POWER AUTHORITY OF THE STATE OF NEW YORK

10 COLUMBUS CIRCLE NEW YORK, N. Y. 10019

(212) 397-6200

September 30, 1982
IPN-82-64

Director of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Mr. Steven A. Varga, Chief
Operating Reactors Branch No. 1
Division of Licensing

Subject: Indian Point 3 Nuclear Power Plant
Docket No. 50-286
Control of Heavy Loads

Dear Sir:

By letter dated April 21, 1982 (IPN-82-34) the Authority stated it anticipated that responses to items 1,2,3 and 8 of Enclosure 1 of your March 15, 1982 letter, would be provided by September 30, 1982. In addition,the Authority stated it anticipated that responses to items 4,5,6 and 7, would be provided by November 30, 1982.

The Authority provides, in Attachment A, the responses to items 1,3,4 and 8. The response to item 2 is not complete, at this time, and will be provided with the responses to items 5,6 and 7.

Should you or your staff have any questions, please contact Mr. P. Kokolakis of my staff.

Very truly yours,

J. P. Bayne
Senior Vice President
Nuclear Generation

A033

Att.

cc: attached

cc: Resident Inspector's Office
Indian Point Unit 3
U. S. Nuclear Regulatory Commission
P. O. Box 38
Buchanan, New York 10511

Mr. Ron Barton
United Engineers and Constructors, Inc.
30 S. 17th Street
Philadelphia, PA 19101

ATTACHMENT A

RESPONSES TO NRC MARCH 15, 1982 REQUEST FOR ADDITIONAL INFORMATION CONCERNING CONTROL OF HEAVY LOADS

POWER AUTHORITY OF THE STATE OF NEW YORK
INDIAN POINT 3 NUCLEAR POWER PLANT
DOCKET NO. 50-286
SEPTEMBER 1982

ATTACHMENT A

RESPONSES TO NRC MARCH 15, 1982

REQUEST FOR ADDITIONAL INFORMATION

CONCERNING CONTROL OF HEAVY LOADS

ITEM 1:

Guidelines 1 and 2 of NUREG-0612 state that safe load paths should be defined for the movement of heavy loads to minimize the potential for heavy loads, if dropped, to impact irradiated fuel in the reactor vessel and in the spent fuel pools, or to impact safe shutdown equipment. While the intent of the guideline is to provide a set path for the crane operator to follow when handling heavy loads, we recognize that there may be other equally acceptable ways to avoid unacceptable consequences of a heavy load drop. Since you have chosen to define exclusion areas over which heavy loads may not be moved, please provide an analysis which supports your conclusion that the worst case load can be dropped anywhere outside of the exclusion area and the objectives of Guidelines 1 and 2 will still be achieved.

RESPONSE: The report addressing long term solutions for Indian Point Unit 3 was submitted to the NRC by the Authority's letter dated November 17, 1981. This report includes responses to Sections 2.3 and 2.4 of Enclosure 3 to NRC's letter dated December 22, 1980. These responses contain the results of systems, structural and probability failure analyses related to postulated drops of heavy loads from the Containment Polar Crane onto the operating deck, reactor vessel and refueling canal floor. The results indicate that the consequences of all postulated drops are within the guidelines of NUREG-0612.

Based on these results, it is evident that the exclusion areas defined in our June 22, 1981 submittal achieve the objectives of Guidelines 1 and 2.

ITEM 3:

The staff agrees with your position that safe load paths or procedures are not necessary for sole purpose monorails. In lieu of establishing safe load paths or procedures, you are requested to add a suitable precaution or procedural step to existing procedures. This procedural step should identify components important to safe shutdown over which the load on the monorail will be carried and caution the operator to minimize the time these loads are above the safety related components.

RESPONSE: The operating procedure for the Auxiliary Feedwater Pump Building Monorail includes a Precaution Statement that identifies the safety equipment of interest and describes the specific safety concern with load handling operations. It includes appropriate instructions for the operator regarding (1) actions that should be taken prior to load movement, (2) the need for extreme care during load handling, and (3) preferred plant operating modes for load movements.

ITEM 4:

The special lifting devices in use at Indian Point were designed and manufactured prior to the existence of ANSI N14.6-1978. Therefore you did not answer certain sections of NUREG-0612 Guideline 4. The special lifting devices are used for infrequent lifts of the plant's largest components, generally in the direct vicinity of irradiated fuel and the reliability of these devices is a sensitive concern for both you and the NRC. The data identified in the ANSI standard should have been considered by your engineering staff when you purchased the lifting devices. Accordingly, you are requested to either verify the criteria identified in ANSI NI4.6-1978 Sections 3.1 (Designer's Responsibilities) and 3.3 (Design Considerations) have been complied with or provide data which assures your plant management that the lifting devices were designed and manufacturer properly.

