October 10, 2003

Ms. Judy Hogan
P. O. Box 253
Moncure, NC 27559-0253

Dear Ms. Hogan:

On behalf of the Nuclear Regulatory Commission (NRC), I am writing to you in response to your letter, via e-mail, dated August 23, 2003, to Nils J. Diaz, Chairman of the NRC, regarding the vulnerability of the spent fuel pool at the Shearon Harris Nuclear Power Plant against a possible terrorist attack and the adequacy of emergency planning to protect the public. Your letter refers to a study that appeared in Volume 11, Number 1, of *Science and Global Security,* a Princeton University publication, which concludes that spent fuel pools are vulnerable to terrorist attacks that could result in significant offsite consequences. You suggested that the NRC should make major changes in our practice to protect the health and safety of the public.

In your letter you have expressed concerns in three broad categories: 1) impact on the spent fuel pool from aerial attacks by terrorists, 2) adequacy of emergency planning during a radiological emergency, and 3) reliable operation of all equipment at the Shearon Harris Nuclear Power Plant. I will address each of these concerns regarding operation of the Shearon Harris Nuclear Power Plant. Also, a copy of a more detailed NRC review of the above-mentioned study that appeared in *Science and Global Security* is provided in Enclosure 1 for your information.

There is no doubt that the events of September 11, 2001, heightened our awareness of terrorism for the nation and for potential threats to nuclear power plants. In particular, the use of commercial aircraft as a terrorist weapon had not been seen before. The NRC has been in regular communication with other Federal agencies, most specifically the Federal Aviation Administration, Department of Homeland Security, and the Department of Defense, which have acted on specific occasions to protect airspace above nuclear power plants. The Aviation and Transportation Security Act of 2001 also provides additional protection against air attacks on all industrial facilities, both nuclear and non-nuclear, by strengthening aviation security. The NRC supports the view that the nation's efforts associated with protecting against terrorist attacks by air should be directed toward enhancing security at airports and within airplanes and not toward seeking to defend all potential targets.

The NRC has also completed an initial assessment of power reactor vulnerabilities to the intentional malevolent use of commercial aircraft in suicidal attacks and has initiated a broad-ranging research program to understand the vulnerabilities of various classes of facilities to a wide spectrum of attacks. We are developing measures to mitigate vulnerabilities that are identified. Although our work in this area is ongoing, the NRC has directed nuclear power plant licensees (the organizations authorized to operate the plant) to develop specific plans and strategies to respond to an event that could result in damage to large areas of their plants from impacts, explosions, or fire. In addition, licensees must provide assurance that their emergency planning resources are sufficient to respond to such events.

The NRC applies a fundamental defense-in-depth strategy for protection of public health and safety. This strategy encompasses design, construction, operation, training, event mitigation, and contingency planning including emergency planning.

The spent fuel pool design and operation em ploys the defense-in-depth strategy. The spent fuel pools are robust structures constructed of thick concrete-reinforced walls and stainless steel liners. Contingency measures are in place to address situations associated with the loss of water inventory or pool heat removal. While it is unlikely that a situation at a spent fuel pool would result in an offsite emergency, spent fuel storage facility operators, including those at the Shearon Harris Nuclear Power Plant, have plans to respond to such an emergency, and these plans are developed in consultation with State and local officials. Operators are also trained to respond to unusual events and take actions to mitigate their effects.

With regard to emergency preparedness, the fundamental concept is to develop plans that are flexible enough to respond to a wide variety of adverse conditions that may result in having to evacuate beyond the 10-mile emergency planning zone (EPZ). We believe that the current structure of planning, reviewing plans, making appropriate changes, and exercising, serves to protect public health and safety in the highly unlikely event of an accident that would result in protective measures for the public such as sheltering or evacuation.

Federal regulations require that licensees, State, and local organizations develop emergency plans for the areas around nuclear power plants and that EPZs are established that include protective measures to address any potential release of radioactive material. The EPZs consist of a 10-mile plume EPZ and a 50-mile ingestion pathway EPZ. In addition, guidance has been provided to licensees that they should have the capability to issue protective actions for the public, including sheltering or evacuation, if a release of radioactive material is projected to go beyond 10 miles. In the event of an emergency event at the Shearon Harris facility, Carolina Power & Light Company would recommend, and the State and local officials would implement, protective actions for the public. These plans are routinely exercised to ensure coordination and a state of readiness for the licensee, local, State, and Federal organizations. In addition, there are numerous volunteers and first responders that have aided in refining the emergency preparedness process.

