NRC NEWS

U.S. NUCLEAR REGULATORY COMMISSION

Office of Public Affairs Telephone: 301/415-8200

Washington, D.C. 20555-0001 E-mail: opa@nrc.gov

Web Site: http://www.nrc.gov/OPA

No. 05-043 March 3, 2005

NRC AUTHORIZES USE OF MIXED OXIDE FUEL ASSEMBLIES AT CATAWBA NUCLEAR POWER PLANT

The Nuclear Regulatory Commission has authorized Duke Energy Corp. to use four mixed oxide (MOX) fuel assemblies, containing uranium and plutonium, as part of the nuclear fuel at its Catawba nuclear power plant near Rock Hill, S.C.

NRC's careful and thorough safety review addressed the areas of reactor systems, radiological dose consequences, spent fuel pool cooling, reactor vessel materials, occupational dose and routine effluents, and quality assurance to ensure that the plant, in using MOX fuel, will operate in compliance with the agency's strict safety requirements.

"We found that there is reasonable assurance that use of the MOX fuel at Catawba will be safe and will comply with the Commission's regulations," said Tad Marsh, Director of NRC's Division of Licensing Project Management. "Additional protective measures proposed by Duke will provide enhanced security for the MOX fuel assemblies, beyond the measures currently in place for the conventional uranium fuel."

The NRC also conducted an environmental assessment, which concluded that the proposed use of the MOX fuel assemblies would not have a significant effect on the quality of the human environment.

Duke filed an application in February 2003 to amend its operating license at Catawba to allow use of the four MOX fuel assemblies. The dimensions and layout of the four MOX fuel assemblies, which will be placed among 189 other conventional fuel assemblies in the reactor, are very similar to those of the fuel assemblies currently in use at Catawba.

Fresh nuclear fuel used in commercial power reactors in this country contains uranium. As the reactor operates, some of the uranium is converted to plutonium that is also usable as a fuel. Thus current reactors in this country use both uranium and plutonium in their reactor fuel. Dozens of European reactors use mixed oxide fuel obtained from recycling or reprocessing plutonium extracted from spent European power reactor fuel.

The MOX fuel assemblies designed for use in the Catawba reactor were produced by combining surplus plutonium from dismantled U.S. nuclear weapons with uranium into a form that can be used by commercial nuclear power plants. The program to use surplus plutonium in nuclear power

plants in order to eliminate the plutonium as a weapons material is part of the ongoing U.S.-Russian plutonium disposition program, being implemented by the U.S. Department of Energy. This usage of the MOX fuel assemblies at Catawba is the first use of MOX fuel in a commercial power reactor in support of this disposition program.

Copies of the staff's evaluation, environmental report and their supplements will be available on the NRC's Agencywide Document Access and Management System (ADAMS) at http://www.nrc.gov/reading-rm/adams/web-based.html . Help in using ADAMS is available from the NRC's Public Document Room (PDR) by calling 301/415-4737 or 1/800/397-4209.

An NRC Atomic Safety and Licensing Board held a hearing on Duke's request to use the MOX fuel assemblies. The Board issued its decision on the safety aspect of that hearing on Dec. 22, 2004, finding that there is reasonable assurance that the proposed use of the MOX assemblies in Catawba will not endanger the public health and safety.

Although the Licensing Board has not issued a decision on the security aspect of the hearing, NRC regulations and procedures permit issuance of the license amendment after completion of the staff's safety and environmental review, provided the amendment would not (1) involve a significant increase in the probability or consequences of an accident previously evaluated, (2) create the possibility of a new or different kind of accident, or (3) involve a significant reduction in a margin of safety. On July 12, the NRC published in the *Federal Register* for public comment its proposed determination that those three conditions were met for the Catawba request. Following evaluation of comments received, the agency finalized that determination, and is now issuing the license amendment.

###