

# Florida Power

CORPORATION  
Crystal River Unit 3  
Docket No. 50-302

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December 29, 1994  
NL94-0142

Mr. John C. Hoyle, Acting Secretary  
U. S. Nuclear Regulatory Commission  
Washington, DC 20555-0001  
ATTN: Docketing and Service Branch

Subject: Proposed Rule, Shutdown and Low Power Operations, 10 CFR 50.67

Dear Sir:

This letter provides Florida Power Corporation's (FPC's) comments on the proposed 10 CFR 50.67, Shutdown and Low Power Operations for Nuclear Power Reactors. We are filing these comments because we are concerned over the contents of the proposed rule and the impact the rule will have on how outages are scheduled and conducted. This could significantly affect the ability of nuclear power plants to compete economically with other electric production facilities.

We also want to emphasize the importance of NRC recognition of the initiatives already undertaken by the nuclear industry and the improvements in safety that have resulted. At Crystal River 3, we have made significant improvements in the management of outages. This has resulted in enhanced safety as well as more efficient allocation of resources. The additional requirements imposed by the proposed rule will do little to further enhance outage safety, but will have a significant adverse impact on outage duration.

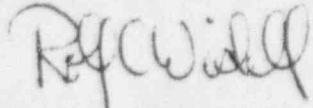
It is inappropriate to impose generically through rulemaking, controls which should be considered on a plant specific basis through Technical Specifications.

We endorse the comments provided by the Nuclear Energy Institute (NEI) as well as the comments submitted by the Babcock & Wilcox Owners Group. Additional comments from FPC and anticipated problems with implementation of the rule at Crystal River 3 are provided in the attachment to this letter. We appreciate

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your consideration of these comments and urge the NRC to reconsider imposition of this rule.

Sincerely,



Rolf C. Widell, Director  
Nuclear Site Support

Attachment

RCW:AEF

xc: Chairman Ivan Selin  
Commissioner Kenneth Rogers  
Commissioner E. Gail de Planque  
J. M. Taylor, Executive Director for Operations  
W. T. Russell, Director, Nuclear Reactor Regulation  
Stewart D. Ebnetter, Regional Administrator, Region II  
Joe Colvin, Executive Vice President, Nuclear Energy Institute

FLORIDA POWER CORPORATION  
COMMENTS ON PROPOSED RULE - 10 CFR 50.67  
SHUTDOWN AND LOW POWER OPERATIONS

### INTRODUCTION

Florida Power Corporation (FPC) is providing these comments on the proposed 10 CFR 50.67, Shutdown and Low Power Operations for Nuclear Power Reactors because of the contents of the proposed rule and the potential negative effects the rule will have on plant safety. The expanded operability requirements during shutdown will discourage preventive maintenance because of the impact on outage duration. Thus, while safety during shutdown operation may be marginally enhanced, this improvement may be gained to the detriment of safety during power operation. We are also concerned about the impact the rule will have on how outages are scheduled and conducted. The requirements for equipment availability and containment integrity will complicate outage scheduling and extend the outage duration.

Efficient scheduling of maintenance and refueling outages is pivotal to maintaining the high capacity factor needed to keep overall costs of nuclear power low. The effect of this rule on outage duration will have a significant impact on the ability of nuclear power plants to compete economically with other electric production facilities.

### COMMENTS ON NRC JUSTIFICATION FOR RULE

FPC has reviewed the special study (AEOD/S93-05, "Operational Data Analysis of Shutdown and Low Power Licensee Event Reports") upon which the rule is based, and the backfit analysis used to justify the rule. We have also reviewed the comments of the Nuclear Energy Institute (NEI) on both SECY 93-190, "Regulatory Approach to Shutdown and Low-Power Operations," and on the proposed rule. We concur with those comments. The NEI has pointed out numerous data discrepancies and overly conservative assumptions in the analyses upon which the rule is based. In addition, these regulatory analyses do not reflect the current level of safety because they do not take into account enhancements made voluntarily by the industry. Because of these deficiencies, both the qualitative and the quantitative analyses used to justify the rule are invalid. The proposed rule includes prescriptive requirements that could not be justified using accurate data or realistic assumptions.

