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DEFINITIONS

PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR)

1.38 The PTLR is the unit specific document that provides the reactor vessel pressure and temperature (P/T) limits, including heatup and cooldown rates and the Overpressure Protection System setpoint and enable temperature, for the current reactor vessel fluence period. These pressure and temperature limits shall be determined for each fluence period in accordance with Specification 6.9.6. Plant operation within these operating limits is addressed in Specification 3.4.9.1, "Reactor Coolant System Pressure/Temperature Limits", and Specification 3.4.9.3, "Reactor Coolant System Overpressure Protection System."

REACTOR COOLANT SYSTEM

HOT STANDBY

LIMITING CONDITION FOR OPERATION

- 3.4.1.2 a. At least two reactor coolant loops and associated steam generators and reactor coolant pumps# shall be in operation* when the rod control system is capable of control bank rod withdrawal.
- b. At least two reactor coolant loops and associated steam generators and reactor coolant pumps# shall be OPERABLE and one reactor coolant loop shall be in operation* when the rod control system is incapable of control bank rod withdrawal.

APPLICABILITY: MODE 3**

ACTION:

- a. With less than the above required reactor coolant loops OPERABLE, restore the required loops to OPERABLE status within 72 hours or be in HOT SHUTDOWN within the next 12 hours.
- b. With less than two reactor coolant loops in operation, immediately deenergize all control rod drive mechanisms, or align the rod control system so that it is incapable of control bank rod withdrawal.
- c. With no reactor coolant loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required reactor coolant loop to operation.

* All reactor coolant pumps may be deenergized for up to 1 hour provided (1) no operations are permitted that would cause dilution of the Reactor Coolant System boron concentration and (2) core outlet temperature is maintained at least 10°F below saturation temperature. This does not preclude natural circulation cooldown under abnormal cooldown conditions.

** See Special Test Exception 3.10.4.

No reactor coolant pump in a non-isolated loop shall be started with one or more non-isolated RCS cold leg temperatures less than or equal to the enable temperature specified in the PTLR, unless the secondary side water temperature of each steam generator in a non-isolated loop is less than 50°F above each of the non-isolated RCS cold leg temperatures.

REACTOR COOLANT SYSTEM

SHUTDOWN

LIMITING CONDITION FOR OPERATION

- 3.4.1.3 a. At least two of the coolant loops listed below shall be OPERABLE.
1. Reactor Coolant Loop (A) and its associated steam generator and reactor coolant pump, #
 2. Reactor Coolant Loop (B) and its associated steam generator and reactor coolant pump, #
 3. Reactor Coolant Loop (C) and its associated steam generator and reactor coolant pump, #
 4. Residual Heat Removal Pump (A) and the (A) RHR heat exchanger, **
 5. Residual Heat Removal Pump (B) and the (B) RHR heat exchanger. **
- b. At least one of the above coolant loops shall be in operation. ***

APPLICABILITY: MODES 4 and 5.

ACTION:

- a. With less than the above required loops OPERABLE, immediately initiate corrective action to return the required loops to OPERABLE status as soon as possible; be in COLD SHUTDOWN within 20 hours.
- b. With no coolant loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required coolant loop to operation.

** The normal or emergency power source may be inoperable in MODE 5.

*** All reactor coolant pumps and Residual Heat Removal pumps may be deenergized for up to 1 hour provided: 1) no operations are permitted that would cause dilution of the Reactor Coolant System boron concentration, and 2) core outlet temperature is maintained at least 10°F below saturation temperature.

No reactor coolant pump in a non-isolated loop shall be started with one or more non-isolated RCS cold leg temperatures less than or equal to the enable temperature specified in the PTLR, unless the secondary side water temperature of each steam generator in a non-isolated loop is less than 50°F above each of the non-isolated RCS cold leg temperatures.

REACTOR COOLANT SYSTEM

3/4.4.3 SAFETY VALVES

LIMITING CONDITION FOR OPERATION

3.4.3 All pressurizer code safety valves shall be OPERABLE with a lift setting* of 2485 psig + 1% - 3%.**

APPLICABILITY: MODES 1, 2, and 3,
With all RCS cold leg temperatures > the enable temperature specified in the PTLR.

