vented through a 2-square-inch or larger vent, or through any single blocked open PORV.

ACTION:

a. With one of two PORVs required by item a above or either the PORV or RHR safety valve required by item b above inoperable, either restore the inoperable PORV or RHR safety valve to OPERABLE status within 24 hours, or complete depressurization and venting of the RCS through at least a 2-square-inch vent, or through any single blocked open PORV, within a total of 32 hours. Maintain the RCS in a vented condition until the inoperable PORV or RHR safety valve has been restored to OPERABLE status.

b. With both PORVs and the RHR safety valve inoperable, complete depressurization and venting of the RCS through at least a 2-square-inch vent, or through any single blocked open PORV, within 8 hours. Maintain the RCS in a vented condition until both PORVs or one PORV and the RHR safety valve have been restored to OPERABLE status.

c. With the RCS vented per ACTION a or b above, verify the vent pathway at least once per 31 days when the pathway is provided by a valve(s) that is locked, sealed, or otherwise secured in the open position; otherwise, verify the vent pathway every 12 hours.

d. In the event either the PORVs, the RHR safety valve or the RCS vent(s) are used to mitigate a RCS pressure transient, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 30 days. The report shall describe the circumstances initiating the transient, the effect of the PORVs or vents on the transient and any corrective action necessary to prevent recurrence.

e. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.4.9.3.1 Each PORV shall be demonstrated OPERABLE by:

a. Performance of a CHANNEL FUNCTIONAL TEST on the PORV actuation channel, but excluding valve operation, within 31 days prior to entering a condition in which the PORV is required OPERABLE and at least once per 31 days thereafter when the PORV required OPERABLE.

b. Performance of a CHANNEL CALIBRATION on the PORV actuation channel at least once per 18 months.

c. Verifying the PORV isolation valve is open at least once per 72 hours when the PORV is being used for overpressure protection.

d. Determining the emergency air tank OPERABLE by verifying:

1. At least once per 31 days, air tank pressure greater than or equal to 900 psig.

2. Air tank pressure instrumentation OPERABLE by performance of a:

(a) CHANNEL FUNCTIONAL TEST at least once per 31 days, and
(b) CHANNEL CALIBRATION at least once per 18 months, with the low pressure alarm setpoint $\geq$ 900 psig.

4.4.9.3.2 The RHR safety valve shall be demonstrated OPERABLE by verifying that the RHR system suction is aligned to the RCS loop with the valves in the flow path open at least once per 12 hours when the RHR safety valve is being used for overpressure protection.

4.4.9.3.3 The RHR safety valve shall be demonstrated OPERABLE by testing in accordance with ASME Boiler and Pressure Vessel Code, Section XI, 1974 Edition through Summer 1975 Addenda, for Category C valves. Test frequency, procedures and corrective action shall be pursuant to Subsection IWV-3410 and IWV-3510, respectively and shall be performed during COLD SHUTDOWN and REFUELING, respectively.

REACTOR COOLANT SYSTEM

RELIEF VALVES - OPERATING

LIMITING CONDITION FOR OPERATION

3.4.11 Three power operated relief valves (PORVs) and their associated block valves shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With one or more PORVs inoperable because of excessive seat leakage, within 1 hour either restore the PORV(s) to OPERABLE status or close the associated block valve(s) with power maintained to the block valve(s); otherwise, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

b. With one PORV inoperable due to causes other than excessive seat leakage, within 1 hour either restore the PORV to OPERABLE status or close the associated block valve and remove power from the block valve; otherwise be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

c. With two PORVs inoperable due to causes other than excessive seat leakage, within 1 hour either restore the PORVs to OPERABLE status or close the associated block valves and remove power from the block valves; restore at least one of the inoperable PORVs to OPERABLE status within the following 72 hours or be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

d. With three PORVs inoperable due to causes other than excessive seat leakage, within 1 hour either restore at least one PORV to OPERABLE status or close the block valves and remove power from the block valves and be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

e. With one block valve inoperable, within 1 hour either restore the block valve to OPERABLE status, or place its associated PORV in manual control, or close the block valve and remove power from the block valve; otherwise be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

f. With two or three block valves inoperable, within 1 hour apply the provisions of ACTION e above to one of the block valves and, for the remaining inoperable block valve(s), either restore the block valve(s) to OPERABLE status, or place the associated PORV(s) in manual control; restore at least one block valve to OPERABLE status within the next hour; restore at least two block valves to OPERABLE status within the following 72 hours; otherwise be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

LIMITING CONDITION FOR OPERATION (Continued)

g. With PORVs and block valves not in the same line inoperable due to causes other than excessive seat leakage, within 1 hour restore the valves to OPERABLE status or close and de-energize the associated block valve and place the associated PORV in manual control in each respective line. Apply the portions of ACTION c or d above, relating to the OPERATIONAL MODE, as appropriate for two or three lines unavailable.

h. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.4.11.1 In addition to the requirements of Specification 4.0.5, each PORV shall be demonstrated OPERABLE:

a. At least once per 31 days by performance of a CHANNEL FUNCTIONAL TEST, excluding valve operation, and

b. At least once per 18 months by operating the PORV through one complete cycle of full travel during MODES 3 or 4, and

c. At least once per 18 months by operating solenoid air control valves and check valves in PORV control systems through one complete cycle of full travel, and

d. At least once per 18 months by performing a CHANNEL CALIBRATION of the actuation instrumentation.

