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Mr. Hal B. Tucker
Vice President, Nuclear Production Department
Duke Power Company
P. O. Box 33189
422 South Church Street
Charlotte, North Carolina 28242

Dear Mr. Tucker:

The Commission has issued the enclosed Amendments Nos. 117, 117, and 114 for Licenses Nos. DPR-38, DPR-47 and DRR-55 for the Oconee Nuclear Station, Units Nos. 1, 2 and 3. These amendments consist of changes to the Station's common Technical Specifications (TSs) in response to your applications dated April 30 and September 27, 1982.

These amendments revise the TSs to incorporate digital logic channels and emergency power switching logic, revise the bases to define redundant component testing and delete the administrative control on emergency drills.

Copies of the Safety Evaluation and the Notice of Issuance are also enclosed.

Sincerely,
"ORIGINAL SIGNED BY:"

Philip C. Wagner, Project Manager
Operating Reactors Branch #4
Division of Licensing

Enclosures:
1. Amendment No. 117 to DPR-38
2. Amendment No. 117 to DPR-47
3. Amendment No. 114 to DPR-55
4. Safety Evaluation
5. Notice

cc w/enclosures: See next page

OFFICE	ORB#4:DL	ORB#4:DL	C-ORB#4:DL	AD-OR:DL	OELD		
SURNAME	RIngram	PWagner/cb	JStolz	GLainas	T. Rawson		
DATE	11/6/82	11/8/82	11/10/82	11/10/82	11/13/82		

NRC FORM 318 (10-80) NRCM 0240 OFFICIAL RECORD COPY USGPO: 1981—335-960

Three hundred and fifty thousand (350,000) gallons of borated water (a level of 46 feet in the BWST) are required to supply emergency core cooling and reactor building spray in the event of a loss-of-core cooling accident. This amount fulfills requirements for emergency core cooling. The borated water storage tank capacity of 388,000 gallons is based on refueling volume requirements. Heaters maintain the borated water supply at a temperature above 50°F to lessen the potential for thermal shock of the reactor vessel during high pressure injection system operation. The boron concentration is set at the amount of boron required to maintain the core 1 percent subcritical at 70°F without any control rods in the core. The minimum value specified in the tanks is 1835 ppm boron.

It has been shown for the worst design basis loss-of-coolant accident (a 14.1 ft^2 hot leg break) that the Reactor Building design pressure will not be exceeded with one spray and two coolers operable.(4) Therefore, a maintenance period of seven days is acceptable for one Reactor Building cooling fan and its associated cooling unit provided two Reactor Building spray systems are operable for seven days or one Reactor Building spray system provided all three Reactor Building cooling units are operable.

Three low pressure service water pumps serve Oconee Units 1 and 2 and two low pressure service water pumps serve Oconee Unit 3. There is a manual cross-connection on the supply headers for Units 1, 2, and 3. One low pressure service water pump per unit is required for normal operation. The normal operating requirements are greater than the emergency requirements following a loss-of-coolant accident.

Prior to initiating maintenance on any of the components, the redundant component(s) shall be tested to assure operability. Operability shall be based on the results of testing as required by Technical Specification 4.5. The maintenance period of up to 24 hours is acceptable if the operability of equipment redundant to that removed from service is demonstrated within 24 hours prior to removal. The 24 hour period prior to removal is adequate to permit efficient scheduling of manpower and equipment testing while ensuring that the testing is performed directly prior to removal. The basis of acceptability is the low likelihood of failure within a clearly defined 48 hours following redundant component testing.

REFERENCES

(1) ECCS Analysis of B&W's 177-FA Lowered-Loop NSS, BAW-10103, Babcock & Wilcox, Lynchburg, Virginia, June 1975.

(2) Duke Power Company to NRC letter, July 14, 1978, "Proposed Modifications of High Pressure Injection System".

(3) FSAR, Section 9.5.2

(4) FSAR, Supplement 13

Bases

Every reasonable effort will be made to maintain all safety instrumentation in operation. A startup is not permitted unless three power range neutron instrument channels and three channels each of the following are operable: reactor coolant temperature, reactor coolant pressure, pressure-temperature, flux-imbalance flow, power-number of pumps, and high reactor building pressure. The engineered safety features actuation system must have three analog channels and two digital channels functioning correctly prior to a startup. Additional operability requirements are provided by Technical Specifications 3.1.12 and 3.4 for equipment which is not part of the RPS or ESFAS.

Operation at rated power is permitted as long as the systems have at least the redundancy requirements of Column C (Table 3.5.1-1). This is in agreement with redundancy and single failure criteria of IEEE-279 as described in FSAR Section 7.

There are four reactor protective channels. A fifth channel that is isolated from the reactor protective system is provided as a part of the reactor control system. Normal trip logic is two out of four. Required trip logic for the power range instrumentation channels is two out of three. Minimum trip logic on other channels is one out of two. A tripped channel is considered to be operable.

The four reactor protective channels were provided with key operated bypass switches to allow on-line testing or maintenance on only one channel at a time during power operation. Each channel is provided alarm and lights to indicate when that channel is bypassed. There will be one reactor protective system bypass switch key permitted in the control room. That key will be under the administrative control of the Shift Supervisor. Spare keys will be maintained in a locked storage accessible only to the station Manager.

Each reactor protective channel key operated shutdown bypass switch is provided with alarm and lights to indicate when the shutdown bypass switch is being used. There are four shutdown bypass keys in the control room under the administrative control of the Shift Supervisor. The use of a key operated shutdown bypass switch for on-line testing or maintenance during reactor power operation has no significance when used in conjunction with a key operated channel bypass switch since the channel trip relay is locked in the untripped state. The use of a key operated shutdown bypass switch alone during power operation will cause the channel to trip. When the shutdown bypass switch is operated for on-line testing or maintenance during reactor power operation, reactor power and RCS pressure limits as specified in Table 2.3-1A, B, or C are not applicable.

The source range and intermediate range nuclear instrumentation overlap by one decade of neutron flux. This decade overlap will be achieved at 10^{-10} amps on the intermediate range instrument.

