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July 24, 2001

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 find attached revisions to TSB 3.8.3, DC Sources-Operating and 3.8.9, Distribution System - Shutdown, which were approved by Station Management on June 27, 2001 and implemented on July 3, 2001. These changes revise the LCO's of each bases section to include information that states the battery chargers are OPERABLE when they are energized or available to be energized during a power source transfer.

Likewise, you will find revisions to TSB 3.3.19 EPSL 230kV SY DGVP. This revision was implemented on July 12, 2001. This change revises the minimum switchyard voltage that ensures proper operation of loads during the ES actuation from 219 kV to 225,887 kV. The minimum switchyard voltage changes as a result of tap setting changes on transformers CT1, CT2, and CT3 by minor modifications OE-9368, OE-9369 and OE-9370. Minor modification OE-10264 changed the Degraded Grid relay settings, but did not change the minimum switchyard voltage listed in bases B 3.3.19.

Attachment 1 contains the new Technical Specification Bases page and Attachment 2 contains the markup version of the Bases page.

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

Very truly yours,

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A001

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Attachment 1

B 3.3 INSTRUMENTATION

B 3.3.19 Emergency Power Switching Logic (EPSL) 230 kV Switchyard Degraded Grid Voltage Protection (DGVP)

BASES

BACKGROUND

Two levels of protection are provided to assure the degradation of voltage from offsite sources does not adversely impact the function of safety-related systems and components. The first level of protection is provided by the EPSL Degraded Grid Protection System (DGPS). The second level of protection is provided by undervoltage relaying on the E and N breakers (reference LCO 3.3.18, "EPSL Voltage Sensing Circuits") which protects from loss of voltage.

The DGPS, upon indication of inadequate voltage, provides an alarm to the Unit 1 & 2 Control Room. If an engineered safeguards (ES) Channel 1 or 2 signal from any unit is sensed by the DGPS, while the voltage is below acceptable levels, the DGPS will initiate an isolation of the 230 kV switchyard Yellow Bus to ensure the onsite overhead emergency power path is available. Each DGPS actuation logic channel is capable of initiating isolation of the overhead emergency power path. This ensures the startup transformers are not connected to a degraded source of power. In this event, ES loads are provided power from the standby buses.

Based on operating experience, degradation of voltage in the 230 kV switchyard does not last for an extended period of time. Administrative procedures are in place to assure timely actions are taken to restore the voltage.

There are three undervoltage relays installed to monitor the switchyard voltage, one on each phase (X, Y, Z) of the 230 kV Yellow Bus. The undervoltage relay contacts are arranged in a two-out-of-three logic sequence which feeds two redundant time delay relays. The time delay relays prevent spurious actuations, but still provide adequate response time for voltage transients. Either of the two redundant time-delay relays will cause either of the two sets of actuating relays to initiate switchyard isolation. Circuit control power is fed from the 230 kV Switchyard 125 VDC system.

BASES (continued)

APPLICABLE SAFETY ANALYSES

The EPSL Degraded Grid Voltage Protection function is required to ensure adequate voltage is available during an ES actuation when system grid voltages are not adequate (Ref. 1). Based on calculations, 225.887 kV is the minimum switchyard voltage that will ensure proper operation of loads during ES actuation.

The EPSL Degraded Grid Voltage Protection satisfies Criterion 3 of 10 CFR 50.36 (Ref. 2).

LCO

Three degraded grid voltage sensing relay channels are required to be OPERABLE. Failure of one channel reduces the reliability of the function. The requirement for three channels to be OPERABLE ensures that two channels will remain OPERABLE if a failure has occurred in one channel. The remaining channels can perform the safety function.

Two channels of the Degraded Grid Voltage Protection Actuation Logic function are required to be OPERABLE. The switchyard isolation circuit is considered a part of this logic channel. Therefore, if a switchyard isolation channel is inoperable, then one DGVP actuation channel is inoperable. The requirement for two channels to be OPERABLE ensures that one channel will remain OPERABLE if a failure has occurred in one channel. The remaining channel can perform the safety function.

APPLICABILITY

The DGPS functions are required to be OPERABLE in MODES 1, 2, 3, and 4 to ensure that power is provided from AC Sources to the AC Distribution system within the time assumed in the accident analyses.

