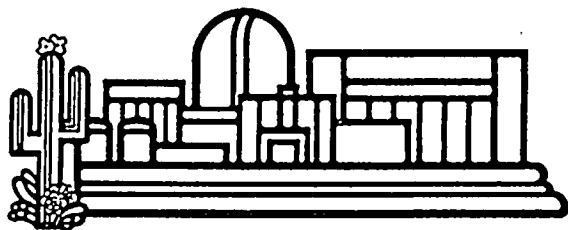




Arizona Nuclear Power Project

Inservice Inspection Summary Report

PVNGS UNIT 2
INSERVICE INSPECTION REPORT
FIRST REFUELING



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PVNGS UNIT 2

INSERVICE INSPECTION REPORT

FIRST REFUELING

PVNGS UNIT 2
INSERVICE INSPECTION REPORT
FIRST REFUELING

PALO VERDE
NUCLEAR GENERATING STATION

ARIZONA PUBLIC SERVICE, et al
P. O. Box 52034
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PVNGS
4 Miles South
Wintersburg, AZ 85343

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Date: 8-30-88

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Date: 8-30-88

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Date: 8-30-88

Commercial

Report

Service Date: September 19, 1986

Date: August 22, 1988

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PVNGS UNIT 2
INSERVICE INSPECTION REPORT
FIRST REFUELING

1.0 INTRODUCTION

This report is a summary of the examinations performed during the First Inservice Inspection at Palo Verde Nuclear Generating Station - Unit 2. This was the initial ISI for Interval 1 - Period 1 and was conducted during the first refueling outage which occurred from February 20, 1988 thru June 22, 1988. Palo Verde - Unit 2 began commercial operation on September 19, 1986.

This report identifies the components examined, the examination methods used, the examination report number and summarizes the examination results for each of the following categories of items:

1. ASME Section XI - Class 1 and 2 pressure retaining components and their supports.
2. Augmented high energy piping systems in accordance with PVNGS FSAR Section 6.6.8.
3. Augmented examinations of CHR, RHR, and ECCS piping systems in accordance with 10CFR50.55a.

2.0 EXAMINATION SUMMARY

The evaluation of the results from the inservice inspection examinations indicated the integrity of the systems has been maintained. All discrepancies were corrected in accordance with PVNGS work control practices and ASME Section XI. The discrepant findings are noted as follows:

<u>ZONE</u>	<u>ITEM</u>	<u>DISCREPANCY</u>
3,4	SG Manway Studs	Galled Threads/Corrosion
5	PZR Manway Studs	Galled Threads/Corrosion
25	SI-156-H7	Loose hanger clamp locknut
29	29-11	Linear Indications
45	SG-42-H14	Linear Indications
45	SG-42-H15	Linear Indications
51	51-3	Linear Indications
51	51-4	Linear Indications
51	51-6	Linear Indications
51	51-9	Linear Indications
58	58-19	Linear Indications
60	60-8	Linear Indications

The discrepant items in Zones 29, 45, 51, 58 and 60 were repaired by light grinding/blending. The manway studs in Zones 3,4 and 5 were all damaged during removal (galled) and were replaced with new studs and nuts. A pre-service examination was performed on all replacement items, including three snubbers.

3.0 EXAMINATION TECHNIQUES

The three types of examinations utilized to perform the Inservice Examinations along with the actual nondestructive examination technique, are identified in the legend below:

VT-VISUAL	VT-1	GENERAL CONDITION
	VT-2	LEAKAGE
	VT-3	STRUCTURAL CONDITION
	VT-4	OPERABILITY
S-SURFACE	PT	LIQUID PENETRANT
	MT	MAGNETIC PARTICLE
VOL-VOLUMETRIC	UT	ULTRASONIC

All of the nondestructive examinations were performed using specific techniques and procedures that are indicated in ASME Section XI, or alternative examinations that are demonstrated to be equivalent or superior to those identified.

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4.0 ACCESSIBILITY

All items were examined to the extent practical. Any code limitations encountered during the examinations are documented in Appendix B.

5.0 PERSONNEL

All nondestructive examinations were performed by ANPP, and Lambert, MacGill, Thomas, Inc. (LMT) personnel. All personnel were certified in accordance with programs written to comply with the applicable requirements of ASME Section XI. Copies of all certifications are maintained on file. Kemper Group, representing ANI, provided the Authorized Inspection.

6.0 EQUIPMENT AND MATERIALS

The equipment and materials utilized were certified to the requirements of ASME Section XI. Copies of all certifications are maintained on file.

7.0 REPAIRS AND REPLACEMENTS

All repairs and replacements were performed to ASME Section XI requirements. The applicable records and reports for the specific repair or replacement are maintained on file.

APPENDIX A

INSERVICE INSPECTION
SUMMARY REPORT

APPENDIX A

Definition of Terms

The column headings for tabular information on the following pages are defined below:

ASME*	
ITEM NO:	The ASME Section XI Category/Item Number as listed in the Code, Subsections IWB and IWC.
ZONE NO:	Area designation per PVNGS design.
COMP/SYS:	Component or system descriptor.
INSP PER:	Inspection Period
REQD:	Number of Items required to be completed in the Period.
ITEM ID:	Item identification per ISI Program/Zone drawings.
REPORTS (VOL):	Volumetric exam report number.
(SURF):	Surface exam report number.
(VIS):	Visual exam report number.
* AHE.	(Augmented High Energy Systems)
FR.	(CFR Commitment)

INSERVICE INSPECTION - SUMMARY REPORT
Palo Verde Nuclear Generating Station - Unit 2
Appendix A

ASME ITEM NO	ZONE	COMP/SYS	INSP PER	REQD	ITEM ID	VOL	REPORTS SURF	VIS	REMARKS
AHES.11	53	STEAM TO AUX FW	ONE	10	53-11	88-2125	88-2111		
					53-12	88-2122	88-2111		
					53-13		88-2111		NO UT - INACCESS.
					53-14	88-2124	88-2111		
					53-15	88-2123	88-2111		
					53-21	88-2128	88-2111		
					53-22	88-2129	88-2111		
					53-23	88-2127	88-2111		
					53-24	88-2126	88-2111		
					53-25	88-2130	88-2111		
AHES.21	47	MS SG1 270	ONE	12	47-1	88-2272	88-2112		CIRC UT
						88-2142	88-2112		AXIAL UT
					47-12	88-2105	88-2058		
					47-16	88-2106	88-2058		
					47-2	88-2270	88-2112		
					47-20	88-2107	88-2058		
					47-24	88-2143	88-2112		
					47-25	88-2144	88-2112		
					47-28	88-2133	88-2058		
					47-29	88-2134	88-2058		
					47-30	88-2271	88-2112		
					47-4	88-2103	88-2112		
					47-8	88-2104	88-2058		
	51	ATMOS DUMP S61	ONE	11	51-1	88-2093	88-2058		
					51-2	88-2241	88-2131		
					51-3	88-2242	88-2303		
					51-4	88-2243	88-2303		
					51-40	88-2250	88-2131		
					51-5	88-2248	88-2131		

INSERVICE INSPECTION - SUMMARY REPORT
Palo Verde Nuclear Generating Station - Unit 2
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ASME ITEM NO	ZONE	COMP/SYS	INSP PER	REQD	ITEM ID	VOL	REPORTS SURF	VIS	REMARKS
AHES.21	51	ATMOS DUMP S61	ONE	11	51-6	88-2244	88-2303		
					51-7	88-2245	88-2131		
					51-8A	88-2246	88-2131		
					51-8B	88-2247	88-2131		
					51-9	88-2249	88-2303		
	60	DOWNCOMER FW S61	ONE	9	60-11		88-2108		NO UT - INACCESS.
					60-12		88-2108		NO UT - INACCESS.
					60-14	88-2099	88-2108		
					60-15	88-2100	88-2108		
					60-16	88-2101	88-2108		
					60-17	88-2102	88-2108		
					60-7	88-2097	88-2108		
					60-8	88-2098	88-2305		
					60-9		88-2108		NO UT - INACCESS.
	66	BLOWDOWN S61	ONE	10	66-1	88-2121	88-2109		
					66-2	88-2121	88-2109		
					66-25	88-2119	88-2109		
					66-28	88-2118	88-2109		
					66-3	88-2120	88-2109		
					66-4	88-2117	88-2095		
					66-5	88-2116	88-2109		
					66-7	88-2115	88-2109		
					66-8	88-2114	88-2109		
					66-9	88-2113	88-2109		
AHES.31	47	MS S61 270	ONE	7	47-11	88-2135	88-2058		
					47-15	88-2137	88-2058		
					47-19	88-2139	88-2058		
					47-23	88-2136	88-2058		
					47-27	88-2140	88-2058		

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ASME ITEM NO	ZONE	COMP/SYS	INSP PER	REQD	ITEM ID	VOL	REPORTS SURF	VIS	REMARKS
AHE5.31	47	MS SG 1 270	ONE	7	47-3	88-2138	88-2112		
					47-7	88-2141	88-2058		
B01.22	02	CLOSURE HEAD	ONE	33X	2-4	88-2375	88-2346		
						88-2373	88-2346		
						88-2372	88-2346		
B01.30	01	REACTOR VESSEL	ONE	50X	1-14				
B01.40	02	CLOSURE HEAD	ONE	33X	2-1	88-2371	88-2346		
						88-2374	88-2346		
						88-2376	88-2346		
B02.11	05	PZR	ONE	33X	5-2	88-2362	88-2343		
						88-2358	88-2343		
						88-2366	88-2343		
					5-8	88-2364	88-2343		
						88-2361	88-2343		
						88-2360	88-2343		
B02.31	03	SG 1	ONE	1					
	04	SG 2	ONE	1					
B02.32	03	SG 1	ONE	4					
B02.40	03	SG 1	ONE	1					
B03.090	01	REACTOR VESSEL	ONE	2					
B03.110	05	PZR	ONE	33X	5-11	88-2359	88-2343		
						88-2365	88-2343		
						88-2363	88-2343		
					5-9	88-2353			
						88-2355			
						88-2354			
B03.120	05	PZR	ONE	2	5-11	88-2355			INNER RADIUS
					5-9	88-2357			INNER RADIUS
B03.130	03	SG 1	ONE	1					