4.4.11.2 Each block valve shall be demonstrated OPERABLE at least once per 92 days by operating the valve through one complete cycle of full travel unless the block valve is closed in order to meet the requirements of ACTION b, c, or d in Specification 3.4.11.

4.4.11.3 The emergency power supply for the PORVs and block valves shall be demonstrated OPERABLE at least once per 18 months by operating the valves through a complete cycle of full travel while the emergency buses are energized by the onsite diesel generators and the onsite plant batteries. This testing can be performed in conjunction with the requirements of Specifications 4.8.1.1.2.b and 4.8.2.3.2.d.

BASES

The 12 EFPY heatup and cooldown curves were developed based on the following:

1. The core beltline weld material being the limiting material with a copper and phosphorus content of .31% and .017%.

2. The projected fluence values contained in Table XII of the Southwest Research Institute report, "Reactor Vessel Material Surveillance Program for Donald C. Cook Unit No. 1, Analysis of Capsule Y," dated January 1984.

3. Figure 1, NRC Regulatory Guide 1.99, Revision 1

The shift in RT_{NDT} of the vessel material will be established periodically during operation by removing and evaluating reactor vessel material irradiation surveillance specimen dosimetry installed near the inside wall of the reactor vessel. The projected fluence values obtained will be used to calculate the change in RT_{NDT} in accordance with Regulatory Guide 1.99, Revision 1.

The pressure-temperature limit lines shown on Figure 3.4-2 for reactor criticality and for inservice leak and hydrostatic testing have been provided to assure compliance with the minimum temperature requirements of Appendix G to 10 CFR 50.

The number of reactor vessel irradiation surveillance specimens and the frequencies for removing and testing these specimens are provided in Table 4.4-5 to assure compliance with the requirements of Appendix H to 10 CFR Part 50.

The limitations imposed on pressurizer heatup and cooldown and spray water temperature differential are provided to assure that the pressurizer is operated within the design criteria assumed for the fatigue analysis performed in accordance with the ASME Code requirements.

The OPERABILITY of two PORVs, or of one PORV and the RHR safety valve ensures that the RCS will be protected from pressure transients which could exceed the limits of Appendix G to 10 CFR Part 50 when one or more of the RCS cold legs are less than or equal to 170°F. Either PORV or RHR safety valve has adequate relieving capability to protect the RCS from overpressurization when the transient is limited to either (1) the start of an idle RCP with the secondary water temperature of the steam generator less than or equal to 50°F above the RCS cold leg temperatures or (2) the start of a charging pump and its injection into a water solid RCS. Therefore, any one of the three blocked open PORVs constitutes an acceptable RCS vent to preclude APPLICABILITY of Specification 3.4.9.3.

3/4.4.11 RELIEF VALVES

The power operated relief valves (PORVs) may be operated manually to control reactor coolant system pressure for the steam generator tube rupture (SGTR) accident and for plant shutdown. During the recovery process for a SGTR event, availability of the PORVs to reduce primary pressure is assumed. One PORV is sufficient for this purpose. Therefore, two of three PORVs are required to be OPERABLE with one valve assumed to fail and the other being available to depressurize the RCS. The PORVs also operate automatically to control reactor coolant system pressure below the setting of the pressurizer code safety valves, thereby reducing challenges to these valves. Two of the three PORVs are equipped with backup air supplies which must be OPERABLE when these valves are being relied upon for low temperature overpressure protection per Specification 3.4.9.3. The PORVs have remote manually operated block valves which may be used to isolate a stuck-open PORV or a PORV with excessive seat leakage and to unblock an isolated PORV to allow it to be used for manual control of RCS pressure. The electrical power for both the PORVs and the block valves is supplied from an emergency power source to ensure the ability to close this possible RCS leakage path to maintain the integrity of the reactor coolant pressure boundary.

3/4.4.12 REACTOR COOLANT VENT SYSTEM

The Reactor Coolant Vent System is provided to exhaust noncondensible gases and/or steam from the primary system that could inhibit natural circulation core cooling. It has been designed to vent a volume of Hydrogen approximately equal to one-half of the Reactor Coolant System volume in one hour at system design pressure and temperature.

The Reactor Coolant Vent System is comprised of the Reactor Vessel head vent system and the pressurizer steam space vent system. Each of these subsystems consists of a single line containing a common manual isolation valve inside containment, splitting into two parallel flow paths. Each flow path provides the design basis venting capacity and contains two 1E DC powered solenoid isolation valves, which will fail closed. This valve configuration/redundancy serves to minimize the probability of inadvertent or irreversible actuation while ensuring that a single failure of a remotely-operated vent valve, power supply, or control system does not prevent isolation of the vent path. The pressurizer steam space vent is independent of the PORVs and safety valves and is specifically designed to exhaust gases from the pressurizer in a very high radiation environment. In addition, the OPERABILITY of one Reactor Vessel head vent path and one Pressurizer steam space vent path will ensure that the capability exists to perform this venting function.

The function, capabilities, and testing requirements of the Reactor Coolant Vent System are consistent with the requirements of Item II.B.1 of NUREG-0737, "Clarification of TMI Action Plan Requirement," November 1980.

