ATTACHMENT 1
SURRY POWER STATION
PROPOSED TECHNICAL SPECIFICATION CHANGE
MODIFY PORV AND BLOCK VALVE OPERABILITY
AND SURVEILLANCE REQUIREMENTS

4. Reactor Coolant Loops

Loop stop valves shall not be closed in more than one loop unless the Reactor Coolant System is connected to the Residual Heat Removal System and the Residual Heat Removal System is operable.

5. Pressurizer

a. The reactor shall be maintained subcritical by at least 1% until the steam bubble is established and the necessary sprays and at least 125 KW of heaters are operable.

b. With the pressurizer inoperable due to inoperable pressurizer heaters, restore the inoperable heaters within 72 hours or be in at least hot shutdown within 6 hours and the reactor coolant system temperature and pressure less than 350°F and 450 psig, respectively, within the following 12 hours.

c. With the pressurizer otherwise inoperable, be in at least hot shutdown with the reactor trip breakers open within 6 hours and the reactor coolant system temperature and pressure less than 350°F and 450 psig, respectively, within the following 12 hours.

6. Relief Valves

Two power operated relief valves (PORVs) and their associated block valves shall be OPERABLE* whenever the reactor coolant average temperature is ≥350°F.

a. With one or both PORVs inoperable but capable of being manually cycled, within 1 hour either restore the PORV(s) to OPERABLE status or close the associated block valve(s) and maintain power to the associated block valve(s). Otherwise, be in at least Hot Shutdown within the next 6 hours and reduce reactor coolant average temperature to <350°F within the following 6 hours.

b. With one PORV inoperable and not capable of being manually cycled, within 1 hour either restore the PORV to OPERABLE status or capable of being manually cycled or close the associated block valve and remove power from the block valve. In addition, restore the PORV to OPERABLE status or capable of being manually cycled within the following 72 hours. Otherwise, be in at least Hot Shutdown within the next 6 hours and reduce reactor coolant average temperature to <350°F within the following 6 hours.

c. With both PORVs inoperable and not capable of being manually cycled, within 1 hour restore at least 1 PORV to OPERABLE status or capable of being manually cycled. Otherwise, close the associated block valves and remove power from the block valves. In addition, be in Hot Shutdown within the next 6 hours and reduce reactor coolant average temperature to <350°F within the following 6 hours.

*Automatic actuation capability may be blocked when Reactor Coolant System pressure is below 2000 psig.

d. With one block valve inoperable, within 1 hour either restore the block valve to OPERABLE status or place the associated PORV in manual. In addition, restore the block valve to OPERABLE status in the next 72 hours or, be in at least Hot Shutdown within the next 6 hours and reduce reactor coolant average temperature to <350°F within the following 6 hours.

e. With both block valves inoperable, within 1 hour either restore the block valves to OPERABLE status or place the associated PORVs in manual. Restore at least 1 block valve to OPERABLE status within the next hour or, be in at least Hot Shutdown within the next 6 hours and reduce reactor coolant average temperature to <350°F within the following 6 hours.

7. Reactor Vessel Head Vents

a. At least two Reactor Vessel Head vent paths consisting of two isolation valves in series powered from emergency buses shall be OPERABLE and closed whenever RCS temperature and pressure are >350°F and 450 psig.

References

(1) FSAR 14.2

(2) FSAR 9.2

One steam generator capable of performing its heat transfer function will provide sufficient heat removal capability to remove core decay heat after a normal reactor shutdown. The requirement for redundant coolant loops ensures the capability to remove core decay heat when the reactor coolant system average temperature is less than or equal to 350°F. Because of the low-low steam generator water level reactor trip, normal reactor criticality cannot be achieved without water in the steam generators in reactor coolant loops with open loop stop valves. The requirement for two operable steam generators, combined with the requirements of Specification 3.6, ensure adequate heat removal capabilities for reactor coolant system temperatures of greater than 350°F.