The EPSL DGVP functions are not required to be OPERABLE in MODES 5 and 6 since more time is available for the operator to respond to a loss of power event.

ACTIONS

The ACTIONS are modified by a Note indicating that the Completion Times for Required Actions A and B are reduced when in Condition L of LCO 3.8.1. Condition L limits the Completion Time for restoring inoperable channels to 4 hours when emergency power source(s) or offsite power source(s) are inoperable for extended time periods or for specific reasons.

BASES

ACTIONS (continued)

A.1

If one DGVP voltage sensing channel is inoperable, the channel must be placed in trip within 72 hours. Tripping the affected channel places the function in a one-out-of-two configuration. Operation in this configuration may continue indefinitely since the DGVP function is capable of performing its DGVP function in the presence of a single failure. With one channel inoperable, the remaining channels are capable of providing the DGVP function. The 72 hour completion time is based on engineering judgement taking into consideration the infrequency of actual grid system voltage degradation, and the probability of an event requiring ES operation.

B.1

If one DGVP actuation logic channel is inoperable, the actuation logic channel must be restored to OPERABLE status within 72 hours. With one actuation logic channel inoperable, the remaining actuation logic channel is capable of providing the DGVP function. The 72 hour completion time is based on engineering judgement taking into consideration the infrequency of actual grid system voltage degradation, and the probability of an event requiring ES operation.

C.1 and C.2

With the Required Action and associated Completion Time of Condition A or B not met, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to at least MODE 3 in 12 hours and to MODE 5 within 84 hours. The allowed Completion Times are reasonable based on operating experience and to allow for a controlled shutdown.

D.1

With two or more voltage sensing channels or both actuation logic channels inoperable, degraded grid protection is no longer available to the Station during an ES actuation. The condition also prevents switchyard isolation during a LOCA. Since switchyard isolation is inoperable, the overhead power path must be declared inoperable immediately. The appropriate Required Actions will be implemented in accordance with LCO 3.8.1, AC "Sources–Operating."

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.19.1

A CHANNEL FUNCTIONAL TEST is performed on each DGVP voltage sensing channel and DGVP actuation logic channel to ensure the entire channel will perform its intended function. Any setpoint adjustments shall be consistent with the assumptions of the setpoint analysis. The CHANNEL FUNCTIONAL TEST of the DGVP actuation logic channels includes verifying actuation of the switchyard isolation circuitry. The Frequency of 18 months is based on engineering judgment and operating experience that determined testing on an 18 month interval provides reasonable assurance that the circuitry is available to perform its safety function.

SR 3.3.19.2

A CHANNEL CALIBRATION is a complete check of the instrument channel, including the sensor. The test verifies that the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drift to ensure that the instrument channel remains operational between successive tests. CHANNEL CALIBRATION shall find that measurement errors and bistable setpoint errors are within the assumptions of the setpoint analysis. CHANNEL CALIBRATIONS must be performed consistent with the assumptions of the setpoint analysis.

The Frequency is justified by the assumption of an 18 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

REFERENCES

1. UFSAR, Chapter 8.
2. 10 CFR 50.36.

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.3 DC Sources – Operating

BASES

BACKGROUND

The 125 VDC Vital I&C electrical power sources provide the AC emergency power system with control power. It also provides both motive power and control power for selected safety related equipment. Additionally, the 125 VDC Vital I&C electrical power sources provide DC electrical power through DC panelboards to the inverters, which in turn supply the AC Vital instrumentation power panelboards.

The 125 VDC Vital I&C electrical power system is a system consisting of six power sources shared by the three Oconee units. Each unit has its own two power sources with backup sources supplied to the unit's 125 VDC Vital Instrumentation distribution system from another unit using a network of isolating diode assemblies. This provides necessary redundancy and independence for the 125 VDC Vital I&C power sources. Each source consists of one 125 VDC battery, the associated battery charger for each battery, the distribution center, the associated control equipment, isolating transfer diodes and interconnecting cabling. Additionally, there is one standby battery charger shared between each unit's batteries, which provides backup service in the event that the preferred battery charger is out of service.

The 125 VDC I&C batteries of a unit are physically separated in separate enclosures from batteries of another unit to minimize their exposure to any damage. The battery chargers and associated DC distribution centers and switchgear of a unit are located in separate rooms from the battery chargers and associated DC distribution centers of another unit in the auxiliary building and physical separation is maintained between redundant equipment.