The minimum required systems to meet the Specification and not enter into an ACTION statement are one vent path from the Reactor Vessel head and one vent path from the Pressurizer steam space.

REACTOR COOLANT SYSTEM

OVERPRESSURE PROTECTION SYSTEMS

LIMITING CONDITION FOR OPERATION

3.4.9.3 At least one of the following overpressure protection systems shall be OPERABLE:

a. Two power operated relief valves (PORVs) with a lift setting of less than or equal to 435 psig, or

b. One power operated relief valve (PORV) with a lift setting of less than or equal to 435 psig and the RHR safety valve with a lift setting of less than or equal to 450 psig.

APPLICABILITY: Mode 5 when the temperature of any RCS cold leg is less than or equal to 152°F, and Mode 6 when the head is on and fastened to the reactor vessel and the RCS is not vented through a 2-square-inch or larger vent or through any single blocked open PORV.

ACTION:

a. With one of two PORVs required by item a above or either the PORV or RHR safety valve required by item b above inoperable, either (1) restore the inoperable PORV or RHR safety valve to OPERABLE status within 24 hours, or (2) complete depressurization and venting of the RCS through at least a 2-square-inch vent, or through any single blocked open PORV, within a total of 32 hours. Maintain the RCS in a vented condition until the inoperable PORV or RHR safety valve has been restored to OPERABLE status.

b. With both PORVs and the RHR safety valve inoperable, complete depressurization and venting of the RCS through at least a 2-square-inch vent, or through any single blocked open PORV, within 8 hours. Maintain the RCS in a vented condition until both PORVs or one PORV and the RHR safety valve have been restored to OPERABLE status.

c. With the RCS vented per ACTION a or b above, verify the vent pathway at least once per 31 days when the pathway is provided by a valve(s) that is locked, sealed, or otherwise secured in the open position; otherwise, verify the vent pathway every 12 hours.

d. In the event either the PORVs, the RHR safety valve or the RCS vent(s) are used to mitigate a RCS pressure transient, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 30 days. The report shall describe the circumstances initiating the transient, the effect of the PORVs or vents on the transient and any corrective action necessary to prevent recurrence.

e. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.4.9.3.1 Each PORV shall be demonstrated OPERABLE by:

a. Performance of a CHANNEL FUNCTIONAL TEST on the PORV actuation channel, but excluding valve operation, within 31 days prior to entering a condition in which the PORV is required OPERABLE and at least once per 31 days thereafter when the PORV is required OPERABLE.

b. Performance of a CHANNEL CALIBRATION on the PORV actuation channel at least once per 18 months.

c. Verifying the PORV isolation valve is open at least once per 72 hours when the PORV is being used for overpressure protection.

d. Determining the emergency air tank OPERABLE by verifying:

1. At least once per 31 days, air tank pressure greater than or equal to 900 psig.

2. Air tank pressure instrumentation OPERABLE by performance of a:

(a) CHANNEL FUNCTIONAL TEST at least once per 31 days, and
(b) CHANNEL CALIBRATION at least once per 18 months, with the low pressure alarm setpoint $\geq$ to 900 psig.

4.4.9.3.2 The RHR safety valve shall be demonstrated OPERABLE by:

a. Verifying that the RHR system suction is aligned to the RCS loop with the valves in the flow path open at least once per 12 hours when the RHR safety valve is being used for overpressure protection.

b. Testing in accordance with the inservice test requirements for ASME Category C valves pursuant to Specification 4.0.5.

REACTOR COOLANT SYSTEM

RELIEF VALVES - OPERATING

LIMITING CONDITION FOR OPERATION

3.4.11 Three power operated relief valves (PORVs) and their associated block valves shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With one or more PORVs inoperable because of excessive seat leakage, within 1 hour either restore the PORV(s) to OPERABLE status or close the associated block valve(s) with power maintained to the block valve(s); otherwise, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

b. With one PORV inoperable due to causes other than excessive seat leakage, within 1 hour either restore the PORV to OPERABLE status or close the associated block valve and remove power from the block valve; otherwise be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

c. With two PORVs inoperable due to causes other than excessive seat leakage, within 1 hour either restore the PORVs to OPERABLE status or close the associated block valves and remove power from the block valves; restore at least one of the inoperable PORVs to OPERABLE status within the following 72 hours or be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

d. With three PORVs inoperable due to causes other than excessive seat leakage, within 1 hour either restore at least one PORV to OPERABLE status or close the block valves and remove power from the block valves and be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

e. With one block valve inoperable, within 1 hour either restore the block valve to OPERABLE status, or place its associated PORV in manual control, or close the block valve and remove power from the block valve; otherwise be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

f. With two or three block valves inoperable, within 1 hour apply the provisions of ACTION e above to one of the block valves and, for the remaining inoperable block valve(s), either restore the block valve(s) to OPERABLE status, or place the associated PORV(s) in manual control; restore at least one block valve to OPERABLE status within the next hour; restore at least two block valves to OPERABLE status within the following 72 hours; otherwise be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

LIMITING CONDITION FOR OPERATION (Continued)

g. With PORVs and block valves not in the same line inoperable due to causes other than excessive seat leakage, within 1 hour restore the valves to OPERABLE status or close and de-energize the associated block valve and place the associated PORV in manual control in each respective line. Apply the portions of ACTION c or d above, relating to the OPERATIONAL MODE, as appropriate for two or three lines unavailable.

h. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.4.11.1 In addition to the requirements of Specification 4.0.5, each PORV shall be demonstrated OPERABLE:

a. At least once per 31 days by performance of a CHANNEL FUNCTIONAL TEST, excluding valve operation, and

b. At least once per 18 months by operating the PORV through one complete cycle of full travel during MODES 3 or 4, and

c. At least once per 18 months by operating solenoid air control valves and check valves in PORV control systems through one complete cycle of full travel, and

d. At least once per 18 months by performing a CHANNEL CALIBRATION of the actuation instrumentation.

