Florida Power
CORPORATION
Crystal River Unit 3
Docket No. 50-302
Operating License No. DPR-72

November 30, 1998
3F1198-06

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

Subject: License Amendment Request #244, Revision 0
Containment Closure Requirements During Refueling Operations

Dear Sir:

Florida Power Corporation (FPC) hereby submits a request for an amendment to its Facility Operating License No. DPR-72 for Crystal River Unit 3 (CR-3) in accordance with 10 CFR 50.90. The attached License Amendment Request (LAR) #244 proposes changes to the CR-3 Improved Technical Specifications (ITS) Limiting Condition for Operation (LCO) 3.9.3.

The proposed changes recognize the use of an outage equipment hatch (OEH) during refueling operations. FPC plans to use the OEH for the first time during Refueling Outage 11, planned for the fall of 1999. The proposed changes would allow both doors in the personnel air locks, and the single door in the OEH, to be open during core alterations or movement of irradiated fuel assemblies within containment provided certain specified conditions are met. These proposed changes are consistent with changes approved by the NRC at other facilities.

The proposed change to ITS LCO 3.9.3 to allow both doors in the personnel air locks, and the single door in the OEH, to be open during refueling operations is considered a cost beneficial licensing action. Allowing these doors to be open during core alterations or the movement of irradiated fuel inside containment is expected to reduce costs associated with reactor refueling or other outage activities. The ability to open these doors under administrative controls will assist in the maintenance of cleanliness and housekeeping, and will provide a safer work environment inside containment. In addition, evacuation of personnel can be quickly achieved in the unlikely event of a fuel handling accident or other radiological event inside containment, reducing the potential for exposures.

A001

As discussed in Attachment A (Description of Changes, Reason for Request and Evaluation of Request), FPC has determined that the change does not involve a significant hazard. Attachment B (Proposed ITS and ITS Bases Change Pages - Strikeout/Highlight), and Attachment C (Proposed ITS and ITS Bases Change Pages - Revision Bars) provide details of the proposed changes to CR-3 ITS LCO 3.9.3 and ITS Bases Section 3.9.3.

To support use of the proposed requirements for containment closure during Refueling Outage 11, FPC requests that this license amendment be approved by July 19, 1999.

This letter establishes no new regulatory commitments.

If you have any questions regarding this submittal, please contact Mr. Sid Powell, Manager, Nuclear Licensing at (352) 563-4883.

Sincerely,

J.J. Holden
Director
Site Nuclear Operations

JJH/gew

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

Attachments:

A. Description of Changes, Reason for Request, and Evaluation of Request
B. Proposed ITS and ITS Bases Change Pages - Strikeout/Highlight
C. Proposed ITS and ITS Bases Change Pages - Revision Bars

STATE OF FLORIDA

COUNTY OF CITRUS

John J. Holden states that he is the Director, Site Nuclear Operations for Florida Power Corporation; 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.

John J. Holden
Director
Site Nuclear Operations

Sworn to and subscribed before me this 30th day of November, 1998, by John J. Holden.

Signature of Notary Public
State of Florida

LISA ANN MCBRIDE
Notary Public, State of Florida
My Comm. Exp. Oct. 25, 1999
Comm. No. CC 505458

LISA ANN MCBRIDE
(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 #244

REVISION 0

Description of Changes,

Reason for Request, and

Evaluation of Request

ATTACHMENT A

LICENSE AMENDMENT REQUEST (LAR) #244, REVISION 0
CONTAINMENT CLOSURE REQUIREMENTS
DURING REFUELING OPERATIONS

LICENSE DOCUMENT INVOLVED: Improved Technical Specifications (ITS)

PORTIONS: ITS Limiting Condition for Operation (LCO) 3.9.3

SUMMARY OF CHANGES:

Attachments B and C provide details of the ITS changes for which approval is being requested, and provide proposed ITS Bases changes for information to assist in the review of this license amendment request.

ITS LCO 3.9.3, Containment Penetrations

This license amendment request proposes to revise ITS LCO 3.9.3 as follows:

1. ITS LCO 3.9.3.a is revised to recognize the possible installation of the outage equipment hatch (OEH) instead of the normal equipment hatch during refueling operations.

2. ITS LCO 3.9.3.b is revised to require that at least one door in the personnel air locks and the single door in the OEH are closed, or capable of being closed, during refueling operations. If both doors of either air lock are open during refueling operations, a designated individual must be readily available to close at least one air lock door following the evacuation that would occur in the event of an accident. If the door in the OEH is open during refueling operations, a designated individual must be readily available to close the door in the OEH following the evacuation that would occur in the event of an accident.

