Florida Power
A Progress Energy Company

Crystal River Nuclear Plant
Docket No. 50-302
Operating License No. DPR-72

Ref: 10 CFR 50.90

February 21, 2001
3F0201-04

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Subject: License Amendment Request #265, Revision 0
Emergency Diesel Generator Loss of Power Start

Dear Sir:

Florida Power Corporation (FPC) hereby submits License Amendment Request (LAR) #265, Revision 0 to the Crystal River Unit 3 (CR-3) Facility Operating License No. DPR-72 in accordance with 10 CFR 50.90. The changes to Improved Technical Specifications (ITS) 3.3.8, "Emergency Diesel Generator (EDG) Loss of Power Start (LOPS)," proposed by LAR #265 clarify the actions to be taken in the event that one or more channels of loss of voltage or degraded voltage EDG start functions become inoperable.

CR-3 has reviewed the guidance provided in NRC Administrative letter 98-10, "Dispositioning of Technical Specifications That Are Insufficient to Assure Plant Safety," and has determined that the requested ITS change is not required for continued operation of CR-3. No specific NRC approval date for LAR #265 is requested. However, implementation is requested within 60 days of the effective date of the amendment.

This letter establishes no new regulatory commitments.

If you have any questions regarding this submittal, please contact Mr. Sid Powell, Supervisor, Licensing and Regulatory Programs at (352) 563-4883.

Sincerely,

Dale E Young

Dale E. Young
Vice President, Crystal River Nuclear Plant

DEY/jal

Attachment(s):

A. Description of Proposed Changes, Background, Reason for Request, and Evaluation of Request
B. No Significant Hazards Consideration Determination

A001

C. Environmental Impact Evaluation
D. Proposed Revised Improved Technical Specifications and Bases Change Pages - Strikeout / Shadow Format
E. Proposed Revised Improved Technical Specifications and Bases Change Pages - Revision Bar Format

xc: NRR Project Manager
Regional Administrator, Region II
Senior Resident Inspector

STATE OF FLORIDA

COUNTY OF CITRUS

Dale E. Young states that he is the Vice President, Crystal River Nuclear Plant for Progress Energy; that he is authorized on the part of said company to sign and file with the Nuclear Regulatory Commission the information attached hereto; and that all such statements made and matters set forth therein are true and correct to the best of his knowledge, information, and belief.

Dale E. Young
Vice President
Crystal River Nuclear Plant

The foregoing document was acknowledged before me this 21 day of February, 2001, by Dale E. Young.

Signature of Notary Public
State of Florida

LISA A. MORRIS
Notary Public, State of Florida
My Comm. Exp. Oct. 25, 2003
Comm. No. CC 879691

LISA A MORRIS

(Print, type, or stamp Commissioned
Name of Notary Public)

Personally Known X -OR- Produced Identification _____

FLORIDA POWER CORPORATION

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50-302 / LICENSE NUMBER DPR-72

ATTACHMENT A

LICENSE AMENDMENT REQUEST #265, REVISION 0
Emergency Diesel Generator Loss of Power Start

Description of Proposed Changes, Background, Reason for Request, and Evaluation of Request

LICENSE AMENDMENT REQUEST NO. 265, REVISION 0
EMERGENCY DIESEL GENERATOR LOSS OF POWER START

Description of Proposed Changes

Crystal River Unit 3 (CR-3) proposes the following revisions to Improved Technical Specifications (ITS) 3.3.8, "Emergency Diesel Generator (EDG) Loss of Power Start (LOPS)."

1. Current Condition A will be changed from "One or more Functions with one channel per EDG inoperable" to "One channel of loss of voltage Function per EDG inoperable." Required Action A.1 will be changed from "Place the channel in trip" to "Restore the channel to OPERABLE status." The required completion time will be changed from "1 hour" to "72 hours."

2. The following new Condition B will be added: "One or two channels of degraded voltage Function per EDG inoperable." The Required Action for Condition B will be "Place the channel(s) in trip," with a Completion Time of "1 hour."

3. Current Condition B will be renumbered as new Condition C and changed from "One or more Functions with two or more channels per EDG inoperable" to "Two or more channels of loss of voltage Function per EDG inoperable or three channels of degraded voltage Function per EDG inoperable." The Required Action will be changed from "Restore all but one channel to OPERABLE status" to "Enter applicable Condition(s) and Required Action for EDG made inoperable by EDG LOPS," and the Completion Time will changed from "1 hour" to "Immediately."