During normal operation, the 125 VDC Vital I&C loads are powered from the battery chargers with the batteries floating on the system. In case of loss of power to a battery charger, the associated DC loads are automatically powered from the 125 VDC Vital I&C battery. Each battery has adequate storage capacity to carry the required load continuously for at least 1 hour.

BASES

BACKGROUND (continued)

Each 125 VDC Vital I&C power source has ample power output capacity for the steady state operation of connected loads required during normal operation, while at the same time maintaining its battery bank fully charged. Each battery charger also has sufficient capacity to restore the battery from the design minimum charge to its fully charged state while supplying normal steady state loads.

The 230 kV switchyard 125 VDC Power System provides power to power circuit breakers, protective and control relays, indicating lights, annunciators, carrier equipment and other switchyard equipment requiring an uninterrupted power source.

The 230 kV switchyard 125 VDC Power System consists of two sources. Each source consists of one 125 VDC battery, the associated battery charger for each battery, distribution panel, and associated control equipment and interconnecting cabling. Redundant batteries are located in separate rooms and redundant chargers, distribution centers and panelboards are located on different walls of the 230 kV switchyard relay house. Additionally, there is one standby battery charger shared between the sources, which provides backup service in the event that the preferred battery charger is out of service.

During normal operation, the 230 kV 125 VDC loads are powered from the battery chargers with the batteries floating on the system. In case of loss of power to a battery charger, the associated DC load is automatically powered from the 230 kV 125 VDC battery. Each battery has adequate storage capacity to carry the required load continuously for at least 1 hour.

Each 230 kV 125 VDC power source has ample power output capacity for the steady state operation of connected loads required during normal operation, while at the same time maintaining its battery bank fully charged. Each battery charger also has sufficient capacity to restore the battery from the design minimum charge to its fully charged state while supplying normal steady state loads.

The 125 VDC Vital I&C power and 230 kV 125 VDC power distribution systems are described in more detail in the Bases for LCO 3.8.8, "Distribution System – Operating," and for LCO 3.8.9, "Distribution Systems – Shutdown."

BASES (continued)

APPLICABLE SAFETY ANALYSES

The initial conditions of accident and transient analyses in the UFSAR, Chapter 6 (Ref. 1) and Chapter 15 (Ref. 2), assume that Engineered Safeguards (ES) systems are OPERABLE. The 125 VDC Vital I&C electrical power system provides normal and emergency DC electrical power for the emergency auxiliaries, and control and switching during all MODES of operation.

The 230 kV switchyard 125 VDC Power System provides control power for circuit breaker operation in the 230 kV switchyard as well as DC power for degraded grid voltage protection circuits during all MODES of operation.

The OPERABILITY of the DC sources is consistent with the initial assumptions of the accident analyses and is based upon meeting the design basis of the unit. This includes maintaining the DC sources OPERABLE during accident conditions in the event of:

a. An assumed loss of all offsite AC power or all onsite AC power; and

b. A worst-case single failure.

The DC sources satisfy Criterion 3 of 10 CFR 50.36 (Ref. 3).

LCO

Each required 125 VDC electrical source consisting of one battery, associated battery charger, distribution center and the corresponding control equipment and interconnecting cabling supplying power to the associated panelboards is required to be OPERABLE to ensure the availability of the required power to shut down the reactor and maintain it in a safe condition after an anticipated transient or an accident. The battery chargers are OPERABLE when they are energized or available to be energized during a power source transfer.

For operation of any Oconee unit, three of four 125 VDC Vital I&C Sources capable of supplying the unit's DC distribution system shall be OPERABLE as follows:

Unit 1: 1CA, 1CB, 2CA, 2CB
Unit 2: 2CA, 2CB, 3CA, 3CB
Unit 3: 3CA, 3CB, 1CA, 1CB

and aligned to at least one panelboard provided that a power source is not the only source for two or more of the Unit's panelboards. The three of four requirement ensures that a single failure will not result in a loss of

BASES

LCO (continued)

power to more than one 125 VDC Vital I&C panelboard. This requirement ensures supported safety functions are not vulnerable to a single failure.

