



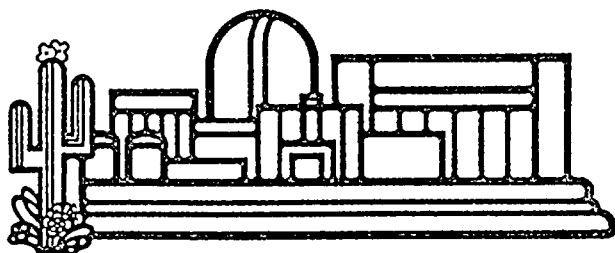
Arizona Nuclear Power Project

NDE Summary Report

UNIT 1 STEAM GENERATOR EDDY CURRENT EXAMINATION

FEBRUARY 1987

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PALO VERDE NUCLEAR GENERATING STATION
UNIT 1 STEAM GENERATOR EDDY CURRENT EXAMINATION
FEBRUARY 1987

ARIZONA NUCLEAR POWER PROJECT
P. O. BOX 52034
PHOENIX, AZ 85072

PREPARED BY:	<u><i>J. B. Steinhilber</i></u>	DATE:	<u><i>6/3/87</i></u>
REVIEWED BY:	<u><i>Michael L. Anderson</i></u>	DATE:	<u><i>6/4/87</i></u>
APPROVED BY:	<u><i>D. B. Hansen</i></u>	DATE:	<u><i>6-4-87</i></u>

REPORT DATE: 6/04/87

INDEX

1.0 Summary

2.0 Examination Results

3.0 Examination Techniques and Equipment

APPENDIX A - Summary Data Sheets

APPENDIX B - Tubesheet Maps

APPENDIX C - Form NIS-1

UNIT 1 STEAM GENERATOR EDDY CURRENT EXAMINATION

1.0 SUMMARY

On January 17, 1987 a tube leak was observed in steam generator 11 (Unit 1, steam generator 1). Unit 1 was subsequently shutdown on January 18, 1987 and work began towards opening the steam generators for eddy current examination. Following removal of the manway covers, the leak was visually identified as being in the low numbered row/low numbered column corner of the tube bundle on the cold leg side. A full Technical Specification examination was performed with an initial sample of approximately 2800 tubes in each steam generator, with all examinations performed from the cold leg. All tubes were examined full length with the exception of row 1 and some row 2 tubes which were examined to the first support on the hot leg side when possible.

The initial examination results fell into category C-2 in both steam generators and an additional 716 tubes were examined in steam generator 11 and 696 tubes were examined in steam generator 12. The tubes in the expansion program were examined to the fourth support on the cold leg. The results of the supplementary testing fell into category C-1.

2.0 EXAMINATION RESULTS

The examination results revealed wear indications at the lower eggcrates on the cold leg side of both steam generators in the low row corners of the tube bundles. A total of fourteen degraded tubes and seven defective tubes were identified in steam generator 11, and thirteen degraded tubes and six defective tubes were identified in steam generator 12 (Unit 1, steam generator 2). The summary data sheets in Appendix A list all tubes in both steam generators with thru-wall indications from 0-100% and distorted tube support signals with probable indications (DSI).

Several tubes were identified in each steam generator as having minor dings and dents. The majority of these had been identified during baseline examinations, however, the following tubes in steam generator 11 showed significant denting at the feedwater flow distribution baffle that was not present during the baseline examination: Row 1 column 50, row 1 column 52, row 1 column 54, row 1 column 56, row 1 column 60, row 1 column 62, and row 1 column 64. In addition, row 1 column 58 was dented to the point of 0.540" probe would not pass.

Steam generator 11 had sixteen tubes in the examination sample that were not expanded into the tubesheet while steam generator 12 had fourteen tubes with no tubesheet expansion.

Possible loose part indications were observed in both steam generators with steam generator 11 having five tubes and steam generator 12 having one tube. Sludge profiling was also performed during the examination and was found to be very minor. Less than 100 tubes in each steam generator showed any indication of sludge with average depth less than an inch and maximum depth 1.5 inches.

