Entergy

Entergy Operations, Inc.
1340 Echelon Parkway
Jackson, MS 39213-8298
Tel 601 368 5758

Michael A. Krupa
Director
Nuclear Safety & Licensing

CNRO-2003-00039

September 12, 2003

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

SUBJECT: Entergy Operations, Inc.
Relaxation Request to NRC Order EA-03-009 for Control Element Drive Mechanism Nozzles

Arkansas Nuclear One, Unit 2
Docket No. 50-368
License No. NPF-6

REFERENCE: Entergy Operations, Inc. letter CNRO-2003-00033 to the NRC, "Relaxation Requests to NRC Order EA-03-009," dated August 27, 2003

Dear Sir or Madam:

In the referenced letter, Entergy Operations, Inc. (Entergy) requested relaxation from Section IV.C(1)(b) of NRC Order EA 03-009 for Arkansas Nuclear One, Unit 2 (ANO-2) via Relaxation Request #1. Specifically, the bottoms of the ANO-2 control element drive mechanism (CEDM) nozzles contain threads that cannot be effectively examined in accordance with Section IV.C(1)(b). The request proposed a three-step alternative based on ultrasonic testing, stress analysis, and augmented inspections utilizing a sampling plan.

In a telephone conference held on September 9, 2003, representatives of the NRC staff and Entergy discussed this request. As a result of that discussion and by this letter, Entergy amends Relaxation Request #1. Specifically, Entergy will not utilize a sampling plan and proposes to perform augmented inspections of the 75 CEDM nozzles that did not pass analysis (identified in Table 1 of Relaxation Request #1). The enclosed Table 1 to ANO-2 Relaxation Request #1 replaces the previous Table 1 submitted in the referenced letter.

This letter contains no new commitments.

A101

If you have any questions or require additional information, please contact Guy Davant at (601) 368-5756.

Sincerely,

M. A. Krupa

MAK/GHD/bal

Enclosure: Table 1 to ANO-2 Relaxation Request #1

cc: Mr. C. G. Anderson (ANO)
Mr. W. A. Eaton (ECH)
Mr. G. A. Williams (ECH)

Mr. T. W. Alexion, NRR Project Manager (ANO-2)
Mr. R. L. Bywater, NRC Senior Resident Inspector (ANO)
Mr. T. P. Gwynn, NRC Region IV Regional Administrator

ENCLOSURE

CNRO-2003-00039

ARKANSAS NUCLEAR ONE, UNIT 2
TABLE 1 TO RELAXATION REQUEST #1

TABLE 1

Evaluation of CEDM Nozzles for Augmented Inspection

CEDM Nozzle		CEDM Nozzle Heat Number Information			Selected for Augmented Inspection [1]	Augmented Inspection Boundary (referenced from bottom of nozzle)			
No.	Head Angle	Heat Number	Yield Strength	History of PWSCC [2]		Top Elevation	Bottom Elevation	Axial Length	Azimuthal Location and Circumferential Extent
1	0°	A6953	42.5 ksi	No	Yes	1.544"	1.090"	0.454"	Downhill ± 180°
2	8.8°	A6953	42.5 ksi	No	Yes	1.544"	1.090"	0.454"	Downhill ± 67.5°
3	8.8°	A6953	42.5 ksi	No	Yes	1.544"	1.090"	0.454"	Downhill ± 67.5°
4	8.8°	A6953	42.5 ksi	No	Yes	1.544"	1.090"	0.454"	Downhill ± 67.5°
5	8.8°	A6953	42.5 ksi	No	Yes	1.544"	1.090"	0.454"	Downhill ± 67.5°
6	12.4°	A6953	42.5 ksi	No	No	N/A	N/A	N/A	N/A
7	12.4°	A6954	35.0 ksi	No	No	N/A	N/A	N/A	N/A
8	12.4°	A6954	35.0 ksi	No	Yes	1.544"	1.224"	0.320"	Downhill ± 22.5°
9	12.4°	A6953	42.5 ksi	No	No	N/A	N/A	N/A	N/A
10	17.7°	A6953	42.5 ksi	No	Yes	1.544"	1.224"	0.320"	Downhill ± 22.5°
11	17.7°	A6954	35.0 ksi	No	Yes	1.544"	1.224"	0.320"	Downhill ± 22.5°
12	17.7°	A6954	35.0 ksi	No	Yes	1.544"	1.224"	0.320"	Downhill ± 22.5°
13	17.7°	A6954	35.0 ksi	No	Yes	1.544"	1.224"	0.320"	Downhill ± 22.5°
14	19.9°	A6954	35.0 ksi	No	Yes	1.544"	1.224"	0.320"	Downhill ± 22.5°
15	19.9°	A6955	40.0 ksi	No	Yes	1.544"	1.224"	0.320"	Downhill ± 22.5°
16	19.9°	A6955	40.0 ksi	No	Yes	1.544"	1.224"	0.320"	Downhill ± 22.5°
17	19.9°	A6955	40.0 ksi	No	Yes	1.544"	1.224"	0.320"	Downhill ± 22.5°
18	19.9°	A6954	35.0 ksi	No	Yes	1.544"	1.224"	0.320"	Downhill ± 22.5°
19	19.9°	A6955	40.0 ksi	No	Yes	1.544"	1.224"	0.320"	Downhill ± 22.5°
20	19.9°	A6955	40.0 ksi	No	No	N/A	N/A	N/A	N/A
21	19.9°	A6955	40.0 ksi	No	Yes	1.544"	1.224"	0.320"	Downhill ± 22.5°
22	25.5°	A6926	39.5 ksi	No	Yes	1.544"	1.224"	0.320"	Downhill ± 22.5°
23	25.5°	A6926	39.5 ksi	No	Yes	1.544"	1.224"	0.320"	Downhill ± 22.5°
24	25.5°	A6785	56.0 ksi	Yes	Yes	1.544"	1.224"	0.320"	Downhill ± 22.5°
25	25.5°	A6785	56.0 ksi	Yes	No [3]	N/A	N/A	N/A	N/A
26	27.2°	A6777	35.0 ksi	No	Yes	1.544"	1.224"	0.320"	Downhill ± 22.5°
27	27.2°	A6777	35.0 ksi	No	Yes	1.544"	1.224"	0.320"	Downhill ± 22.5°

