

NINE MILE POINT UNIT 1
SECTION XI PUMP AND VALVE
INSERVICE TESTING
PROGRAM PLAN BOOK

Prepared for
NIAGARA MOHAWK POWER CORPORATION
Syracuse, New York

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by

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I. INTRODUCTION AND BASES

This Program Book has been prepared to fulfill the Pump and Valve Inservice Testing requirements for the Nine Mile Point Nuclear Station Unit 1 operated by Niagara Mohawk Power Corporation.

The 1974 and later editions of ASME Code, Section XI incorporates the requirements for operational testing of certain pumps and valves within a nuclear power plant. The Code of Federal Regulations, under 10 CFR 50.55a, requires that the first pump and valve test period be initiated at the start of the next regular 40 month period in a series of such periods beginning at the start of facility commercial operation. The next 40 month period has been established to start in December, 1979 for Nine Mile Point Unit 1, which dictates that the Pump and Valve Testing Program be submitted to NRC by June 1979.

According to 10 CFR 50.55a, the edition of the Code applicable to the Pump and Valve Plan would be the one in effect 6 months prior to the start of the next 40 month period. However, as of this writing, the 1975 Summer Addenda is the latest edition of the code endorsed by the NRC. Accordingly, the plan complies to the edition of the code currently approved by the NRC and will be revised, as necessary, to meet the requirements of the new edition, as they are received and endorsed by the NRC.

It should be noted that Nine Mile Point Unit 1 was designed and constructed prior to the adoption of the ASME Code. As a result, certain examinations stipulated by the Code cannot be performed since the plant system and component design does not accommodate them. All pumps and valves that cannot be tested to the full extent of Section XI requirements, due to location, function, design and/or instrumentation, are identified and the reasons for noncompliance fully described using the standard formats recommended by the NRC in the "Guidance for Preparing Pump and Valve Testing Program Descriptions and Associated Relief Requests Pursuant to 10 CFR 50.55a(g)" attached to their letter of January 5, 1978 to Niagara Mohawk.

The classification is basically provided by Part 50.2(v) of Title 10 of the Code of Federal Regulations for for Quality Group A and by NRC Regularatory 1.26 (Revision 3, February 1976) for Quality Groups B and C.

This Program Book is self contained. Included are instructions for setting up a Section XI Pump and Valve testing schedule and for the integration of the Section XI requirements with the plant Technical Specifications Suveillance testing tasks. The pumps and valves selected are listed in standard formats and reliefs which are detailed in the Relief Request sheets. Listings of general pump and valve testing procedures and component-specific field test procedures as well as a description of the recording requirements are provided.

2. TEST PLAN DESCRIPTION

According to 10 CFR 50.55a(g), the Section XI Pump and Valve Inservice Testing Program shall be initiated at the start of the next regular 40 month period subsequent to September 1, 1976, in a series of such periods beginning at the start of the facility commercial operation. The next such period has been established to start in December, 1979 for Nine Mile Point Unit 1.

This Plan has been prepared in accordance with the requirements of the ASME Section XI, 1974 Edition, up to and including 1975 Summer Addenda, the latest endorsed by the NRC. The Plan shall be revised to comply to the code currently approved by the NRC prior to its implementation in December 1979 and shall be in effect for the first 20 month period. The Plan shall be updated thereafter every 20 months to the edition of the code in effect prior to the start of each 20 month period.

The requirements and record formats for inservice testing of Class 1, 2, and 3 (corresponding to Quality Group A, B, and C respectively) pumps and valves installed at Nine Mile Point Unit 1 have been defined per Section XI, Subsections IWP and IWV, as well as per NRC recommendations in "Guidance for Preparing Pump and Valve Testing Program Descriptions and Associated Relief Requests Pursuant to 10 CFR 50.55a(g)".

Beyond the code, to meet with NRC requirements, during cold shutdowns, valve testing need not be performed more often than once every three months for category A, B and C valves. Inservice testing will commence within 2 hours after cold shutdown is achieved, but no later than 48 hours after cold shutdown, and continue until either all tests are complete or the plant is ready to return to power.

