OPERATING LICENSE CHANGE REQUEST

Paragraph 2.B.(6) of DPR-72 now reads:

"B. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses:

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(6) Florida Power Corporation, pursuant to the Act and 10CFR Parts 30 and 70, to possess, but not separate, such by-product and special nuclear materials as may be produced by the operation of the facility."

We request that this paragraph be modified to allow Florida Power Corporation to possess an additional four (4) fuel assemblies which have been previously irradiated for one cycle in Duke Power Company's Oconee Nuclear Station, Unit One.

Suggested rewording of 2.B.(6) would be:

"B. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses:

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(6) Florida Power Corporation, pursuant to the Act and 10CFR Parts 30 and 70, to possess, but not separate, such by-product and special nuclear materials as may be produced by the operation of the facility and that by-product and special nuclear materials associated with four (4) fuel assemblies acquired by Florida Power Corporation from Duke Power Company which were previously irradiated in the Oconee Nuclear Station, Unit One."

Reason for Change

As part of the Crystal River Unit No. 3 recovery program following failure of Burnable Poison Rod Assemblies, the reactor was defueled to allow inspection of fuel assemblies and reactor internals and retrieval of pieces of debris from the reactor coolant system. Subsequent to these inspection and retrieval activities and during transfer of fuel assemblies back into the reactor, frequent maintenance was required on the fuel transfer mechanisms. During conduct of maintenance activities on the fuel transfer mechanisms, a test weight device was inadvertantly dropped which resulted in some damage to a fuel assembly located in the spent fuel pool. (This incident was reported to NRC as License Event Report No. 78-031/01T-0, dated June 22, 1978).

Extensive inspections have been performed on the involved fuel assembly (B&W Identification No. 3A-48). While the damage to 3A-48 is minor, there is

enough apparent deformation in evidence to preclude its further use as reactor fuel in its resultant condition. The evaluations have shown, however, that it is safe to handle, store or transport 3A-48 with proper precautions.

Since the decision was made that 3A-48 was not suitable for reuse as a reactor fuel, Florida Power Corporation has been evaluating alternatives for securing a replacement for it. Among the alternatives considered are:

(1) Initiate a refueling by replacing the entire Batch 1 fuel with Batch 4 fuel,
(2) Replace 3A-48 (and possibly its symmetrical assemblies) with one or more Batch 4 assemblies,
(3) Repair 3A-48 and reuse,
(4) Obtain one or more replacement assemblies consisting of previously irradiated fuel assemblies, discharged from another reactor, having similar mechanical and neutronic characteristics.

Alternative (1) is highly impractical, uneconomical, could not be accommodated on a reasonable schedule and probably would not result in an acceptable core physics condition. The Batch 4 fuel was designed with a 2.64 w/o U-235 to accommodate a Cycle 1 burnup of 460-470 Effective Full Power Days (EFPD's). At present, the existing reactor fuel has an accumulated burnup of approximately 270 EFPD's.

Alternative (2) may be possible, but would have a significant impact on the startup schedule due to the necessity of developing an entirely new core load scheme and resulting fuel cycle analysis. The enrichment mismatch between 3A-48 (and its symmetrical assemblies) and the 2.64 w/o Batch 4 assemblies would require a major fuel shuffle and total re-analysis. In addition, future fuel cycles would be significantly altered.

Alternative (3) is also perhaps possible but highly impractical due to lack of facilities for performing repair work on irradiated fuel assemblies and due to uncertainty as to the scope of repair which would be required.

Alternative (4) is then considered to be the optimum plan. It can be achieved on a schedule compatible with the unit startup schedule, the core loading pattern would be essentially identical, there would be minimum perturbation to the core physics parameters and existing safety analyses and minimum perturbation to subsequent fuel cycles.

