Attachment 1

Surry Power Station

Proposed Technical Specification Changes

c. Isolate each affected penetration within 4 hours by use of at least one closed manual valve or blind flange, or

d. Otherwise, place the unit in HOT SHUTDOWN within the next 6 hours and COLD SHUTDOWN within the following 30 hours.

D. Internal Pressure

1. Containment air partial pressure shall be maintained within the acceptable operation range as identified in Figure 3.8-1 whenever the Reactor Coolant System temperature and pressure exceed 350°F and 450 psig, respectively.

a. With the containment air partial pressure outside the acceptable operation range, restore the air partial pressure to within acceptable limits within 1 hour or be in at least HOT SHUTDOWN within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

Basis

CONTAINMENT INTEGRITY ensures that the release of radioactive materials from the containment will be restricted to those leakage paths and associated leak rates assumed in the accident analysis. These restrictions, in conjunction with the allowed leakage, will limit the site boundary radiation dose to within the limits of 10 CFR 100 during accident conditions.

The operability of the containment isolation valves ensures that the containment atmosphere will be isolated from the outside environment in the event of a release of radioactive material to the containment atmosphere or pressurization of the containment. The opening of manual or deactivated automatic containment isolation valves on an intermittent basis under administrative control includes the following considerations: (1) stationing an operator, who is in constant communication with the control room, at the valve controls, (2) instructing this operator to close these valves in an accident situation, and

(3) assuring that environmental conditions will not preclude access to close the valves and 4) that this administrative or manual action will prevent the release of radioactivity outside the containment.

The Reactor Coolant System temperature and pressure being below 350°F and 450 psig, respectively, ensures that no significant amount of flashing steam will be formed and hence that there would be no significant pressure buildup in the containment if there is a loss-of-coolant accident. Therefore, the containment internal pressure is not required to be subatmospheric prior to exceeding 350°F and 450 psig.

The allowable value for the containment air partial pressure is presented in TS Figure 3.8-1 for service water temperatures from 25 to 95°F. The allowable value varies as shown in TS Figure 3.8-1 for a given containment average temperature. The RWST water shall have a maximum temperature of 45°F.

The horizontal limit lines in TS Figure 3.8-1 are based on LOCA peak calculated pressure criteria, and the sloped line is based on LOCA subatmospheric peak pressure criteria.

The curve shall be interpreted as follows:

> The horizontal limit line designates the allowable air partial pressure value for the given average containment temperature. The horizontal limit line applies for service water temperatures from 25°F to the sloped line intersection value (maximum service water temperature).

From TS Figure 3.8-1, if the containment average temperature is 112°F and the service water temperature is less than or equal to 83°F, the allowable air partial pressure value shall be less than or equal to 9.65 psia. If the average containment temperature is 116°F and the service water temperature is less than or equal to 91°F, the allowable air partial pressure value shall be less than or equal to 9.35 psia. These horizontal limit lines are a result of the higher allowable initial containment average temperatures and the analysis of the pump suction break.

