UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

December 27, 1985

Docket No. 50-267

Mr. R. F. Walker, President
Public Service Company of Colorado
Post Office Box 840
Denver, Colorado 80201

Dear Mr. Walker:

SUBJECT: FORT ST. VRAIN (FSV) - TECHNICAL SPECIFICATION UPGRADE - NRC PROPOSED REVISIONS TO LIMITING CONDITIONS FOR OPERATION (LCOs)

Reference: Letter from Public Service Company of Colorado (PSC), to NRC, dated October 11, 1985 (P-85363)

The referenced letter proposed changes to the helium circulator, steam generator, and liner cooling system LCOs, and provided PSC responses to applicable action items resulting from the July 22-26, 1985 meetings between the NRC and PSC.

Based on the initial staff comments (Enclosure 1), a decision was made by the staff to redraft the above LCOs (Enclosure 2) into a format consistent with the Standard Technical Specifications. The equipment redundancy necessary during normal and abnormal operations was also included to ensure system availability in certain events as analyzed in your FSAR. We have also provided the staff's comments (Enclosure 3) on your response to applicable action items.

We request that you review Enclosure 2 and identify to us any statements which do not accurately reflect the FSV FSAR or current plant configurations. We also request your review of the enclosed comments (Enclosures 1 and 3) generated during the staff's review of your October 11, 1985 submittal.

50-267

December 27, 1985

Please provide your response within 30 days of receipt of this letter. Any questions on this material should be addressed to the assigned Project Manager, Kenneth L. Heitner. He may be reached at (301) 492-7364.

Sincerely,

Original signed by
Herbert N. Berkow, Director
Standardization and Special
Projects Directorate
Division of PWR Licensing-B, NRR

Enclosures:
1. Marked-up copies of LCOs containing staff comments
2. Redraft of LCOs into format consistent with the Standard Technical Specifications
3. Staff Comments on PSC's Response to Applicable Action Items

cc: See next page

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Sincerely,

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cc: See next page

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ENCLOSURE 1

MARKED UP COPIES OF LCOs CONTAINING STAFF COMMENTS

Amendment No.
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PRIMARY COOLANT SYSTEM

3/4.5.1 HELIUM CIRCULATORS

LIMITING CONDITION FOR OPERATION

3.5.1.1 At least one helium circulator in each loop shall be OPERABLE~~BLE~~TING with: *

a. Emergency circulator drive capable of providing the equivalent of 8000 rpm circulator speed at atmospheric pressure;

b. Two emergency water booster pumps (P-2109 and P-2110) OPERABLE, including two OPERABLE flow paths with the capability to drive the circulator at 3% rated helium flow with firewater supply;

c. The turbine water removal system, including two turbine water removal pumps (P-2103 and P-2103S) OPERABLE;

d. The normal bearing water system, including two sources of bearing water makeup and two bearing water makeup pumps (P-2105 and P-2108) OPERABLE;

e. The associated bearing water accumulators (T-2112, T-2113, T-2114, and T-2115) OPERABLE; and

f. OPERABLE supply and discharge valve interlocks on each associated circulator ensuring automatic water turbine start capability following steam turbine trip.#

APPLICABILITY: POWER, LOW POWER, STARTUP* and SHUTDOWN*

*With calculated (undefined term) CORE AVERAGE INLET TEMPERATURES greater than or equal to 760 degrees F. (justification?)

#The supply and discharge valve interlocks are only required to be OPERABLE in POWER.

Does not appear to be consistant with PSC response to Action 27d (i.e. if the interlocks fail, they would prevent any source of motive power, therefore, you would want operable interlocks at all times).

* Unable to locate analysis authorizing extended single loop operation.

ACTION:

a. With less than one OPERABLE helium circulator in each loop (for reasons other than those identified in ACTIONS b and c below) ~~or with less than the required OPERABLE equipment identified in Specification 3.5.1.1, item a,~~ restore at least one helium circulator in each loop or the inoperable equipment to OPERABLE status within 24 hours, or:

* 1. If in POWER, LOW POWER, or STARTUP, be in at least SHUTDOWN within the next 24 hours, or

2. If in SHUTDOWN, suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

b. With less than the required OPERABLE equipment identified in Specification 3.5.1.1, items a, b, c, d, or f, but with the capability to drive a helium circulator on steam motive power, restore the inoperable equipment to OPERABLE status within 7 days or be in at least SHUTDOWN within the next 24 hours.

c. With no helium circulators OPERABLE and all forced circulation lost, be in SHUTDOWN immediately and restore forced circulation within 90 minutes or depressurize the PCRV in accordance with the applicable requirement below:

1. As a function of reactor thermal power prior to SHUTDOWN equal to or greater than 25% as delineated in Figure 3.5.1-1.

** 2. As a function of CORE AVERAGE ~~INLET~~ OUTLET TEMPERATURE for reactor thermal power prior to SHUTDOWN less than 25% as delineated in Figure 3.5.1-2.

3. As a function of time from reactor SHUTDOWN as delineated in Figure 3.5.1-3.

* Operation without operable paltons is unacceptable. DBA 2 requires the redundancy necessary to ensure @ least two (2) paltons are available with any single failure.

** Fig. 3.5.1-2 does not agree with FSAR, Sect. 14.A.1, p. 14.10-2 (i.e. 8 hrs @ 400°F to 2 hrs @ 1350°F in the FSAR is not in agreement with the Tech Spec. Fig. 3.5.1-2)

SURVEILLANCE REQUIREMENT

4.5.1.1 The helium circulators shall be demonstrated OPERABLE:

a. At least once per 31 days by testing the bearing water accumulators and verifying accumulator flow to the circulator bearing.

TWRT overflow to the Rx bldg. sump?

b. At least once per ~~REFUELING CYCLE~~ by: 92 days - consistant with existing Tech Spec

1. Performing a turbine water removal pump (P-2103 and P-2103S) start test based on a simulated drain tank level to verify automatic actuator and pump start capability. what actuator?

ISI/IST Program?

2. Performing a bearing water makeup pump (P-2105 and P-2108) start test based on a simulated low pressure in the backup bearing water supply line to verify automatic actuation and pump start capability.

3. Testing the water turbine inlet and outlet valve interlocks ensuring automatic water turbine start capability by simulating a steam turbine trip. correct signal?

4. Monitoring the proper closure of the circulator helium shutoff valves.

c. At least once per REFUELING CYCLE on a STAGGERED TEST BASIS whereby circulators 1B and 1D will be tested during even numbered cycles and circulators 1A and 1C during odd numbered cycles, by demonstrating operation on water turbine drive by:

1. Verifying an equivalent 8000 rpm (at atmospheric pressure) on feedwater motive power using the emergency feedwater header, and

2. Testing each circulator by verifying an equivalent 3% rated helium flow on condensate at reduced pressure (to simulate firewater pump discharge) using each emergency water booster pump (P-2109 and P-2110).

3. Verifying an equivalent 4.5% rated helium flow with condensate ....

d. At leant once per 10 years by verifying:

1. Each helium circulator compressor wheel rotor, turbine wheel and pelton wheel are free of both surface and subsurface defects in accordance with the appropriate methods, procedures, and associated acceptance criteria specified for Class I components in Article NB-2500, Section III, ASME Code. Other helium circulator components, accessible without further disassembly than required to inspect these wheels, shall be visually examined.

2. At least 10% of primary coolant pressure boundary bolting and other structural bolting which has been removed for the inspection above and which is exposed to the primary coolant shall be nondestructively tested for identification of inherent or developed defects.

Report to NRC ?

Instrument functional testing and calibrations ?

