

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 5 TO FACILITY OPERATING LICENSE NO. DPR-73

METROPOLITAN EDISON COMPANY
JERSEY CENTRAL POWER & LIGHT COMPANY
PENNSYLVANIA ELECTRIC COMPANY

DOCKET NO. 50-320

THREE MILE ISLAND NUCLEAR STATION, UNIT 2

1. Fuel Handling Bridge Operability

Introduction

By letter dated June 1, 1978, transmitting Technical Specification Change Request No. 13, Metropolitan Edison Company (Met Ed) requested Amendment of Appendix A to Facility Operating License No. DPR-73 for Three Mile Island Nuclear Station, Unit 2 (TMI-2). The requested change would amend the Technical Specifications to require appropriate testing to establish the operability of the TMI-2 fuel handling bridge and its associated mast assemblies.

Discussion

The existing TMI-2 Technical Specifications prescribe the testing methods for determining the operability of the TMI-2 fuel handling bridges used for the movement of control rods or fuel assemblies. However, the existing TMI-2 Technical Specifications require that the same test loads be applied to the fuel handling bridge mast assembly which is used for moving control rods as to the fuel handling bridge mast assembly which is used for movement of fuel assemblies. At TMI-2, two independent and markedly different mechanisms are used in performing these functions.

Met Ed states that to load the control rod handling mechanism to 2950 pounds (as is currently required by the TMI-2 Technical Specifications) could damage the grappling connection which grasps the control rod.

The grappling connector consists of three small "fingers" which engage the inner ring of the control component nozzle. The maximum weight which these "fingers" will be required to maintain is the weight of a full length control rod (125 pounds).

During control rod removal, a telescoping mechanism pulls the control rod (held by the above-mentioned grappling fingers) into the control rod inner mast assembly. Then this entire mast assembly is removed. Thus the grappling "fingers" are never required to support the weight of the inner mast assembly (2100 pounds) but must instead support only the weight of the control rod. The cable which removes the mast assembly however is required to lift both the mast assembly and the control rod ($2100 + 125 = 2225$ pounds).

Because the fuel handling bridge mast assembly used for the removal of control rods is required to support a different weight than that supported by the mast assembly used for the removal of fuel assemblies, it can be tested for different loadings. Currently, Section 3/4 9.5 of the TMI-2 Technical Specifications does not allow for this.

As indicated above, the current TMI-2 Technical Specifications require the control rod hoist to be load tested at 2950 pounds. Because the inner mast assembly weighs 2100 pounds, this would require the grappling "fingers" to lift 850 pounds. This weight is beyond the design capability of the grappling mechanism. Because the maximum weight which these "fingers" are required to lift is 125 pounds, it is unnecessary to perform the load test at 2950 pounds. Instead this test may be performed at 550 pounds over the weight of the inner mast assembly ($2100 + 550 = 2650$ pounds). Under these circumstances the grappling fingers would be required to lift nearly four times the weight of a full length control rod, and yet could be tested within their design capabilities.

In addition, the hoist overload cutoff limit for the mast assembly used for moving control rods should be set at 450 pounds above the weight of the inner mast assembly ($2100 + 450 = 2550$ pounds). This reduction in the hoist cutoff limit from 2750 pounds is in the conservative direction as it reduces the lifting force which could be applied to the core internals and/or pressure vessel in the event that they were inadvertently engaged during lifting operations.

The present basis of Technical Specification 3.9.6 (Fuel Handling Bridge Operability) is to assure that:

1. Fuel handling bridges will be used for movement of control rods and fuel assemblies.

2. Each hoist has sufficient load capacity to lift a fuel element.
3. The core internals and pressure vessel are protected from excessive lifting forces in the event they are inadvertently engaged during lifting operations.

This change will not affect Items 1 and 2 above, in that the portions of the specification which require that the fuel handling bridges be used for movement of control rods and fuel assemblies remains unchanged, as does the portion which pertains to the mechanism used for movement of fuel assemblies.

In addition, because the hoist overload cutoff is reduced (for the mechanism used for removing control rods), the total lift force that could be applied to the pressure vessel and/or internals is reduced. Therefore, Item 3 above is changed in the conservative direction.

Evaluation

We have reviewed the information provided by the licensee, and find that the proposed change adequately tests the bridge-mast assemblies for their intended purposes, and adequately protects core internals and the pressure vessel during lifting operations.

Based on the above, we conclude that the proposed change in Fuel Handling Bridge Operability requirements is acceptable, and that the facility Operating License can be amended by changing the Technical Specifications

as shown in the attachment to this license amendment.

Environmental Consideration

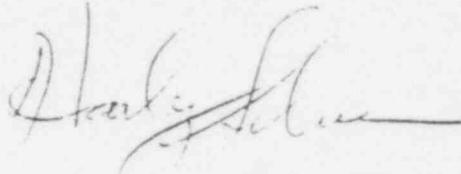
We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

Conclusion

we have concluded, based on the considerations discussed above, that:

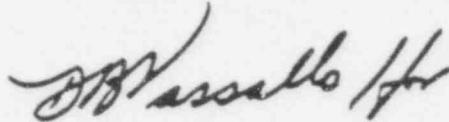
- (1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such

activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.



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