### SPECIFIC COMMENTS ON PROPOSED RULE

#### Section (c)(1)

Section (c)(1) of the proposed rule requires that the licensee "[p]rovide reasonable assurance that uncontrolled changes in reactivity, uncontrolled changes in reactor coolant inventory, and loss of subcooled state ... will not occur..." This requirement is redundant to the requirements that follow. It appears this section is being included as an enforcement tool, so that a utility

may always be cited for being in violation of the rule following an event, because the event occurred. It is impossible have sufficient redundancy and controls to assure absolutely that no undesirable event will ever occur. Yet the occurrence of such an event will summarily place the licensee in violation of the rule, since it can always be contended that more should have been done.

#### Section (c)(2)

Section (c)(2) requires maintenance or reestablishment of containment integrity following a loss of core cooling. Because of the use of the words in other locations (including Technical Specifications), "containment integrity" can only be interpreted to mean the design basis condition of the structure (i.e., capable of withstanding design basis accident pressure with leakage within Technical Specification limits). This is unnecessary for refueling conditions because the potential for energy release within containment is greatly reduced. The proposed requirement would increase costs associated with the movement of equipment into the Reactor Building, and would limit installation of temporary air lines, cables and power necessary to support maintenance activities.

NUMARC 91-06, Guidelines for Industry Actions to Assess Shutdown Management, already defines "containment closure" and provides guidelines for controls to assure it can be achieved. These guidelines have already been implemented at Crystal River 3 (CR-3). Additional requirements are unnecessary.

#### Section (c)(3)(i)(A)

Section (c)(3)(i)(A) of the proposed rule includes the equipment required to make the reactor critical within the scope of the rule. This is inappropriate. This equipment has no effect on shutdown safety, is almost exclusively not redundant and non-safety related, and serves no useful purpose during shutdown operation.

#### Section (c)(3)(ii)

Section (c)(3)(ii) of the proposed rule requires redundant means of accomplishing the required safety functions, because of the requirement to assume a single failure. This provision is the most onerous of the proposed rule and is most limiting on diesel generators and other electrical equipment because it is required support equipment for most of the other equipment, and because of the long maintenance outages needed for the diesel generators.

A review of the as-worked schedule for the refueling outage for CR-3 conducted this year revealed a window of opportunity of 24 days in which redundancy would not have been required under the proposed rule. The actual duration of the combined outage of the two trains of electrical equipment was 42 days. During this period, at least two reliable independent off-site power sources were available, assuring safety was maintained. Had the proposed rule been in effect, it would have resulted in a 18 day extension to the outage duration. Prudent management dictates that a schedule extension of this magnitude could not be allowed to happen. By requiring equipment be available most of the time during the refueling outage, the rule encourages licensees to do less preventive maintenance in order to preclude unacceptable extensions of outage duration.



This could have a negative effect the reliability of the equipment during power operation.

Additionally, any rule to enhance shutdown safety should assess the relative importance of equipment during power operation versus during shutdown operations. The proposed rule offers no relief for allowed outage time on equipment which is relatively unimportant during power operation, but very important during shutdown. The CR-3 probabilistic safety assessment (PSA) shows the probability of needing the Low Pressure Injection System during power operation is 0.003 per reactor year. The probability of needing the Decay Heat Removal System (same equipment) during shutdown operation is 1.0. Yet current Technical Specifications limit outage time on this equipment during power operation such that all major maintenance must be done during shutdown operation, when the equipment is most important to safety. Any changes to reduce risk during shutdown operation should include Technical Specification changes to allow maintenance on the Decay Heat Removal/Low Pressure Injection System during power operation.

The proposed rule allows no credit for off-site power sources. This is overly conservative for most sites. Credit should be allowed for off-site power sources the same as for on-site sources, especially where these sources are not subject loss from a single failure. At CR-3, the off-site power sources can sustain a fault at any location, in combination with the failure of any active component to perform its function, and still not cause the loss of more than one of the off-site power sources. The rule should allow credit for this type of diversity when determining the number of power sources available.