PRIMARY COOLANT SYSTEM

3/4.5.1 HELIUM CIRCULATORS-STARTUP, SHUTDOWN AND REFUELING

LIMITING CONDITION FOR OPERATION — See MPA B-57 "DHR Capability"

3.5.1.2 At least one helium circulator in each loop shall be OPERABLE with: one helium circulator OPERATING each with:

a. Emergency circulator drive capable of providing the equivalent of 8000 rpm circulator speed at atmospheric pressure;

b. One emergency water booster pump (P-2109 or P-2110) OPERABLE including an OPERABLE flow path with the capability to drive the circulator at 3% rated helium flow with firewater supply;

c. The turbine water removal system, including one turbine water removal pump (P-2103 or P-2103S) OPERABLE;

d. The normal bearing water system, including one source of bearing water makeup and one bearing water makeup pump (P-2105 or P-2108) OPERABLE; and

e. The associated bearing water accumulator OPERABLE.

APPLICABILITY: STARTUP*, SHUTDOWN*, and REFUELING

* With calculated (undefined) CORE AVERAGE INLET TEMPERATURES less than 760 degrees F.

— justification ?

ACTION:

With no helium circulator OPERABLE, restore the required circulator to OPERABLE status prior to the time calculated for the core to heatup from decay heat to a calculated CORE AVERAGE INLET TEMPERATURE of 760 degrees F or:

1. Suspend all operations involving CORE ALTERATIONS or positive reactivity changes, and

2. Initiate PCRV depressurization in accordance with the time specified in Figure 3.5.1-3.

The requirements for an OPERABLE circulator specified provide for adequate circulator water turbine supply and circulator auxiliary supplies to assure safe shutdown cooling. With less than two emergency water booster pumps (Boosted Firewater), OPERABLE, coupled with the diverse and redundant means for circulator motive power, a 7 day action statement time is considered sufficient for restoration of these pumps. *

The capacity of each helium circulator water turbine drive method is discussed in FSAR Section 14. Effective core cooling has been demonstrated analytically with each water turbine drive method. Additionally, these two pumps are tested by verifying an equivalent 3% rated helium flow by operating the circulators on water turbine drive. Additional tests provide assurance that a circulator can operate at an equivalent 8000 rpm at atmospheric pressure based on calculated helium density, reactor pressure and circulator inlet temperature.

One turbine water removal pump has sufficient capacity to remove the water from two circulator water turbines. Also, the turbine water removal tank overflow to the reactor building sump will be used if the normal pump flow path is lost. Therefore, a 7 day action statement time is considered sufficient for restoration of the pumps, based on the redundant and diverse means of removing water from the circulator water turbines.

Each independent bearing water system provides a continuous supply of bearing water to the two circulators in each primary cooling loop. A backup supply of bearing water is provided from the steam generator feedwater system. Makeup bearing water requirements are also normally obtained from the feedwater system. A separate bearing water makeup pump is provided as a backup to supply makeup water to the bearing water surge tank. The bearing water makeup pump normally takes suction from the deaerator but can also be supplied from the condensate storage tanks. If this pump is inoperative, an emergency bearing water makeup pump can supply water at a reduced capacity from the condensate storage tank to the bearing water surge tank. In an extreme emergency, filtered firewater can be provided to the bearing water surge tank by either the bearing water makeup pump or the emergency bearing water makeup pump.

* Maintenance is not an adequate action statement basis.

SAFE SHUTDOWN COOLING SYSTEMS

3/4.5.2 STEAM GENERATORS

LIMITING CONDITION FOR OPERATION

3.5.2.1 Two steam generators shall be OPERABLE with: T/S 6

a. Both the reheater section and the economizer-evaporator-superheater (EES) section OPERABLE (each section consisting of six modules) per steam generator,

b. The steam generator superheater (EES) and reheater safety valves (V-2214, V-2215, V-2216, V-2245, V-2246, V-2247, V-2225 and V-2262) OPERABLE with set points in accordance with Table 4.5.2-1, and

c. The provisions of Specification 3.0.6 are not applicable until 72 hours after reaching 25% RATED THERMAL POWER, to allow testing of the steam generator superheater and reheater safety valves, required following maintenance or per Surveillance Requirements identified in Specification 4.5.2.1 b.1.

APPLICABILITY: POWER and LOW POWER

ACTION:

a. With less than the above required steam generator sections OPERABLE, restore the required sections to OPERABLE status within 72 hours or be in STARTUP within the next 12 hours.

b. With no steam generator section OPERABLE, be in SHUTDOWN immediately and restore at least one inoperable section to OPERABLE status within 90 minutes or depressurize the PCRV in accordance with the times specified in Figures 3.5.1-1 or 3.5.1-2, as applicable.

c. With one ~~or more~~ of the required safety valve(s) inoperable, restore the required valve(s) to OPERABLE status within 72 hours or restrict plant operation as follows: T/S

1. With ~~one~~ an EES safety valve inoperable, reduce THERMAL POWER to less than 50% of RATED THERMAL POWER.

2. With a reheater safety valve inoperable, be in STARTUP within the next 12 hours.

SURVEILLANCE REQUIREMENTS

4.5.2.1 The steam generators shall be demonstrated OPERABLE:

a. At least once per 18 months by verifying proper flow through the emergency feedwater header and emergency condensate header to the steam generator sections.

b. At least once per five years by:

* prior to exceeding 25% RTP unless completed in the previous 5 years

1. Testing the superheater and reheater safety valves and verifying the lift settings as specified in Table 4.5.2-1.

ISI/IST Program ?

2. Volumetrically examining the accessible portions of the following bimetallic welds for indications of subsurface defects:

1. The main steam ring header collector to main steam piping weld for one steam generator module in each loop.

2. The main steam ring header collector to collector drain piping weld for one steam generator module in each loop.

3. The same two steam generator modules shall be re-examined at each interval.

The initial examination shall be performed during SHUTDOWN or REFUELING prior to the beginning of Fuel Cycle 5. This initial examination shall also include the bimetallic welds described above for two additional steam generator modules in each loop.

* Otherwise LCO 3.5.2.1.c would be required for LCOs 3.5.2.2 and 3.5.2.3

c. Tube Leak Examination

Each time a steam generator tube is plugged due to a leak, specimens from the accessible subheader tubes connected to the leaking inaccessible tubes(s) shall be metallographically examined.

The results of this metallographic examination shall be compared to the results from the specimens of all previous tube leaks.

A study shall be performed to evaluate the size and elevation of the tube leaks to determine if a cause of the leak or a trend in the degradation can be identified.

1. Acceptance Criteria

An engineering evaluation shall be performed to determine the acceptability of:

1. Any subsurface defects identified in Specification 4.5.2.1 c.2, ?
2. Continued operation considering the condition of the steam generator materials,
3. OPERABILITY of the steam generator sections considering the number of plugged tubes and their ability to remove decay heat.

2. Reports 90 days of the return to operation following each steam ...

~~Within 30 days following the completion of each~~ steam generator tube leak study a Special Report shall be submitted to the NRC in accordance with Specification 6.9.2. This report shall include the estimated size and elevation of the leak(s), and the results of the metallographic and engineering analyses performed, the postulated cause of the leak if identified and corrective action to be taken.

SAFE SHUTDOWN COOLING SYSTEMS

3/4.5.2 STEAM GENERATORS

LIMITING CONDITION FOR OPERATION

3.5.2.2 The steam generator(s) shall be OPERABLE with:

a. At least two sections (reheater or economizer-evaporator-superheater) in any combination of one or both steam generators OPERABLE, and

c in loop(s) with associated OPERABLE helium circulators,

b. The steam generator superheater (ESS) and reheater safety valves (V-2214, V-2215, V-2216, V-2245, V-2246, V-2247, V-2225 and V-2262) which protect the operating sections of the steam generator(s) shall be OPERABLE with setpoints in accordance with Table 4.5.2-1.

c. At least one steam generator shall be OPERATING in a loop with OPERATING helium circulators.