When any other unit is in MODES 1, 2, 3, or 4, two additional 125 VDC Vital I&C Sources are required to be OPERABLE as modified by LCO Note 2. When no other Unit is in MODES 1, 2, 3, or 4, one additional 125 VDC Vital I&C power source is required to be OPERABLE as modified by LCO Notes 2 and 3. These additional requirements ensure sufficient capacity and voltage for supported DC loads assuming a single failure.

The requirement that two 230 kV 125 VDC sources be OPERABLE ensures that supported safety functions are not vulnerable to a single failure.

The LCO is modified by three Notes. Note 1, which applies to Units 2 and 3 only, indicates that no single 125 VDC Vital I&C source shall be the only source for panelboards 1DIC and 1DID. This is necessary since vital I&C panelboards 1DIC and 1DID supply power for SK and SL breaker control, protective relaying for both standby buses, breaker control for both standby breakers for the three Oconee units, and retransfer to startup source logic circuits for the three Oconee units. The requirement that no single 125 VDC source be the only source of power for panelboards 1DIC and 1DID ensures than a single failure will not result in a loss of power to both panelboards. This requirement ensures supported safety functions are not vulnerable to a single failure.

Note 2 indicates that each additional 125 VDC Vital I&C source required by part b or part c of the LCO shall be connected to at least one panelboard associated with the unit where the source is physically located. For example, when applying the LCO requirements to Unit 1, an additional source from Unit 2 must be connected to at least one Unit 2 panelboard and an additional source from Unit 3 must be connected to at least one Unit 3 panelboard. If the additional sources are from Unit 3, each additional source need only be connected to at least one Unit 3 panelboard. Note 3 specifies that the additional 125 VDC Vital I&C power source required by LCO 3.8.3 part c shall not be a power source that is available to meet the three of four requirement of LCO 3.8.3 part a. This ensures that there is one source physically located on each unit not in MODES 1, 2, 3, or 4. For example, when applying the LCO requirements to Unit 1, the additional source cannot be a Unit 1 or Unit 2 power source since these are available to meet the three of four requirement. Therefore, a Unit 3 power source must be OPERABLE. Note 2 and 3 requirements are necessary to assure assumptions in the DC capacity and voltage drop analyses for the operating unit are valid.

BASES (continued)

APPLICABILITY

The DC electrical power sources are required to be OPERABLE in MODES 1, 2, 3, and 4 to ensure safe unit operation and to ensure that:

a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of transients and accidents; and

b. Adequate core cooling is provided, and containment integrity and other vital functions are maintained in the event of a postulated accident.

The DC electrical power requirements for MODES 5 and 6 are addressed in the Bases for LCO 3.8.4, "DC Sources – Shutdown."

ACTIONS

The ACTIONS are modified by a Note indicating that the Completion Times for Required Actions A through D are reduced when in Condition L of LCO 3.8.1. Condition L limits the Completion Time for restoring inoperable power sources to 4 hours when emergency power source(s) or offsite power source(s) are inoperable for extended time periods or for specific reasons.

A.1

With one of the required 125 VDC Vital I&C sources inoperable, the remaining sources are fully capable of providing adequate voltage to the four unit DC panelboards and will assure alignment of power to at least three panelboards. Three panelboards are necessary to shut down the operating unit and maintain it in a safe shutdown condition. However, overall reliability is reduced because an additional failure could result in the minimum required ES functions not being supported. Therefore, the inoperable source must be restored to OPERABLE status within 24 hours. Required Action A.1 is modified by a Note indicating that it is not applicable for up to 72 hours to perform an equalization charge after completion of a performance test or service test. This note allows a maximum Completion Time of 96 hours (24 hours for an inoperable battery due to performing a service test plus 72 hours to perform equalization charge).

The Completion Time for this Required Action is based on engineering judgment, taking into consideration the extent of degradation involved, the likelihood of events or failures which could challenge the system, and the time required to complete the equalization charge.