The integration of the Section XI Pump and Valve Testing requirements with the existing plant maintenance and surveillance programs has received primary consideration in the preparation of this Plan. This will assure elimination of duplication of effort and thus reduce the impact on manpower requirements, exposure rates and scheduling that would be caused by the introduction of a new parallel but separate program. To that goal, existing pump and valve procedures were reviewed

and adapted with appropriate modifications, and new procedures written in similar formats where no existing ones could be used. Thus, in most cases, because of unification of the plant's Technical Specification surveillance testing requirements with the Section XI Pump and Valve Testing needs, one test activity on the components will achieve satisfactory compliance in both programs.

The specific Section XI requirements have been summarized in General Testing Procedures, which also include forms to be used to summarize pump and valve testing status and all supporting documentation. By reference, component-specific Field Test Procedures are part of the General Test Procedures. The Field Test Procedures are the sole documents needed to set up, perform and record the actual field testing and have been modified to accommodate all special requirements defined in the General Test Procedures.

The General Test Procedures and all attached forms are primarily designed for program control, analysis and comparison, establishment of reference values, and documentation compliance. Test data, wherever required to be entered, will be transferred from data sheets used in the Field Test Procedures. The results of all analyses shall be reflected back in the "Test Results" section of the Field Test Procedures. All corrective action (repair or replacement of components) shall be initiated by filling out a Work Request (WR) form as required by the Field Test Procedure.

3. PUMP AND VALVE INSERVICE TESTING PROGRAM BOOK

The following sections comprise the Nine Mile Point Unit 1 Pump and Valve Inservice Testing Program Book and are discussed in detail in their corresponding Appendices.

3.1 PUMP AND VALVE LIST

Addressed in the Program are Quality Group A, B, and C pumps that are provided with an emergency power source and all safety-related Quality Group A, B, and C valves. Safety-related components are those pumps and valves necessary to safely shut down the plant or mitigate the consequences of an accident. Quality Group A, B, and C system boundaries have been established in accordance with Niagara Mohawk Power Corporation Production Plant Engineering DP 020 Mechanical Q-List.

Appendix A identifies the selected pumps and valves with all additional information, including relief requests, required by the "NRC Staff Guidance".

3.2 VALVE RELIEF REQUESTS

Appendix B includes detailed information to support requests for relief from testing requirements for each affected valve. Accessibility, high radiation level, high temperature, lack of instrumentation, impracticability of testing during plant operation are examples of relief bases.

3.3 TEST SCHEDULES

Detailed pump and valve testing schedules are presented in Appendix C. The schedules are for a 20 month interval starting in December 1979 through August 1981. Other information such as parameters to be tested, applicable General Test Procedures and Field Test Procedures are also incorporated.

3.4 GENERAL TESTING PROCEDURES

NES has prepared general testing procedures for Section XI requirements for pumps and each category or type of valve specified. Appendix D presents the General Testing Procedures to be used in the Nine Mile Point Unit 1 Pump and Valve Testing Program in conjunction with component-specific Field Test Procedures.

3.5 RECORDS

Appendix E discusses the Section XI recordkeeping and documentation requirements for the Pump and Valve Testing Program.

3.6 FIELD TEST PROCEDURES

All pump- and valve-specific Field Test Procedures are incorporated in Appendix F. These procedures are either existing Nine Mile Point testing procedures, with minor modifications and additions as necessary, or new procedures written in similar format to satisfy Section XI requirements not accommodated by existing procedures. These Field Test Procedures are to be used in the actual testing of components.



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APPENDIX A

PUMP AND VALVE LIST

PUMP AND VALVE LIST

The lists for safety-related Quality Group A, B, and C pumps provided with an emergency power source and safety-related Quality Group A, B, and C valves are presented in this Appendix. The standard format recommended by the NRC Staff in their "Guidance for Preparing Pump and Valve Testing Program Descriptions and Associated Relief Requests Pursuant to 10 CFR 50.55a(g)" has been used to provide the required information.

In the pump list, the test parameters to be measured and the test frequency are identified. Footnotes 1 through 7 refer to deviations and exceptions to the code requirements and are further discussed below:

1. For pumps with constant speed drives, speed is not measured since test will be performed at nominal motor nameplate speed as allowed by Section XI, IWP-3100.
2. For water sources with essentially constant water levels, inlet pressure P_i will not be measured. The water level may be used instead of P_i while establishing and verifying Reference Data sets and as information during subsequent test analysis.
3. For fixed resistance systems, it is not required to measure differential pressure as the flow rate is being measured as allowed by Section XI, IWP-3100.
4. Conversely, the flow rate need not be measured if the differential pressure is recorded. For constant level water sources, the outlet pressure may be assumed to represent the differential pressure.
5. Bearing temperatures are not measurable for submerged pumps where the pumped fluid is used at the bearing cooler. These pumps are not provided with built-in bearing temperature measuring devices.