APPLICABILITY: STARTUP and SHUTDOWN*

undefined

* With calculated CORE AVERAGE INLET TEMPERATURES greater than or equal to 760 degrees F.

basis ?

ACTION:

a. With less than the above required steam generator sections OPERABLE, restore the required sections to OPERABLE status within 72 hours or:

1. If in STARTUP, be in at least SHUTDOWN within the next 12 hours, or

2. If in SHUTDOWN, suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

b. With no steam generator sections OPERABLE, be in SHUTDOWN immediately and restore at least one inoperable section to OPERABLE status or depressurize the PCRV in accordance with the times specified in Figures 3.5.1.-2 or 3.5.1-3, as applicable.

c. With one ~~or more~~ of the required safety valves inoperable, restore the required valves to OPERABLE status within 72 hours or restrict plant operation as follows:

1. With one EES safety valve inoperable, restrict plant operation to a maximum of two boiler feed pumps.

2. With a reheater safety valve inoperable, be in SHUTDOWN within the next 12 hours.

SURVEILLANCE REQUIREMENTS

4.5.2.2 No additional surveillances required beyond those identified per Specification 4.5.2.1.

SAFE SHUTDOWN COOLING SYSTEMS

3/4.5.2 STEAM GENERATORS

LIMITING CONDITION FOR OPERATION

3.5.2.3.

a. At least the reheater section or the economizer-evaporator-superheater (EES) section of ~~one~~ both steam generators shall be OPERABLE, and

b. The steam generator superheater or reheater safety valve(s) which protect the operating section of the steam generator shall be OPERABLE with setpoints in accordance with Table 4.5.2-1.

APPLICABILITY: SHUTDOWN* and REFUELING

* With calculated (undefined) CORE AVERAGE INLET TEMPERATURE less than 760 degrees F. (basis ?)

ACTION:

With no steam generator section or its associated safety valve(s) OPERABLE, restore the required section or safety valve to OPERABLE status prior to the time calculated for the core to heatup from decay heat to a calculated CORE AVERAGE INLET TEMPERATURE of 760 degrees F, or:

1. Suspend all operations involving CORE ALTERATIONS or positive reactivity changes, and

2. Initiate PCRV depressurization in accordance with the time specified in Figure 3.5.1-3.

SURVEILLANCE REQUIREMENTS

4.5.2.3 No additional surveillances required beyond those identified per Specification 4.5.2.1.

~~REACTOR PLANT COOLING WATER~~/PCRV AND CONFINEMENT SYSTEMS

3/4.6.2 PCRV LINER COOLING SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.2.1 The Reactor Plant Cooling Water (RPCW)/PCRV Liner Cooling System (LCS) shall be OPERABLE with:

a. Two (2) loops OPERATING with at least one heat exchanger and one pump ~~in each loop in service:~~ OPERATING;

b. At least three (3) out of any four (4) adjacent tubes on the core support floor side wall, core support floor bottom casing, PCRV cavity liner sidewalls and PCRV cavity liner bottom head shall be OPERATING;

c. At least five (5) out of any six (6) adjacent tubes on the PCRV cavity liner top head and core support floor top casing shall be OPERATING.

d. Tubes adjacent to a non-operating tube shall be OPERATING

e. An OPERABLE flow path to provide fire water to the LCS.

APPLICABILITY: POWER, LOW POWER, STARTUP* and SHUTDOWN*

* Whenever calculated CORE AVERAGE INLET TEMPERATURE is greater than or equal to 760 degrees F.

ACTION

a. With only one (1) RPCW/PCRV Liner Cooling System loop OPERATING, ensure both heat exchangers are OPERATING in the OPERATING loop, restore the second loop to OPERATING within 48 hours or be in SHUTDOWN within the following 12 hours and suspend all operations involving positive reactivity changes. Without both heat exchangers in the OPERATING loop OPERATING or without any liner cooling system loop flow be in SHUTDOWN within 15 minutes and suspend all operations involving positive reactivity changes.

b. With less than the above required number of PCRV Liner Cooling System tubes OPERATING, restore the required tubes to OPERATING status within 24 hours or be in SHUTDOWN within the following 24 hours and suspend all operations involving positive reactivity changes.

SURVEILLANCE REQUIREMENTS

4.6.2.1 The RPCW/PCRV Liner Cooling System shall be demonstrated OPERABLE:

a. At least once per 24 hours, by verifying that each PCRV Liner Cooling System loop is circulating cooling water at a flow rate greater than 1100 gpm.

b. At least once per 31 days, by verifying that liner cooling tube outlet temperature readings and their respective inlet header temperatures (for an operating loop) are within one of the following limits:

IST program ?

1. 30 degrees F temperature rise for tubes cooling top head penetrations;

2. 20 degrees F temperature rise for all other zones except tubes specified below;

3. Exceptions

a) Core Outlet Thermometer Penetrations

Move those temperature limits to 3/4.6.3

Tube	Delta T
7S93	23 degrees F

b) Core Barrel Seal/Core Support Floor Area

Tube	Delta T
F12T46	47 degrees F
F7T43	39 degrees F
F6T44	43 degrees F
F11T45	38 degrees F
F5T47	46 degrees F

c) Peripheral Seal

Tube	Delta T
3S9	23 degrees F
4S188	23 degrees F
4S10	23 degress F
3S187	23 degrees F

If the tube outlet temperature reading for any liner cooling tube is not available due to an instrument failure, the tube may be considered OPERABLE if two tubes on both sides of the tube with an instrument failure (4 tubes total) are within their respective temperature limits as specified above.

Fire water flow path verification?

Flow scanner functional test?

Flow sensor calibration?

Verification of surge tank pressurization capability in the event of extended loss of forced coolant?

PCRV and CONFINEMENT SYSTEMS

3/4.6.2 ~~REACTOR PLANT COOLING WATER~~/PCRV LINER COOLING SYSTEM

LIMITING CONDITIONS FOR OPERATIONS

3.6.2.2 a. Two (2) RPCW/PCRV LCS loops OPERABLE with at least one pump and one heat exchanger in each loop.

The Reactor Plant Cooling Water (RPCW)/PCRV Liner Cooling System (LCS) shall be OPERABLE with:

~~b.~~ a. One (1) RPCW/PCRV Liner Cooling System loop OPERATING ~~with at least one heat exchanger and one~~ pump ~~in each loop in service~~.

APPLICABILITY: STARTUP*#, SHUTDOWN*#, and REFUELING#

ACTION: a. With no RPCW/PCRV Liner Cooling System loop OPERATING, restore at least one loop to OPERATING status prior to the time calculated for the core to heatup from decay heat to a calculated CORE AVERAGE INLET TEMPERATURE of 760 degrees F ~~or~~ suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

SURVEILLANCE REQUIREMENTS

4.6.2.2 No additional surveillance requirements other than those identified per Specification 4.6.2.1.

---

undefined

* Whenever calculated CORE AVERAGE INLET TEMEPRATURE is less than 760 degrees F.

basis

The core support floor zone of the PCRV Liner Cooling System may be valved out when PCRV pressure is less than or equal to 150 psia and calculated CORE AVERAGE INLET TEMPERATURE is less than 200 degrees F.

The action times specified for recovery of two operating loops comes from analyses described in FSAR Section 5.9.2.4 i.e. 48 hours operation on one loop before temperature of the bulk concrete would rise 20 degrees F. With the number of cooling tubes less than required, a 24 hour action time is sufficient to identify and restore the tube to operating status (if possible) or SHUTDOWN to make permanent repairs.

The surveillance(s) and their respective intervals are specified to verify operability of the Liner Cooling System. Components and features of the Reactor Plant Cooling Water System that are not safety-related do not affect LCS operability. The ISI/IST Program at Fort St. Vrain verifies operability of those barriers that separate safety and non-safety related portions of the system. A 24 hour surveillance on system flow rates provides additional verification of flow as process alarms monitor flow continuously in each liner cooling loop. Individual tube failures would be expected to occur slowly, thus a 31 day surveillance interval will detect tube failures in time to take corrective action.