ACTION:

- a. With one pressurizer code safety valve inoperable, either restore the inoperable valve to OPERABLE status within 15 minutes or be in HOT SHUTDOWN with any RCS cold leg temperature \leq the enable temperature specified in the PTLR and apply RCS overpressure protection requirements in accordance with Specification 3.4.9.3 within 12 hours.
- b. After any pressurizer code safety valve lift, as indicated by the safety valve position indicator, involving loop seal or water discharge; be in at least HOT STANDBY within the next 6 hours, and in HOT SHUTDOWN with any RCS cold leg temperature \leq the enable temperature specified in the PTLR and apply RCS overpressure protection requirements in accordance with Specification 3.4.9.3 within the following 6 hours.

SURVEILLANCE REQUIREMENTS

4.4.3 No additional requirements other than those required by Specification 4.0.5.

* The lift setting shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.

** Within $\pm 1\%$ following pressurizer code safety valve testing.

REACTOR COOLANT SYSTEM

3/4.4.9 PRESSURE/TEMPERATURE LIMITS

REACTOR COOLANT SYSTEM

LIMITING CONDITION FOR OPERATION

3.4.9.1 The Reactor Coolant System (except the pressurizer) temperature and pressure shall be limited in accordance with the limits that are specified in the PTLR during heatup, cooldown, criticality, and inservice leak and hydrostatic testing.

APPLICABILITY: MODES 1, 2, 3, 4, and 5.

ACTION:

With any of the above limits specified in the PTLR exceeded:

- a. Restore the temperature and/or pressure to within the limit within 30 minutes, and
- b. Perform an engineering evaluation to determine the effects of the out-of-limit condition on the structural integrity of the Reactor Coolant System within 72 hours, and
- c. Determine, from Action b above, that the Reactor Coolant System remains acceptable for continued operation or be in at least HOT STANDBY within the next 6 hours and reduce the RCS T_{avg} and pressure to less than 200°F and 500 psig, respectively, within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.4.9.1

- a. The Reactor Coolant System temperature and pressure shall be determined to be within the limits specified in the PTLR at least once per 30 minutes during system heatup, cooldown, and inservice leak and hydrostatic testing operations.
- b. The Reactor Coolant System temperature and pressure conditions shall be determined to be to the right of the criticality limit line specified in the PTLR within 15 minutes prior to achieving reactor criticality.

REACTOR COOLANT SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

4.4.9.1 (Continued)

- c. The reactor vessel material irradiation surveillance specimens shall be removed and examined in accordance with 10 CFR 50, Appendix H, to determine changes in material properties. The results of these examinations shall be used to update the PTLR.

REACTOR COOLANT SYSTEM

OVERPRESSURE PROTECTION SYSTEMS

LIMITING CONDITION FOR OPERATION

3.4.9.3 An overpressure protection system shall be OPERABLE with a maximum of one charging pump⁽¹⁾ capable of injecting into the RCS and the accumulators isolated⁽²⁾ and either a or b below:

- a. Two power-operated relief valves (PORVs) with nominal maximum lift settings which vary with the RCS temperature and which do not exceed the limits specified in the PTLR, or
- b. The RCS depressurized and an RCS vent of greater than or equal to 3.14 square inches.

APPLICABILITY: MODE 4 when any RCS cold leg temperature is less than or equal to an enable temperature specified in the PTLR, MODE 5, MODE 6 when the reactor vessel head is on.

ACTION:

- a. With two or more charging pumps capable of injecting into the RCS, immediately initiate action to verify a maximum of one charging pump is capable of injecting into the RCS or depressurize and vent the RCS through a 3.14 square inch or larger vent within 12 hours.
- b. With an accumulator not isolated when the accumulator pressure is greater than or equal to the maximum RCS pressure for the existing RCS cold leg temperature allowed by the heatup and cooldown curves in the PTLR, isolate the affected accumulator within 1 hour or increase the RCS cold

(1) Two charging pumps may be capable of injecting into the RCS for pump swap operation for less than or equal to 15 minutes. All charging pumps may be capable of injecting into the RCS for less than or equal to 4 hours immediately following a change from MODE 3 to MODE 4 or prior to the temperature of one or more of the RCS cold legs decreasing below the enable temperature specified in the PTLR minus 25°F, whichever comes first.

(2) Accumulator isolation with power removed from the discharge isolation valves is only required when the accumulator pressure is greater than or equal to the maximum RCS pressure for the existing RCS cold leg temperature allowed by the heatup and cooldown curves provided in the PTLR.

