POWER AUTHORITY OF THE STATE OF NEW YORK

JAMES A. FITZPATRICK

NUCLEAR POWER PLANT

INSERVICE INSPECTION

FIVE YEAR REVIEW

REPORT NO. 1

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5-Year Review

The following is a summary of the inservice inspections accomplished during the first five years of commercial operations of the James A. FitzPatrick Nuclear Power Plant. The inservice inspections were conducted during this period in accordance with the ASME Boiler and Pressure Vessel Code, Section XI.

Since the James A. FitzPatrick plant was built to earlier (1965 through 1968) editions of the ASME code, the inservice inspection code in effect for the first two outages was ASME Section XI, 1970 Edition. The third inservice inspection (Spring, 1980) was conducted to the updated inservice inspection program in accordance with the 1974 Edition, 1975 Addenda of the ASME code.

The requirements for this five-year summary report are listed in the James A. FitzPatrick technical specifications. The report shows compliance to ASME code requirements, and is consistent with the inservice inspection requirements of the technical specifications.

Table 1 illustrates the extent of inspections completed as compared to the ten-year and five-year requirements for each exam category. The actual number and type of inspections performed, as well as a listing of reportable indications, is shown in Table 2.

During this five-year period, twenty-nine Deficiency and Corrective Action Reports (DCAR) were submitted for resolution. Of that number, thirteen DCAR's were due to lack of calibration blocks, limited scan due to geometry, and other procedural difficulties. The remaining sixteen DCAR's concerned minor flaws in pipe welds and supports. These indications did not represent any service caused trends towards failure, but rather were isolated fabrication defects, such as arc strikes, minor linear indications, weld splatter, and slag inclusions.

Review of the 5-year results shows that the James A. Fitz-Patrick Safety Class Systems are structurally sound and there is no evidence of service induced deterioration. For detailed accounts of the inspections, please refer to the inservice inspection reports submitted to the NRC for each outage in accordance with 10CFR50.55.

	TABLE 1		
XAM CATEGORY	10 YR. REQUIREMENT	5 YR. REQUIREMENT	EXAM COMPLETED
- Welds in Beltline Region	Long 10%	Long 0%	21%
	Circ 5%	Circ 0%	13%
- Closure Head Welds	Circ 5%	0 %	0 %
	Merid 10%	0 %	0 %
RPV Welds Above Sacif.	Long 10%	0 %	12%
Shield	Circ 5%	0 %	0%
RPV Welds in Sacif. Shield	0 %	0 %	0 %
Bottom Head Welds Outside	Circ 5%	0	0 %
Support Skirt	Merid 10%		0 %
Bottom Head Welds Inside Support Skirt	0 ୫	0 %	0 %
- Vessel - Flange	100%	338	50%
Head - Flange	100%	338	33%
- Nozzles in RPV	100%	33%	50%
Nozzles in Closure Head	100%	33%	33%
I.D. of RPV Nozzles	0%	0%	0%
I.D. of Head Nozzles	100%	33%	33%
E - 1 Welds in Vessels	0%	08	08
E - 2 Penetration Welds in Vessels	25%	*	0

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* Change of technical specifications pending as per letter of transmittal of 2/20/31, serial number JPN-81-15. Examination to be conducted in accordance with 1970 ASME Code, Section XI at the end of 10-year interval; 5-year requirement changed to 0%.

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	TABLE 1		•
EXAM CATEGORY	10 YR. REQUIREMENT	5 YR. REQUIREMENT	EXAM COMPLETED
F - Dissimilar Pipe Welds	100%	338	91%
Dissimilar Safe Ends	L008	ううそ - NT / D	948 N/A
Dissimilar Pump Welds Dissimilar Valve Welds	N/A 100%	338	918
G - 1 Closure Studs & Nuts	100%	33%	44%
Bolting	N/A	N/A	N/A
Bolting Nalvo Pross. Retaining	100%	33%	50%
Bolting	N/A	N/A	N/A
Ligaments Between Studs	100%	338	338
Closure Washers & Bushings	100%	33%	448
G - 2 RPV & Closure Head Bolting (<2")	100%	33%	46%
Pipe Press. Retaining Bolting (<2")	100%	33%	50%
Pump Press. Retaining Bolting (<2")	N/A	N/A	N/A
Bolting (<2")	100%	33%	41%
H - Vessel External Supports	10%	48	4.5%
I - Cladding - Head Vessel	N/A 100%	N/A 50%	N/A 100%
J - Pressure Retaining Welds In Piping	25%	88	18%

