Attachment to JPN-83-26

POWER AUTHORITY OF THE STATE OF NEW YORK
JAMES A. FITZPATRICK NUCLEAR POWER PLANT
INSERVICE TESTING PROGRAM FOR PUMPS & VALVES
CHANGE 1 TO REVISION 3

The following is Change 1 of Revision 3 of the James A. Fitz-Patrick NPP Inservice Testing Program for Pump and Valves, dated October 1, 1979.

This change consists of: 1)an addition of a list of effective pages, 2)a change in the wording referencing the ASME Code to include later editions of the Code as allowed under 10CFR50.55a, 3)the inclusion of new valves in the program due to plant modifications, and 4)the addition and expansion of clarifying notes.

This change does not decrease the level of testing of safety related pumps and/or valves and does not have a detrimental effect on plant safety and reliability.

The addition of a list of effective pages will permit stricter control of the program manuals and assurance of their accuracy.

The changes to the wording on pages 1 and 2 represent a conforming to the specifications of 10CFR50.55a(g) and do not otherwise change the scope, frequency or methodology of the required testing.

The change to note 4, page A-5, is a clarification of that note to facilitate the performance of the referenced test and does not represent a change in the method of performance of the test. The change to note 11, page A-6 is a corrrection to the program regarding the type of bearings used in the HPCI and RCIC pumps. This change does not represent an alteration to the method or frequency of testing of these pumps.

The change involving the addition of notes #12 and #13 to page A-6 (as referenced on page A-4) clarifies the method of measuring flow rate and bearing temperature for the Standby Liquid Control pumps and the reason for that method's variance from the code required test run times. This change reflects constraints on testing due to original equipment design and does not represent a decrease in plant safety for the reasons stated in the added notes.

The change represented by the addition of pages 47A and 47B to the program is the result of the addition of vacuum breaker valves on the main steam safety relief lines recently installed as part of the torus modifications. This change represents an increase in the extent of the surveillance and testing program and as such maintains the existing high level of plant safety.

The change detailed on page 81 represents editorial changes which correct statements made concerning the operators of valves 26-27-3-AOV-126 and 26-27-4-AOV-127, and which clarifies the basis for relief pertaining to the referenced CRD valves.

POWER AUTHORITY OF THE STATE OF NEW YORK
JAMES A. FITZPATRICK NUCLEAR POWER PLANT
INSERVICE TESTING PROGRAM FOR PUMPS AND VALVES
REVISION 3, OCTOBER 1, 1979

LIST OF EFFECTIVE PAGES

Page Number	Change Number
i	1
ii	1
iii	1
iv	1
v	1
Title	Original
Table of Contents	Original
1	1
2	1
3	Original
4	Original
A-1	Original
A-2	Original
A-3	Original
A-4	1
A-5	1
A-6	1
B-1	Original

LIST OF EFFECTIVE PAGES (continued)

Page Number	Change Number
B-2	Original
B-3	Original
B-4	Original
B-5	Original
B-6	Original
B-7	Original
B-8	Original
B-9	Original
C-1	Original
C-2	Original
Appendix C, Tables -1	Original
-2	Original
-3	Original
-4	Original
-5	Original
-6	Original
-7	Original
-8	Original
-9	Original
-10	Original
-11	Original
-12	Original
-13	Original
-14	Original
-15	Original

LIST OF EFFECTIVE PAGES (continued)

Page Number		Change Number
Appendix C, Tables	-16	Original
	-17	Original
	-18	Original
	-19	Original
	-20	Original
	-21	Original
	-22	Original
	-23	Original
	-24	Original
	-25	Original
	-26	Original
	-27	Original
	-28	Original
	-29	Original
	-30	Original
	-31	Original
	-32	Original
	-33	Original
	-34	Original
	-35	Original
	-36	Original
	-37	Original
	-38	Original
	-39	Original
	-40	Original
	-41	Original
	-42	Original
	-43	Original
	-44	Original
	-45	Original
	-46	Original
	-47	Original
	-47A	1
	-47B	1
	-48	Original
	-49	Original
	-50	Original