Discussions have been held with Duke Power Company regarding suitable replacement fuel assemblies at the Oconee Nuclear Station which might be available for use at Crystal River Unit No. 3. There are four (4) assemblies located at the Oconee Nuclear Station which were discharged after Cycle 1 from Unit One that meet our requirements for reuse at Crystal River Unit No. 3. Duke Power Company has agreed to make these assemblies available to Florida Power Corporation. It is our intent to transport these four (4) assemblies to Crystal River Unit No. 3 and receive them for use in the reactor for the remainder of Cycle 1, contingent upon NRC approval of this License Change Request.

Safety Considerations

On June 2, 1978, Florida Power Corporation filed the report BAW-1490, Crystal River Unit 3 Licensing Considerations for Continued Cycle 1 Operation Without Burnable Poison Rod Assemblies. Since this report was prepared and filed, two significant events have occurred: (1) The decision to remove the Orifice Rod Assemblies from the core, and (2) the damage incurred by fuel assembly 3A-48.

Analyses are being performed which will include the effects of the removal of Orifice Rod Assemblies and the substitution of four fuel assemblies received from Duke Power Company for 3A-48 and its three symmetric assemblies on the continued operation of Crystal River Unit No. 3. These analyses will be documented and filed with NRC as Revision 1 to BAW-1490 and will justify continued operation of Crystal River Unit No. 3. This report will address itself to the safety considerations associated with operation of the unit with the modified core conditions.

The License Change Request described herein would not allow, on its own, startup or operation of the unit. We realize that startup and operation would be contingent upon NRC receipt, review and approval of Revision 1 to BAW-1490.

Safety considerations associated with the License Change Request described herein are limited to activities associated with the transport of the four fuel assemblies from the Oconee Nuclear Station to the Crystal River Plant and the handling of them.

The in-plant handling of irradiated fuel assemblies has previously been evaluated and is within the scope and applicability of the existing Operating License.

The Cask Drop Accident has been analyzed for CR#3 assuming the use of a ten element - 100 ton shipping cask. This analysis is described in Section 9.6 of the CR#3 FSAR and the results of this analysis were found acceptable by the Commission as described in Section 9.12 of the Staff's Safety Evaluation Report (SER) for CR#3. In summary, the Cask Drop Analysis addressed the hazards resulting from dropping the cask in the cask loading area and dropping the cask in the spent fuel pool adjacent to the cask storage area.

The analysis of dropping the cask in the loading area for rail shipment assumed a 43 foot drop height with all of the gap activity from the 10 fuel elements being released to the environment. As described in Section 9.6 of the FSAR, the resulting site boundary doses were found to be within 10 CFR Part 100 limits and were not considered to be a hazard to the public. FPC plans to use a one element - 25 ton shipping cask for the transport of the CR#3 and Oconee spent fuel. Therefore, the Cask Drop Analysis described in the CR#3 FSAR bounds the use of a one element cask and is conservative by a factor of ten.

The effects or hazards from dropping the cask in the spent fuel pools is described in Section 9.6 of the FSAR. To preclude this event, FPC has installed three limit switches which restrict the fuel handling crane during cask handling operations. These limit switches prevent inadvertent transportation of the spent fuel cask over the spent fuel pool area. Additional discussion of these interlocks is contained in Section 9.6 of the FSAR. Also, CR#3 Technical Specifications 4.9.7.1 and 4.9.7.2 require FPC to verify: (1) operability of the crane interlocks; (2) that no fuel is stored in the pool adjacent to the cask storage area; and (3) that the watertight gate between storage pools is in place and sealed; whenever the crane is operated in the cask handling mode. These crane interlocks and Technical Specification requirements and the fact that no spent fuel is presently being stored in the B spent fuel pool at CR#3 reduce the potential hazard from dropping the one element cask in a spent fuel pool at CR#3.

Based on the above discussion, the analysis described in Section 9.6 of the CR#3 FSAR, CR#3 Technical Specifications 4.9.7.1 and 4.9.7.2, and Section 9.12 of the Staff's SER, Florida Power Corporation concludes that the activities associated with handling a one element spent fuel shipping cask at CR#3 are enveloped by the above referenced analysis and does not involve an unreviewed safety question.