REACTOR COOLANT SYSTEM

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

- leg temperature above the enable temperature specified in the PTLR within the next 12 hours or depressurize the affected accumulator to less than the maximum RCS pressure for the existing cold leg temperature allowed by the heatup and cooldown curves in the PTLR within the next 12 hours.
- c. With one PORV inoperable in MODE 4 (when any RCS cold leg temperature is less than or equal to the enable temperature specified in the PTLR), restore the inoperable PORV to OPERABLE status within 7 days or depressurize and vent the RCS through a 3.14 square inch or larger vent within the next 12 hours. The provisions of Specification 3.0.4 are not applicable when in this action.
 - d. With one PORV inoperable in MODES 5 or 6, restore the inoperable PORV to OPERABLE status within 24 hours or depressurize and vent the RCS through a 3.14 square inch or larger vent within the next 12 hours.
 - e. With two PORVs inoperable, depressurize and vent the RCS through a 3.14 square inch or larger vent within 12 hours.

SURVEILLANCE REQUIREMENTS

4.4.9.3.1 Verify at least once per 12 hours that:

- a. A maximum of one charging pump is capable of injecting into the RCS, and
- b. Each accumulator is isolated; however, with the accumulator pressure less than the low temperature overpressure protection setpoint, the accumulator discharge isolation valves may be opened to perform accumulator discharge check valve testing.

4.4.9.3.2 When PORVs are being used for overpressure protection, demonstrate each PORV is OPERABLE by:

- a. Verifying each PORV block valve is open for each required PORV at least once per 72 hours, and

REACTOR COOLANT SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

- b. 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 to be OPERABLE and placed in operation after decreasing the RCS cold leg temperature to less than or equal to the enable temperature specified in the PTLR and at least once per 31 days, and
- c. Performance of a CHANNEL CALIBRATION on each required PORV actuation channel at least once per 18 months.

4.4.9.3.3 When a vent is being used for overpressure protection, verify the required vent is open:

- a. At least once per 12 hours for an open vent or unlocked open vent valve(s), except
- b. At least once per 31 days for a valve which is locked, or provided with remote position indication, or sealed, or otherwise secured in the open position.

EMERGENCY CORE COOLING SYSTEMS

3/4.5.2 ECCS SUBSYSTEMS - $T_{avg} \geq 350^{\circ}\text{F}$

LIMITING CONDITION FOR OPERATION

3.5.2 Two separate and independent ECCS subsystems shall be OPERABLE with each subsystem comprised of:

- a. One OPERABLE centrifugal charging pump,
- b. One OPERABLE low head safety injection pump,
- c. One OPERABLE recirculation spray pump⁽¹⁾ capable of supplying the safety injection flow path during recirculation phase, and
- d. An OPERABLE flow path capable of taking suction from the refueling water storage tank on a safety injection signal and transferring suction to the containment sump during the recirculation phase of operation.

APPLICABILITY: MODES 1, 2 and 3.⁽²⁾

ACTION:

- a. With one ECCS subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 72 hours or be in HOT SHUTDOWN within the next 12 hours.
- b. In the event the ECCS is actuated and injects water into the Reactor Coolant System, a Special Report shall be prepared and submitted in accordance with 10 CFR 50.4 within 30 days describing the circumstances of the actuation and the total accumulated actuation cycles to date.

SURVEILLANCE REQUIREMENTS

4.5.2 Each ECCS subsystem shall be demonstrated OPERABLE:

- a.1. At least once per 12 hours by verifying that the following valves are in the indicated positions with power to the valve operator control circuits disconnected by removal of the plug in the lock out circuit from each circuit:

(1) Recirculation spray pump 2RSS-P21C or 2RSS-P21D.

(2) The provisions of Specifications 3.0.4 and 4.0.4 are not applicable for entry into MODE 3 for the centrifugal charging pumps declared inoperable pursuant to Specification 4.5.3.2 provided the centrifugal charging pumps are restored to OPERABLE status within 4 hours or prior to the temperature of one or more of the RCS cold legs exceeding the enable temperature specified in the PTLR plus 25°F, whichever comes first.