LIST OF EFFECTIVE PAGES (continued)

Page Number		Change Number
Appendix C, Tables	-51	Original
	-52	Original
	-53	Original
	-54	Original
	-55	Original
	-56	Original
	-57	Original
	-58	Original
	-59	Original
	-60	Original
	-61	Original
	-62	Original
	-63	Original
	-64	Original
	-65	Original
	-66	Original
	-67	Original
	-68	Original
	-69	Original
	-70	Origina'
	-71	Origina
	-72	Original
	-73	Original
	-74	Original
	-75	Original
	-76	Original
	-77	Original
	-78	Original
	-79	Original
	-80	Original
	-81	1
	-82	Original
	-83	Original
	-84	Original
	-85	Original

LIST OF EFFECTIVE PAGES (continued)

Page Number	Change Number
Appendix C, Tables -86	Original
-87	Original
-88	Original
-89	Original
-90	Original
D-1	Original
D-2	Original
D-3	Original
D-4	Original
D-5	Original
D-6	Original
D-7	Original
D-8	Original
D-9	Original
D-10	Original
D-11	Original
D-12	Original
E-1	Original
E-2	Original
F-1	Original

Inservice Testing Program for
Pumps and Valves
For The
James A. FitzPatrick Nuclear Power Plant

1.0 Introduction

Under the provisions of 10CFR50.55a, inservice testing of safety related pumps and valves will be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda. As specified in 10CFR50.55a(b), the effective edition of Section XI with regard to this program is the 1974 Edition through the Summer 1975 Addenda (and subsequent editions and addenda as permitted by 10CFR50.55a(g)). This program identifies the pump and valve inservice testing that will be performed at the James A. FitzPatrick Nuclear Power Plant to comply with the requirements of 10CFR50.55a. Based on the date of commencement of commercial operation this program is effective on November 28, 1978.

To identify the pumps and valves having a safety function the plant system drawings listed in Appendix E have been reviewed for Quality Group A, B and C (ASME Code Class 1, 2 and 3, respectively) boundary classifications, under the criteria of 10CFR50.2(v) and USNRC Regulatory Guide 1.26, Revision 2. The rationale for classification of the reactor core isolation cooling (RCIC) system is presented in Appendix F. Those drawings which depict non-nuclear systems are indicated by "NNS". Drawings which include systems or parts of systems which are Quality Group A, B or C but outside the scope of Section XI of the Code are designated "augmented". Applicable portions of these systems will be tested as required by Technical Specifications, Regulatory Guides or other governing documents. All drawings indicated by "XI" depict systems or parts of systems which are Code Class 1, 2 or 3. The pump and valve inservice testing programs have been developed consistent with the 1978 "NRC Staff Guidance for Preparing Pump and Valve Test Program Descriptions and Associated Relief Requests Pursuant to 10CFR50.55a(g)", included in Appendix D.

2.0 Pump Inservice Testing Program

The pump test program shall be conducted in accordance with Subsection IWP of Section XI of the ASME Boiler and Pressure Vessel Code except for relief requested under the provisions of 10CFR50.55a(g)(5)(iii). The pump inservice testing program for safety related pumps is included as Appendix A. Table A, Appendix A, lists the pumps which require operational testing under the guidelines of Section XI, Subsection IWP-1100, and gives specific requests for relief. Test parameters which will be measured for each pump are indicated.

3.0 Valve Inservice Testing Program

The valve test program shall be conducted in accordance with Subsection IWV of Section XI of the ASME Boiler and Pressure Vessel Code except for relief requested under the provisions of 10CFR50.55a (g) (5) (iii). The valve test program is included as Appendix C. The codes and symbols used to abbreviate the tables in Appendix C are explained in Appendix B.