BASES

ACTIONS (continued)

B.1

In this condition, a single failure of a battery (or its associated equipment) could cause loss of more than one unit panelboard during an accident, so that required safety functions might not be supported. Specifically, if a single source were providing the only power source for panelboards DIA and DIB, single failure of the source would result in failure of both ES digital channels. Vulnerability of the ES digital channels to single failure for 24 hours is considered acceptable due to the limited scope of potential failures. Similarly, if the panelboards are isolated from their backup Unit (e.g., the Unit's DC system is isolated from the other Units), a single failure could result in loss of two or more panelboards so that required safety functions may not be supported. If the panelboards are isolated from their backup Unit when one of that Unit's batteries are inoperable (and the DC buses are cross tied), the remaining battery has the capacity to support all required loads, however, a single failure could result in loss of all four panelboards so that required safety functions may not be supported. Therefore, within 24 hours after such a condition arises, affected equipment shall be restored and aligned such that no single source is the only battery power supply for more than one 125 VDC Vital I&C panelboard for the unit under consideration. The 24 hour Completion Time is based on engineering judgement taking into consideration the time to complete the Required Action and the redundancy available in the 125 VDC Vital I&C System.

C.1

With a single source providing the only power supply for 125 VDC Vital I&C panelboards 1DIC and 1DID, a single failure of a battery (or its associated equipment) could cause loss of both panelboards, so that required automatic EPSL functions for all three units may not be supported. These panelboards provide primary and backup control power for the SK and SL breaker control power, standby bus protective relaying, standby breaker control power and retransfer to startup logic. Therefore, within 24 hours after such a condition arises, affected equipment shall be restored and aligned such that no single source is the only battery power supply for both DC panelboards 1DIC and 1DID.

The Completion Time is based on engineering judgement, provides a reasonable time to complete repairs and considers the redundancy available in the 125 VDC Vital I&C DC System.

This Condition is modified by a Note indicating that this ACTION is only applicable to Units 2 and 3. For Unit 1 the appropriate action is specified in ACTION B.

BASES

ACTIONS (continued)

D.1

With one of the required 230 kV switchyard DC power sources inoperable, the remaining source is fully capable of providing adequate voltage to the associated panelboards and is fully capable of powering the necessary panelboards. However, another failure of a DC source or panelboard could result in failure of the overhead emergency power path. In addition, in the event of grid voltage degradation the station and onsite emergency power sources could fail to separate from the grid. Therefore, the inoperable source must be restored to OPERABLE status within 24 hours. Required Action D.1 is modified by a Note indicating that it is not applicable for up to 72 hours to perform an equalization charge after completion of a performance test or service test. This note allows a maximum Completion Time of 96 hours (24 hours for an inoperable battery due to performing a service test plus 72 hours to perform equalization charge).

The Completion Time for this Required Action is based on engineering judgment, taking into consideration the extent of degradation involved, the likelihood of events or failures which could challenge the system, and the time required to complete the required actions.

E.1 and E.2

If the inoperable DC electrical power source cannot be restored to OPERABLE status within the required Completion Time, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to at least MODE 3 within 12 hours and to MODE 5 within 84 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 and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.8.3.1

This Surveillance verifies that the distribution centers are functioning properly, with the correct circuit breaker alignment to the isolating transfer diodes. The correct breaker alignment ensures the appropriate separation and independence is maintained, and the appropriate voltage is available to each required isolating transfer diode. The verification of

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.3.1 (continued)

proper voltage availability on the distribution centers ensures that the required voltage is readily available for isolating transfer diodes connected to these distribution centers. The 7 day Frequency takes into account the redundant capability of the DC electrical power distribution systems, and other indications available in the control room that alert the operator to system malfunctions.

SR 3.8.3.2

Verifying battery terminal voltage while on float charge for the batteries helps to ensure the effectiveness of the charging system and the ability of the batteries to perform their intended function. Float charge is the condition in which the charger is supplying the continuous charge required to overcome the internal losses of a battery (or battery cell) and maintain the battery (or a battery cell) in a fully charged state. The voltage requirements are based on the nominal design voltage of the battery and are consistent with the initial voltages assumed in the battery sizing calculations. The 7 day Frequency is consistent with manufacturer recommendations and IEEE-450 (Ref. 5).

SR 3.8.3.3

Visual inspection of the battery cells, cell plates, and battery racks provides an indication of physical damage or abnormal deterioration that could potentially degrade battery performance. The presence of physical damage or deterioration does not necessarily represent a failure of this SR, provided an evaluation determines that the physical damage or deterioration does not affect the OPERABILITY of the battery (its ability to perform its design function).

The 12 month Frequency for this SR is consistent with IEEE-450 (Ref. 5), which recommends detailed visual inspection of cell condition and rack integrity on a yearly basis.