Each of the pressurizer safety valves is designed to relieve 295,000 lbs. per hr. of saturated steam at the valve setpoint. Two safety valves have a capacity greater than the maximum surge rate resulting from complete loss of load.(2)

The limitation specified in item 4 above on reactor coolant loop isolation will prevent an accidental isolation of all the loops which would eliminate the capability of dissipating core decay heat when the Reactor Coolant System is not connected to the Residual Heat Removal System.

The requirement for steam bubble formation in the pressurizer when the reactor passes 1% subcriticality will ensure that the Reactor Coolant System will not be solid when criticality is achieved.

The requirement that 125 Kw of pressurizer heaters and their associated controls be capable of being supplied electrical power from an emergency bus provides assurance that these heaters can be energized during a loss of offsite power condition to maintain natural circulation at hot shutdown.

The power operated relief valves (PORVs) operate to relieve RCS pressure below the setting of the pressurizer code safety valves. The PORVs and their associated block valves may be used by the unit operators to depressurize the RCS to recover from certain transients if normal pressurizer spray is not available. Specifically, cycling of the PORVs is required to mitigate the consequences of a design basis steam generator tube rupture accident. Therefore, whenever a PORV is inoperable, but capable of being manually cycled, the associated block valve will be closed with its power maintained. The capability to cycle the PORVs is verified during each refueling outage (and is not required during power operations). These relief valves have remotely operated block valves to provide a positive shutoff capability should a relief valve leak excessively. The electrical power for both the relief valves and the block valves is supplied from an emergency power source to ensure the ability to seal this possible RCS leakage path.

The accumulation of non-condensable gases in the Reactor Coolant System may result from sudden depressurization, accumulator discharges and/or inadequate core cooling conditions. The function of the Reactor Vessel Head Vent is to remove non-condensable gases from the reactor vessel head. The Reactor Vessel Head Vent is designed with redundant safety grade vent paths. Venting of non-condensable gases from the pressurizer steam space is provided primarily through the Pressurizer PORVs. The pressurizer is, however, equipped with a steam space vent designed with redundant safety grade vent paths.

References

(1) FSAR Section 14.2.9
(2) FSAR Section 14.2.10

Basis

By maintaining the oxygen, chloride and fluoride concentrations in the reactor coolant below the limits as specified in technical specification 3.1.F.1 and 3.1.F.4 the integrity of the reactor coolant system is assured under all operating conditions.(1) If these limits are exceeded, measures can be taken to correct the condition, e.g., replacement of ion exchange resin, or adjustment of the hydrogen concentration in the volume control tank.(2) Because of the time dependent nature of any adverse effects arising from oxygen, chloride, and fluoride concentration in excess of the limits, it is not necessary to shutdown immediately if the condition can be corrected. Thus the period of 24 hours for corrective action to restore concentrations within the limits has been established. If the corrective action has not been effective at the end of the 24 hour period, then the reactor will be brought to the cold shutdown condition and the corrective action will continue.

In restoring the contaminant concentrations to within specification limits in the event such limits were exceeded, mixing of the primary coolant with the reactor coolant pumps may be required. This will result in a small heatup of short duration which will not increase the average coolant temperature above 250°F.

More than one contaminant transient, in any seven consecutive day period, that results in exceeding normal steady state operation limits, could be indicative of unforeseen chemistry control problems. Such potential problems warrant investigation, correction and measures to insure that the integrity of the reactor coolant system is maintained.