In regard to an evacuation, an Evacuation Time Estimate (ETE) for the area surrounding the Shearon Harris Nuclear Power Plant is required. The ETE is used in the development of an emergency plan and during the emergency phase of a response by the licensee, local, State, and Federal emergency management agencies. The ETE is factored into the protective measures that the State implements. Any radioactive release and consequent exposure is affected by wind direction, wind speed, humidity, distance from the source, and other factors. In general, based on the wind direction, most people in the EPZ will be unaffected by a release of radioactive material. For those affected, plans are in place to minimize their exposure. The current structure in North Carolina is to initially evacuate portions of the EPZ, the area within a 2-mile radius from the plant and those areas 5 miles downwind of the release point, and shelter to the EPZ edge, versus implementing protective measures for the entire EPZ. The State and local agencies in concert with the licensee would continually reassess the need to expand the protective measures as conditions dictate. These plans can be applied to areas outside of the current established zones, if needed. Additionally, these ETEs identify potential traffic

impediments and allow for development of traffic management plans and the efficient use of traffic control personnel during an evacuation.

As a result of the terrorist attacks of September 11, 2001, the NRC has increased its focus on emergency preparedness at nuclear power plants. The NRC staff has conducted an evaluation of the impact on emergency preparedness programs as well as implemented requirements that will enhance the response efforts to any perceived threat. The Commission is also implementing a pilot security exercise program to assess the ability of security forces to respond to potential terrorist threats. Studies to date indicate that the planning basis for emergencies remains valid in terms of timing and magnitude for the range of potential radiological consequences of a terrorist attack upon the reactors or spent fuel pools.

Regarding the concern with reliable operation of equipment, the NRC staff routinely monitors the operation of the Shearon Harris Nuclear Power Plant. Two full-time Resident Inspectors are located at the site to closely monitor all operations and any significant operational issues. Additional inspectors from the NRC regional staff routinely visit the site. The NRC staff has a systematic program to identify any significant operational problems and routinely inform licensees about the performance of their plant. The NRC staff also evaluates any significant operational transient and determines its significance on the safe operation of the plant and the impact on health and safety of the public. In short, NRC regulations contain stringent requirements for maintaining the safe operation of nuclear power plants. Compliance with these requirements is systematically assessed and subject to verification by inspections.

You identified one additional concern regarding the transportation of radioactive materials. In the event of a transportation accident, the main responsibility for protecting the health and safety of citizens from public hazards resides with State and local responders. The NRC's primary role would be to offer technical assistance to State and local governments as requested. The assistance could be in the form of information, advice, and evaluations, including information on shipping container characteristics. In addition, the Department of Energy maintains teams of technically trained nuclear and transportation specialists available to assist States upon request.

NRC licensees have safely completed more than 1300 spent fuel shipments and millions of other radioactive material shipments over the past 20 years. That safety record is in large measure attributable to the training and preparedness of Federal, State, local, and tribal officials involved in overseeing, inspecting, or monitoring the shipments. NRC is confident that the current level of Federal, State, local, and tribal training, preparedness, and equipment is adequate to ensure that radioactive material can continue to be shipped safely. Enclosure 2 provides additional information related to concern with the recent shipment of a slightly contaminated shipping cask to the Shearon Harris site.

I hope this will ease your concerns about the safe operation of the Shearon Harris Nuclear Power Plant. If you have any further questions, please do not hesitate to contact C. P. Patel, a member of my staff, at (301) 415-3025.

Sincerely,

***/RA/***

Edwin M. Hackett, Director
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Enclosures:
1. Letter to Honorable David Price regarding the vulnerability of nuclear power plants and spent fuel pools against a possible terrorist attack
2. Letter to Mr. Warren regarding shipment of slightly contaminated shipping cask to the Shearon Harris site

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