EMERGENCY CORE COOLING SYSTEMS

ECCS SUBSYSTEMS - $T_{avg} < 350^{\circ}\text{F}$

LIMITING CONDITION FOR OPERATION

3.5.3 As a minimum, one ECCS subsystem comprised of the following shall be OPERABLE:

- a. One OPERABLE centrifugal charging pump,
- b. One OPERABLE Low Head Safety Injection Pump, and
- c. One OPERABLE recirculation spray pump* capable of supplying the safety injection flow path during recirculation phase, and
- d. An OPERABLE flow path capable of taking suction from the refueling water storage tank upon being manually realigned and transferring suction to the containment sump during the recirculation phase of operation.

APPLICABILITY: MODE 4.

ACTION:

- a. With no ECCS subsystem OPERABLE because of the inoperability of either the centrifugal charging pump or the flow path from the refueling water storage tank, restore at least one ECCS subsystem to OPERABLE status within 1 hour or be in COLD SHUTDOWN within the next 20 hours.
- b. In the event the ECCS is actuated and injects water into the Reactor Coolant System, a Special Report shall be prepared and submitted in accordance with 10 CFR 50.4 within 30 days describing the circumstances of the actuation and the total accumulated actuation cycle to date.

SURVEILLANCE REQUIREMENTS

4.5.3.1 The ECCS subsystem shall be demonstrated OPERABLE per the applicable Surveillance Requirements of 4.5.2.

4.5.3.2 All charging pumps, except the above required OPERABLE charging pump, shall be demonstrated inoperable** by verifying that the control switches are placed in the PULL-TO-LOCK position and tagged within 4 hours after entering MODE 4 from MODE 3 prior to the temperature of one or more of the RCS cold legs decreasing below the enable temperature specified in the PTLR minus 25°F, whichever comes first, and at least once per 12 hours thereafter.

* Recirculation spray pump 2RSS-P21C or 2RSS-P21D.

** An inoperable pump may be energized for testing provided the discharge of the pump has been isolated from the RCS by a closed isolation valve with power removed from the valve operator, or by a manual isolation valve secured in the closed position.

ADMINISTRATIVE CONTROLS

REPORTING REQUIREMENTS (Continued)

- c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as shutdown margin, transient analysis limits, and accident analysis limits) of the safety analysis are met.
- d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

6.9.6 PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR)

- a. Reactor Coolant System pressure and temperature limits for heatup, cooldown, low temperature operation, criticality, hydrostatic testing, Overpressure Protection System (OPPS) enable temperature, and Power Operated Relief Valve (PORV) lift settings as well as heatup and cooldown rates shall be established and documented in the PTLR for the following:
 - 1. Specification 3.4.9.1, "Reactor Coolant System Pressure/Temperature Limits", and
 - 2. Specification 3.4.9.3, "Reactor Coolant System Overpressure Protection Systems".
- b. The analytical methods used to determine the RCS pressure and temperature limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:
 - 1. NRC letter, BEAVER VALLEY POWER STATION, UNIT NOS. 1 AND 2 - ACCEPTANCE OF METHODOLOGY FOR REFERENCING PRESSURE AND TEMPERATURE LIMITS REPORT (TAC NOS. MB3319 AND MB3320), dated October 8, 2002.
 - 2. WCAP-14040-NP-A, "Methodology Used to Develop Cold Overpressure Mitigating System Setpoints and RCS Heatup and Cooldown Limit Curves", Revision 2.

The methodology listed in WCAP-14040-NP-A was used with two exceptions:

- a) Use of ASME Code Case N-640, "Alternative Reference Fracture Toughness for Development of P-T Limits for Section XI, Division 1", and
- b) Use of methodology of the 1996 version of ASME Section XI, Appendix G, "Fracture Toughness Criteria for Protection Against Failure".

ADMINISTRATIVE CONTROLS

PRESSURE AND TEMPERATURE LIMITS REPORT (continued)

- c. The PTLR shall be provided to the NRC upon issuance for each reactor fluence period and for any revision or supplement thereto.

6.10 DELETED

6.11 RADIATION PROTECTION PROGRAM

Procedures for personnel radiation protection shall be prepared consistent with the requirements of 10 CFR Part 20 and shall be approved, maintained and adhered to for all operations involving personnel radiation exposure.

