Duke Power®
A Duke Energy Company

R. A. JONES
Vice President

Duke Power
29672 / Oconee Nuclear Site
7800 Rochester Highway
Seneca, SC 29672

864 885 3158
864 885 3564 fax

May 27, 2003

U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Document Control Desk

Subject: Oconee Nuclear Station
Docket Numbers 50-269, 270, and 287
Technical Specification Bases (TSB) Change

Please see attached revisions to Tech Spec Bases 3.7.16, Control Room Area Cooling system (CRACS), which were implemented on April 24, 2003. These changes revise the bases for Control Room Area Cooling systems (CRACS) to clarify the availability of the power supply for the portable control room chiller.

Attachment 1 contains the new TSB pages and Attachment 2 contains the markup version of the Bases pages.

If any additional information is needed, please contact Larry E. Nicholson, at (864-885-3292).

Very truly yours,

Bruce Hamilton /for

R. A. Jones, Vice President
Oconee Nuclear Site

A001

cc: Mr. L. N. Olshan
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Mr. L. A. Reyes, Regional Administrator
U. S. Nuclear Regulatory Commission - Region II
Atlanta Federal Center
61 Forsyth St., SW, Suite 23T85
Atlanta, Georgia 30303

Mel Shannon
Senior Resident Inspector
Oconee Nuclear Station

Mr. Henry Porter Director
Division of Radioactive Waste Management
Bureau of Land and Waste Management
Department of Health & Environmental Control
2600 Bull Street
Columbia, SC 29201

Attachment 1

B 3.7 PLANT SYSTEMS

B 3.7.16 Control Room Area Cooling Systems (CRACS)

BASES

BACKGROUND

The CRACS provides temperature control for the control areas.

The control area is defined as the control room, cable room, and equipment room for each unit. Units 1 and 2 have a shared control room, and Unit 3 has an independent control room. The cable and equipment rooms are independent for each unit. The control rooms, cable rooms, and equipment rooms for each unit contain vital electrical equipment, such as 125 VDC Vital I&C Power and 120 VAC Vital I&C Power, which is essential for achieving safe shutdown on the units. A control area portion is defined as a cable room, equipment room, or control room, for which a set of redundant CRVS cooling trains is required. The control area portions are listed in the table below. Through the use of alternative air flow paths, air handling units AHU-34 and AHU-35 provide redundant cooling to both Units 1 and 2 cable rooms.

The AHUs which cool the control areas are part of the CRVS for each unit. The Chilled Water System (WC) serves as the heat sink for the CRVS on all three units. The WC System consists of two redundant cooling trains which serve all three units.

UFSAR Section 3.11.5 (Ref. 1) requires that redundant air conditioning and ventilation equipment be available to assure that no single failure of an active component within the CRVS and WC System will prevent proper control area environmental control. During a LOOP event, power will be temporarily lost to the equipment within these systems. Upon restoration of power the equipment will be required to restart. This restart makes the equipment susceptible to a single active failure. Without redundant cooling capability, acceptable temperatures within the control area could be exceeded. This could result in the potential failure of vital electrical equipment which is needed for safe shutdown of the units.

BASES

BACKGROUND (continued) The following table identifies each portion of the CRVS where redundancy is required:

Table B 3.7.16-1
CRVS Redundant Equipment

Control Area Portion	Associated CRVS Cooling Trains
Unit 1&2 Control Room	AHU-11 and AHU-12
Unit 1 Cable Room	AHU-34 and AHU-35
Unit 1 Equipment Room	AHU-22 and AHU-34
Unit 2 Cable Room	AHU-34 and AHU-35
Unit 2 Equipment Room	AHU-23 and AHU-35
Unit 3 Control Room	AHUs 3-13 and 3-14
Unit 3 Cable Room	AHUs 3-11 and 3-12
Unit 3 Equipment Room	AHUs 3-15 and 3-16

A single train will provide the required temperature control. The CRACS operation to maintain control room temperature is discussed in the UFSAR, Section 9.4.1 (Ref. 2).

APPLICABLE SAFETY ANALYSES The design basis of the CRACS is to maintain control area temperature to ensure cooling of vital equipment.

The CRACS components are arranged in redundant trains. A single active failure of a CRACS component does not impair the ability of the system to perform as designed. The CRACS is designed to remove sensible and latent heat loads from the control area, including consideration of equipment heat loads to ensure equipment OPERABILITY.

The CRACS satisfies Criterion 3 of the NRC Policy Statement.