DESCRIPTION OF REQUEST:

This license amendment request proposes to revise ITS LCO 3.9.3.a to recognize the use of the OEH during refueling operations in place of the normal equipment hatch. The OEH is used to replace the normal equipment hatch during refueling operations, and is only installed in MODES 5 and 6. The OEH includes a single door to allow ease of movement of equipment into and out of containment without the need to remove and reinstall the normal equipment hatch multiple times during an outage.

The proposed change to ITS LCO 3.9.3.b would allow both doors in the personnel air locks and the door in the OEH to be open during core alterations or movement of irradiated fuel assemblies within containment. The change requires that a designated individual be readily available to ensure containment closure is achieved as soon as reasonably possible following a fuel handling accident or other radiological event inside containment.

REASON FOR REQUEST:

ITS LCO 3.9.3.a currently only refers to the normal equipment hatch, and requires revision to recognize the use of the OEH instead of the normal equipment hatch during refueling operations. FPC plans to use the OEH for the first time during Refueling Outage 11, planned for the fall of 1999. To allow use of the OEH, ITS LCO 3.9.3.a requires revision to refer to both the normal equipment hatch and the OEH.

The use of the OEH during plant outages is expected to facilitate movement of personnel, equipment, tools, consumables, and waste materials into and out of containment with minimal impact on reactor refueling or other outage activities. This results in the ability to minimize the amount of materials left inside containment at any given time during reactor refueling or other outage activities, creating safer work conditions and reducing potential impacts on reactor refueling or other outage schedules. The use of the OEH also reduces the overall number of times the normal equipment hatch must be removed and reinstalled during most major outages. The use of similar temporary equipment hatches during refueling operations has been implemented at other Babcock and Wilcox (B&W) facilities, including Arkansas Nuclear One Unit 1.

ITS LCO 3.9.3.b currently requires at least one door in each of the personnel air locks to remain closed during core alterations or movement of irradiated fuel assemblies within containment, and does not recognize the door in the OEH. Allowing both doors in the personnel air locks and the door in the OEH to be open during refueling operations is expected to eliminate movement of materials as a critical path activity.

Under the current requirements, personnel and material movement during refueling operations is limited. This results in an accumulation of waste materials inside containment, and impacts timely performance of other significant work not related to actual fuel movement. If these doors were to remain closed during refueling operations, they would have to be opened to allow personnel evacuation if necessary. Therefore, there is a significant benefit to facilitating containment evacuation and minimizing potential personnel exposures to hazardous conditions by allowing the doors to remain open until evacuation is complete.

This allowance for open personnel and equipment penetrations during refueling operations has been approved at numerous other facilities, when supported by an acceptable fuel handling accident analysis showing that radiological consequences remain within regulatory limits. This includes amendments issued to Calvert Cliffs Nuclear Power Plant Units 1 and 2 on August 31, 1994, and Arkansas Nuclear One Unit 1 on September 20, 1996.

As further discussed in this amendment request, resultant thyroid and whole body doses have been calculated to be well within the limits of 10 CFR 100 without any credit for filtering of the released radioactive material or for containment closure.

EVALUATION OF REQUEST:

FPC has evaluated the proposed changes to the ITS LCO 3.9.3 requirements, and has determined the changes are consistent with the intent of the standard technical specifications described in NUREG-1430.

ITS LCO 3.9.3.a

The proposed change to ITS LCO 3.9.3.a recognizes the use of either the permanent equipment hatch or the OEH during core alterations or movement of irradiated fuel assemblies within containment. The permanent equipment hatch and the OEH are designed to provide an adequate structural barrier to the release of radioactive materials resulting from a potential fuel handling accident during refueling operations. Therefore, the use of the OEH instead of the permanent equipment hatch is consistent with the CR-3 licensing basis and design basis requirements for containment closure during refueling operations, and the proposed change does not involve a significant hazard.

ITS LCO 3.9.3.b

The proposed change to ITS LCO 3.9.3.b would allow both doors in the personnel air locks and the door in the OEH to be open during core alterations or movement of irradiated fuel assemblies within containment. Under the current ITS LCO 3.9.3.b, a minimum of one door in each of the personnel air locks is to be closed during core alterations or movement of irradiated fuel assemblies within containment. The purpose of this requirement is to mitigate the radiological consequences of a fuel handling accident.