6. In view of satisfactory pump surveillance testing performance in the past, quarterly inservice testing is considered to be adequate. Liquid Poison pumps and the Diesel Cooling Raw Water pumps will be tested on a monthly basis as required by Section XI, IWP-3400.
7. On all pumps, bearing temperatures are measured once a year as stipulated by Section XI, IWP-3300 except when not possible as specified in Note (5).
8. Constant P_1 assumed for Core Spray Topping, as the Core Spray and Core Spray Topping pumps are run simultaneously in series.

All relief requests from valve testing requirements are documented in the NRC-recommended standard formats in Appendix B.

TABLE 1
ABBREVIATIONS USED IN VALVE LIST

<u>Valve Type</u>	<u>Normal Position</u>
G Gate/Globe	O Open
R Relief	C Closed
SC Swing Check	LO Locked Open
E Explosive	LC Locked Closed

Actuator Type

MO-AC	AC current Motor Operated
MO-DC	DC current Motor Operated
AO	Air-piston Operated
EM	Electro-Mechanical
SA	Self-Actuated
AD	Air-Diaphragm
M	Manual
E	Explosive

Test Requirement

LRT	Leak Rate Test
ET	Exercising Test (including stroke time, unless otherwise noted)
ET/P	Part-stroke Exercising Test
PIT	Position Indicator Test
SRT	Safety/Relief Test
XT	Explosive Test
FST	Fail Safe Test

TABLE 2
LIST OF PUMPS FOR INSERVICE TESTING

System	Pump ID	P & ID	Quality Group	Freq.	Measured Parameter						Lube	Field Test Proc. No.
					N	P _i	ΔP	Q	V	T _b		
Core Spray	111, 112 121, 122	18007	B	Q ⁶	1	2	3	x	x	5	x	NI-ST-Q1
Core Spray Topping	111, 112 121, 122	18007	B	Q ^{6,7}	1	8	3	x	x	x	x	NI-ST-Q1
Containment Spray	111, 112 121, 122	18012	B	Q ⁶	1	2	3	x	x	5	x	NI-ST-Q6
Cont. Spray Raw Water	111, 112 121, 122	18012	C	Q ⁶	1	2	3	x	x	5	x	NI-ST-Q6
Liq. Poison	NP 02A NP 02B	18019	B	M ⁷	x	x	x	x	x	x	x	NI-ST-M1
CRD Pumps	11, 12	18016	B	Q ^{6,7}	1	2	3	x	x	x	x	NI-ST-Q2
Diesel Cooling Raw Water	102, 103	18026	C	M	1	x	x	4	x	5	x	NI-ST-M4

- 1 Constant speed drive, test at nominal nameplate speed.
- 2 Constant P_i assumed, water level recorded for reference.
- 3 Fixed resistance system, flow to be measured only.
- 4 Fixed resistance system, discharge pressure to be measured only.
- 5 Submerged pump, bearing temperature not measureable.
- 6 Exception to monthly, quarterly considered adequate in view of past pump surveillance testing performance.
- 7 Bearing temperatures measured once a year.
- 8 Constant P_i assumed, as the two pumps are run simultaneously in series.

Valve No.	Class	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Test Requirements	Relief Requests	Remarks
			A	B	C	D	E							
N7A	B				x			6	R	SA	C	SRT		Setpoint = 1218 psig \pm 1%
N7B	B				x			6	R	SA	C	SRT		Setpoint = 1227 psig \pm 1%
N7C	B				x			6	R	SA	C	SRT		Setpoint = 1236 psig \pm 1%
N7D	B				x			6	R	SA	C	SRT		Setpoint = 1227 psig \pm 1%
N7E	B				x			6	R	SA	C	SRT		Setpoint = 1236 psig \pm 1%
N7F	B				x			6	R	SA	C	SRT		Setpoint = 1218 psig \pm 1%
N7G	B				x			6	R	SA	C	SRT		Setpoint = 1227 psig \pm 1%
N7H	B				x			6	R	SA	C	SRT		Setpoint = 1245 psig \pm 1%
N7J	B				x			6	R	SA	C	SRT		Setpoint = 1218 psig \pm 1%
N7K	B				x			6	R	SA	C	SRT		Setpoint = 1236 psig \pm 1%
N7M	B				x			6	R	SA	C	SRT		Setpoint = 1218 psig \pm 1%

