Public Service Company of Colorado

16805 WCR 19 1/2, Platteville, Colorado 80651

May 4, 1982
Fort St. Vrain
Unit No. 1
P-82130

50-267

Mr. George Kuzmycz
U. S. Nuclear Regulatory Commission
7920 Norfolk Avenue
Bethesda, Maryland 20034

SUBJECT: Crack in Fuel Element 1-2415

Dear Mr. Kuzmycz:

Pursuant to our telecon of April 30, 1982, we are forwarding a preliminary summary describing the cracked fuel element discovered during the conduct of the fuel element PIE program. On April 26, 1982, while performing an inspection of elements that had been removed during the second refueling, it was observed that fuel element 1-2415 was cracked on one face. The crack extended across the minimum cross-section between a coolant hole and one face of the block (approximately one-half inch), vertically down the full length of the block (31.2 inches), and terminated at the lower exit of the coolant hole. Because of the alignment of the crack with the coolant channel, and its visible extension to the coolant hole at both the top and bottom of the block, it is probable that the crack penetrates the cross-section between the coolant channel and the face along its entire length. Note that the fuel rods themselves were not affected.

We have made extensive observations of the element, and have verified that the crack does not extend from the coolant hole to the nearby dowel pin. There are no other visible cracks in the element, nor are there any indications of a physical impact.

A review of our records indicates that the element was placed in the initial core on January 4, 1974, as planned in region 8, column 5, layer 6 where it remained until removed during the second refueling on July 1, 1981. During the core residence time, the fuel element accumulated a burnup of 19497.15 MWD per initial metric ton of uranium plus thorium. This represents a typical burnup for a fuel element in that core location. There were no events during the refueling which indicate that the element was damaged during handling.

Based on the extensive inspections that were performed in-core during the first refueling, and on the inspections of over one hundred fuel elements that were removed after the first and second refuelings, we

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believe this event to be an isolated case. As confirmation of our belief, we have inspected all the remaining fuel elements that were removed from region 8. No other unusual physical conditions were found.

We are presently awaiting the results of engineering/physics calculations from General Atomic Company that will address the conditions specifically experienced by this fuel element and the anticipated effects on the element, however, we do not expect these calculations to reveal anything unusual. We have not, at this time, made any specific decisions concerning the ultimate disposition of this fuel element. We are evaluating the various possibilities, and we will keep you informed of our progress.

As indicated above, based on extensive inspections, we are confident that this event is an isolated case, and we have no reason to believe that it represents a generic issue concerning fuel element integrity. Concurrent with our evaluation of this event we are continuing with our rise-to-power program.

Very truly yours,

Don Warembourg

Don Warembourg
Manager, Nuclear Production

DWW/lsb