4.4.11.2 Each block valve shall be demonstrated OPERABLE at least once per 92 days by operating the valve through one complete cycle of full travel unless the block valve is closed in order to meet the requirements of ACTION b, c, or d in Specification 3.4.11.

4.4.11.3 The emergency power supply for the PORVs and block valves shall be demonstrated OPERABLE at least once per 18 months by operating the valves through a complete cycle of full travel while the emergency buses are energized by the onsite diesel generators and the onsite plant batteries. This testing can be performed in conjunction with the requirements of Specifications 4.8.1.1.2.b and 4.8.2.3.2.d.

The actual shift in the reference temperature of surveillance specimens and neutron fluence is established periodically by removing and evaluating reactor vessel material irradiation surveillance specimens and dosimetry installed near the inside wall of the reactor vessel in the core area.

The heatup and cooldown limit curves of Figures 3.4-2 and 3.4-3 include predicted adjustments for this shift in RT_{NDT} at the end of 12 EFPY, as well as adjustments for possible errors in the pressure and temperature sensing instruments.

The 12 EFPY heatup and cooldown curves were developed based on the following:

1. The projected fluence values established by specimen analysis.

2. Intermediate shell plate C5556-2 being the limiting material as determined by Position 1 of Regulatory Guide 1.99, Revision 2, with a copper and nickel content of 0.15% and 0.57%, respectively.

The pressure-temperature limit lines shown on Figure 3.4-2 for reactor criticality and for inservice leak and hydrostatic testing have been provided to assure compliance with the minimum temperature requirements of Appendix G to 10 CFR 50.

The number of reactor vessel irradiation surveillance specimens and the frequencies and for inservice leak and hydrostatic testing have been provided to assure compliance with the minimum temperature requirements of Appendix G to 10 CFR 50.

The limitations imposed on pressurizer heatup and cooldown and spray water temperature differential are provided to assure that the pressurizer is operated within the design criteria assumed for the fatigue analysis performed in accordance with the ASME Code requirements.

The OPERABILITY of two PORVs, or of one PORV and the RHR safety valve ensures that the RCS will be protected from pressure transients which could exceed the limits of Appendix G to 10 CFR Part 50 when one or more of the RCS cold legs are less than or equal to 152°F. Either PORV or RHR safety valve has adequate relieving capability to protect the RCS from overpressurization when the transient is limited to either (1) the start of an idle RCP with the secondary water temperature of the steam generator less than or equal to 50°F above the RCS cold leg temperatures or (2) the start of a charging pump and its injection into a water solid RCS. Therefore, any one of the three blocked open PORVs constitutes an acceptable RCS vent to preclude APPLICABILITY of Specification 3.4.9.3.

3/4.4.10 STRUCTURAL INTEGRITY

The inspection and testing programs for ASME Code Class 1, 2 and 3 components ensure that the structural integrity of these components will be maintained at an acceptable level throughout the life of the plant. To the extent applicable, the inspection program for these components is in compliance with Section XI of the ASME Boiler and Pressure Vessel Code.

3/4.4.11 RELIEF VALVES

The power operated relief valves (PORVs) may be operated manually to control reactor coolant system pressure for the steam generator tube rupture accident and for plant shutdown. During the recovery process for a SGTR event, availability of the PORVs to reduce primary pressure is assumed. One PORV is sufficient for this purpose. Therefore, two of three PORVs are required to be OPERABLE with one valve assumed to fail and the other being available to depressurize the RCS. The PORVs also operate automatically to control reactor coolant system pressure below the setting of the pressurizer code safety valves, thereby reducing challenges to these valves. Two of the three PORVs are equipped with backup air supplies which must be OPERABLE when these valves are being relied upon for low temperature overpressure protection per Specification 3.4.9.3. The PORVs have remote manually operated block valves which may be used to isolate a stuck-open PORV or a PORV with excessive seat leakage and to unblock an isolated PORV to allow it to be used for manual control of RCS pressure. The electrical power for both the PORVs and the block valves is supplied from an emergency power source to ensure the ability to close this possible RCS leakage path to maintain the integrity of the reactor coolant pressure boundary.

3/4.4.12 REACTOR COOLANT VENT SYSTEM

The Reactor Coolant Vent System is provided to exhaust noncondensible gases and/or steam from the primary system that could inhibit natural circulation core cooling. It has been designed to vent a volume of Hydrogen approximately equal to one-half of the Reactor Coolant System volume in one hour at system design pressure and temperature.

