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ILLINOIS POWER COMPANY



CLINTON POWER STATION, P.O. BOX 678, CLINTON, ILLINOIS 61727

February 21, 1985

Docket No. 50-461

Director of Nuclear Reactor Regulation
Attention: Mr. A. Schwencer, Chief
Licensing Branch No.2
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Subject: Clinton Power Station Unit 1
Control of Heavy Loads (NUREG-0612)

Dear Mr. Schwencer:

This letter is in response to concerns identified by the NRC staff in July 1984 regarding compliance to NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants," (Phases I and II). Illinois Power believes that the attached information addresses your concerns.

Should you have any questions concerning this matter, please contact us.

Sincerely yours,

A handwritten signature in cursive script that reads 'F. A. Spangenberg'.

F. A. Spangenberg
Director - Nuclear Licensing
and Configuration
Nuclear Station Engineering

LRR/em

Attachment

cc: B. L. Siegel, NRC Clinton Licensing Project Manager
NRC Resident Office
Regional Administrator, Region III USNRC
Illinois Department of Nuclear Safety

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Responses to NRC Concerns Regarding
NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants"
(Phases I and II)

Phase I

Guideline 1, Safe Load Paths

Question:

Provide specific information on the method(s) of physically marking safe load paths.

Response:

Illinois Power (IP) will either physically mark the load paths, or a second member of the load handling party will be responsible for assuring that the designated safe load path is followed. Any temporary changes to safe load paths will be reviewed and approved by an individual with the appropriate training and education in the area of plant safety.

Question:

Complete the load drop analysis on the refueling floor in the Containment and its effect relative to safe load paths. Note that single failure proof lifting systems do not create exemption from safe load paths.

Response:

The load drop analysis will be completed and safe load paths modified accordingly. The modified safe load paths will be incorporated into the appropriate procedures.

Guideline 3; Crane Operator Training:

Question:

The "no exceptions taken to ANSI B30.2-1976" for Crane Operator Training is in effect a commitment which could be better expressed. As we see this it is a commitment that is consistent with the guideline.

Response:

IP intends to comply with ANSI B30.2-1976 for Crane Operator Training.

Guideline 4; Special Lifting Devices:

Question:

Confirm the actual number of Special Lifting Devices. Verify that each meets ANSI N14.6-1978 and all are designed for static plus maximum dynamic loads.

Response:

Two special lifting devices will be used at Clinton, the RPV Head Strongback and the RPV Dryer/Separator Strongback, both of which have been designed and supplied by General Electric (GE) to accomplish their intended Reactor Vessel servicing and refueling functions. Both strongbacks are designed to be single failure proof and should adequately comply with NUREG-0612 paragraph 5.1.1(4) as demonstrated below.

Relevant Component Weights (approx.)/Ratings, (tons):

| | | |
|----|---|------|
| a) | RPV Head | 63 |
| b) | Drywell Head | 65 |
| c) | RPV Head Strongback including nut tray, nuts, washers | 25 |
| d) | RPV Head Strongback excluding nut tray, nuts, washers | 23 |
| e) | RPV Separator | 44.5 |
| f) | RPV Dryer | 29.5 |
| g) | RPV Dryer/Separator Strongback | 4 |
| h) | RPV Head Strongback Rated Capacity | 100 |
| i) | RPV Dryer/Separator Strongback Rated Capacity | 44.5 |

I. RPV Head Strongback:

The RPV Head Strongback will also be used to remove the Drywell Head. The configuration of the strongback for Drywell Head removal is such that the combined weights of the RPV Head with strongback (a + c, from above) and Drywell Head with strongback (b + d, from above) are approximately equal.

General Electric design calculations for the RPV Head Strongback were based on a load of 100 tons (estimated total RPV Head/Strongback weight of 86.7 tons plus a 15% dynamic allowance of 13 tons) and provided safety factors greater than 3 with respect to yield and greater than 5 with respect to the ultimate strength of the material.

Although the approximate weights of (a + c = 88 tons) or (b + d = 88 tons) from above differ slightly (approximately 1%) from the estimated 86.7 tons used in the GE calculation, it is negligible considering the substantial margin between the 15% dynamic allowance used in the GE calculation and the actual dynamic load imposed on the handling system of 2.5% ($\frac{1}{2}\%$ of the load per foot per minute of hoisting speed from CMAA #70; i.e., $\frac{1}{2}\%$ of 5 ft./min. equals 2.5%).

The load test performed was at 125 tons (125% of rated load) and is in lieu of the 150% load test specified in ANSI N14.6-1978.

II. RPV Dryer/Separator Strongback

GE design calculations for the Dryer/Separator Strongback were based on a load of 54.5 tons (which included a 15% dynamic allowance factor) and provided safety factors of greater than 3 with respect to yield and greater than 5 with respect to the ultimate strength of the material.

Although the approximate weight of (e + g = 48.5 tons) differs slightly (approximately 2%) from the estimated 47.4 tons used in the GE calculation, it is negligible considering the substantial margin between the 15% dynamic allowance used in the GE calculation and the actual load imposed on the handling system of 2.5% (as discussed above for the RPV Head Strongback).

The load test performed was 55.625 tons (125% of rated load) and is in lieu of the 150% load test specified in ANSI N14.6-1978.

Guideline 5; Non-special slings:

Question:

The commitment made in the 03-17-83 submittal is consistent with the guideline for non-special slings. Any sling committed to a dedicated use should be identified according to the NUREG-0612, Reference 5.1.1(5).

Response:

Any dedicated slings at CPS will be used in accordance with Guideline 5.

Phase II

Question:

The fuel transfer tube shield plug jib crane status was, and is pending. Submit data justifying an exempt status or that it meets NUREG-0612, Article 5.1.

Response:

Mechanical stops were added to the jib crane to limit rotation such that a shield plug, if dropped, will not fall into the Spent Fuel Storage Pool. It is therefore exempt from NUREG-0612.

Question:

Three cranes under design were listed but no information was provided. Confirm if they are exempt or meet NUREG-0612, Article 5.1.5. Auxiliary Roof Gantry, Fuel Channeling Hoist, Screen House Trash Basket Hoist.

Response:

The subject cranes are exempt from NUREG-0612 as described below:

The Auxiliary Roof Gantry Crane is used to remove concrete roof plugs that form part of the secondary containment boundary and is therefore used only during plant shutdown.

The Fuel Channeling Hoist will be used to install channels on new fuel bundles. It will not lift "heavy loads" and is therefore out of the scope of NUREG-0612.

The plans to use a Screen House Trash Basket Hoist were cancelled; therefore, conformance to NUREG-0612 is not required.