3.1 Category A Valves

Valves for which seat leakage is important may generally be classified as pressure isolation valves, containment isolation valves or both pressure and containment isolation valves. Containment isolation valves (CIV) falling within the scope of ASME Section XI are tested in accordance with the Section XI requirements with the exception of the seat leakage tests (IWV-3420). The seat leakage testing of these valves meets the intent of Section XI, but the actual test procedures shall be in accordance with the 10CFR50, Appendix J, Type C, CIV test program. For valves performing a containment isolation function individual valve leak rates are not in themselves significant. The only pertinent leak rate criteria for CIV's is that the total leak rate for all penetrations and valves be less than 0.60 L_a. The FitzPatrick plant was designed to perform the Appendix J, Type C tests, not the individual Category A leak tests (i.e., some penetration test connections test more than one valve at a time). Accordingly, all CIV seat leak testing shall be performed in accordance with the requirements of 10CFR50, Appendix J, Type C, in lieu of the Category A requirements of Section XI.

JAMES A. FITZPATRICK NUCLEAR POWER PLANT

TABLE A - PUMP TEST PROGRAM

PREPARED BY W. Newell DATE 4/18/78 REVIEWED BY N. Holland DATE 5/19/78

Pump	ISD Number	ISD Coordinates	Speed n(1)	Inlet Pressure P_i	Differential Pressure Δp	Flow Rate Q	Vibration Amplitude V	Bearing Temperature T_b	Observe Lube Oil Level	Test Interval (2)
CORE SPRAY 14-P-1A	11825-FM-23A, REV 13	G-6	NO	YES	YES	YES	YES	NO(10)	YES	31 DAYS (3)
CORE SPRAY 14-P-1B	11825-FM-23A, REV 13	J-6	NO	YES	YES	YES	YES	NO(10)	YES	31 DAYS (3)
EMERGENCY SERVICE WATER 46-P-2A	11825-FM-46A, REV 12	A-6	NO	YES(4)	YES	NO(8)	YES	NO(5)	NO(5)	31 DAYS
EMERGENCY SERVICE WATER 46-P-2B	11825-FM-46A, REV 12	A-7	NO	YES(4)	YES	NO(8)	YES	NO(5)	NO(5)	31 DAYS
STANDBY LIQUID CONTROL 11-P-2A	11825-FM-21A, REV 10	G-5	NO	YES	YES	(12) YES	YES	(13) YES	YES	COLD SHUT-DOWN (9)
STANDBY LIQUID CONTROL 11-P-2B	11825-FM-21A, REV 10	G-7	NO	YES	YES	(12) YES	YES	(13) YES	YES	COLD SHUT-DOWN (9)

Rev. 3, 10/1/79

NOTES

1. Synchronous or induction motor driven pumps do not require a speed check per IWP-4400.

2. Test interval for measurement of test parameters, except for bearing temperatures which is performed annually.

3. Pump startup and flow through the pump minimum flow circuit shall be demonstrated every 31 days. A pump full flow test measuring the required test parameters shall be performed every 92 days. This program minimizes the radiation exposure to test personnel without a decrease in pump operability assurance.

4. The forebay water level is a measure of the pump inlet pressure. Since this is expected to be insensitive to pump operation it need not be measured both before and during the test.

5. The pump bearings are water lubricated bearings and, therefore, the bearing temperature measurement and lube oil observation cannot be performed.

6. The HPCI main and booster pumps are driven by a common power shaft and work in tandem. Accordingly, the pumps will be tested together.

7. Testing of the HPCI/RCIC pumps requires a valve lineup to divert flow back to the Condensate Storage Tank. If a HPCI/RCIC initiation signal were given during this valve lineup and the full flow bypass valve, 23-MOV-21/13-MOV-30, failed to close, the HPCI/RCIC flow would still be diverted. Since this test condition could result in a loss of the HPCI/RCIC system, the HPCI/RCIC pump tests should not be performed during plant operation. The HPCI/RCIC pumps are steam turbine driven taking their motive steam from the Main Steam System. During cold shutdown conditions the Main Steam System is out of service and the plant auxiliary boiler has insufficient steam capacity to drive the HPCI/RCIC pumps at design head and flow conditions. The HPCI/RCIC drive turbine is designed for steam conditions from normal operating pressure down to 150 psig. Accordingly, the HPCI/RCIC pumps will be tested on the approach to cold shutdown or after startup when the Main Steam System pressure is less than 150 psig and HPCI is not needed for safety injection, but no more frequently than every 92 days.

