NUCLEAR REGULATORY COMMISSION

[Docket No. 50–302]

Florida Power Corporation; Crystal River Unit 3; Environmental Assessment and Finding of No Significant Impact

The U.S. Nuclear Regulatory Commission (NRC) is considering issuance of an amendment to Facility Operating License No. DPR–72 issued to Florida Power Corporation (FPC or the licensee), for operation of Crystal River Unit 3 (CR–3) located in Citrus County, Florida.

Environmental Assessment

Identification of the Proposed Action

The proposed action would increase the number of fuel assemblies that can be stored in the CR–3 spent fuel pools (SFPs) from 1357 fuel assemblies to 1474 fuel assemblies, an increase of approximately 8 percent, and change the configuration of fresh fuel storage in spent fuel pool A. In addition, the new spent fuel storage racks will use Boral as the neutron absorber material, replacing the present neutron absorber material, Boraflex, which is continuing to degrade.

The proposed action is in accordance with the licensee's application for amendment dated September 16, 1999, as supplemented by letters dated May 3 and June 29, 2000.

The Need for the Proposed Action

The currently available storage capacity for spent fuel at CR–3, allowing for the required reserve capacity to accommodate a full core offload, is projected to be exceeded in the year 2013. The CR–3 operating license has an expiration date of December 3, 2016. Thus, the additional 117 locations for storage of fuel assemblies are necessary to provide adequate spent fuel storage capacity for the remainder of the CR–3 operating license. In addition, the existing racks utilize Boraflex as the neutron absorber material. The new spent fuel storage racks utilize Boral as the neutron absorber material, which will minimize the water clarity problems associated with use of Boraflex.

Environmental Impacts of the Proposed Action

Radioactive Waste Treatment

CR–3 uses waste treatment systems designed to collect and process gaseous, liquid, and solid waste that might contain radioactive material. These radioactive waste treatment systems were evaluated in the Final Environmental Statement (FES) dated May 1973. The proposed changes to the SFP will not involve any change in the waste treatment systems described in the FES.

Gaseous Radioactive Wastes

The storage of additional spent fuel assemblies in the pool is not expected to affect the releases of radioactive gases from the spent fuel pool. Gaseous fission products such as Krypton-85 and Iodine-131 are produced by the fuel in the core during reactor operation. A small percentage of these fission gases can be released to the reactor coolant from the small number of fuel assemblies that are expected to develop leaks during reactor operation. During refueling operations, some of these fission products would then enter the pools and be subsequently released into the air. At CR–3, there has been no measured Krypton-85 release from the fuel building ventilation system for the 2 years preceding the September 16, 1999, submittal. Since the frequency of refueling (and, therefore, the number of freshly offloaded spent fuel assemblies stored in the pools at any one time) will not increase, there will be no increase in the amounts of these types of fission products released to the atmosphere as a result of the increased pool fuel storage capacity.

The increased heat load on the pool from the storage of additional spent fuel assemblies was determined by the licensee to be insignificant, and therefore there would be no significant increase in the pools' evaporation rate. Therefore, no increase in the amount of gaseous tritium released from the pool is expected. The overall release of radioactive gases from CR–3 will remain a small fraction of the limits of 10 CFR 20.1301.

Solid Radioactive Wastes

Spent resins are generated by the processing of SFP water through the pools' purification system. These spent resins are disposed of as solid radioactive waste. Resin replacement is determined primarily by the requirement for water clarity and is normally done approximately once per year. No significant increase in the volume of solid radioactive waste is expected with the expanded storage capacity. During reracking operations, small amounts of additional waste resin may be generated by the pools' cleanup systems on a one-time basis. Additional solid radwaste will consist of the old spent fuel rack modules themselves, as well as any interferences of pool hardware that may have to be removed from the pool to permit installation of the new rack modules. The old racks will be washed down in preparation for packaging and shipment. Shipping containers and procedures will conform to Federal regulations as specified in 10 CFR Part 71, ''Packaging and Transportation of Radioactive Material,'' and to the requirements of any state through which the shipment may pass, as set forth by the state's department of transportation.