References

(1) FSAR 4.2
(2) FSAR 9.2

G. Reactor Coolant System Overpressure Mitigation

Specification

1. The Reactor Coolant system overpressure mitigating system shall be OPERABLE as described below:
   a. Whenever the reactor coolant average temperature is greater than 350°F, a bubble shall exist in the pressurizer with the necessary sprays and heaters OPERABLE.
   b. Whenever the reactor coolant average temperature is less than 350°F and the reactor vessel head is bolted:
      (1) A maximum of one charging pump shall be OPERABLE, and
         (a) Prior to decreasing reactor coolant average temperature below 350°F verify a maximum of one charging pump is capable of injecting into the RCS, thereafter
         (b) Once per 12 hours verify that a maximum of one charging pump is capable of injecting into the RCS,
         (c) Two charging pumps may be in operation momentarily during transfer of operation from one charging pump to another.
      (2) The accumulators shall be isolated, (accumulator discharge valves closed and their respective breakers locked open), and
         (a) Prior to decreasing reactor coolant average temperature below 350°F verify that each accumulator is isolated, thereafter
         (b) Once per 12 hours verify that each accumulator is isolated,
         (c) The accumulator discharge isolation valves may be opened for up to 6 hours to perform valve testing.
      (3) Two Power Operated Relief Valves (PORV) shall be OPERABLE with a lift setting of ≤ 385 psig, or
         (a) When the PORVs are providing the overpressure protection verify the block valves are open at least every 72 hours.
      (4) A bubble in the pressurizer with a maximum pressurizer narrow range level of 33% shall be maintained. After the initial 72 hours, two PORV's must also be OPERABLE, or

(5) The Reactor Coolant system shall be vented through one opened PORV or an equivalent size opening.

(a) With the RCS vented through an unlocked vent path verify the path open at least once every 12 hours.

(b) With the RCS vented through a locked vent path verify the path open at least once every 31 days.

2. The requirements of Specification 3.1.G.1.b (3) may be modified as follows:

a. One PORV may be inoperable in Intermediate Shutdown with the Reactor Coolant average temperature > 200° F but < 350°F for a period not to exceed 7 days. If the inoperable PORV is not restored to OPERABLE status within 7 days, then completely depressurize the RCS and vent through one open PORV or an equivalent size opening within the next 8 hours.

b. One PORV may be inoperable in Cold Shutdown or Refueling shutdown with the reactor vessel head bolted for a period not to exceed 24 hours. If the inoperable PORV is not restored to OPERABLE status within 24 hours then completely depressurize the RCS and vent through one open PORV or an equivalent size opening within 8 hours.

c. With both PORV's inoperable, depressurize the RCS within 8 hours unless Specification 3.1.G.1.b.(4) is in effect. When the RCS has been depressurized, vent through one open PORV or an equivalent sized opening or establish the conditions listed below. Maintain the RCS depressurized until both PORV's have been restored to OPERABLE status.

(1) A maximum pressurizer narrow range level of 33%.

(2) The series RHR inlet valves open and their respective breakers locked open or an alternate letdown path OPERABLE.

(3) A maximum of one charging pump is capable of injecting into the RCS.

(4) Safety Injection accumulator discharge valves closed and their respective breakers locked open.

d. When the conditions noted in 3.1.G.2.c.(1) through 3.1.G.2.c.(4) above are required to be established, verify the required conditions are met at least once per 12 hours.

3. In the event that the Reactor Coolant System Overpressure Mitigating System is used to mitigate a RCS pressure transient, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.6 within 30 days. The report shall describe the circumstances initiating the transient, the effect of the mitigating system or the administrative controls on the transient and any corrective actions necessary to prevent recurrence.

Basis

The operability of two PORV's or the RCS vented through an opened PORV ensures that the Reactor Vessel will be protected from pressure transients which could exceed the limits of Appendix G to 10 CFR Part 50 when the Reactor Coolant average temperature is $\leq 350°F$ and the Reactor Vessel Head is bolted. When the Reactor Coolant average temperature is $>350°F$, overpressure protection is provided by a bubble in the pressurizer and/or pressurizer safety valves. A single PORV has adequate relieving

4.1 OPERATIONAL SAFETY REVIEW

Applicability

Applies to items directly related to safety limits and limiting conditions for operation.

Objective

To specify the minimum frequency and type of surveillance to be applied to unit equipment and conditions.

Specification

A. Calibration, testing, and checking of instrumentation channels and interlocks shall be performed as detailed in Table 4.1-1 and 4.1-2.