Final Safety Analysis Report (FSAR) Section 14.2.2.3 describes the CR-3 fuel handling accident analysis assumptions. This analysis postulates that a fuel assembly is dropped onto the core during refueling resulting in breaching of the fuel rod cladding. Because of the damage, the volatile fission gases contained in the gap of all 208 fuel rods of one assembly are released to the water pool covering the core. Subsequently, a fraction of the water soluble gases are absorbed in the pool and the remaining gases transported, along with the insoluble gases, through the water and into the containment atmosphere. The escaped gases are assumed released to the environment through the containment purge system and dispersed into the atmosphere. Although the containment purge system has roughing, high efficiency particulate air (HEPA) and charcoal filters that could retain a portion of the fission product gases, no mitigation credit is assumed. The resultant thyroid and whole body doses were calculated to be well within the limits of 10 CFR 100.

As described in the CR-3 FSAR, the fuel handling accident analysis does not take credit for filtering of the released radioactive material or for containment closure. Therefore, the status of the personnel air lock doors and the door in the OEH has no impact on the total amount of radioactivity that is assumed to be released from containment to the environment. The atmospheric dispersion factors used to determine radiological consequences for the control room, exclusion area boundary, and low population zones are the same regardless of the actual release points. Therefore, this proposed change does not affect the current assumed radiological consequences to the control room operators and to the public.

The proposed change to ITS LCO 3.9.3.b also requires that a designated individual be readily available to close at least one air lock door and the door in the OEH following the evacuation that would occur in the event of an accident during core alterations or movement of irradiated fuel assemblies within containment. This designated individual provides assurance that containment closure is achieved as soon as reasonably possible following a fuel handling accident or other radiological event inside containment. This administrative requirement will further minimize the release of radioactive materials to the environment, while allowing for the expeditious evacuation of containment.

As described above, allowing both doors in the personnel air locks and the door in the OEH to be open during core alterations or movement of irradiated fuel assemblies within containment is consistent with the CR-3 licensing basis and design basis requirements for containment closure during refueling operations. Therefore, the proposed change does not involve a significant hazard.

CONCLUSION:

Allowing both doors in the personnel air locks and the door in the OEH to be open during core alterations or the movement of irradiated fuel inside containment is expected to reduce costs associated with reactor refueling or other outage activities, improve cleanliness and housekeeping within containment, provide a safer work environment inside containment, and result in minimizing personnel occupational exposures. By allowing these doors to remain open under administrative controls, evacuation of personnel can be quickly achieved in the unlikely event of a fuel handling accident or other radiological event inside containment. The amount of radioactive material released during evacuation of personnel following a fuel handling accident would not be significantly increased if these doors were initially open instead of initially closed. By expediting personnel evacuation, the overall occupational exposure to these radioactive materials would be reduced. Since a designated individual is required to be readily available to close any open doors, containment closure is assured within a relatively short time to minimize the release of radioactive materials to the environment following a fuel handling accident or other radiological event.

The net result of these proposed changes is to enhance personnel and radiological safety during reactor refueling or other outage activities, and after the unlikely event of a fuel handling accident or other radiological event inside containment.

NO SIGNIFICANT HAZARDS CONSIDERATION:

Florida Power Corporation has reviewed the requirements of 10 CFR 50.92 as they apply to the proposed License Amendment and considers the changes not to involve a significant hazards consideration. In support of this conclusion, the following analysis is provided:

1. *Involve a significant increase in the probability or consequences of an accident previously evaluated?*

   The proposed change would allow both doors in the personnel air locks and the door in the outage equipment hatch (OEH) to remain open during core alterations or the

movement of irradiated fuel inside containment. These doors are normally closed during this period in order to prevent the escape of radioactive materials in case of a fuel handling accident.

Operations involving the personnel air locks during refueling operations cannot be an initiator of a fuel handling accident or other radiological event inside containment. Similarly, operations involving the OEH during refueling operations cannot be an initiator of a fuel handling accident or other radiological event inside containment. The personnel air locks and the OEH are remotely located to the fuel handling equipment and cannot affect the function of this equipment. The personnel air locks and the OEH are not in the immediate vicinity of the reactor vessel and the contained irradiated fuel, or any of the paths used for movement of irradiated fuel. Additionally, allowing both doors in the personnel air locks and the door in the OEH to be open during core alterations or the movement of irradiated fuel inside containment cannot create the possibility of a fuel handling accident or other radiological event inside containment. Therefore, the probability of occurrence of any accident previously evaluated is unaffected.