INSERVICE INSPECTION - SUMMARY REPORT
Palo Verde Nuclear Generating Station - Unit 2
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ASME ITEM NO	ZONE	COMP/SYS	INSP PER	REQD	ITEM ID	VOL	REPORTS SURF	VIS	REMARKS
B03.130	04	SS 2	ONE	1					
B04.12	02	CLOSURE HEAD	ONE	8					
B04.13	01	REACTOR VESSEL	ONE	5					
B04.20	05	PZR	ONE	3					
B05.040	20	PZR SURGE	ONE	1	5-34	88-2367	88-2352		
	31	PZR SAFETIES	ONE	1	5-29	88-2316	88-2309		
B05.130	21	SD COOLING 1	ONE	1					
	23	SAFETY INJ 1A	ONE	1					
B05.140	27	PZR SPRAY 1A	ONE	1					
	32	DRAIN 1A	ONE	1	8-18		88-2312		
B05.010	02	CLOSURE HEAD	ONE	18					
B06.030	02	CLOSURE HEAD	ONE	18					
B06.050	02	CLOSURE HEAD	ONE	18					
B06.180	16	RCP 1A FLANGE STUDS	ONE	5	1 THRU 16	88-2386	88-2382	88-2384	
	17	RCP 1B FLANGE STUDS	ONE	5	1 THRU 16	88-2387	88-2383	88-2385	
	18	RCP 2A FLANGE STUDS	ONE	5	1 THRU 16	88-2393	88-2391	88-2389	
	19	RCP 2B FLANGE STUDS	ONE	5	1 THRU 16	88-2394	88-2392	88-2390	
B06.190	NA	RCP	ONE	1	FLANGE			88-2405	RCP 2A
B06.200	16	RCP 1A NUTS AND RING	ONE	5	1 THRU 16			88-2413	
	17	RCP 1B NUTS AND RING	ONE	5	1 THRU 16			88-2414	
	18	RCP 2A NUTS AND RING	ONE	5	1 THRU 16			88-2415	
	19	RCP 2B NUTS AND RING	ONE	5	1 THRU 16			88-2416	
B07.20	05	PZR MANWAY	ONE	N/A	1 STUD			88-2412	PSE
				20	20 STUDS		88-2410	88-2409	
B07.30	03	SS 1 MANWAYS	ONE	40	40 STUDS		88-2388	88-2405	
				N/A	5 STUDS			88-2411	PSE
	04	SS 2 MANWAYS	ONE	N/A	1 STUD			88-2411	PSE
				40	40 STUDS		88-2388	88-2405	
B07.50	31	PZR SAFETIES FLANGE	ONE	1	PSV-200			88-2220	

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ASME ITEM NO	ZONE	COMP/SYS	INSP PER	REQD	ITEM ID	VOL	REPORTS SURF	VIS	REMARKS
B07.50	31	PZR SAFETIES FLANGE	ONE	N/A	PSV-200			88-2396	PSE
					PSV-201			88-2396	PSE
					PSV-202			88-2396	PSE
					PSV-203			88-2396	PSE
	37	CHARGING FLANGE	ONE	1	V435			88-2326	
B07.60	16	RCP 1A SEAL BOLTS	ONE	5	1 THRU 16			88-2417	
	17	RCP 1B SEAL BOLTS	ONE	5	1 THRU 16			88-2418	
	18	RCP 2A SEAL BOLTS	ONE	5	1 THRU 16			88-2419	
	19	RCP 2B SEAL BOLTS	ONE	5	1 THRU 16			88-2420	
B07.70	21	SD COOLING 1	ONE	1	V653			88-2201	
	22	SD COOLING 2	ONE	1					
	23	SI 1A	ONE	1					
	24	SI 1B	ONE	1	V543			88-2165	
	25	SI 2A	ONE	1	V540			88-2401	
	26	SI 2B	ONE	1	V225			88-2169	
	28	PZR SPRAY 1B	ONE	2	V241			88-2210	
					V242			88-2210	
	31	PZR SAFETIES	ONE	1	PSV200			88-2220	
	32	DRAIN 1A	ONE	2	V234			88-2328	
					V334			88-2328	
	37	CHARGING	ONE	1	V240			88-2221	
	38	DRAIN LOOP 1	ONE	1					
	39	HPSI 1	ONE	1					
B07.80	2	CLOSURE HEAD	ONE	1	CEDM 92				
B08.20	05	PZR	ONE	33X	5-1			88-2343	
B08.30	03	SG 1	ONE	33X	3-1				
B09.11	06	RCS PIPING	ONE	7					
	20	PZR SURGE	ONE	1	20-1		88-2368	88-2352	
	21	SD COOLING 1	ONE	2					

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ASME ITEM NO	ZONE	COMP/SYS	INSP PER	REQD	ITEM ID	VOL	REPORTS SURF	VIS	REMARKS
B09.11	22	SD COOLING 2	ONE	2					
	23	SI 1A	ONE	3					
	25	SI 2A	ONE	2	25-26	88-2298	88-2267		
					25-29	88-2299	88-2268		
	26	SI 2B	ONE	2	26-11	88-2292	88-2259		
					26-9	88-2293	88-2259		
	29	PZR SPRAY	ONE	2	29-10	88-2318	88-2315		
					29-11	88-2319	88-2377		RE-EXAM 2ND REFUEL
	31	PZR SAFETIES	ONE	1	31-1	88-2317	88-2309		
B09.21	27	PZR SPRAY 1A	ONE	3					
	28	PZR SPRAY 1B	ONE	4	28-31		88-2342		
					28-32		88-2342		
					28-39		88-2341		
					28-40		88-2341		
	30	AUX PZR SPRAY	ONE	2	30-13		88-2310		
					30-7		88-2310		
	32	DRAIN 1A	ONE	2	32-1		88-2313		
					32-2		88-2314		
	36	LETDOWN	ONE	4	36-28		88-2350		
					36-35		88-2350		
					36-8		88-2348		
					36-9		88-2348		
	37	CHARGING	ONE	5	37-41		88-2324		
					37-42		88-2324		
					37-43		88-2324		
					37-45		88-2325		
					37-47		88-2325		
	39	HPSI 1	ONE	2	39-1		88-2291		
					39-5		88-2291		

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ASME ITEM NO	ZONE	COMP/SYS	INSP PER	REQD	ITEM ID	VOL	REPORTS SURF	VIS	REMARKS
B09.21	40	HPSI 2	ONE	3					
B09.31	05	RCS PIPING	ONE	1					
B09.32	06	RCS PIPING	ONE	1	8-17		88-2312		
	22	SD COOLING 2	ONE	1					
B09.40	32	DRAIN 1A	ONE	1	32-6		88-2314		
	38	DRAIN LOOP 1	ONE	1					
B10.10	26	SI 2B	ONE	1	SI-179-H10		88-2266		
	36	LETDOWN	ONE	1	RC-91-H5		88-2345		
B12.20	NA	RCP	ONE	1	PUMP CASING			88-2395 RCP 2A	
B13.10	01	REACTOR VESSEL	ONE	100%	INTERIOR			88-2407 ACCESS. AREAS	
								88-2408 ACCESS. AREAS	
B14.10	02	CLOSURE HEAD	ONE	2	10-76	88-2400			UPPER HOUSING WELD
					10-83	88-2399			UPPER HOUSING WELD
					9-76	88-2398			LOWER TUBE WELD
					9-83	88-2397			LOWER TUBE WELD
B15.10	1&2	REACTOR VESSEL	ONE	N/A	PRESS. BOUNDARY			88-2424 SYS. LEAK TEST	
B15.20	5	PZR	ONE	N/A	PRESS. BOUNDARY			88-2424 SYS. LEAK TEST	
B15.30	3	S/G 1	ONE	N/A	PRESS. BOUNDARY			88-2424 SYS. LEAK TEST	
	4	S/G 2	ONE	N/A	PRESS. BOUNDARY			88-2424 SYS. LEAK TEST	
B15.50	ALL	RCS PIPING	ONE	N/A	CLASS 1			88-2424 SYS. LEAK TEST	
B15.60	16	RCP 1A	ONE	N/A	PRESS. BOUNDARY			88-2424 SYS. LEAK TEST	
	17	RCP 1B	ONE	N/A	PRESS. BOUNDARY			88-2424 SYS. LEAK TEST	
	18	RCP 2A	ONE	N/A	PRESS. BOUNDARY			88-2424 SYS. LEAK TEST	
	19	RCP 2B	ONE	N/A	PRESS. BOUNDARY			88-2424 SYS. LEAK TEST	
B15.70	ALL	RCS VALVES	ONE	N/A	CLASS 1			88-2424 SYS. LEAK TEST	
BFLYWH	16	RCP 1A FLYWHEEL	ONE	1					
	17	RCP 1B FLYWHEEL	ONE	1					
	18	RCP 2A FLYWHEEL	ONE	1					
	19	RCP 2B FLYWHEEL	ONE	1					

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ASME ITEM NO	ZONE	COMP/SYS	INSP PER	REQD	ITEM ID	VOL	REPORTS SURF	VIS	REMARKS
BIMF	01	REACTOR VESSEL	ONE	1	1-40				
	03	SG 1	ONE	1	3-40				
	16	RCP 1A	ONE	2	16-17			88-2333	
					16-18			88-2334	
	17	RCP 1B	ONE	2	17-17			88-2340	
					17-18			88-2339	
	18	RCP 2A	ONE	4	18-12			88-2332	
					18-13			88-2332	
					18-14			88-2332	
					18-15			88-2332	
	19	RCP 2B	ONE	4	19-12			88-2338	
					19-13			88-2338	
					19-14			88-2338	
					19-15			88-2338	
	20	PZR SURGE	ONE	2	RC-28-H1			88-2336	
					RC-28-H2			88-2337	
	21	SD COOLING 1	ONE	7	SI-240-H10			88-2162	
					SI-240-H11			88-2163	
					SI-240-H13			88-2164	
	22	SD COOLING 2	ONE	4					
	23	SI 1A	ONE	1					
	24	SI 1B	ONE	2	SI-223-H3			88-2166	
					SI-223-H4			88-2360	
	25	SI 2A	ONE	2	SI-156-H7			88-2402	
					SI-156-H9			88-2168	
	26	SI 2B	ONE	3	SI-179-H10			88-2171	
					SI-179-H11			88-2172	
					SI-179-H9			88-2170	
	27	PZR SPRAY 1A	ONE	9	RC-62-H27			88-2202	