RESPONSE: To the extent possible with available documentation, the special lifting devices identified in the Response to Item 3.d of our June 22, 1981 letter have been compared to the criteria of Sections 3.1 and 3.3 of ANSI NI4.6-1978. The results of this comparison indicate that there is reasonable assurance that the intent of the criteria in Sections 3.1 and 3.3 have been met and that the devices were designed and manufactured properly. The results are provided in Tables 4-1 and 4-2.

TABLE 4-1

REACTOR VESSEL HEAD AND INTERNALS LIFTING RIGS

ANSI SECTION	COMPARISON RESULTS
3.1 Designer's Responsibilities 3.1.1 & 3.1.2 (Design Specifications) 3.1.4 (Repair Procedures)	The designer prepared a purchase order for these devices that lists drawings and process specifications for fabrication of the devices. The designer has also indicated that all primary load bearing members are constructed with material purchased to ASTM standards. All welding and non-destructive testing of the material used in the manufacture, installation and testing of the devices was in accordance with approved Westinghouse Process Specifications and ASME Boiler and Pressure Vessel Codes.
3.1.3 (Stress Analyses)	Stress analyses are not available from the designer. However, records indicate that design calculations were performed. In addition, stress analyses are planned to provide the basis for responding to Item 5, of the NRC March 15, 1982 request for information. The results of these stress analyses are to be provided consistent with our previous schedule commitments.
3.2 Design Considerations 3.3.1 & 3.3.2 (Material Selection)	There is no practical way to apply these criteria when materials were selected before the standard was in existence. The alternative is to inspect for evidence of degradation over the life of these devices. Such inspections have been established.
3.3.3 (Remote Engagement)	Head Rig - Not Applicable Internals Rig - The device is designed to meet this criterion.
3.3.4,3.3.5 and 3.3.6 (Load Engagement)	The devices are designed to meet the applicable portions of these criteria.
3.3.7 (Retrieval - Unintential Disengagement)	Head Rig - Not Applicable Internals Rig - The point of attachment of the crane hook is above the refueling canal water level.
3.3.8 (Nameplate Data)	The devices are restricted to specific uses. Therefore, nameplate date is not pertinent to load handling reliability.

TABLE 4-2

REACTOR VESSEL ISI TOOL

ANSI SECTION	COMPARISON RESULTS
3.1 Designer's Responsibilities 3.1 & 3.2 (Design Specification) 3.1.4 (Repair)	The designer has indicated that the device was purchased to drawing information plus a load test. The drawings provide material and process specifications. This drawing information establishes the designer's responsibilities in regard to assurance that fabrication was in accordance with the intent of the designer. The designer has also indicated that suppliers are required to perform under a quality control system which meets certification requirements.
3.1.3	The designer has indicated that a stress analysis was performed.
3.2 Design Considerations 3.3.1 & 3.3.2 (Material Selection)	There is no practical way to apply these criteria when materials were selected before the existence of the standard. The alternative is to inspect for degradation over the life of the device. Such inspections will be required of the owner of the device.
3.3.3 - 3.3.7	The device is designed to meet the applicable portions of these criteria.
3.3.8	This device is a single purpose device. Therefore, nameplate date is not pertinent to load handling reliability.

ITEM 8:

You are requested to verify the following information in regards to Guideline 5 of NUREG-0612:

(a) Slings are marked with the "static" load which produces the maximum allowed static and dynamic loading on the sling.

(b) Slings which are restricted in use to only certain cranes are clearly marked to so indicate.

RESPONSE: As indicated in the response to Item 3.d, in the Authority's June 22, 1981 submittal, plant procedures require that sling selection be in accordance with ANSI B30.9. For wire rope slings, entering the B30.9 tables with the load weight establishes a margin of 5 to 1 on sling breaking strength. The load selected for entry into the tables is, as a minimum, the static load.

To determine the effect of potential dynamic loading on the safety margins, the dynamic loading factor for the Polar Crane has been calculated utilizing conservative methods. The highest factor calculated was 2.1% of the static load for the main hoist and 5.5% for the auxiliary hoist.

Based on these calculations, it has been concluded that dynamic loading has an insignificant effect on the safety margins established by the sling selection procedures. Therefore, there is no need for special marking of slings to either account for dynamic loading or restrict use to specific cranes.