The Reactor Coolant Vent System is comprised of the Reactor Vessel head vent system and the pressurizer steam space vent system. Each of these subsystems consists of a single line containing a common manual isolation valve inside containment, splitting into two parallel flow paths. Each flow path provides the design basis venting capacity and contains two 1E DC powered solenoid isolation valves, which will fail closed. This valve configuration/redundancy serves to minimize the probability of inadvertent or irreversible actuation while ensuring that a single failure of a remotely-operated vent valve, power supply, or control system does not prevent isolation of the vent path. The pressurizer steam space vent is independent of the PORVs and safety valves and is specifically designed to exhaust gases from the pressurizer in a very high radiation environment. In addition, the OPERABILITY of one Reactor Vessel head vent path and one Pressurizer steam space vent path will ensure that the capability exists to perform this venting function.

The function, capabilities, and testing requirements of the Reactor Coolant Vent System are consistent with the requirements of Item II.B.1 of NUREG-0737, "Clarification of TMI Action Plan Requirement," November 1980.

The minimum required systems to meet the Specification and not enter into an ACTION statement are one vent path from the Reactor Vessel head and one vent path from the Pressurizer steam space.

Attachment 3 to AEP:NRC:1131A

Current Technical Specifications Pages

Marked-up to Reflect Proposed Changes

REACTOR COOLANT SYSTEM

OVERPRESSURE PROTECTION SYSTEMS

or through any single blocked open PORV.

LIMITING CONDITION FOR OPERATION

3.4.9.3 At least one of the following overpressure protection systems shall be OPERABLE:

a. Two power operated relief valves (PORVs) with a lift setting of less than or equal to 400 psig, or

b. One power operated relief valve (PORV) with a lift setting of less than or equal to 400 psig and the RHR safety valve with a lift setting of less than or equal to 450 psig, ~~or~~

~~c. A reactor coolant system vent of greater than or equal to 2 square inches.~~

APPLICABILITY: (Mode 5) When the temperature of ~~one or more of the~~ any RCS cold leg and fastened to is less than or equal to 170°F ~~except when the reactor vessel head is removed.~~ and Mode 6 when the head is on the reactor vessel and the RCS is not vented through a 2 square inch or larger vent

ACTION:

a. With ~~two~~ one of PORVs required by item a above or either the PORV or RHR safety valve ~~inoperable or with one PORV inoperable and the RHR safety valve~~ required by item b above inoperable, either restore the inoperable PORV ~~or~~ RHR safety valve to OPERABLE status within ~~7 days~~ 24 hours, or ~~depressurize~~ complete depressurization and vent the RCS through ~~a~~ at least a 2 square inch vent within a total of 32 hours. ~~the next 8 hours;~~ Maintain the RCS in a vented condition until the inoperable PORV or RHR safety valve has been restored to OPERABLE status.

or through any single blocked open PORV

b. With both PORVs and the RHR safety valve inoperable, ~~depressurize and vent~~ complete depressurization and venting of the RCS through ~~a~~ at least a 2 square inch vent within 8 hours. Maintain the RCS in a vented condition until both PORVs or one PORV and the RHR safety valve have been restored to OPERABLE status.

c. INSERT (A)

d c. In the event either the PORVs, the RHR safety valve or the RCS vent(s) are used to mitigate a RCS pressure transient, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 30 days. The report shall describe the circumstances initiating the transient, the effect of the PORVs or vent(s) on the transient and any corrective action necessary to prevent recurrence.

e d. The provisions of Specification 3.0.4 are not applicable.

INSERT (A): With the RCS vented per ACTION a or b above, verify the vent pathway at least once per 31 days when the pathway is provided by a valve(s) that is locked, sealed, or otherwise secured in the open position; otherwise, verify the vent pathway every 12 hours.

INSERT (A): With one PORV inoperable due to causes other than excessive seat leakage, within 1 hour either restore the PORV to OPERABLE status or close the associated block valve and remove power from the block valve; otherwise be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours

REACTOR COOLANT SYSTEM

RELIEF VALVES - OPERATING

LIMITING CONDITION FOR OPERATION

3.4.11 Three power operated relief valves (PORVs) and their associated block valves shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

~~a. PORVs inoperable:~~

a. With ~~one~~ or more PORVs inoperable because of excessive seat leakage, within 1 hour either restore the ~~inoperable~~ PORV(s) to OPERABLE status or close the associated block valve(s) and ~~remove power from the block valve(s)~~ with power maintained to; otherwise be in at least HOT STANDBY within the next 6 hours and ~~in COLD~~ HOT SHUTDOWN within the following ~~30~~ 6 hours.

b. INSERT (A)

c. With ~~two~~ PORVs inoperable due to causes other than excessive seat leakage, within 1 hour either restore ~~at least one of~~ the ~~inoperable~~ PORVs to OPERABLE status or close the associated block valves and remove power from the block valves; restore at least one of the inoperable PORVs to OPERABLE status within the following 72 hours or be in HOT STANDBY within the next 6 hours and ~~in COLD~~ in HOT SHUTDOWN within the following ~~30~~ 6 hours.

d. With ~~three~~ PORVs inoperable due to causes other than excessive seat leakage within 1 hour either restore at least one ~~of the~~ PORV to OPERABLE status or close ~~their associated~~ the block valves and remove power from the block valves and be in HOT STANDBY within the next 6 hours and in ~~COLD~~ HOT SHUTDOWN within the following ~~30~~ 6 hours.

