Progress Energy

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

Ref: ITS 5.6.2.17

April 30, 2007
3F0407-06

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

Subject: Crystal River Unit 3 – 2006 Technical Specifications Bases Control Program

Dear Sir:

As required by ITS 5.6.2.17, Florida Power Corporation (FPC), doing business as Progress Energy Florida, Inc., hereby submits the changes that were made to the Crystal River Unit 3 (CR-3) Improved Technical Specifications (ITS) Bases as required by ITS 5.6.2.17. The attachments provide revisions to the CR-3 ITS Bases that will update NRC copies of the CR-3 ITS.

Attachment A provides the instructions for updating the CR-3 ITS Bases. Attachment B provides the CR-3 ITS and Bases Lists of Effective Pages. Attachment C provides the replacement pages for the CR-3 ITS Bases.

If you have any questions regarding this submittal, please contact me at (352) 563-4796.

Sincerely,

for Paul E. Infanger
Supervisor
Licensing & Regulatory Programs

PEI/ff

Attachments:
- A. Instructions for Updating the Crystal River Unit 3 ITS Bases
- B. CR-3 ITS and Bases Lists of Effective Pages
- C. Replacement CR-3 ITS Bases Pages

xc: Regional Administrator, Region II (w/o Attachment C)
Senior Resident Inspector (w/o Attachment C)
NRR Project Manager (w/o Attachment C)

Progress Energy Florida, Inc.
Crystal River Nuclear Plant
15760 W. Power Line Street
Crystal River, FL 34428

A001

PROGRESS ENERGY FLORIDA, INC.

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50-302/LICENSE NUMBER DPR-72

ATTACHMENT A

INSTRUCTIONS FOR UPDATING

THE CRYSTAL RIVER UNIT 3 ITS BASES

INSTRUCTIONS FOR UPDATING
THE CRYSTAL RIVER UNIT 3
IMPROVED TECHNICAL SPECIFICATIONS

4/30/07

Page(s) to be Removed		Page(s) to be Added	
Page(s)	Revision	Pages(s)	Revision
ITS LOEPages (1-5)	4/10/06	ITS LOEPages (1-4)	12/06/06
ITS Bases LOEPages (1-8)	4/10/06	ITS Bases LOEPages (1-8)	12/06/06
B 3.7-37 / B 3.7-38	149 / 24	B 3.7-37 / B 3.7-38	62 / 62
B 3.7-39 / B 3.7-40	24 / 22	B 3.7-39 / B 3.7-40	24 / 22
B 3.8-30 / B 3.8-31	60 / 182	B 3.8-30 / B 3.8-31	63 / 63
B 3.8-32 / B 3.8-33	55 / 37	B 3.8-32 / B 3.8-33	63 / 63

PROGRESS ENERGY FLORIDA, INC.

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50-302/LICENSE NUMBER DPR-72

ATTACHMENT B

CR-3 ITS AND BASES LISTS OF EFFECTIVE PAGES

IMPROVED TECHNICAL SPECIFICATIONS

List of Effective Pages
(Through Amendment 222 and ITS Bases Revision 63)

Amendment Nos. 159, 164, 166, 171, 173, 181, 189 and 190 amended the CR-3 Operating License, only, and did not effect changes to the ITS LCOs or Bases.

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i	182	3.0-3	149
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PROGRESS ENERGY FLORIDA, INC.

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50-302/LICENSE NUMBER DPR-72

ATTACHMENT C

REPLACEMENT CR-3 ITS BASES PAGES

BASES

APPLICABLE SAFETY ANALYSIS

The SW System provides cooling for components essential for the mitigation of design basis accidents. An ESAS signal will start both emergency SW pumps (each pump is actually two pump assemblies driven by a single motor), transfer cooling of the containment fan assembly cooling coils and fan motors from the CI System to the SW System, and isolate various non-essential loads. The two emergency pumps (100 percent capacity each), in conjunction with adequate heat removal ability by the heat exchangers provide the necessary capability for cooling the motor-driven EFW pump, containment fan assembly cooling coils and fan motors, spent fuel pool, SW and Nuclear Services Seawater System pump motors, and other equipment which must function following an accident.

By supplying the containment fan assembly cooling coils and fan motors following a LOCA, the SW System and the Reactor Building Spray System act in conjunction to ensure the pressure and temperature in containment are maintained less than the design limits. The OPERABILITY of the Reactor Building Spray System is addressed by LCO 3.6.6.