SR 3.8.3.4

Visual inspection of inter-cell, inter-rack, inter-tier, and terminal connections provide an indication of physical damage or abnormal deterioration that could indicate degraded battery condition. The

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.3.4 (continued)

anticorrosion material is used to help ensure good electrical connections and to reduce terminal deterioration. The visual inspection for corrosion is not intended to require removal of and inspection under each terminal connection.

The Surveillance Frequencies of 12 months are consistent with IEEE-450 (Ref. 5), which recommends cell to cell and terminal connection visual inspection on a yearly basis.

SR 3.8.3.5

A battery service test is a special test of the battery capability, as found, to satisfy the design requirements (battery duty cycle) of the DC electrical power system. The discharge rate and test length should correspond to the design duty cycle requirements as specified in Reference 4.

The Surveillance Frequency of 12 months is consistent with the recommendations of Regulatory Guide 1.32 (Ref. 6) and Regulatory Guide 1.129 (Ref. 7), which state that the battery service test should be performed during refueling operations, or at some other outage, with intervals between tests not to exceed 18 months.

SR 3.8.3.6

This SR requires battery capacity be verified in accordance with the Battery Discharge Testing Program. A battery performance discharge test is a test of constant current capacity of a battery, normally done in the as found condition, after having been in service, to detect any change in the capacity determined by the acceptance test.

The test is intended to determine overall battery degradation due to age and usage.

The Surveillance Frequencies for this test are in accordance with the Battery Discharge Testing Program and are consistent with the recommendations in IEEE-450 (Ref. 5). These periodic frequencies are based on the outcome of the previous battery capacity test.

BASES (continued)

REFERENCES

1. UFSAR, Chapter 6.
2. UFSAR, Chapter 15.
3. 10 CFR 50.36.
4. UFSAR, Chapter 8.
5. IEEE-450-1987.
6. Regulatory Guide 1.32, February 1977.
7. Regulatory Guide 1.129, December 1974.

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.9 Distribution Systems – Shutdown

BASES

BACKGROUND

A description of the AC, DC and AC vital electrical power distribution systems is provided in the Bases for LCO 3.8.8, "Distribution Systems – Operating."

APPLICABLE SAFETY ANALYSES

The initial conditions of accident and transient analyses in the UFSAR, Chapter 6 (Ref. 1) and Chapter 15 (Ref. 2), assume Engineered Safeguards (ES) systems are OPERABLE. The AC, DC, and AC vital electrical power distribution systems are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ES systems so that the fuel, Reactor Coolant System, and containment design limits are not exceeded.

The OPERABILITY of the AC, DC, and AC vital electrical power distribution systems is consistent with the initial assumptions of the accident analyses and the requirements for the supported systems' OPERABILITY.

The OPERABILITY of the minimum AC, DC, and AC vital electrical power distribution systems during MODES 5 and 6, and during movement of irradiated fuel assemblies ensures that:

a. The unit can be maintained in the shutdown or refueling condition for extended periods;

b. Sufficient instrumentation and control capability is available for monitoring and maintaining the unit status; and

c. Adequate power is provided to mitigate events postulated during shutdown, such as a fuel handling accident.

The AC and DC electrical power distribution systems satisfy Criterion 3 of 10 CFR 50.36 (Ref. 3).

BASES (continued)

LCO

Various combinations of portions of systems, equipment, and components are required OPERABLE by other LCOs, depending on the specific plant condition. Implicit in those requirements is the required OPERABILITY of necessary support required features. This LCO explicitly requires the portions of the electrical distribution system necessary to support OPERABILITY of required systems, equipment, and components – all specifically addressed in each LCO and implicitly required via the definition of OPERABILITY- be energized or available to be energized during a power source transfer.

Maintaining these portions of the distribution system as described above ensures the availability of sufficient power to operate the unit in a safe manner to mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents).

APPLICABILITY

The AC and DC electrical power distribution buses, ES power strings and panelboards required to be OPERABLE in MODES 5 and 6, and during movement of irradiated fuel assemblies, provide assurance that:

a. Systems to provide adequate coolant inventory makeup are available for the irradiated fuel in the core;

b. Systems needed to mitigate a fuel handling accident are available;

c. Systems necessary to mitigate the effects of events that can lead to core damage during shutdown are available; and

d. Instrumentation and control capability is available for monitoring and maintaining the unit in a cold shutdown condition or refueling condition.