Valve No.	Class	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Test Requirements	Relief Requests	Remarks
			A	B	C	D	E							
N7N	B				x			6	R	SA	C	SRT		Setpoint = 1245 psig \pm 1%
N7U	B				x			6	R	SA	C	SRT		Setpoint = 1254 psig \pm 1%
N7R	B				x			6	R	SA	C	SRT		Setpoint = 1254 psig \pm 1%
N7S	B				x			6	R	SA	C	SRT		Setpoint = 1245 psig \pm 1%
N7T	B				x			6	R	SA	C	SRT		Setpoint = 1254 psig \pm 1%



Feeder

Part No. 18005

Valve No.	Class	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Test Requirements	Relief Requests	Remarks
			A	B	C	D	E							
31-03	B							18	G	MO-AC	O			Non-safety related
31-04	B							18	G	MO-AC	O			Non-safety related
31-01	B		x		x			18	SC	SA	O	ET	06	
31-02	B		x		x			18	SC	SA	O	ET	06	



Valve No.	Class	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Test Requirements	Relief Requests	Remarks
			A	B	C	D	E							
01-07	B						x	6	G	M	LO	-		
01-08	B						x	6	G	M	LO	-		
01-09	B						x	6	G	M	LO	-		
01-10	B						x	6	G	M	LO	-		
01-11	B						x	6	G	M	LO	-		
01-12	B						x	6	G	M	LO	-		
01-01	B		x					24	G	MO-AC	O	LRT,ET PIT	04	Stroke time = 10 sec, Leak limit = 12.9 scfh @ 22 psig.
01-02	B		x					24	G	MO-AC	O	LRT,ET PIT	04	Stroke time = 10 sec, Leak limit = 12.9 scfh @ 22 psig.
01-03	B		x					24	G	AO	O	LRT,ET PIT	04	Stroke time = 10 sec, Leak limit = 12.9 scfh @ 22 psig.
01-04	B		x					24	G	AO	O	LRT,ET PIT	04	Stroke time = 10 sec, Leak limit = 12.9 scfh @ 22 psig.



Valve No.	Class	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Test Requirements	Relief Requests	Remarks
			A	B	C	D	E							
NR-108A	B			x	x			6	R	EM	C	SRT, ET	05	
NR-108B	B			x	x			6	R	EM	C	SRT, ET	05	
NR-108C	B			x	x			6	R	EM	C	SRT, ET	05	
NR-108D	B			x	x			6	R	EM	C	SRT, ET	05	
NR-108E	B			x	x			6	R	EM	C	SRT, ET	05	
NR-108F	B			x	x			6	R	EM	C	SRT, ET	05	
34-01	B		x					2	G	MO-AC	C	ET	08	LRT as per App. J
34-02	B		x		x			2	SC	---	C	ET	03	LRT as per App. J
66-07	B				x			10	R	SA	C	SRT		Added Spring '81 Outage
66-08	B				x			10	R	SA	C	SRT		Added Spring '81 Outage
66-09	B				x			10	R	SA	C	SRT		Added Spring '81 Outage

Main

P&ID No. 18002

Valve No.	Class	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Test Requirements	Relief Requests	Remarks
			A	B	C	D	E							
66-10	B				x			10	R	SA	C	SRT		Added Spring 1981 Outage
66-11	B				x			10	R	SA	C	SRT		Added Spring 1981 Outage
66-12	B				x			10	R	SA	C	SRT		Added Spring 1981 Outage
66-13	B				x			10	R	SA	C	SRT		Added Spring 1981 Outage
66-14	B				x			10	R	SA	C	SRT		Added Spring 1981 Outage
66-15	B				x			10	R	SA	C	SRT		Added Spring 1981 Outage
66-16	B				x			10	R	SA	C	SRT		Added Spring 1981 Outage
66-17	B				x			10	R	SA	C	SRT		Added Spring 1981 Outage
66-18	B				x			10	R	SA	C	SRT		Added Spring 1981 Outage