The Nuclear Services Closed Cycle Cooling Water System satisfies Criterion 3 of the NRC Policy Statement.

LCOs

The requirement for OPERABILITY of both emergency SW pumps and adequate heat removal ability by the SW heat exchangers in MODES 1 through 4 provides sufficient capacity to ensure adequate postaccident heat removal, considering a worst case single active failure. Each emergency SW pump is powered from a separate 4160 V ES bus. Each of the two sets of emergency SW pumps is capable of supplying 100 percent of the required system flow. Each heat exchanger is rated at one-third the total required heat transfer rate for both normal and emergency operations with an Ultimate Heat Sink (UHS) temperature of 95°F. Therefore, normal operations will include three of four heat exchangers in service which will allow the fourth heat exchanger to be removed from the system for maintenance (Ref. 2).

APPLICABILITY

In MODES 1, 2, 3, and 4, the SW system is a normally operating system that must be capable of performing its post-accident safety functions, which include providing cooling water to components required for Reactor Coolant System (RCS) and containment heat removal, equipment essential to safely shutdown the plant, and equipment required for adequate spent fuel pool cooling.

(continued)

BASES

APPLICABILITY (continued)

The number of heat exchangers required is based on meeting the design basis heat transfer rate for both normal and emergency operations. With a design basis Ultimate Heat Sink (UHS) temperature of 95°F, three heat exchangers are required to be in service (Ref. 4). Therefore, normal operations will have three of the four heat exchangers in service. Operation with less than three heat exchangers in service per Action A, could only be allowed with an engineering evaluation that ensures the design basis heat transfer rate is available based on the number of heat exchangers, expected debris blocked tubes, and the UHS temperature.

In MODES 5 and 6, the SW System is not required to be OPERABLE due to the limitations on RCS temperature and pressure in these MODES. Additionally, there are no other Technical Specification LCOs supported by SW which are applicable during these plant conditions.

ACTIONS

A.1

If one of the emergency SW pumps is inoperable, action must be taken to restore the affected component(s) to OPERABLE status within 72 hours. The 72 hour Completion Time for restoring full SW System OPERABILITY is consistent with other ECCS Specifications for a loss of redundancy Condition and, has been shown to maintain a suitable limit on risk. As such, this Completion Time is based on engineering judgment and is consistent with industry-accepted practice.

Note: The following is an administrative control per NRC Administrative Letter 98-10. If only two SWHE are OPERABLE, the SW system may not have adequate heat removal ability. If an engineering evaluation demonstrates that adequate heat removal is available based on the number of heat exchangers, expected debris blocked tubes, and the UHS temperature, then the 72 hour ACTION may be utilized. If the evaluation does not demonstrate adequate heat removal, then LCO 3.0.3 applies.

B.1 and B.2

If the inoperable SW component(s) 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 36 hours. The Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.7.7.1

Verifying the correct alignment for manual, power operated, and automatic valves in the SW flow path provides assurance that the proper flow paths exist for SW operation. The isolation of the SW flow to individual components may render these components inoperable, but does not affect the operability of the SW system. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since they are verified to be in the correct position prior to locking, sealing, or securing.

These valves include valves in the main flow paths and the first normally closed valve in a branch line. In lieu of the first normally closed valve in the branch line, credit may be taken for verifying valve position of another valve downstream, providing the isolation of the flow path is achieved. Verifying correct valve alignment of valves immediately downstream of an unsecured valve still assures isolation of the flow path. There are several exceptions for valve position verification due to the low potential for these types of valves to be mispositioned. The valve types which are not verified as part of this SR include vent or drain valves, relief valves, instrumentation valves, check valves and sample line valves. A valve that receives an actuation signal is allowed to be in a non-accident position provided the valve will automatically reposition within the proper stroke time. For a power operated valve to be considered "locked, sealed, or otherwise secured," the component must be electrically and physically restrained. This surveillance does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in their correct position.

The 31 day frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions.