The AC, DC, and AC vital electrical power distribution buses, ES power strings and panelboards requirements for MODES 1, 2, 3, and 4 are covered in LCO 3.8.8.

BASES (continued)

ACTIONS

A.1, A.2.1, A.2.2, A.2.3, A.2.4, and A.2.5

Although redundant required equipment may require redundant buses, ES power strings and panelboards of electrical power distribution systems to be OPERABLE, a reduced set of OPERABLE distribution buses, ES power strings and panelboards may be capable of supporting sufficient required features to allow continuation of CORE ALTERATIONS and fuel movement. By allowing the option to declare required equipment associated with an inoperable distribution buses, ES power strings and panelboards inoperable, appropriate restrictions are implemented in accordance with the affected distribution buses, ES power strings and panelboards LCO's Required Actions. In many instances, this option may involve undesired administrative efforts. Therefore, the allowance for sufficiently conservative actions is made (i.e., to suspend CORE ALTERATIONS, movement of irradiated fuel assemblies, and operations involving positive reactivity additions).

Suspension of these activities does not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability of the occurrence of postulated events. It is further required to immediately initiate action to restore the required AC and DC electrical power distribution buses, ES power strings and panelboards and to continue this action until restoration is accomplished in order to provide the necessary power to the unit safety systems.

Notwithstanding performance of the above conservative Required Actions, a required decay heat removal (DHR) subsystem may be inoperable. In this case, Required Actions A.2.1 through A.2.4 do not adequately address the concerns relating to coolant circulation and heat removal. Pursuant to LCO 3.0.6, the DHR ACTIONS would not be entered. Therefore, Required Action A.2.5 is provided to direct declaring DHR inoperable, which results in taking the appropriate DHR actions.

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required distribution buses, ES power strings and panelboards should be completed as quickly as possible in order to minimize the time the unit safety systems may be without power.

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.9.1

This Surveillance verifies that the required main feeder buses are functioning properly, with all the required main feeder buses energized. The verification of proper voltage availability on the buses, ES power strings and panelboards ensures that the required power is readily available for motive as well as control functions for critical system loads connected to these buses. The 7 day Frequency takes into account the capability of the electrical power distribution buses, ES power strings and panelboards, and other indications available in the control room that alert the operator to system malfunctions.

SR 3.8.9.2

This Surveillance verifies that the required AC, DC, and AC vital electrical power distribution systems are functioning properly, with the correct circuit breaker alignment. The correct breaker alignment ensures the appropriate separation and independence is maintained, and the appropriate voltage is available to each ES power strings and panelboards. The verification of voltage availability on the ES power strings, and panelboards ensures that voltage is readily available for motive as well as control functions for critical system loads connected to the ES power strings, and panelboards. Verification of voltage availability may be accomplished by observing alarm conditions, status lights or by confirming proper operation of a component supplied from each ES power string or panelboard. The 7 day Frequency takes into account the redundant capability of the AC, DC, and AC vital electrical power distribution systems, and other indications available in the control room that alert the operator to system malfunctions.

REFERENCES

1. UFSAR, Chapter 6.
2. UFSAR, Chapter 14.
3. 10 CFR 50.36.

Attachment 2

BASES (continued)

APPLICABLE SAFETY ANALYSES

The EPSL Degraded Grid Voltage Protection function is required to ensure adequate voltage is available during an ES actuation when system grid voltages are not adequate (Ref. 1). Based on calculations, ~~219~~ 225.887 kV is the minimum switchyard voltage that will ensure proper operation of loads during ES actuation.

The EPSL Degraded Grid Voltage Protection satisfies Criterion 3 of 10 CFR 50.36 (Ref. 2).

LCO

Three degraded grid voltage sensing relay channels are required to be OPERABLE. Failure of one channel reduces the reliability of the function. The requirement for three channels to be OPERABLE ensures that two channels will remain OPERABLE if a failure has occurred in one channel. The remaining channels can perform the safety function.