Power is normally supplied to the control rod drive mechanisms from two separate parallel 600 volt sources. Redundant trip devices are employed in each of these sources. If any one of these trip devices fails in the

TABLE 3.5.1-1
INSTRUMENTS OPERATING CONDITIONS (cont'd)

FUNCTIONAL UNIT	(A) TOTAL NO. OF CHANNELS	(B) CHANNELS TO TRIP	(C) MINIMUM CHANNELS OPERABLE	(D) Operator Action If Conditions Of Column C Cannot Be Met
10. RPS High Reactor Building Pressure Channels	4	2	3	Bring to hot shutdown within 12 hours
11. RPS Anticipatory Reactor Trip System				
a. Loss of Turbine	4	2	3	Bring to hot shutdown within 12 hours
b. Loss of Main Feedwater	4	2	3	Bring to hot shutdown within 12 hours
12. ESF High Pressure Injection System and Reactor Building Isolation (Non-essential Systems)				
a. Analog Reactor Coolant Pressure Instrument Channels	3	2	3	Bring to hot shutdown within 12 hours (e)
b. Analog Reactor Building 4 PSIG Instrument Channels	3	2	3	Bring to hot shutdown within 12 hours (e)
c. Digital Logic Manual Pushbutton	2	1	2	Bring to hot shutdown within 12 hours (e)
d. Digital Logic Channels (1 and 2)	2	1	2	Bring to hot shutdown within 24 hours (e)

TABLE 3.5.1-1
INSTRUMENTS OPERATING CONDITIONS (cont'd)

FUNCTIONAL UNIT	(A) TOTAL NO. OF CHANNELS	(B) CHANNELS TO TRIP	(C) MINIMUM CHANNELS OPERABLE	(D) Operator Action If Conditions Of Column C Cannot Be Met
13. ESF Low Pressure Injection System				
a. Analog Reactor Coolant Pressure Instrument Channels	3	2	3	Bring to hot shutdown within 12 hours (e)
b. Analog Reactor Building 4 PSIG Instrument Channels	3	2	3	Bring to hot shutdown within 12 hours (e)
c. Digital Logic Manual Pushbutton	2	1	2	Bring to hot shutdown within 12 hours. (e)
d. Digital Logic Channels (3 and 4)	2	1	2	Bring to hot shutdown within 24 hours (e)
14. ESF Reactor Building Isolation (Essential Systems) & Reactor Building Cooling System				
a. Analog Reactor Building 4 PSIG Instrument Channels	3	2	3	Bring to hot shutdown within 12 hours (e)
b. Digital Logic Manual Pushbutton	2	1	2	Bring to hot shutdown within 12 hours (e)
c. Digital Logic Channels (5 and 6)	2	1	2	Bring to hot shutdown within 24 hours (e)

TABLE 3.5.1-1
INSTRUMENTS OPERATING CONDITIONS (cont'd)

FUNCTIONAL UNIT	(A) TOTAL NO. OF CHANNELS	(B) CHANNELS TO TRIP	(C) MINIMUM CHANNELS OPERABLE	(D) Operator Action If Conditions Of Column C Cannot Be Met
15. ESF Reactor Building Spray System				
a. Analog Reactor Building High Pressure Instrument Channel	3	2	3	Bring to hot shutdown within 12 hours (e)
b. Digital Logic Manual Pushbutton	2	1	2	Bring to hot shutdown within 12 hours (e)
c. Digital Logic Channels (7 and 8)	2	1	2	Bring to hot shutdown within 24 hours (e)
16. Turbine Stop Valves Closure	2	1	2	Bring to hot shutdown within 24 hours (e)

TABLE 3.5.1-1

INSTRUMENTS OPERATING CONDITIONS (cont'd)

NOTES:

(a) For channel testing, calibration, or maintenance, one of the three minimum operable channels may be put into manual bypass leaving a one out of two trip logic for a maximum of four hours.

(b) When 2 of 4 power range instrument channels are greater than 10% rated power, hot shutdown is not required.

(c) When 1 of 2 intermediate range instrument channels is greater than 10^{-10} amps, hot shutdown is not required.

(d) (Deleted)

(e) If minimum conditions are not met within 48 hours after hot shutdown, the unit shall be in the cold shutdown condition within 24 hours.

(f) (Deleted)

(g) (Deleted)

(h) The RCP monitors provide inputs to this logic. For operability to be met either all RCP monitor channels must be operable or 3 operable with the remaining channel in the tripped state.

3.7 AUXILIARY ELECTRICAL SYSTEMS

Applicability

Applies to the availability of off-site and on-site electrical power for station operation and for operation of station auxiliaries.

Objective

To define those conditions of electrical power availability necessary to provide for safe reactor operation and to provide for continuing availability of engineered safety features systems in an unrestricted manner and to prescribe safety evaluation and reporting requirements to be followed in the event that the auxiliary electric power systems become degraded.

Specifications

3.7.1 Except as permitted by 3.7.2, 3.7.3, 3.7.4, 3.7.5, 3.7.6, 3.7.7, and 3.7.8, the reactor shall not be heated above 200°F unless the following conditions are met.

(a) At least two 230KV transmission lines, on separate towers, shall be in service.

(b) Two independent on-site emergency power paths shall be operable and shall consist of:

1. One Keowee hydro unit; through the underground feeder path; through transformer CT4; and to one 4160V standby bus.

2. The second Keowee hydro unit; through the Keowee main step-up transformer; through the overhead path and breaker PCB9; the 230 kV switchyard yellow bus; through the respective operating unit's start-up transformer (CT-1, 2, or 3) or the aligned and connected alternate startup transformer. One start-up transformer may not be aligned to supply power to more than two units.

(c) The Emergency Power Switching Logic (EPSL) circuitry shall be operable as specified by the conditions of Table 3.7-1 for normal operation. Furthermore, if the reactor is subcritical, the conditions of Table 3.7-1 for normal operation shall be satisfied before the reactor is returned to criticality.

(d) Two 4160 volt main feeder buses shall be energized.

(e) The three 4160 volt Engineered Safety Features switchgear buses (TC, TD, and TE), three 600 volt load centers (X8, 9, and 10), and the three 600-208 volt Engineered Safety Features MCC Buses shall be energized.

(f) For each unit, the 125 VDC Instrumentation and Control Power System shall be operable as specified below:

1. Both 125 VDC instrumentation and control distribution centers (DCA and DCB);

2. All four 125 VDC instrumentation and control panelboards (DIA, DIB, DIC, and DID), including the associated isolating transfer diodes and diode monitors (ADA 1 & 2, ADB 1 & 2, ADC 1 & 2, ADD 1 & 2);

3. All four 120 VAC vital instrumentation power panelboards (KVIA, KVIB, KVIC, and KVID), including the associated static inverters;

4. The 240/120 VAC regulated power panelboard (KRA).

Additionally, the 125 VDC instrumentation and control batteries with an associated charger shall be operable as follows:

1. For operation of Unit 1 only, 1CA or 1CB, and 2CA or 2CB
   Unit 2 only, 2CA or 2CB, and 3CA or 3CB
   Unit 3 only, 3CA or 3CB, and 1CA or 1CB

2. For operation of any two units, 1CA or 1CB, 2CA or 2CB, and 3CA or 3CB.

3. For operation of all three units, five of the six batteries with their associated chargers.

(g) Both of the 125 VDC 230KV switching station batteries (SY-1, SY-2), with associated chargers, distribution centers, and panelboards shall be operable.