With calculated CORE AVERAGE INLET TEMPERATURE below 760 degrees F, one operating Liner Cooling System loop is acceptable without single failure consideration on the basis of the stable reactivity condition of the reactor and the limited core cooling requirements. Why is this acceptable?

When the PCRV pressure is less than 150 psia and calculated CORE AVERAGE INLET TEMPERATURE is less than 200 degrees F, the core support floor zones of the liner cooling system may be valved out as concrete temperatures will be less than the 250 degree FSAR limitation. Thus, leaking liner cooling tubes which are awaiting repairs will not contribute to potential moisture ingress into the primary system.

In Surveillance Requirement 4.6.2.1.b., tube outlet temperatures are determined by thermocouple readings. In the event of an instrument failure (i.e. a thermocouple is thought to be failed), the tube with the failed thermocouple may be considered OPERABLE if thermocouple readings for two adjacent tubes on either side of that tube are within their respective temperature limits. If the tube itself failed rather than the thermocouple, then the temperature of adjacent tubes would be expected to rise. Thus, a failed thermocouple can be identified vs. an actual tube failure. Power operation may continue until such time as the thermocouple can be repaired or replaced as long as the total of 4 adjacent tubes (2 on either side of the tube with the failed instrument) are within their respective temperature limits.

PCRV AND CONFINEMENT SYSTEMS

3/4.6.3 REACTOR PLANT COOLING WATER/PCRV LINER COOLING SYSTEM TEMPERATURES

LIMITING CONDITIONS FOR OPERATION

3.6.3 The RPCW/PCRV Liner Cooling System (LCS) temperatures shall be maintained within the following limits:

a. The maximum average temperature difference between the common PCRV cooling water discharge temperature and the PCRV external concrete surface temperature shall not exceed 50 degrees F.

b. The maximum PCRV Liner Cooling System water outlet temperature shall not exceed 120 degrees F. (measured where ?)

c. The maximum change of the weekly average PCRV concrete temperature shall not exceed 14 degrees F per week.

(See limit in SR 4.6.2.1.b.)

d. The maximum temperature difference across the RPCW/PCRV Liner Cooling Water Heat Exchanger (LCS portion) shall not exceed 20 degrees F.

e. The minimum average LCS water temperature shall be greater than or equal to 100 degrees F.

APPLICABILITY: At all times

ACTION:

a. If any of the above conditions can not be restored within 24 hours, be in SHUTDOWN or REFUELING within the next 24 hours and suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

SURVEILLANCE REQUIREMENTS

4.6.3 The RPCW/PCRV Liner Cooling System temperatures shall be demonstrated to be within their respective limits at least once per 24 hours by:

a. Verifying that the maximum temperature difference averaged over a 24 hour period between the PCRV external concrete surface temperature and the common PCRV cooling water discharge temperature in each loop does not exceed 50 degrees F.

b. Verifying that the maximum PCRV liner cooling water outlet temperature does not exceed 120 degrees F as measured by PCRV liner cooling water outlet temperature in each loop.

c. Verifying that the change in PCRV concrete temperature does not exceed 14 degrees F per week as indicated by the weekly average water temperature measured at the common PCRV cooling water outlet temperature in each loop. The weekly average water temperature is determined by computing the arithmetical mean of 7 temperatures, representing each of the last 7 days of common PCRV cooling water outlet temperatures in each loop. Each day results in a new computation of a weekly average water temperature. The new weekly average is then compared to the weekly average water temperature computed 7 days earlier to verify Specification 3.6.3.c.

d. Verifying that the maximum delta T across the RPCW/PCRV Liner Cooling System heat exchanger does not exceed 20 degrees F as measured by the PCRV heat exchanger outlet temperature and the common PCRV liner cooling water outlet temperature in each loop.

e. Verifying that the minimum average water temperature of the PCRV Liner Cooling System is greater than or equal to 100 degrees F as measured by the average of the PCRV Liner Cooling System heat exchanger (LCS side) inlet and outlet temperatures.

Addition SR requirements in existing Tech Spec ?

ENCLOSURE 2

REDRAFT OF LCOs INTO FORMAT CONSISTENT WITH THE
STANDARD TECHNICAL SPECIFICATION (STS)

PRIMARY COOLANT SYSTEM

3/4.5.1 PRIMARY COOLANT LOOPS AND COOLANT CIRCULATION

LIMITING CONDITION FOR OPERATION

3.5.1.1 Both primary coolant loops shall be in operation, each with:

a. Two helium circulators OPERABLE.* Reactor power will at all times be limited in accordance with the number of circulators as follows:

Number Circulators	Percent Rated Thermal Power
1	1% < P ≤ 33%
2 in one loop	P ≤ 50%
1 in each loop	P ≤ 65%
3	P ≤ 65%
4	P ≤ 100%

The maximum allowable reactor power level during startup of a circulator is 25%, regardless of the number of circulators already OPERATING. This limitation is shown in Table 3.5.1-2.

b. Both the steam generator reheater section and the economizer - evaporator - superheater (EES) section OPERATING (each section consisting of six modules).

APPLICABILITY: POWER, LOW POWER, STARTUP

ACTION:

a. With less than two OPERABLE helium circulators in each loop, restore the inoperable helium circulator(s) in each loop to OPERABLE status within 24 hours, or be in at least SHUTDOWN within the next 12 hours.

b. With both circulators in one loop inoperable, and both circulators OPERATING in the other loop, one of the affected circulators must be restored to an OPERATING condition or the reactor must be SHUTDOWN with 24 hours.

c. With both circulators in one loop inoperable, and one circulator OPERATING in the other loop, the reactor must be SHUTDOWN immediately.

*Refer to Table 3.5.1-1 for circulator OPERABILITY requirements.

d. With no helium circulators OPERABLE and all forced circulation lost, be in SHUTDOWN immediately and restore forced circulation within 90 minutes or depressurize the PCRV in accordance with the applicable requirement below:

1. As a function of reactor thermal power prior to SHUTDOWN equal to or greater than 25% as delineated in Figure 3.5.1-1.

2. As a function of CORE AVERAGE OUTLET TEMPERATURE for reactor thermal power prior to SHUTDOWN less than 25% as delineated in Figure 3.5.1-2.

3. As a function of time from reactor SHUTDOWN as delineated in Figure 3.5.1-3.

e. With less than the above required steam generator sections OPERATING, restore the required sections to OPERATING status within 72 hours or:

1. If in POWER or LOW POWER, be in at least STARTUP within the next 12 hours, or

2. If in STARTUP, be in at least SHUTDOWN within the next 12 hours.

f. With no steam generator section OPERATING, commence an immediate SHUTDOWN and restore at least one inoperable section to OPERATING status within 90 minutes or depressurize the PCRV in accordance with the times specified in Figures 3.5.1-1, 3.5.1-2, or 3.5.1-3, as applicable.

SURVEILLANCE REQUIREMENT

4.5.1.1 a. The helium circulators shall be demonstrated OPERABLE:

1. At least once per 31 days by testing the bearing water accumulators and verifying accumulator flow to the circulator bearing.

2. At least once per 92 days by:

a) Performing a turbine water removal pump (P-2103 and P-2103S) start test based on a simulated drain tank level to verify alarm actuation and pump start capability. Also verify the turbine water removal tank overflow to the reactor building sump capability.

b) Performing a bearing water makeup pump (P-2105 and P-2108) start test based on a simulated low pressure in the backup bearing water supply line to verify automatic actuation and pump start capability.

c) Testing the water turbine inlet and outlet valve interlocks ensuring automatic water turbine start capability by simulating a plant protective system signal resulting from one loop being tripped and the circulators' steam turbine drives in the operating loop having been tripped.

d) Monitoring the proper closure of the circulator helium shutoff valves.

e) Functionally testing each firewater booster pump.