4. Current Condition C will be renumbered as new Condition E and changed from "Required Action and associated Completion Time not met" to "Required Action and associated Completion Time of Condition B not met."

5. The following new Condition D will be added: "Required Action and associated Completion Time of Condition A not met. " The following new Required Action D.1 will be added: "Be in Mode 3, " with a Completion Time of "6 hours." The following new Required Action D.2 will be added: "Be in Mode 5, " with a Completion Time of "12 hours."

6. Bases Section B 3.3.8 will be revised to reflect above listed changes.

A detailed explanation for each of the above changes is provided in subsequent sections of this License Amendment Request (LAR).

Background

The CR-3 emergency diesel generator (EDG) loss of power start (LOPS) functions protect engineered safeguards (ES) equipment from damage due to sustained undervoltage conditions, and ensure rapid restoration of power to the ES buses in the event of a loss of offsite power.

Each ES 4160 volt bus is provided with three loss of voltage channels (one per electrical phase). Each channel consists of a first level undervoltage relay (FLUR) and an associated auxiliary relay. A bus undervoltage condition detected by a FLUR will actuate its associated auxiliary relay after a 7.8 second time delay. Actuation of two-out-of-three auxiliary relays will send a start command to the associated EDG, strip the bus feeder and load breakers (except for running Block 1 loads), and start a 3 second timer for EDG breaker closure. When the EDG reaches rated speed and voltage, and 3 seconds after the bus supply breakers are stripped, the EDG output breaker will close, restoring power to the bus. In the event of an engineered safeguards actuation system (ESAS) actuation coincident with an ES 4160 volt bus undervoltage condition, the FLURs also provide inputs to the block loading circuits in the ESAS automatic actuation logic. Under these conditions, block loading of ES equipment (with the exception of Block 1 loads) on the associated EDG will be prevented until the bus undervoltage condition clears, i.e., until two-out-of-three FLURs reset.

Each ES 4160 volt bus is also provided with three degraded voltage channels (one per electrical phase). Each degraded voltage channel consists of a second level undervoltage relay (SLUR) and an associated initiate time relay. A degraded voltage condition (ES bus voltage less than setpoint for 5 seconds) detected by three-out-of-three SLURs will send a start command to the associated EDG. If the degraded voltage condition persists for an additional 13 seconds, the affected bus feeder and supply breakers will be stripped (except for running Block 1 loads) and a 3 second timer for EDG breaker closure will start. When the EDG reaches rated speed and voltage, and 3 seconds after the bus supply breakers are stripped, the EDG output breaker will close, restoring power to the bus.

Requirements for EDG loss of power start capability have been included in the CR-3 Technical Specifications (TS) since their issuance in 1976. TS 3.8.1.1, "AC Sources Operating," and TS 3.8.1.2, "AC Sources Shutdown," included requirements for verifying the operability of EDG automatic start functions on a loss of offsite power, but did not include requirements for EDG automatic start functions on a degraded voltage condition. In 1977, CR-3 submitted Technical Specification Change Request #6, which proposed adding EDG undervoltage and degraded voltage start functions to TS 3.3.2.1, "Engineered Safety Feature Actuation System." The proposed changes were intended to reflect the requirements for EDG loss of power start functions contained in NUREG-0103, "Standard Technical Specifications for Babcock and Wilcox Pressurized Water Reactors." In response to concerns raised by the NRC regarding the proposed changes, FPC submitted Revision 1 to Technical Specification Change Request #6 in May 1985 and Revision 2 in December 1987. Due to an inability to resolve ongoing technical issues related to the submittal, FPC withdrew Technical Specification Change Request #6 in March 1989, and committed to incorporate staff guidance pertaining to undervoltage protection in the CR-3 Technical Specifications as part of the Technical Specification Improvement Program. This commitment was satisfied by the issuance of License Amendment No. 149 in 1993, which included the current Improved ITS 3.3.8, "Emergency Diesel Generator (EDG) Loss of Power Start (LOPS)." The current ITS 3.3.8 provides the identical guidance contained in NUREG-1430, "Standard Technical Specifications: Babcock and Wilcox Plants."