RW

Pos No. 18009

Valve No.	Class	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Test Requirements	Relief Requests	Remarks
			A	B	C	D	E							
33-02	B		x					6	G	MO-AC	O	ET, PIT		Stroke time = 18 sec. LRT as per App. J.
33-04	B		x					6	G	MO-AC	O	ET		Stroke time = 18 sec. LRT as per App. J.
33-01	B		x					6	G	MO-AC	O	ET, PIT		Stroke time = 18 sec. LRT as per App. J.
33-03	B		x		x			6	SC	SA	O	ET	11	LRT as per App. J.



Valve No.	Class	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Test Requirements	Relief Requests	Remarks
			A	B	C	D	E							
201.2-25			x					½	G	M	C	ET		LRT as per App. J. Stroke Time = 60 sec
201.2-26			x					½	G	M	C	ET		LRT as per App. J. Stroke Time = 60 sec
201.2-27			x					½	G	M	C	ET		LRT as per App. J. Stroke Time = 60 sec
201.2-28			x					½	G	M	C	ET		LRT as per App. J. Stroke Time = 60 sec
201.2-29			x					½	G	M	C	ET		LRT as per App. J. Stroke Time = 60 sec
201.2-30			x					½	G	M	C	ET		LRT as per App. J. Stroke Time = 60 sec
201.2-23			x					½	G	M	C	ET		LRT as per App. J. Stroke Time 60 sec
201.2-24			x					½	G	M	C	ET		LRT as per App. J. Stroke Time = 60 sec
83.1-09			x					4	G	MO-AC	O	ET		LRT as per App. J. Stroke Time = 60 sec
83.1-10			x					4	G	AO	O	ET		LRT as per App. J. Stroke Time = 60 sec
83.1-11			x					4	G	MO-AC	O	ET		LRT as per App. J. Stroke Time = 60 sec

Valve No.	Class	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Test Requirements	Relief Requests	Remarks
			A	B	C	D	E							
83.1-12			x					4	G	AO	O	ET		LRT as per App. J. Stroke Time = 60 sec
201-07			x					20	G	MO-AC	O	ET	10	LRT as per App. J.
201-08			x					20	G	AO	O	ET	10	LRT as per App. J.
201-09			x					24	G	MO-AC	O	ET	10	LRT as per App. J.
201-10			x					24	G	AO	O	ET	10	LRT as per App. J.
201-16			x					20	G	AO	O	ET	10	LRT as per App. J.
201-17			x					20	G	MO-AC	O	ET	10	LRT as per App. J.
201-31			x					24	G	MO-AC	O	ET	10	LRT as per App. J.
201-32			x					24	G	MO-AC	O	ET	10	LRT as per App. J.
201.2-32			x					4	G	MO-DC	O	ET	10	LRT as per App. J.



Valve No.	Class	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Test Requirements	Relief Requests	Remarks
			A	B	C	D	E							
201.2-03			x					4	G	MO-DC	O	ET	10	LRT as per App. J.
201.2-06			x					3	G	MO-DC	O	ET	10	LRT as per App. J.
201.2-33			x					3	G	MO-DC	O	ET	10	LRT as per App. J.
201.2-39			x		x			1/4	SC	SA	O	ET	16	LRT as per App. J.
201.2-40			x		x			1/4	SC	SA	O	ET	16	LRT as per App. J.
201.2-67			x		x			3/4	SC	SA	O	ET	16	LRT as per App. J.
201.2-68			x		x			3/4	SC	SA	O	ET	16	LRT as per App. J.
201.2-70			x		x			3/4	SC	SA	O	ET	16	LRT as per App. J.
201.2-71			x		x			3/4	SC	SA	O	ET	16	LRT as per App. J.
68-01					x			30	SC	AO	O	ET		
68-02					x			30	SC	AO	O	ET		

Valve No.	Class	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Test Requirements	Relief Requests	Remarks
			A	B	C	D	E							
68-03					x			30	SC	AO	O	ET		
68-04					x			30	SC	AO	O	ET		
68-05			x		x			30	SC	AO	O	ET		LRT as per App. J
68-06			x		x			30	SC	AO	O	ET		LRT as per App. J
68-07			x		x			30	SC	AO	O	ET		LRT as per App. J
68-08			x					30	G	AO	O	ET	13	LRT as per App. J Stroke time = 5 sec.
68-09			x					30	G	AO	O	ET	13	LRT as per App. J Stroke time = 5 sec.
68-10			x					30	G	AO	O	ET	13	LRT as per App. J Stroke time = 5 sec.

