

DUKE POWER COMPANY

P.O. BOX 33189

CHARLOTTE, N.C. 28242

HAL B. TUCKER  
VICE PRESIDENT  
NUCLEAR PRODUCTION

TELEPHONE  
(704) 373-4531

June 6, 1984

84 JUN 14 P12: 52

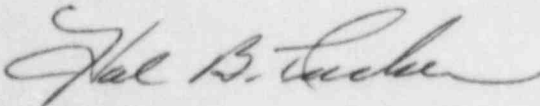
Mr. James P. O'Reilly, Regional Administrator  
U. S. Nuclear Regulatory Commission  
Region II  
101 Marietta Street, NW, Suite 2900  
Atlanta, Georgia 30303

Subject: Oconee Nuclear Station, Unit 3  
Docket No. 50-370  
287

Dear Mr. O'Reilly:

Please find attached a Special Report concerning the Unit 3 fuel handling incident that occurred during the recently completed refueling outage. Initial notification of this incident was made with the NRC Operations Center via the ENS on April 24, 1984. The incident was considered to be of no significance with respect to the health and safety of the public.

Very truly yours,



Hal B. Tucker

PFG/php

Attachment

cc: Document Control Desk  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Mr. J. C. Bryant  
NRC Resident Inspector  
Oconee Nuclear Station

INPO Records Center  
Suite 1500  
1100 Circle 75 Parkway  
Atlanta, Georgia 30339

Ms. Helen Nicolaras  
Office of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

OFFICIAL COPY

IE 22  
11

8406190205 840606  
PDR ADOCK 05000287  
S PDR

Duke Power Company  
Oconee Nuclear Station  
Special Report

Unit 3 Refueling Operations  
Fuel Handling Incident  
Fuel Assembly Damaged during Fuel Reshuffling

Description of Occurrence:

On April 19, 1984, during fuel reshuffling for Unit 3 Cycle 8, Fuel Assembly number (FA No.) 0297 became stuck in fuel location E-10, while being inserted into this location. This FA was grappled by the auxiliary bridge fuel mast. Numerous attempts were made to free this fuel assembly (FA) in accordance with procedure, with no success. During one such attempt the FA in Location E-9 (FA No. 01MC) was lifted approximately one foot when its upper end fitting caught a spacer grid on FA No. 0297. On April 24, 1984, FA No. 01MC was grappled by the control rod drive crane while FA No. 0297 was still grappled to the auxiliary bridge fuel mast. Both fuel assemblies were raised simultaneously until they were verified to have separated. FA No. 0297 was raised out of the core while FA No. 01MC was lowered back into core location E-9.

Cause of Occurrence:

Problems with the main bridge control mast resulted in a procedure change to the refueling procedure in order to provide a sequence of fuel shuffling with the auxiliary bridge fuel mast while repairs were being made to the main bridge control mast. At 2350 hours on April 18, 1984 while utilizing the auxiliary bridge fuel mast, FA No. 033A was removed from core location E-10. The next step in the revised procedure was to remove FA No. 029Q from core location 0-3; however, the FA was stuck and would not move. As in the past when this situation occurs, four alternate steps were written to remove adjacent fuel assemblies so that FA No. 029Q could be removed. FA No. 029Q was relocated to core location E-11.

To verify full insertion of a FA, the Z-Z tape reading, which gives vertical displacement, is utilized. The Z-Z tape reading was correct, and thus the FA was assumed to be properly aligned. However, FA No. 029Q was not properly set in the lower grid. The lower end fitting of FA No. 029Q straddled the lower grid structure of the core in such a manner that the FA was partially occupying core location E-10. Furthermore, FA No. 029Q was sufficiently bowed to give the impression that the FA was properly positioned in core location E-11.

When FA No. 0297 was set in core location E-10, it scraped the lower south side of FA No. 029Q and became stuck approximately one foot from the bottom of the core. Figure 1 is a schematic of the positions of the fuel assemblies at the time of the incident.