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ASME ITEM NO	ZONE	COMP/SYS	INSP PER	REQD	ITEM ID	VOL	REPORTS SURF	VIS	REMARKS
BIWF	27	PZR SPRAY 1A	ONE	9	RC-62-H28			88-2203	
					RC-62-H29			88-2204	
					RC-62-H30			88-2205	
					RC-62-H31			88-2206	
					RC-62-H32			88-2207	
					RC-62-H33			88-2208	
					RC-62-H34			88-2209	
	28	PZR SPRAY 1B	ONE	8	RC-17-H24			88-2335	
					RC-17-H34			88-2211	
					RC-17-H36			88-2212	
					RC-17-H38			88-2213	
					RC-17-H39			88-2214	
					RC-17-H40			88-2215	
					RC-17-H41			88-2216	
					RC-17-H42			88-2217	
	29	PZR SPRAY	ONE	2	RC-18-H16			88-2218	
					RC-18-H18			88-2219	
	32	DRAIN 1A	ONE	2	RC-60-HA			88-2256	
					RC-60-HB			88-2173	
	36	LETDOWN	ONE	9	RC-91-H1			88-2351	
					RC-91-H5			88-2344	
					RC-91-HAA			88-2179	
					RC-91-HAK			88-2180	
					RC-91-HB			88-2174	
					RC-91-HD			88-2175	
					RC-91-HE			88-2176	
					RC-91-HY			88-2177	
					RC-91-HZ			88-2178	
	37	CHARGING	ONE	N/A	CH-5-H10			88-2224	PSE

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ASME ITEM NO	ZONE	COMP/SYS	INSP PER	REQD	ITEM ID	VOL	REPORTS SURF	VIS	REMARKS
BIMF	37	CHARGING	ONE	14	CH-5-H2			88-2222	
					CH-5-H25			88-2225	
					CH-5-H26			88-2226	
					CH-5-H27			88-2227	
					CH-5-H28			88-2228	
					CH-5-H3			88-2223	
					CH-5-H30			88-2229	
					CH-5-H34			88-2230	
					CH-5-H35			88-2231	
					CH-5-H36			88-2232	
					CH-5-H42			88-2233	
					CH-5-H43			88-2234	
					CH-5-H44			88-2235	
					CH-5-H4A ..			88-2236	
	39	HPSI 1	ONE	N/A	SI-248-H19			88-2403 PSE	
				4	SI-248-H26			88-2181	
					SI-248-H27			88-2182	
					SI-248-H28			88-2183	
					SI-248-H30			88-2184	
	40	HPSI 2	ONE	3					
C01.10	41	SG 1	ONE	1					
	68	REG HT EXCH	ONE	1					
	69	LETDOWN HT EXCH	ONE	50%	69-1	88-2330			
C01.20	41	SG 1	ONE	50%					
	68	REG HT EXCH	ONE	1					
C01.30	41	SG 1	ONE	50%					
	69	LETDOWN HT EXCH	ONE	50%	69-2	88-2329			
C02.21	41	SG 1	ONE	1					
	42	SG 2	ONE	1					

INSERVICE INSPECTION - SUMMARY REPORT
Palo Verde Nuclear Generating Station - Unit 2
Appendix A

ASME ITEM NO	ZONE	COMP/SYS	INSP PER	REQD	ITEM ID	VOL	REPORTS SURF	VIS	REMARKS
C03.10	41	SG 1	ONE	1					
C03.20	43	MS SG1 90	ONE	1	SG-36-H17		88-2287		
	45	MS SG2 270	ONE	3	SG-42-H14		88-2378		
					SG-42-H15		88-2378		
					SG-42-H16		88-2279		
	55	SG 2	ONE	1					
	64	BLOWDOWN SG1	ONE	2					
	65	BLOWDOWN SG2	ONE	2					
	70	LPSI SUCTION 1	ONE	2	SI-241-H21		88-2152		
					SI-369-H1		88-2290		
	71	LPSI SUCTION 2	ONE	1	SI-194-H14		88-2068		
	72	LPSI DISCH 1	ONE	1	SI-87-H11		88-2038		
	74	SD COOLING 1	ONE	2	SI-70-H12		88-2311		
					SI-70-H9		88-2331		
	75	SD COOLING 2	ONE	1	SI-72-H13		88-2065		
	76	LPSI HDR 1A	ONE	2	SI-70-H11		88-2153		
					SI-70-H16		88-2153		
	80	CS SUCTION 1	ONE	1	SI-9-H4		88-2005		
C03.30	72	LPSI DISCH 1	ONE	2	72-3B		88-2036		
					72-3C		88-2036		
	80	CS SUCTION 1	ONE	2	80-3B		88-2001		
					80-3C		88-2001		
C04.40	47	MS SG1 270	ONE	20	V170		88-2251		
	48	MS SG1 90	ONE	20	V180		88-2252		
C05.11	58	AUX & FW SG1	ONE	1	58-1		88-2370 88-2349		
	59	AUX & FW SG2	ONE	1	59-1		88-2369 88-2347		
C05.21	43	MS SG1 90	ONE	3	43-1		88-2306 88-2287		
					43-2		88-2320 88-2287		
					43-22		88-2323 88-2287		

INSERVICE INSPECTION - SUMMARY REPORT
Palo Verde Nuclear Generating Station - Unit 2
Appendix A

ASME ITEM NO	ZONE	COMP/SYS	INSP PER	REDD	ITEM ID	VOL	REPORTS SURF	VIS	REMARKS
C05.21	44	MS S61 270	ONE	3	44-26	88-2307	88-2288		
					44-28	88-2308	88-2288		
					44-30	88-2304	88-2288		
	46	MS S62 90	ONE	2	46-25	88-2321	88-2280		
					46-27	88-2322	88-2280		
	54	FW S61	ONE	5					
	55	FW S62	ONE	5					
	58	AUX & FW S61	ONE	3	58-19	88-2297	88-2381		
					58-20	88-2295	88-2289		
	59	AUX & FW S62	ONE	2	59-33	88-2295	88-2258		
					59-34	88-2294	88-2258		
	62	AUX FW S61	ONE	1	62-24	88-2085	88-2056		
	63	AUX FW S62	ONE	1	63-4	88-2086	88-2057		
	64	BLOWDOWN S61	ONE	2					
	65	BLOWDOWN S62	ONE	4					
CIMF	41	S61	ONE	2					
	43	MS S61 90	ONE	3	S6-36-H17			88-2281	
					S6-36-H884			88-2282	
					S6-36-H885			88-2283	
	44	MS S61 270	ONE	2	S6-33-H17			88-2237	
					S6-33-H18			88-2238	
	45	MS S62 270	ONE	3	S6-42-H14			88-2266	
					S6-42-H15			88-2285	
					S6-42-H16			88-2284	
	46	MS S62 90	ONE	2	S6-45-H17			88-2239	
					S6-45-H18			88-2240	
	47	MS S61 270	ONE	1	S6-206-H1			88-2075	
	51	ATMOS DUMP S61	ONE	1	S6-59-H5			88-2076	
	53	STEAM TO AUX FW	ONE	4	S6-81-H1			88-2077	

INSERVICE INSPECTION - SUMMARY REPORT
Palo Verde Nuclear Generating Station - Unit 2
Appendix A

ASME ITEM NO	ZONE	COMP/SYS	INSP PER	REQD	ITEM ID	VOL	REPORTS SURF	VIS	REMARKS
CIWF	53	STEAM TO AUX FW	ONE	4	SG-81-H2			88-2379	
					SG-83-H1			88-2078	
					SG-83-H2			88-2074	
	54	FW S61	ONE	6					
	55	FW S62	ONE	9					
	58	AUX & FW S61	ONE	7					
	59	AUX & FW S62	ONE	6	AF-6-H1			88-2257	
					SG-11-H10			88-2264	
					SG-11-H11			88-2263	
					SG-11-H12			88-2262	
					SG-11-H8			88-2261	
					SG-11-H9			88-2260	
	60	DOWNCOMER FW S61	ONE	1	SG-200-H9			88-2404	
	62	AUX FW S61	ONE	1	AF-4-H3			88-2053	
	63	AUX FW S62	ONE	2	AF-16-H1			88-2054	
					AF-6-H2			88-2055	
	64	BLOWDOWN S61	ONE	12					
	65	BLOWDOWN S62	ONE	12					
	70	LPSI SUCTION 1	ONE	8	SI-239-H3			88-2155	
					SI-241-H12			88-2156	
					SI-241-H14			88-2158	
					SI-241-H15			88-2154	
					SI-241-H19			88-2185	
					SI-241-H21			88-2157	
					SI-369-H1			88-2186	
					SI-57-H4			88-2027	
	71	LPSI SUCTION 2	ONE	9	SI-194-H12			88-2059	
					SI-194-H13			88-2060	
					SI-194-H14			88-2061	

INSERVICE INSPECTION - SUMMARY REPORT
Palo Verde Nuclear Generating Station - Unit 2
Appendix A

ASME ITEM NO	ZONE	COMP/SYS	INSP PER	REQD	ITEM ID	VOL	REPORTS SURF	VIS	REMARKS
CIWF	71	LPSI SUCTION 2	ONE	9	SI-194-H23			88-2062	
					SI-194-H3			88-2091	
					SI-194-H5			88-2092	
					SI-34-H1			88-2253	
					SI-34-H2			88-2254	
					SI-34-H3			88-2255	
	72	LPSI DISCH 1	ONE	4	72-3B			88-2025	
					72-3C			88-2025	
					SI-78-H5			88-2022	
					SI-87-H11			88-2026	
	73	LPSI DISCH 2	ONE	2	SI-123-H6			88-2041	
					SI-123-H7			88-2043	
	74	SD COOLING 1	ONE	8	SI-70-H10			88-2151	
					SI-70-H12			88-2150	
					SI-70-H15			88-2149	
					SI-70-H9			88-2148	
					SI-87-H9			88-2021	
					SI-89-H1			88-2012	
					SI-89-H2			88-2014	
					SI-89-H3			88-2013	
	75	SD COOLING 2	ONE	8	SI-129-H10			88-2048	
					SI-129-H11			88-2047	
					SI-129-H12			88-2051	
					SI-72-H10			88-2090	
					SI-72-H11			88-2070	
					SI-72-H13			88-2071	
					SI-72-H14			88-2069	
					SI-72-H8			88-2089	
	76	LPSI 1A	ONE	6	SI-202-H7			88-2187	

INSERVICE INSPECTION - SUMMARY REPORT
Palo Verde Nuclear Generating Station - Unit 2
Appendix A