Valve No.	Class	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Test Requirements	Relief Requests	Remarks
			A	B	C	D	E							
201.7-01	D		x					1	G	AO	O	ET		Stroke time = 60 sec. LRT as per App. J
201.7-02	D		x					1	G	AO	O	ET		Stroke time = 60 sec. LRT as per App. J
201.7-03	D		x					1	G	AO	O	ET		Stroke time = 60 sec. LRT as per App. J
201.7-04	D		x					1	G	AO	O	ET		Stroke time = 60 sec. LRT as per App. J
201.7-08	D		x					1	G	AO	O	ET	13	Stroke time = 5 sec. LRT as per App. J
201.7-09	D		x					1	G	AO	O	ET	13	Stroke time = 5 sec. LRT as per App. J
201.7-10	D		x					1	G	AO	O	ET	13	Stroke time = 5 sec. LRT as per App. J
201.7-11	D		x					1	G	AO	O	ET	13	Stroke time = 5 sec. LRT as per App. J
201.2-109	D		x					3/4	G	AO	O	ET		Stroke time = 60 sec. LRT as per App. J
201.2-110	D		x					3/4	G	AO	O	ET		Stroke time = 60 sec. LRT as per App. J

Valve No.	Class	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Test Requirements	Relief Requests	Remarks
			A	B	C	D	E							
201.2-111	D		x					3/4	G	AO	O	ET		Stroke time = 60 sec. LRT as per App. J
201.2-112	D		x					3/4	G	AO	O	ET		Stroke time = 60 sec. LRT as per App. J



Shut

P&ID. 18018

DOCUMENT NO. 81A04

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Valve No.	Class	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Test Requirements	Relief Requests	Remarks
			A	B	C	D	E							
38-01	B		x					14	G	MO-AC	C	ET, PIT	15	LRT as per App. J
38-02	B		x					14	G	MO-DC	C	ET	15	LRT as per App. J
38-13	B		x					14	G	MO-AC	C	ET, PIT	15	LRT as per App. J
38-12	B		x		x			14	SC	SA	C	ET	15	LRT as per App. J

Valve No.	Class	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Test Requirements	Relief Requests	Remarks
			A	B	C	D	E							
39-09	B		x					10	G	MO-AC	O	ET		LRT as per App. J Stroke time = 38 sec.
39-10	B		x					10	G	MO-AC	O	ET		LRT as per App. J Stroke time = 38 sec.
39-07	B		x					10	G	MO-DC	O	ET		LRT as per App. J Stroke time = 38 sec.
39-08	B		x					10	G	MO-DC	O	ET		LRT as per App. J Stroke time = 38 sec.
39-05	B		x					10	G	AO	C	ET, FST		LRT as per App. J Stroke time = 60 sec.
39-06	B		x					10	G	AO	C	ET, FST		LRT as per App. J Stroke time = 60 sec.
60-17	B			x				4	G	AD	C	ET		Stroke time = 10 sec.
60-18	B			x				4	G	AD	C	ET		Stroke time = 10 sec.
39-01	B						x	10	G	M	O	-		
39-02	B						x	10	G	M	O	-		

Valve No.	Class	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Test Requirements	Relief Requests	Remarks
			A	B	C	D	E							
39-03	B				x			10	SC	SA	C	ET	17	Exercised during system testing
39-04	B				x			10	SC	SA	C	ET	17	Exercised during system testing
60-11	B						x	4	G	M	LC	--		
60-12	B						x	4	G	M	LC	--		
39-11	B		x					1	G	AD	O	ET, FST	13	LRT as per App. J Stroke time = 5 sec.
39-12	B		x					1	G	AD	O	ET, FST	13	LRT as per App. J Stroke time = 5 sec.
39-13	B		x					1	G	AD	O	ET, FST	13	LRT as per App. J Stroke time = 5 sec.
39-14	B		x					1	G	AD	O	ET, FST	13	LRT as per App. J Stroke time = 5 sec.
60.1-14	C						x	4	G	M	LC	--		
60.1-15	C						x	4	G	M	LC	--		