~~b. Block valves inoperable:~~

e. With ~~one~~ block valve inoperable, or place its associated PORV in manual control, within 1 hour either ~~(1)~~ restore the block valve to OPERABLE status, ~~or (2)~~ close the block valve and remove power from the block valve; ~~or (3) close the associated PORV and remove power from the associated solenoid valve,~~ otherwise, be in at least HOT STANDBY within the next 6 hours and ~~in COLD~~ in HOT SHUTDOWN within the following ~~30~~ 6 hours.

f. INSERT (B) from next page

~~* PORVs isolated to limit RCS leakage through their seats and the block valves shut to isolate this leakage are not considered inoperable.~~

The 12 EFPY heatup and cooldown curves were developed based on the following:

1. The core beltline weld material being the limiting material with a copper and phosphorus content of .31% and .017%.

2. The projected fluence values contained in Table XII of the Southwest Research Institute report, "Reactor Vessel Material Surveillance Program for Donald C. Cook Unit No. 1, Analysis of Capsule Y," dated January 1984.

3. Figure 1, NRC Regulatory Guide 1.99, Revision 1

The shift in RT_{NDT} of the vessel material will be established periodically during operation by removing and evaluating reactor vessel material irradiation surveillance specimen dosimetry installed near the inside wall of the reactor vessel. The projected fluence values obtained will be used to calculate the change in RT_{NDT} in accordance with Regulatory Guide 1.99, Revision 1.

The pressure-temperature limit lines shown on Figure 3.4-2 for reactor criticality and for inservice leak and hydrostatic testing have been provided to assure compliance with the minimum temperature requirements of Appendix G to 10 CFR 50.

The number of reactor vessel irradiation surveillance specimens and the frequencies for removing and testing these specimens are provided in Table 4.4-5 to assure compliance with the requirements of Appendix H to 10 CFR Part 50.

The limitations imposed on pressurizer heatup and cooldown and spray water temperature differential are provided to assure that the pressurizer is operated within the design criteria assumed for the fatigue analysis performed in accordance with the ASME Code requirements.

The OPERABILITY of two PORVs, (or of) one PORV and the RHR safety valve, ~~or an RCS vent opening of greater than or equal to 2 square inches~~ ensures that the RCS will be protected from pressure transients which could exceed the limits of Appendix G to 10 CFR Part 50 when one or more of the RCS cold legs are less than or equal to 170°F. Either PORV or RHR safety valve has acequate relieving capability to protect the RCS from overpressurization when the transient is limited to either (1) the start of an idle RCP with the secondary water temperature of the steam generator less than or equal to 50°F above the RCS cold leg temperatures or (2) the start of a charging pump and its injection into a water solid RCS. Therefore, any one of the three blocked open PORVs constitutes an acceptable RCS vent to preclude APPLICABILITY of specification 3.4.9.3

3/4.4.11 RELIEF VALVES INSERT (A) from next page.

~~The power operated relief valves (PORVs) operate to relieve RCS pressure below the setting of the pressurizer code safety valves. These relief valves have remotely operated block valves to provide a positive shutoff capability should the relief valve become inoperable. The electrical power for both the relief valves and the block valves is supplied from an emergency power source to ensure the ability to seal this possible RCS leakage path.~~

3/4.4.12 REACTOR COOLANT VENT SYSTEM

The Reactor Coolant Vent System is provided to exhaust noncondensible gases and/or steam from the primary system that could inhibit natural circulation core cooling. It has been designed to vent a volume of Hydrogen approximately equal to one-half of the Reactor Coolant System volume in one hour at system design pressure and temperature.

The Reactor Coolant Vent System is comprised of the Reactor Vessel head vent system and the pressurizer steam space vent system. Each of these subsystems consists of a single line containing a common manual isolation valve inside containment, splitting into two parallel flow paths. Each flow path provides the design basis venting capacity and contains two 1E DC powered solenoid isolation valves, which will fail closed. This valve configuration/redundancy serves to minimize the probability of inadvertent or irreversible actuation while ensuring that a single failure of a remotely-operated vent valve, power supply, or control system does not prevent isolation of the vent path. The pressurizer steam space vent is independent of the PORVs and safety valves and is specifically designed to exhaust gases from the pressurizer in a very high radiation environment. In addition, the OPERABILITY of one Reactor Vessel head vent path and one Pressurizer steam space vent path will ensure that the capability exists to perform this venting function.

The function, capabilities, and testing requirements of the Reactor Coolant Vent System are consistent with the requirements of Item II.B.1 of NUREG-0737, "Clarification of TMI Action Plan Requirement," November 1980.

The minimum required systems to meet the Specification and not enter into an action statement are one vent path from the Reactor Vessel head and one vent path from the Pressurizer steam space.

3/4.4.11 RELIEF VALVES

INSERT (A) on previous page.

The power operated relief valves (PORVs) may be operated manually to control reactor coolant system pressure for the steam generator tube rupture (SGTR) accident and for plant shutdown. During the recovery process for a SGTR event, availability of the PORVs to reduce primary pressure is assumed. One PORV is sufficient for this purpose. Therefore, two of three PORVs are required to be OPERABLE with one valve assumed to fail and the other being available to depressurize the RCS. The PORVs also operate automatically to control reactor coolant system pressure below the setting of the pressurizer code safety valves, thereby reducing challenges to these valves. Two of the three PORVs are equipped with backup air supplies which must be OPERABLE when these valves are being relied upon for low temperature overpressure protection per Specification 3.4.9.3. The PORVs have remote manually operated block valves which may be used to isolate a stuck-open PORV or a PORV with excessive seat leakage and to unblock an isolated PORV to allow it to be used for manual control of RCS pressure. The electrical power for both the PORVs and the block valves is supplied from an emergency power source to ensure the ability to close this possible RCS leakage path to maintain the integrity of the reactor coolant pressure boundary.