B. Equipment tests shall be performed as detailed in Table 4.1-2.A and as detailed below.

1. In addition to the requirements of 4.0.3, each Pressurizer PORV and block valve shall be demonstrated OPERABLE by:

   a. Performing a complete cycle of each PORV with the reactor coolant average temperature >350°F at least once per refueling cycle.

   b. Performing a complete cycle of the solenoid air control valve and check valves on the air accumulators in the PORV control system at least once per refueling cycle.

c. Operating each block valve through one complete cycle of travel at least once per 92 days. This surveillance is not required if the block valve is closed in accordance with 3.1.6.a, b, or c.

2. The pressurizer water volume shall be determined to be within its limit as defined in Specification 2.3.A.3.a at least once per 12 hours whenever the reactor is not subcritical by at least 1% $\Delta k/k$.

3. Each Reactor Vessel Head vent path remote operating isolation valve not required to be closed by Specification 3.1.A.7a or 3.1.A.7b shall be demonstrated OPERABLE at each cold shutdown but not more often than once per 92 days by operating the valve through one complete cycle of full travel from the control room.

4. Each Reactor Vessel Head vent path shall be demonstrated OPERABLE following each refueling by:

   a. Verifying the manual isolation valves in each vent path are locked in the open position.

   b. Cycling each remote operating isolation valve through at least one complete cycle of full travel from the control room.

   c. Verifying flow through the reactor vessel head vent system vent paths.

C. Sampling tests shall be conducted as detailed in Table 4.1-2B.

D. Whenever containment integrity is not required, only the asterisked items in Table 4.1-1 and 4.1-2A and 4.1-2B are applicable.

E. Flushing of wetted sensitized statinless steel pipe sections as identified in the Basis Section shall be conducted only if the RWST Water Chemistry exceeds 0.15 PPM chlorides and/or florides (CL^- and or F^-). Flushing of sensitized stainless steel pipe sections shall be conducted as detailed in TS Table 4.1-3A and 4.1-3B.

TABLE 4.1-2A (CONTINUED)
MINIMUM FREQUENCY FOR EQUIPMENT TESTS

	DESCRIPTION	TEST	FREQUENCY	FSAR SECTION REFERENCE
14a.	Service Water System Valves in Line Supplying Recirculation Spray Heat Exchangers	Functional	Each Refueling	9.9
b.	Service Water System Valves Isolating Flow to Non-essential loads on Intake Canal Low Level Isolation	Functional	Refueling	9.9
15.	Control Room Ventilation System	*Ability to maintain positive pressure for 1 hour using a volume of air equivalent to or less than stored in the bottled air supply	Each refueling interval (approx. every 12-18 months)	9.13
16.	Reactor Vessel Overpressure Mitigating System (except backup air supply)	Functional, excluding valve actuation & Setpoint	Prior to decreasing RCS temperature below 350°F and monthly while the RCS is < 350°F and the Reactor Vessel Head is bolted	4.3.4
		Channel Calibration	Refueling	
17.	Reactor Vessel Overpressure Mitigating System Backup Air Supply	Setpoint	Refueling	4.3.4.2
18	Power-Operated Relief Valve Control System	Functional, excluding valve actuation	Monthly	4.3.4
		Channel Calibration	Refueling	

TABLE 4.1-2A (CONTINUED)
MINIMUM FREQUENCY FOR EQUIPMENT TESTS

	DESCRIPTION	TEST	FREQUENCY	FSAR SECTION REFERENCE
19.	Primary Coolant System	Functional	1. Periodic leakage testing[a] on each valve listed in Specification 3.1.C.7a shall be accomplished prior to entering power operation condition after every time the plant is placed in the cold shutdown condition for refueling, after each time the plant is placed in cold shutdown condition for 72 hours if testing has not been accomplished in the preceeding 9 months, and prior to returning the valve to service after maintenance, repair or replacement work is performed.	
20.	Containment Purge MOV Leakage	Functional	Semi-Annual (Unit at power or shutdown) if purge valves are operated during interval[c]	
21.	Containment Hydrogen Analyzers	a. Channel Check b. Channel Functional Test c. Channel Calibration using sample gas containing: 1. One volume percent (±0.25%) hydrogen, balance nitrogen 2. Four volume percent (±0.25%) hydrogen, balance nitrogen 3. Channel Calibration test will include startup and operation of the Heat Tracing System	Once per 12 hours Once per 31 days Once per 92 days on staggered basis	

(a) To satisfy ALARA requirements, leakage may be measured indirectly (as from the performance of pressure indicators) if accomplished in accordance with approved procedures and supported by computations showing that the method is capable of demonstrating valve compliance with the leakage criteria.