(h) Both of the 125 VDC Keowee batteries (Bank 1 & 2) with associated chargers and distribution centers (1DA & 2DA) shall be operable.

(i) The level of Keowee Reservoir shall be at least 775 feet above sea level.

3.7.2 With the reactor heated above 200°F, provisions of 3.7.1 may be modified to allow the following conditions to exist:

(a) One of the two independent on-site emergency power paths, as defined in 3.7.1(b), may be inoperable for periods not exceeding 72 hours for test or maintenance, provided the alternate power path is verified operable within one hour of the loss and every eight hours thereafter.

(b) The circuits or channels of any single functional unit of the EPSL may be inoperable for test or maintenance for periods not exceeding 24 hours, provided that:

1. The conditions of Table 3.7-1 for degraded operation are satisfied for that specific functional unit; and

2. The conditions of Table 3.7-1 for normal operation are satisfied for all other functional units.

The circuits or channels of more than one functional unit of the EPSL may be inoperable only if:

1. The inoperability results from a loss of power due to the inoperability of a 125 VDC instrumentation and control panelboard (see 3.7.2(e) below); and

2. The conditions of Table 3.7-1 for degraded operation are satisfied for the affected functional units.

If any event, if the reactor is subcritical, the inoperable circuit(s) or channel(s) shall be restored to operability and the conditions of Table 3.7-1 for normal operation shall be satisfied for all functional units before the reactor is returned to criticality.

(c) One 4160 volt main feeder bus may be inoperable for 24 hours.

(d) One complete single string (i.e., 4160 volt switchgear (TC, TD, or TE), 600 volt load center, (X8, X9, or X10), 600-208 volt MCC (XS1, XS2, or XS3), and their loads) of each unit's 4160 volt Engineered Safety Features Power System may be inoperable for 24 hours.

(e) One or more of the following DC distribution components may be inoperable for periods not exceeding 24 hours (except as noted in 3.7.2(f) below):

1. One complete single string or single component (i.e., 125VDC battery, charger, distribution center, and panelboards) of the 125VDC 230KV Switching Station Power System.

2. One complete single string or single component (i.e., 125VDC battery, charger, and distribution center) of the Keowee 125VDC Power System may be inoperable provided the remaining string of Keowee is operable and electrically connected to an operable Keowee hydro unit.

3. One complete single string or single component (i.e., 125VDC battery, charger, distribution center, and associated isolating and transfer diodes) of any unit's 125VDC Instrumentation and Control Power System. Only one battery more than the number allowed to be inoperable per 3.7.1 (f) for the Station may be removed from service under this paragraph.

4. One 125 VDC instrumentation and control panelboard and its associated loads, per unit, provided that no additional AC buses are made inoperable beyond the provisions of 3.7.2.(a), (c), and (d), and provided that the conditions of Table 3.7-1 for normal operation are satisfied for all functional units of the EPSL before the 125 VDC instrumentation and control panelboard becomes inoperable. Additionally, the provisions of 3.7.2.(h) must be observed for the 120 VAC vital instrumentation power panelboard which is powered by the affected 125 VDC panelboard.

(f) For periods not to exceed 24 hours each unit's 125 VDC system may be separated from its backup unit via the isolating and transfer diodes.

(g) One battery each, from one or more of the following 125VDC systems may be simultaneously inoperable for 72 hours in order to perform

an equalizer charge after the surveillance requirements of Specification 4.6.10.

1. 230KV Switching Station 125VDC Power System
2. Keowee Hydro Station 125VDC Power System
3. Each unit's 125VDC Instrumentation and Control Power System, provided that the unit's remaining battery is operable. However, for operation of 1 or 2 units, no more batteries than those allowed to be inoperable per 3.7.1 (f) may be removed from service. For operation of 3 units, at least 4 of the 6 station I&C batteries shall be operable.

(h) One 120 VAC vital instrumentation power panelboard per unit and/or its associated static inverter may be inoperable for periods as specified below:

Panelboard	Maximum Allowed Period of Inoperability
KVIA	4 hours
KVIB	4 hours
KVIC	24 hours
KVID	24 hours

A single vital bus static inverter per unit may continue to be inoperable beyond the specified period, but no longer than 7 days total, provided that its associated 120 VAC vital instrumentation power panelboard is connected to the 240/120 VAC Regulated Power System and verified to be operable once every 24 hours.

3.7.3 In the event that the conditions of Specification 3.7.1 are not met within the time specified in Specification 3.7.2, except as noted below in Specification 3.7.4, 3.7.5, 3.7.6, 3.7.7, and 3.7.8, the reactor shall be placed in a hot shutdown condition within 12 hours. If these requirements are not met within an additional 48 hours, the reactor shall be placed in the cold shutdown condition within 24 hours.

3.7.4 In the event that all conditions in Specification 3.7.1 are met except that one of the two Keowee hydro units is expected to be unavailable for longer than the test or maintenance period of 72 hours, the reactor may be heated above 200°F if previously shutdown or be permitted to remain critical or be restarted provided the following restrictions are observed.

(a) Prior to heating the reactor above 200°F or prior to the restart of a shutdown reactor or within 72 hours of the loss of one Keowee hydro unit, the 4160 volt standby buses shall be energized by a Lee gas turbine through the 100 kV circuit. The Lee gas turbine and 100 kV transmission circuit shall be electrically separate from the system grid and offsite non-safety-related loads.

(b) The remaining Keowee hydro unit shall be connected to the underground feeder circuit and this path shall be verified operable within 1 hour and weekly thereafter.

(c) The remaining Keowee hydro unit shall be available to the overhead transmission circuit but generation to the system grid shall be prohibited except for periods of test.

(d) Operation in this mode is restricted to periods not to exceed 45 days and the provisions of this specification may be utilized without prior NRC approval only once in three years for each Keowee hydro unit. Office of Inspection and Enforcement, Region II, will be notified within 24 hours.

3.7.5 In the event that all conditions of Specification 3.7.1 are met except that all 230 kV transmission lines are lost, the reactor shall be permitted to remain critical or be restarted provided the following restrictions are observed:

(a) Prior to the restart of a shutdown reactor or within 1 hour of losing all 230 kV transmission lines for an operating reactor, the 4160 volt standby buses shall be energized by one of the Lee gas turbines through the 100 kV transmission circuit. The Lee gas turbine and the 100kV transmission circuit shall be completely separate from the system grid and offsite non-safety-related loads.

(b) The reactor coolant T_{avg} shall be above 525°F. Reactor coolant pump power may be used to elevate the temperature from 500°F to 525° in the case of restart. If T_{avg} decreases below 500°F, restart is not permitted by this specification.

