



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

MAY 2 1985

DOCKET NO.: 70-3000
LICENSEE: Commonwealth Edison Company
FACILITY: Braidwood Nuclear Generating Station, Unit 1
Will County, Illinois
SUBJECT: ENVIRONMENTAL ASSESSMENT - LICENSE APPLICATION
TO RECEIVE NEW FUEL

Background

By letter dated June 8, 1984, and supplements dated September 18, and November 19, 1984, Commonwealth Edison (CE) applied for an NRC license to permit the receipt, possession, inspection, and storage of special nuclear material contained in unirradiated nuclear fuel assemblies for eventual use in Braidwood Nuclear Generating Station, Units 1 and 2. The present licensing action is limited to the requirements of Unit 1. CE also requested additional special nuclear material in the form of post accident neutron monitoring detectors. CE has already been issued Materials License No. 12-05650-17 for the possession, storage, and use of small quantities of byproduct, source, and special nuclear material. Because of the form and small amount (gram quantities) of the other materials, other than fuel assemblies, the other materials pose no threat to the environment. In accordance with 10 CFR 51.21, the NRC has prepared this assessment of environmental impacts that may be caused by issuing the requested license.

The Proposed Action

The proposed action is issuance of a license pursuant to 10 CFR 70 that will authorize the applicant to receive, possess, inspect, and store 263 fresh fuel assemblies for eventual use in Braidwood Nuclear Generating Station, Unit 1. The license would be effective until it can be superseded by CE's operating license for Unit 1 under 10 CFR 50. The fuel assemblies contain uranium dioxide (UO_2) pellets that have a maximum U-235 enrichment of 3.55 percent by weight and are encapsulated in zircaloy tubing. Issuance of the license would authorize receipt, possession, inspection, and storage of the unirradiated fuel at Braidwood. The transport of new fuel to Braidwood will be the responsibility of the fuel fabricator. However, the proposed license would authorize the applicant to transport, or deliver to a carrier for transport, the assemblies in approved packages if this should become necessary (e.g., to return defective fuel to the manufacturer).

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MAY 2 1985

Need for the Proposed Action

The applicant proposes to receive and store fresh fuel prior to issuance of the Part 50 operating license in order to inspect the assemblies and to finalize fuel preparation (e.g., add necessary hardware) needed to load the fuel into the reactor core vessel. Actual core loading, however, will not be authorized by the proposed license. Early completion of this fuel handling stage will help avoid delays in Braidwood Unit 1's startup once its operating license is issued.

Alternatives to the Proposed Action and Their Environmental Impacts

Alternatives to the proposed action include complete denial of CE's application. Assuming the operating license will eventually be issued, denial of the storage only license now would merely postpone the new fuel receipt. Such action, as well as any other alternative that can be imagined, would not present an environmental advantage because, as discussed below, no environmental impacts are expected to result from the proposed action.

Environmental Impacts of the Proposed Action

A Final Environmental Statement (NUREG-1026) related to the full-scale operation of Braidwood Nuclear Generating Station, Units 1 and 2 has already been prepared and issued by the NRC. Based on the evaluation in this statement, the environmental impacts of plant operation, subject to proposed conditions for environmental protection, are expected to be small. Plant operations will eventually include the storage and handling of irradiated fuel which is significantly more hazardous than unirradiated fuel. Therefore, the environmental impact from handling unirradiated fuel is expected to be very minor.

Once at Braidwood Station, the new fuel will be received at the Fuel Handling Building. In the Fuel Handling Building, the new fuel will be surveyed for external contamination, inspected, and transported to a storage location. Only a small amount, if any, of radioactive waste may be generated during this handling (e.g., smear papers or contaminated package material) and any waste that is produced will be properly stored onsite until it can be shipped to a licensed disposal facility. The fuel will be stored in either the New Fuel Storage Vault or the Spent Fuel Storage Pool. The fuel may also be stored within its shipping containers in either the new fuel unloading area of the Fuel Handling Building or in the area immediately outside this building. Administrative controls combined with the design of these storage locations will ensure acceptable protection of the fuel assemblies, during fuel handling and storage, from excessive physical damage under normal or abnormal conditions.

In the event the applicant must return assemblies to the fuel manufacturer, all packaging and transport of fuel will be in accordance with 10 CFR 71. The package will meet NRC approval requirements for normal conditions of transport and hypothetical accident conditions. No significant external

MAY 2 1985

radiation hazards are associated with the unirradiated assemblies because the radiation level from the clad fuel is low (the exposure rate at one foot from the surface is normally less than 1 mr/hr) and because the shipping packages must meet the external radiation standards in 10 CFR 71. Therefore, any shipment of unirradiated fuel by the applicant is expected to have an insignificant environmental impact.

In the unlikely event that an assembly (either within or outside its shipping container) is dropped during transfer, the fuel cladding is not expected to rupture. Even if the fuel rod cladding were breached and the pellets were released, an insignificant environmental impact would result. The fuel pellets are composed of a ceramic UO_2 that has been pelletized and sintered to a very high density. In this form, the generation of UO_2 aerosol is unlikely except under conditions of deliberate grinding. Additionally, UO_2 is soluble only in acid solution so dissolution and release to the environment is extremely unlikely.

All fuel handling activities will be in accordance with approved procedures to assure nuclear criticality and radiation safety. Safety will be further assured by several engineered safeguards. Therefore, the proposed fuel handling and storage activities are critically safe (see the Safety Evaluation Report supporting this license) and no environmental impacts from an accidental criticality are expected.

Conclusion

Based upon the information presented above, the environmental impacts associated with new fuel storage at Braidwood Nuclear Generating Station, Unit 1 is expected to be insignificant. Essentially no effluents will be released and acceptable controls will be implemented to prevent a radiological accident. Therefore, in accordance with 10 CFR 51.31, a Finding of No Significant Impact is considered appropriate for this action.

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