Wisconsin Electric POWER COMPANY
231 W. MICHIGAN, P.O. BOX 2046, MILWAUKEE, WI 53201

June 30, 1982

Mr. H. R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. NUCLEAR REGULATORY COMMISSION
Washington, D. C. 20555

Attention: Mr. R. A. Clark, Chief
Operating Reactors Branch 3

Gentlemen:

DOCKET NOS. 50-266 AND 50-301
SUBMITTAL OF ADDITIONAL INFORMATION
IN RESPONSE TO DRAFT TECHNICAL EVALUATION REPORT
NUREG-0612, CONTROL OF HEAVY LOADS
POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

On May 20, 1982, a telephone conference was held between Wisconsin Electric personnel, members of the NRC staff, and Mr. I. H. Sargent of Westec, Inc. concerning the draft Technical Evaluation Report (TER) regarding Wisconsin Electric's response to NUREG-0612, "Control of Heavy Loads". During this teleconference, Wisconsin Electric was requested to submit additional clarification regarding a number of issues raised in the draft TER. This additional information is to be incorporated into the final TER being prepared by Franklin Research Institute (FRC) and Westec for the NRC.

FRC requested clarification related to Wisconsin Electric's exclusion of five handling systems from NUREG-0612 review. The handling systems excluded by Wisconsin Electric are the Circulating Water Pumphouse Monorails (N-S and E-W), the Reactor Pressure Vessel Head Circular Monorails (Units 1 and 2), the Containment Buttress Jib Crane (Units 1 and 2), the Main Shop Crane, and the Jib Cranes over Incore Instrumentation (Units 1 and 2). These handling systems were excluded from the NUREG-0612 program due to physical separation and adequate system redundancy. An evaluation performed by Bechtel Power Corporation for Wisconsin Electric demonstrates that the failure of any of these handling systems would not impact redundant safety trains and, therefore, would not adversely affect plant safety.

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The above handling systems, although eliminated from NUREG-0612 review, were subjected to the following evaluations:

I. SAFE LOAD PATHS

Interim Load Paths were defined for each of the five different handling systems. Use of these load paths was discontinued upon completion of the safety evaluation, which concluded that failure of any of these handling systems would have no adverse plant safety impact.

All of these handling systems, with the exception of the main shop crane, are either monorails of jib cranes with fixed travel paths. However, the travel path for these handling systems does not allow a load to pass over more than one train of safety-related equipment. While it is not possible to avoid portions of one train of identified safety-related equipment, the opposite train equipment would not be affected by a load drop. Due to plant operating requirements, these handling systems must be used on their full range of motion.

II. LOAD HANDLING PROCEDURES

All overhead handling systems in use at Point Beach Nuclear Plant (PBNP), including the five systems listed above, are covered by load handling procedures presently in place. Attachment 1 to this letter is an example of the type of procedure in use at Point Beach.

III. CRANE OPERATOR TRAINING

All overhead handling systems in use at PBNP, including the five systems listed above, are operated only by trained operators. Crane operator training is discussed in more detail later in this letter.

IV. SPECIAL LIFTING DEVICES

No special lifting devices are used with these handling systems.

V. LIFTING DEVICES (SLINGS)

All slings used at PBNP meet the criteria developed by Wisconsin Electric to satisfy requirements for adequate factors of safety and dynamic loading considerations. These criteria were included in Wisconsin Electric's six and nine-month responses to NUREG-0612.

VI. CRANES (INSPECTION, TESTING, AND MAINTENANCE)

All overhead handling systems in use at PBNP, including the five systems listed above, are covered by the inspection, testing, and maintenance procedures as described in Wisconsin Electric's six and nine-month responses.

VII. CRANE DESIGN

In view of the fact that there is no unacceptable safety impact from failure of these handling systems, we determined that it was not necessary to expend further resources to determine the extent of each crane's compliance with appropriate design standards. Each of the five systems was purchased to meet normal industrial quality standards.