6.12 HIGH RADIATION AREA

6.12.1 In lieu of the "control device" or "alarm signal" required by paragraph 20.1601 of 10 CFR 20, each high radiation area in which the intensity of radiation is greater than 100 mrem/hr but less than 1000 mrem/hr shall be barricaded and conspicuously posted as a high radiation area and entrance thereto shall be controlled by requiring issuance of a Radiological Work Permit⁽¹⁾. Any individual or group of individuals permitted to enter such areas shall be provided with or accompanied by one or more of the following:

- a. A radiation monitoring device which continuously indicates the radiation dose rate in the area.
- b. A radiation monitoring device which continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate level in the area has been established and personnel have been made knowledgeable of them.

(1) Radiation protection personnel, or personnel escorted by radiation protection personnel in accordance with approved emergency procedures, shall be exempt from the RWP issuance requirement during the performance of their radiation protection duties, provided they comply with approved radiation protection procedures for entry into high radiation areas.

ADMINISTRATIVE CONTROLS

HIGH RADIATION AREA (continued)

- c. An individual qualified in radiation protection procedures who is equipped with a radiation dose rate monitoring device. This individual shall be responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance at the frequency specified by a facility radiation protection supervisor in the Radiological Work Permit.

6.12.2 The requirements of 6.12.1, above, also apply to each high radiation area in which the intensity of radiation is greater than 1000 mrem/hr. In addition, locked doors shall be provided to prevent unauthorized entry into such areas and the keys shall be maintained under the administrative control of the shift supervisor on duty and/or a facility radiation protection supervisor.

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SAFETY LIMITS

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DEFINITIONS

- 2) Major changes in the design of radwaste treatment systems (liquid, gaseous and solid) that could significantly increase the quantities or activity of effluents released or volumes of solid waste stored or shipped offsite from those previously considered in the FSAR and SER (e.g., use of asphalt system in place of cement);
- 3) Changes in system design which may invalidate the accident analysis as described in the SER (e.g., changes in tank capacity that would alter the curies released); and
- 4) Changes in system design that could potentially result in a significant increase in occupational exposure of operating personnel (e.g., use of temporary equipment without adequate shielding provisions.)

MEMBER(S) OF THE PUBLIC

1.36 MEMBER(S) OF THE PUBLIC means any individual except when that individual is receiving an occupational dose.

CORE OPERATING LIMITS REPORT

1.37 The CORE OPERATING LIMITS REPORT (COLR) is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific parameter limits shall be determined for each reload cycle in accordance with Specification 6.9.5. Plant operation within these limits is addressed in individual specifications.

PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR)

1.38 The PTLR is the unit specific document that provides the reactor vessel pressure and temperature (P/T) limits, including heatup and cooldown rates and the Overpressure Protection System setpoint and enable temperature, for the current reactor vessel fluence period. These pressure and temperature limits shall be determined for each fluence period in accordance with Specification 6.9.6. Plant operation within these operating limits is addressed in Specification 3.4.9.1, "Reactor Coolant System Pressure/Temperature Limits", and Specification 3.4.9.3, "Reactor Coolant System Overpressure Protection System."

REACTOR COOLANT SYSTEM

SHUTDOWN

LIMITING CONDITION FOR OPERATION

- 3.4.1.3 a. At least two of the coolant loops listed below shall be OPERABLE:
1. Reactor Coolant Loop (A) and its associated steam generator and reactor coolant pump, #
 2. Reactor Coolant Loop (B) and its associated steam generator and reactor coolant pump, #
 3. Reactor Coolant Loop (C) and its associated steam generator and reactor coolant pump, #
 4. Residual Heat Removal Pump (A) and a heat exchanger, **
 5. Residual Heat Removal Pump (B) and a second heat exchanger. **
- b. At least one of the above coolant loops shall be in operation. ***

APPLICABILITY: Modes 4 AND 5.

** The normal or emergency power source may be inoperable in MODE 5.

*** All reactor coolant pumps and Residual Heat Removal pumps may be de-energized for up to 1 hour provided: 1) no operations are permitted that would cause dilution of the reactor coolant system boron concentration and 2) core outlet temperature is maintained at least 10°F below saturation temperature. For purposes of this specification, the addition of borated water to the RCS does not constitute dilution of the RCS boron concentration provided the boron concentration of the borated water being added is greater than the minimum required to satisfy the requirements of Specification 3.1.1.1 for Mode 4; or Specification 3.1.1.2 for Mode 5.

The first reactor coolant pump in a non-isolated loop shall not be started with one or more non-isolated RCS cold leg temperatures less than or equal to the enable temperature specified in the PTLR, unless the secondary side water temperature of each steam generator in a non-isolated loop is less than 50°F above each of the non-isolated RCS cold leg temperatures.