BASES (continued)

LCO

Two redundant trains of the CRACS and WC Systems train are required to be OPERABLE to ensure that at least one train in each system is available, assuming a single active failure disables the other train in one or both systems. Total system failure could result in the equipment operating temperature exceeding limits. A Train of CRVS consists of one of the redundant AHUs specified in Table B 3.7.16-1 for each of the three portions of the control area for an Oconee unit and associated ducts, dampers, instrumentation and controls. A single AHU can function as a component in more than one train on an Oconee unit and can function as a component on trains in multiple Oconee units. For example AHU-34, and its associated ducts, damper, instrumentation and controls, can simultaneously function as the AHU for a train of CRVS serving the Unit 1 cable room, the Unit 1 equipment room as well as the Unit 2 cable room. The combination of AHU-34 and either AHU-11 or AHU-12 along with their associated equipment constitutes a combination of equipment which can satisfy the requirement for one train of CRVS for Unit 1. Additionally, AHU-34 can simultaneously serve as the AHU for the portion of a Unit 2 CRVS train serving the Unit 2 cable room. AHU-35 in combination with either AHU-11 or AHU-12 along with their associated equipment constitutes a combination of equipment which can satisfy the requirement for one train of CRVS for Unit 2.

For the Units 1 and 2 cable and equipment rooms, a system of motorized dampers is provided to allow AHU-34 and AHU-35 to provide cooling to the opposite unit's cable and equipment rooms in the event of the loss of one of the AHU's. The flow path for cooling is accomplished by closing redundant dampers between the unit's cable and equipment rooms upon loss of the opposite units cable room AHU.

If AHU-34 fails, the dampers between the Unit 2 cable and equipment rooms will close, allowing AHU-35 to cool both Units 1 and 2 cable and equipment rooms providing AHU-22 and AHU-23 are operating. If one or both of the dampers in the flow path, fail open, then both AHU's are inoperable for Unit 1. If both dampers close, an adequate flow path for OPERABILITY is maintained even if one of two motor operated dampers on Unit 1 fail closed. If the Unit 2 dampers fail closed, OPERABILITY is not affected for the AHU-34 failure scenario. OPERABILITY is not maintained if one or both of the fire dampers between cable rooms or equipment rooms is closed. Compensatory measures, such as opening the damper must be taken to maintain OPERABILITY.

If AHU-35 fails, the dampers between the Unit 1 cable and equipment rooms will close, allowing AHU-34 to cool both Units 1 and 2 cable and equipment rooms providing AHU-22 and AHU-23 are operating. If one or both of the dampers in the flow path, fail open, then both AHU's are

BASES (continued)

LCO (continued)

inoperable for Unit 2. If both dampers close, an adequate flow path for OPERABILITY is maintained even if one of two motor operated dampers on Unit 2 fail closed. If the Unit 1 dampers fail closed, OPERABILITY is not affected for the AHU-35 failure scenario. OPERABILITY is not maintained if one or both of the fire dampers between cable rooms or equipment rooms is closed. Compensatory measures, such as opening the damper and posting a fire watch must be taken to maintain OPERABILITY.

The CRACS is considered OPERABLE when the individual components that are necessary to maintain control area temperature are OPERABLE in both trains of CRVS and WC System. Each CRVS train listed in Table B 3.7.16-1 includes the associated ductwork, instrumentation, and air handling unit, which includes the fan, fan motor, cooling coils, and isolation dampers. Each WC train consists of a chiller, chilled water pump, condenser service water pump, and associated controls. Although each chilled water pump is normally associated with, and aligned to, a specific chiller, any OPERABLE chilled water pump maybe aligned to any OPERABLE chiller to maintain one OPERABLE train when a component has been removed from service. The two redundant trains can include a temporarily installed full-capacity control area cooling train. Any temporary cooling train shall have a power source with availability equivalent to the source of the permanently installed train. A temporary cooling train power source with equivalent availability shall include procedural controls for:

1. Normal Auxiliary power (e.g. B4T-7) for normal operation.
2. Swapping to a Keowee backed power supply (e.g. 3TD-15) following a LOOP.

In addition, the CRACS must be OPERABLE to the extent that air circulation can be maintained.

APPLICABILITY

In MODES 1, 2, 3, and 4 the CRACS must be OPERABLE to ensure that the control area temperature will not exceed equipment OPERABILITY requirements.

BASES (continued)

ACTIONS

A.1

With one CRVS train inoperable for the control area, action must be taken to restore the CRVS train to OPERABLE status within 30 days. In this Condition, the remaining OPERABLE CRVS train is adequate to maintain the control area temperature within limits. However, the overall reliability is reduced because a failure in the OPERABLE CRVS train could result in a loss of CRVS cooling function. The 30 day Completion Time is based on the low probability of a loss of CRVS cooling component and the time necessary to perform repairs to CRVS cooling equipment.

