



April 22, 1994

2CAN049404

U. S. Nuclear Regulatory Commission  
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Subject: Arkansas Nuclear One - Unit 2  
Docket No 50-368  
License No. NPF-6  
2R10 Plugged or Sleeved Steam Generator Tubes Report

Gentlemen:

Arkansas Nuclear One, Unit 2 (ANO-2) Technical Specification (TS) 4.4.5.5.a requires the number of tubes plugged or sleeved in each steam generator to be reported to the Commission within 15 days following each inservice inspection of the steam generators. The purpose of this submittal is to complete the reporting requirements of TS 4.4.5.5.a for the ANO-2 tenth refueling outage (2R10). Entergy Operations completed the inservice inspection of the steam generator tubes on April 8, 1994.

The scope of the inservice inspection was 100% full length with the bobbin probe in both steam generators. In addition, a motorized rotating pancake coil (MRPC) was utilized to inspect 100% of the top of the tubesheet on the hot leg side and 20% of the top of tubesheet on the cold leg side of both steam generators. The cold leg MRPC inspection was concentrated in the sludge pile region. 100% of the sleeves in both steam generators were also inspected using a rotating crosswound probe, as well as 20% of the tube dents, distributed between the steam generators, using MRPC.

In 2E-24A (steam generator "A"), 170 tubes were plugged. In 2E-24B (steam generator "B"), 77 tubes were plugged. No tubes were sleeved in either steam generator. Tables 1 and 2 provide information concerning the plugged tubes for the "A" and "B" steam generators, respectively. This information includes a tabulation of the repaired tubes, type of indication(s), and the location of the indication(s) within the tubes.

Additional information on the inspections was provided in letter 2CAN049403, dated April 12, 1994. That submittal was the required Special Report for Category C-3 results of the inspection. The complete results of the steam generator tube inservice inspection will be

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provided in the annual report by March 1, 1995, as required by ANO-2 TSs 4.4.5.5.b and 6.9.1.5.b.

Very truly yours,



Dwight C. Mims  
Director, Licensing

DCM/jjd

Attachment

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TABLE 1

LOCATION OF DEFECTS IN THE "A" STEAM GENERATOR

SG	ROW	COL	INDICATION	LOCATION
A	4	152	NQI	03H + 0.5
A	6	110	SCI	TSH + 0.1
A	7	21	NQI	06H + 0.3
A	8	34	SCI	TSH + 0.1
A	8	40	SCI	TSH + 0.1
A	9	55	ODI	TSH + 0.1
A	10	146	DSI	01H + 0.9
A	12	26	ODI	TSH + 0.1
A	12	30	SCI	TSH + 0.1
A	13	29	SCI	TSH + 0.1
A	13	145	SCI	TSH + 0.2
A	15	29	MCI	TSH + 0.1
A	16	150	ODI	TSH + 0.1
A	17	29	SCI	TSH + 0.1
A	17	31	SCI	TSH + 0.1
A	17	139	MCI	TSH + 0.1
A	19	53	SCI	TSH + 0.1
A	19	109	DSI	01H + 0.6
A	20	124	DSI	01H + 0.8
A	20	138	SCI	TSH + 0.1
A	20	150	SCI	TSH + 0.1
A	21	19	SCI	TSH + 0.0
A	21	29	SCI	TSH + 0.1
A	21	137	SCI	TSH + 0.1
A	22	54	SCI	TSH + 0.1
A	22	114	MCI	TSH + 0.1
A	22	146	DSI	07H + 0.7
A	22	150	SCI	TSH + 0.1
A	23	39	SCI	TSH + 0.1
A	24	130	SCI	TSH + 0.1
A	24	132	SCI	TSH + 0.1
A	25	133	SCI	TSH + 0.1
A	26	40	ODI	TSH + 0.0
A	27	37	SCI	TSH + 0.1
A	28	134	ODI	TSH + 0.0
A	29	39	SCI	TSH + 0.1
A	30	128	ODI	TSH + 0.1

TABLE 1 (con't)