(c) If all 230 kV transmission lines are lost, restore at least one of the inoperable 230 kV offsite sources to operable status within 24 hours or be in at least hot standby within the next 6 hours. With only one offsite source restored, restore at least two 230 kV offsite circuits to operable status within 72 hours from time of initial loss or be in at least hot standby within the next 6 hours and in cold shutdown within the following 30 hours.

(d) After loss of all 230 kV transmission lines, this information shall be reported within 24 hours to the Office of Inspection and Enforcement, Region II. If the outage is expected to exceed 24 hours, a written report shall be submitted detailing the circumstances of the outage and the estimated time to return the 230 kV transmission lines to operating condition.

3.7.6 In the event that all conditions of Specification 3.7.1 are met, and planned tests or maintenance are required which will make both Keowee units unavailable, the 4160 volt standby buses shall first be energized by a Lee gas turbine through the 100 kV transmission circuit and shall be separate from the system grid and offsite non-safety-related loads. The reactor shall then be permitted to remain critical for periods not to exceed 72 hours with both Keowee units unavailable.

Prior to hot restart of a reactor from a tripped condition, the causes and the effects of the shutdown shall be established and analyzed. A restart will be permitted if the cause of such trips are the result of error or of minor equipment malfunctions. A restart will not be permitted if the trip is a result of system transients or valid protection system action.

3.7.7 In the event that all conditions of Specification 3.7.1 are met except that both Keowee hydro units become unavailable for unplanned reasons, the reactor shall be permitted to remain critical for periods not to exceed 24 hours provided the 4160 volt standby buses are energized within 1 hour by the Lee gas turbine through the 100 kV transmission circuit and it shall be separate from the system grid and all offsite non safety-related loads.

Prior to hot restart of a reactor from a tripped condition, the causes and the effects of the shutdown shall be established and analyzed. A restart will be permitted if the cause of such trips are the result of error or of minor equipment malfunctions. A restart will not be permitted if the trip is a result of system transients or valid protection system action.

3.7.8 In the event that all conditions in Specification 3.7.1 are met except that the Keowee Main Step-up Transformer is expected to be unavailable for longer than the test or maintenance period of 72 hours, as allowed by 3.7.2(a), the reactor may be heated above 200 degrees F if previously shutdown or be permitted to remain critical or be restarted provided the following restrictions are observed:

(a) Prior to heating the reactor above 200 degrees F or prior to the restart of a shutdown reactor or within 72 hours of the loss of the Keowee Main Step-up Transformer, the 4160 volt standby buses shall be energized by a Lee gas turbine through the 100kV circuit. The Lee gas turbine and 100kV transmission circuit shall be electrically separate from the system grid and off-site and non-safety-related loads.

(b) A Keowee hydro unit shall be connected to the underground feeder circuit and this path shall be verified operable within 1 hour and weekly thereafter.

(c) The remaining Keowee Hydro Unit shall be available to the underground feeder circuit.

(d) Operating in this mode is restricted to periods not to exceed 28 days and the provisions of this specification may be utilized without prior NRC approval. Office of Inspection and Enforcement, Region II, will be notified within 24 hours.

3.7.9 Any degradation beyond Specifications 3.7.2, 3.7.4, 3.7.5, 3.7.6, 3.7.7, or 3.7.8 above shall be reported to the Office of Inspection and Enforcement, Region II, within 24 hours. A safety evaluation shall be performed by Duke Power Company for the specific situation involved which justifies the safest course of action to be taken. The results of this evaluation together with plans for expediting the return to the unrestricted operating conditions of Specification 3.7.1 above shall be submitted in a written report to the Office of Nuclear Reactor Regulation with a copy to the Office of Inspection and Enforcement, Region II, within five days.

Bases

The auxiliary electrical power systems are designed to supply the required Engineered Safeguards loads in one unit and safe shutdown loads of the other two units and are so arranged that no single contingency can inactivate enough engineered safety features to jeopardize plant safety. These systems were designed to meet the following criteria:

> "Alternate power systems shall be provided and designed with adequate independency, redundancy, capacity and testability to permit the functions required of the engineered safety features of each unit."

The auxiliary power system meets the above criteria and the intent of Criterion 17 of Appendix A to 10 CFR Part 50. The adequacies of the AC and DC systems are discussed below as are the bases for permitting degraded conditions for AC power.

Capacity of AC Systems

The auxiliaries of two units in hot shutdown (6.0MVa each) plus the auxiliaries activated by ESG signal in the other unit (4.8 MVa) require a total AC power capacity of 16.8 MVa. The continuous AC power capacity available from the on-site power systems (Keowee Hydro Units) is 20 MVa (limited by transformer CT4) if furnished by the underground circuit or 30 MVa (limited by CT1 or CT2) if furnished through the 230 kV off-site transmission lines. Capacity available from the backup 100 kV off-site transmission line (Lee Station Gas Turbine Generator) is 20 MVa (limited by CT5).

Thus, the minimum available capacity from any one of the multiple sources of AC power, 20 MVa, is adequate.

Capacity of DC Systems

Normally, for each unit AC power is rectified and supplies the DC system buses as well as keeping the storage batteries on these buses in a charged state. Upon loss of this normal AC source of power, each unit's DC auxiliary systems important to reactor safety have adequate stored capacity (ampere-hours) to independently supply their required emergency loads for at least one hour. One hour is considered to be conservative since there are redundant sources of AC power providing energy to these DC auxiliary systems. The loss of all AC power to any DC system is expected to occur very infrequently, and for very short periods of time. The following tabulation demonstrates the margin of installed battery charger rating and battery capacity when compared to one hour of operation (a) with AC power (in amps) and (b) without AC power (in ampere hours) for each of the three safety-related DC systems installed at Oconee:

A. 125 VDC Instrumentation and Control Power System

Charger XCA, XCB, or XCS	a. 600 amps each
Battery XCA or XCB Capacity (X = 1, 2, or 3)	b. 600 ampere-hours each
Combined total connected loads on both 125 VDC I & C buses XDCA and XDCB during 1st hour of LOCA (x = 1, 2, or 3)	a. Inrush (2 sec) - 1160 amps next 59 min. - 506 amps
	b. 516.9 ampere-hours

B. 125 VDC Switching Station Power System

Charger SY-1, SY-2, or SY-s Rating	a. 50 amps each
Battery SY-1 or SY-2 Capacity	b. 14.4 ampere-hours
Active load per battery during 1st hour of LOCA	a. Inrush (2 seconds) - 130 amps next 59 min. - 10 amps
	b. 12 ampere-hours

C. 125 VDC Keowee Station Power System

Charger No. 1, No. 2 or Standby Rating	a. 200 amps each
Battery No. 1 or No. 2 Capacity	b. 200 ampere-hours
Active load per battery during 1st hour of LOCA	a. Inrush (14 seconds) - 1031 amps next 59 min. - 179.4 amps
	b. 193.6 ampere-hours

Redundancy of AC Systems

There are three 4160 V engineered safety feature switchgear buses per unit. Each bus can receive power from either of the two 4160 V main feeder buses per unit. Each feeder bus in turn can receive power from the 230 kV switchyard through the startup transformers, through the unit auxiliary transformer by backfeeding through the main step-up transformer, or from the 4160V standby bus. Another unit's start-up transformer serving as an alternate supply can be placed in service in one hour.