(b) Minimum differential test pressure shall not be below 150 psid.

(c) Refer to Section 4.4 for acceptance criteria.

ATTACHMENT 2
SURRY POWER STATION
SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION
FOR PROPOSED TECHNICAL SPECIFICATION CHANGE
MODIFY PORV AND BLOCK VALVE OPERABILITY
AND SURVEILLANCE REQUIREMENTS

DISCUSSION OF CHANGE

In accordance with Generic Letter 90-06, Resolution for Generic Issue 70, "Power-Operated Relief Valves and Block Valve Reliability," and Generic Issue 94, "Additional Low-Temperature Overpressure Protection for Light Water Reactors," and pursuant to 10 CFR 50.54(f), Virginia Electric and Power Company is submitting a proposed Technical Specification change to redefine the operating and surveillance requirements of the Power Operated Relief Valves (PORVs) and their Block Valves.

The proposed change meets the intent of the generic letter requirements and incorporates the proposed wording for the MERITS technical specifications. A requirement that is not being incorporated into the proposed change is the surveillance requirement for the power supply and alternate power supply testing. Surry's PORVs and block valves are powered only from emergency buses and do not have an alternate power supply.

The following is a summary of the proposed changes to the Technical Specifications:

<u>Pages 3.1-4, 4a, 5, and 5c</u>

- Page 3.1-4 has been reformatted to accomodate the additional action statements for PORVs. Page 3.1-4a is being added to accommodate the additional requirements.

- The requirement for OPERABLE PORVs is being changed from "whenever the reactor keff >0.99" to "whenever reactor coolant average temperature is >350°F."

- The footnote has been added to permit the calibration of the PORV control circuit from the low-temperature overpressure protection setpoints to the high pressure setpoints. The valves are still capable of being manually cycled to mitigate the consequences of a steam generator tube rupture, if necessary.

- The operability requirements for the PORVs and the associated block valves are being incorporated into 3.1.6.a through e. The words in the PORV operability requirements of 3.1.6.b, c, and d have been modified from "with excessive or other than excessive seat leakage" to "capable or not capable of being manually cycled." The action statements force the plant to shutdown and cooldown to < 350°F if the valve(s) cannot be returned to

OPERABLE status or capable of being manually cycled. This change will ensure the operability of the PORV to mitigate the consequences of a steam generator tube rupture. Specifications 3.1.6.b and c, which address the required actions when the PORV is not capable of being manually cycled, have included an additional provision to allow exiting the action statement when the PORV is capable of being manually cycled.

- The statement, "the provisions of specification 3.0.4 are not applicable," is not included. Surry Technical Specifications do not have the 3.0.4 requirement.

- The basis section is being changed to include a discussion of the use of the PORVs in the mitigation of a steam generator tube rupture event and note that the PORVs are tested during refueling outages, but not at power. In addition, the phrase "capable of being" is being removed from the sentence that describes the power supplies for the PORVs and block valves. The PORVs and block valves are powered from the emergency buses.

Pages 3.1-22, 23, 23 a, and 24

- Page 3.1-22 and 23a were reformatted and added, respectively, to accommodate the additional requirements.

- Additional surveillance requirements are being added to verify charging pump operability prior to going below 350°F and once every 12 hours thereafter. In addition, we are adding a statement to allow two charging pumps to be operating momentarily when switching pumps if the reactor coolant average temperature is < 350°F.