Valve No.	Class	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Test Requirements	Relief Requests	Remarks
			A	B	C	D	E							
60.1-16	C						x	4	G	M	LO	--		
60.1-17	C						x	4	G	M	LO	--		
05-01	B		x					1	G	AO	O	ET	13	LRT as per App. J Stroke time = 5 sec.
05-02	B		x					1	G	AO	O	ET	13	LRT as per App. J Stroke time = 5 sec.
05-03	B		x					1	G	AO	O	ET	13	LRT as per App. J Stroke time = 5 sec.
05-04	B		x					1	G	AO	O	ET	13	LRT as per App. J Stroke time = 5 sec.

Valve No.	Class	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Test Requirements	Relief Requests	Remarks
			A	B	C	D	E							
41-06	B						x	2.5	G	M	LC	—		
41-12	B						x	1	G	M	LC	—		
41-13	B						x	1	G	M	LC	—		
41-18	B						x	2.5	G	M	LC	—		
42-01	B						x	2.5	G	M	LC	—		
42-02	B						x	2.5	G	M	LC	—		
NP05-A	B					x		1½	E	E	C	XT		
NP05-B	B					x		1½	E	E	C	XT		
NP04-A	B			x				1	R	SA	C	SRT		Setpoint = 1400 psig
NP04-B	B			x				1	R	SA	C	SRT		Setpoint, = 1400 psig



Valve No.	Class	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Test Requirements	Relief Requests	Remarks
			A	B	C	D	E							
42.1-02	B		x		x			1½	SC	SA	O	ET	01	LRT as per App. J
42.1-03	B		x		x			1½	SC	SA	O	ET	01	LRT as per App. J
41-05	B						x	2½	G	M	LO	--		
42-03	B						x	1½	G	M	LO	--		
42-04	B						x	1½	G	M	LO	--		
42-13	B						x	1½	G	M	LO	--		
42-14	B						x	1½	G	M	LO	--		
41-07	B						x	2½	G	M	LO	--		
41-11	B						x	2½	G	M	LO	--		
42-17	B						x	1½	G	M	LO	--		



Valve No.	Class	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Test Requirements	Relief Requests	Remarks
			A	B	C	D	E							
42-18	B						x	1½	G	M	LO	--		
42.1-01	B						x	1½	G	M	LO	--		
42-19	B				x			1½	SC	SA	O	ET		Exercised during Pump Testing
42-20	B				x			1½	SC	SA	O	ET		Exercised during Pump Testing



Valve No.	Class	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Test Requirements	Relief Requests	Remarks
			A	B	C	D	E							
81-01	B			x				14	G	MO-AC	O	ET		Stroke time = 90 sec.
81-02	B			x				14	G	MO-AC	O	ET		Stroke time = 90 sec.
81-21	B			x				14	G	MO-AC	O	ET		Stroke time = 90 sec.
81-22	B			x				14	G	MO-AC	O	ET		Stroke time = 90 sec.
81-07	B				x			12	SC	SA	O	ET		Simultaneous with pump testing (3400 gpm)
81-08	B				x			12	SC	SA	O	ET		Simultaneous with pump testing (3400 gpm)
81-27	B				x			12	SC	SA	O	ET		Simultaneous with pump testing (3400 gpm)
81-28	B				x			12	SC	SA	O	ET		Simultaneous with pump testing (3400 gpm)
81-73	B				x			3/4	R	SA	C	SRT		Setpoint = 85 psig
81-74	B				x			3/4	R	SA	C	SRT		Setpoint = 85 psig

Valve No.	Class	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Test Requirements	Relief Requests	Remarks
			A	B	C	D	E							
81-75	B				x			3/4	R	SA	C	SRT		Setpoint = 85 psig
81-76	B				x			3/4	R	SA	C	SRT		Setpoint = 85 psig
81-11	B				x			12	R	SA	C	SRT		Setpoint = 320 psig
81-31	B				x			12	R	SA	C	SRT		Setpoint = 320 psig
81-77	B				x			3/4	R	SA	C	SRT		Setpoint = 60 psig
81-78	B				x			3/4	R	SA	C	SRT		Setpoint = 60 psig
81-79	B				x			3/4	R	SA	C	SRT		Setpoint = 60 psig
81-80	B				x			3/4	R	SA	C	SRT		Setpoint = 60 psig
81-09	B						x	12	G	M	LO	--		
81-10	B						x	12	G	M	LO	--		