ALLOWABLE AIR PARTIAL PRESSURE
SURRY POWER STATION UNITS 1 AND 2

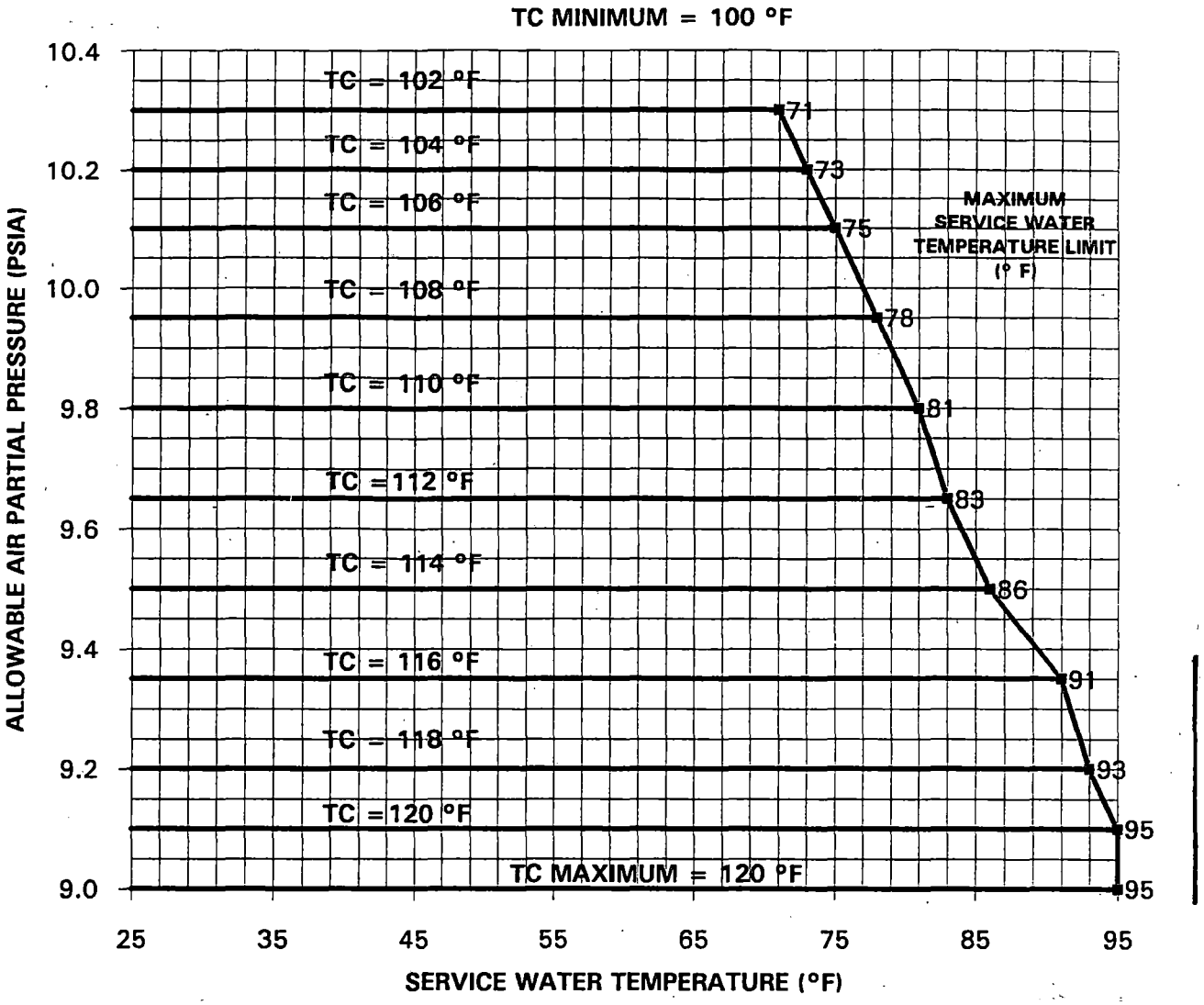

FIGURE NOTATION

TC - Containment average temperature

FIGURE NOTES

1. Refueling Water Storage Tank temperature ≤ 45°F.
2. Allowable operating air partial pressure in the containment is a function of service water temperature.
3. Horizontal lines designate allowable air partial pressure per given containment average temperature.
4. Each containment temperature line is a maximum for the given air partial pressure.

Amendment Nos.

Attachment 2

Surry Power Station

Discussion and Significant Hazards Consideration

Discussion of Changes

Introduction

Surry Power Station containment depressurization and long term cooling for a Design Basis Accident (DBA) is dependent on the containment air partial pressure, the average containment temperature, and the temperature of the ultimate heat sink. The ultimate heat sink for Surry Power Station is the James River. The James River is the source of service water to the recirculation spray heat exchangers for containment depressurization and cooling.

To ensure that the containment will be depressurized and be maintained subatmospheric in the event of a DBA, operating restrictions have been placed on the three variables identified above. In the summer during periods of extended hot weather, minimal rainfall, and low tide the service water temperature approaches the limit of 92°F. With service water temperature at or near its limit, the operating range for containment partial air pressure becomes very restrictive. Therefore, to allow operation at elevated service water temperatures while providing additional operating flexibility for maintaining containment air partial pressure, we are proposing to revise Technical Specification Figure 3.8-1, "Allowable Air Partial Pressure."

Background

Technical Specification (TS) Figure 3.8-1 provides a graph of the acceptable values for the following three parameters:

- Containment temperature
- Containment air partial pressure
- Service Water temperature

By ensuring that these parameters remain within the allowed regions of the figure, the containment response to a DBA will remain bounded by the safety analysis. Specifically, the three parameters identified above affect the following post loss of coolant accident containment response criteria:

- Peak pressure
- Depressurization time
- Subatmospheric peak pressure
- Engineered Safety Features pump net positive suction head (NPSH)

The containment response analysis has been reperformed at a three degree higher service water temperature limit for containment air partial pressures of 9.1, 9.2, and 9.35 psia. This analysis used models, methods and input consistent with the current analysis of record. The following table presents the results of the calculation:

Parameter	Worst case value	Limit
Peak pressure	44.94 psia	≤45.0 psia
Depressurization time	2860 sec	≤3600 seconds
Subatmospheric peak pressure	- 0.11 psig	≤ 0.0 psig
ESF pump NPSH	> required	≥ required

Peak pressure and ESF pump NPSH were essentially unchanged from the previous analysis of record. Depresurization time increased by seventy seconds and the subatmospheric peak increased by 0.2 psig.