8. The Emergency Service Water System is a fixed resistance system. Therefore, pump differential pressure will be measured and flow rate will not as permitted by Table IWP-3100-1.

NOTES (continued)

9. Testing of Standby Liquid Control (SLC) pumps requires a valve lineup to circulate demineralized water to and from a test tank. During this lineup the isolation valve in the suction line from the SLC Tank is closed. If a SLC initiation signal were given during this valve lineup, all SLC flow to the reactor vessel would be lost. Since this test condition could result in a loss of the SLC system, the SLC pump tests should not be performed during plant operation. Accordingly, the SLC pumps will be tested at cold shutdown, but no more frequently than every 92 days.

10. There are no specific pump bearings only motor bearings which are located in an oil reservoir (oil bath) with no provisions for monitoring oil reservoir temperature.

11. There are no provisions for measuring bearing temperatures. The HPCI main injection pump has a radial bearing of the split sleeve journal type and a thrust bearing which combines a split sleeve journal bearing with a pivoted shoe bearing assembly. The bearings are supplied with oil from the turbine oil system. The HPCI booster injection pump and RCIC pump have radial and thrust ball bearings located in a bearing housing oil reservoir. The bearing lube oil levels can be measured in the turbine oil sump and oil reservoirs respectively.

12. Flow rate of the SLC pumps cannot be readily determined during the five minute ISI test. There is no installed flow instrumentation so pump flow rate is measured by determining the change of level in the test tank while pumping to a floor drain. Test tank capacity (210 gallons) is inadequate to permit flow rate determination throughout the five minute test so pump flow rate will be determined over a shorter time interval at the same pump discharge pressure. The flow rate of the positive displacement SLC pumps is expected to be relatively insensitive to small variations in discharge head.

13. The ASME Code requires that pumps be operated for longer than twenty minutes when the annual bearing temperature measurements are taken. This may be detrimental to the service life of the high pressure positive displacement SLC pumps. Furthermore, there are no installed provisions in the pump design for determination of bearing temperatures and measurements obtained with temporary devices (e.g., contact pyrometer) may not be adequately repeatable, accurate or representative of bearing deterioration especially when they are required only once a year. Alternatively, in conjunction with each requred ISI test, bearing casing temperatures will be qualitatively observed for abnormal performance.

TABLE 1: VALVES BEING TESTED IN ACCORDANCE WITH CODE REQUIREMENTS REV. 3. 10/01/79

SYSTEM: MAIN STEAM -SYSTEM NO. 29 ISD NO.: 11825-FM-29A REV 14 FITZPATRICK VALVE PROGRAM

PREPARED BY: J. Prokop DATE: 1/21/82 REVIEWED BY: DATE:

VALVE NUMBER	CLASS	COORD INATE	VALVE CATEGORY A B C D E	SIZE (IN)	VALVE TYPE	ACT. TYPE	NORM. POS.	TEST DURING	TEST METHOD	STROKE TIME (SEC)	REMARKS
02-RV-1	3	C-7	X	3	CK	SA	C	2	EF-2	N/A	Exercise 02-RV-1 through
02-RV-2	3	C-7	X	3	CK	SA	C	2	EF-2	N/A	-11 only when accessible
02-RV-3	3	C-7	X	3	CK	SA	C	2	EF-2	N/A	(Drywell De-inerted) but not more frequently than once every nine months. Valves are located in high radiation area. Free disk movement shall be observed during mechanical exercising but actual opening force need not be measured.
02-RV-4	3	C-7	X	3	CK	SA	C	2	EF-2	N/A	
02-RV-5	3	C-7	X	3	CK	SA	C	2	EF-2	N/A	
02-RV-6	3	C-7	X	3	CK	SA	C	2	EF-2	N/A	
02-RV-7	3	C-7	X	3	CK	SA	C	2	EF-2	N/A	
02-RV-8	3	C-7	X	3	CK	SA	C	2	EF-2	N/A	
02-RV-9	3	C-7	X	3	CK	SA	C	2	EF-2	N/A	
02-RV-10	3	C-7	X	3	CK	SA	C	2	EF-2	N/A	
02-RV-11	3	C-7	X	3	CK	SA	C	2	EF-2	N/A	

TABLE 1: VALVES BEING TESTED IN ACCORDANCE WITH CODE REQUIREMENTS REV. 3. 10/01/79

SYSTEM: MAIN STEAM -SYSTEM NO. 29 ISD NO.: 11825-FM-29A REV FITZPATRICK VALVE PROGRAM

PREPARED BY: J. Prokop DATE: 1/21/82 REVIEWED BY: DATE:

VALVE NUMBER	CLASS	COORDINATE	VALVE CATEGORY A	B	C	D	E	SIZE (IN)	VALVE TYPE	ACT. TYPE	NORM. POS.	TEST DURING	TEST METHOD	STROKE TIME (SEC)	REMARKS
02-VB-1	3	C-7		X				10	CK	SA	C	2	EF-2	N/A	Exercise 02-VB-1 through -11 only when accessible (drywell de-inerted) but not more frequently than once every nine months. Valves are located in high radiation area. Free disk movement shall be observed during mechanical exercising but actual opening force need not be measured.
02-VB-2	3	C-7		X				10	CK	SA	C	2	EF-2	N/A	
02-VB-3	3	C-7		X				10	CK	SA	C	2	EF-2	N/A	
02-VB-4	3	C-7		X				10	CK	SA	C	2	EF-2	N/A	
02-VB-5	3	C-7		X				10	CK	SA	C	2	EF-2	N/A	
02-VB-6	3	C-7		X				10	CK	SA	C	2	EF-2	N/A	
02-VB-7	3	C-7		X				10	CK	SA	C	2	EF-2	N/A	
02-VB-8	3	C-7		X				10	CK	SA	C	2	EF-2	N/A	
02-VB-9	3	C-7		X				10	CK	SA	C	2	EF-2	N/A	
02-VB-10	3	C-7		X				10	CK	SA	C	2	EF-2	N/A	
02-VB-11	3	C-7		X				10	CK	SA	C	2	EF-2	N/A	

NOTE 24

SYSTEM: Control Rod Drive (CRD)

VALVES:	26-27-HCU-115 (137 units)	26-27-3-AOV-126 (137 units)	26-27-HCU-138 (137 units)	26-27-3-AOV-127 (137 units)
CATEGORY:	C	B	C	B
CLASS:	2	2	2	2

FUNCTION:

26-27-HCU-115 are check valves on the lines from the charging water header. These check valves should be closed except when charging the accumulators.

26-27-3-AOV-126 are air operated control valves on the lines from the accumulators to the CRD mechanisms. These valves should open on a SCRAM signal.

26-27-HCU-138 are check valves on lines from the cooling water header. These check valves should close on a SCRAM signal and subsequent pressurization of the line downstream of the valves.

26-27-3-AOV-127 are air operated control valves on the lines from the CRD mechanisms to the SCRAM discharge header. These valves should open on a SCRAM signal.

TEST REQUIREMENT: Exercise the valves for operability every three months.

BASIS FOR RELIEF: The James A. FitzPatrick Technical Specifications specifically cover operability testing the CRD SCRAM function which demonstrates the operability of these valves.

ALTERNATE TESTING: Exercise the valves in accordance with JAF Technical Specification requirements.