ASME ITEM NO	ZONE	COMP/SYS	INSP PER	REQD	ITEM ID	VOL	REPORTS SURF	VIS	REMARKS
CIWF	76	LPSI 1A	ONE	6	SI-202-H8			88-2188	
					SI-202-H9			88-2189	
					SI-70-H11			88-2160	
					SI-70-H13			88-2161	
					SI-70-H16			88-2159	
	77	LPSI 1B	ONE	9	SI-220-H10			88-2191	
					SI-220-H11			88-2192	
					SI-220-H12			88-2193	
					SI-220-H13			88-2194	
					SI-220-H14			88-2195	
					SI-220-H15			88-2196	
					SI-220-H19			88-2197	
					SI-220-H22			88-2198	
	78	LPSI 2A	ONE	4	SI-220-H9			88-2190	
					SI-155-H5			88-2199	
					SI-155-H6			88-2200	
					SI-72-H21			88-2063	
	79	LPSI 2B	ONE	3	SI-72-H22			88-2064	
					SI-73-H1			88-2067	
					SI-73-H2			88-2072	
					SI-73-H3			88-2073	
	80	CS PUMP SUCTION 1	ONE	3	80-3B			88-2003	
					80-3C			88-2003	
					SI-9-H4			88-2002	
	82	CS DISCH 1	ONE	8	SI-79-H1			88-2010	
					SI-79-H10			88-2006	
					SI-79-H2			88-2009	
					SI-79-H3			88-2008	
					SI-79-H4			88-2007	

INSERVICE INSPECTION - SUMMARY REPORT
Palo Verde Nuclear Generating Station - Unit 2
Appendix A

ASME ITEM NO	ZONE	COMP/SYS	INSP PER	REQD	ITEM ID	VOL	REPORTS SURF	VIS	REMARKS
CIWF	82	CS DISCH 1	ONE	8	SI-89-H7			88-2042	
					SI-89-H8			88-2049 PSE	
								88-2110	
					SI-89-H9			88-2052	
	83	CS DISCH 2	ONE	6	SI-119-H10			88-2050	
					SI-119-H7			88-2045	
					SI-119-H8			88-2044	
					SI-119-H9			88-2046	
					SI-134-H11			88-2039	
FROS.11	70	LPSI SUCTION 1	ONE	9	70-104	88-2084	88-2037		
					70-134	88-2302	88-2290		
					70-16		88-2152		NO UT - INACCESS.
					70-17	88-2275	88-2152		
					70-2	88-2278	88-2147		
					70-58	88-2083	88-2037		
					70-69	88-2082	88-2037		
					70-80	88-2276	88-2152		
					70-85	88-2274	88-2152		
	72	LPSI DISCH 1	ONE	5	72-48	88-2033	88-2024		
					72-5	88-2079	88-2036		
					72-6	88-2080	88-2036		
					72-61	88-2031	88-2024		
					72-8	88-2081	88-2036		
	74	SD COOLING 1	ONE	7	74-100	88-2028	88-2023		
					74-105	88-2034	88-2015		
					74-19	88-2035	88-2015		
					74-21	88-2029	88-2015		
					74-44	88-2273	88-2146		

INSERVICE INSPECTION - SUMMARY REPORT
Palo Verde Nuclear Generating Station - Unit 2
Appendix A

ASME ITEM NO	ZONE	COMP/SYS	INSP PER	RECD	ITEM ID	VOL	REPORTS SURF	VIS	REMARKS
FR05.11	74	SD COOLING 1	ONE	7	74-74	88-2032	88-2023		
					74-87	88-2030	88-2015		
	76	LPSI 1A	ONE	1	76-2	88-2277	88-2145		
	80	CS SUCTION 1	ONE	2	80-10	88-2020	88-2004		
					80-16	88-2016	88-2004		
	82	CS DISCH 1	ONE	5	82-1	88-2018	88-2011		
					82-1A	88-2019	88-2011		
					82-2	88-2017	88-2011		
					82-47	88-2094	88-2008		
					82-48	88-2095	88-2008		
FR05.21	78	LPSI 2A	ONE	3	78-16	88-2269	88-2066		
					78-45	88-2301	88-2265		
					78-47	88-2300	88-2265		
FR05.31	72	LPSI SUCTION 1	ONE	1	72-49A		88-2024		
	74	SD COOLING 1	ONE	1	74-102		88-2146		

APPENDIX B

INSERVICE INSPECTION
CODE LIMITATIONS

INSERVICE INSPECTION

CODE LIMITATIONS

None identified during this outage.

APPENDIX C

FORM NIS-1
OWNERS' DATA REPORT FOR INSERVICE INSPECTION

OWNERS' DATA REPORT FOR INSERVICE INSPECTIONS

1. OWNER Arizona Public Service Company, et al
ADDRESS P. O. Box 52034; Phoenix, AZ
2. PLANT Palo Verde Nuclear Generating Station
ADDRESS 4 Miles South; Wintersburg, AZ
3. UNIT NO. 2 4. OWNERS CERTIFICATE OF AUTHORIZATION N/A
5. COMMERCIAL SERVICE DATE September 19, 1986
6. COMPONENTS INSPECTED:

COMPONENT OF APPURTENANCE	MANUFACTURER OR INSTALLER	SERIAL NUMBER	STATE OR PROVINCE	NATIONAL BOARD NO
------------------------------	------------------------------	------------------	----------------------	----------------------

See Appendix A for a listing of the Items examined and their respective report numbers.

7. EXAM DATES 9-19-86 TO 6-22-88 8. INSP INTERVAL FROM 9-19-86 TO 9-18-96
9. ABSTRACT OF EXAMINATION. INCLUDE A LIST OF EXAMINATIONS AND A STATEMENT CONCERNING STATUS OF WORK REQUIRED FOR CURRENT INTERVAL.

All Items scheduled for examination in Period 1, Interval 1 are alphanumerically listed according to ASME Section XI Categories in Appendix A. The Items examined during this outage exhibit report numbers in the appropriate column(s).

10. ABSTRACT OF CONDITIONS NOTED.

Several unacceptable linear indications were detected on the outside diameter surface of various piping systems. In addition, 6 SG and 1 PZR manway studs were found to have galled threads and 1 hanger clamp locknut was loose.

(See Section 2.0 "EXAMINATION SUMMARY" for specific Items.)

11. ABSTRACT OF CORRECTIVE MEASURES RECOMMENDED AND TAKEN.

All linear indications were removed by light grinding/blending and the affected area re-examined. The loose locknut was properly torqued, and the manway studs replaced.

All work was performed in accordance with ASME Section XI and ANPP work control practices/procedures, and the respective documentation is maintained on file at ANPP.

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 8-30-88 SIGNED ARIZONA PUBLIC SERVICE BY [Signature]

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 9/19/86 to 6/22/88, 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 [Signature] COMMISSIONS AZ 193 / NB 7938
 DATE 8/31/88 Nat'l Board, State, Province

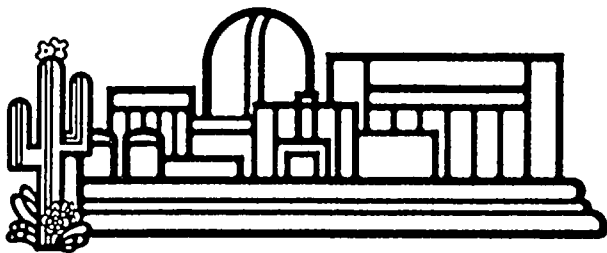


Arizona Nuclear Power Project

NDE Summary Report

UNIT 2 STEAM GENERATOR EDDY CURRENT EXAMINATION

1ST REFUELING OUTAGE



8810070081-22pp.

PALO VERDE NUCLEAR GENERATING STATION
UNIT 2 STEAM GENERATOR EDDY CURRENT EXAMINATION
1ST REFUELING OUTAGE

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

PREPARED BY: Alan Monow DATE: 6-17-88
REVIEWED BY: Attish DATE: 6/20/88
APPROVED BY: DBHewson DATE: 6-21-88

COMMERCIAL SERVICE DATE: 9-19-86

REPORT DATE: 6-21-88

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 2 STEAM GENERATOR EDDY CURRENT EXAMINATION

1.0 SUMMARY

On February 20, 1988, Unit 2 was shut down for its first refueling outage. A full Technical Specification examination was performed with an initial sample of approximately 2800 tubes in each steam generator. All tubes were examined from the cold leg side and all tubes were examined full length, to the extent practical, with the exception of row 1 and some row 2 tubes which were examined through the U-bed.

The initial results fell into category C-2 in both steam generators. An additional sample of approximately 750 tubes were tested in each generator and all of the results fell into category C-1. However, due to available time, testing continued in each steam generator. A total of 10,931 tubes was tested in Steam Generator 21 and a total of 4707 tubes was tested in Steam Generator 22.

2.0 EXAMINATION RESULTS

The Steam Generator tubes with indications can be grouped into five categories. These categories are:

- Cold leg corner eggcrate supports
- Central cavity batwings
- Outer periphery batwings
- Vertical supports and upper eggcrates
- Other indications

2.1 The examination revealed additional (from previous examination) wear indications at the lower eggcrate supports on the cold leg side of both steam generators in the low row corners of the tube bundles.

SG 21: 3 degraded tubes
2 < 20% wear

SG 22: 2 defective tubes
3 degraded tubes
2 < 20% wear

2.2 In the central cavity batwing wear area, a small number of degraded tubes was found. The central cavity batwing area is the area adjacent to the stay cylinder.

SG 21: 1 degraded tube

SG 22: 3 degraded tubes

2.3 On the outer periphery tubes some random batwing wear was found during the examination.

SG 21: 1 defective tube
2 < 20% wear

SG 22: 1 defective tube
3 degraded tubes
1 < 20% wear

2.4 Vertical support and upper eggcrate wear was found randomly distributed throughout the steam generator tube bundles.

SG 21: 3 defective tubes
17 degraded tubes
44 < 20% wear

SG 22: 1 defective tube
5 degraded tubes
31 < 20% wear

2.5 Other indications were found in tubes in the steam generator bundle which do not fit into the above categories. These indications were randomly spaced in the generator and the indications were found at different elevations in the tubes.

SG 21: 1 defective tube
6 degraded tubes
21 < 20% wear

SG 22: 2 defective tubes
5 degraded tubes
4 < 20% wear

The summary data sheets in Appendix A list all of the tubes in both steam generators which showed 20% or greater indications during the Eddy Current Testing. Several tubes with indication were examined with 8 x 1 pancake coil and roto probe. Appendix B has the tubesheet maps which show the extent tested and the location of the 0 - 100% indications for Steam Generator 22. Steam Generator 21 was tested essentially 100% so Appendix B has the 0 - 100% indication map only. The NIS-1 Form in Appendix C lists which tubes were plugged. The following Engineering Evaluation Requests (EER) were initiated to track the examination results and subsequent plugging: 88-RC-096, 88-RC-097 and 88-RC-126.

