

Local PR



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

December 10, 1979

Docket No.: 50-267

Mr. J. K. Fuller, Vice President
Public Service Company of Colorado
P. O. Box 840
Denver, Colorado 80201

Dear Mr. Fuller:

The installation of the Region Constraint Devices (Luci Locks) has been discussed in past correspondence (P-79068, 3/23/79; P-79070, 4/6/79) and various meetings (11/1/79, 11/20/79). The design of the Luci Locks was proposed as a possible remedy to the FSV Power Fluctuation Phenomenon and they will mechanically interlock fuel regions across the top layer of the core thereby preventing the accumulation of bypass flow gaps at region boundaries. The Luci Locks are expected to stabilize external region gaps at their nominal values and will limit changes in gap flows thereby minimizing pressure differences across regions. Based on observed data, it has been postulated that changes in gap widths, flows, and pressure distributions contribute to the fluctuation phenomenon in the FSV primary coolant system.

During the previous meetings, NRC staff observed a video-tape of model testing performed on the FSV core using the Luci Locks to prevent fluctuations. Two tests were observed, one was a half scale model, the other a fourteenth scale model. In both cases region shifts, i.e., fluctuations, were observed without Luci Locks in place whereas no fluctuation could be induced even with intentional shaking of the model when the Luci Locks were in place.

NRC consultants at the Los Alamos Scientific Laboratory have analyzed the effect the Luci Locks might have on the dowel shear forces and fuel element impact forces during a seismic event. The conclusions of the LASL report are that the addition of Luci Locks can be expected to decrease the maximum dowel shear forces; also, for motions produced when fuel block slippage occurs, the fuel element impact velocities and impact forces will be reduced.

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Mr. J. K. Fuller

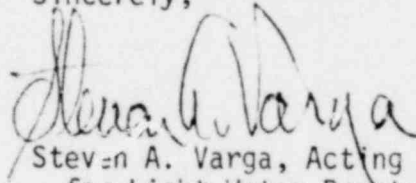
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The NRC staff has reviewed the effect of the Luci Locks on the Nuclear Design, Thermal-Hydraulic Design, Fuel Performance, Structural Performance, and Plant Operations and Testing. Our evaluations on the above effects on the operation of the plant with Luci Locks in place are presented in the attached Enclosure to this letter. Based on our review of the potential effects of the Luci Locks on the core, the proposed operating and test plans, and the test data from cycles 1 and 2, we conclude that the Fort St. Vrain reactor can be safely operated with the installed Luci Locks up to the presently authorized level of 70% of full power.

Should you have any questions or comments please call George Kuzmycz the Project Manager.

Sincerely,



Steven A. Varga, Acting Assistant Director
for Light Water Reactors
Division of Project Management

Enclosure:
As stated

cc: Bryant O'Donnell, Esq.
Kelly, Stansfield & O'Donnell
990 Public Service Company Building
Denver, Colorado 80201

James B. Graham
Manager, Licensing and Regulation
East Coast Office
General Atomic Company
2021 K Street, N.W.
Suite 709
Washington, D.C. 20006

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