DUKE POWER COMPANY
OCONEE UNIT 1

Report No.: AO-269/75-3

Report Date: April 10, 1975

Occurrence Date: March 26, 1975

Facility: Oconee Unit 1, Seneca, South Carolina

Identification of Occurrence: Defects in a fuel rod of Spent Fuel Assembly 1A10

Conditions Prior to Occurrence: Not applicable

Description of Occurrence:

On March 20, 1975, Duke Power Company was informed by Babcock & Wilcox Company of a possible defect in one fuel rod of a spent fuel assembly, observed initially on March 17, 1975, during the Post-Irradiation Examination of spent fuel assemblies (1- cycle burned). After it was confirmed on March 26, 1975, that this particular fuel rod had visible cladding perforations, Duke Power Company notified the NRC/OIE, Region II, on March 27, 1975, by telephone.

The defected fuel rod, a peripheral rod of Fuel Assembly 1A10, has two defects located between the fourth and fifth intermediate spacer grids (see Figure 1). One defect is in the form of a hole in the cladding (approximately ½" in diameter), and the other in the form of a small blister. The defected fuel rod did not show any gross outward bow, and no abnormalities were seen in any other fuel rods of the entire fuel assembly during visual examination. Visual examinations were not able to confirm the presence of fuel at the location of the main perforation.

Analysis of Occurrence:

Fuel Assembly 1A10 contained an in-core detector string as well as a control rod of Control Rod Group 1 (safety group), which was fully withdrawn throughout Cycle 1 power operation (see Figure 1). The in-core detector readings indicated that the power density of Fuel Assembly 1A10 was within normal operating limits during Cycle 1 operation and that there was no abnormal power condition that could have affected the integrity of the fuel rods in Fuel Assembly 1A10.

B&W's review of the quality assurance records for the fuel rod components (fuel pellets and cladding) concluded that all recorded parameters were within specification limits and that there were no identifiable factors which could have contributed to the defect.

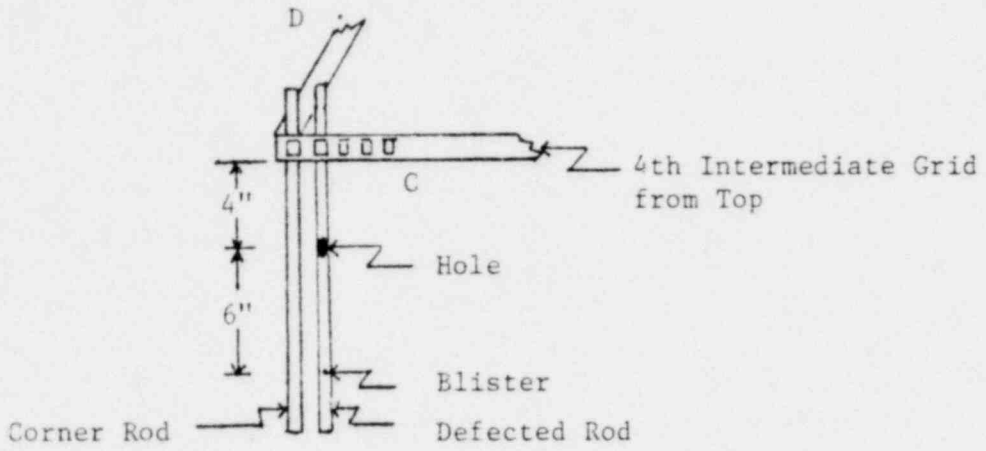
Safety Evaluation:

The primary coolant activity was monitored during initial startup and throughout Cycle 1 operation for indications of fuel rod failure. The average I-131 activity was approximately 0.1 μCi/cc during full power operation, although activity "spikes" as large as 0.42 μCi/cc were observed during power transients. The I-133 activity increased to a value of 0.8 μCi/cc at around 100 EFPD and then decreased to an end-of-Cycle 1 value of 0.1 μCi/cc. The maximum total coolant activity was approximately 11.0 μCi/cc during full power operation, which is less than 3.0 percent of the Technical Specification limit. Preliminary evaluations indicate that the fission product activity in the primary coolant for Cycle 2 is less than 15 percent of that in Cycle 1 for the corresponding period. Additionally, the lack of any detectable amount of alpha-activity either in the primary coolant or in the spent fuel pool suggests that no significant amount of fuel was dispersed from the defected fuel rod. It should also be noted that of the 616 peripheral fuel rods in 11 fuel assemblies examined during the Post-Irradiation Examination, only one fuel rod was seen to be defected. From the foregoing evaluation, it was concluded that this incident did not constitute a hazard and that the safety and health of the public was not endangered.

FIGURE 1

DESCRIPTION OF FUEL ROD DEFECTS

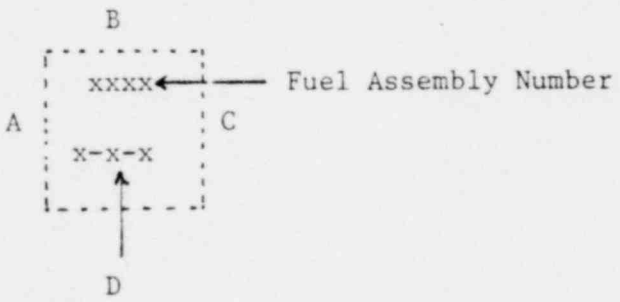
Location of Defects in Spent Fuel Assembly 1A10



Location of Fuel Assembly 1A10 in Cycle 1 Core

	6	7	8
L	1A10 7-4-3	1A07 ORA	1A06 3-3-7
M	1B40 ORA	1A10 1-1-1	1A17 ORA
N	1B54 8-8-8	1B41 ORA	1A41 2-2-2

Groups: 1,2,3,4 = Safety Rods
7 = Transient Rod
8 = APSR
ORA = Orifice Rod Assembly



Control Rod Grouping
During 3 Patch Periods