3.0 EXAMINATION TECHNIQUES AND EQUIPMENT

The eddy current examination was performed by Conam Inspection using Zetec MIZ18 digital data acquisition and analysis systems. The following test frequencies were used during the examination:

550 kHz differential and Absolute
990 kHz differential and Absolute
100 kHz differential and Absolute
20 kHz differential and Absolute

The majority of the tubes in the examination were tested with Zetec manufactured 0.610" SMF/HF probes. The tubes in rows 1 through 10 were examined with a 0.590" SMF/HF probe. A modified Zetec SM-10 fixture was used for probe positioning from the cold leg manway.

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.

EXAM EXTENT PROGRAM: Indicates the tube length required to be examined.

EXAM EXTENT ACTUAL: 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.

SAMPLE CODES TO BE PUT IN THE EXAM EXTENT COLUMN
OR LOCATION COLUMN OR BOTH

#1 Vertical Support Strap	VS1
#1 Batwing	BW1
#1 Support Plate in Hot Leg	01H
#7 Support Plate in Cold Leg	07C
Top Tube Sheet Hot Leg	TSH
Top Tube Sheet Cold Leg	TSC
Tube End Hot Leg	TEH
Tube End Cold Leg	TEC

DDA-4 ANALYSIS CODES TO BE PUT IN PERCENT COLUMN

Absolute Drift	ADR	No Detectable discontinuity	NDD
Bad Data	BDA	No Support Expansion	NSE
Bulge	BLG	No Tube Sheet Expansion	NTE
Copper Deposit	CUD	Partial Tube Sheet Expansion	PTE
Dent	DNT	Permeability Variation	PVN
Dent With Possible Indication	DNI	Plugged	PLG
Ding	DNG	Roll Transition W/poss. Ind.	DRI
Distorted Roll Transition	DRT	Obstructed	OBS
Distorted Roll Trans. W/poss Ind.	DRI	Skipped Roll	SKR
Distorted Support Signal	DSS	Sleeved	SLV
Distorted Top of Tubesheet	DTS	Sludge	SLG
Expansion	EXP	Squirrel	SQR
Expansion With Possible Indication	EPI	Template Obstruction	TMO
Expansion Transition Location	ETL	Template Plug	TMP
Fixture	FIX	Tube No Test	TNT
ID Chatter	IDC	Tube Number Check	TNC
Indication Not Found	INF	Tube Restricted	TRS
Incomplete Test	INC	Undefined Signal	UDS

CUMULATIVE REPORT
04/88, ARIZONA PUBLIC SERVICE CO., PALO VERDE, UNIT 2

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

PAGE: 1 OF
DATE: 05/09/8
TIME: 13:24:4

EXAM EXTENT								CURRENT				02/87				12/81			
ROW	LINE	HEAT#	LEGIPROGRAM	ACTUAL	REMI	REEL	IPROBE	LOCATION	VOLTS	SIMIL	DEGI %	ICH	CHNG	VOLTS	SIMIL	DEGI %	ICH	CHNG	
391	41		C ITEC-TEH	ITEC-TEH		0111610SM	IVS4+	0.80	1.01	11321	261M41								
21	51													INDD1					
			C ITEC-07H	ITEC-07H		0011590SM	102C+	0.00	0.81	11531	(201M41								
221	111		C ITEC-TEH	ITEC-TEH		1381610SM	101H+	0.2	0.31	11211	(201M41								
							18W1+	0.00										IDNT1	
131	121		C ITEC-TEH	ITEC-TEH		1381610SM	101H-	0.2	0.31	11151	(201M41								
431	121		C ITEC-TEH	ITEC-TEH		1361610SM	IVS4-	0.8	0.31	11171	(201M41								
661	131		C ITEC-TEH	ITEC-TEH		1351610SM	101H-	0.3	0.51	11601	(201M41								
591	161		C ITEC-TEH	ITEC-TEH		1351610SM	101H-	0.4	0.41	11501	(201M41								
			C ITEC-TEH	ITEC-TEH		1351610SM	101C+	0.4	0.51	11401	(201M41								
21	171		C ITEC-07H	ITEC-07H		0011590SM	102C+	0.00	0.71	11411	231M41								
11	181		C ITEC-07H	ITEC-07H		0021590SM	102C+	0.00	1.71	11311	311M41								
711	181		C ITEC-TEH	ITEC-TEH		1341610SM	101H-	0.2	0.41	11421	(201M41								
731	181		C ITEC-TEH	ITEC-TEH		1341610SM	101H-	0.2	0.51	11631	(201M41								
801	191		C ITEC-TEH	ITEC-TEH		1341610SM	101H-	0.3	0.41	11391	(201M41								
591	201		C ITEC-TEH	ITEC-TEH		1351610SM	101H-	0.3	0.51	11581	(201M41								
671	201		C ITEC-TEH	ITEC-TEH		1341610SM	101H-	0.4	0.61	11401	(201M41								
711	201		C ITEC-TEH	ITEC-TEH		1341610SM	101H-	0.2	0.41	11391	(201M41								
751	201		C ITEC-TEH	ITEC-TEH		1341610SM	101H-	0.2	0.41	11431	(201M41								
781	211		C ITEC-TEH	ITEC-TEH		1331610SM	IVS5-	0.8	0.81	11201	211M41								
861	211		C ITEC-TEH	ITEC-TEH		1331610SM	IVS3-	0.8	0.51	11261	(201M41								
901	251		C ITEC-TEH	ITEC-TEH		1301610SM	101H-	0.2	0.41	11341	(201M41								
541	271		C ITEC-TEH	ITEC-TEH		1291610SM	107C-	1.7	0.41	11181	251M41								
721	271		C ITEC-TEH	ITEC-TEH		1291610SM	IVS3+	0.8	0.31	11261	(201M41								
971	301		C ITEC-TEH	ITEC-TEH		1271610SM	IVS2+	0.4	0.41	11411	(201M41								
831	321		C ITEC-TEH	ITEC-TEH		0771610SM	IVS3+	0.60	0.81	11611	(201M41								
831	381		C ITEC-TEH	ITEC-TEH		0741610SM	IVS3+	0.80	0.51	11571	(201M41								
341	391		C ITEC-TEH	ITEC-TEH		0791610SM	104C+	9.80	0.41	11471	(201M41								
831	401		C ITEC-TEH	ITEC-TEH		0741610SM	IVS5-	0.60	0.91	11341	291M41								
1091	441		C ITEC-TEH	ITEC-TEH		1241610SM	IVS2-	0.7	0.51	11411	(201M41								
			C ITEC-TEH	ITEC-TEH		1241610SM	IVS2+	1.0	0.71	11251	271M41								
			C ITEC-TEH	ITEC-TEH		1241610SM	IVS3-	0.7	0.81	11471	(201M41								
901	471		C ITEC-TEH	ITEC-TEH		0701610SM	IVS3-	1.00	0.31	11531	(201M41								
951	481		C ITEC-TEH	ITEC-TEH		0701610SM	IVS3-	1.00	0.21	11461	(201M41								
11031	481		C ITEC-TEH	ITEC-TEH		1431610SM	101H-	0.2	0.31	11351	(201M41								
741	491		C ITEC-TEH	ITEC-TEH		0691610SM	100H+	0.70	0.31	11521	(201M41								
761	491		C ITEC-TEH	ITEC-TEH		0691610SM	IVS3-	2.00	0.31	11491	(201M41								
11251	501		C ITEC-TEH	ITEC-TEH		1221610SM	IVS5-	0.9	0.31	11431	(201M41								
721	511		C ITEC-TEH	ITEC-TEH		0361610SM	IVS3-	0.80	0.51	11551	(201M41								
621	531		C ITEC-TEH	ITEC-TEH		0611610SM	IVS3+	0.80	0.71	11361	281M41								
641	531		C ITEC-TEH	ITEC-TEH		0611610SM	IVS3+	0.90	0.31	11601	(201M41								
681	531		C ITEC-TEH	ITEC-TEH		0611610SM	100H+	0.80	0.41	11601	(201M41								
11061	531		C ITEC-TEH	ITEC-TEH		0641610SM	102H+	24.20	0.61	11391	261M41								
831	541		C ITEC-TEH	ITEC-TEH		0641610SM	IVS3+	0.90	0.81	11561	(201M41								
11211	541		C ITEC-TEH	ITEC-TEH		1211610SM	IVS2-	0.9	0.51	11381	(201M41								