SR 3.7.7.2

This SR verifies proper automatic operation of the SW valves on an actual or simulated actuation signal. The SW System is a normally operating system that cannot be fully actuated as part of routine testing during at-power operation. The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass the Surveillance when performed at the 24 month Frequency. Therefore, the Frequency was considered acceptable from a reliability standpoint.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.7.2 (continued)

The SR is modified by a note indicating the SR is not applicable in the identified MODE. This is necessary in order to make the requirements for automatic system response consistent with those for the actuation instrumentation.

SR 3.7.7.3

This SR verifies proper automatic operation of the SW emergency pumps on an actual or simulated actuation signal. The SW System is a normally operating system that cannot be fully actuated as part of routine testing during at-power operation. The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass the Surveillance when performed at the 24 month Frequency. Therefore, the Frequency was considered acceptable from a reliability standpoint.

The SR is modified by a note indicating the SR is not applicable in the identified MODE. This is necessary in order to make the requirements for automatic system response consistent with those for the actuation instrumentation.

REFERENCES

1. FSAR, Section 9.5.

2. Enhanced Design Basis Document for Nuclear Services Closed Cycle Cooling Water System.

3. FSAR, Section 9.3.

4. Calculation M97-0133, "SW Heat Loads During LBLOCA and SW Temperature Decay Time"

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

BASES

BACKGROUND

Each emergency diesel generator (EDG) is provided with a fuel oil storage tank. The fuel oil storage tanks are connected by a double valved connection which remains closed during normal plant conditions. This requirement ensures EDG separation and independence while providing system operating flexibility for the single engine operating duration. The combined fuel oil capacity of both storage tanks is sufficient to operate one diesel for a period of 7 days while the EDG is supplying the upper limit of its 200-hour rating (Ref. 1). The fuel oil supply is calculated using the assumption that one EDG is available to supply sufficient post accident loads. This onsite fuel oil capacity ensures adequate time is available to replenish the onsite supply from outside sources prior to the diesel running out of fuel.

Fuel oil is transferred from the storage tank to the day tank by either of two transfer pumps associated with each EDG. The pumps and piping are redundant to preclude failure of one pump, or the rupture of any pipe, valve or tank resulting in the loss of more than one EDG. All outside tanks and piping are located underground to preclude consideration of the effects of missiles in their design.

For proper operation of the EDGs, it is necessary to ensure the proper quality of the fuel oil. CR-3 has a Diesel Fuel Oil (DFO) Testing Program which is an overall effort to ensure the quality of the fuel oil. The program includes fuel purchasing, testing of new fuel, and periodic testing of stored fuel oil. Additionally, the program includes water removal and biocide addition to control bacteriological growth, and performance checks of the cathodic protection system for underground storage tanks. CR-3 is not committed to Regulatory Guide 1.137 or ANS 59.51 (ANSI N195), however, these standards were utilized as guidance in the development of the DFO Testing Program.

The EDG lube oil subsystem is designed to provide sufficient lubrication to permit proper operation of its associated EDG under all loading conditions. The system is required to circulate the lube oil to the diesel engine working surfaces and to remove excess heat generated by friction during

(continued)

BASES

BACKGROUND (continued)

operation. The onsite lube oil storage, in addition to that contained in the engine sump, is sufficient to ensure 7 days of one EDG supplying the upper limit of its 200-hour rating. This supply ensures adequate time is available to replenish lube oil from outside sources prior to the EDG running out of lube oil. The stored lube oil supply is common to both trains.

Each EDG has an air start system with adequate capacity for six successive start attempts on the EDG without recharging the air start receivers. A single EDG start is assured with air receiver pressure $\geq$ 150 psig. Additional evaluations have been performed which indicate there is substantial margin included in the single start receiver pressure limit (Ref. 9).

APPLICABLE SAFETY ANALYSES

The initial conditions of Design Basis Accident (DBA) and transient analyses in the FSAR, Chapter 6 (Ref. 4) and Chapter 14 (Ref. 5), assume Engineered Safeguard (ES) systems are OPERABLE. The EDGs are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ES systems so that fuel, Reactor Coolant System, and containment design limits are not exceeded. These limits are discussed in more detail in the Bases for Section 3.2, Power Distribution Limits; Section 3.4, Reactor Coolant System (RCS); and Section 3.6, Containment Systems.

Since diesel fuel oil, lube oil, and the air start subsystem support the operation of the standby AC power sources, they satisfy Criterion 3 of the NRC Policy Statement.

