ATTACHMENT A

NIAGARA MOHAWK POWER CORPORATION
LICENSE NPF-69
DOCKET NO. 50-410

Proposed Changes to Technical Specifications

Replace existing page 3/4 9-9 with the attached revised page 3/4 9-9. This page has been retyped in its entirety with marginal markings to indicate the change.

3/4.9.7 CRANE TRAVEL - SPENT FUEL STORAGE POOL

LIMITING CONDITIONS FOR OPERATION

3.9.7 Loads in excess of 1000 pounds shall be prohibited from travel over fuel assemblies in the spent fuel storage pool racks unless handled by a single failure-proof handling system.

APPLICABILITY: With fuel assemblies in the spent fuel storage pool racks.

ACTION:

With the requirements of the above specification not satisfied, place the crane load in a safe condition. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.7.1 Crane interlocks that prevent crane travel over fuel assemblies in the spent fuel storage pool racks shall be demonstrated OPERABLE within 7 days before and at least once per 7 days during crane operation.

4.9.7.2 The single failure-proof lifting devices shall be visually inspected and verified OPERABLE within 7 days prior to and at least once per 7 days during polar crane operation over the spent fuel pool.

ATTACHMENT B

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Supporting Information and Significant Hazards

INTRODUCTION

Fuel handling operations at Nine Mile Point Unit 2 require limited movement of heavy loads over the spent fuel pool. During normal refueling activities, the spent fuel pool gates are moved from their installed position in the transfer canal across the spent fuel pool to their storage location on the side of the pool. Eventually, the number of fuel bundles stored in the pool will reach a level that requires movement of the pool gates over irradiated fuel.

DISCUSSION

An accidental load drop while handling heavy loads over the spent fuel pool could impact irradiated fuel with the potential for excessive offsite releases, inadvertent criticality, or loss of water inventory in the spent fuel pool. NUREG 0612, Control of Heavy Loads at Nuclear Power Plants, discusses the potential consequences of a load drop over spent fuel and provides guidelines to mitigate these potential consequences.

NUREG 0612 COMPLIANCE

The NUREG offers two methods for providing acceptable measures for control of heavy loads. The licensee may either assure the potential for a load drop is extremely small or show by analysis that the consequences of a load drop are acceptable. For Nine Mile Point Unit 2, the guidelines contained in Section 5 of NUREG 0612 are used to provide assurance that the potential for a load drop is negligible. To provide this assurance, the general guidelines of Section 5.1.1, as well as the single failure-proof guidelines of Section 5.1.6, are satisfied.

The seven general guidelines of Section 5.1.1 assure reliable operation of the handling system and to the extent practical minimize the movement of heavy loads over irradiated fuel. Each guideline is addressed below:

(1) Safe Load Paths - Safe load paths are referenced in procedures and shown on equipment layout drawings. The load paths are not marked on the floor since there are over 20 load paths for the reactor building operating floor and load paths would be confusing and overlapping.

(2) Procedures - Load handling operations over or in proximity to the spent fuel pool will be conducted under strict procedural control. The procedures list special tools and equipment and contain prerequisites and pre-inspections required before handling a load. The safe load path is specified and illustrated in the procedure.

(3) Crane Operators - The crane operator training program encompasses the recommendations contained in ANSI B30.2-1976. This includes detailed classroom instruction followed by a practical operating examination. In addition, the operators are required to meet physical qualifications consistent with those specified in ANSI B30.2-1976.

(4) Special Lifting Devices - The primary and secondary lifting assemblies (i.e., strongbacks) are designed in accordance with the guidelines of ANSI N14.6-1978. Per the requirements of proposed Surveillance 4.9.7.2, Special Lifting Devices will be visually inspected prior to use and at least once per 7 days during polar crane operation over the spent fuel pool.

(5) Lifting Devices - Slings are installed and utilized in accordance with ANSI B30.9-1971, "Slings". The load used in determining the proper sling is the sum of the static and dynamic load. Per the requirements of proposed Surveillance 4.9.7.2, slings will be visually inspected prior to use and at least once per 7 days during polar crane operation over the spent fuel pool.

(6) Crane Inspection and Testing - The Reactor Building Polar Crane is inspected, tested, and maintained in accordance with Chapter 2-2 of ANSI B30.2-1976. Due to the infrequent use of the polar crane, tests and inspections are performed on a semi-annual basis.

(7) Crane Design - The Reactor Building Polar Crane has been designed for Class A1 standby service in accordance with Crane Manufacturers of America (CMAA) Specification No. 70 and the mandatory requirement of ANSI B30.2.

The main hook of the RBPC is a single failure-proof design based on a maximum critical load of 120 tons which complies with the criteria of NUREG 0612, Section 5.1.6. The RBPC has been designed for Class A1 standby service in accordance with Crane Manufacturers Association of America (CMAA) Specification No. 70 and the mandatory requirements of ANSI B30.2.