Reason For Request

In implementing the guidance for the emergency diesel generator loss of power start provided in NUREG-1430, FPC did not fully consider the CR-3-specific configuration of the undervoltage

and degraded voltage actuation logic, or the interaction of the FLURs with the ESAS automatic actuation logic. As a result, the guidance in the current ITS 3.3.8 is not appropriate for all situations involving inoperable degraded voltage and undervoltage start functions. The changes to ITS 3.3.8 proposed by LAR #265 will ensure that actions based on the CR-3 specific loss of power start circuits are taken in the event that one or more channels of degraded or undervoltage start functions become inoperable.

Evaluation of Request

The current ITS 3.3.8 Condition A addresses the actions to be taken in the event that a single channel of undervoltage or degraded voltage Function becomes inoperable. The use of the same Required Action and Completion time for inoperability of either loss of power start Function is identical to the guidance provided in NUREG-1430, which is based on the assumption that both the undervoltage and degraded voltage Functions have the same actuation logic. At CR-3, the undervoltage Function employs a two-out-of-three actuation logic, and the degraded voltage Function employs a three-out-of-three actuation logic; therefore, the loss of a single channel of undervoltage Function results in a loss of redundancy, while the loss of one or more channels of degraded voltage Function results in a loss of the Function. This being the case, it is more appropriate to address each of the loss of power start Functions using separate Conditions with Required Actions and Completions times based on the specific Function that is inoperable.

The Required Action for current Condition A is to trip the inoperable undervoltage or degraded voltage channel. At CR-3, this is accomplished by the installation of a jumper that maintains the associated FLUR or SLUR in a tripped condition until the jumper is removed. Although this Action is appropriate for an inoperable degraded voltage channel, it does not take into account the interaction between the FLURs and the ESAS automatic actuation logic. As discussed above, the FLURs provide inputs to both the EDG LOPS and the ESAS block loading circuits. With two-out-of-three FLURs tripped, an automatic start signal is generated for the associated EDG. With an ES actuation signal present, two-out-of-three FLURs must reset in order to allow block loading of ES equipment on the EDG. Thus, placing a FLUR in a tripped (jumpered) condition would result in a loss of redundancy for the associated channel of ESAS actuation logic, and entry into ITS 3.3.7, "ESAS Automatic Actuation Logic," Condition A would be required. As an alternative to performing ITS 3.3.8 Required Action A, the associated EDG may be declared inoperable and either ITS 3.8.1 or ITS 3.8.2 entered based on existing plant conditions (Mode). Current CR-3 procedural guidance directs exercising this latter option if a channel of undervoltage Function becomes inoperable.

The changes proposed by LAR #265 address the concerns discussed above by providing revised Conditions and Actions that consider the CR-3 specific design of the undervoltage and degraded voltage Functions and the interaction of the FLURs with both the EDG LOPS and the ES automatic actuation system. Proposed ITS 3.3.8 Condition A specifies the Action to be taken in the event of one inoperable channel of undervoltage Function per EDG. Under this condition, the channel must be restored to OPERABLE status within 72 hours. Deletion of the current Required Action to trip the inoperable undervoltage channel eliminates the need to enter ITS 3.3.7 as discussed above. The Required Action and Completion Time for proposed Condition A are consistent with other technical specification Action and Completion Times involving a loss of redundancy.

Proposed ITS 3.3.8 Condition B specifies the action to be taken in the event of one or two inoperable channels of degraded voltage Function per EDG. Under this condition, which represents a loss of the Function, the inoperable channels must be tripped within one hour or the associated EDG declared inoperable. Unlike the undervoltage Function, the degraded voltage Function does not provide inputs to the block loading circuits. Therefore, tripping of up to two channels of degraded voltage Function will not effect the operability of the ESAS automatic actuation logic, and will not cause an EDG LOPS actuation due to the three-out-of-three actuation logic of this Function.

Proposed Condition C specifies actions to be taken in the event of inoperable undervoltage or degraded voltage channels in excess of the number specified in proposed Condition A or B. Under this condition, which represents a loss of the affected Function, tripping of the inoperable channels is not an available Action, since doing so would result in an EDG actuation. In addition, the repair/restoration of multiple failed channels would be unlikely within an acceptable time frame for addressing a condition representing a loss of the affected Function. Therefore, proposed Condition C requires that the EDG(s) associated with the inoperable channels be declared inoperable and the applicable Condition(s) and Required Action of ITS 3.8.1 or 3.8.2 be entered immediately.