The standby bus can receive power from the hydro station through the underground feeder circuit or from a combustion turbine generator at the Lee Steam Station over an isolated 100 kV transmission line. The 230 kV switchyard can receive power from the on-site Keowee hydro station or from several off-site sources via transmission lines which connect the Oconee Station with the Duke Power system power distribution network.

Redundancy of DC System

A. 125 VDC Instrumentation and Control Power System

The 125 VDC Instrumentation and Control (I&C) Power System consists of two batteries, three battery chargers, and two I&C distribution centers per unit. All reactor protection and engineered safety features loads on this system can be powered from either the Unit 1 and Unit 2 or Unit 2 and Unit 3 or Unit 3 and Unit 1 125 VDC I&C distribution centers. The 125 VDC I&C distribution centers are normally supplied from their associated battery and charger. For one unit, in the event that only one of its batteries and associated chargers are operable, both I&C distribution centers will be tied together allowing operation of the DC loads from the unit's operable battery and charger. As shown above, one I&C battery (e.g., 1CA) can supply both I&C distribution centers (e.g., IDCA and IDCB) and their associated panelboard loads. Also, one of the three battery chargers for each unit can supply all connected ESF and reactor protection loads.

In order to find and correct a DC ground on the 125 VDC Instrumentation and Control system each unit's DC system must be separated from the other two units. This is due to the interconnected design of the system. With the backup function disabled the units would be in a degraded mode but would in fact have all of its own DC system available if needed. Each unit's batteries either CA or CB is capable of carrying all the 125 VDC Instrumentation and Control loads on that unit.

B. 125 VDC Switching Station Power System

There are two essentially independent subsystems each complete with an AC/DC power supply (battery charger), a battery bank, a battery charger bus, motor control center (distribution panel). Except for the support racks for the batteries, all safety-related equipment and the relay house in which it is located are seismic Category I design. The support racks for the batteries will be upgraded to seismic Category I as soon as possible. Each sub-system provides the necessary DC power to:

a. Continuously monitor operations of the protective relaying,

b. Isolate Oconee (including Keowee) from all external 230 kV grid faults,

c. Connect on-site power to Oconee from a Keowee hydro unit or,

d. Restore off-site power to Oconee from non-faulted portions of the external 230 kV grid.

Provisions are included to manually connect a standby battery charger to either battery/charger bus.

C. 125 VDC Keowee Station Power System

There are essentially two independent physically separated seismic Category I subsystems, each complete with an AC/DC power supply (charger) a battery

bank, a battery/charger bus and a DC distribution center. Each subsystem provides the necessary power to automatically or manually start, control and protect one of the hydro units.

An open or short in any one battery, charger of DC distribution center, cannot cause loss of both hydro units.

The 230 KV sources, while expected to have excellent availability, are not under the direct control of the Oconee station and, based on past experience, cannot be assumed to be available at all times. However, the operation of the onsite hydro-station is under the direct control of the Oconee Station and requires no offsite power to startup. Therefore, an onsite backup source of auxiliary power is provided in the form of twin hydro-electric turbine generators powered through a common penstock by water taken from Lake Keowee. The use of a common penstock is justified on the basis of past hydro plant experience of the Duke Power Company (since 1919) which indicates that the cumulative need to dewater the penstock can be expected to be limited to about one day a year, principally for inspection, plus perhaps four days every tenth year.

Operation with one Keowee Hydro unit out of service for periods less than 72 hours is permitted. The operability of the remaining Keowee hydro unit is verified within one hour by starting the unit and energizing the standby buses through the underground feeder circuit. This action is repeated once every eight hours thereafter until the Keowee hydro unit is restored to service and will provide additional assurance of the operability of the remaining unit.

Provisions have been established for those conditions in which long term preventative maintenance of a Keowee Hydro unit are necessary. The primary long term maintenance items are expected to be hydro turbine runner and discharge ring welding repairs which are estimated to be necessary every six to eight years. Also, generator thrust and guide bearing replacements will be necessary. Other items which manifest as failures are expected to be extremely rare and could possibly be performed during the permitted maintenance periods. Time periods of up to 45 days for each Keowee Hydro unit are permitted every three years. During these outages the remaining Keowee Hydro unit will be verified to be operable within one hour and weekly thereafter by starting the unit and energizing the underground feeder circuit. The remaining Keowee hydro unit will also be available through the overhead transmission path and will not be used for system peaking. Additionally, the standby buses will be energized continuously by one of the Lee gas turbines through the 100 kV transmission circuits.

This transmission circuit would be electrically separated from the system grid and all off-site non-safety-related loads. This arrangement provides a high degree of reliability for the emergency power systems.

Operation with both Keowee Hydro units out of service is permitted for planned or unplanned outages for periods of 72 or 24 hours respectively. Planned outages are necessary for the inspection of common underwater areas such as the penstock and to enable the removal of one Keowee unit from service. This would be a controlled evolution in which the availability and condition of the offsite grid, startup transformers and weather would be evaluated and a Lee gas turbine would be placed in operation on the isolated 100 kV transmission line prior to commencement of the outage.

A time period of 24 hours for unplanned outages of both Keowee units is acceptable since a Lee gas turbine will be started within one hour and will energize the standby buses through the dedicated 100 kV transmission line. This period of time is reasonable to determine and rectify the situation which caused the loss of both Keowee units.

If the overhead power path from Keowee is inoperable for more than 72 hours due to an extended outage of the Keowee main step-up transformer, operation is permitted provided that certain actions are taken to ensure the quick availability of emergency power. These actions include: continuous energization of the standby buses by a Lee gas turbine through the 100kV transmission circuits; connection of a Keowee unit to the underground feeder path and periodic verification of its operability; and, availability of the remaining Keowee unit to the underground feeder path. Operation in this mode is permitted for a maximum of 28 days, which allows a reasonable period of time to remove the existing transformer and install a replacement.

In the event that none of the sources of off-site power are available and it is considered important to continue to maintain an Oconee reactor critical or return it to criticality from a hot shutdown condition, one of the Lee gas turbines can be made available as an additional backup source of power, thus assuring continued availability as an auxiliary power to perform an orderly shutdown of a unit should a problem develop requiring shutdown of both hydro units.