CRANE DESIGN

The main hoist is designed to provide a dual loading path so that the single failure of any component shall not result in loss of the lifted load. The redundant main hoist system consists of a dual path through the hoist gear train, the reeving system, and the hoist load block. Restraints are provided at critical points to provide load retention and to minimize uncontrolled motions of the load upon failure of any single hoist component.

The single failure criteria also applies to the hoist electrical system. The fail-safe design of the polar crane's dc hoist controls removes power from the hoist motor and applies the holding brakes upon any of the following contingencies:

- Opening of an ac phase
- Loss of ac fuses
- Loss of voltage
- Loss of regenerative power capability
- Loss of motor field
- Loss of dc fuse

The dc hoist controls are specifically provided with phase loss and phase reversal protection as well as a torque check, which prevents the hoist holding brakes from being released until the motor field is energized and armature current is flowing. An emergency dynamic lowering feature automatically lowers the load at a safe rate in the event of simultaneous loss of ac power and holding brakes.

The RBPC main hoist as designed contains all the major safety features recommended by NUREG 0554 to qualify as single failure-proof. The differences between the RBPC design and NUREG 0554 recommendation have been evaluated to assure Unit 2 meets the intent of NUREG 0554. Section 8.2 of the Heavy Load section in the Unit 2 FSAR provides a detailed summary and evaluation of these differences.

The crane has been seismically designed to withstand the combined effects of the maximum critical load and the safe shutdown earthquake (SSE) loads without loss of load or structural integrity. The bridge and trolley remain on their rails and no other part of the crane will be dislodged and fall during the SSE.

INTERLOCKS

Interlocks prevent movement of the polar crane over any area of the spent fuel storage pool during normal crane operation. During operations with spent fuel casks, a key-operated bypass switch allows the polar crane main hoist to operate in the cask loading pool area, while additional interlocks control access to the restricted spent fuel storage pool area.

REGULATORY COMPLIANCE

The RBPC has been previously shown to be in compliance with the requirements of GDC 2; the guidelines of Reg. Guide 1.13, Positions C.1 and C.6; and Reg. Guide 1.29, Positions C.1 and C.2. This license amendment does not impact the guidelines or the requirements of the above regulatory requirements and, therefore, the RBPC still conforms to the above requirements. Conformance with NUREG 0612 and 0554 has been demonstrated above.

CONCLUSIONS

The Reactor Building Polar Crane can safely handle heavy loads above irradiated fuel in the spent fuel pool. The RBPC meets the requirements for a single failure-proof crane and, therefore, the potential for a load drop is extremely small. Procedural controls and interlocks are in place to minimize, to the extent practical, the movement of heavy loads over irradiated fuel.

10CFR50.91 requires that at the time a licensee requests an amendment, it must provide to the Commisssion its analysis using the standards in 10CFR50.92 concerning the issue of no significant hazards consideration. Therefore, in accordance with 10CFR50.91, the following analysis has been performed:

The operation of Nine Mile Point Unit 2, in accordance with the proposed amendment, will not involve a significant increase in the probability or consequences of an accident previously evaluated.

The probability of an accidental load drop while handling heavy loads over the spent fuel pool is extremely small and within the guidelines of NUREG 0612. Interlocks continue to provide assurance that the spent fuel cask cannot accidentally drop into the spent fuel pool. The single failure-proof aspects of the polar crane design include complete redundancy for sheaves, ropes, reeving, reducing gears, holding brakes, and other load path components of the main hoist. Therefore, operation of Nine Mile Point Unit 2, in accordance with the proposed amendment, will not involve a significant increase in the probability or consequences of an accident previously evaluated.

The operation of Nine Mile Point Unit 2, in accordance with the proposed amendment, will not create the possibility of a new or different kind of accident from any accident previously evaluated.

When handling a spent fuel shipping cask, the spent fuel pool and any stored fuel assemblies are isolated from a postulated fuel cask handling accident. Travel restrictions on the RBPC ensure the cask will not travel over the spent fuel pool. The function and performance of systems and components on the RBPC, as well as the seismic qualification of the RBPC, have not been affected. Therefore, the RBPC is still in compliance with the applicable regulatory requirements. Thus, operation of Nine Mile Point Unit 2, in accordance with the proposed amendment, will not create the possibility of a new or different kind of accident from any previously evaluated.

The operation of Nine Mile Point Unit 2, in accordance with the proposed amendment, will not involve a significant reduction in a margin of safety.

Loads in excess of 1000 pounds over the spent fuel pool will be handled by a single failure-proof handling system. Thus, the probability of a load drop is sufficiently small such that the activity release from a fuel handling accident assumed in the safety analyses will not be affected. The dropping of a load weighing less than the nominal weight of a fuel assembly (i.e., 1000 pounds) would result in activity release limited to that contained in a single fuel assembly and could not result in a critical array due to distortion of the fuel. This is consistent with the assumptions contained in the safety analyses. Therefore, operation of Nine Mile Point Unit 2, in accordance with the proposed amendment, will not involve a significant reduction in a margin of safety.