

March 17, 2000

Mr. H. L. Sumner, Jr.
Vice President - Nuclear
Hatch Project
Southern Nuclear Operating
Company, Inc.
Post Office Box 1295
Birmingham, Alabama 35201-1295

SUBJECT: EDWIN I. HATCH NUCLEAR PLANT, UNITS 1 AND 2, RE: ENVIRONMENTAL
ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT OF THE
MODIFICATION OF THE SPENT FUEL POOLS (TAC NOS. MA5196 AND
MA5197)

Dear Mr. Sumner:

Enclosed is a copy of the Environmental Assessment and Finding of No Significant Impact related to your application for amendments dated April 6, 1999. The proposed amendments would revise the Technical Specifications to allow an increase in the storage capacity of the spent fuel pools for Units 1 and 2.

The assessment is being forwarded to the Office of the Federal Register for publication.

Sincerely,

/RA/

Leonard N. Olshan, Project Manager, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos 50-321 and 50-366

Enclosure: Environmental Assessment

cc w/encl: See next page

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UNITED STATES NUCLEAR REGULATORY COMMISSION
SOUTHERN NUCLEAR OPERATING COMPANY
DOCKET NOS. 50-321 AND 50-366
EDWIN I. HATCH NUCLEAR PLANT, UNITS 1 AND 2
ENVIRONMENTAL ASSESSMENT AND FINDING OF
NO SIGNIFICANT IMPACT

The U.S. Nuclear Regulatory Commission (NRC) is considering issuance of amendments to Facility Operating License Nos. DPR-57 and NFP-5, issued to Southern Nuclear Operating Company, Inc., et al. (the licensee), for operation of the Edwin I. Hatch Nuclear Plant, Units 1 and 2, located in Appling County, Georgia.

ENVIRONMENTAL ASSESSMENT

Identification of the Proposed Action:

The proposed action would allow an increase in the storage capacity of Unit 1's spent fuel pool (SFP) from 3181 to 3349 and of Unit 2's SFP from 2845 to 2933. This will be accomplished by placing a single high density storage rack containing 168 storage spaces in an 8 by 21 array in the Contaminated Equipment Storage Area (CESA) of each unit's pool where currently no racks exist. Accordingly, the Hatch 1 SFP licensed storage capacity will increase to a total of 3349 (3181 + 168) fuel assemblies. However, the Hatch 2 SFP licensed storage capacity will only increase to a total of 2933 (2845 + 88) fuel assemblies because the new Holtec rack will "replace" the four original standard type storage racks capable of storing 80 assemblies that were planned for installation in the Unit 2 CESA but they were, in fact, never installed.

The proposed action is in accordance with the licensee's application for amendment dated April 6, 1999.

The Need for the Proposed Action:

Long term plans for spent fuel storage at Hatch include utilization of dry cask storage at a separate facility located on the plant site. However, due to uncertainties in cask fabrication and procurement and cask loading, the licensee is proposing to increase the storage capacity of the SFPs. The increased storage capacity of one SFP will allow a full core discharge from one unit after the next refueling outage. The increased storage capacity of the second SFP will allow a full core discharge of the second unit after its next refueling outage.

Environmental Impacts of the Proposed Action:

Solid Radioactive Wastes

The necessity for pool filtration resin replacement is determined by the requirement for water clarity, and the resin is normally expected to be changed about once a year. The licensee does not expect the resin change-out frequency of the SFP purification system to be permanently increased as a result of the expanded storage capacity. Overall, the licensee concludes that the additional fuel storage made available by the increased storage capacity will not result in a significant change in the generation of solid radioactive waste.

Occupational Radiation Exposure

The licensee plans to utilize the Contaminated Equipment Storage Area in each unit's SFP where racks do not currently exist. The licensee estimates that the collective dose associated with the proposed fuel rack installation is in the range of 2 to 4 person-rem. All of the operations involved in racking will utilize detailed procedures with the full consideration of ALARA (as low as reasonably achievable) principles. The Radiation Protection Department will prepare Radiation Work Permits (RWPs) for the various jobs associated with the SFP rack

installation operation. These RWPs will instruct the project personnel in the areas of protective clothing, general dose rates, contamination levels and dosimetry requirements. Personnel will wear protective clothing and will be required to wear personnel monitoring equipment including alarming dosimeters.

Since the proposed license amendments do not involve the removal of any spent fuel racks, the licensee does not plan on using divers for this project. However, if it becomes necessary to utilize divers to remove any interference which may impede the installation of the new spent fuel racks, the licensee will equip each diver with the appropriate monitoring equipment. The licensee will monitor and control work, personnel traffic, and equipment movement in the SFP area to minimize contamination and to assure that exposure is maintained ALARA.