Analysis of Occurrence:

Visual inspections were made of the fuel assemblies involved to assess the damage. The primary concern was with FA No. 029Q since this FA was scheduled to be reinserted for Cycle 8, while the others were to be discharged. FA No. 029Q was found to have approximately eight inch long scrapes on all fifteen fuel rods on the lower south side, between the lowest spacer grid and the lower end fitting. A detailed visual inspection of FA No. 01MC and No. 0297 was not performed because they were scheduled to be discharged. An initial visual inspection of FA No. 0297 found a pin hole in one of the rods. No other significant damage to the other fuel assemblies was observed.

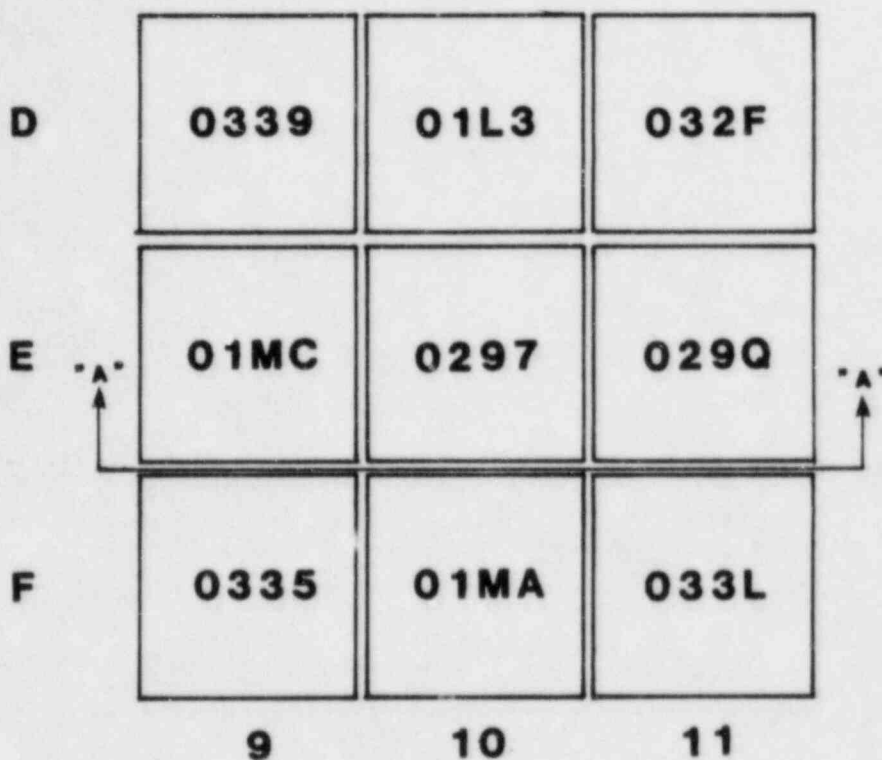
The damage to FA No. 029Q has been extensively evaluated and the FA was determined to be acceptable for use for another cycle. Even if the fifteen damaged rods of this assembly were to fail, the resulting reactor coolant activity would be less than 1% failed fuel.

Section 15.11 of the Final Safety Analysis Report for Oconee Nuclear Station addresses fuel handling accidents. The assumptions made in that analysis bound the conditions that existed during the evaluation of this incident. Also, since this event occurred in the Reactor Building, filtering of all off-site releases would have occurred which is more conservative than that which was assumed in the analysis. Therefore, the health and safety of the public were not affected by this incident.

Corrective Actions:

Upon determining that fuel assemblies Nos. 0297 and 01MC had become interlocked with each other, both were lowered back into the core and steps were taken to separate them. Precautions to minimize any potential release that might have occurred during the course of events were taken. A visual inspection of the fuel assemblies involved that were to be discharged to the spent fuel pool for permanent storage was performed. A detailed visual inspection and evaluation of FA No. 029Q were performed to assess the impact that the damage to the assembly might have on its use for one more cycle.

# FUEL ASSEMBLIES ARRANGEMENT AT THE TIME OF THE EVENT



"PLAN VIEW"

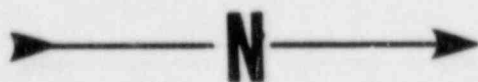


FIGURE 1  
SHEET 2 of 2