- A new requirement for accumulator isolation is being included, along with a 6 hour period when the discharge isolation valves can be opened for periodic testing of the discharge isolation and check valves. Surveillance requirements are being added to verify accumulator isolation prior to going below 350°F and once every 12 hours thereafter.

- A surveillance requirement to verify the block valves are open every 72 hours when the PORVs are providing overpressure protection is being added.

- Surveillance requirements are being modified to verify the RCS vent path every 12 hours when the vent path is unlocked open and every 31 days if the vent path is locked open.

- The operability requirements for the PORVs are being changed to provide two different allowed outage times for PORV inoperability consistent with the Generic Letter. In Intermediate Shutdown with the reactor coolant average temperature > 200°F but < 350°F the PORV can be inoperable for 7 days before the RCS must be depressurized and a vent path established. However, in Cold Shutdown or Refueling operations, the PORV can only be inoperable for 24 hours before the RCS must be depressurized and a vent path established.

- The wording of 3.G.2.d is being modified for clarification.

Page 4.1-1 and 1a

- A proposed change to 4.1.A was submitted to the NRC on November 8, 1990. This same change is incorporated into this change and is indicated by a double line.

- A statement that incorporates the Section XI testing requirements is being added, as well as additional surveillance requirements for the PORVs and their actuation system are being included. These valves are in the existing Section XI program and are being tested accordingly.

Table 4.1-2A

- A channel calibration is being added to item 16. This surveillance is being moved from 4.1.B. Also the appropriate UFSAR section is being referenced for items 16 and 17. This change deals with the Reactor Protection and Engineered Safeguards instrumentation operability requirements.

- Surveillance requirements for the PORV control circuits are being included as Item 18. This requirement is being moved from 4.1.B.

- Items 18, 19, and 20 are being renumbered as 19, 20, and 21.

10 CFR 50.92 SIGNIFICANT HAZARDS CONSIDERATION REVIEW

Virginia Electric and Power Company has reviewed the proposed Technical Specification change against the criteria of 10 CFR 50.92 and has concluded that the Technical Specification change as proposed does not pose a significant hazards consideration. The proposed change consists of additional limitations and restrictions not presently included in the Technical Specifications to conform to changes in regulations as identified in Generic Letter 90-06. Other minor changes are administrative in nature. Specifically, operation of the Surry Power Station in accordance with the proposed change will not:

1. Involve a significant increase in the probability of occurrence or consequences of an accident previously evaluated. The proposed change to the operability and surveillance requirements for the PORVs does not impact the probability or consequences of any previously evaluated accident. The proposed operability and surveillance requirements provide additional assurance that the PORVs are available to mitigate the consequences of a Steam Generator Tube Rupture and overpressure events with the reactor coolant average temperature <350°F.

2. Create the possibility of a new or different kind of accident from any accident previously evaluated. The proposed operability and surveillance requirements do not impact the operation of the PORVs or their associated block valves. No new accident precursors are generated with the proposed change. Therefore, a new or different accident from those previously evaluated has not been created.

3. Involve a significant reduction in a margin of safety. The proposed change in operability and surveillance requirements does not modify or impact any accident analysis assumptions. These changes represent additional restrictions to further ensure that the PORVs are available to mitigate the consequences of a Steam Generator Tube Rupture and an overpressure event with reactor coolant average temperature <350°F. Therefore, the change to the operability and surveillance requirements will not reduce the margin of safety.

Using the examples identified in the Federal Register, Vol 51, No.44, of March 6, 1986 that are not considered likely to involve significant hazard considerations, the proposed changes are similar to examples (ii) and (vii). Example (ii) is "a change that constitutes an additional limitation, restriction, or control not presently included in the

technical specifications..." The proposed change formally incorporates additional limitations and restrictions regarding PORV operability which have not previously been included in the Technical Specifications.

Example (vii) is "a change to conform a license to changes in the regulations or regulatory requirement, where the license change results in very minor changes to facility operations, clearly in keeping with the regulations." The proposed change conforms with the regulatory requirements specified in Generic Letter 90-06 and requested pursuant to 10 CFR 50.54.