Liquid Radioactive Wastes

The release of radioactive liquids will not be affected directly as a result of the SFP modifications. The SFP ion exchanger resins remove soluble radioactive materials from the pool water. When the resins are replaced, the small amount of resin sluice water that is released is processed by the radwaste systems. As previously stated, the frequency of resin replacement may increase slightly during the installation of the new racks. However, the increase in the amount of radioactive liquid released to the environment as a result of the proposed SFP expansion is expected to be negligible.

Occupational Dose Consideration

Radiation protection personnel at CR–3 will monitor the doses to the workers during the SFP expansion operations. The total occupational dose to plant workers as a result of the SFP reracking operations is estimated to be approximately 3 person-rem, which includes estimates of person-rem exposures associated with washdown and preparation of the existing racks for shipping. No diving operations are planned for the actual rack replacement operation. The dose estimate is comparable to doses for similar SFP modifications performed at other nuclear plants. The SFP rack installations will follow detailed procedures prepared with full consideration of as low as reasonably achievable (ALARA) principles.

On the basis of its review of the licensee's proposal, the NRC staff concludes that the CR–3 SFP reracking operations can be performed in a manner that will ensure that doses to workers will be maintained ALARA. The estimated dose of 3 person-rem to perform the proposed SFP reracking operations is a small fraction of the annual collective dose accrued at CR–3.

Accident Considerations

A fuel handling accident outside the reactor building at CR–3 is postulated as the dropping of a fuel assembly into the SFP, resulting in damage to all 208 fuel pins in the dropped fuel assembly. The

radiological consequences of this accident are based solely on the damage to the dropped assembly. The replacement racks only increase the storage capacity of the SFP and do not change the frequency or method for handling fuel assemblies. The revised fuel storage configuration does not affect the construction or fuel enrichment of individual fuel assemblies. Therefore, the probability or consequences of a fuel handling accident is not increased.

The licensee evaluated spent fuel drop accidents onto the spent fuel racks, assuming three different orientations, and the dropping of a rack onto the spent fuel pool floor. The three orientations for the fuel assembly drops were; (1) Drop of a fuel assembly onto the top of a rack with the assembly in a vertical position, (2) drop of a fuel assembly onto the top of a rack with the assembly in an inclined position, and (3) drop of a fuel assembly through an empty rack cell to the bottom of the rack. In each case, the rack structure retained the functional capability to maintain the fuel in a non-critical state. For orientation 3, the drop to the bottom of the empty rack cell did not result in penetration of the pool liner.

An analysis was performed to determine the consequences of a rack drop into SFP B (racks will not be moved over SFP A). The heaviest load to be lifted as part of the rack replacement project is a rack currently in SFP B with a weight of 17,715 pounds. The combined weight of this rack and the lifting rig is less than 20,000 pounds. The load drop analysis was performed using a bounding load of 20,000 pounds, assumed to be dropped from the highest lift point of 6 inches above the spent fuel pool operating deck to the pool floor.

The results of dropping a rack directly onto the SFP floor were the puncturing of the SFP liner and penetrating the 5-foot thick concrete floor slab below the liner to a depth of less than 6 inches. The seams between all sections of concrete are sealed and a waterproof sealant applied to the inside surfaces of the concrete. The floor and walls of the CR–3 SFP have a system of leak chases at the welded joints of the stainless steel liner panels. The leak chase trenches collect liner leakage and drain by gravity to a leak test hopper/funnel. Isolation valves are provided in each drain line from the leak chase trenches to the hopper. These valves will be maintained closed during rack movements, thereby precluding excessive leakage that might occur following a load drop. The only non-isolable leakage from the SFP would be a slow migration of the water from the site of the puncture. The rate of this leakage would be limited by the low permeability of the concrete to a negligible value.

CR–3 has various sources of make-up to the SFP. The sources are the Decay Heat System, the Demineralized Water Supply System, and temporary fire hoses. Based on the isolation valves being maintained closed, the negligible leakage rate through the concrete, and the various sources of make-up, the make-up capability exceeds any leakage resulting from a rack drop. Uncovery of the fuel stored in the SFP B is precluded, and, therefore, there is no increase in consequences as a result of a rack drop onto the SFP floor.

