

NOV 4 1985

DOCKET NO: 70-2948

LICENSEE: Niagara Mohawk Power Corporation
Central Hudson Gas and Electric Corporation
Long Island Lighting Company
New York State Electric and Gas Corporation
Rochester Gas and Electric

FACILITY: Nine Mile Point Nuclear Station, Unit 2

SUBJECT: ENVIRONMENTAL ASSESSMENT - LICENSE APPLICATION
TO RECEIVE NEW FUEL

Background

By letter dated June 12, 1985, and as amended September 27, 1985, Niagara Mohawk, acting on its own behalf and as agent for the above co-owners, applied for an NRC license to permit the receipt, possession, inspection, and storage of special nuclear materials contained in unirradiated nuclear fuel assemblies. The materials are for eventual use in the Nine Mile Point Nuclear Station, Unit 2. 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 special nuclear materials license pursuant to 10 CFR 70 that will authorize the applicant to receive, possess, inspect, and store 800 fresh fuel assemblies for eventual use in the Nine Mile Point Nuclear Station. The license would be effective until it can be superseded by Niagara Mohawk's operating license for Unit 2 under 10 CFR 50. The fuel assemblies contain uranium dioxide (UO₂) pellets that have a maximum uranium-235 enrichment of 3.05 percent by weight and are encapsulated in zircaloy tubing. Issuance of the license would result in receipt, possession, inspection, and storage of the unirradiated fuel at Nine Mile Point. The transport of new fuel to Nine Mile Point will be the responsibility of the fuel fabricator. However, the 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 fuel to the manufacturer). In addition, authorization to use sealed sources in monitoring devices, which is currently authorized by an existing license, would also be incorporated into the Unit 2 license.

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 Nine Mile Point's startup once its operating license is issued.

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Alternatives to the Proposed Action and Their Environmental Impacts

Alternatives to the proposed action include complete denial of Niagara Mohawk'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 (FES) related to the full-scale operation of the Nine Mile Point Nuclear Station has already been prepared and issued by the NRC¹. 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 Nine Mile Point, the new fuel will be received in the fuel receiving area and stored temporarily prior to being removed from the shipping containers. The fuel may also be stored within its shipping container on the refueling floor or in its shipping crate in the fuel receiving area. Smear surveys will be performed on the transport vehicle and on the new fuel shipping crates. The new fuel will then be removed from its shipping container, 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 the New Fuel Storage Vault or the Spent Fuel Storage Pool. Administrative controls combined with the design of these storage locations will ensure acceptable protection of the fuel assemblies 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 radiation hazards are associated with the unirradiated assemblies because the radiation level from the fuel is low (the exposure rate at 1 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.

OFFICE	1 U.S. Nuclear Regulatory Commission, "Final Environmental Statement Related to
SURNAME	the Operation of Nine Mile Point Nuclear Station, Unit 2, Docket No. 50-410,
DATE	Niagara Mohawk Power Corporation," NUREG-1085, May 1985.

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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. Fuel assemblies are handled individually, not disassembled into single fuel rods, and are stored as full assemblies. No single assembly can be made critical independent of the degree of water moderation and/or reflection. Safety of the stored assemblies is assured by several engineered safeguards (see the Safety Evaluation Report supporting this license). Moreover, the fuel assemblies are normally stored dry and under these conditions, cannot be made critical (< 5.0 percent U-235 enrichment) independent of the number of assemblies and spacing between them. Therefore, the proposed fuel handling and storage activities are critically safe 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 Nine Mile Point Nuclear Station are 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.

Original Signed By:
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