The transportation of the four (4) irradiated nuclear fuel assemblies from the Oconee Nuclear Station to the Crystal River Plant will be performed in accordance with all applicable State and Federal Regulations, utilizing licensed and approved casks and carriers.

Other Applicable Considerations

A. Florida Power Corporation has an application pending with NRC for installation of high density fuel storage racks at Crystal River Unit No. 3. One objective of the installation schedule for the high density racks was to complete the installation activities prior to the first unit refueling in order to minimize unnecessary personnel radiation exposure due to the presence of spent nuclear fuel in the storage pools. Contingent upon NRC approval and final design and fabrication of the racks, installation would occur in early 1979, prior to the first unit refueling.

Since fuel assembly 3A-48 has been damaged, necessitating its replacement, we will again be in the position of having 3A-48 and its three symmetrical assemblies in the storage pools during installation of the high density fuel racks.

For this reason, and for considerations on the part of Duke Power Company, we anticipate transporting the four fuel assemblies removed from Crystal River Unit No. 3 to Duke Power Company. This action will be contingent upon Duke Power Company obtaining appropriate licensing action for NRC to allow their receipt and possession of the four fuel assemblies previously irradiated in the Crystal River Unit No. 3 reactor, if such licensing action is required.

Duke Power Company will conduct such licensing activities as may be required on their part directly with NRC. Florida Power Corporation fully endorses their efforts to receive the four fuel assemblies from us and is available for discussions or assistance as needed. Florida Power Corporation would be responsible for delivery of the assemblies to the Oconee Nuclear Power Statation. Again, transportation would be in accordance with all applicable State and Federal Regulations.

B. For clarification, the following tables list some key parameters which apply as to the fuel assemblies under consideration:

Fuel Assemblies Currently at Oconee Nuclear Power Station to be Transported to Crystal River Unit No. 3 (contingent upon the License Change Request described herein to DPR-72)

B&W Identification Number	Initial Enrichment W/O U-235	Burnup MWD/MTU (approximately)	Type	Original Fuel Density (% Theoretical)
1A-01	2.01	11,102	Mark B-2	93.5%
1A-04	2.01	11,102	Mark B-2	93.5%
1A-05	2.01	11,102	Mark B-2	93.5%
1A-36	2.01	11,102	Mark B-2	93.5%

Fuel Assemblies Currently at Crystal River Unit No. 3 to be Transported to Oconee Nuclear Power Station (contingent upon required licensing activity by Duke Power Company)

B&W Identification Number	Initial Enrichment W/O U-235	Burnup MWD/MTU	Type	Original Fuel Density (% Theoretical)
3A-48	1.93	8580	Mark B-3	92.5%
3A-10	1.93	8580	Mark B-3	92.5%
3A-06	1.93	8580	Mark B-3	92.5%
3A-37	1.93	8580	Mark B-3	92.5%

C. Schedule Implications - Based on the current status of activities leading to restart of Crystal River Unit No. 3, unit startup is anticipated for early August, 1978. This is contingent upon our being able to receive, for installation in the reactor, the four fuel assemblies from Duke Power Company prior to the end of July.

We are planning and making arrangements for transportation of the assemblies from the Oconee Nuclear Power Station beginning the week of July 17, 1978. We request that NRC give as prompt consideration to the enclosed License Change Request as is possible consistent with our goals.

With regard to shipment of the four fuel assemblies from Crystal River Unit No. 3 to the Oconee Power Station, it would minimize transportation requirements if they could be shipped on the same schedule. This would allow full utilization of the fuel casks and transport vehicles since single element casks will be utilized and several round trips will be required. If this is untenable, due to licensing requirements placed on Duke Power Company, we would delay shipment until licensing requirements are met, but would strive for shipment prior to November, 1978, to allow preparation for installation of the high density fuel racks in early 1979.