CUMULATIVE REPORT
04/88, ARIZONA PUBLIC SERVICE CO., PALO VERDE, UNIT 2

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

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TIME: 13:24:4

EXAM EXTENT			CURRENT			02/87			12/81																		
ROW	LINE	HEAT#	ILEG	PROGRAM	ACTUAL	REMI	REEL	IPROBE	LOCATION	IVOLTS	SIMIL	DEGI	%	ICH	CHNG	IVOLTS	SIMIL	DEGI	%	ICH	CHNG	IVOLTS	SIMIL	DEGI	%	ICH	CHNG
121	541		C	ITEC-TEH	ITEC-TEH		121	1610SMIVS2+	0.9	0.71	1361	201M41															
781	551		C	ITEC-TEH	ITEC-TEH		035	1610SMIVS3-	0.90	0.51	1501	201M41															
751	561		C	ITEC-TEH	ITEC-TEH		035	1610SMIVS3-	0.70	0.41	1521	201M41															
761	571		C	ITEC-TEH	ITEC-TEH		035	1610SMIVS3+	0.00	0.41	1421	201M41															
831	581		C	ITEC-TEH	ITEC-TEH		065	1610SMIVS3+	0.70	1.11	1341	301M41															
721	591		C	ITEC-TEH	ITEC-TEH		035	1610SMIVS3+	0.90	0.81	1611	201M41															
991	601		C	ITEC-TEH	ITEC-TEH		068	1610SMIVS2-	0.80	0.41	1431	211M41															
621	611		C	ITEC-TEH	ITEC-TEH	RPI	081	1610SMIVS3+	1.00	1.91	1111	441M41															
821	611		C	ITEC-TEH	ITEC-TEH		066	1610SMIVS3+	0.90	0.51	1211	331M41															
841	611		C	ITEC-TEH	ITEC-TEH		066	1610SMIVS3+	0.80	0.71	1231	311M41															
741	631		C	ITEC-TEH	ITEC-TEH		035	1610SMIVS3+	0.90	0.41	1461	201M41															
841	631		C	ITEC-TEH	ITEC-TEH		066	1610SMIVS3+	1.00	0.91	1381	211M41															
			C	ITEC-TEH	ITEC-TEH		066	1610SMIVS5+	0.80	0.81	1351	231M41															
431	641		C	ITEC-TEH	ITEC-TEH		082	1610SMIVS4+	0.90	0.31	1531	201M41															
1091	641		C	ITEC-TEH	ITEC-TEH		036	1610SMIVS3-	0.90	0.31	1431	201M41															
991	661		C	ITEC-TEH	ITEC-TEH		037	1610SMIVS6+	0.00	0.21	1371	231M41															
			C	ITEC-TEH	ITEC-TEH		037	1610SMIVS6-	0.50	0.31	1281	301M41															
831	781		C	ITEC-TEH	ITEC-TEH		169	1610SMIVS3+	0.8	0.41	1511	201M41															
361	851		C	ITEC-TEH	ITEC-TEH		021	1610SMIBW1-	1.80	0.71	1331	261M41															
1441	851		C	ITEC-TEH	ITEC-TEH		110	1610SMIVS3-	0.80	0.31	1351	201M41															
			C	ITEC-TEH	ITEC-TEH		110	1610SMIVS3+	1.00	0.51	1281	201M41															
391	861		C	ITEC-TEH	ITEC-TEH		020	1610SMIVS4-	1.10	0.31	1411	201M41															
1371	881		C	ITEC-TEH	ITEC-TEH		109	1610SMIVS7+	0.80	0.31	1471	201M41															
1391	881		C	ITEC-TEH	ITEC-TEH		109	1610SMI01H-	0.30	0.21	1311	201M41															
1581	931		C	ITEC-TEH	ITEC-TEH		022	1610SMIVS3+	0.50	0.31	1401	201M41															
1591	941		C	ITEC-TEH	ITEC-TEH		022	1610SMIBW2+	0.80	0.41	1401	201M41															
1591	1001		C	ITEC-TEH	ITEC-TEH		022	1610SMIBW2+	1.40	0.31	1501	201M41															
1321	1031		C	ITEC-TEH	ITEC-TEH		107	1610SMI01H-	0.20	0.31	1491	201M41															
1361	1051		C	ITEC-TEH	ITEC-TEH		106	1610SMIVS3+	0.80	0.51	1431	201M41															
1321	1111		C	ITEC-TEH	ITEC-TEH	RPI	105	1610SMIVS1+	0.00	0.81	1161	481 11															
1261	1131		C	ITEC-TEH	ITEC-TEH	RPI	104	1610SMIVS5+	0.50	0.81	1161	411M41															
941	1151		C	ITEC-TEH	ITEC-TEH		092	1610SMI01H-	0.20	0.31	1531	201M41															
1161	1191		C	ITEC-TEH	ITEC-TEH		093	1610SMIVS5-	1.50	0.51	1571	201M41															
971	1221		C	ITEC-TEH	ITEC-TEH		043	1610SMIVS2+	1.00	0.51	1271	301M41															
801	1251		C	ITEC-TEH	ITEC-TEH		042	1610SMIVS3-	0.70	0.91	1501	201M41															
751	1281		C	ITEC-TEH	ITEC-TEH		042	1610SMIVS3-	0.80	0.41	1491	201M41															
771	1281		C	ITEC-TEH	ITEC-TEH		042	1610SMIVS3-	0.90	0.71	1501	201M41															
711	1321		C	ITEC-TEH	ITEC-TEH		042	1610SMI08H+	0.00	0.51	1491	201M41															
741	1331		C	ITEC-TEH	ITEC-TEH		042	1610SMI07H+	0.80	0.41	1421	201M41															
			C	ITEC-TEH	ITEC-TEH		042	1610SMIVS3-	0.80	1.31	1581	201M41															
711	1341		C	ITEC-TEH	ITEC-TEH		042	1610SMIVS2-	0.80	1.31	1401	211M41															
			C	ITEC-TEH	ITEC-TEH		042	1610SMIVS3+	0.00	1.21	1341	251M41															
1441	1351		C	ITEC-TEH	ITEC-TEH		047	1610SMI07H+	0.90	0.51	1281	221M41															
761	1371		C	ITEC-TEH	ITEC-TEH		041	1610SMIVS3+	0.80	0.61	1591	201M41															
			C	ITEC-TEH	ITEC-TEH		041	1610SMIVS5+	0.90	0.41	1691	201M41															

CUMULATIVE REPORT
04/88, ARIZONA PUBLIC SERVICE CO., PALO VERDE, UNIT 2

PAGE: 3 OF
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TIME: 13:24:4

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

EXAM EXTENT									CURRENT				02/87				12/81									
ROW	LINE	HEAT#	ILEG	PROGRAM	ACTUAL	REMI	REEL	PROBE	LOCATION	IVOLTS	SIMIL	IDEG	%	ICH	CHNG	IVOLTS	SIMIL	IDEG	%	ICH	CHNG	IVOLTS	SIMIL	IDEG	%	ICH
72	141		C	ITEC-TEH	ITEC-TEH		096	1610SM101H-	0.30	0.4	149	(201M4														
31	146		C	ITEC-TEH	ITEC-TEH		053	1590SM107C-	0.10	0.5	133	301M4														
83	146		C	ITEC-TEH	ITEC-TEH		098	1610SM101H-	0.30	0.4	147	(201M4														
124	151		C	ITEC-TEH	ITEC-TEH		048	1610SM1VS2-	0.20	0.6	147	(201M4														
109	152		C	ITEC-TEH	ITEC-TEH		161	1610SM1VS2+	0.0	0.5	145	201M4														
101	156		C	ITEC-TEH	ITEC-TEH		048	1610SM1VS3+	0.10	1.2	146	201M4														
50	157		C	ITEC-TEH	ITEC-TEH		041	1610SM1VS4+	0.70	0.4	156	(201M4														
86	159		C	ITEC-TEH	ITEC-TEH		144	1610SM101H-	0.1	0.4	153	(201M4														
84	161		C	ITEC-TEH	ITEC-TEH		151	1610SM1VS3+	0.7	0.6	142	(201M4														
97	168		C	ITEC-TEH	ITEC-TEH		050	1610SM1VS6+	1.00	1.9	130	321M4														
99	168		C	ITEC-TEH	ITEC-TEH	API	050	1610SM1BW1+	1.70	1.1	110	481M4														
51	170		C	ITEC-TEH	ITEC-TEH		154	1610SM102H+	3.5 TO+ 5.5	0.8	134	331M4														
21	173		C	ITEC-07H	ITEC-07H		038	1590SM102C+	0.90	0.5	149	(201M4														
31	180																									
			C	ITEC-TEH	ITEC-TEH		038	1590SM102C-	0.80	1.1	127	341M4														
39	186		C	ITEC-TEH	ITEC-TEH	API	053	1610SM103C-	0.80	0.4	116	421M4														

NUMBER OF TUBES SELECTED FROM CURRENT OUTAGE: 93

NO TREND ANALYSIS REQUESTED

CUMULATIVE REPORT
04/88, ARIZONA PUBLIC SERVICE CO., PALO VERDE, UNIT 2

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

PAGE: 1 OF
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TIME: 09:59:

EXAM EXTENT				CURRENT				02/87				12/81														
IRON	WIL	HEAT#	ILEG	PROGRAM	ACTUAL	IREM	REEL	PROBE	LOCATION	IVOLTS	SIMIL	DEGI	X	ICH	CHNG	IVOLTS	SIMIL	DEGI	X	ICH	CHNG	IVOLTS	SIMIL	DEGI	X	ICH
301	31			C	ITEC-TEH	ITEC-TEH	IRPI	0031610SMIVS4+	20.70	1.01	11251	421M41														
151	41			C	ITEC-TEH	ITEC-TEH		0031610SM103C+	1.10	0.81	11351	231M41														
21	51			C	ITEC-07H	ITEC-07H	IRPI	0011590SM102C-	1.00	1.41	11181	421M41														
								ITSC-	5.0							38.01	131SKR1	11								
11	61																INDD1									
				C	ITEC-07H	ITEC-07H		0011590SM102C+	0.00	1.01	11431	251M41														
11	101																INDD1									
				C	ITEC-07H	ITEC-07H	IRPI	0011590SM102C+	0.00	2.01	11131	471M41														
811	201			C	ITEC-TEH	ITEC-TEH		0831610SMIVS5-	0.80	0.31	11421	(201M41														
771	461			C	ITEC-TEH	ITEC-TEH		0781610SMIVS3-	1.00	0.41	11491	(201M41														
501	471			C	ITEC-TEH	ITEC-TEH		0791610SMIVS4+	0.90	0.41	11431	(201M41														
751	481			C	ITEC-TEH	ITEC-TEH		0791610SM108H+	0.70	0.51	11221	(201M41														
841	491			C	ITEC-TEH	ITEC-TEH		0801610SMIVS3-	0.80	0.51	11451	(201M41														
801	511			C	ITEC-TEH	ITEC-TEH		0271610SMIVS3+	0.90	0.31	11431	(201M41														
841	511			C	ITEC-TEH	ITEC-TEH		0571610SMIVS3+	0.80	1.41	11271	311M41														
771	521			C	ITEC-TEH	ITEC-TEH		0271610SM108H+	0.70	1.31	11421	(201M41														
911	521			C	ITEC-TEH	ITEC-TEH		0571610SM1BW1+	2.10	0.51	11531	(201M41														
11091	541			C	ITEC-TEH	ITEC-TEH		0581610SMIVS6-	11.90	0.41	11601	(201M41														
681	551			C	ITEC-TEH	ITEC-TEH		0561610SMIVS3+	0.90	0.51	11611	(201M41														
721	551			C	ITEC-TEH	ITEC-TEH		0271610SMIVS3+	0.00	0.81	11371	(201M41														
611	561			C	ITEC-TEH	ITEC-TEH		0561610SMIVS3+	16.30	3.81	41	(201	11												(201	
821	571			C	ITEC-TEH	ITEC-TEH		0591610SMIVS3-	0.90	0.71	11481	201M41														
				C	ITEC-TEH	ITEC-TEH		0591610SMIVS3+	0.90	0.61	11231	381M41														
841	571			C	ITEC-TEH	ITEC-TEH		0591610SM1BW1+	1.80	0.91	11611	(201M41														
921	571			C	ITEC-TEH	ITEC-TEH		0591610SM108H+	0.80	0.41	11361	281M41														
11441	571			C	ITEC-TEH	ITEC-TEH		0141610SMIVS1-	0.80	0.71	11601	(201M41														
11091	581			C	ITEC-TEH	ITEC-TEH		0591610SMIVS6+	12.80	0.31	11551	(201M41														
461	591			C	ITEC-TEH	ITEC-TEH		0571610SMIVS4+	0.70	0.91	11451	211M41														
841	631			C	ITEC-TEH	ITEC-TEH		0601610SMIVS3+	0.90	0.41	11491	(201M41														
11501	631			C	ITEC-TEH	ITEC-TEH	IRPI	0131610SM1BW1+	1.90	1.91	11231	411M41														
901	671			C	ITEC-TEH	ITEC-TEH		0341610SM108H+	20.20	0.21	11461	(201M41														
11581	911							IVS1-	6.00																	IDNG1
				C	ITEC-TEH	ITEC-TEH		0111610SM102C-	0.80	0.51	11651	(201M41														
11591	961			C	ITEC-TEH	ITEC-TEH		0111610SM1BW2+	1.70	0.71	11321	311M41														
371	1001			C	ITEC-TEH	ITEC-TEH		0171610SM1BW2+	1.90	0.31	11441	251M41														
351	1041			C	ITEC-TEH	ITEC-TEH		0171610SM1BW2+	1.80	0.61	11381	301M41														
321	1071			C	ITEC-TEH	ITEC-TEH		0161610SM1BW1-	2.00	0.51	11501	221M41														
11541	1131			C	ITEC-TEH	ITEC-TEH		0101610SM1BW2-	1.80	0.31	11411	(201M41														
11561	1151			C	ITEC-TEH	ITEC-TEH		0101610SM1BW2-	1.00	0.61	11321	261M41														
871	1301			C	ITEC-TEH	ITEC-TEH		0531610SM107H+	0.90	0.41	11501	(201M41														
841	1311			C	ITEC-TEH	ITEC-TEH		0521610SM108H+	0.90	1.31	11511	(201M41														
671	1321			C	ITEC-TEH	ITEC-TEH		0491610SM107C-	1.50	0.91	11571	(201	11													
791	1321			C	ITEC-TEH	ITEC-TEH		0391610SM108H+	0.80	0.71	11581	(201M41														
911	1321			C	ITEC-TEH	ITEC-TEH		0521610SM108H+	0.80	1.01	11481	(201M41														
781	1331			C	ITEC-TEH	ITEC-TEH		0391610SM108H+	0.90	0.71	11321	271M41														