Specific Changes

A revised Technical Specification Figure 3.8-1 is being proposed to permit operation with a three degree increase in the service water temperature limit for containment air partial pressures of 9.1, 9.2, and 9.35 psia. These data points likewise limit containment average temperatures to 120, 118, and 116 °F, respectively. This change will shift the service water temperature with respect to allowable air partial pressure and containment temperature. Service water temperature for these points are shifted as follows:

Old Limit	New Limit
92°F	95°F
90°F	93°F
88°F	91°F

The use of TS Figure 3.8-1 is best explained by example. For example, if service water is 86°F then the TS Figure 3.8-1 limits allowable containment air partial pressure to less than or equal to 9.5 psia. If the containment air partial pressure is 9.5 psia, then containment temperature is limited to less than or equal to 114°F. The use of the figure (how to interpret it) will not be affected by the proposed Technical Specification changes.

In addition, the Basis section is being changed to discuss operation with a service water temperature limit of 95°F.

A typographical error is also being corrected in TS 3.8.D.1. The Reactor Coolant System temperature and pressure limits were transposed in amendment No. 172 and 171, dated January 22, 1993. The Reactor Coolant System temperature and pressure limits are being changed from 450°F and 350 psig to 350°F and 450 psig, respectively.

Safety Significance

Operation with increased service water temperature limits does not increase the probability of or the consequences of any accident previously evaluated in the UFSAR. The increased service water temperature limits have no affect on plant operation other than to allow continued operation at the increased service water temperature. Therefore the probability of an accident previously analyzed in not increased. Although the service water temperature limit is being increased, the containment will continue to meet its design basis acceptance criteria following a DBA as identified in the UFSAR. Other plant systems are designed for operation with 95°F service water. Therefore, the consequences of any accident previously analyzed are not being increased.

Other plant systems relying on or interacting with service water are designed for a service water temperature of 95°F. The most notable system, Main Control Room and Emergency Switchgear Room Air Conditioning System chillers are designed for service water temperatures up to 95°F. The recirculation spray heat exchangers and other plant systems that use service water for heat removal with the increased service water temperature limits will continue to function as designed. Since the proposed changes do not affect system operation or modify the plant in anyway, no new accident precursors or new or different kind of accident scenarios are being generated.

The results of the containment response reanalysis have shown that the containment peak pressure, depressurization time, subatmospheric peak pressure and the available Engineered Safety Features pump NPSH remain within design limits during and after a DBA with the three degree shift in service water temperature at the 9.1, 9.2, and 9.35 psia containment air partial pressure data points. Previously existing analysis margins were used to accommodate the impact of the three degree service water temperature shift. Therefore, margin of safety as described in the Basis of any Technical Specification is not being reduced.

Significant Hazards Considerations

Virginia Electric and Power Company has reviewed the proposed changes against the criteria of 10 CFR 50.92 and has concluded that the changes as proposed do not pose a significant hazards consideration. Specifically, operation of Surry Power Station in accordance with the proposed Technical Specifications changes will not:

1. Involve a significant increase in the probability of occurrence or consequences of an accident previously evaluated.

   Operating with increased service water temperature limits does not affect the frequency of accident initiating events. The increased service water temperature limit of 95°F has no effect on plant operations. Therefore the probability of an accident previously analyzed is not increased. Furthermore, other plant systems are designed for operation with 95°F service water.

   Although the service water temperature limit is being increased, the containment will continue to meet its design basis acceptance criteria following a large-break loss of coolant accident as identified in the UFSAR. Likewise, the administrative changes have no impact on plant operations. Therefore, there is no increase in the consequences of any accident previously evaluated resulting from operation of Surry Units 1 and 2 with an increased service water temperature limit.

2. Create the possibility of a new or different kind of accident from any accident previously evaluated.

   There are no new failure modes or mechanisms associated with operating Surry Units 1 and 2 with an increased service water temperature limit of 95°F. As noted above increased service water temperature limits do not affect plant operations. Furthermore, other plant systems are designed for operation with 95°F service water. Likewise, the administrative changes have no impact on plant operations. Therefore, there are no new or different kinds of accidents created by operation of Surry Units 1 and 2 with increased service water temperature limits.

3. Involve a significant reduction in a margin of safety.

The limiting containment analyses continue to be met when operating with the proposed increase to service water temperature limits. Containment integrity will not be challenged but continue to meet its design basis acceptance criteria following a large break loss of coolant accident. Likewise, the administrative changes have no impact on plant operations. Therefore, the existing margin of safety is not reduced by operation of Surry Units 1 and 2 with an increased service water temperature limit.