If the Required Action and Completion Time of proposed Condition A are not met, proposed Condition D requires the plant to be placed in a Mode or condition in which the EDG undervoltage start Function is not required to be OPERABLE. To achieve this status, the plant must be placed in Mode 3 in 6 hours and Mode 5 in 12 hours.

Proposed Condition E provides the same guidance contained in current Condition C. In the event that the Required Actions or Completion Times of Condition A or B are not met, the associated EDG must be declared inoperable immediately, and either ITS 3.8.1 or ITS 3.8.2 entered as applicable.

FLORIDA POWER CORPORATION

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50-302 / LICENSE NUMBER DPR-72

ATTACHMENT B

LICENSE AMENDMENT REQUEST #265, REVISION 0
Emergency Diesel Generator Loss of Power Start

No Significant Hazards Consideration Determination

NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

This license amendment proposes the following revisions to Improved Technical Specifications (ITS) 3.3.8, "Emergency Diesel Generator (EDG) Loss of Power Start (LOPS)."

1. Current Condition A will be changed from "One or more Functions with one channel per EDG inoperable" to "One channel of loss of voltage Function per EDG inoperable." Required Action A.1 will be changed from "Place the channel in trip" to "Restore the channel to OPERABLE status" and the required Completion Time will be changed from "1 hour" to "72 hours."

2. The following new Condition B will be added: "One or two channels of degraded voltage Function per EDG inoperable." The Required Action for Condition B will be "Place the channel(s) in trip," with a Completion Time of "1 hour."

3. Current Condition B will be renumbered as new Condition C and changed from "One or more Functions with two or more channels per EDG inoperable" to "Two or more channels of loss of voltage Function per EDG inoperable or three channels of degraded voltage Function per EDG inoperable." The Required Action will be changed from "Restore all but one channel to OPERABLE status" to "Enter applicable Condition(s) and Required Action for EDG made inoperable by EDG LOPS," and the Completion Time will changed from "1 hour" to "Immediately."

4. Current Condition C will be renumbered as new Condition E and changed from "Required Action and associated Completion Time not met" to "Required Action and associated Completion Time of Condition B not met."

5. The following new Condition D will be added: "Required Action and associated Completion Time of Condition A not met. " The following new Required Action D.1 will be added: "Be in Mode 3, " with a Completion Time of "6 hours. " The following new Required Action D.2 will be added: "Be in Mode 5, " with a Completion Time of "12 hours."

6. Bases Section B 3.3.8 will be revised to reflect above listed changes.

Florida Power Corporation (FPC) has reviewed the proposed revisions to ITS 3.3.8 and Bases Section B 3.3.8 against the requirements of 10 CFR 50.92(c). The proposed changes do not involve a significant hazards consideration. In support of this conclusion, the following analysis is provided:

(1) Does not involve a significant increase in the probability or consequences of an accident previously analyzed.

The emergency diesel generator (EDG) loss of power start is not an initiator of any design basis accident. The EDG loss of power start is intended to protect engineered safeguards equipment from damage due to sustained undervoltage conditions, and to ensure rapid restoration of power to the engineered safeguards electrical buses in the event of a loss of offsite power.

The proposed license amendment clarifies the actions to be taken in the event that one or more channels of the undervoltage or degraded voltage start Functions become inoperable. The design functions of the EDG loss of power start and the initial conditions for accidents that require an EDG loss of power start will not be effected by the change. Therefore, the change will not increase the probability or consequences of an accident previously evaluated.

(2) Does not create the possibility of a new or different kind of accident from any accident previously analyzed.

The proposed amendment involves no changes to the design or operation of the EDG loss of power start. The proposed changes will ensure that the EDGs and engineered safeguards actuation system (ESAS) automatic initiation logic perform as assumed in the safety analysis in the event of a loss of offsite power. The proposed change will not affect other EDG or ESAS functions, and will not create any new plant configurations. Therefore, the proposed change will not create the possibility of a new or different kind of accident from any accident previously evaluated

(3) Does not involve a significant reduction in the margin of safety.

The proposed amendment clarifies the actions to be taken in the event one or more undervoltage or degraded voltage start Functions become inoperable. The proposed changes ensure appropriate actions are taken to restore the operability of the EDG loss of power start under these conditions. Thus, the proposed amendment will not result in a reduction in the margin of safety.