The examination resulted in plugging an additional 20 tubes in steam generator 11, and 14 tubes in steam generator 12. The tube sheet maps in Appendix B show the total tubes plugged in each steam generator to date and the examination extent during this outage. The NIS-1 form in Appendix C lists each of the tubes, by row and column, plugged as a result of this examination. The following Engineering Evaluation Requests (EER) were initiated to track the examination results: 87-RC-035, 87-RC-037, 87-RC-038 and 87-RC-039. In addition, a report on the steam generators, including root cause analysis, was transmitted to NRR by letter ANPP-40179-JGH/BJA/98.05.

3.0 EXAMINATION TECHNIQUES AND EQUIPMENT

The eddy current examination was performed by Conam Inspection using Zetec MIZ-18 digital data acquisition and analysis systems. The following test frequencies were used during the examination:

- 550 kHz differential and absolute
- 300 kHz differential and absolute
- 100 kHz differential and absolute
- 20 kHz differential and absolute

The majority of the tubes in the examination sample were tested with Zetec manufactured 0.610" and 0.600" SFM/HF probes. The tubes in rows 1, 2, and 3 were examined with either 0.590" or 0.540" SFM/HF probes. A Zetec SM-4 remote fixture was used for probe positioning and tubesheet templates were installed for tube location verification.

APPENDIX A

Summary
Data
Sheets

LEGEND

- ROW: Indicates the row number of a given tube.
- LIN: Indicates the column number of a given tube.
- LEG: Indicates the tube leg from which examination was performed; either the hot (H) leg or cold (C) leg.
- EXTENT REQ: Indicates the tube length required to be examined, i.e., F/L - full length, 07H-seventh support on hot leg side.
- EXTENT TST: Indicates the tube length actually examined.
- REM: Remarks column used for comments relating to examination.
- REEL: Indicates reel number data was recorded on.
- PROBE: Indicates probe diameter and style used for examination.
- LOCATION: Gives indication location relative to known landmarks such as supports and batwings.
- VOLTS: Indicates the peak-to-peak voltage of a given indication response.
- DEG: The measured phase angle of a given indication response.
- %: The percent through the tube wall of a given indication based on the measured phase angle and the calibration curve established for that particular channel.
- CH: Indicates the channel used to measure and evaluate a given indication.