CEDM Nozzle		CEDM Nozzle Heat Number Information			Selected for Augmented Inspection [1]	Augmented Inspection Boundary (referenced from bottom of nozzle)			
No.	Head Angle	Heat Number	Yield Strength	History of PWSCC [2]		Top Elevation	Bottom Elevation	Axial Length	Azimuthal Location and Circumferential Extent
28	27.2°	A6953	42.5 ksi	No	Yes	1.544"	1.224"	0.320"	Downhill ± 22.5°
29	27.2°	A6953	42.5 ksi	No	Yes	1.544"	1.224"	0.320"	Downhill ± 22.5°
30	28.8°	A6926	35.0 ksi	No	Yes	1.544"	1.224"	0.320"	Downhill ± 22.5°
31	28.8°	A6926	35.0 ksi	No	Yes	1.544"	1.224"	0.320"	Downhill ± 22.5°
32	28.8°	A6926	35.0 ksi	No	Yes	1.544"	1.224"	0.320"	Downhill ± 22.5°
33	28.8°	A6926	35.0 ksi	No	Yes	1.544"	1.224"	0.320"	Downhill ± 22.5°
34	28.8°	A6926	35.0 ksi	No	Yes	1.544"	1.224"	0.320"	Downhill ± 22.5°
35	28.8°	A6926	35.0 ksi	No	Yes	1.544"	1.224"	0.320"	Downhill ± 22.5°
36	28.8°	A6926	35.0 ksi	No	Yes	1.544"	1.224"	0.320"	Downhill ± 22.5°
37	28.8°	A6926	35.0 ksi	No	Yes	1.544"	1.224"	0.320"	Downhill ± 22.5°
38	33.3°	A6954	35.0 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
39	33.3°	A6954	35.0 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
40	33.3°	A6954	35.0 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
41	33.3°	A6954	35.0 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
42	33.3°	A6954	35.0 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
43	33.3°	A6954	35.0 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
44	33.3°	A6954	35.0 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
45	33.3°	A6954	35.0 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
46	37.6°	A6954	35.0 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
47	37.6°	A6954	35.0 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
48	37.6°	A6954	35.0 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
49	37.6°	A6954	35.0 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
50	38.9°	A6954	35.0 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
51	38.9°	A6954	35.0 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
52	38.9°	A6954	35.0 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
53	38.9°	A6954	35.0 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
54	38.9°	A6954	35.0 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
55	38.9°	A6954	35.0 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
56	38.9°	A6954	35.0 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
57	38.9°	A6954	35.0 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
58	40.3°	A6953	42.5 ksi	No	No	N/A	N/A	N/A	N/A
59	40.3°	A6953	42.5 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°

CEDM Nozzle		CEDM Nozzle Heat Number Information			Selected for Augmented Inspection [1]	Augmented Inspection Boundary (referenced from bottom of nozzle)			
No.	Head Angle	Heat Number	Yield Strength	History of PWSCC [2]		Top Elevation	Bottom Elevation	Axial Length	Azimuthal Location and Circumferential Extent
60	40.3°	A6953	42.5 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
61	40.3°	A6953	42.5 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
62	43.0°	A6953	42.5 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
63	43.0°	A6953	42.5 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
64	43.0°	A6953	42.5 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
65	43.0°	A6953	42.5 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
66	43.0°	A6953	42.5 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
67	43.0°	A6953	42.5 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
68	43.0°	A6953	42.5 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
69	43.0°	A6953	42.5 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
70	49.6°	A6955	40.0 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
71	49.6°	A6955	40.0 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
72	49.6°	A6953	42.5 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
73	49.6°	A6954	35.0 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
74	49.6°	A6954	35.0 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
75	49.6°	A6955	40.0 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
76	49.6°	A6953	42.5 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
77	49.6°	A6955	40.0 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
78	49.6°	A6953	42.5 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
79	49.6°	A6955	40.0 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
80	49.6°	A6955	40.0 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°
81	49.6°	A6954	35.0 ksi	No	Yes	1.544"	0.883"	0.661"	Downhill ± 45.0°