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Vice President  
Nuclear Operations

February 17, 1987  
3F0287-12

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

Subject: Crystal River Unit No. 3  
Docket No. 50-302  
Operating License No. DPR-72  
10 CFR 51.52 - Environmental Effects of  
Transportation of Fuel and Waste

Dear Sir:

In your letter of February 3, 1987, you requested additional information concerning the requirements of 10 CFR 51.52, "Environmental Effects of Transportation of Fuel and Waste," as part of the review of our request to extend the term of the operating license for Crystal River 3 to 40 years from the date of issuance.

The following information is provided to demonstrate that the intent of 10 CFR 51.52 paragraph (a) will be met:

- 1) The reactor core thermal power for Crystal River 3 is 2544 megawatts.
- 2) The initial uranium-235 enrichment for fuel assemblies at Crystal River 3 is less than 4% by weight. Fuel pellets are clad in zircaloy rods.
- 3) The average level of burnup of the irradiated fuel from Crystal River 3 is less than 43,000 megawatt-days per metric ton of uranium (MWD/MTU) and fuel will be cooled at least 270 days. Although this is greater than the burnup of 10 CFR 51.52 paragraph (a), the effective levels of radioactivity from a fuel assembly with an average burnup of 43,000 MWD/MTU cooled for 270 days is less than a fuel assembly with an average burnup of 33,000 MWD/MTU that has cooled for 90 days. Additionally, based on the current progress of the development of a high level waste repository, most fuel assemblies will have decayed for several years.
- 4) All radioactive waste other than irradiated fuel is packaged and transported in solid form by either truck or rail.
- 5) Irradiated fuel assemblies will be transported either by truck, rail, or barge from the reactor.

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6) The transportation of radioactive material is regulated by the Department of Transportation and the Nuclear Regulatory Commission. The regulations provide protection of the public and transport workers from radiation. This protection is achieved by a combination of standards and requirements applicable to packaging, limitations on the contents of packages and radiation levels from packages, and procedures to limit the exposure of persons under normal and accident conditions.

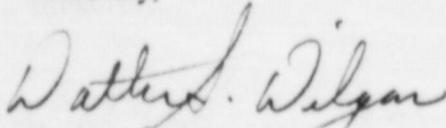
Primary reliance for safety in transport of radioactive material is placed on the packaging. The packaging must meet regulatory standards (10 CFR 71 and 49 CFR 173) established according to the type and form of material for containment, shielding, nuclear criticality safety, and heat dissipation.

The standards provide that the packaging shall prevent the loss or dispersal of the radioactive contents, retain shielding efficiency, assure nuclear criticality safety, and provide adequate heat dissipation under normal conditions of transport and under specified accident damage test conditions. The contents of packages not designed to withstand accidents are limited, thereby limiting the risk from releases which could occur in an accident. The contents of the package also must be limited so that the standards for external radiation levels, temperature, pressure, and containment are met.

Furthermore, the additional amount of nuclear fuel and waste resulting from an extended operating period will continue to be within the limits assumed for the original licensing basis. Because of improved fuel cycle designs and longer operation between refueling outages, the total amount of spent fuel produced over a 40-year operating lifetime will be less than that originally projected by the Final Safety Analysis Report for Crystal River Unit 3.

Based on the above, Florida Power Corporation concludes that the radiological impact from the transportation of irradiated fuel and solid radioactive waste is in accordance with the impacts set forth in Table S-4 of 10 CFR 51.52. The environmental costs will not be significantly affected during the additional years of operation.

Sincerely,



Walter S. Wilgus  
Vice President  
Nuclear Operations

WSW/tsw

xc: Dr. J. Nelson Grace  
Regional Administrator, Region II

Mr. T. F. Stetka  
Senior Resident Inspector