3. At least once per REFUELING CYCLE on a STAGGERED TEST BASIS whereby circulators 1B and 1D will be tested during even numbered cycles and circulators 1A and 1C during odd numbered cycles, by demonstrating for each circulator operation on water turbine drive by:

a) Verifying an equivalent 8000 rpm (at atmospheric pressure) on feedwater motive power using the emergency feedwater header, and

b) Verifying an equivalent 3% rated helium flow on condensate at reduced pressure (to simulate firewater pump discharge) using each emergency water booster pump (P-2109 and P-2110), and

c) Verifying an equivalent 4.5% rated helium flow with condensate water supplied to the water - turbine drive.

4. At least once per 10 years by verifying:

a) A previously uninspected helium circulator compressor wheel rotor, turbine wheel, and pelton wheel is free of both surface and subsurface defects in accordance with the appropriate methods, procedures, and associated acceptance criteria specified for Class I components in Article NB-2500, Section III, ASME Code. Other helium circulator components, accessible without further disassembly than required to inspect these wheels, shall be visually examined, and

b) At least 10% of primary coolant pressure boundary bolting and other structural bolting which has been removed for the inspection above and which is exposed to the primary coolant shall be non-destructively tested for identification of inherent or developed defects.

c) Reports

Within 90 days of examination completion, a Special Report shall be submitted to the NRC in accordance with Specification 6.9.2. This report shall include the results of the helium circulator examinations.

5. The instrumentation and controls associated with 4.5.1.1.a.2 shall be functionally tested in conjunction with the specified testing and shall be calibrated annually.

b. The steam generators shall be demonstrated OPERABLE:

1. At least once per 18 months by verifying proper flow through the emergency feedwater header and emergency condensate header to the steam generator sections.

2. At least once per five years by:

Volumetrically examining the accessible portions of the following bimetallic welds for indications of subsurface defects:

a) The main steam ring header collector to main steam piping weld for one steam generator module in each loop, and

b) The main steam ring header collector to collector drain piping weld for one steam generator module in each loop, and

c) The same two steam generator modules shall be re-examined at each interval.

The initial examination shall be performed during SHUTDOWN or REFUELING prior to the beginning of Fuel Cycle 5. This initial examination shall also include the bimetallic welds described above for two additional steam generator modules in each loop.

3. Tube Leak Examination

Each time a steam generator tube is plugged due to a leak, specimens from the accessible subheader tubes connected to the leaking inaccessible tube(s) shall be metallographically examined.

The results of this metallographic examination shall be compared to the results from the specimens of all previous tube leaks.

A study shall be performed to evaluate the size of the tube leaks to determine if a cause of the leak or a trend in the degradation can be identified.

a. Acceptance Criteria

An engineering evaluation shall be performed to determine the acceptability of:

1) Any subsurface defects identified in Specification 4.5.1.1.b.2,

2) Continued operation considering the condition of the steam generator materials,

3) OPERABILITY of the steam generator sections considering the number of plugged tubes and their ability to remove decay heat.

b. Reports

Within 90 days of the return to operation following each steam generator tube leak, a Special Report shall be submitted to the NRC in accordance with Specification 6.9.2. This report shall include the estimated size and elevation of the leak(s), and the results of the metallographic and engineering analyses performed, the postulated cause of the leak if identified and corrective action to be taken.

TABLE 3.5.1-1
CIRCULATOR OPERABILITY

A circulator is not considered OPERABLE unless the following conditions or system requirements are met for that circulator:

a. The emergency circulator drive is capable of providing the equivalent of 8000 rpm circulator speed at atmospheric pressure;

b. The two emergency water booster pumps (P-2109 and P-2110) are OPERABLE, including two OPERABLE flow paths with the capability to drive the circulator at 3% rated helium flow with firewater supply;

c. The turbine water removal system, including two turbine water removal pumps (P-2103 and P-2103S) are OPERABLE;

d. The normal bearing water system, including two sources of bearing water makeup and two bearing water makeup pumps (P-2105 and P-2108) are OPERABLE;

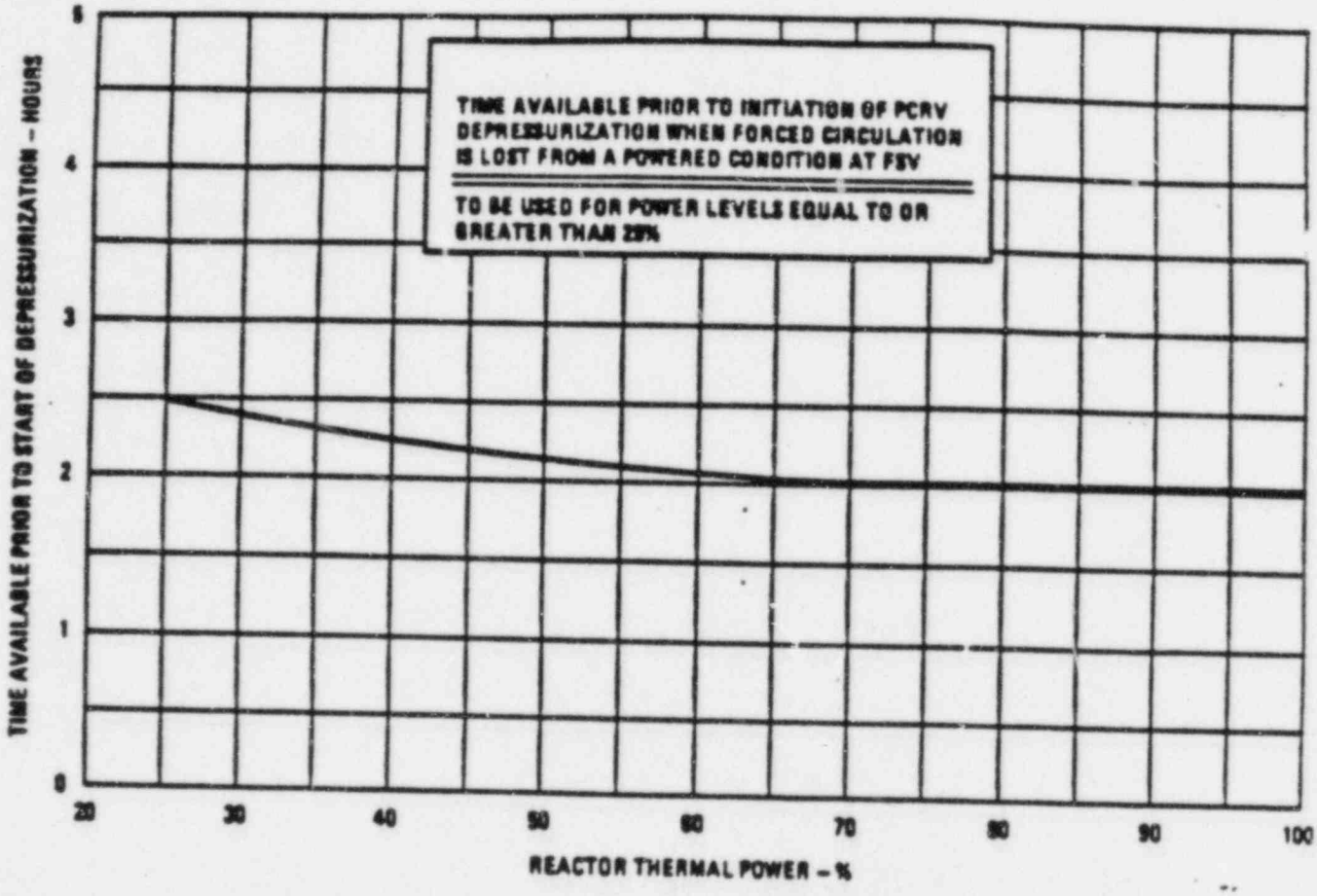
e. The associated bearing water accumulators (T-2112, T-2113, T-2114, and T-2115) are OPERABLE; and

f. The supply and discharge valve interlocks are OPERABLE on each associated circulator ensuring automatic water turbine start capability following steam turbine trip.