CUMULATIVE REPORT
01/87, ARIZONA PUBLIC SERVICE CO, PALO VERDE, UNIT 1

STEAM GENERATOR: 1
LOCATION: ALL
CRITERIA: 0% TO 100%, DSI

PAGE: 1 OF 2
DATE: 02/07/87
TIME: 08:09:14

										CURRENT				
ROW	LINE	HEAT#	LEG	REQ	TST	REMI	REEL	PROBE	LOCATION	VOLTS	MIL	DEG	%	ICH
2	1		C	107H	107C	RIT	001	1610SM103C-	0.8	0.6	153	20	M3	
			C	107H	107C	RIT	001	1610SM102C+	0.0	2.5	126	36	1	
			C	107H	107C	RIT	001	1610SM102C+	0.0	2.8	127	36	M3	
			C	107H	IF/LI		013	1540SM102C+	0.0	2.3	128	36	1	
4	1		C	107H	107C		001	1610SM103C-	0.7	0.5	137	26	M3	
			C	107H	107C		001	1610SM103C-	0.7	0.6	134	28	1	
			C	107H	IF/LI		034	1600SM103C-	1.0	0.5	157	DSI	M4	
			C	107H	107C		001	1610SM102C+	0.0	4.3	114	47	M3	
			C	107H	107C		001	1610SM102C+	0.0	4.2	112	48	1	
			C	107H	IF/LI	PID	034	1600SM102C+	0.0	4.8	111	51	M3	
1	2		C	107H	107H		032	1540SM104C+	0.0	0.5	149	20	M3	
			C	107H	107H		032	1540SM103C+	0.8	0.4	148	20	M3	
			C	107H	107H		032	1540SM103C-	0.9	1.0	118	37	M3	
			C	107H	107H		032	1540SM102C+	0.8	0.8	143	20	M3	
			C	107H	107H	RPI	032	1540SM102C+	0.0	0.6	88	63	M3	
			C	107H	107H		032	1540SM102C-	0.7	2.2	118	37	M3	
3	2		C	107H	IF/LI	PID	013	1540SM103C+	0.0	0.3	150	49	M3	
			C	107H	107C	RIT	001	1610SM103C-	0.8	0.9	157	20	M3	
			C	107H	107C	RIT	001	1610SM102C+	0.0	55.4	37	95	1	
			C	107H	107C	RIT	001	1610SM102C+	0.0	53.6	36	95	M3	
			C	107H	IF/LI	PID	013	1540SM102C+	0.0	43.3	33	95	1	
2	3		C	107H	107C	RIT	001	1610SM103C-	1.0	1.4	146	20	1	
			C	107H	107C	RIT	001	1610SM103C-	1.0	1.5	146	20	M3	
			C	107H	IF/LI		013	1540SM103C-	1.0	1.1	143	20	1	
			C	107H	107C	RIT	001	1610SM102C+	0.0	7.6	98	60	1	
			C	107H	107C	RIT	001	1610SM102C+	0.0	7.4	99	60	M3	
			C	107H	IF/LI	PID	013	1540SM102C+	0.0	5.8	97	60	1	
1	4		C	107H	107H	PID	040	1600SM103C-	0.9	0.5	143	20	M3	
			C	107H	107H		032	1540SM103C-	0.9	0.2	144	20	M3	
			C	107H	107H		032	1540SM102C+	0.9	1.3	115	39	M3	
			C	107H	107H	PID	040	1600SM102C+	0.8	3.1	114	48	M3	
			C	107H	107H		032	1540SM102C+	0.2	3.4	100	53	M3	
			C	107H	107H	PID	040	1600SM102C+	0.0	7.2	98	64	M3	
3	4		C	IF/LI	107C		001	1610SM104C+	0.0	0.9	141	22	M3	
			C	IF/LI	IF/LI		013	1540SM104C+	0.0	0.8	142	22	1	
			C	IF/LI	107C		001	1610SM104C+	0.0	0.8	140	23	1	
			C	IF/LI	107C		001	1610SM103C-	0.9	1.0	141	22	1	
			C	IF/LI	107C		001	1610SM103C-	0.9	1.0	141	22	M3	
			C	IF/LI	IF/LI		013	1540SM103C-	0.9	0.8	141	22	1	
7	4		C	IF/LI	107C		001	1610SM101C-	0.3	0.5	157	DSI	M4	
35	16		C	104C	105C	RIT	039	1600SM102C+	14.9	2.7	14	20	1	
49	36		C	IF/LI	IF/LI		010	1610SM102H+	9.0	1.7	10	20	1	
			C	IF/LI	IF/LI		010	1610SM102H+	13.3	2.6	13	20	1	
			C	IF/LI	IF/LI		010	1610SM102H+	16.2	1.7	13	20	1	
			C	IF/LI	IF/LI		010	1610SM104H+	6.4	11.7	20	20	1	