B.1

With one WC train inoperable for a control area portion, action must be taken to restore the WC train to OPERABLE status within 30 days. In this Condition, the remaining OPERABLE WC train is adequate to maintain the control area portion temperature within limits. However, the overall reliability is reduced because a failure in the OPERABLE WC train could result in a loss of CRACS cooling function. The 30 day Completion Time is based on the low probability of a loss of WC cooling component, and on the time necessary to perform repairs to WC cooling equipment.

C.1

With the control room area air temperature outside its limit, action must be taken to restore the air temperature to within the limit within 7 days. If the control room area air temperature exceeds its limit, the ability of a single train of CRACS to maintain control room area temperature may be affected. The Completion Time of 7 days is reasonable considering the remaining CRACS train available to perform the required temperature control function and the low probability of an event occurring that would require the CRACS operation during that time.

The Required Actions are modified by a Note that states LCO 3.0.4 is not applicable. In consideration of the redundant CRACS train available, the small variation in temperature expected between 12 hour surveillances, and the marginal impact small temperature variations may have on the ability of a CRACS train to maintain the control room temperature within limits, an exception to LCO 3.0.4 is applicable for this condition.

BASES

ACTIONS (continued)

D.1 and D.2

If the Required Actions and associated Completion Times of Conditions A, B, or C are not met, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 12 hours, and in MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner without challenging unit systems.

E.1

If both CRVS trains or both WC trains are inoperable, the CRACS may not be capable of performing the intended function and the unit is in a condition outside the accident analyses. Therefore, LCO 3.0.3 must be entered immediately.

SURVEILLANCE REQUIREMENTS

SR 3.7.16.1

This SR verifies that the heat removal capability of the system is sufficient to maintain the temperature in the control room and cable room at or below 80°F and maintain the temperature in the electrical equipment room at or below 85°F. The temperature is determined by reading gauges in each area or computer points which are considered representative of the average area temperature. These temperature limits are based on operating history and are intended to provide an indication of degradation of the cooling systems. The limits are conservative with respect to equipment operability temperature limits. The values for the SR are values at which the system is removing sufficient heat to meet design requirements (i.e., OPERABLE) and sufficiently above the values associated with normal operation during hot weather. The temperature in the equipment room is typically slightly higher than the temperature in the control room or cable room. Because of that, a higher value is specified for this area. The 12 hour Frequency is appropriate since significant degradation of the CRACS is slow and is not expected over this time period.

REFERENCES

1. UFSAR, Section 3.11.5.
2. UFSAR, Section 9.4.1.

Attachment 2

BASES (continued)

inoperable for Unit 2. If both dampers close, an adequate flow path for OPERABILITY is maintained even if one of two motor operated dampers on Unit 2 fail closed. If the Unit 1 dampers fail closed, OPERABILITY is not affected for the AHU-35 failure scenario. OPERABILITY is not maintained if one or both of the fire dampers between cable rooms or equipment rooms is closed. Compensatory measures, such as opening the damper and posting a fire watch must be taken to maintain OPERABILITY.

The CRACS is considered OPERABLE when the individual components that are necessary to maintain control area temperature are OPERABLE in both trains of CRVS and WC System. Each CRVS train listed in Table B 3.7.16-1 includes the associated ductwork, instrumentation, and air handling unit, which includes the fan, fan motor, cooling coils, and isolation dampers. Each WC train consists of a chiller, chilled water pump, condenser service water pump, and associated controls. Although each chilled water pump is normally associated with, and aligned to, a specific chiller, any OPERABLE chilled water pump maybe aligned to any OPERABLE chiller to maintain one OPERABLE train when a component has been removed from service. The two redundant trains can include a temporarily installed full-capacity control area cooling train. Any temporary cooling train shall have a power source with availability equivalent to the source of the permanently installed train. In addition, the CRACS must be OPERABLE to the extent that air circulation can be maintained.

APPLICABILITY In MODES 1, 2, 3, and 4 the CRACS must be OPERABLE to ensure that the control area temperature will not exceed equipment OPERABILITY requirements.

A temporary cooling train power source with equivalent availability shall include procedural controls for:

1. Normal Auxiliary Power (e.g. B4T-7) for normal operation.
2. Swapping to a Keowee backed power supply (e.g. 3TD-15) following a LOOP.