Two channels of the Degraded Grid Voltage Protection Actuation Logic function are required to be OPERABLE. The switchyard isolation circuit is considered a part of this logic channel. Therefore, if a switchyard isolation channel is inoperable, then one DGVP actuation channel is inoperable. The requirement for two channels to be OPERABLE ensures that one channel will remain OPERABLE if a failure has occurred in one channel. The remaining channel can perform the safety function.

APPLICABILITY

The DGPS functions are required to be OPERABLE in MODES 1, 2, 3, and 4 to ensure that power is provided from AC Sources to the AC Distribution system within the time assumed in the accident analyses.

The EPSL DGVP functions are not required to be OPERABLE in MODES 5 and 6 since more time is available for the operator to respond to a loss of power event.

ACTIONS

The ACTIONS are modified by a Note indicating that the Completion Times for Required Actions A and B are reduced when in Condition L of LCO 3.8.1. Condition L limits the Completion Time for restoring inoperable channels to 4 hours when emergency power source(s) or offsite power source(s) are inoperable for extended time periods or for specific reasons.

BASES (continued)

APPLICABLE SAFETY ANALYSES

The initial conditions of accident and transient analyses in the UFSAR, Chapter 6 (Ref. 1) and Chapter 15 (Ref. 2), assume that Engineered Safeguards (ES) systems are OPERABLE. The 125 VDC Vital I&C electrical power system provides normal and emergency DC electrical power for the emergency auxiliaries, and control and switching during all MODES of operation.

The 230 kV switchyard 125 VDC Power System provides control power for circuit breaker operation in the 230 kV switchyard as well as DC power for degraded grid voltage protection circuits during all MODES of operation.

The OPERABILITY of the DC sources is consistent with the initial assumptions of the accident analyses and is based upon meeting the design basis of the unit. This includes maintaining the DC sources OPERABLE during accident conditions in the event of:

a. An assumed loss of all offsite AC power or all onsite AC power; and

b. A worst-case single failure.

The DC sources satisfy Criterion 3 of 10 CFR 50.36 (Ref. 3).

LCO

Each required 125 VDC electrical source consisting of one battery, associated battery charger, distribution center and the corresponding control equipment and interconnecting cabling supplying power to the ~~associated panelboards is required to be~~ OPERABLE to ensure the availability of the required power to shut down the reactor and maintain it in a safe condition after an anticipated transient or an accident. ~~A~~ The battery chargers are OPERABLE when they are energized or ~~capable of~~ available to ~~being automatically~~ energized during a power source transfer. For operation of any Oconee unit, three of four 125 VDC Vital I&C Sources ~~capable of supplying~~ the unit's DC distribution system shall be OPERABLE as follows:

Unit 1: 1CA, 1CB, 2CA, 2CB
Unit 2: 2CA, 2CB, 3CA, 3CB
Unit 3: 3CA, 3CB, 1CA, 1CB

and aligned to at least one panelboard provided that a power source is not the only source for two or more of the Unit's panelboards. The three of four requirement ensures that a single failure will not result in a loss of

BASES (continued)

LCO

Various combinations of portions of systems, equipment, and components are required OPERABLE by other LCOs, depending on the specific plant condition. Implicit in those requirements is the required OPERABILITY of necessary support required features. This LCO explicitly requires ~~energization of~~ the portions of the electrical distribution system ~~necessary to support~~ OPERABILITY of required systems, equipment, and components – all specifically addressed in each LCO and implicitly required via the definition of OPERABILITY ~~–~~ be energized or available to be ~~automatically~~ energized ~~by control logic~~ during a power source transfer.

Maintaining these portions of the distribution system ~~energized~~ ensures the availability of sufficient power to operate the unit in a safe ~~manner~~ to (as described above) mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents).

APPLICABILITY

The AC and DC electrical power distribution buses, ES power strings and panelboards required to be OPERABLE in MODES 5 and 6, and during movement of irradiated fuel assemblies, provide assurance that:

a. Systems to provide adequate coolant inventory makeup are available for the irradiated fuel in the core;

b. Systems needed to mitigate a fuel handling accident are available;

c. Systems necessary to mitigate the effects of events that can lead to core damage during shutdown are available; and

d. Instrumentation and control capability is available for monitoring and maintaining the unit in a cold shutdown condition or refueling condition.

The AC, DC, and AC vital electrical power distribution buses, ES power strings and panelboards requirements for MODES 1, 2, 3, and 4 are covered in LCO 3.8.8.