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	TABLE 1		•
EXAM CATEGORY	10 YR. REQUIREMENT	5 YR. REQUIREMENT	EXAM COMPLETED
K - 1 Integrally Welded Supports	25%	88	19%
K - 2 Support Members	100%	33%	45%
L - 1 Welds in Pump Casings	N/A	N/A	N/A
L - 2 Pump Casings	50%	0 %	08
M - 1 Welds in Valve Bodies	N/A	N/A	N/A
M - 2 Valve Bodies	As required by Code	08	27%
N- Reactor Vessel Internal Components, Interior Surface of Vessel, and Internal Supports	As required by Code	As required by Code	Visual examina- tion performed at 1977 refueling outage and 1980 refueling outage.

SUMMER 1977 OUTAGE

		Number of Inspections	Test	Reportal	ole Indications	
	Exam Category	Performed	Method	Number	Туре	Remarks
	А	15	UT	0	· · · · · · ·	
	В	6	UT	0		
	С	2	UT	0		
	D	11	UT	1	Reflectors from Inner Radius. Finger dampened.	Inner Radius: no reportable indications.
	F	11	UT	10	Signals from root, crown and clad.	Due to geometry.
			РТ	2	Slight undercut.	Non-relevant.
			VT	1	Slight surface scratches.	Acceptable.
	G - 1	17	VT	0		Closure studs, nuts, washers, bushings -1 and vessel ligement between studs inspected acceptable.
	G - 2	85	VT	0		
	Н	1	UT	1	Spot indication.	Skirt to vessel weld. Reviewed as acceptable
	· · · · · · · · · · · · · · · · · · ·	<u> </u>				

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SUMMER 1977 OUTAGE

Exam Category	Number of Inspections Performed	Test Method	Reportab Number	ole Indications Type	Remarks
J (Recirculation	115	UT	70	Root and crown indications.	Acceptable; due to geometry.
System)			8	Spot indications.	Acceptable.
			1	Slag spot indica- tion.	Acceptable.
					3 welds not inspected on long seam of tee. Thickness over 2", calibration block unavailable.
		VT	0		
J (Control Rod	21	UT	8	Root and crown indications.	Acceptable; due to gecmetry.
Drive)					ll welds with limited scan due to geometry.
		VT	0		· · · ·
J (Reactor Water	8	UT	8	Root and crown indications.	Acceptable; due to geometry.
Clean-up)		VT	0		
J (Core Spray	24	UT	24	Root and crown indications.	Acceptable; due to geometry.
System)		VT	1	Weld splatter.	Very little splatter; acceptable.
			2	Grind marks.	Very slight; acceptabl

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SUMMER 1977 OUTAGE

Exam Category	Number of Inspections Performed	Test Method	Reportal Number	ole Indications Type	Remarks
J (Core Spray			1	Surface scratches.	From insulation; acceptable.
(cont'd)			1	Arc strikes.	Ground out and re- inspected; acceptable.
			3	Pit marks.	Very slight; acceptable
J (Main Steam)	10	UT	8	Root and crown indications.	Acceptable; due to geometry.
		VT	0		
J (RCIC)	6	UT	6	Root and crown indications.	4 high crowns ground ar reinspected; all remain ing indications due to geometry; acceptable.
		VT	0		
J (HPCI)	2	UT	2	Root and crown indications.	Acceptable; due to geometry.
		VT	0	·	
J (Feedwater)	9	UT	7	Root and crown indications.	Acceptable; due to geometry.
			1	Spot indication.	Acceptable.
		VT	1	Slight pitting.	Acceptable.
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SUMMER 1977 OUTAGE

Exam Category	Number of Inspections Performed	Test Method	Reportab Number	le Indications Type	Remarks
J (RHR)	10	UT	10	Root and crown indications.	Acceptable; due to geometry.
			5	Spot indications.	Acceptable.
		VT	2	Weld splatter.	Ground out and rein- spected; acceptable.
J	3	UT	0		
(RPV Head Nozzles to Flange Welds)		VT	0		
к - 1	14	РТ	2	Arc strike and linear indications.	Indications ground out and reinspected; acceptable.
			2	Linear indications.	Indications ground out and reinspected; acceptable.
- · · ·		VT	0		
К - 2	67	VT	1	Slight rust on piston.	Acceptable.
M - 2	18	VT	2	Normal rust.	Acceptable.
			1	Slight pitting on walls.	Acceptable.