FRC requested additional information regarding Wisconsin Electric's use of large signs as an alternative to marking safe load paths on the floor. The following information describes Wisconsin Electric's safe load path signs. The signs are 3' x 4' in size. They are located in the following areas: common turbine hall, elevation 46'0" on the wall of the control building; auxiliary building, elevation 66'0"; and containments, Units 1 and 2, elevation 66'0". The signs are labelled in large letters "HEAVY LOAD INFORMATION AND SAFE LOAD PATHS" and contain the following information:

a. The safe load path for the crane.

b. A listing of identified heavy loads located in the area and their weights.

c. Sling capacity tables from the Riggers Handbook.

d. An example on the proper sizing and use of slings.

Reference to these signs is made in written load handling procedures.

FRC also requested clarification of Wisconsin Electric's procedure for approving deviations from safe load paths. As previously stated in the Wisconsin Electric six-month response, Item 4.3.2, deviations from Safe Load Paths are not permitted without prior approval of the Manager's Supervisory Staff. As a point of clarification, the Manager's Supervisory Staff is Wisconsin Electric's On-Site Safety Review Committee.

In the teleconference, Wisconsin Electric agreed to document our belief that general procedures governing all lifts are adequate to ensure safe load handling at PBNP. To provide an example of these general procedures, Wisconsin Electric is including the procedure for using a wire rope sling at Attachment 1 to this letter. This procedure, SLP.6, is used for all wire rope slings at PBNP.

In the draft TER, FRC has found Wisconsin Electric's exceptions to ANSI B30.2-1976 unacceptable. After discussing this matter with Mr. Sargent, it appears that the problem may relate to Wisconsin Electric's literal interpretation of this ANSI standard. Certain portions of this standard, if interpreted in their strictest sense, would require operating practices much more limiting than normal good industrial practice, which we of course follow. For example, contrary to a literal interpretation of Section 2-3.1.7g of ANSI B30.2-1976, it is standard practice to leave the main line disconnect switches closed on the turbine building and auxiliary building cranes when not in use. In addition, the main line disconnect switch for the containment polar cranes are left closed throughout refueling and maintenance outages. When the reactor is on line, and there is no activity in the containments, the containment polar cranes' main line disconnect switches are left open. Although the main disconnect switches are left closed, local disconnects allow the crane to be de-energized for servicing. Control power switches are normally left open, protecting against unexpected crane operation.

Contrary to the requirements of Section 2-3.1.7n of ANSI B30.2-1976, certain maintenance and testing operations specifically require that the crane be energized. FRC's concern expressed in the TER regarding danger to untrained individuals is unwarranted, as only trained maintenance personnel service cranes at PBNP. Wisconsin Electric uses common sense safety practices when servicing cranes, and recognizes appropriate safety practices must be followed while maintaining equipment that is energized. Also, Wisconsin Electric does not perform maintenance on its cranes while a load is suspended from the crane.

While FRC deferred comment regarding special lifting devices because Wisconsin Electric has not yet submitted the results of the evaluation of its special lifting devices, FRC did note that Wisconsin Electric excluded the turbine rotor lifting rig and the main feed pump lifting rig from review, and requested further information as to this exclusion. The main feed pump lifting rig was excluded because it is in fact not a lifting rig but is used to pull the rotor in a horizontal direction to remove the rotor from the main feed pump motor casing. This rig does not transport any load. The turbine rotor lifting rig was excluded because it is basically a spreader beam type lifting rig. Mr. Sargent agreed that a spreader beam type rig need not be evaluated for compliance to ANSI N14.6-1978.

Mr. Sargent requested that Wisconsin Electric clarify its position regarding the inspection of the containment polar cranes prior to initial use and prior to the first critical lift during each refueling outage. As stated in our six-month response, Item 4.3.5, the containment polar cranes will be given an initial inspection in accordance with OSHA requirements prior to first use. Additionally, the major annual inspection will be performed on the crane as time permits, but will be completed prior to making the first critical lift.