Emergency Power Switching Logic Circuits

The Emergency Power Switching Logic (EPSL) in conjunction with its associated circuits, is designed with sufficient redundancy to assure that power is supplied to the unit Main Feeder Buses and, hence, to the unit's essential loads, under accident conditions. The logic system monitors the normal and emergency power sources and, upon loss of the normal power source (the unit auxiliary transformer), the logic will seek an alternate source of power.

Operation of the unit with certain circuits or channels of the EPSL inoperable for test or maintenance is permitted for periods of up to 24 hours, provided that the inoperable circuits/channels are in only one portion, or functional unit, of the EPSL and provided that a sufficient number of circuits/channels in the affected functional unit remain operable such that the functional unit does not lose its ability to perform its designed safety function. These provisions ensure that only one portion of the EPSL is degraded at a time for test or maintenance and that the affected portion remains operable although degraded.

If the circuits or channels of more than one functional unit are inoperable, continued operation is permitted provided that the inoperability results from a loss of power due to the inoperability of a 125 VDC instrumentation and control panelboard. In addition, the affected functional units must remain capable of performing their designed safety functions in spite of the inoperable circuits/channels. By itself, the inoperability of a 125 VDC instrumentation and control panelboard will not cause the complete loss of any EPSL functional unit. It will, however, degrade some of the functional units because of the resulting loss of power to

some of the circuits/channels. If other circuits/channels of the EPSL functional units are already inoperable, then a 125 VDC instrumentation and control panelboard becoming inoperable could cause a loss of function in portions of the EPSL. For that reason, operation is permitted with an inoperable panelboard only if the EPSL was not in a degraded mode prior to the panelboard becoming inoperable.

In the event that the EPSL is in a degraded mode while the reactor is subcritical, a return to criticality may not be made until the EPSL is returned to a normal operational status. This ensures the availability of the EPSL during all reactor startups.

120 VAC Vital Instrument Power Panelboards

For each unit, four redundant 120 VAC vital instrument power panelboards are provided to supply power in a predetermined arrangement to vital power, instrumentation, and control loads under all operating conditions. Each panelboard is supplied power separately from a static inverter connected to one of the four 125 VDC instrumentation and control power panelboards. In addition, a tie with breakers is provided to each of the 120 VAC vital panelboards from the alternate 120 VAC regulated bus to provide backup for each vital panelboard and to permit servicing of the inverters.

For each unit, each of the four redundant channels of the nuclear instrumentation and reactor protective system (RPS) equipment is supplied power from a separate 120 VAC vital panelboard. Also for each unit, each of the three redundant engineered safety features actuation system (ESFAS) analog channels and each of the two redundant ESFAS digital channels are powered from separate vital panelboards.

The period allowed for corrective action on an inoperable vital panelboard depends on the loads carried by the affected panelboard. For example, panelboards KVIA and KVIB are allowed to be inoperable for only four hours because they provide power to the digital ESFAS channels, which are in turn allowed to be inoperable for only four hours by Technical Specification 3.5.1. In contrast, panelboards KVIC and KVID carry loads which do not necessarily become inoperable upon loss of power (e.g., RPS channels and ESFAS analog channels go to a tripped state upon loss of power) and thus do not necessitate immediate corrective action. Thus, these panelboards have been limited to a period of inoperability which does not exceed that allowed for their normal source of power, the 125 VDC instrumentation and control panelboards.

In the event that failure of a static inverter results in the inoperability of its associated vital panelboard, the affected panelboard may be tied to the 240/120 VAC regulate power system and unit operation may continue for seven days. This specification allows sufficient time for the inverter to be repaired without penalizing unit operation by permitting the use of alternate power sources.

TABLE 3.7-1

OPERABILITY REQUIREMENTS FOR THE
EMERGENCY POWER SWITCHING LOGIC CIRCUITS

	Functional Unit	Minimum Operable Circuits/Channels	
		Normal Operation Per Spec 3.7.1(c)	Degraded Operation Per Spec 3.7.2(b)
1.	Normal Source Voltage Sensing Circuits (One per Phase)	3	2
2.	Startup Source Voltage Sensing Circuits (One per Phase)	3	2
3.	Standby Bus Voltage Sensing Circuits (One per Phase on each bus)	6	4[a]
4.	Main Feeder Bus Undervoltage Relays (Three per bus)	6	4[a]
5.	Load Shed and Transfer to Standby Circuits (Channels A and B)	2	1
6.	Keowee Emergency Start Circuit (Channels A and B)	2	1
7.	Normal Source Breakers N1 and N2 Control Circuitry	4[b]	2[c]
8.	Startup Source Breakers E1 and E2 Control Circuitry	4[b]	2[c]
9.	Standby Bus to Main Feeder Bus Breakers, S1 and S2, Control Circuitry (Including Retransfer to Startup Circuits)	4[b]	2[c]
10.	Standby Bus Keowee Feeder Breakers, SK1 and SK2, Control Circuitry	4[b]	2[c]

Notes: a. 2 per bus.
b. 1 primary and 1 secondary* for each breaker.
c. 1 primary and 1 secondary* on the same breaker.

*A primary circuit includes the closing coil and one trip coil, a secondary circuit includes only one trip coil.

6.4 STATION OPERATING PROCEDURES

Specification

6.4.1 The station shall be operated and maintained in accordance with approved procedures. Written procedures with appropriate check-off lists and instructions shall be provided for the following conditions:

a. Normal startup, operation and shutdown of the complete facility and of all systems and components involving nuclear safety of the facility.

b. Refueling operations.

c. Actions taken to correct specific and foreseen potential malfunctions of systems or components involving nuclear safety and radiation levels, including responses to alarms, suspected primary system leaks and abnormal reactivity changes.

d. Emergency procedures involving potential or actual release of radioactivity.

e. Preventive or corrective maintenance which could affect nuclear safety or radiation exposure to personnel.

f. Station survey following an earthquake.

g. Radiation control procedures.

h. Operation of radioactive waste management systems.

i. Control of pH in recirculated coolant after loss-of-coolant accident. Procedure shall state that pH will be measured and the addition of appropriate caustic to coolant will commence within 30 minutes after switchover to recirculation mode of core cooling to adjust the pH to a range of 7.0 to 8.0 within 24 hours.

j. Nuclear safety-related periodic test procedures.

k. Long-term emergency core cooling systems. Procedures shall include provision for remote or local operation of system components necessary to establish high and low pressure injection within 15 minutes after a line break.

l. Fire Protection Program implementation.