CUMULATIVE REPORT
01/87, ARIZONA PUBLIC SERVICE CO, PALO VERDE, UNIT 1

STEAM GENERATOR: 1
LOCATION: ALL
CRITERIA: 0% TO 100%, DSI

PAGE: 2 OF 2
DATE: 02/07/87
TIME: 08:09:14

EXTENT										CURRENT				
ROW	LINE	HEAT#	LEG	REQ	TS	REMI	REEL	PROBE	LOCATION	VOLTS	MIL	DEG	%	CHI
75	54		C	IF/LIF/LI			015	590SMI02C+	5.5	3.8		10	20	1
			C	IF/LIF/LI			015	590SMI01C+	36.9	3.3		7	20	1
			C	IF/LIF/LI			015	590SMI02C+	2.4	3.6		8	20	1
			C	IF/LIF/LI			015	590SMI01C+	33.8	1.6		7	20	1
			C	IF/LIF/LI			015	590SMI02C-	0.3	2.6		2	20	M3
97	64		C	IF/LIF/LI			016	610SMITSC+	2.2	1.4		13	20	1
40	83		C	IF/LIF/LI			003	610SMI04H+	15.4	2.1		12	20	1
39	86		C	IF/LIF/LI			003	610SMI05H+	23.9	0.9		132	32	1
157	104		C	IF/LIF/LIRIC			036	600SMI02H-	1.7	1.7		7	20	M4
71	108		C	IF/LIF/LI			026	600SMIVS5+	1.3	1.1		113	34	M3
72	111		C	IF/LIF/LI			027	600SMI02H-	0.8	2.4		8	20	1
			C	IF/LIF/LI			027	600SMI05H+	3.2	2.2		6	20	1
			C	IF/LIF/LI			027	600SMI01C+	9.0	1.1		7	20	1
115	124		C	IF/LIF/LI			029	600SMI06H+	38.2	1.7		5	20	1
			C	IF/LIF/LI			029	600SMI06H+	39.6	2.8		7	20	1
80	137		C	IF/LIF/LI			031	600SMI02H+	5.7	2.0		170	20	1
57	158		C	IF/LIF/LI			047	590SMI04H+	3.4	2.3		8	20	1
			C	IF/LIF/LI			047	590SMI03H+	38.3	4.4		8	20	1
106	165		C	IF/LIF/LI			044	610SMIBW2-	1.0	1.2		150	20	1
11	168		C	I07HIF/LI			041	600SMI02C+	2.8	1.2		10	20	1
11	170		C	I07HIF/LI			041	600SMI03C+	0.8	0.3		130	22	M3
11	172		C	I07HIF/LI			041	600SMI01C-	0.4	0.4		135	DSI	M4
11	174		C	I07HIF/LI			041	600SMI01C-	0.3	0.8		151	DSI	M4
4	187		C	I07HIF/LI			046	600SMI05C-	1.1	0.1		98	DSI	M3
11	188		C	I07HIF/LI			041	600SMI05C-	0.9	0.6		130	25	M3
			C	I07HIF/LI			041	600SMI04C+	0.8	0.9		128	28	M3
			C	I07HIF/LI			041	600SMI03C+	0.8	0.4		117	DSI	M3
5	188		C	IF/LIF/LIRIC			050	590SMI05C+	0.0	0.4		115	37	M3
			C	IF/LIF/LIPID			051	590SMI05C+	0.0	0.5		104	41	M3
			C	IF/LI07C			046	600SMI05C+	0.0	0.4		99	53	M3
2	189		C	I07HIF/LI			041	600SMI06C-	0.9	0.5		125	27	M3
			C	I07HIF/LIRPI			041	600SMI05C+	0.8	0.3		111	43	M3
			C	I07HIF/LI			041	600SMI04C+	0.0	0.2		94	DSI	1
			C	I07HIF/LI			041	600SMI04C-	0.9	0.5		157	DSI	1
			C	I07HIF/LI			041	600SMI03C+	0.0	0.3		144	20	M3
4	189		C	I07HIF/LI			046	600SMI04C+	0.7	0.3		121	27	M3