The draft TER listed a concern regarding Wisconsin Electric's treatment of the requirements for interim protection during the period of time in which we were performing the heavy loads analysis. Specifically, FRC stated that Wisconsin Electric submitted no information regarding interim protection measures taken in response to the NRC's December 22, 1980 letter. This information was not requested in either the six or nine-month responses. Attachment 2, provided for NRC's and Westec's information, is a copy of Wisconsin Electric's letter of June 19, 1981 regarding our implementation of interim protection measures. These interim measures were applied to all cranes handling heavy loads at PBNP, including the containment polar cranes.

We believe that this information is sufficient to answer the questions noted in FRC's draft TER. Please contact us if you have any further questions.

Very truly yours,

C. W. Fay

Assistant Vice President

C. W. Fay

Attachments

Copies to NRC Resident Inspector
Mr. I. H. Sargent, Westec

SLP 6
MINOR
Revision 0
03-01-82

WIRE ROPE SLING SIZING

!.0 DESCRIPTION

There are two types of wire rope slings in use at PBNP:

1.1 Existing slings are marked only with their rated capacity. This rated capacity is the maximum allowable load for a single vertical hitch. These slings are 6 x 19 classification group, improved plow steel, fibre core.

1.2 Slings purchased for use after 03-01-82 will have a PBNP serial number and a rated capacity marked on them. These slings are 6 x 37 classification group, improved plow steel, independent wire rope core.

NOTE: IF A SLING IS NOT TAGGED WITH A RATED CAPACITY, IT MAY NOT BE USED UNTIL THE CAPACITY HAS BEEN DETERMINED. THIS IS DONE BY MEASURING THE SLING DIAMETER AND USING SLP 9, TABLE 1. YOUR SUPERVISOR CAN ANSWER ANY QUESTIONS YOU HAVE ON DETERMINING SLING CAPACITY.

The type of sling you are using will determine which table you use to determine its capacity, but the procedures for sling selection and use are essentially the same.

2.0 SLING SELECTION

The following procedure is used to properly select a sling.

2.1 Determine the weight of the load to be lifted. SLP 10, Tables 4 through 6, which are attached to this procedure, give the weights for the previously identified heavy loads at PBNP. These tables also appear on the Heavy Load Information & Safety Load Path signs located in the turbine building, auxiliary building, and Unit 1 and Unit 2 containments. If the load you are lifting is not listed, you must determine the weight prior to lifting. Notify your supervisor of this situation.

2.2 Once you determine the actual weight of the load to be lifted, multiply the weight by 2.

NOTE: THIS FACTOR WILL GIVE YOU AN EQUIVALENT DYNAMIC WEIGHT.

The NRC requires that all loads be rigged to handle the equivalent dynamic weight. The weights of all loads lifted at PBNP must be doubled before selecting the proper sling. The only exception of this requirement is for loads handled in the turbine building south of column Line 10 or north of column Line 13. In addition, the slings used in transporting the turbine rotors over the control building are not required to be selected based upon a double weight.

2.3 Determine how you will rig the load. Refer to Handbook for Rigging for specific information on rigging.

2.4 Once you have determined the equivalent dynamic weight of the load to be lifted and know how you will rig it, you can select a sling by using the following SLP 9, Tables 1 or 2. Note that Table 1 is for the existing PBNP slings and Table 2 is for new PBNP slings. Be sure to use the proper tables. Shackles should also be sized to this equivalent dynamic weight. The following example will illustrate the steps involved in selecting the proper sling:

Load to be lifted: Large filter cask

2.4.1 Determine weight: From SLP 10, Table 4, the weight of the filter cask is found to be 3,850 pounds.

2.4.2 Multiply 3,850 pounds by 2 to obtain an equivalent dynamic weight of 7,700 pounds.

2.4.3 Determine how you will rig the load, i.e., single vertical hitch, choker hitch, single leg basket, 2-leg bridle hitch, or single basket with inclined legs. For details on these rigging configurations, see the Handbook for Rigging. In this case, you will use a single-leg basket hitch with legs inclined at 60° (from the horizontal). The slings available for your use do not have a PBNP identification number. Therefore, you must use SLP 9, Table 1. On Table 1, under the 60° column, locate the 7,700 pounds. In this case, the nearest capacity greater than 7,700 pounds is 9,200 pounds. Read across to the single vertical column to determine the rating of the required sling. In this case, a sling of 5,300 pounds rated capacity is required.