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SUMMER 1977 OUTAGE

	Number of Inspections	Test	Reportal	ble Indications	
Exam Category	Performed	Method	Number	Туре	Remarks
N - 1	1	VT	0	Visual inspection dryer, shroud head spargers, core spi of shroud, sample sure control, star housing, in-core h shroud weld, jet p spargers.	of the steam separator & d, guide rods, feedwater ray headers, top guide, top holders, differential pres- ndby liquid control, CRD housing and guide tube, tube pumps #1-20, core spray

FALL 1978 OUTAGE

	Exam Category	Number of Inspections Performed	Test <u>Method</u>	Reportab Number	ole Indications Type	Remarks
	D	2	UT	0		
	F	16	UT	0		Calibration block was outside ± .250" for 5 inspections. Calibra- tion by signal compari- son of equivalent ponse reflectors.
			РТ	1	3 linear indications within 1½" area, all less than ½".	Indications ground out and reinspected. Weld acceptable.
			VT	0		
an — and a manufactur a da	G - 1	21	UT	0		RPV studs and nuts #32 37 and Recirc pump P-1 studs and nuts #1-16 examined; acceptable.
			VT	0		
	G - 2	29	VT	0		
	J (Posiroulation	24	UT	0		
4 1 1	By-Pass)		VT	0		
•	J (Pecirculation)	4	UT	0		
	(Recifculation)		VT	0		

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FALL 1978 OUTAGE

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	Exam Category	Number of Inspections Performed	Test Method	Reportal Number	ole Indications Type	Remarks
	J	1	UT	0		
	(Safe Ends)	· · · ·	VT	0		
	J (Control Dod	13	UT	0		
	Drive)		VT	0		
	J	2	UT	0		
(Residual Heat Removal)	(Residual Heat Removal)		VT	0		
	J	18	UT	0		
	(Core Spray)		VT	0		
	J (The back on)	3	UT	0		
	(Feedwater)		VT	0		
	J	6	UT	0		•
(Main Steam)		VT	0			
J (Reactor Water Clean-up)	1	UT	0			
		VT	0			
			PT	ľ	Linear indication.	Indication ground out and area re-examined, acceptable.

FALL 1978 OUTAGE

K - 1 7 VT 0 (Supports) PT 1 Linear indication. Indication ground out area repaired by weld ing. Re-examination acceptable. Three additional supports examined as per 1970 Edition ASME Sectoral Para IS-244; acceptable K - 1 1 UT 0 (Recirculation Pump P-1A Support Weld) VT 0 K - 2 22 VT 0	Evan Catogory	Number of Inspections Performed	Test Method	Reportat Number	ole Indications	Remarks
K - 1 7 VT 0 (Supports) PT 1 Linear indication. Indication ground out area repaired by weld ing. Re-examination acceptable. Three additional supports examined as per 1970 Edition ASME Sector Para IS-244; acceptable K - 1 1 UT 0 (Recirculation Pump P-1A Support Weld) VT 0 K - 2 22 VT 0	Exam Caregory	rerrormed	Meenou	<u>itumber</u>	<u>-160</u>	
FT1Linear indication.Indication ground out area repaired by weld ing. Re-examination acceptable. Three additional supports examined as per 1970 Edition ASME Sect Para IS-244; acceptableK - 11UT0 (Recirculation Pump P-1A SupportVT0K - 222VT0	K - 1	7	VT	0		
K - 11UT0(Recirculation Pump P-1A Support Weld)VT0K - 222VT0	(Buppor ca)		PT 1 Linear indication	Linear indication.	Indication ground out, area repaired by weld- ing. Re-examination acceptable. Three additional supports examined as per 1970 Edition ASME Sector XI Para IS-244; acceptable	
(Recirculation Pump P-1A Support VT 0 Weld) VT 0 K - 2 22 VT 0	К - 1	1	UT	0		
K - 2 22 VT 0	Pump P-1A Support Weld)	:	VT	0		
	к - 2	22	VT	0		