TABLE 3.5.1-2
CIRCULATOR STARTUP LIMITATIONS

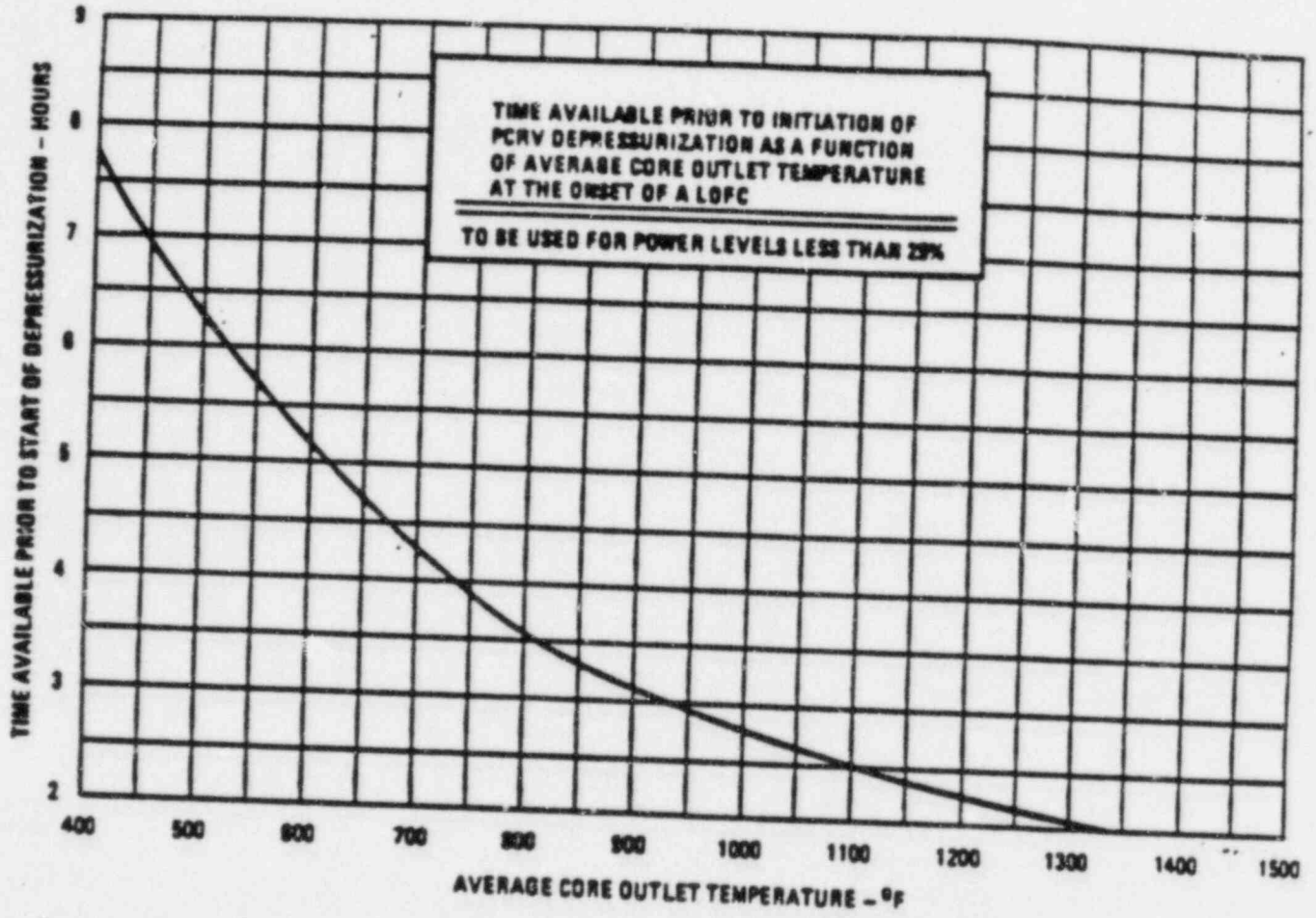
Initial Circulators OPERATING		Desired Circulators OPERATING		Max Power Level (Thermal)		
LOOP 1	LOOP 2	LOOP 1	LOOP 2	Initial	To Start	Final
0	0	1	0	0	0	33
1	0	1	1	33	25	65
1	1	2	1	65	25	65
2	0	2	1	50	25	65
2	1	2	2	65	25	100

The procedures for startup of a circulator are such that flow is maintained essentially in balance between the two loops to avoid exceeding the transient limits.



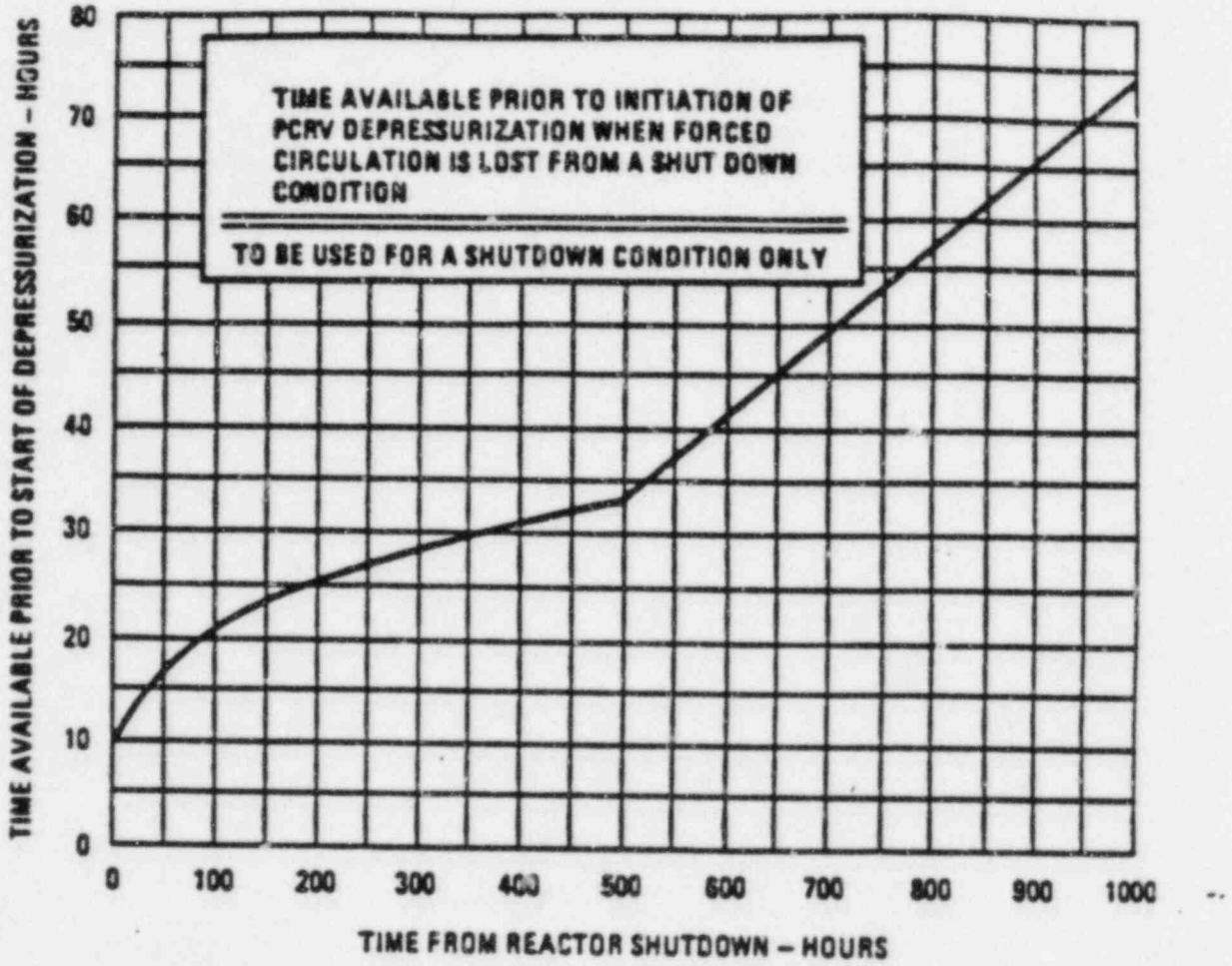
Time Available Prior to Initiation of PCRV Depressurization When Forced Circulation is Lost from a Powered Condition at FSV