The change in fresh fuel storage configuration in SFP A will result in the effective neutron multiplication factor remaining well below 0.95. Therefore, there is no reduction in the margin to criticality as a result of the change in fresh fuel storage configuration in SFP A, and no increase in the probability of an inadvertent criticality.

The Commission has completed its evaluation of the proposed action and concludes that the proposed action will not increase the probability or consequences of accidents, no changes are being made in the amount or types of any effluents that may be released off site, and there is no significant increase in occupational or public radiation exposure. Therefore, there are no significant radiological environmental impacts associated with the proposed action.

With regard to potential non-radiological impacts, the proposed action does not involve any historical sites. It does not affect non-radiological plant effluents and has no other environmental impact. Therefore, there are no significant non-radiological environmental impacts associated with the proposed action.

Accordingly, the Commission concludes that there are no significant environmental impacts associated with the proposed action.

Alternatives to the Proposed Action

Shipping Fuel to a Permanent Federal Fuel Storage/Disposal Facility

Shipment of spent fuel to a high-level radioactive storage facility is an alternative to increasing the onsite spent fuel storage capacity. However, the U.S. Department of Energy's (DOE's) high-level radioactive waste repository is not expected to begin receiving spent fuel until approximately 2010, at the earliest. To date, no location has been identified and an interim federal storage facility has yet to be identified in advance of a decision on a permanent repository. Therefore, shipping the spent fuel to the DOE repository is not considered an alternative to increased onsite fuel storage capacity at this time.

Shipping Fuel to a Reprocessing Facility

Reprocessing of spent fuel from CR–3 is not a viable alternative since there are no operating commercial reprocessing facilities in the United States. Therefore, spent fuel would have to be shipped to an overseas facility for reprocessing. However, this approach has never been used and it would require approval by the Department of State as well as other entities. Therefore, shipping fuel to a reprocessing facility is not a viable option.

Reduction of Spent Fuel Generation

Operation at a reduced power level would decrease the amount of fuel being stored in the pool and thus increase the amount of time before full core off-load capacity is lost. However, operating the plant at a reduced power level would not make effective use of available resources, and the generation of replacement power would also result in environmental impacts. Therefore, reducing the amount of spent fuel generated by reducing power would not result in a significant improvement in environmental impacts and is not considered a practical alternative.

Transshipment of the Fuel Offsite to Another FPC Site

CR–3 is the only nuclear unit of FPC. Therefore, transshipment of spent fuel to another facility with FPC is not an available option.

Decommissioning

Power generation from CR–3 is essential to meet the current growth rate for energy demand in the State of Florida. Additional replacement capacity would be required if CR–3 were to be retired early. Permanent shutdown of CR–3 would result in loss of valuable power resources. The environmental impact would be similar to that for operation at a reduced power level.

Alternatives Creating Additional Storage Capacity

Dry cask storage is a method of transferring spent fuel, after storage in the pool for several years, to high-capacity casks with passive heat dissipation features. Storage of fuel in a private Independent Spent Fuel Storage Installation (ISFSI) located away from the CR–3 site is not available, since such a facility has not been constructed by FPC or licensed by the NRC. An on-site

ISFSI is a long-term solution for CR–3, but cost and schedule considerations do not allow this alternative to meet current needs at CR–3 for near term spent fuel storage needs.

The alternative technology of constructing an ISFSI that could create additional storage capacity involves additional fuel handling with an attendant opportunity for a fuel handling accident, involves higher cumulative dose to workers affecting the fuel transfers, and would not result in a significant improvement in environmental impacts compared to the proposed reracking modifications.

The No-Action Alternative

The NRC staff also considered denial of the proposed action (*i.e.,* the ''no-action'' alternative). Denial of the application would result in no significant change in current environmental impacts. The environmental impacts of the proposed action and the alternative actions are similar.

Alternative Use of Resources

This action does not involve the use of any resources not previously considered in the FES for CR–3.

Agencies and Persons Contacted

In accordance with its stated policy, on August 7, 2000, the NRC staff consulted with William Passetti, Chief, Department of Health, Bureau of Radiation Control, for the State Florida, regarding the environmental impact of the proposed action. The state official had no comments.

Finding of No Significant Impact

On the basis of the environmental assessment, the NRC concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the NRC has determined not to prepare an environmental impact statement for the proposed action.

