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DENTON,H.R. Office of Nuclear Reactor Regulation, Director
STOLZ,J.F. Operating Reactors Branch 4

SUBJECT: Forwards partial response to Franklin Research Ctr draft technical evaluation rept re control of heavy loads,per NUREG-0612.

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October 8, 1982

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Mr. John F. Stolz, Chief
Operating Reactors Branch No. 4

Subject: Oconee Nuclear Station
Docket Nos. 50-269, -270, -287

Dear Sir:

In response to your letter of February 18, 1982, and as clarified in the conference call on April 20, 1982, please find attached a portion of our response to the Draft Technical Evaluation Report (DTER) by Franklin Research Center on control of heavy loads at Oconee Nuclear Station. Analysis is still underway on the remaining items identified in the DTER, and a supplemental response will be provided by November 5, 1982 with this information.

Very truly yours,

H.B. Tucker/JFN

Hal B. Tucker

JFN/php
Attachment

A033

OCONEE NUCLEAR STATION
Response to FRC-TER
Control of Heavy Loads
(NUREG 0612)

Introduction

This report provides additional information on the load handling systems at Oconee Nuclear Station as requested by the NRC in a letter dated February 18, 1982 concerning the Franklin Research Center's Draft Technical Evaluation Report. The responses in this submittal are provided to Guideline 7 of NUREG-0612 Section 5.1 (General Provisions for Load Handling) and Interim Measure 1 of NUREG-0612 Section 5.3 (Interim Protection Measures). A supplemental response will address the remaining items identified in the Draft TER.

Section 5.1 (General Provisions for Load Handling)

Guideline 7, Recommendation a.

Evaluate crane design at the Oconee Station for compliance with the 13 items identified in the FRC evaluation of CMAA-70.

Response to Item 1 - Torsional Forces

Non-symmetrical girder sections were not used in construction of the cranes at Oconee.

Response to Item 2 - Longitudinal Stiffeners

The allowable h/t ratios in box girders using longitudinal stiffeners do not exceed ratios specified in CMAA-70. The size and location of longitudinal stiffeners used on box girders are being reviewed for compliance with CMAA-70. Duke Power's response to these questions will be submitted to the NRC at a later date.

Response to Item 3 - Allowable Compressive Stress

Girders with b/c ratios in excess of 38 were not used at Oconee Nuclear Station.

Response to Item 4 - Fatigue Considerations

Cranes lifting loads at or near their rated capacities do so approximately 2.38 times a year (max). Over the 40 year life of the plant, this amounts to ninety-five cycles. For this reason fatigue is not a concern.

Response to Item 5 - Hoist Rope Requirements

Maximum crane load weight, plus the weight of the bottom block divided by the number of parts of rope does not exceed 20 percent of the manufacturer's published breaking strength for cranes at Oconee.

Response to Item 6 - Drum Design

Drum design calculations were based on the combined crushing and bending loads.

Response to Item 7 - Drum Design

Drum groove depth and pitch on cranes at Oconee Nuclear Station generally meet

those recommended in CMAA-70. Small variations do occur, but are not significant enough to adversely affect reeving stability and rope wear.

Response to Item 8 - Gear Design

Gear horsepower ratings were based on design allowables and calculations methodology identical to that incorporated into CMAA-70.

Response to Item 9 - Bridge Brake Design

Bridge brakes designed under USAS B30.2-1967 and ANSI B30.2-1976 are required to stop bridge motion within a distance in feet equal to 10 percent of full load speed in feet per minute when traveling at full speed with full load. Therefore, the performance of bridge brakes subject to this review will be equivalent to those designed under CMAA-70.

Response to Item 10 - Hoist Brake Design

Hoist brake design is in compliance with that specified in CMAA-70 for the applicable cranes at Oconee.

Response to Item 11 - Bumpers and Stops

Guidance for the design of bumpers and stops on bridge cranes at Oconee Nuclear Station was obtained from USAS B30/2-1967. The provisions of this specification generally meet those of CMAA-70. Variations do not significantly affect the performance or safety of the cranes.

Response to Item 12 - Static Control Systems

Static control systems in use at Oconee Nuclear Station are in compliance with CMAA-70.

Response to Item 13 - Restart Protection

Controllers used at Oconee are of the spring-return or momentary contact push-button type.

Guideline 7, Recommendation b.

Provide information to support the contention that the standby shutdown facility generator room crane is exempt from CMAA-70 and ANSI B30.2-1976 design requirements.

Response

CMAA-70 and ANSI B30.2-1976 apply to electric, top running bridge, multiple girder cranes. The Generator Room Crane is a manually operated, single girder overhead traveling crane. Therefore, the above referenced specifications do not apply.

Section 5.3 (Interim Protection Measures)

Section 5.3 (Interim Protection Measures) (cont'd.)

Interim Measure 1 Recommendation

Provide information to justify defining 3000lbs. as a heavy load in light of the NUREG-0612 definition of a heavy load.

Response

The NUREG-0612 definition of Heavy Load is: "Any load, carried in a given area after a plant becomes operational, that weighs more than the combined weight of a single spent fuel assembly and its associated handling tool for the specific plant in question." The weight of a spent fuel assembly is approximately 1680 lbs. and the weight of the handling tool is approximately 1318 lbs., thus totaling approximately 2998 lbs. The 3000 pound limit is thus simply the specific application of the limit as defined in NUREG-0612 considering the accuracy of the weight measurements.