NUMBER OF TUBES SELECTED FROM CURRENT OUTAGE: 30

NO TREND ANALYSIS REQUESTED

CUMULATIVE REPORT
01/87, ARIZONA PUBLIC SERVICE CO, PALO VERDE, UNIT 1

STEAM GENERATOR: 2
LOCATION: ALL
CRITERIA: 0% TO 100%, DSI

PAGE: 1 OF 2
DATE: 02/08/87
TIME: 09:15:41

TEXT										CURRENT				
ROW	LINE	HEAT#	LEG	REQ	TST	REM	REEL	PROBE	LOCATION	VOLTS	MIL	DEG	%	CHI
3	2		C	I07HIF/LI			038	1600SMI02C-	0.2	1.2	158	20	M3	
147	60		C	IF/LIF/LI	RPI		034	1610SMI04H+	39.2	1.1	117	53	1	
38	79		C	IF/LIF/LI			006	1610SMI04H+	11.7	3.5	12	20	1	
128	81		C	IF/LIF/LI			027	1600SMI01H+	11.0	0.6	136	32	1	
125	82		C	IF/LIF/LI			027	1600SMITSH+	14.5	7.7	13	20	1	
			C	IF/LIF/LI			027	1600SMI02H+	27.8	5.4	11	20	1	
			C	IF/LIF/LI			027	1600SMI03H+	12.2	10.5	14	20	1	
			C	IF/LIF/LI			027	1600SMI06H+	0.4	6.4	8	20	1	
77	108		C	IF/LIF/LI			018	1610SMI07H+	37.3	3.6	13	20	1	
40	111		C	IF/LIF/LI			047	1590SMITSC+	0.7	0.7	174	20	1	
26	113		C	IF/LIF/LI	RPI		004	1610SMITEC+	12.1	32.5	28	84	M4	
			C	IF/LIF/LI	RPI		004	1610SMITEC+	9.7	41.1	35	99	M4	
93	120		C	IF/LIF/LI			016	1610SMI04H+	8.1	4.5	5	20	1	
			C	IF/LIF/LI			016	1610SMI04H+	10.0	1.4	3	20	1	
			C	IF/LIF/LI			016	1610SMI04H+	40.7	4.8	6	20	1	
			C	IF/LIF/LI			016	1610SMI06H+	24.6	2.6	5	20	1	
			C	IF/LIF/LI			016	1610SMIVS7+	4.5	3.7	6	20	1	
			C	IF/LIF/LI			016	1610SMIVS7+	7.7	10.7	9	20	1	
			C	IF/LIF/LI			016	1610SMI06C+	13.6	1.7	7	20	1	
109	122		C	IF/LIF/LI			016	1610SMI06H+	35.3	2.6	6	20	1	
1103	126		C	IF/LIF/LI			015	1610SMI01C+	16.2	4.9	16	20	1	
112	127		C	IF/LIF/LI			014	1610SMI05C+	13.0	3.9	15	20	1	
150	127		C	IF/LIF/LI			012	1610SMI03C+	2.8	0.7	145	25	1	
			C	IF/LIF/LI			014	1610SMI03C+	2.8	0.7	140	26	1	
47	156		C	IF/LIF/LI			011	1610SMITSC+	4.5	1.6	9	20	1	
2	183		C	I07HI07HI			002	1610SMI03C+	0.9	0.4	106	DSI	M3	
			C	I07HIF/LI			025	1540SMI03C+	0.6	0.8	148	DSI	M3	
19	184		C	IF/LIF/LI			008	1610SMI05C+	1.1	3.4	9	20	M3	
			C	IF/LIF/LI			008	1610SMI04C+	13.9	1.1	10	20	1	
2	185		C	I07HIF/LI			025	1540SMI04C+	0.9	1.2	152	20	M3	
			C	I07HI07CI			002	1610SMI04C+	0.9	0.8	141	DSI	M4	
4	185		C	IF/LIF/LI			002	1610SMI04C+	0.0	0.5	143	20	M3	
			C	IF/LIF/LI			008	1610SMI04C+	0.0	0.5	143	20	M3	
1	186		C	I07HI07HI			026	1540SMI04C+	0.9	0.9	158	20	M3	
			C	I07HI07HI			026	1540SMI03C-	0.9	1.1	153	20	M3	
			C	I07HI07HI			026	1540SMI02C+	0.0	2.8	142	22	M3	
2	187		C	I07HI07CI			002	1610SMI02C+	0.0	6.5	118	49	1	
			C	I07HI07CI			002	1610SMI02C+	0.0	6.3	103	55	M3	
			C	I07HIF/LI	PID		025	1540SMI02C-	0.5	8.6	119	48	M3	
1	188		C	I07HIBW2I	RPI		037	1600SMI02C+	0.9	12.7	119	50	M3	
			C	I07HI07HIRPI			025	1540SMI02C+	0.9	12.4	112	54	M3	
			C	I07HIBW2I			037	1600SMI02C-	1.0	3.2	134	34	M3	
			C	I07HI07HIRPI			026	1540SMI02C-	1.0	2.4	121	46	M3	
			C	I07HIBW2I			037	1600SMI01C+	0.4	4.9	150	20	M3	
			C	I07HI07HI			026	1540SMI01C+	0.4	3.3	127	20	M4	

CUMULATIVE REPORT
01/87, ARIZONA PUBLIC SERVICE CO, PALO VERDE, UNIT 1

STEAM GENERATOR: 2
LOCATION: ALL
CRITERIA: 0% TO 100%, DSI

PAGE: 2 OF 2
DATE: 02/08/87
TIME: 09:15:41

EXTENT										CURRENT			
ROW	LINE	HEAT#	LEG	REQ	TST	REM	REEL	PROBE	LOCATION	VOLTS	MIL	DEG	% ICH
4	189		C	07H	07C	RPI	002	1610SM	02C+ 0.0	11.2	106	59	M3
			C	07H	07C	RIT	002	1610SM	02C+ 0.0	11.4	95	64	M3
			C	07H	F/L	PID	012	1610SM	02C- 0.6	14.0	120	53	M3
6	189		C	F/L	F/L		002	1610SM	02C+ 0.9	1.9	125	33	M3
			C	F/L	F/L	RPI	012	1610SM	02C+ 0.9	9.3	127	47	M3
			C	F/L	F/L	RPI	002	1610SM	02C+ 0.0	6.4	114	53	M3
			C	F/L	F/L		002	1610SM	02C+ 0.0	6.4	101	58	M3