6.4.2 A respiratory protective program approved by the Commission shall be in force.

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

DUKE POWER COMPANY

DOCKET NO. 50-269

OCONEE NUCLEAR STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 117
License No. DPR-38

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The applications for amendment by Duke Power Company (the licensee) dated April 30, 1982, and September 27, 1982, comply with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the applications, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 3.B of Facility Operating License No. DPR-38 is hereby amended to read as follows:

   3.B Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 117are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

John F. Stolz, Chief
Operating Reactors Branch #4
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: November 22, 1982

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

November 22, 1982

Dockets Nos. 50-269, 50-270
and 50-287

Mr. Hal B. Tucker
Vice President, Nuclear Production
Department
Duke Power Company
P. O. Box 33189
422 South Church Street
Charlotte, North Carolina 28242

Dear Mr. Tucker:

The Commission has issued the enclosed Amendments Nos. 117, 117, and 114 for Licenses Nos. DPR-38, DPR-47 and DPR-55 for the Oconee Nuclear Station, Units Nos. 1, 2 and 3. These amendments consist of changes to the Station's common Technical Specifications (TSs) in response to your applications dated April 30 and September 27, 1982.

These amendments revise the TSs to incorporate digital logic channels and emergency power switching logic, revise the bases to define redundant component testing and delete the administrative control on emergency drills.

Copies of the Safety Evaluation and the Notice of Issuance are also enclosed.

Sincerely,

Philip C. Wagner

Philip C. Wagner, Project Manager
Operating Reactors Branch #4
Division of Licensing

Enclosures:
1. Amendment No. 117 to DPR-38
2. Amendment No. 117 to DPR-47
3. Amendment No. 114 to DPR-55
4. Safety Evaluation
5. Notice

cc w/enclosures: See next page

Duke Power Company

cc w/enclosure(s):

Mr. William L. Porter
Duke Power Company
P. O. Box 33189
422 South Church Street
Charlotte, North Carolina 28242

Office of Intergovernmental Relations
116 West Jones Street
Raleigh, North Carolina 27603

Honorable James M. Phinney
County Supervisor of Oconee County
Walhalla, South Carolina 29621

Mr. James P. O'Reilly, Regional Administrator
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

DUKE POWER COMPANY

DOCKET NO. 50-270

OCONEE NUCLEAR STATION, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 117
License No. DPR-47

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The applications for amendment by Duke Power Company (the licensee) dated April 30, 1982, and September 27, 1982, comply with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the applications, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 3.B of Facility Operating License No. DPR-47 is hereby amended to read as follows:

   3.B Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 117 are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

John F. Stolz, Chief
Operating Reactors Branch #4
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: November 22, 1982

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

DUKE POWER COMPANY

DOCKET NO. 50-287

OCONEE NUCLEAR STATION, UNIT NO. 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 114
License No. DPR-55

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The applications for amendment by Duke Power Company (the licensee) dated April 30, 1982, and September 27, 1982, comply with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the applications, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 3.B of Facility Operating License No. DPR-55 is hereby amended to read as follows:

   3.B Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No.114 are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

John F. Stolz, Chief
Operating Reactors Branch #4
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: November 22, 1982

ATTACHMENTS TO LICENSE AMENDMENTS

AMENDMENT NO.117 TO DPR-38

AMENDMENT NO.117 TO DPR-47

AMENDMENT NO.114 TO DPR-55

DOCKETS NOS. 50-269, 50-270 AND 50-287

Replace the following pages of the Appendix "A" Technical Specifications with the attached pages. The revised pages are identified by amendment numbers and contain vertical lines indicating the area of change.

Remove Pages	Insert Pages
vi	vi
3.3-6	3.3-6
3.5-2	3.5-2
3.5-5	3.5-5
3.5-5a	3.5-5a
3.5-5b	3.5-5b
--	3.5-5c
3.7-1	3.7-1
3.7-2	3.7-2
3.7-2T	--
3.7-3	3.7-3
3.7-4	3.7-4
3.7-5	3.7-5
3.7-6	3.7-6
3.7-7	3.7-7
3.7-8	3.7-8
3.7-9	3.7-9
--	3.7-10
--	3.7-11
--	3.7-12
--	3.7-13
6.4-1	6.4-1

LIST OF TABLES

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 117 TO FACILITY OPERATING LICENSE NO. DPR-38

AMENDMENT NO. 117 TO FACILITY OPERATING LICENSE NO. DPR-47

AMENDMENT NO. 114 TO FACILITY OPERATING LICENSE NO. DPR-55

DUKE POWER COMPANY

OCONEE NUCLEAR STATION, UNITS NOS. 1, 2 AND 3

DOCKETS NOS. 50-269, 50-270 AND 50-287

Introduction

By letter dated April 30, 1982, Duke Power Company (Duke or the Licensee) submitted an application to amend the Oconee Nuclear Station (ONS) common Technical Specifications (TSs) by adding provisions for the digital logic channels in Specification 3.5 and the Emergency Power Switching Logic (EPSL) in Specification 3.7. The lack of operating requirements for these two systems was considered, by Duke, to be a shortcoming of the current TSs.

An additional application was submitted by letter dated September 27, 1982, to revise the bases of Specification 3.3 to clarify redundant component operability testing and delete the TS requirement in Specification 6.4.2 concerning quarterly site emergency drills.

Evaluation

A. Digital Logic Channels

The current TSs contain operability requirements for various instrumentation systems. Specification 3.5.1, "Operational Safety Instrumentations," delineates the conditions of instrumentation and safety circuits necessary to assure reactor safety in Table 3.5.1-1, but does not address the digital logic channels. Duke considers (and we agree) the lack of operating requirements on the digital logic channels to be a shortcoming of the TSs. Therefore, Duke proposed, by letter dated April 30, 1982, that the digital logic channels be included in the TSs.

We have reviewed the addition of the digital logic channels and find that the proposed requirements are consistent with the current TSs for similar systems and are also consistent with current staff positions. A number of editorial corrections were made, with the concurrence of Duke, to clarify the requirements. Since these changes are additions to incorporate acceptable new requirements, we find them acceptable.

B. Emergency Power Switching Logic (EPSL)

In addition to the digital logic channels discussed in A. above, Duke's April 30, 1982 application requested changes to Specification 3.7, "Auxiliary Electrical Systems." The proposal contains three major changes: 1) the addition of explicit operating requirements for the EPSL, 2) the addition of a requirement related to an extended outage of the Keowee transformer, and 3) the clarification of current requirements for the operation of the 125VDC Instrumentation and Control Systems.

The EPSL circuitry is designed to insure that a reliable source of power is available to the 4160V Main Feeder Buses (MFB) under all modes of operation. These circuits are designed to further insure that during or after any postulated accident, a continuous supply of power is available to bring the reactor to a safe shutdown condition. The EPSL provides power to the MFB by monitoring all available sources of power and closing or tripping the appropriate 4160V circuit breakers.

