Georgia Power Company 230 Peachtree Street Post Office Box 4545 Atlanta, Georgia 30302 Telephone 404 522-6060

· · · · · · ·

January 2, 1980

R. J. Kelly Vice President and General Manager **Power Generation** 



393

8001080

Director of Nuclear Reactor Regulation U. S. Nuclear Regulatory Commission Washington, D. C. 20555

> NRC DOCKET 50-321 OPERATING LICENSE DPR57 EDWIN I. HATCH NUCLEAR PLANT UNIT 1 BWR FEEDWATER NOZZLE REPAIR REPORT

## Gentlemen:

The following information is submitted pursuant to reporting requirements set forth in Section 7 of NUREG-0312. From May 2, 1979, to June 19, 1979, during the Hatch 1 refueling/maintenance outage, there was a project in progress requiring vessel entry which involved cladding removal on the feedwater nozzles and installation of piston ring feedwater spargers. Because of efforts in cleaning and shielding, dose rates were maintained at reasonable levels. These efforts included hydrolancing the reactor vessel, installation of a concrete platform shield over the unloaded core area, installation of vessel wall shielding, and finally, a thorough cleaning operation on the feedwater nozzles.

The concrete platform shield installed over the unloaded core area, in conjunction with a high water level, served as an effective shield against any radiation originating from the top guide. After installation of the shield, dose rates were measured at 500 mr/hr at the platform level; at the same location before installation of the platform shield, the dose rate was approximately 1000 mr/hr.

For the purpose of vessel wall shielding, shield plates with lead blankets attached to the bottom edge were used. This so-called wind chime shield was to be suported by a circular I-beam; due to problems encountered in ordering the parts, however, the shipment arrived late and when it did arrive, only half of the I-beam was present. What was then used to support the shield were teardrop-type shield supports with make-up cables so that the shielding could be supported from the vessel studs. Despite these efforts, however, it was not possible to space the shielding uniformly around the wall, and as a result, gaps were present in the shield.

Dose rates attributable to the feedwater nozzles were reduced effectively through cleaning efforts. Castor oil was applied to the nozzle bore and then the bore was cleaned with conical power driven wire brushes. Afterwards the nozzles were cleaned with rags and a liquid penetrant fluid (P.T. cleaner). After this, dose rates were measured at 900, 700, 750, and 650 mr/hr flush with the 45°, 135°, 225°, and 315° nozzle faces, respectively. Before the cleaning, the dose rates were approximately 1100 mr/hr, flush with each face.

1703 003 A024 S 10 80010



Director of Nuclear Reactor Regulation U. S. Nuclear Regulatory Commission January 2, 1980 Page Two

After all shielding was installed, the dose rate at waist level on the vessel centerline (measured from platform level) was approximately 250 mr/hr. This is contrasted with a dose rate of 340 mr/hr at the same location with the platform shield installed but with no wall shielding. Dose rates at nozzle level at 3 feet from the vessel wall were measured at anywhere between 300 at 400 mr/hr after the cleaning and shielding work.

The GE personnel involved in this project were highly experienced in this type work; thus, it was not necessary to institute a training program which included use of mock-ups to similate actual job conditions. Our Health Physics department did, however, provide support during the project in the form of having people at the actual work site monitoring radiation levels and also monitoring the amount of time an individual worker spent in the vessel to assure he did not exceed his exposure limits. The total number of workers involved in this in-vessel project was 72 with each worker receiving on the average 1251 mr. Thus, the total man-rem exposure was 90.072 man-rem. Unfortunately, dose data broken down into specific phases of the project is not available.

Concluding, it is interesting to note that similar jobs at other plants produced much higher dose rates for the workers. We feel that through the decontamination and shielding efforts, through the experience of the workers and the diligent on-the-job support from our Health Physics people, the ALARA concept was certainly upheld.

Very truly yours,

R. J. Kelly

WEB:OCV/mb

xc: Ruble A. Thomas George F. Trowbridge, Esquire R. F. Rogers, III

1703 004