Therefore, the staff concludes that the SFP capacity can be increased in a manner that will ensure that doses to workers will be maintained ALARA.

Gaseous Radioactive Wastes

The storage of additional spent fuel assemblies in the pools is not expected to affect the releases of radioactive gases from the spent fuel pools. 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 is 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 enter the pools and are subsequently released into the air. 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 pools from the storage of additional spent fuel assemblies will potentially result in an increase in the pools' 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 the Edwin I. Hatch Nuclear Plant will remain a small fraction of the limits of 10 CFR 20.1301.

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 the amount of radioactive liquid released to the environment as a result of the proposed SFP expansion is expected to be negligible.

Accident Considerations

Because of the similarity between the new racks and the existing ones, and the small increase in the spent fuel capacity of the new racks, the major parameters and assumptions used in the fuel handling accident analysis are not changed and remain bounding. Therefore, staff concludes that the increases in the capacity of the SFPs will not be accompanied by an associated increase in the radiological consequences of fuel handling accidents.

Summary

The proposed action will not significantly increase the probability or consequences of accidents, no changes are being made in the 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 nonradiological impacts, the proposed action does not involve any historic sites. It does not affect nonradiological plant effluents and has no other environmental impact. Therefore, there are no significant nonradiological environmental impacts associated with the proposed action.

Accordingly, the NRC 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 Hatch Units 1 and 2 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. Additionally, as the cost of spent fuel reprocessing is not offset by the salvage value of the residual uranium, reprocessing represents an added cost.

Shipping the Fuel Offsite to another Utility or another Site in the Licensee's System

The shipment of fuel to another utility or transferring fuel to another of the licensee's facilities would provide short-term relief. The Nuclear Waste Policy Act of 1982, Subtitle B, Section 13(a)(1), however, clearly places the responsibility for the interim storage of spent fuel with each owner or operator of a nuclear plant. The SFPs at the other reactor sites were designed with capacity to accommodate spent fuel from those particular sites. Therefore, transferring spent fuel from Hatch to other sites would create storage capacity problems at those locations. The shipment of spent fuel to another site or transferring it to another Southern Nuclear site is not an acceptable alternative because no additional storage capacity would be created.

Alternative Creating Additional Storage Capacity

Alternative technologies that would create additional storage capacity include rod consolidation, dry cask storage, modular vault dry storage, and constructing a new pool. Rod consolidation involves disassembling the spent fuel assemblies and storing the fuel rods from two or more assemblies into a stainless steel canister that can be stored in the spent fuel racks. Industry experience with rod consolidation is currently limited, primarily due to concerns for potential gap activity release due to rod breakage, the potential for increased fuel cladding corrosion due to some of the protective oxide layer being scraped off, and because the prolonged consolidation activity could interfere with ongoing plant operations. 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. After loading, the casks are stored

outdoors on a seismically qualified concrete pad. Concerns for dry cask storage include the need for special security provisions and high cost. Vault storage consists of storing spent fuel in shielded stainless steel cylinders in a horizontal configuration in a reinforced concrete vault. The concrete vault provides missile and earthquake protection and radiation shielding. Concerns for vault dry storage include security, land consumption, eventual decommissioning of the new vault, the potential for fuel or clad rupture due to high temperatures, and high cost. The alternative of constructing and licensing new spent fuel pools is not practical for Hatch because such an effort would require about 10 years to complete and would be an expensive alternative.

The alternative technologies that could create additional storage capacity involve additional fuel handling with an attendant opportunity for a fuel handling accident, involve higher cumulative dose to workers affecting the fuel transfers, require additional security measures that are significantly more expensive, and would not result in a significant improvement in environmental impacts compared to the proposed reracking modifications.

Reduction of Spent Fuel Generation

Generally, improved usage of the fuel and/or operation at a reduced power level would be an alternative that would decrease the amount of fuel being stored in the SFPs and, thus, increase the amount of time before the maximum storage capabilities of the SFPs are reached. However, operating the plant at a reduced power level would not make effective use of available resources, and would cause unnecessary economic hardship on the licensee and its customers. Therefore, reducing the amount of spent fuel generated by increasing burnup further or reducing power is not considered a practical alternative.

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 Final Environmental Statement for Edwin I. Hatch Nuclear Plant.

Agencies and Persons Consulted:

In accordance with its stated policy, on March 1, 2000, the staff consulted with the Georgia State official, Mr. James Setser of the Department of Natural Resources, 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 April 6, 1999, which is 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> (the Electronic Reading Room).

Dated at Rockville, Maryland, this 17th day of March 2000.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

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