

Nebraska Public Power District

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December 3, 1982

EO-298

Mr. Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Eisenhut:

Subject: Control of Heavy Loads - Special Lifting Device
Analyses

- Reference:
- 1) Letter from Jay M. Pilant to D. G. Eisenhut dated May 14, 1982; Control of Heavy Loads
 - 2) Draft Technical Evaluation Report by Franklin Research Center (FRC) dated October 5, 1981; same subject

In Reference 1, the District responded to the draft Technical Evaluation Report prepared by the Franklin Research Center (Reference 2). Only a partial response to Item 2.1.5 was provided at that time and additional information is being provided below.

2.1.5 Special Lifting Devices [Guideline 4, NUREG-0612, Article 5.1.1(4)]

"Special lifting devices should satisfy the guidelines of ANSI N14.6 - 1978, "Standard for Special Lifting Devices for Shipping Containers Weighing 10,000 Pounds (4,500 kg) or More for Nuclear Materials" (5). This standard should apply to all special lifting devices which carry heavy loads in areas as defined above. For operating plants certain inspections and load tests may be accepted in lieu of certain material requirements in the standard. In addition, the stress design factor stated in Section 3.2.1.1 of ANSI N14.6 should be based on the combined maximum static and dynamic loads that could be imparted on the handling device based on characteristics of the crane which will be used. This is in lieu of the guideline in Section 3.2.1.1 of ANSI N14.6 which bases the stress design factor on only the weight (static load) of the load and of the intervening components of the special handling device."

A033

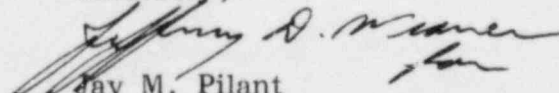
RESPONSE

The conformance analysis for the following special lifting devices have been completed:

1. Strongback for the Upper and Lower Concrete Dryer - Separator Plugs (Drawing B & R 4295) - Calculations show a factor of safety less than required by NUREG 0612. The District presently intends to modify the strongback per ANSI N14.6 - 1978 prior to the Spring 1983 refueling outage.
2. Strongback for Outer Concrete Shield Plugs (Drawing B & R 4295) was analyzed and meets the safety factors set forth in the design criteria of ANSI N14.6 - 1978. The fracture toughness and Charpy impact test were considered not relevant to this device since it was designed and constructed prior to our reanalysis.
3. Redundant Crane Adapter for RPV Head Strongback and Steam Dryer - Separator Sling (Drawing S & R 22653-1) was analyzed and meets the safety factors set forth in the design criteria of ANSI N14.6 - 1978. The fracture toughness and Charpy impact test were considered not relevant to this device since it was designed and constructed prior to our reanalysis.
4. RPV Head Strongback (Drawing GE 731E859) - Finite element analyses of strongback indicated a factor of safety of 4.8 for maximum shear stresses in the top flange and 4.6 for the ultimate traverse tensile stress in the weld between the top flange and the hook box. In both cases the high stresses are a result of stress risers around the corners of the rectangular hole in the top flange. The analysis was based on using minimum allowable yield and ultimate strength properties of the materials involved. The District discussed factors of safety close to 5 with the staff and has determined that no further modifications to the head strongback are required.
5. Steam Dryer and Separator Sling (Drawing GE 730E407) was analyzed and meets the safety factors set forth in the design criteria of ANSI N14.6 - 1978. The fracture toughness and Charpy impact test were considered not relevant to this device since it was designed and constructed prior to our reanalysis.

Should you require additional details, please contact me.

Sincerely,


Jay M. Pilant
Division Manager of
Licensing & Quality Assurance

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