Figure 3.5.1–1



Time Available Prior to Initiation of PRCV Depressurization as a Function of Average Core Outlet Temperature at the Onset of a LOFC

Figure 3.5.1-2



Time Available Prior to Initiation of PCRV Depressurization When When Forced Circulation is Lost from a Shut Down Condition

Figure 3.5.1–3

PRIMARY COOLANT SYSTEM

3/4.5.1 PRIMARY COOLANT LOOPS - SHUTDOWN AND REFUELING

LIMITING CONDITION FOR OPERATION

3.5.1.2 At least one primary coolant loop shall be in operation with:

a. Two helium circulators OPERABLE* and one OPERATING;

b. Either the steam generator reheater or economizer - evaporator - superheater (EES) section OPERATING and the other section OPERABLE.

APPLICABILITY: SHUTDOWN and REFUELING

ACTION:

a. With less than the required OPERABLE equipment identified in Specification 3.5.1.2, restore the inoperable equipment to OPERABLE status within 72 hours or suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

b. With no equipment OPERABLE or all forced circulation lost, suspend all operations involving CORE ALTERATIONS or positive reactivity changes and restore the required equipment to OPERATING status prior to the time calculated for the core to heatup from decay heat to a CORE AVERAGE INLET TEMPERATURE of ____ degrees F or initiate PCRV depressurization in accordance with the time specified in Figure 3.5.1-3.

SURVEILLANCE REQUIREMENT

4.5.1.2 No additional Surveillance Requirements beyond those specified in SR 4.5.1.1.

*Refer to Table 3.5.1-1 for circulator OPERABILITY requirements.

PRIMARY COOLANT SYSTEM

3/4.5.2 SAFETY VALVES

LIMITING CONDITION FOR OPERATION

3.5.2.1 a. The steam generator superheater (EES) and reheater safety valves (V-2214, V-2215, V-2216, V-2245, V-2246, V-2247, V-2225 and V-2262) shall be OPERABLE with set points in accordance with Table 4.5.2-1, and

b. The provisions of Specification 3.0.6 are not applicable until 72 hours after reaching 25% RATED THERMAL POWER, to allow testing of the steam generator superheater and reheater safety valves required following maintenance or per Surveillance Requirements identified in Specification 4.5.2.1.

APPLICABILITY: POWER, LOW POWER, and STARTUP

ACTION:

With one of the required safety valves inoperable, restore the required valve to OPERABLE status within 72 hours or restrict plant operation as follows:

1. With an EES safety valve inoperable, reduce THERMAL POWER to less than 50% of RATED THERMAL POWER.

2. With an EES safety valve inoperable while in STARTUP or SHUTDOWN, restrict plant operation to a maximum of two boiler feed pumps.

3. With a reheater safety valve inoperable, be in STARTUP within 12 hours and SHUTDOWN within the next 12 hours.

SURVEILLANCE REQUIREMENTS

4.5.2.1 The safety valves shall be demonstrated OPERABLE prior to exceeding 25% RATED THERMAL POWER unless completed in the previous five years by testing the superheater and reheater safety valves as required by Specification 4.0. ____, and by verifying the lift settings as specified in Table 4.5.2-1.

TABLE 4.5.2-1

STEAM GENERATOR SAFETY VALVES

VALVE NUMBER	LIFT SETTING
LOOP I	
V-2214	Less than or equal to 2917 psig
V-2215	Less than or equal to 2846 psig
V-2216	Less than or equal to 2774 psig
V-2225	Less than or equal to 1133 psig
LOOP II	
V-2245	Less than or equal to 2917 psig
V-2246	Less than or equal to 2846 psig
V-2247	Less than or equal to 2774 psig
V-2262	Less than or equal to 1133 psig

PRIMARY COOLANT SYSTEM

3/4.5.2 SAFETY VALVE - SHUTDOWN AND REFUELING

LIMITING CONDITION FOR OPERATION

3.5.2.2 The steam generator superheater or reheater safety valve(s) which protect the operating section of the steam generator shall be OPERABLE with setpoints in accordance with Table 4.5.2-1.

APPLICABILITY: SHUTDOWN and REFUELING

ACTION:

With no associated safety valve(s) OPERABLE, restore the required safety valve to OPERABLE status prior to the time calculated for the core to heatup from decay heat to a CORE AVERAGE INLET TEMPERATURE of _____ degrees F, or:

1. Suspend all operations involving CORE ALTERATIONS or positive reactivity changes, and

2. Initiate PCRV depressurization in accordance with the time specified in Figure 3.5.1-3.

SURVEILLANCE REQUIREMENTS

4.5.2.2 No additional surveillances required beyond those identified per Specification 4.5.2.1.

PCRV AND CONFINEMENT SYSTEMS

3/4.6.2 PCRV LINER COOLING SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.2.1 The Reactor Plant Cooling Water (RPCW)/PCRV Liner Cooling System (LCS) shall be OPERABLE with:

a. Two (2) loops OPERATING, each with at least one heat exchanger and one pump OPERATING;

b. At least three (3) out of any four (4) adjacent tubes on the core support floor side wall, core support floor bottom casing, PCRV cavity liner sidewalls, and PCRV cavity liner bottom head shall be OPERATING;

c. At least five (5) out of any six (6) adjacent tubes on the PCRV cavity liner top head and core support floor top casing shall be OPERATING.

d. Tubes adjacent to a non-operating tube shall be OPERATING.

e. An OPERABLE flow path to provide firewater to the LCS.

APPLICABILITY: POWER, LOW POWER, and STARTUP

ACTION

a. With only one (1) RPCW/PCRV Liner Cooling System loop OPERATING, ensure both heat exchangers are OPERATING in the OPERATING loop, restore the second loop to OPERATING within 72 hours or be in SHUTDOWN within the following 12 hours and suspend all operations involving positive reactivity changes. Without both heat exchangers in the OPERATING loop OPERATING or without any liner cooling system loop flow, be in SHUTDOWN within 15 minutes and suspend all operations involving positive reactivity changes.

b. With less than the above required number of PCRV Liner Cooling System tubes OPERATING, restore the required tubes to OPERATING status within 24 hours or be in SHUTDOWN within the following 24 hours and suspend all operations involving positive reactivity changes.

SURVEILLANCE REQUIREMENTS

4.6.2.1 The RPCW/PCRV Liner Cooling System shall be demonstrated OPERABLE:

a. At least once per 24 hours, by verifying that each PCRV Liner Cooling System loop is circulating cooling water at a flow rate greater than 1100 gpm.

b. At least once each 31 days by:

1. Verifying that each valve (manual, power operated, or automatic) in the firewater flow path to the LCS that is not locked, sealed, or otherwise secured in position, is in its correct position.

2. Functional testing the PCRV Cooling System flow scanner alarms.

c. At least once per 366 days by:

1. Performing a CHANNEL CALIBRATION of the PCRV cooling system flow scanner, associated alarms, and six (6) subheader flow meters.