LOCATION OF DEFECTS IN THE "A" STEAM GENERATOR

SG	ROW	COL	INDICATION	LOCATION
A	31	39	SCI	TSH + 0.1
A	31	43	SCI	TSH + 0.1
A	32	40	SCI	TSH + 0.1
A	32	42	SCI	TSH + 0.0
A	32	122	SCI	TSH + 0.0
A	32	126	SCI	TSH + 0.1
A	33	43	SCI	TSH + 0.1
A	33	53	SCI	TSH + 0.1
A	33	53	42	02H + 0.4
A	33	123	SCI	TSH + 0.2
A	33	125	SCI	TSH + 0.1
A	34	48	SCI	TSH + 0.0
A	34	58	SCI	TSH + 0.1
A	35	41	SCI	TSH + 0.1
A	35	53	SCI	TSH + 0.1
A	36	42	SCI	TSH + 0.1
A	36	128	SCI	TSH + 0.1
A	37	35	SCI	TSH + 0.0
A	37	43	SCI	TSH + 0.1
A	38	36	SCI	TSH + 0.1
A	38	38	SCI	TSH + 0.1
A	38	40	SCI	TSH + 0.1
A	38	42	SCI	TSH + 0.1
A	38	44	SCI	TSH + 0.1
A	39	83	56	BW1 + 1.1
A	41	111	ODI	TSH + 0.0
A	44	118	SCI	TSH + 0.1
A	46	42	SCI	TSH + 0.1
A	48	48	SCI	TSH + 0.1
A	48	50	SCI	TSH + 0.1
A	48	120	SCI	TSH + 0.1
A	49	41	SCI	TSH + 0.1
A	49	107	SCI	TSH + 0.0
A	50	68	DSI	01H + 0.5
A	50	98	NQI	01H + 0.6
A	50	144	SCI	TSH + 0.1
A	51	43	SCI	TSH + 0.1
A	51	113	SCI	TSH + 0.1

TABLE 1 (con't)

LOCATION OF DEFECTS IN THE "A" STEAM GENERATOR

SG	ROW	COL	INDICATION	LOCATION
A	51	115	SCI	TSH + 0.0
A	52	104	SCI	TSH + 0.1
A	52	120	MCI	TSH + 0.1
A	54	64	SCI	TSH + 0.1
A	54	106	SCI	TSH + 0.1
A	55	105	SCI	TSH + 0.1
A	57	63	MCI	TSH + 0.1
A	58	54	SCI	TSH + 0.1
A	58	66	SCI	TSH + 0.1
A	59	55	SCI	TSH + 0.1
A	59	113	SCI	TSH + 0.1
A	59	115	SCI	TSH + 0.1
A	61	133	SCI	TSH + 0.0
A	62	60	SCI	TSH + 0.0
A	62	82	SCI	TSH + 0.1
A	63	63	SCI	TSH + 0.1
A	63	79	ODI	TSH + 0.1
A	63	137	SCI	TSH + 0.1
A	64	60	SCI	TSH + 0.1
A	65	61	SCI	TSH + 0.1
A	65	107	SCI	TSH + 0.1
A	65	109	SCI	TSH + 0.1
A	66	60	SCI	TSH + 0.1
A	66	110	SCI	TSH + 0.1
A	67	61	MCI	TSH + 0.0
A	67	65	SCI	TSH + 0.1
A	67	107	SCI	TSH + 0.1
A	68	66	MCI	TSH + 0.1
A	68	104	SCI	TSH + 0.1
A	69	81	ODI	TSH + 0.1
A	70	106	SCI	TSH + 0.2
A	71	35	SCI	TSH + 0.1
A	71	103	SCI	TSH + 0.1
A	71	111	SCI	TSH + 0.1
A	73	41	SCI	TSH + 0.0
A	74	36	SCI	TSH + 0.1
A	75	37	SCI	TSH + 0.1
A	75	79	SCI	TSH + 0.1

TABLE 1 (con't)

