ARKANSAS POWER & LIGHT COMPANY
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February 13, 1981

1R-0281-06

Director of Nuclear Reactor Regulation
ATTN: Mr. Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Licensing
U. S. Nuclear Regulatory Comm.
Washington, D.C. 20555

SUBJECT: Arkansas Nuclear One - Unit 1
Docket No. 50-313
License No. DPR-51
Fuel Assembly Holddown
Spring Failure Information
(File: 4135, 0510)

Gentlemen:

Your letter dated February 9, 1981 requested a report on the fuel assembly holddown spring failure discovered during the current refueling outage at ANO-1. Attached is a report covering the information requested.

AP&L will perform a 100% inspection of the core fuel assembly holddown springs during the next refueling outage and report on the results of the inspection to the NRC.

Very truly yours,

David C. Trimble

David C. Trimble
Manager, Licensing

DCT:LDY:ip
Attachment

MEMBER MIDDLE SOUTH UTILITIES SYSTEM

REPORT ON ANO-1 BROKEN HOLDDOWN SPRING

In the end-of-cycle 4 refueling outage at ANO-1 one fuel assembly out of the 177 examined was found to contain a broken holddown spring. The broken holddown spring had a single torsional-type through fracture in the top active coil about 30° away from the active/dead coil transition area. The position of the break resulted in the holddown spring maintaining a preloaded condition. The fuel assembly was examined for any evidence of axial motion and none was observed. This fuel assembly is a Batch 5, twice burned assembly.

The failed spring was from Heat 64G6XS, as were all springs used in Batch 5 (56 fuel assemblies). Fifty-seven springs from this heat had previously gone through three cycles of irradiation at Oconee-III without failure. An additional 56 springs at Oconee-1 and 50 at Oconee-II from this heat are in their third cycle of operation. Twenty-one springs from this heat have been irradiated for one cycle in TMI-1. No failures have been reported.

The ANO failure is similar in frequency and visual appearance to the Crystal River-3 spring failure, which hot cell examination showed to be fatigue, initiating at a surface anomoly. Because of this similarity to the Crystal River-3 spring, there are no plans to have the ANO failed spring analyzed for metallurgical condition.

The spring was replaced on the subject fuel assembly prior to reinsertion for its third cycle of irradiation. The replacement spring, as were all springs in Batch 7, came from a heat that had demonstrated an acceptable grain structure and had undergone a stringent surface examination, both now design requirements. These tighter requirements should reduce or eliminate any future holddown spring failures.