2. Performing a LCS redistribute mode functional test to verify the capability of rerouting most of the cooling water to the upper side walls and the top head.

3. Performing a functional test to verify the capability to remotely increase the PCRV surge tank pressure to 30 psig by adding helium from a helium bottle to the tank.

PCRV and CONFINEMENT SYSTEMS

3/4.6.2 PCRV LINER COOLING SYSTEM - SHUTDOWN AND REFUELING

LIMITING CONDITIONS FOR OPERATIONS

3.6.2.2 The Reactor Plant Cooling Water (RPCW)/PCRV Liner Cooling System (LCS) shall be OPERABLE with:

a. Two (2) RPCW/PCRV LCS loops OPERABLE with at least one pump and one heat exchanger in each loop.

b. One (1) RPCW/PCRV Liner Cooling System loop with at least one heat exchanger and one pump OPERATING.

APPLICABILITY: SHUTDOWN# and REFUELING#

ACTION:

a. With less than the required OPERABLE RPCW/PCRV LCS loops, restore the inoperable loop to OPERABLE status within 7 days or suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

b. With no RPCW/PCRV Liner Cooling System loop OPERATING, restore at least one loop to OPERATING status prior to the time calculated for the core to heatup from decay heat to a CORE AVERAGE INLET TEMPERATURE of _____ degrees F and suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

SURVEILLANCE REQUIREMENTS

4.6.2.2 No additional surveillance requirements other than those identified per Specification 4.6.2.1.

#The core support floor zone of the PCRV Liner Cooling System may be valved out when PCRV pressure is less than or equal to 150 psia and calculated CORE AVERAGE INLET TEMPERATURE is less than 200 degrees F.

PCRV AND CONFINEMENT SYSTEMS

3/4.6.3 PCRV LINER COOLING SYSTEM TEMPERATURES

LIMITING CONDITIONS FOR OPERATION

3.6.3 The RPCW/PCRV Liner Cooling System (LCS) temperatures shall be maintained within the following limits:

a. The maximum average temperature difference between the common PCRV cooling water discharge temperatures and the PCRV external concrete surface temperature shall not exceed 50 degrees F.

b. The maximum RPCW Heat Exchanger outlet temperature shall not exceed 120 degrees F.

c. The maximum change of the weekly average PCRV concrete temperature shall not exceed 14 degrees F per week.

d. The maximum allowable cooling water temperature rise for OPERATING PCRV liner cooling tubes shall not exceed the following limits:

1. 30 degrees F temperature rise for tubes cooling top head penetrations;

2. 20 degrees F temperature rise for all other zones except tubes specified below;

3. Exceptions:

a) Core Outlet Thermometer Penetrations

Tube	Delta T
7S93	23 degrees F

b) Core Barrel Seal/Core Support Floor Area

Tube	Delta T
F12T46	47 degrees F
F7T43	39 degrees F
F6T44	43 degrees F
F11T45	38 degrees F
F5T47	46 degrees F

c) Peripheral Seal

Tube	Delta T
3S9	23 degrees F
4S188	23 degrees F
4S10	23 degrees F
3S187	23 degrees F

(3.6.3.d cont.)

If the tube outlet temperature reading for any liner cooling tube is not available due to an instrument failure, the tube may be considered OPERABLE if two tubes on both sides of the tube with an instrument failure (4 tubes total) are within their respective temperature limits as specified above.

e. The minimum average of the inlet and outlet LCS water temperatures shall be greater than or equal to 100 degrees F.

APPLICABILITY: At all Times

ACTION:

With any of the above conditions not met, restore these conditions within 24 hours, or be in SHUTDOWN or REFUELING within the next 24 hours and suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

SURVEILLANCE REQUIREMENTS

4.6.3 The RPCW/PCRV Liner Cooling System temperatures shall be demonstrated to be within their respective limits:

a. At least once per 24 hours by:

1. Verifying that the maximum temperature difference averaged over a 24 hour period between the PCRV external concrete surface temperature and the common PCRV cooling water discharge temperature in each loop does not exceed 50 degrees F.

2. Verifying that the maximum PCRV liner cooling water outlet temperature does not exceed 120 degrees F as measured by PCRV liner cooling water outlet temperature in each loop.

3. Verifying that the change in PCRV concrete temperature does not exceed 14 degrees F per week as indicated by the weekly average water temperature. The weekly average water temperature is determined by computing the arithmetical mean of 7 temperatures, representing each of the last 7 days of common PCRV cooling water outlet temperatures in each loop. Each day results in a new computation of a weekly average water temperature. The new weekly average is than compared to the weekly average water temperature computed 7 days earlier to verify Specification 3.6.3.c.

4. Verifying that the minimum average water temperature of the PCRV Liner Cooling System is greater than or equal to 100 degrees F as measured by the average of the PCRV Liner Cooling System heat exchanger (LCS side) inlet and outlet temperatures.

b. At least once per 31 days by:

1. Verifying that liner cooling tube outlet temperature readings and their respective inlet header temperatures (for an operating loop) are within the specified limits of Specification 3.6.3.d.

2. Functional testing the associated RPCW temperature scanner alarms.

c. At least once per 366 days by performing a CHANNEL CALIBRATION of the PCRV cooling system temperature scanner, associated alarms, thirty-six (36) subheader outlet temperature indicators, ninety-seven (97) liner cooling tube outlet thermocouples, and PCRV surface temperature indicators.

ENCLOSURE 3

STAFF COMMENTS ON PSCs RESPONSE TO APPLICABLE ACTION ITEMS

Comments on PSCs Response to Action Items Attachment 2 to P-85363

1. Introduction - NRC Staff Comment:

Without an NRC Policy Statement, the staff is unable to accept PSC's adoption of the subjective criterion used by the Atomic Safety and Licensing Appeal Board in ALAB-531,

> "that Technical Specifications are to be reserved for those matters as to which imposition of rigid conditions or limitations upon reactor operation is deemed necessary to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety." (9 NRC 263, 1979)

The NRC is currently in the process of attempting to remove the subjective-judgement term "immediate threat" from the above criterion by identifying objective criteria that would capture this subjective concept.

2. Action 27a Response - NRC Staff Comment:

Based on the above position, the statement, "The loss of buffer helium does not pose an 'immediate threat' to the public health and safety." is an unacceptable basis. Buffer helium could be considered as analogus to the reactor coolant pump shaft seal system, which is not a W-STS requirement. However, the W-STS does require leakage detection systems which are analogous to monitoring for helium leakage in the reactor building at Fort St. Vrain.

FSAR, Section 4.2.2.3.7, Page 4.2-23 does imply that buffer helium is not vital, but also states that the pressure boundary integrity of the buffer helium system is required to maintain primary coolant pressure in the bearing water surge tank, ensuring proper operation of the bearing water system which is vital for continued helium circulator operation.

Proposed Resolution

PSC should resubmit their response to Action Item 27a based on the above comments.

3. Action 27b Response - NRC Staff Comment:

The statement, "...a high bearing water temperature does not pose an immediate threat...," is an unacceptable basis. The staff also considers specifying maximum circulator bearing water temperature in the Tech Specs as analogous to the W-STS LCO 3/4.7.5 for the ultimate heat sink (UHS). The UHS LCO ensures that cooling water is provided to safety-related equipment without exceeding equipment design temperatures.

Proposed Resolution

PSC should resubmit their response to Action Item 27b and address the above comments.

4. Action 27c Response - NRC Staff Comment:

The statement, "Since an immediate threat to the public health and safety is not identified...," is an unacceptable basis.

Proposed Resolution

PSC should resubmit their response to Action Item 27c.

5. Action 27d Response - NRC Staff Comment:

The FSAR should be updated to clarify the licensee's position on circulator interlocks whose failure could prevent any source of motive power from being supplied to circulator drives.

Proposed Resolution

PSC should submit this clarification in their next annual FSAR revision.