The probability of CR-3 losing off-site power during the reduced inventory period of a refueling outage is approximately  $5.2 \times 10^{-5}$ , while the probability of a single diesel failing to start in response to that event is  $6.1 \times 10^{-3}$ . Put another way, it is approximately 120 times more likely that the diesel will fail to start than it is that off-site power will be lost in the first place.

There are three events in AEOD/S93-05 that occurred at CR-3. Two of these three events are listed as loss of off-site power events. In fact, neither was a complete loss of off-site power. In both events, off-site power was continuously available from another source. The data analysis used to justify the proposed rule has classified loss of the in-service off-site power source the same as a total loss of off-site power. This leads to a significant misrepresentation of grid reliability. Such misinterpretation of events correctly reported by the licensee casts doubt on other data analysis by the agency.

Section (c)(3)(ii) also requires the 5 safety functions be maintained assuming loss of off-site power and a single failure. One of the 5 safety functions is the maintenance or reestablishment of containment integrity. Compliance with this portion of the rule is not possible during periods when the equipment hatch has been removed. The equipment hatch is not redundant and there are numerous credible failures which could be postulated which would prevent reestablishment of containment integrity "in a timely manner" as required by the proposed rule. Limiting removal of the equipment hatch to periods when the requirement is not applicable would have a significant impact on the outage duration. FPC would be

compelled to seek legal relief (i.e., request a permanent exemption) from this provision of the proposed requirement.

Also, we must presume that "single failure" really means "single active failure," consistent with the licensing basis for CR-3. If the requirement were to be expanded to include passive failures, numerous additional legal remedies would have to be sought.

The most significant flaw in this section of the proposed rule is the regulatory "Catch 22" it can create during power operation. Much of the equipment needed to accomplish the safety functions required by the rule is covered by Technical Specifications. These specifications typically require a plant shutdown at the expiration of the allowed outage time when the equipment is inoperable. The licensee cannot comply with the Technical Specification requirement to place the plant in a non-applicable Mode without violating the rule.

For instance, if a diesel generator were to fail during the monthly surveillance run, the CR-3 Technical Specifications require the diesel be made OPERABLE within 72 hours. If the diesel cannot be made OPERABLE, the plant must be in Mode 5 (Cold Shutdown) by the end of that period. However, placing the plant in Mode 5 without two operable diesels would constitute a violation of the proposed 10 CFR 50.67.

#### Section (c)(4)

Section (c)(4) of the proposed rule requires an assessment of fire hazards associated with the outage schedule. This is redundant to numerous existing requirements including 10 CFR 50.48, Appendix R, and numerous other requirements. The intent of the rule is already being met through programs and procedural controls already in place. At CR-3, every Work Request or plant modification is reviewed before it is allowed into the plant. This includes outage as well as routine tasks. If the work involves an increased risk of fire, it is reviewed by the fire protection staff and additional controls are put in place, including fire watches when appropriate, to assure that the risk of fire is minimized. The problem with the proposed rule is that it requires the fire hazards be reviewed in conjunction with the outage schedule, rather than in conjunction with individual work tasks as is the current (and more effective) practice. Imposition of the rule will result in a significant duplication of effort, but will not result in a reduction in the risk of fire.

The NRC perceives that there is an increased risk for damaging fires at nuclear plants during outages. This is not true. There is an increased opportunity for fires during outages, and more small fires probably occur; however, the risk of damaging fires is not increased because of the increased fire prevention and detection activities already required. Consequently, there is no increase in risk, and there is no need for additional requirements.

CONCLUSIONS AND RECOMMENDATIONS

This proposed rule appears to have been developed with disregard for the current level of safety in the industry. It will have a significant negative impact on both nuclear safety and operation and maintenance costs.

The imposition of the rule should be reconsidered in light of the level of safety that currently exists at nuclear plants during shutdown operation. The changes recently proposed to changes 10 CFR 50.36 offer an opportunity to include appropriate controls through Technical Specifications.