ATTACHMENT 2

Wisconsin Electric POWER COMPANY
231 W. MICHIGAN, P.O. BOX 2046, MILWAUKEE, WI 53201

June 19, 1981

Mr. H. R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. NUCLEAR REGULATORY COMMISSION
Washington, D. C. 20555

Attention: Mr. D. Eisenhut, Director
Division of Licensing

Gentlemen:

DOCKETS 50-266 AND 50-301
NUREG-0612 - CONTROL OF HEAVY LOADS
STATUS OF INITIAL ACTION
POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

Your letters dated December 22, 1980 and February 3, 1981 requested implementation of the interim actions specified in Enclosure 2 to the December 22 letter by May 15, 1981. To this end, the following actions have been taken:

1) Interim safe load paths have been defined and marked on equipment layout drawings. These paths were defined by inspection rather than by detailed analysis. A detailed analysis of heavy load handling facilities will be submitted by December 31, 1981. The interim safe load path drawings are on file at Point Beach Nuclear Plant. Interim safe load paths have not been physically marked on plant floors because we believe such markings may confuse rather than aid the crane operator.

2) Plant administrative controls for the use of lifting devices have been revised to reference the interim safe load path drawings. Existing plant lifting procedures will continue to be observed in lifting heavy loads. New lifting procedures will be written if they are shown to be required by the detailed analysis.

3) Crane operators are trained to the existing Point Beach Nuclear Plant operator training program, TRNG 2.1, Revision 0. This program meets requirements of ANSI B30.2, Chapter 2-3, with the following exceptions with respect to training and operations:

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1) 2-3.1.7e The warning bell will be actuated only as required to advise personnel of crane movement, rather than continuously during crane motion.

2) 2-3.1.7g The main line disconnect switch will not be left open. Present operating practice is to leave it shut on some cranes, whether or not they are in use, thus reducing the delay when placing the crane in service.

3) 2-3.1.7n The cranes will not be de-energized for normal maintenance since some maintenance requires that the power be on.

4) 2-3.1.7o Crane controls will not be tested at the beginning of each shift. They will be tested at the beginning of each lifting operation.

5) Existing Wisconsin Electric medical examinations assure compliance with physical requirements as specified in Section 2-3.1.2b, 3 through 6. Future medical examinations, to be scheduled as soon as practicable, will include eye examinations to meet the requirements of Sections 2-3.1.2.b.1 and 2-3.1.2.b.2.

4) Present Point Beach Nuclear Plant maintenance procedures will continue to be observed. These maintenance procedures meet the requirements of Chapter 2-2, ANSI B30.2, 1976, with the following exceptions:

1) 2-2.1.2 Inspections required in this section will be performed at the frequency required by current plant maintenance procedures which conform to the frequency requirements of ANSI B30.2, 1976, Section 2-2.1.1.6.2.

2) The containment polar cranes will be subjected to an OSHA inspection prior to use during the refueling operation. The major annual inspection will be performed during the refueling operation as time permits.

We will be unable to complete the six-month report on the schedule which you have requested; we expect to be able to submit the report in September 1981. It should be noted that this schedule depends on the work load being imposed on our staff and consultants in conjunction with other NRC bulletins, TMI backfitting, and fire protection modifications.

If there are any questions regarding this information, please contact us.

Very truly yours,

C. W. Fay, Director
Nuclear Power Department

Copy to NRC Resident Inspector