REACTOR COOLANT SYSTEM

3/4.4.3 SAFETY VALVES

LIMITING CONDITION FOR OPERATION

3.4.3 All pressurizer code safety valves shall be OPERABLE with a lift setting* of 2485 PSIG +1% -3%.**

APPLICABILITY: MODES 1, 2 and 3,
MODE 4 with all RCS cold leg temperatures > the enable temperature specified in the PTLR.

ACTION:

- a. With one pressurizer code safety valve inoperable, either restore the inoperable valve to OPERABLE status within 15 minutes or be in HOT SHUTDOWN with any RCS cold leg temperature \leq the enable temperature specified in the PTLR and apply RCS overpressure protection requirements in accordance with Specification 3.4.9.3 within 12 hours.
- b. With a pressurizer code safety valve having discharged liquid water from a water solid pressurizer to mitigate an overpressure event, be in at least HOT STANDBY within the next 6 hours, and in HOT SHUTDOWN with any RCS cold leg temperature \leq the enable temperature specified in the PTLR and apply RCS overpressure protection requirements in accordance with Specification 3.4.9.3 within the following 6 hours.

SURVEILLANCE REQUIREMENTS

4.4.3 No additional requirements other than those required by Specification 4.0.5.

* The Lift Setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.

** Within $\pm 1\%$ following pressurizer code safety valve testing.

REACTOR COOLANT SYSTEM

3/4.4.9 PRESSURE/TEMPERATURE LIMITS

REACTOR COOLANT SYSTEM

LIMITING CONDITION FOR OPERATION

3.4.9.1 The Reactor Coolant System (except the pressurizer) temperature and pressure shall be limited in accordance with the limits that are specified in the PTLR during heatup, cooldown, criticality, and inservice leak and hydrostatic testing.

APPLICABILITY: MODES 1, 2⁽¹⁾, 3, 4 and 5.

ACTION:

With any of the above limits specified in the PTLR exceeded:

- a. Restore the temperature and/or pressure to within the limit within 30 minutes, and
- b. Perform an engineering evaluation to determine the effects of the out-of-limit condition on the structural integrity of the Reactor Coolant System within 72 hours, and
- c. Determine, from Action b above, that the Reactor Coolant System remains acceptable for continued operation or be in at least HOT STANDBY within the next 6 hours and reduce the RCS T_{avg} and pressure to less than 200°F and 500 psig, respectively, within the following 30 hours.

(1) See Special Test Exception 3.10.3.

REACTOR COOLANT SYSTEM

SURVEILLANCE REQUIREMENTS

4.4.9.1

- a. The Reactor Coolant System temperature and pressure shall be determined to be within the limits specified in the PTLR at least once per 30 minutes during system heatup, cooldown, and inservice leak and hydrostatic testing operations.
- b. The Reactor Coolant System temperature and pressure conditions shall be determined to be to the right of the criticality limit line specified in the PTLR within 15 minutes prior to achieving reactor criticality.
- c. The reactor vessel material irradiation surveillance specimens shall be removed and examined in accordance with 10CFR50, Appendix H, to determine changes in material properties. The results of these examinations shall be used to update the PTLR.

REACTOR COOLANT SYSTEM

OVERPRESSURE PROTECTION SYSTEMS

LIMITING CONDITION FOR OPERATION

3.4.9.3 An overpressure protection system shall be OPERABLE with a maximum of one charging pump⁽¹⁾ capable of injecting into the RCS and the accumulators isolated⁽²⁾ and either a or b below:

- a. Two power operated relief valves (PORVs) with a nominal maximum lift setting within limits specified in the PTLR, or
- b. The RCS depressurized and an RCS vent of greater than or equal to 2.07 square inches.

APPLICABILITY: Mode 4 when any RCS cold leg temperature is less than or equal to an enable temperature specified in the PTLR,
Mode 5,
Mode 6 when the reactor vessel head is on.