LOCATION OF DEFECTS IN THE "A" STEAM GENERATOR

SG	ROW	COL	INDICATION	LOCATION
A	75	81	SCI	TSH + 0.1
A	75	133	SCI	TSH + 0.1
A	76	36	SCI	TSH + 0.1
A	76	130	SCI	TSH + 0.1
A	77	129	SCI	TSH + 0.1
A	77	131	MCI	TSH + 0.1
A	78	80	SCI	TSH + 0.1
A	79	127	SCI	TSH + 0.1
A	82	82	SCI	TSH + 0.1
A	84	84	SCI	TSH + 0.1
A	87	125	SCI	TSH + 0.1
A	88	44	SCI	TSH + 0.0
A	89	125	SCI	TSH + 0.1
A	90	124	SCI	TSH + 0.0
A	91	85	ODI	TSH + 0.2
A	93	85	MCI	TSH + 0.0
A	94	84	MCI	TSH + 0.1
A	95	115	SCI	TSH + 0.1
A	96	52	SCI	TSH + 0.0
A	96	86	ODI	TSH + 0.1
A	97	45	SCI	TSH + 0.2
A	97	51	SCI	TSH + 0.1
A	97	79	SCI	TSH + 0.1
A	97	83	SCI	TSH + 0.1
A	98	56	ODI	TSH + 0.0
A	98	118	SCI	TSH + 0.1
A	99	55	SCI	TSH + 0.0
A	100	84	SCI	TSH + 0.1
A	102	78	SCI	TSH + 0.1
A	102	86	SCI	TSH + 0.1
A	102	92	SCI	TSH + 0.2
A	102	108	MCI	TSH + 0.1
A	103	61	SCI	TSH + 0.1
A	103	71	ODI	TSH + 0.1
A	103	77	SCI	TSH + 0.0
A	103	81	SCI	TSH + 0.1
A	103	83	SCI	TSH + 0.1
A	103	85	SCI	TSH + 0.1



TABLE 1 (con't)

LOCATION OF DEFECTS IN THE "A" STEAM GENERATOR

SG	ROW	COL	INDICATION	LOCATION
A	103	87	SCI	TSH + 0.0
A	104	74	SCI	TSH + 0.1
A	104	76	SCI	TSH + 0.1
A	104	84	MCI	TSH + 0.1
A	105	65	SCI	TSH + 0.1
A	105	75	SCI	TSH + 0.2
A	105	87	SCI	TSH + 0.0
A	105	109	SCI	TSH + 0.2
A	106	60	SCI	TSH + 0.1
A	106	60	NQI	BW2 - 0.6
A	107	61	SCI	TSH + 0.1
A	107	83	SCI	TSH + 0.1
A	107	85	SCI	TSH + 0.2
A	108	70	SCI	TSH + 0.1
A	108	96	SCI	TSH + 0.1
A	108	102	SCI	TSH + 0.0
A	111	73	SCI	TSH + 0.0
A	111	75	SCI	TSH + 0.1
A	111	107	SCI	TSH + 0.1
A	112	92	SCI	TSH + 0.1
A	138	80	75	BW5 + 0.1

LEGEND

BWX ± Y	=	AN INDICATION Y INCHES ABOVE/BELOW CENTER OF THE Xth BATWING SUPPORT
TSH ± Y	=	AN INDICATION Y INCHES ABOVE/BELOW THE TOP OF THE HOT LEG TUBESHEET
OXH ± Y	=	AN INDICATION Y INCHES ABOVE/BELOW THE CENTER OF THE Xth HOT LEG SUPPORT
XX	=	AN INDICATION'S THROUGHWALL PERCENTAGE
DSI	=	DISTORTED SUPPORT INDICATION
ODI	=	OUTSIDE DIAMETER INDICATION
SCI	=	SINGLE CIRCUMFERENTIAL INDICATION
MCI	=	MULTIPLE CIRCUMFERENTIAL INDICATION
NQI	=	NON-QUANTIFIABLE INDICATION