NUMBER OF TUBES SELECTED FROM CURRENT OUTAGE: 23

NO TREND ANALYSIS REQUESTED

APPENDIX B

Tubesheet
Maps

01/87, ARIZONA PUBLIC SERVICE CO, PALO VERDE, UNIT 1

STEAM GENERATOR: 2
DATE: 03/05/87
LOCATION: ALL
CRITERIA: PLG

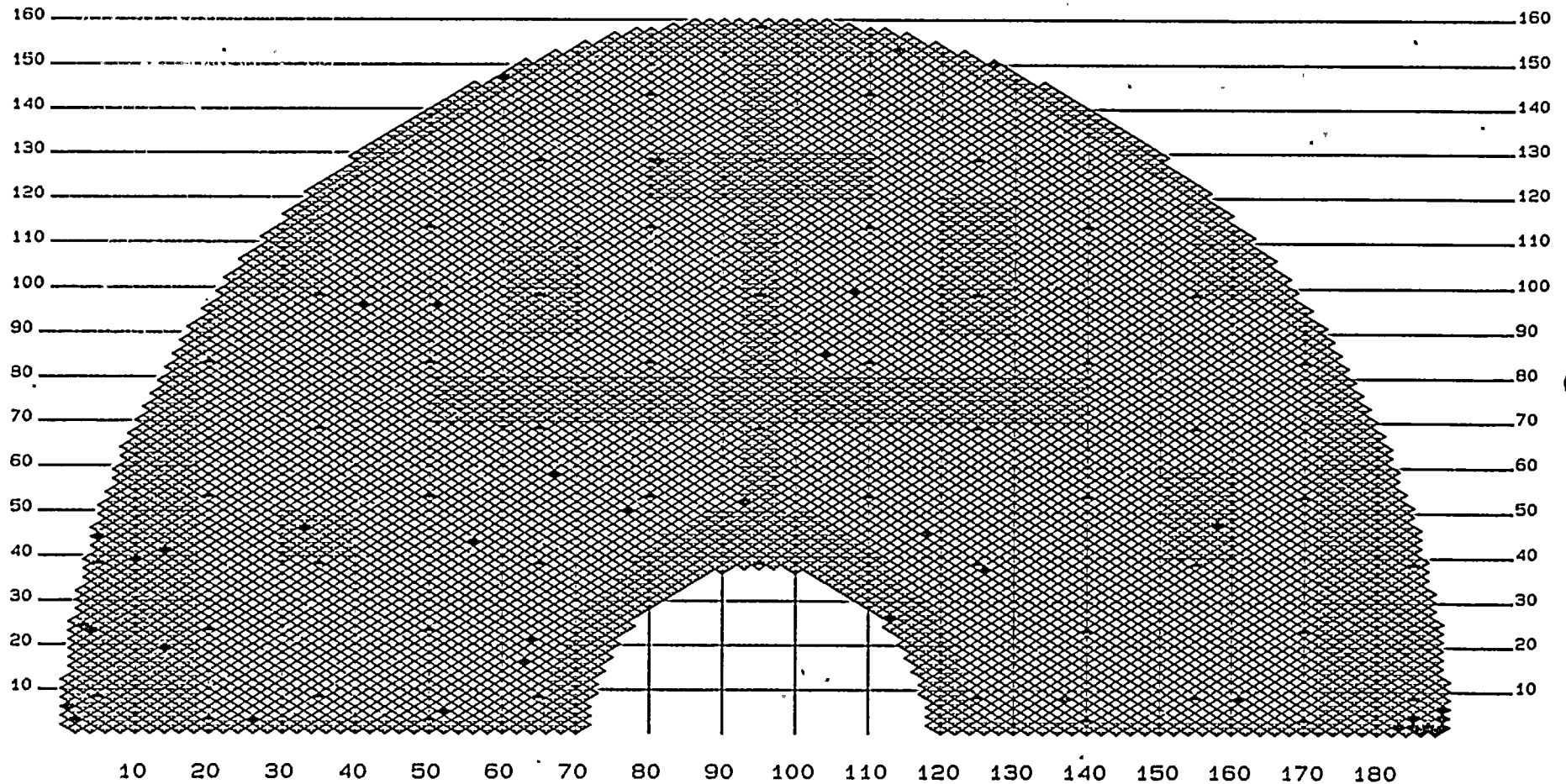
PROC: 73TI-9RC01 REV 0
TIME: 09:37
STAY

PLG

40

EVALUATED

FIXTURE
TEMPLATE



CONAM

01/87, ARIZONA PUBLIC SERVICE CO, PALO VERDE, UNIT 1

STEAM GENERATOR: 1
DATE: 03/04/87
LOCATION: ALL
CRITERIA: PLG

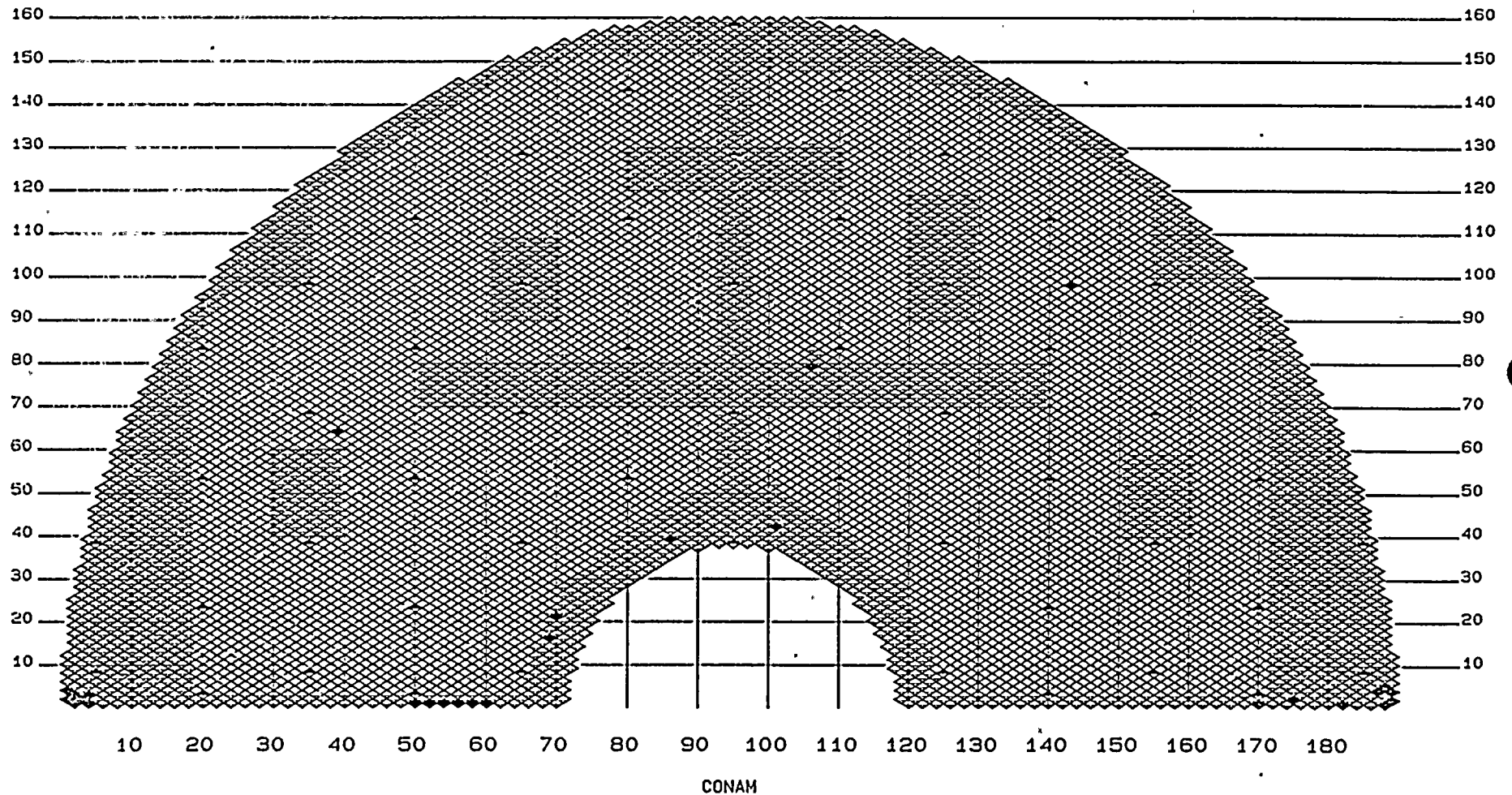
PROC: 73TI-9RC01 REV 0
TIME: 13:04
STAY

PLG

28

EVALUATED

FIXTURE
TEMPLATE



APPENDIX C

Form
NIS-1

FORM NIS-1

OWNERS' DATA REPORT FOR INSERVICE INSPECTIONS

1. OWNER ARIZONA PUBLIC SERVICE, et al
ADDRESS P. O. BOX 52034, PHOENIX, AZ 85072
2. PLANT PALO VERDE NUCLEAR GENERATING STATION
ADDRESS 4 MILES SOUTH, WINTERSBURG, ARIZONA
3. UNIT NO. 1 4. OWNERS CERTIFICATE OF AUTHORIZATION N/A
5. COMMERCIAL SERVICE DATE 1/28/86
6. COMPONENTS INSPECTED:

COMPONENT OF APPURTENANCE	MANUFACTURER OR INSTALLER	SERIAL NUMBER	STATE OR PROVINCE	NATIONAL BOARD NO
IMRCEE01A Steam Generator 11 Tubing	Combustion Engineering	78273-1	NA	22499