ACTION:

- a. With two or more charging pumps capable of injecting into the RCS, immediately initiate action to verify a maximum of one charging pump is capable of injecting into the RCS or depressurize and vent the RCS through a 2.07 square inch or larger vent within 12 hours.
- b. With an accumulator not isolated when the accumulator pressure is greater than or equal to the maximum RCS pressure for the existing RCS cold leg temperature allowed by the heatup and cooldown curves in the PTLR, isolate the affected accumulator within 1 hour or increase the RCS cold leg temperature above the enable temperature specified in the PTLR within the next 12 hours or depressurize the affected accumulator to less than the maximum RCS pressure for the existing cold leg temperature allowed by the heatup and cooldown curves in the PTLR within the next 12 hours.

(1) Two charging pumps may be capable of injecting into the RCS for pump swap operation for less than or equal to 1 hour.

(2) Accumulator isolation with power removed from the discharge isolation valves is only required when the accumulator pressure is greater than or equal to the maximum RCS pressure for the existing RCS cold leg temperature allowed by the heatup and cooldown curves provided in the PTLR.

REACTOR COOLANT SYSTEM

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

- c. With one PORV inoperable in MODE 4 (when any RCS cold leg temperature is less than or equal to the enable temperature specified in the PTLR), restore the inoperable PORV to OPERABLE status within 7 days or depressurize and vent the RCS through a 2.07 square inch or larger vent within the next 12 hours.
- d. With one PORV inoperable in MODES 5 or 6, restore the inoperable PORV to OPERABLE status within 24 hours or depressurize and vent the RCS through a 2.07 square inch or larger vent within the next 12 hours.
- e. With two PORVs inoperable, depressurize and vent the RCS through a 2.07 square inch or larger vent within 12 hours.

SURVEILLANCE REQUIREMENTS

4.4.9.3.1 Verify at least once per 12 hours that:

- a. A maximum of one charging pump is capable of injecting into the RCS, and
- b. Each accumulator is isolated; however, with the accumulator pressure less than the low temperature overpressure protection setpoint, the accumulator discharge isolation valves may be opened to perform accumulator discharge check valve testing.

4.4.9.3.2 When PORVs are being used for overpressure protection, demonstrate each PORV is OPERABLE by:

- a. Verifying each PORV block valve is open for each required PORV at least once per 72 hours, and
- b. 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 to be OPERABLE and placed in operation after decreasing the RCS cold leg temperature to less than or equal to the enable temperature specified in the PTLR and at least once per 31 days, and
- c. Performance of a CHANNEL CALIBRATION on each required PORV actuation channel at least once per 18 months.

EMERGENCY CORE COOLING SYSTEMS

3/4.5.3 ECCS SUBSYSTEMS - $T_{avg} < 350^{\circ}\text{F}$

LIMITING CONDITION FOR OPERATION

3.5.3 As a minimum, one ECCS subsystem comprised of the following shall be OPERABLE:

- a. One OPERABLE centrifugal charging pump, #
- b. One OPERABLE Low Head Safety Injection Pump, and
- c. An OPERABLE flow path capable of taking suction from the refueling water storage tank upon being manually realigned and transferring suction to the containment sump during the recirculation phase of operation.

APPLICABILITY: MODE 4.

ACTION:

- a. With no ECCS subsystem OPERABLE because of the inoperability of either the centrifugal charging pump or the flow path from the refueling water storage tank, restore at least one ECCS subsystem to OPERABLE status within 1 hour or be in COLD SHUTDOWN within the next 20 hours.
- b. In the event the ECCS is actuated and injects water into the Reactor Coolant System, a Special Report shall be prepared and submitted in accordance with 10 CFR 50.4 within 30 days describing the circumstances of the actuation and the total accumulated actuation cycles to date.

SURVEILLANCE REQUIREMENTS

4.5.3.1 The ECCS subsystem shall be demonstrated OPERABLE per the applicable Surveillance Requirements of 4.5.2.

4.5.3.2 All charging pumps except the above required OPERABLE pumps, shall be demonstrated inoperable at least once per 12 hours whenever the temperature of one or more of the non-isolated RCS cold legs is \leq the enable temperature specified in the PTLR by verifying that the control switches are placed in the PULL-TO-LOCK position and tagged.

A maximum of one centrifugal charging pump shall be OPERABLE whenever the temperature of one or more of the non-isolated RCS cold legs is \leq the enable temperature specified in the PTLR.

EMERGENCY CORE COOLING SYSTEMS

3/4.5.4 BORON INJECTION SYSTEM

BORON INJECTION TANK < 350°F

LIMITING CONDITION FOR OPERATION

3.5.4.1.2 The boron injection tank flow path shall be isolated and power removed from the inlet or outlet valves.

APPLICABILITY: When the temperature of one or more of the non-isolated RCS cold legs is \leq the enable temperature specified in the PTLR.

