



PUBLIC SERVICE COMPANY OF COLORADO

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OSCAR R. LEE
VICE PRESIDENT

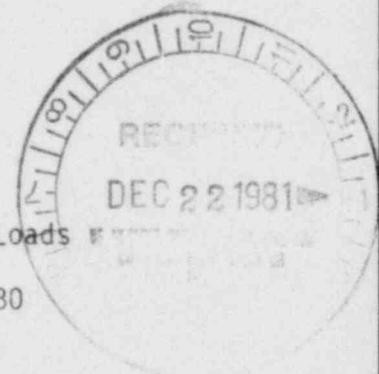
December 14, 1981
Fort St. Vrain
Unit No. 1
P-81316

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

Docket No. 50-267

Subject: Control of Heavy Loads

Reference: Letter dtd 12/22/80



Gentlemen:

The following is Public Service Company of Colorado's nine month response to the criteria of NUREG-0612 on handling of heavy loads. PSC's response is based on the fact that Fort St. Vrain is a High Temperature Gas-Cooled Reactor (HTGR) rather than a water reactor, and therefore our response is applicable to the HTGR concept.

Enclosure 3 of NRC letter dated December 22, 1980 requested additional information on control of heavy loads.

SECTION 2.2 Specific requirements for overhead handling systems operating in the vicinity of fuel storage pools.

PSC RESPONSE:

Fort St. Vrain (FSV) is a HTGR and does not use a fuel storage pool. Spent fuel is contained in steel vessels which are stored in concrete vaults below the refueling floor, the location of which can be seen in the sketch attached to our September 16, 1981 letter on Control of Heavy Loads. Since FSV has no fuel storage pools that could be affected by a load drop, no response to this section is required.

SECTION 2.3 Special Requirements of Overhead Handling Systems Operating in the Containmentment.

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PSC RESPONSE

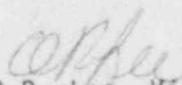
- 1) The design of Fort St. Vrain is such that the term containment is taken to mean reactor building. The crane used in this area is the reactor building crane as discussed in SECTION 2.1 of our September 16, 1981 response to Control of Heavy Loads. This crane is an overhead traveling type crane, the capacity is 1.0 tons and designated by equipment number G7201.
- 2) The reactor building crane is the only crane capable of carrying a heavy load over the reactor vessel, therefore no other cranes need be included in this category.
- 3) The reactor building crane has sufficient design features so that the probability of a load drop is extremely small. A snubber system on the crane is so designed that in no case will the fuel handling machine (165.5 tons) come in contact with the refueling floor except at isolation valve locations which are designed to receive the fuel handling machine. An indicating light is provided on the crane control station to indicate that the snubber system is positively engaged for operating. The snubber system is designed to support the 165.5 ton fuel handling machine plus impact in the case of cable breakage and limit the vertical travel of the hoist system to 14 inches. This device is in addition to two DC magnetically operated shoe-type brakes plus an eddy current braking system. See Attachment 1 to this letter for the additionally requested reactor building crane information. No further response to this section is required.

SECTION 2.4 Special requirements for overhead handling systems operating in plant areas containing equipment required for reactor shutdown, core decay head removal, or spent fuel pool cooling.

PSC RESPONSE

There are no cranes operating in plant areas where the specified systems are located. Also as stated in Section 2.2, Fort St. Vrain is an HTGR and does not have a spent fuel pool. The systems required for reactor shutdown and core heat removal are not contained in the same area as the reactor building crane, which is the only overhead crane with the capability of carrying a heavy load. Therefore, the reactor building crane does not need to be further analyzed per SECTION 2.4.

Very truly yours,


O.R. Lee, Vice President
Electric Production

ORL/RAG:pa

Attachment

ATTACHMENT 1

FORT ST. VRAIN REACTOR BUILDING CRANE
SINGLE-FAILURE-PROOF HANDLING SYSTEMS

- 1) The manufacture of the reactor building crane is Whiting Corporation. The design-rated load (DRL) is 200 tons. The maximum critical load is 170 tons.
- 2) The crane was designed by Whiting Corporation in accordance with EOCI Specification #61 and reanalyzed and certified to CMAA-70 in 1972. The crane is inspected, tested, and operated in accordance with PSC's crane operating, inspection, and maintenance procedure. PSC meets the requirements contained in CMAA-70 and therefore is in compliance with the intent of NUREG-0554.
- 3) The reactor building crane has been designed to retain its load during a SSE Seismic Event. This is shown by the following simple analysis. The design rated load for the reactor building crane is 200 tons and the maximum vertical seismic acceleration for Fort St. Vrain is 0.15g. The maximum seismic plus dead weight load on the crane would be 190 tons ($1.15 \times 165.5 = 190$ tons). The exact method of analysis & assumption made in the mathematical model is not known since the detailed calculations were made by Whiting Corporation, and this information is not available to PSC.
- 4&5) No information is available on the design and analysis details of the interfacing lift points and special lifting devices. As stated in section 3, the crane was analyzed and designed by Whiting Corporation to meet the applicable specification (EOCI-61) at time of purchase and at a later date the crane was reanalyzed by Whiting to meet CMAA-70. PSC considers the crane to be adequate and sufficient to carry heavy loads at Fort St. Vrain and to be in conformance with NUREG-0612.