3/4.4.12 REACTOR COOLANT VENT SYSTEM

The Reactor Coolant Vent System is provided to exhaust noncondensible gases and/or steam from the primary system that could inhibit natural circulation core cooling. It has been designed to vent a volume of Hydrogen approximately equal to one-half of the Reactor Coolant System volume in one hour at system design pressure and temperature.

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The function, capabilities, and testing requirements of the Reactor Coolant Vent System are consistent with the requirements of Item II.B.1 of NUREG-0737, "Clarification of TMI Action Plan Requirement," November 1980.

The minimum required systems to meet the Specification and not enter into an ACTION statement are one vent path from the Reactor Vessel head and one vent path from the Pressurizer steam space.

REACTOR COOLANT SYSTEM

OVERPRESSURE PROTECTION SYSTEMS

LIMITING CONDITION FOR OPERATION

3.4.9.3 At least one of the following overpressure protection systems shall be OPERABLE:

a. Two power operated relief valves (PORVs) with a lift setting of less than or equal to 435 psig, or

b. One power operated relief valve (PORV) with a lift setting of less than or equal to 435 psig and the RHR safety valve with a lift setting of less than or equal to 450 psi. ~~or~~

~~c. A reactor coolant system vent of greater than or equal to 2 square inches.~~

APPLICABILITY: (mode 5) When the temperature of ~~one or more of the~~ any RCS cold leg is less than or equal to 152°F, ~~except when the reactor vessel head is removed~~ and mode 6 when the head is on the reactor vessel and fastened to and the RCS is not vented through a 2 square inch or larger vent.

ACTION:

a. With ~~two~~ one of PORV's required by item a above or either the PORV or RHR safety valve ~~inoperable or with one PORV inoperable and the RHR safety valve~~ inoperable, either restore the inoperable PORV or RHR safety valve to OPERABLE status within ~~7 days~~ 72 hours of ~~depressurize and~~ complete depressurization and vent the RCS through ~~at~~ at least 2 square inch vent(s) within ~~the~~ a total of 32 hours ~~next 8 hours~~; maintain the RCS in a vented condition until the inoperable PORV or RHR safety valve has been restored to OPERABLE status. (or through any single blocked open PORV)

b. With both PORVs inoperable, ~~depressurize and vent~~ the RCS through ~~at~~ at least 2 square inch vent(s) within 8 hours; maintain the RCS in a vented condition until both PORVs or one PORV and the RHR safety valve have been restored to OPERABLE status. (and the RHR safety valve) (Complete depressurization and venting of)

c. INSERT (A)

~~d~~ c. In the event either the PORVs, the RHR safety valve or the RCS vent(s) are used to mitigate a RCS pressure transient, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 30 days. The report shall describe the circumstances initiating the transient, the effect of the PORVs or vent(s) on the transient and any corrective action necessary to prevent recurrence.

~~e~~ d. The provisions of Specification 3.0.4 are not applicable.

INSERT (A): With the RCS vented per ACTION a or b above, verify the vent pathway at least once per 31 days when the pathway is provided by a valve(s) that is locked, sealed, or otherwise secured in the open position; otherwise, verify the vent pathway every 12 hours.

REACTOR COOLANT SYSTEM

3.4.10 STRUCTURAL INTEGRITY

ASME CODE CLASS 1, 2 and 3 COMPONENTS

LIMITING CONDITION FOR OPERATION

3.4.10.1 The structural integrity of ASME Code Class 1, 2 and 3 components shall be maintained in accordance with Specification 4.4.10.1.

APPLICABILITY: ALL MODES

ACTION:

a. With the structural integrity of any ASME Code Class 1 component(s) not conforming to the above requirements, restore the structural integrity of the affected component(s) to within its limit or isolate the affected component(s) prior to increasing the Reactor Coolant System temperature more than 50°F above the minimum temperature required by NDT considerations.

b. With the structural integrity of any ASME Code Class 2 component(s) not conforming to the above requirements, restore the structural integrity of the affected component(s) to within its limit or isolate the affected component(s) prior to increasing the Reactor Coolant System temperature above 200°F.

c. With the structural integrity of any ASME Code Class 3 component(s) not conforming to the above requirements, restore the structural integrity of the affected component(s) to within its limit or isolate the affected component(s) from service.

d. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.4.10.1 In addition to the requirements of Specification 4.0.5, each reactor coolant pump flywheel shall be inspected per the recommendations of Regulatory Position C.4.b of Regulatory Guide 1.14, Revision 1, August 1975.