CUMULATIVE REPORT
04/88, ARIZONA PUBLIC SERVICE CO., PALO VERDE, UNIT 2

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

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DATE: 04/29/
TIME: 09:59:

EXAM EXTENT											CURRENT				82/87				12/81										
IRON	WIL	LINE	HEAT#	ILEG	IPRO	GRAXI	ACTUAL	IREM	REEL	IPROBE	LOCATION	IVOLTS	SIMIL	IDEGI	%	ICH	CHNS	IVOLTS	SIMIL	IDEGI	%	ICH	CHNS	IVOLTS	SIMIL	IDEGI	%	ICH	CHNS
8211331				C	ITEC	TEHITEC	TEHI	0511610SM	100H+	0.90	0.81	11401	231M41																
8411331				C	ITEC	TEHITEC	TEHI	0511610SM	IVS3+	0.90	0.31	11471	(201M41																
8611331				C	ITEC	TEHITEC	TEHI	0521610SM	100H+	0.90	0.41	11481	(201M41																
9211331				C	ITEC	TEHITEC	TEHI	0521610SM	100H-	0.30	0.61	11481	(201M41																
6911341				C	ITEC	TEHITEC	TEHI	0491610SM	100H+	0.90	0.91	11591	(201M41																
6611351				C	ITEC	TEHITEC	TEHI	0491610SM	100H-	1.30	0.61	11571	(201M41																
6811351				C	ITEC	TEHITEC	TEHI	0491610SM	100H+	0.90	0.61	11341	251M41																
7011351				C	ITEC	TEHITEC	TEHI	0381610SM	100H+	0.80	0.81	11501	(201M41																
7611351				C	ITEC	TEHITEC	TEHI	0381610SM	100H+	0.80	0.81	11511	(201M41																
6711361				C	ITEC	TEHITEC	TEHI	0481610SM	107H-	0.80	0.41	11451	(201M41																
										IVS1+	0.00																		IDNT1
8511361				C	ITEC	TEHITEC	TEHI	0511610SM	107H+	0.80	0.71	11621	(201M41																
7611371				C	ITEC	TEHITEC	TEHI	0381610SM	108H1+	1.30	0.41	11481	(201M41																
8411371				C	ITEC	TEHITEC	TEHI	0501610SM	100H+	0.80	0.41	11481	(201M41																
7611391				C	ITEC	TEHITEC	TEHI	0381610SM	107H+	0.80	0.41	11401	(201M41																
8011391				C	ITEC	TEHITEC	TEHI	0381610SM	IVS3+	0.80	1.71	11221	371M41																
8111421				C	ITEC	TEHITEC	TEHI	0651610SM	IVS3-	0.70	0.51	11521	(201M41																
8211431				C	ITEC	TEHITEC	TEHI	0651610SM	109H+	0.10	0.41	11411	(201M41																
				C	ITEC	TEHITEC	TEHI	0651610SM	IVS3+	0.80	0.31	11411	(201M41																
6511441										107H+	0.80																		IDNT1
										108H+	7.00																		IDNG1
				C	ITEC	TEHITEC	TEHI	0661610SM	IVS3-	0.90	0.51	11411	241M41																
6011451				C	ITEC	TEHITEC	TEHI	0661610SM	IVS3-	0.80	0.41	11601	(201M41																
112811491				C	ITEC	TEHITEC	TEHIRP1	0431610SM	101C+	0.90	1.01	11281	411M41																
110911621				C	ITEC	TEHITEC	TEHIRP1	0451610SM	IVS5+	0.90	1.31	11261	421M41																
311761				C	ITEC	TEHITEC	TEHI	0351590SM	102C+	0.80	0.31	11421	(201M41																
6711781				C	ITEC	TEHITEC	TEHI	0461610SM	102H+	24.20	0.41	11291	311M41																
6411811				C	ITEC	TEHITEC	TEHI	0461610SM	108H2+	0.70	0.71	11231	351M41																
311881																													
				C	ITEC	TEHITEC	TEHI	0351610SM	102C-	1.80	1.21	11191	371M41																
511881																													
				C	ITEC	TEHITEC	TEHI	0351590SM	102C-	0.80	0.91	11571	(201M41																