ACTION:

With the boron injection tank not isolated, isolate the tank flow path and remove power from the inlet or outlet valves.

SURVEILLANCE REQUIREMENTS

4.5.4.1.2 The boron injection tank flow path shall be verified isolated by verifying at least once per 7 days that the Boron Injection Tank inlet or outlet valves are closed and de-energized except for purposes of flow testing or valve stroke testing.

SPECIAL TEST EXCEPTIONS

PRESSURE/TEMPERATURE LIMITATION - REACTOR CRITICALITY

LIMITING CONDITION FOR OPERATION

3.10.3 The minimum temperature and pressure conditions for reactor criticality of Specifications 3.1.1.5 and 3.4.9.1 may be suspended during low temperature PHYSICS TESTS provided:

- a. The THERMAL POWER does not exceed 5 percent of RATED THERMAL POWER,
- b. Deleted, and
- c. The Reactor Coolant System temperature and pressure relationship is maintained within the acceptable region of operation shown in the P/T limit curves of the PTLR.

APPLICABILITY: MODE 2.

ACTION:

- a. With the THERMAL POWER > 5 percent of RATED THERMAL POWER, immediately open the reactor trip breakers.
- b. With the Reactor Coolant System temperature and pressure relationship within the unacceptable region of operation on the P/T limit curves of the PTLR, immediately open the reactor trip breakers and restore the temperature-pressure relationship to within its limit within 30 minutes; perform the analysis required by Specification 3.4.9.1 prior to the next reactor criticality.

SURVEILLANCE REQUIREMENTS

4.10.3.1 The Reactor Coolant System shall be verified to be within the acceptable region for operation as shown on the P/T limit curves of the PTLR at least once per hour.

4.10.3.2 The THERMAL POWER shall be determined to be $\leq 5\%$ of RATED THERMAL POWER at least once per hour.

ADMINISTRATIVE CONTROLS

CORE OPERATING LIMITS REPORT (Continued)

Caldon, Inc. Engineering Report-160P, "Supplement to Topical Report ER-80P: Basis for a Power Uprate With the LEFMVTM System" Revision 0, May 2000.

- c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as shutdown margin, transient analysis limits, and accident analysis limits) of the safety analysis are met.
- d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

6.9.6 PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR)

- a. Reactor Coolant System pressure and temperature limits for heatup, cooldown, low temperature operation, criticality, hydrostatic testing, Overpressure Protection System (OPPS) enable temperature, and Power Operated Relief Valve (PORV) lift settings as well as heatup and cooldown rates shall be established and documented in the PTLR for the following:
 - 1. Specification 3.4.9.1, "Reactor Coolant System Pressure/Temperature Limits", and
 - 2. Specification 3.4.9.3, "Reactor Coolant System Overpressure Protection Systems".
- b. The analytical methods used to determine the RCS pressure and temperature limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:
 - 1. NRC letter, BEAVER VALLEY POWER STATION, UNIT NOS. 1 AND 2 - ACCEPTANCE OF METHODOLOGY FOR REFERENCING PRESSURE AND TEMPERATURE LIMITS REPORT (TAC NOS. MB3319 AND MB3320), dated October 8, 2002.
 - 2. WCAP-14040-NP-A, "Methodology Used to Develop Cold Overpressure Mitigating System Setpoints and RCS Heatup and Cooldown Limit Curves", Revision 2.

ADMINISTRATIVE CONTROLS

PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR) (Continued)

The methodology listed in WCAP-14040-NP-A was used with two exceptions:

- a) Use of ASME Code Case N-640, "Alternative Reference Fracture Toughness for Development of P-T Limits for Section XI, Division 1", and
 - b) Use of methodology of the 1996 version of ASME Section XI, Appendix G, "Fracture Toughness Criteria for Protection Against Failure".
- c. The PTLR shall be provided to the NRC upon issuance for each reactor fluence period and for any revision or supplement thereto.

6.10 DELETED

6.11 RADIATION PROTECTION PROGRAM

Procedures for personnel radiation protection shall be prepared consistent with the requirements of 10 CFR Part 20 and shall be approved, maintained and adhered to for all operations involving personnel radiation exposure.