For further details with respect to the proposed action, see the licensee's letter dated September 16, 1999, as supplemented by letters dated May 3 and June 29, 2000, which are available for public inspection at the Commission's Public Document Room, The Gelman Building, 2120 L Street, NW., Washington, DC. Publicly available records will be accessible electronically from the ADAMS Public Library Component on the NRC Web site, http://www.nrc.gov.

Dated at Rockville, Maryland, this 5th day of September 2000.

Richard P. Correia,

Chief, Section 2, Project Directorate II, Division of Licensing Project Management, Office of Nuclear Reactor Regulation.

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NUCLEAR REGULATORY COMMISSION

[Docket No. 50–219]

Amergen Energy Company, LLC; Oyster Creek Nuclear Generating Station; Environmental Assessment and Finding of No Significant Impact

The U.S. Nuclear Regulatory Commission (NRC) is considering issuance of an amendment to Facility Operating License No. DPR–16, issued to AmerGen Energy Company, LLC, (the licensee), for operation of the Oyster Creek Nuclear Generating Station (Oyster Creek), located in Lacey Township, Ocean County, New Jersey.

Environmental Assessment

Identification of the Proposed Action

The proposed action would revise the Technical Specifications (TSs) to reflect the installation of additional spent fuel pool (SFP) storage racks. The additional new racks would provide 390 additional spent fuel assembly storage locations.

The proposed action is in accordance with the licensee's application for amendment dated June 18, 1999, as supplemented on June 22 and December 10, 1999, and February 10, and May 2, 2000. On the date of the application, GPU Nuclear, Inc. (GPUN) was the licensed operator for Oyster Creek. On August 8, 2000, GPUN's ownership interest in Oyster Creek was transferred to AmerGen Energy Company, LLC (AmerGen). By letter dated August 10, 2000, AmerGen requested that the Nuclear Regulatory Commission continue to review and act upon all requests before the Commission, which had been submitted by GPUN.

The Need for the Proposed Action

The proposed action is needed to provide for storage of spent fuel. The underlying purpose of the expansion is to provide interim additional storage capacity for spent fuel to allow for continued operation of the plant until additional methods of storing spent fuel have been established.

Environmental Impacts of the Proposed Action

The NRC has completed its evaluation of the proposed action and concludes that there are no significant environmental impacts associated with the proposed action. The factors considered in this determination are discussed below.

Radioactive Wastes

Oyster Creek uses waste treatment systems designed to collect and process gaseous, liquid, and solid waste that might contain radioactive material. These radioactive waste treatment systems were evaluated in the Final Environmental Statement (FES) dated December 1974. The proposed SFP expansion will not involve any change in the waste treatment systems described in the FES.

Radioactive Material Released to the Atmosphere

The storage of additional spent fuel assemblies in the SFP is not expected to affect the releases of radioactive gases from the SFP. Gaseous fission products such as Krypton-85 and Iodine-131 are produced by the fuel in the core during reactor operation. A small percentage of these fission gases are released to the reactor coolant from the small number of fuel assemblies which are expected to develop leaks during reactor operation. During refueling operations, some of these fission products enter the SFP and are subsequently released into the air. Since the frequency of refuelings (and therefore the number of freshly off loaded spent fuel assemblies stored in the SFP at any one time) will not increase, there will be no increase in the amounts of these types of fission products released to the atmosphere as a result of the increased SFP fuel storage capacity.

The increased heat load on the SFP from the storage of additional spent fuel assemblies could potentially result in an increase in the SFP evaporation rate. However, this increased evaporation rate is not expected to result in an increase in the amount of gaseous tritium released from the pool. The overall release of radioactive gases from Oyster Creek will remain a small fraction of the limits of 10 CFR 20.1301.

Criticality analyses were performed with several assumptions which tend to maximize the rack reactivity. For example, it was assumed that the racks contain the most reactive fuel authorized to be stored at Oyster Creek without any control rods or any uncontained burnable absorber and with the fuel at the burnup corresponding to the highest planar reactivity during its burnup history. The criticality aspects of the proposed expansion of the spent fuel storage racks are acceptable and meet the requirements of General Design