The approved fuel handling accident analysis does not take credit for containment closure. This analysis results in a maximum calculated offsite dose well within the limits of 10 CFR 100, and the existing analysis as presented in the CR-3 Final Safety Analysis Report does not require revision as a result of this proposed change. By providing a designated individual readily available to close at least one door in the personnel air locks and the door in the OEH, containment closure is assured following any required evacuation of containment terminating any release of radioactive materials outside of the containment. Therefore, the consequences of accidents will not be greater than that previously evaluated.

2. *Create the possibility of a new or different kind of accident from previously evaluated accidents?*

The operations involving the personnel air locks and the OEH cannot be an initiator of any type of accident during refueling operations. The personnel air locks and the OEH are passive structural features designed to retain structural integrity under the expected environmental conditions when installed. Operation of the personnel air lock doors and the door in the OEH does not affect any safety-related component or structure. Additionally, allowing both doors in the personnel air locks and the door in the OEH to be open during core alterations or the movement of irradiated fuel inside containment cannot initiate any type of accident. Therefore, the possibility of a new or different kind of accident occurring as a result of this change is not created.

3. *Involve a significant reduction in a margin of safety?*

The margin of safety as defined by 10 CFR 100 has not been reduced. The existing approved fuel handling accident analysis does not credit containment closure, and remains bounding with both doors in the personnel air locks and the door in the OEH open. Closing at least one door in the personnel air locks and the door in the OEH after

evacuation of containment further reduces the offsite doses in case of a fuel handling accident, and provides additional margin to the calculated offsite doses. Therefore, the existing margin of safety will not be reduced.

ENVIRONMENTAL IMPACT EVALUATION:

While 10 CFR 51 requires an environmental assessment (EA) or environmental impact statement (EIS) for any "major Federal action significantly affecting the quality of the human environment," it does allow the NRC discretion in evaluating the extent to which EAs or EISs are necessary. EAs or EISs are not required for any action included in the list of "categorical exclusions" set forth in 10 CFR 51.22(c). Specifically, 10 CFR 51.22(c)(9), provides that an EA is not required for the issuance of an amendment provided that:

(i) the amendment involves no significant hazards consideration,

(ii) there is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite, and

(iii) there is no significant increase in individual or cumulative occupational radiation exposure.

FPC considers that the provisions of 10 CFR 51.22(c)(9) are applicable to this request for changes to the CR-3 ITS. For the reasons described below and elsewhere in this submittal, FPC believes that the three criteria of 10 CFR 51.22(c)(9) are satisfied. Therefore, this License Amendment should be considered under the "categorical exclusions" provisions of 10 CFR 51.22(c)(9).

The basis for this determination includes the following:

1. The proposed changes to the CR-3 ITS do not involve significant hazards as discussed above in the No Significant Hazards Consideration.

2. The proposed changes to the CR-3 ITS do not result in a significant change in the types or significant increase in the amounts of any effluents that may be released offsite. The change does not result in an increase in the consequences of previously evaluated accidents. Even with at least one door in the personnel air locks and the door in the OEH initially closed, containment evacuation following a fuel handling accident or other radiological event inside containment during refueling operations would require the doors to be opened during personnel egress. By having both doors in the personnel air locks and the door in the OEH initially open following an event, personnel evacuation could be expedited and total containment closure achieved as quickly as, and possibly quicker than, the existing case with the doors initially closed. Therefore, there will be no environmental impact beyond that which has already been evaluated.

3. The proposed changes to the CR-3 ITS do not result in a significant increase in individual or cumulative occupational exposure. This conclusion is based on the facts that these changes to the CR-3 ITS do not result in any increased consequences of accidents previously evaluated, and that these changes do not result in increasing the

probability of occurrence of a design basis accident or event. In fact, by allowing quicker egress from containment following a postulated fuel handling accident or any other radiological event inside containment during refueling operations, individual and cumulative occupational exposures would be minimized.

Therefore, for the reasons given in this submittal, there will be no change in offsite consequences due to this action and its impact is bounded by the impacts assumed in the existing Final Environmental Statement (FES) for CR-3. Even if the NRC chooses to perform an EA, information provided in the FES, together with this submittal should assist the NRC in making a "finding of no significant impact" in accordance with 10 CFR 51.32.

FLORIDA POWER CORPORATION

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50-302/LICENSE NUMBER DPR-72

ATTACHMENT B

LICENSE AMENDMENT REQUEST #244

REVISION 0

Proposed ITS and ITS Bases

Change Pages - Strikethrough/Highlight

~~Strikethrough Text~~ Deleted, Highlighted Text Added