LCO

A sufficient combined stored diesel fuel oil supply is required to be available to ensure the capability to operate a single EDG at the upper limit of its 200-hour rating for 7 days. During an event that requires 7 days operation before replacement fuel oil is obtained, manual reconfiguration of loads and transferring the stored fuel oil supply from one tank to the other may be needed to support operation of the EDG. Diesel fuel oil is also required to meet specific quality standards.

(continued)

BASES

LCO (continued)

A sufficient lube oil supply is maintained to ensure the capability to operate a single EDG at the upper limit of its 200-hour rating for 7 days. EDG lube oil sump level, in conjunction with the on-site supply and the ability to obtain replacement supplies within the required timeframe, supports the availability of EDGs required to shut down the reactor and to maintain it in a safe condition for an anticipated operational occurrence (AOO) or a postulated DBA with loss of offsite power. EDG day tank fuel requirements, as well as transfer capability from the storage tank to the day tank, are addressed in LCO 3.8.1,"AC Sources-Operating," and LCO 3.8.2, "AC Sources-Shutdown."

The starting air system is required to have a minimum capacity for six successive EDG start attempts without recharging the air start receivers. As such, the air start compressors are not addressed as a part of this (or any other) LCO.

APPLICABILITY

The AC sources (LCO 3.8.1 and LCO 3.8.2) are required in order to ensure the availability of the required power to shut down the reactor and maintain it in a safe shutdown condition after an AOO or a postulated DBA. Since stored diesel fuel oil, lube oil, and the starting air subsystem support EDG OPERABILITY, these features are required to be within limits whenever the associated EDG is required to be OPERABLE.

ACTIONS

The ACTIONS are modified by a Note. The Note indicates separate Condition entry is allowed for each EDG. This is acceptable based upon the fact each EDG with its associated diesel fuel oil storage tank is treated as an independent entity for this Specification.

For example, if Diesel Fuel Oil Tank A has particulates not within limits, only EDG A would be in Condition D as its associated diesel fuel oil tank is not within limits. EDG B would remain OPERABLE as its fuel oil tank is unassociated.

(continued)

BASES

ACTIONS (continued)

A.1

With usable fuel oil volume in one or more storage tanks < 22,917 gallons, prompt action must be taken within 1 hour to verify that the combined fuel oil supply > 45,834 gallons. However, the Condition is restricted to fuel oil level reductions that maintain at least a combined 7 day supply. In this Condition, a period of 1 hour is allowed to ensure that sufficient fuel oil supply for 7 days of EDG operation at its upper 200-hour rating is available. In order to maintain the ability to treat the EDG as independent entities for the ACTIONS (from a fuel oil perspective), the fuel oil storage tanks are connected by a double valved connection which remains closed during normal plant conditions. Also, an artificial lower limit on stored fuel oil has been established. The minimum usable volume specified for each tank is equivalent to 3 days operation and was set to ensure a minimum combined 6 day supply.

The limit on combined supply recognizes that while one tank may contain less than 3.5 day supply, the usable volume in the other tank could be such that 7 day capacity still exists.

Verification of the fuel oil volume refers only to ascertaining the value of the total volume of the two fuel oil tanks and does not imply that the tanks must be restored to the ITS limit in one hour. If the verification shows that the combined stored volume is less than 45,834 gallons, Required Action B.1 is applicable and fuel oil level must be restored within 48 hours from the initial time of discovery.

Consistent with the Bases for Surveillance 3.0.1, OPERABILITY is verified by ensuring the associated surveillance(s) has been satisfactorily completed within the required frequency and the equipment is not otherwise known to be inoperable.

B.1

With usable fuel oil volume in one or more storage tanks < 22,917 gallons and combined fuel oil supply < 45,834 gallons, sufficient fuel oil supply for 7 days of EDG operation at its upper 200-hour rating is not available. However, the Condition is restricted to fuel oil level reductions, that maintain at least a combined 6 day supply. In this Condition, a period of 48 hours is allowed prior to declaring the associated EDG inoperable. In order to maintain the ability to treat the EDG as independent entities for the ACTIONS (from a fuel oil perspective), the fuel oil storage tanks are connected by a double valved connection which remains closed during normal plant conditions. Also, an artificial lower limit on stored fuel oil has been established. The minimum usable volume specified for each tank is equivalent to 3 days operation and was set to ensure a minimum combined 6 day supply.

(continued)