INSERT (E): apply the provisions of ACTION a above to one of the block valves and, for the remaining inoperable block valve(s), either restore the block valve(s) to OPERABLE status, or place the associated PORV(s) in manual control; restore at least two block valves to OPERABLE status within the following 72 hours; otherwise be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

LIMITING CONDITION FOR OPERATION (Continued)

INSERT (B)

f. With ~~two or more~~ three block valves inoperable,

insert (E)

Within 1 hour ~~either (1) restore a total of at least two block valves to OPERABLE status, or (2) close the block valves and remove power from the block valves, or (3) close the associated PORVs and remove power from their associated solenoid valves; and apply the portions of ACTION a.2 or a.3 above for inoperable PORVs, relating to OPERATIONAL MODE, as appropriate.~~

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g. With PORVs and block valves not in the same line inoperable due to causes other than excessive leakage, within 1 hour ~~either (1)~~ restore the valves to OPERABLE status or close and de-energize the other valve in each line. Apply the portions of ACTION ~~a.2~~ or ~~a.3~~ above, relating to OPERATIONAL MODE, as appropriate for two or three lines unavailable.

h. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

In addition to the requirements of Specification 4.0.5,

4.4.11.1 Each of the three PORVs shall be demonstrated OPERABLE:

a. At least once per 31 days by performance of a CHANNEL FUNCTIONAL TEST, excluding valve operation, and

b. INSERT (C) c. INSERT (D)

d. At least once per 18 months by performance of a CHANNEL CALIBRATION of the actuation instrumentation.

4.4.11.2 Each ~~of the three~~ block valve shall be demonstrated OPERABLE at least once per 92 days by operating the valve through one complete cycle of full travel. ~~The block valve(s) do not have to be tested when ACTION 3.4.11.a or 3.4.11.c is applied.~~ unless the block valve is closed in order to meet the requirements of ACTION b, c, or d in Specification 3.4.11.

4.4.11.3 The emergency power supply for the PORVs and block valves shall be demonstrated OPERABLE at least once per 18 months by operating the valves through a complete cycle of full travel while the emergency buses are energized by the onsite diesel generators and onsite plant batteries. This testing can be performed in conjunction with the requirements of Specifications 4.8.1.1.2.c and 4.8.2.3.2.d.

~~*PORVs isolated to limit RCS leakage through their seats and the block valves shut to isolate this leakage are not considered inoperable.~~

INSERT (C): At least once per 18 months by operating the PORV through one complete cycle of full travel during MODES 3 or 4, and

INSERT (D): At least once per 18 months by operating solenoid air control valves and check valves in PORV control systems through one complete cycle of full travel, and

The actual shift in the reference temperature of surveillance specimens and neutron fluence is established periodically by removing and evaluating reactor vessel material irradiation surveillance specimens and dosimetry installed near the inside wall of the reactor vessel in the core area.

The heatup and cooldown limit curves of Figures 3.4-2 and 3.4-3 include predicted adjustments for this shift in RT_{NDT} at the end of 12 EFPY, as well as adjustments for possible errors in the pressure and temperature sensing instruments.

The 12 EFPY heatup and cooldown curves were developed based on the following:

1. The projected fluence values established by specimen analysis.

2. Intermediate shell plate C5556-2 being the limiting material as determined by Position 1 of Regulatory Guide 1.99, Revision 2, with a copper and nickel content of 0.15% and 0.57%, respectively.

The pressure-temperature limit lines shown on Figure 3.4-2 for reactor criticality and for inservice leak and hydrostatic testing have been provided to assure compliance with the minimum temperature requirements of Appendix G to 10 CFR 50.

The number of reactor vessel irradiation surveillance specimens and the frequencies for removing and testing these specimens are provided in Table 4.4-5 to assure compliance with the requirements of Appendix H to 10 CFR Part 50.

The limitations imposed on pressurizer heatup and cooldown and spray water temperature differential are provided to assure that the pressurizer is operated within the design criteria assumed for the fatigue analysis performed in accordance with the ASME Code requirements.

The OPERABILITY of two PORVs, one PORV and the RHR safety valve, ~~or an RCS vent opening of greater than or equal to 2 square inches~~ ensures that the RCS will be protected from pressure transients which could exceed the limits of Appendix G to 10 CFR Part 50 when one or more of the RCS cold legs are less than or equal to 152°F. Either PORV or RHR safety valve has adequate relieving capability to protect the RCS from overpressurization when the transient is limited to either (1) the start of an idle RCP with the secondary water temperature of the steam generator less than or equal to 50°F above the RCS cold leg temperatures or (2) the start of a charging pump and its injection into a water solid RCS. Therefore, any one of the three blocked open PORVs constitutes an acceptable RCS vent to preclude APPLICABILITY of specification 3.4.9.3

3/4.4.10 STRUCTURAL INTEGRITY

The inspection and testing programs for ASME Code Class 1, 2 and 3 components ensure that the structural integrity of these components will be maintained at an acceptable level throughout the life of the plant. To the extent applicable, the inspection program for these components is in compliance with Section XI of the ASME Boiler and Pressure Vessel Code.

3/4.4.11 RELIEF VALVES

INSERT (A) from next page

~~The power operated relief valves (PORVs) operate to relieve RCS pressure below the setting of the pressurizer code safety valves. These relief valves have remotely operated block valves to provide a positive shutoff capability should the relief valve become inoperable. The electrical power for both the relief valves and the block valves is supplied from an emergency power source to ensure the ability to seal this possible RCS leakage path.~~

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INSERT (A) on previous page

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The minimum required systems to meet the Specification and not enter into an ACTION statement are one vent path from the Reactor Vessel head and one vent path from the Pressurizer steam space.