FLORIDA POWER CORPORATION

CRYSTAL RIVER UNIT 3

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ATTACHMENT C

LICENSE AMENDMENT REQUEST #265, REVISION 0
Emergency Diesel Generator Loss of Power Start

Environmental Impact Evaluation

ENVIRONMENTAL IMPACT EVALUATION

10 CFR 51.22(c)(9) provides criteria for and identification of licensing and regulatory actions eligible for categorical exclusion from performing an environmental assessment. A proposed amendment to an operating license for a facility requires no environmental assessment if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant hazards consideration, (2) result in a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (3) result in a significant increase in individual or cumulative occupational radiation exposure.

FPC has reviewed this License Amendment Request (LAR) and has determined that it meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(c), no environmental impact statement or environmental assessment needs to be prepared in connection with the issuance of the proposed license amendment. The basis for this determination is as follows:

1. The proposed license amendment does not involve a significant hazards consideration as described previously in the no significant hazards evaluation for this LAR.

2. The proposed changes revise the Conditions, Required Actions and Completion Times for ITS 3.3.8, "Emergency Diesel Generator (EDG) Loss of Power Start (LOPS). " The changes clarify the actions to be taken in the event undervoltage or degraded voltage start Functions become inoperable. The proposed changes also revise Bases Section 3.3.8 to reflect the proposed ITS changes. The emergency diesel generator loss of power start Functions and associated relays do not interface with any plant systems that are involved in the generation or processing of radioactive fluids. Therefore, the proposed license amendment will not result in a significant change in the types or increase in the amounts of any effluents that may be released off-site.

3. The proposed changes involve equipment that does not interface with radiologically contaminated systems. The proposed changes do not require operator or other actions that could increase occupational radiation exposure. Therefore, the proposed license amendment will not result in a significant increase to the individual or cumulative occupational radiation exposure.

FLORIDA POWER CORPORATION

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50-302 / LICENSE NUMBER DPR-72

ATTACHMENT D

LICENSE AMENDMENT REQUEST #265, REVISION 0
Emergency Diesel Generator Loss of Power Start

Proposed Revised Improved Technical Specifications and Bases Change Pages

Strikeout / Shadow Format

~~Strikeout Text~~	Indicates deleted text
Shadowed Text	Indicates added text

3.3 INSTRUMENTATION

3.3.8 Emergency Diesel Generator (EDG) Loss of Power Start (LOPS)

LCO 3.3.8 Three channels of loss of voltage Function and three channels of degraded voltage Function EDG LOPS instrumentation per EDG shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4,
When associated EDG is required to be OPERABLE by LCO 3.8.2 "AC Sources-Shutdown."

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One **channel of loss of voltage** ~~or more~~ Functions ~~with one channel~~ per EDG inoperable.	A.1 **Restore the channel to OPERABLE status.** ~~Place channel in trip.~~	**72** ~~1~~ hour**s**
B. One or **two channels of degraded voltage** ~~more~~ Functions ~~with two or more channels~~ per EDG inoperable.	B.1 **Place the channel(s) in trip.** ~~Restore all but one channel to OPERABLE status.~~	1 hour
C. **Two or more channels of loss of voltage Function per EDG inoperable or three channels of degraded voltage Function per EDG inoperable.** ~~Required Action and associated Completion Time not met.~~	C.1 Enter applicable Condition(s) and Required Action for EDG made inoperable by EDG LOPS.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A not met.	**D.1 Be in Mode 3.** **AND** **D.2 Be in Mode 5.**	**6 hours** **12 hours**
E. Required Action and associated Completion Time of Condition B not met.	**E.1 Enter applicable Condition(s) and Required Action for EDG made inoperable by EDG LOPS.**	**Immediately**

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.8.1	----------NOTE ---------- When EDG LOPS instrumentation is placed in an inoperable status solely for performance of this Surveillance, entry into associated Conditions and Required Actions is not required provided the applicable Conditions(s) and Required Actions for the EDG made inoperable by EDG LOPS are entered. ---------- Perform CHANNEL FUNCTIONAL TEST.	31 days
SR 3.3.8.2	----------NOTE---------- Voltage sensors may be excluded from CHANNEL CALIBRATION. ---------- Perform CHANNEL CALIBRATION with setpoint Allowable Value as follows: a. Degraded voltage ≥ 3933 and ≤ 3970 V with a time delay of 5.0 seconds ± 0.5 seconds; and b. Sudden loss of voltage from full voltage to 0.0 V with a time delay of 7.8 seconds ± 0.55 seconds at 0.0 V.	18 months