NUMBER OF TUBES SELECTED FROM CURRENT OUTAGE: 66

NO TREND ANALYSIS REQUESTED

APPENDIX B

**Tubesheet
Maps**

04/88, ARIZONA PUBLIC SERVICE CO., PALO VERDE, UNIT 2

STEAM GENERATOR: 1

PROC: 73TI9RC01

LOCATION: ALL

CRITERIA: 0% TO 100%

PLUGGED 45

STAYS

0% TO 19% 61

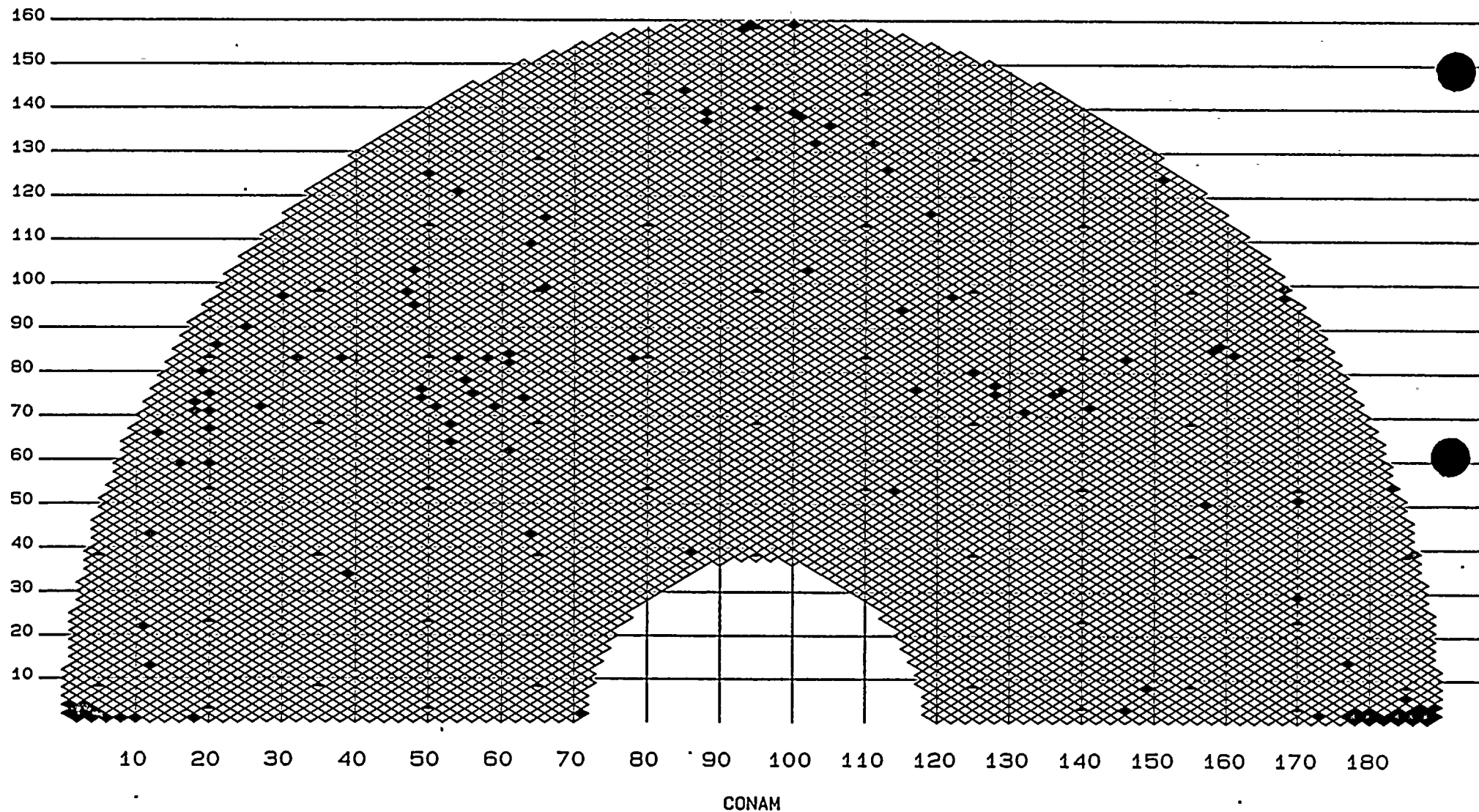
20% TO 29% 17

30% TO 39% 10

40% TO 100% 5

DATE: 05/09/88

TIME: 13:24:47



04/88, ARIZONA PUBLIC SERVICE CO., PALO VERDE, UNIT 2

STEAM GENERATOR: 2

PROC: 73TI9RC01

LOCATION: ALL

CRITERIA: TUBES EVALUATED COMPLETELY PER REQUIREMENTS

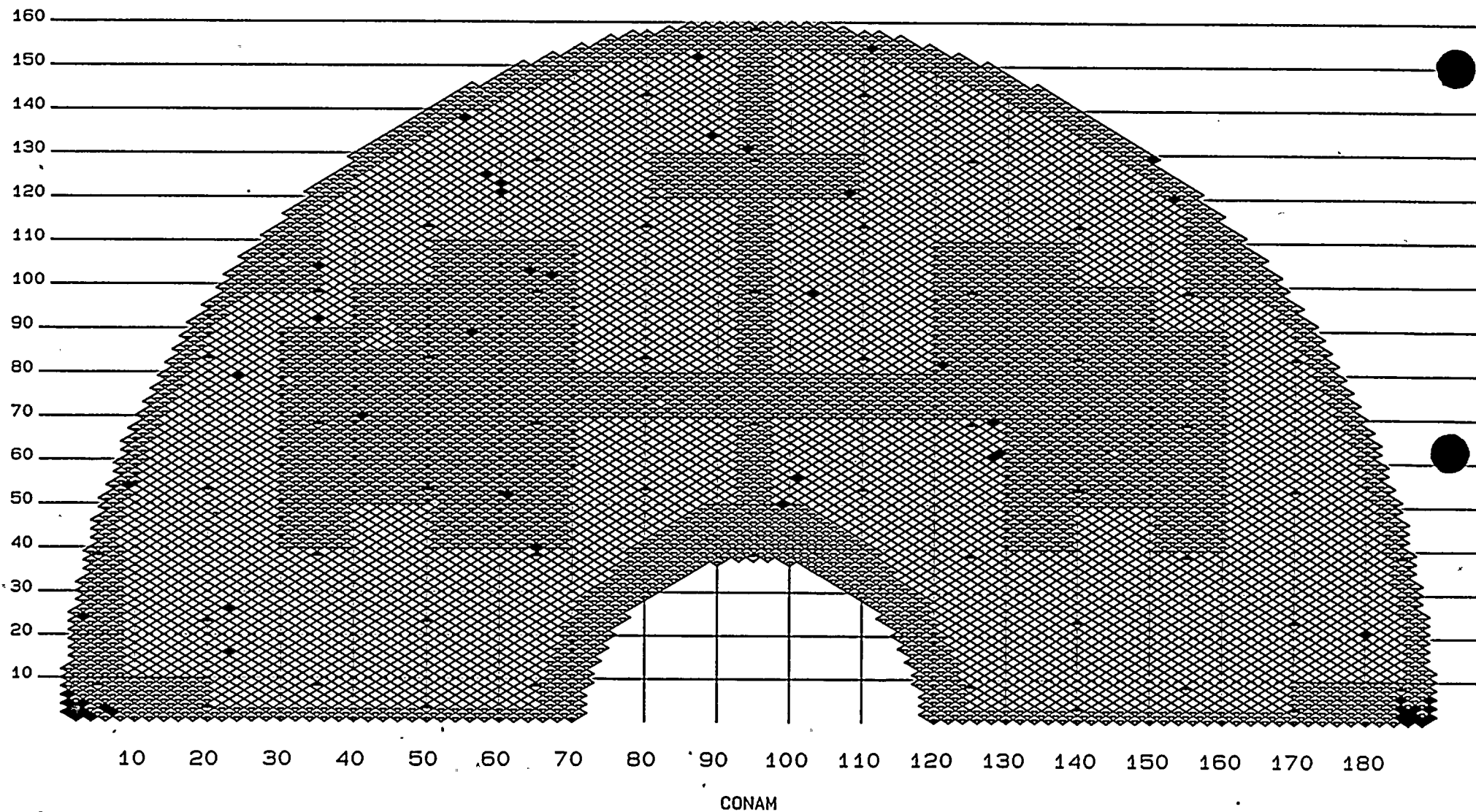
PLUGGED 53

STAYS

DATE: 05/05/88

TIME: 11: 38: 22

EVAL. COMP 4562



04/88, ARIZONA PUBLIC SERVICE CO., PALO VERDE, UNIT 2

STEAM GENERATOR: 2

PROC: 73TI9RC01

LOCATION: ALL

CRITERIA: 0% TO 100%

PLUGGED 53

STAYS

0% TO 19% 41

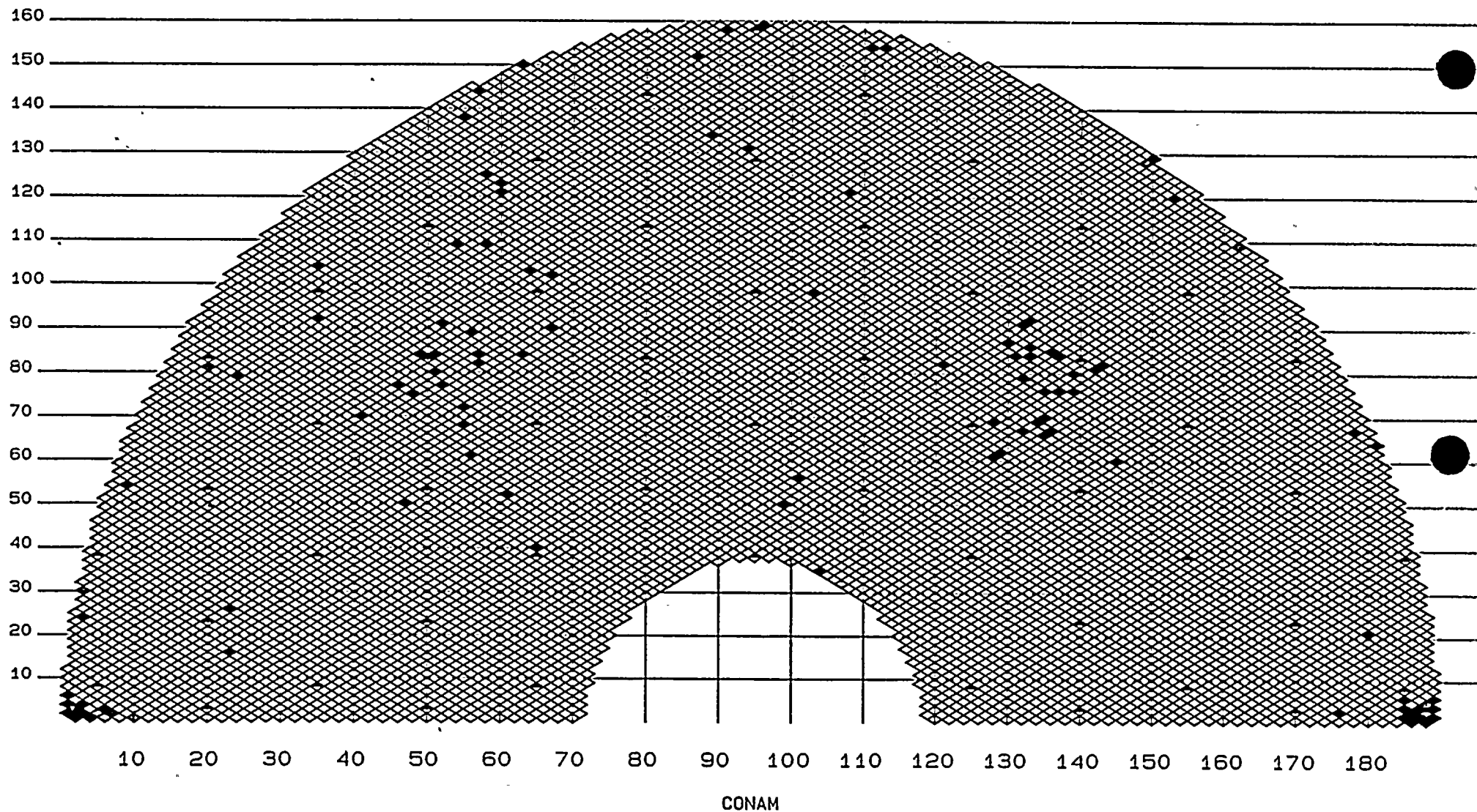
20% TO 29% 11

30% TO 39% 8

40% TO 100% 6

DATE: 04/29/88

TIME: 09: 59: 59



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, AZ
3. UNIT NO. 2 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
2MRCEE01A Steam Generator 21 Tubing	Combustion Engineering	79273-1	N/A	22478
2MRCEE01B Steam Generator 22 Tubing	Combustion Engineering	79273-2	N/A	22479

FORM NIS-1 (BACK)

7. EXAM DATES 4/1/88 TO 5/6/88 8. INSP INTERVAL FROM 9/19/86 TO 9/18/96
 9. ABSTRACT OF EXAMINATION. INCLUDE A LIST OF EXAMINATIONS AND A STATEMENT CONCERNING STATUS OF WORK REQUIRED FOR CURRENT INTERVAL.

A total of 10931 tubes were examined in Steam Generator 21 and a total of 4707 tubes were examined in Steam Generator 22.

10. ABSTRACT OF CONDITIONS NOTED.

Steam Generator 21: Five defective tubes were identified. Twenty-seven tubes were degraded and there were numerous tubes with <20% through wall indications.

Steam Generator 22: Six defective tubes were identified. Nineteen tubes were degraded and there were numerous tubes with <20% through wall indications.

11. ABSTRACT OF CORRECTIVE MEASURES.

The tubes on the attached sheet were plugged as a result of this examination.

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 6-17-88 SIGNED ARIZONA PUBLIC SERVICE BY T. J. [Signature]

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 4/1/88 to 5/6/88, 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. Keenan COMMISSIONS AZ 193/NB 7938
 DATE 6/30/88 Nat'l Board, State, Province

TUBES PLUGGED

SG #21

<u>ROW</u>	<u>COL</u>
39	4
2	5
2	17
1	18
78	21
54	27
83	40
109	44
62	53
106	53
76	57
83	58
99	60
62	61
82	61
84	61
84	63
99	66
36	85
132	111
126	113
97	122
74	133
71	134
144	135
3	146
109	152
101	156
97	168
99	168
51	170
2	173
3	180
39	186

SG #22

<u>ROW</u>	<u>COL</u>
30	3
15	4
2	5
1	6
1	10
84	51
82	57
92	57
46	59
150	63
159	96
37	100
35	104
32	107
156	115
78	133
82	133
68	135
80	139
65	144
128	149
109	162
3	176
67	178
64	181
3	188
5	188