SPRING 1980 OUTAGE

Exam Category	Number of Inspections Performed	Test Method	Reportable Number	Indications Type	Remarks
B - F	13	UT	0		Calibration block was outside <u>+</u> .250" for 6 inspections. Calibra- tion by signal compari- son of equivalent res- ponse reflectors.
					2 welds only had UT not performed a geometry prevented pro- per transducer contact. Welds acceptable.
		РТ	0		
B - G - 2	2	VT	0		
B - J (Recirculation By-Pass)	24	UT	0	· · ·	
B - J	16	UT	0	<u></u>	
(Recirculation)		PT	0		
B - J	17	UT	0		
(Core Spray)		РТ	0		
B - J (Control Rod Drive)	13	UT	0		

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SPRING 1980 OUTAGE

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Exam Category	Number of Inspections Performed	Test Method	Reportab Number	ole Indications Type	Remarks
B - J (Main Steam)	4	UT	0		
B - J (Feedwater)	4	UT	0		
B - J (RCIC)	1	РТ	0		•
		VT	0		
B - J (HPCI)	2	UT	0		
		PT/VT	0		
в - к - 1	13	РТ	6	Linear Indications	Indications ground out, repaired and re-tested acceptable.
		VT	1	Excess grinding on weld.	Repaired and re-tested acceptable.
			1	Grinding gouge in pad, 1/8" deep.	Reviewed as acceptable.
			1	Undersize fillet on weld and imcomplete welding.	Repaired and re-tested acceptable.
			1	Undercut, incomplete fusion and slag inclusion.	Repaired and re-tested acceptable.
		2	2-10		
-	<u>Exam Category</u> B - J (Main Steam) B - J (Feedwater) B - J (RCIC) B - J (HPCI) B - K - 1	Number of Inspections Performed $B - J$ 4(Main Steam)4 $B - J$ 4(Feedwater)1 $B - J$ 1 $B - J$ 2(RCIC)13	Number of Inspections PerformedTest MethodB - J4UTB - J4UTB - J1PT(Feedwater)VTB - J2UTB - J1PTB - J1VTB - JYTB - JYTB - JYTYTYT	Number of Inspections Test Method Reportab Number B - J (Main Steam) 4 UT 0 B - J (Feedwater) 4 UT 0 B - J (RCIC) 1 PT 0 B - J (RCIC) 1 PT 0 B - J (RCIC) 2 UT 0 B - J (RCIC) 2 UT 0 B - J (HPCI) 2 UT 0 B - K - 1 13 PT 6 VT 1 1 1 1 1 1 1	Number of Inspections Test Method Reportable Indications B - J (Main Steam) 4 UT 0 B - J (Feedwater) 4 UT 0 B - J (RCIC) 1 PT 0 B - J (RCIC) 1 PT 0 B - J (RCIC) 2 UT 0 B - J (RCIC) 2 UT 0 B - J (RFCI) 13 PT 6 Linear Indications VT 1 Excess grinding on weld. 1 Grinding gouge in pad, 1/8" deep. 1 Undersize fillet on weld and imcomplete welding. 1 Undercut, incomplete fusion and slag inclusion.

SPRING 1980 OUTAGE

Exam Category	Number of Inspections Performed	Test Method	Reportal Number	ole Indications Type	Remarks
B - K - 1 (cont'd)			1	Under ground at toe of weld.	Repaired and re-tested acceptable.
C - F	21	PT	3	Linear Indications	Indications ground out, repaired and re-tested acceptable.
N - 1	1	VT	0	Visual inspection of the steam separator & dryer, shroud head, guide rods, feedwater spargers, core spray headers, top guide, top of shroud, sample holders, differential pres- sure control, standby liquid control, CRD housing, in-core housing and guide tube, tube shroud weld, jet pumps #1-20, core spray spargers.	