BASES

LCO (continued)

FLURs

The FLURs instrumentation associated with each ES 4160 V bus is required to be OPERABLE upon a loss of voltage. For each voltage value, the associated channel response time is based on the physical characteristics of the loss of voltage sensing relays. The loss of voltage channels respond to a complete loss of ES bus voltage, providing automatic starting and loading of the associated EDG. However, their response time is not critical to the overall ES equipment response time following an actuation, since the SLURs instrumentation will also respond to the complete loss of voltage, and will do so earlier than the loss of voltage instrumentation. Upon a complete loss of voltage from full voltage to 0.0V, the loss of voltage relays will respond in 7.8 seconds with a tolerance of 7% or ± 0.55 seconds.

APPLICABILITY

The EDG LOPS actuation Function for each EDG shall be OPERABLE in MODES 1, 2, 3, and 4 to provide protection for equipment powered from the Class 1E AC Electrical Power Distribution System in these MODES. The ability to start the EDG on a degraded or loss of voltage condition is also required for the EDG required to be OPERABLE by LCO 3.8.2, "AC Sources-Shutdown."

ACTIONS

A Note has been added to the ACTIONS indicating that separate Condition entry is allowed for each Function. Since the required channels are specified on a per EDG basis, the Condition may be entered separately for each EDG.

A.1

A loss of one channel of loss of voltage (FLUR) Function results in a loss of redundancy for that Function, e.g., the two remaining operable channels are still capable of providing an EDG start signal assuming no additional single failures. With one channel of loss of voltage Function inoperable, the channel must be restored to OPERABLE status within 72 hours. The 72 hour Completion Time is reasonable to evaluate and take action to correct the degraded condition in an orderly manner, and is consistent with the allowed outage time for a loss of redundancy condition for other safety systems.

(continued)

BASES

ACTIONS

~~A.1 (continued)~~

~~If one channel per EDG in one or more Functions is inoperable, it must be tripped within 1 hour. Since there is no installed trip for the relays, a more liberal reading of the requirements is that the function of the relay must be accomplished and maintained. This involves jumpering the relay or taking other action such that the function is accomplished. With a FLUR channel in trip, the channel is configured in a one-out-of-two logic to initiate an EDG start on loss of offsite power. In trip, one additionalvalid actuation will cause a start of the associated EDG. With a SLUR channel in trip, the Function is configured in a two-out-of-two logic. This configuration precludes the possibility of a single failure initiating the protective function. The I hour Completion Time is reasonable to evaluate and to take action by correcting a degraded condition in an orderly manner and takes into account the low probability of an event requiring this instrumentation occurring during this interval.~~

B.1

~~Condition B applies when two or more undervoltage or two or more degraded voltage channels associated with a single ES 4160 V bus are inoperable.~~

~~Required Action B.1 requires all but one inoperable channel to be restored to OPERABLE status within 1 hour. With two or more FLUR channels inoperable, the logic is not capable of providing an automatic EDG LOPS signal for valid loss of voltage or degraded voltage conditions. Alternately, both channels cannot be placed in the trip condition at the same time or an EDG start would occur. With two SLUR channels inoperable, the channels could be placed in trip and an actuation could not occur (configuration would become one-out-of-one). However, the potential for spurious failure to cause an actuation necessitates action be taken.~~ **A loss of one or more channels of degraded voltage (SLUR) Function results in a loss of safety Function. With up to two channels of degraded voltage Function (SLUR) per EDG inoperable, the channel(s) must be tripped within 1 hour. Since there is no installed trip for the SLUR relays, a more liberal reading of the requirements is that the function of the relay must be accomplished and maintained. This involves jumpering the relay or taking other action such that the function is accomplished.** The 1 hour Completion Time is reasonable to evaluate and ~~to~~ take action ~~by~~ **to** correct**ing** the degraded condition in an orderly manner and takes into account the low probability of an event requiring this instrumentation occurring during this interval.