IMRCEE01B Steam Generator 12 Tubing	Combustion Engineering	78273-2	NA	22500

FORM NIS-1 (BACK)

7. EXAM DATES 1/27/87 to 2/6/87 8. INSP INTERVAL FROM 1/28/86 to 1/27/96
 9. ABSTRACT OF EXAMINATION. INCLUDE A LIST OF EXAMINATIONS AND A STATEMENT CONCERNING STATUS OF WORK REQUIRED FOR CURRENT INTERVAL.

A total of 3,590 tubes were examined in Steam Generator 11 and a total of 3,426 tubes were examined in Steam Generator 12.

10. ABSTRACT OF CONDITIONS NOTED.

Steam Generator 11: Fourteen degraded tubes and seven defective tubes. Eight tubes showed significant denting that were not present on the baseline data. Sixteen tubes were not expanded into the tube sheet. Five tubes had indications of possible loose parts.

Steam Generator 12: Thirteen degraded tubes and six defective tubes were identified. Fourteen tubes were not expanded into the tubesheet and one tube had indications of a possible loose part.

11. ABSTRACT OF CORRECTIVE MEASURES.

The following tubes were plugged as a result of this examination:

S/G 11						S/G 12			
ROW	COL	ROW	COL	ROW	COL	ROW	COL	ROW	COL
2	1	39	86	1	52	3	2	2	187
4	1	1	170	1	54	147	60	1	188
1	2	4	187	1	56	128	81	2	189
3	2	1	188	1	58	26	113	4	189
2	3	5	188	1	60	150	127	6	189
1	4	2	189			2	183		
3	4	4	189			2	185		
		1	50			4	185		
						1	186		

WE CERTIFY THAT THE STATEMENTS MADE IN THIS REPORT ARE CORRECT AND THE EXAMINATIONS AND CORRECTIVE MEASURES TAKEN CONFORM TO THE RULES OF THE ASME CODE, SECTION XI.

DATE 2-26-87 SIGNED ARIZONA PUBLIC SERVICE CO BY J. B. Hester

CERTIFICATE OF INSERVICE INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and the State or Province of AZ, employed by Kemper Group of Long Grove, IL have inspected the components described in this OWNERS REPORT during the period 1/87 to 2/87, and state that to the best of my knowledge and belief, the Owner has performed examinations and taken corrective measures described in this OWNERS REPORT in accordance with the requirements of the ASME Code, Section XI. By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the examinations and corrective measures described in this OWNERS REPORT. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

INSPECTOR James C. Kemper COMMISSIONS AZ 193
 DATE 2/26/87 Nat'l Board, State, Province