TABLE 2

LOCATION OF DEFECTS IN THE "B" STEAM GENERATOR

SG	ROW	COL	INDICATION	LOCATION
B	4	136	DSI	03H + 0.7
B	5	141	79	01H + 0.3
B	8	132	DSI	06H + 0.7
B	13	133	DSI	01H - 0.3
B	14	132	42	07C - 0.5
B	15	29	DSI	03H - 0.4
B	15	111	47	06H + 0.5
B	18	150	SCI	TSH + 0.1
B	18	152	SCI	TSH + 0.1
B	20	18	SCI	TSH + 0.1
B	20	114	SCI	TSH + 0.1
B	24	146	MCI	TSH + 0.1
B	25	67	DSI	02H - 0.3
B	30	34	45	03H + 0.7
B	33	111	DSI	01H + 0.5
B	33	115	SAI	TSH + 0.6
B	34	56	76	BW3 + 0.1
B	36	96	DSI	01H + 0.5
B	37	77	43	BW3 - 0.9
B	38	54	44	01H + 0.4
B	40	44	DSI	01H + 0.2
B	40	126	SCI	TSH + 0.0
B	41	143	43	BW1 + 5.5
B	42	66	SCI	TSH + 0.1
B	43	135	SCI	TSH + 0.1
B	47	71	NQI	01H + 0.8
B	59	51	DSI	BW1 - 0.9
B	60	132	DSI	03H + 0.7
B	62	132	58	02H + 0.3
B	63	59	70	01H - 0.4
B	63	71	DSI	04H + 0.5
B	64	92	DSI	01H - 0.6
B	64	112	DSI	02H + 0.2
B	65	93	63	01H - 0.8
B	65	157	78	BW5 - 0.9
B	66	60	46	08C + 0.4
B	68	82	70	01H + 0.6
B	69	103	DSI	01H + 0.7



TABLE 2 (con't)

LOCATION OF DEFECTS IN THE "B" STEAM GENERATOR

SG	ROW	COL	INDICATION	LOCATION		
B	69	107	ODI	TSH	+	0.0
B	71	55	SCI	TSH	+	0.1
B	74	68	DSI	03H	+	0.5
B	75	69	DSI	04H	+	0.0
B	77	55	DSI	BW1	-	0.8
B	77	97	DSI	01H	+	0.8
B	78	16	DSI	BW1	-	0.8
B	80	80	74	01H	+	0.4
B	82	56	47	BW3	-	0.6
B	83	95	SCI	TSH	+	0.1
B	89	21	DSI	BW4	-	0.6
B	89	45	52	05H	+	0.6
B	90	50	ODI	TSH	+	0.1
B	93	121	SCI	TSH	+	0.1
B	94	116	SCI	TSH	+	0.1
B	96	100	50	BW2	-	0.1
B	97	115	SCI	TSH	+	0.1
B	98	50	SCI	TSH	+	0.1
B	98	86	DSI	BW3	-	1.0
B	99	53	ODI	TSH	+	0.0
B	99	101	ODI	TSH	+	0.0
B	101	53	SCI	TSH	+	0.1
B	102	62	SCI	TSH	+	0.1
B	103	123	51	02H	+	0.6
B	104	70	SCI	TSH	+	0.1
B	106	84	SCI	TSH	+	0.1
B	106	98	SCI	TSH	+	0.1
B	106	112	NQI	02H	-	0.1
B	107	83	SCI	TSH	+	0.1
B	107	85	SCI	TSH	+	0.1
B	108	90	44	BW3	-	0.9
B	108	136	DSI	10H	+	1.6
B	110	96	SCI	TSH	+	0.1
B	114	72	SCI	TSH	+	0.1
B	118	96	41	BW2	+	0.9
B	129	101	50	BW5	-	1.0
B	132	74	60	02H	+	0.6
B	139	79	59	BW1	-	0.2

TABLE 2 (cont)

LOCATION OF DEFECTS IN THE "B" STEAM GENERATOR

SG	ROW	COL	INDICATION	LOCATION
B	139	79	53	BW1 + 0.6
B	139	81	43	BW1 - 0.9

LEGEND

BWX ± Y	=	AN INDICATION Y INCHES ABOVE/BELOW THE CENTER OF THE Xth BATWING SUPPORT
TSH ± Y	=	AN INDICATION Y INCHES ABOVE/BELOW THE TOP OF THE HOT LEG TUBESHEET
0XH ± Y	=	AN INDICATION Y INCHES ABOVE/BELOW THE CENTER OF THE Xth HOT LEG SUPPORT
0XC ± Y	=	AN INDICATION Y INCHES ABOVE/BELOW THE CENTER OF THE Xth COLD LEG SUPPORT
XX	=	AN INDICATION'S THROUGH-WALL PERCENTAGE
DSI	=	DISTORTED SUPPORT INDICATION
ODI	=	OUTSIDE DIAMETER INDICATION
SCI	=	SINGLE CIRCUMFERENTIAL INDICATION
MCI	=	MULTIPLE CIRCUMFERENTIAL INDICATION
NQI	=	NON-QUANTIFIABLE INDICATION
SAI	=	SINGLE AXIAL INDICATION