(continued)

BASES

ACTIONS (continued)

C.1

Condition C applies when two or more undervoltage or all three degraded voltage channels associated with a single ES 4160 V bus are inoperable. ~~is the default Condition should Required ActionA.1 or B.1 not be met within the associated Completion Time.~~

With two or more FLUR channels or three SLUR channels inoperable, the logic is not capable of providing an automatic EDG LOPS signal for valid loss of voltage or degraded voltage conditions. Tripping the inoperable channels is not a viable Action for this Condition since doing so would result in an EDG start. In addition, it is unlikely that repair/restoration of multiple failed channels could be accomplished in an acceptable time frame for a condition representing a loss of the affected Function. Therefore, Required Action C.1 requires that the EDG associated with the inoperable FLUR or SLUR be declared inoperable. ~~Required Action CA ensures that Required Actions for affected diesel generator inoperabilities are initiated.~~ Depending on MODE, the Actions specified in LCO 3.8.1, "AC Sources-Operating," or LCO 3.8.2, are required to be entered immediately.

D.1 and D.2

If the inoperable channel cannot be restored to OPERABLE status within the associated Completion Time, the plant must be placed in a MODE in which the LCO does not apply. To achieve this status, the plant must be placed in at least MODE 3 within 6 hours and in MODE 5 within 12 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required MODES from full power conditions in an orderly manner and without challenging plant systems.

E.1

Condition E is the default Condition should Required Action A.1 or B.1 not be met within the associated Completion Time.

Required Action E.1 ensures that Required Actions for affected diesel generator inoperabilities are initiated. Depending on MODE, the Actions specified in LCO 3.8.1, "AC Sources-Operating," or LCO 3.8.2, are required to be entered immediately.

SURVEILLANCE REQUIREMENTS

SR 3.3.8.1

A CHANNEL FUNCTIONAL TEST is performed on each required EDG LOPS channel to ensure the entire channel will perform the intended function. This test ensures functionality of each channel to output relays.

The Frequency of 31 days is considered reasonable based on the reliability of the components and on operating experience.

A Note has been added to allow performance of the SR without taking the ACTIONS for inoperable instrumentation channels although during this time period the relay instrumentation cannot initiate a diesel start. This allowance is based on the assumption that the EDG is maintained inoperable during this functional test and the appropriate actions for the inoperable EDG are entered.

(continued)

FLORIDA POWER CORPORATION

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50-302 / LICENSE NUMBER DPR-72

ATTACHMENT E

LICENSE AMENDMENT REQUEST #265, REVISION 0
Emergency Diesel Generator Loss of Power Start

Proposed Revised Improved Technical Specifications and Bases Change Pages

Revision Bar Format

3.4 INSTRUMENTATION

3.3.8 Emergency Diesel Generator (EDG) Loss of Power Start (LOPS)

LCO 3.3.8 Three channels of loss of voltage Function and three channels of degraded voltage Function EDG LOPS instrumentation per EDG shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4,
When associated EDG is required to be OPERABLE by LCO 3.8.2 "AC Sources-Shutdown."

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One channel of loss of voltage Function per EDG inoperable.	A.1 Restore the channel to OPERABLE status.	72 hours
B. One or two channels of degraded voltage Function per EDG inoperable.	B.1 Place the channel(s) in trip.	1 hour
C. Two or more channels of loss of voltage Function per EDG inoperable or three channels of degraded voltage Function per EDG inoperable.	C.1 Enter applicable Condition(s) and Required Action for EDG made inoperable by EDG LOPS.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A not met.	D.1 Be in Mode 3. AND D.2 Be in Mode 5.	6 hours 12 hours
E. Required Action and associated Completion Time of Condition B not met.	E.1 Enter applicable Condition(s) and Required Action for EDG made inoperable by EDG LOPS.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.8.1	----------NOTE ---------- When EDG LOPS instrumentation is placed in an inoperable status solely for performance of this Surveillance, entry into associated Conditions and Required Actions is not required provided the applicable Conditions(s) and Required Actions for the EDG made inoperable by EDG LOPS are entered. ---------- Perform CHANNEL FUNCTIONAL TEST.	31 days
SR 3.3.8.2	----------NOTE---------- Voltage sensors may be excluded from CHANNEL CALIBRATION. ---------- Perform CHANNEL CALIBRATION with setpoint Allowable Value as follows: a. Degraded voltage ≥ 3933 and ≤ 3970 V with a time delay of 5.0 seconds ± 0.5 seconds; and b. Sudden loss of voltage from full voltage to 0.0 V with a time delay of 7.8 seconds ± 0.55 seconds at 0.0 V.	18 months

BASES

LCO (continued)

FLURs

The FLURs instrumentation associated with each ES 4160 V bus is required to be OPERABLE upon a loss of voltage. For each voltage value, the associated channel response time is based on the physical characteristics of the loss of voltage sensing relays. The loss of voltage channels respond to a complete loss of ES bus voltage, providing automatic starting and loading of the associated EDG. However, their response time is not critical to the overall ES equipment response time following an actuation, since the SLURs instrumentation will also respond to the complete loss of voltage, and will do so earlier than the loss of voltage instrumentation. Upon a complete loss of voltage from full voltage to 0.0V, the loss of voltage relays will respond in 7.8 seconds with a tolerance of 7% or ± 0.55 seconds.

