

COMBUSTION ENGINEERING, INC.

RESULTS OF EDDY CURRENT TESTING  
ON GUIDE TUBES AT  
CALVERT CLIFFS I  
AFTER CYCLE 5

CEN-216(B)

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Cycle 5 at Calvert Cliffs I contained 16 Batch F and 16 Batch G fuel assemblies with a [ ] design modification intended to mitigate guide tube wear. These 32 assemblies were irradiated under CEA's for only one cycle (Cycle 5) in the core locations shown in Figure 1.

To detect wear, each guide tube in the 32 assemblies was eddy current tested with a bobbin coil during the EOC-5 refueling outage. Preliminary results were reported to the NRC in Ref. 1. Small wear indications were observed in [ ] guide tubes distributed throughout [ ] assemblies (Figure 2). [ ]

Nine guide tubes distributed among five assemblies [ ] were selected for additional examinations with an azimuthal eddy current probe to define the circumferential wear pattern. The results of these measurements are in agreement with results measured with the bobbin coil. Table 1 shows the results of azimuthal testing on the single guide tube exhibiting the largest signal detected with the azimuthal coil. [ ] of the multiple wear indications in this guide tube showed less than 20% of [ ]

Four assemblies with the [ ] modification are under CEA's in Cycle 6 [ ] None of these assemblies had detectable wear after Cycle 5.

#### REFERENCES

1. A. E. Lundvall to R. A. Clark, "Calvert Cliffs Nuclear Power Plant Unit No. 1, Docket No. 50-317, Modified CEA Guide Tube Evaluation Program," May 21, 1982.

TABLE 1

WEAR INDICATIONS FROM  
AZIMUTHAL EDDY CURRENT TESTING OF

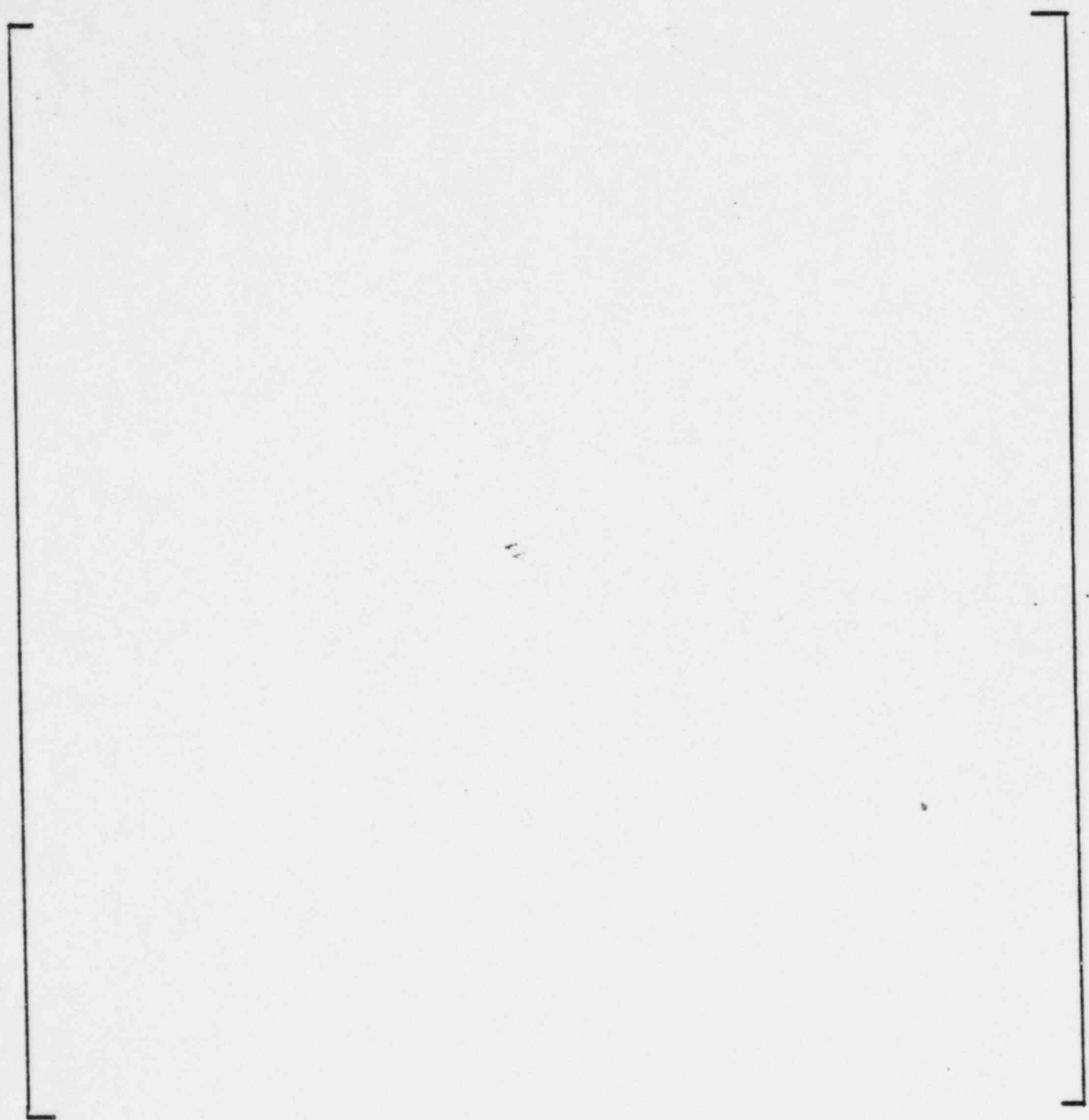
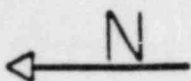


FIGURE 1. LOCATION OF ASSEMBLIES [ IN CYCLE 5  
OF CALVERT CLIFFS I ]

FIGURE 2 ASSEMBLIES AND GUIDE TUBES  
AFTER CYCLE 5 AT CALVERT CLIFFS I