Available sources of power to a unit's MFB are the unit's Auxiliary Transformer (1T, 2T, 3T); the unit's Startup Transformer (CT-1, CT-2, CT-3); or the two Standby Buses (Standby Bus 1, Standby Bus 2). The Standby Buses can, in turn, be supplied from either transformer CT4 which is powered from the Keowee hydro units or CT5 powered from the Lee Station gas turbine generator. If emergency power is required at Oconee, the EPSL is designed to automatically select an emergency source from either the Startup Transformer or the Standby Bus. The Keowee Emergency Start logic is designed to automatically start both Keowee units to supply emergency power if this source is required.

The EPSL contains undervoltage circuits that monitor each phase of the 4160V outputs of the Normal and Startup Transformers, and each phase of the two Standby Buses. A loadshed circuit is provided which is designed to automatically shed (trip) non-essential loads before a transfer to a Standby Buses occurs. A transfer to Standby and retransfer to Startup circuit is designed to, in a power-seeking configuration, automatically select the most readily available source to supply the unit's MFB.

The Keowee Emergency Start circuits monitor several plant conditions to determine the need for a Keowee hydro unit to supply electrical power to Oconee. The circuits are designed to start both Keowee units with no operator action necessary and thus insure that the EPSL circuitry can perform its intended functions.

The proposed TSs on the EPSL circuitry require the operability of all EPSL circuitry for heatup above 200°F and for startup of the reactor. Operation of the unit with certain circuits or channels of the EPSL inoperable for test or maintenance is permitted for periods of up to 24 hours, provided that the inoperable circuits/channels are in only one portion, or functional unit of the EPSL and provided that a sufficient number of circuits/channels in the affected functional unit remain operable such that the functional unit does not lose its ability to perform its designed safety function. These provisions are designed to ensure that only one portion of the EPSL is degraded at a time for test or maintenance and that the affected portion remains operable although degraded.

If the circuits or channels of more than one functional unit become inoperable, continued operation would be permitted, provided that the inoperability results from a loss of power to some of the functional units due to the inoperability of a 125VDC instrumentation and control (I&C) panelboard. Even with the loss of a 125VDC I&C panelboard, the affected functional units are required to remain capable of performing their designed safety functions. The inoperability of one 125VDC I&C panelboard will not cause the loss of an EPSL functional unit, but will degrade them due to the loss of power to some of the circuits/channels. Operation with an inoperable panelboard would be allowed for a maximum of 24 hours if the EPSL was not in a degraded mode prior to the panelboard inoperability.

The other changes to Specification 3.7 provide clarification of the actions to be taken in the event a Keowee transformer is inoperable and provide explicit operating requirements for the 125VDC I&C systems.

The proposed TSs meet the criteria delineated in 10 CFR 50 Appendix A, Criteria 17 and 18 as well as IEEE Standards 308, 1978 and 338, 1977.

Having reviewed the licensee's April 30, 1982 submittal consisting of the proposed TS changes and the associated discussions for their change, we have determined that safe operation can be accomplished and conclude that the proposed changes to the TSs are acceptable.

C. Redundant Component Testing

By letter dated September 27, 1982, Duke applied for a revision to the Bases of Specification 3.3 related to redundant component testing. The current Bases state that redundant component testing will be performed "immediately prior to removal" of the component from service. Since the term "immediate" is subject to judgmental interpretation, Duke requested a more definitive description and proposed "within 24 hours prior to removal." We agree that the term immediate is subjective and further agree that 24 hours is a reasonable interpretation considering the time required to perform these tests. Therefore, we consider this change administrative in nature and find it acceptable.

D. Emergency Drills

The current Specification 6.4.2 requires selected site emergency procedure drills to be conducted quarterly. Subsequent to the incorporation of this requirement into the TSs, 10 CFR Part 50, Section 54(s) and Appendix E were revised to specify the frequency and content of site emergency drills. In accordance with these requirements, Duke revised (revision 82-5) the ONS Emergency Plan to be consistent with applicable NRC staff positions. Since these revisions raise a possible conflict between the Emergency Plan and the TSs, Duke, by letter dated September 27, 1982, requested that Specification 6.4.2 be deleted. Since the revised Emergency Plan requires an acceptable schedule for site drills and is consistent with the Emergency Plan at the McGuire Station, and since the Regulations now specify the schedule and content of site emergency drills, we find the proposed change to be an acceptable way to remove unnecessary duplication of requirements. Therefore, Specification 6.4.2 has been removed and Specification 6.4.3 has been renumbered 6.4.2.

Environmental Consideration

We have determined that the amendments do not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendments involve an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of these amendments.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the amendments do not involve a significant increase in the probability or consequences of an accident previously evaluated, do not create the possibility of an accident of a type different from any evaluated previously, and do not involve a significant reduction in a margin of safety, the amendments do not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of these amendments will not be inimical to the common defense and security or to the health and safety of the public.

Dated: November 22, 1982

The following NRC personnel have contributed to this Safety Evaluation: Philip Wagner, William Orders.

7590-01

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKETS NOS. 50-269, 50-270 AND 50-287

DUKE POWER COMPANY

NOTICE OF ISSUANCE OF AMENDMENTS TO FACILITY OPERATING LICENSES

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendments Nos. 117, 117and 114to Facility Operating Licenses Nos. DPR-38, DPR-47 and DPR-55, respectively, issued to Duke Power Company, which revised the Technical Specifications (TSs) for operation of the Oconee Nuclear Station, Units Nos. 1, 2 and 3, located in Oconee County, South Carolina. The amendments are effective as of the date of issuance.

These amendments revise the TSs to incorporate digital logic channels and emergency power switching logic, revise the bases to define redundant component testing and delete the administrative control on emergency drills.

The applications for the amendments comply with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendments. Prior public notice of these amendments was not required since the amendments do not involve a significant hazards consideration.

The Commission has determined that the issuance of these amendments will not result in any significant environmental impact and that pursuant to 10 CFR Section 51.5(d)(4) an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of these amendments.

For further details with respect to this action, see (1) the applications for amendments dated April 30 and September 27, 1982, (2) Amendments Nos. 117, 117 , and 114 to Licenses Nos. DPR-38, DPR-47 and DPR-55, respectively, and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C. and at the Oconee County Library, 501 West Southbroad Street, Walhalla, South Carolina 29691. A copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Licensing.

Dated at Bethesda, Maryland, this 22nd day of November 1982.

FOR THE NUCLEAR REGULATORY COMMISSION

John F. Stolz, Chief
Operating Reactors Branch #4
Division of Licensing