APPLICABILITY

The EDG LOPS actuation Function for each EDG shall be OPERABLE in MODES 1, 2, 3, and 4 to provide protection for equipment powered from the Class 1E AC Electrical Power Distribution System in these MODES. The ability to start the EDG on a degraded or loss of voltage condition is also required for the EDG required to be OPERABLE by LCO 3.8.2, "AC Sources-Shutdown."

ACTIONS

A Note has been added to the ACTIONS indicating that separate Condition entry is allowed for each Function. Since the required channels are specified on a per EDG basis, the Condition may be entered separately for each EDG.

A.1

A loss of one channel of loss of voltage (FLUR) Function results in a loss of redundancy for that Function, e.g., the two remaining operable channels are still capable of providing an EDG start signal assuming no additional single failures. With one channel of loss of voltage Function inoperable, the channel must be restored to OPERABLE status within 72 hours. The 72 hour Completion Time is reasonable to evaluate and take action to correct the degraded condition in an orderly manner, and is consistent with the allowed outage time for a loss of redundancy condition for other safety systems.

(continued)

BASES

ACTIONS

B.1

A loss of one or more channels of degraded voltage (SLUR) Function results in a loss of safety Function. With up to two channels of degraded voltage Function (SLUR) per EDG inoperable, the channel(s) must be tripped within 1 hour. Since there is no installed trip for the SLUR relays, a more liberal reading of the requirements is that the function of the relay must be accomplished and maintained. This involves jumpering the relay or taking other action such that the function is accomplished. The 1 hour Completion Time is reasonable to evaluate and take action to correct the degraded condition in an orderly manner and takes into account the low probability of an event requiring this instrumentation occurring during this interval.

C.1

Condition C applies when two or more undervoltage or all three degraded voltage channels associated with a single ES 4160 V bus are operable.

With two or more FLUR channels or three SLUR channels inoperable, the logic is not capable of providing an automatic EDG LOPS signal for valid loss of voltage or degraded voltage conditions. Tripping the inoperable channels is not a viable Action for this Condition since doing so would result in an EDG start. In addition, it is unlikely that repair/restoration of multiple failed channels could be accomplished in an acceptable time frame for a condition representing a loss of the affected Function. Therefore, Required Action C.1 requires that the EDG associated with the inoperable FLUR or SLUR be declared inoperable. Depending on MODE, the Actions specified in LCO 3.8.1, "AC Sources-Operating," or LCO 3.8.2, are required to be entered immediately.

(continued)

BASES

ACTIONS (continued)

D.1 and D.2

If the inoperable channel cannot be restored to OPERABLE status within the associated Completion Time, the plant must be placed in a MODE in which the LCO does not apply. To achieve this status, the plant must be placed in at least MODE 3 within 6 hours and in MODE 5 within 12 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required MODES from full power conditions in an orderly manner and without challenging plant systems.

E.1

Condition E is the default Condition should Required Action A.1 or B.1 not be met within the associated Completion Time.

Required Action E.1 ensures that Required Actions for affected diesel generator inoperabilities are initiated. Depending on MODE, the Actions specified in LCO 3.8.1, "AC Sources-Operating," or LCO 3.8.2, are required to be entered immediately.

SURVEILLANCE REQUIREMENTS

SR 3.3.8.1

A CHANNEL FUNCTIONAL TEST is performed on each required EDG LOPS channel to ensure the entire channel will perform the intended function. This test ensures functionality of each channel to output relays.

The Frequency of 31 days is considered reasonable based on the reliability of the components and on operating experience.

A Note has been added to allow performance of the SR without taking the ACTIONS for inoperable instrumentation channels although during this time period the relay instrumentation cannot initiate a diesel start. This allowance is based on the assumption that the EDG is maintained inoperable during this functional test and the appropriate actions for the inoperable EDG are entered.

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