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

Gentlemen:

Arkansas Nuclear One - Unit 2 (ANO-2) performed a limited inspection of the A & B steam generator tubes during a recent planned outage (2P93-1). ANO-2 Technical Specification 4.4.5.5.a requires the number of tubes plugged or sleeved in each steam generator to be reported to the Commission following each inservice inspection. Except for the inspection of two tubes which were not examined during the last refueling outage (2R9), these tube inspections were not performed as part of a Technical Specification required inservice inspection. However, Entergy Operations is reporting the number of tubes that were plugged or sleeved during this outage.

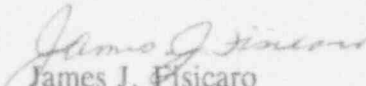
An examination of 5614 tubes in 2E-24A (steam generator "A") and 5832 tubes in 2E-24B (steam generator "B") was conducted between May 6, 1993, and May 12, 1993. A Rotating Pancake Coil (RPC) probe was used to perform the examination of the hot leg expansion transition region in the interior of the tube bundle, referred to as the "sludge pile" region, for each steam generator. The RPC examination was limited to this region because all previously identified circumferential cracks are bounded by this area. In steam generator "A", 47 tubes were plugged (45 circumferential cracks and two volumetric indications). In steam generator "B", 3 tubes were plugged (all classified as circumferential cracks). In both steam generators, all tubes plugged for circumferential cracks were also stabilized at the hot leg tubesheet through the first support plate to preclude adjacent tube damage if tube severance occurred. No tubes in either steam generator were sleeved as a result of this examination. The location of the tubes which were plugged are identified in Table 1.

ADD 11

ANO-2 Technical Specification Amendment 143, dated February 23, 1993 (2CNA029302), added a note to Table 4.4-2 of the Technical Specifications granting a one time exemption to the C-3 inspection requirements for the 2R9 inspection of "B" steam generator tubes 38-66 and 37-67 for the period of November 27, 1992, through May 30, 1993. Inspection of these two tubes was not completed as part of the 100% C-3 sample inspection performed during 2R9 (see Entergy Operations letter dated November 27, 1992 (2CAN119205)). The inservice inspection of these tubes was completed in conjunction with the RPC examination described above. No indications were identified in these tubes as a result of this inspection.

Entergy Operations intends to further discuss the engineering analyses of the examination results during an upcoming meeting with the NRC. Should you have any questions regarding this submittal, please contact me.

Very truly yours,


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JJF/JJD
Attachment

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TAE

STEAM GENERATOR TUBES PLUGGED DURING 2P93-1

CIRCUMFERENTIAL CRACKS

<u>SG</u>	<u>ROW</u>	<u>LINE</u>	<u>VOLTS</u>	<u>LENGTH DEG.</u>	<u>MAX %TW</u>	<u>AVG %TW</u>
A	16	30	3.72	114	75	23.7
A	15	33	2.42	49	87	11.9
A	20	34	1.21	100	74	20.5
A	24	38	1.55	53	35	5.1
A	35	45	4.80	163	93	42.1
A	45	45	0.91	33	66	6.1
A	42	46	1.72	193	76	40.7
A	54	50	1.79	33	85	7.9
A	62	50	1.93	40	92	10.3
A	53	51	1.69	42	75	8.8
A	30	52	2.96	79	84	18.4
A	54	52	1.83	58	67	10.8
A	4	56	1.74	144	57	22.7
A	100	56	1.47	194	75	40.5
A	109	73	1.19	159	67	29.7
A	103	75	2.59	60	82	13.6
A	77	77	2.22	96	72	19.3
A	101	77	2.79	39	70	7.5
A	53	79	1.25	65	36	6.5
A	77	79	2.64	252	50	35.0
A	111	79	3.09	105	89	26.0
A	101	81	4.54	58	86	13.8
A	101	85	2.94	137	77	29.2
A	98	86	3.87	21	97	5.7
A	104	88	2.40	56	90	14.0
A	105	89	1.67	121	83	27.9
A	104	90	5.76	84	88	20.6
A	106	90	0.87	117	45	14.7
A	114	90	1.20	35	74	7.2
A	105	91	0.91	107	78	23.2
A	111	91	0.89	35	46	4.5
A	114	96	1.19	51	66	9.3
A	106	102	2.11	137	80	30.4
A	64	108	2.11	102	48	13.6
A	49	115	2.26	63	58	10.2
A	52	118	0.95	96	27	7.2

TABLE 1 (cont)

STEAM GENERATOR TUBES PLUGGED DURING 2P93-1

CIRCUMFERENTIAL CRACKS

<u>SG</u>	<u>ROW</u>	<u>LINE</u>	<u>VOLTS</u>	<u>LENGTH DEG.</u>	<u>MAX %TW</u>	<u>AVG %TW</u>
A	30	126	2.09	63	70	12.3
A	82	126	5.92	203	91	51.4
A	27	127	3.14	44	90	11.0
A	31	129	1.96	102	60	16.9
A	33	129	1.46	84	56	13.1
A	10	130	2.56	53	85	12.4
A	34	130	2.55	81	80	17.9
A	72	130	4.27	75	87	18.2
A	27	131	2.80	95	60	15.8
B	66	128	3.04	30	95	7.9
B	82	44	0.97	112	30	9.3
B	90	48	0.83	60	32	5.3

VOLUMETRIC INDICATIONS

<u>SG</u>	<u>ROW</u>	<u>LINE</u>	<u>VOLTS</u>	<u>LENGTH DEG.</u>	<u>MAX %TW</u>	<u>AVG %TW</u>
A	6	56	1.31	ODI	33	N/A
A	42	102	2.00	ODI	73	ODI

SG = Steam Generator

LENGTH DEG. = Degree of arc containing indication

MAX % TW = Maximum throughwall percentage of indication

AVG % TW = ((MAX % TW) X (LENGTH DEG.))/360

ODI = Outside Diameter Indication