Valve No.	Class	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Test Requirements	Relief Requests	Remarks
			A	B	C	D	E							
81-29	B						x	12	G	M	LO	-		
81-30	B						x	12	G	M	LO	-		
58.1-01	B		x					4	G	MO	C	ET	14	LRT as per App. J
40-03	B				x			12	SC	SA	O	ET		Simultaneous with pump testing (3400 gpm)
40-13	B				x			12	SC	SA	O	ET		Simultaneous with pump testing (3400 gpm)
40-05	B			x				6	G	MO-AC	C	ET		Stroke time = 25 sec.
40-06	B			x				6	G	MO-AC	C	ET		Stroke time = 25 sec.
93-51	B			x				12	G	MO-AC	C	ET		Stroke time = 70 sec.
93-52	B			x				12	G	MO-AC	C	ET		Stroke time = 70 sec.
40-02	B			x				12	G	MO-AC	O	ET		Stroke time = 25 sec.



Valve No.	Class	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Test Requirements	Relief Requests	Remarks
			A	B	C	D	Fr							
40-12	B			x				12	G	MO-AC	O	ET		Stroke time = 25 sec.
40-01	B			x				12	G	MO-AC	C	ET, PIT		Stroke time = 25 sec.
40-09	B			x				12	G	MO-AC	C	ET, PIT		Stroke time = 25 sec.
40-10	B			x				12	G	MO-AC	C	ET, PIT		Stroke time = 25 sec.
40-11	B			x				12	G	MO-AC	C	ET, PIT		Stroke time = 25 sec.





Valve No.	Class	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Test Requirements	Relief Requests	Remarks
			A	B	C	D	E							
93-09	C				x			12	SC	SA	O	ET		Exercised during Pump Testing
93-10	C				x			12	SC	SA	O	ET		Exercised during Pump Testing
93-11	C				x			12	SC	SA	O	ET		Exercised during Pump Testing
93-12	C				x			12	SC	SA	O	ET		Exercised during Pump Testing
93-13	C						x	12	G	M	LO	—		
93-14	C						x	12	G	M	LO	—		
93-15	C						x	12	G	M	LO	—		
93-16	C						x	12	G	M	LO	—		
93-17	C						x	12	G	M	LO	—		
93-18	C						x	12	G	M	LO	—		

Valve No.	Class	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Test Requirements	Relief Requests	Remarks
			A	B	C	D	E							
93-19	C						x	12	G	M	LO	-		
93-20	C						x	12	G	M	LO	-		
93-21	C						x					-		
93-22	C						x					-		
93-23	C						x					-		
93-24	C						x					-		
93-26	C			x				12	G	MO-AC	O	ET		Stroke time = 70 sec.
93-27	C			x				12	G	MO-AC	O	ET		Stroke time = 70 sec.
93-28	C			x				12	G	MO-AC	O	ET		Stroke time = 70 sec.
93-49	B		x					12	G	MO-AC	C	ET		Stroke time = 70 sec. LRT as per App.J
93-50	B		x					12	G	MO-AC	C	ET		Stroke time = 70 sec. LRT as per App. J



Valve No.	Class	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Test Requirements	Relief Requests	Remarks
			A	B	C	D	E							
93-25	C			x				12	G	MO-AC	O	ET		Stroke time = 70 sec.
80-17	B				x			12	SC	--	-	ET	02	
80-37	B				x			12	SC	SA	O	ET	02	
80-18	B				x			12	SC	SA	O	ET	02	
80-38	B				x			12	SC	SA	O	ET	02	
80-19	B				x			3	SC	SA	O	ET	02	
80-39	B				x			3	SC	--	-	ET	02	
80-66	B				x			3	SC	SA	O	ET	02	
80-68	B				x			3	SC	SA	O	ET	02	
80-06	B				x			12	SC	SA	O	ET		Exercise during Pump Testing
80-26	B				x			12	SC	SA	O	ET		Exercise during Pump Testing

Valve No.	Class	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Test Requirements	Relief Requests	Remarks
			A	B	C	D	E							
80-05	B				x			12	SC	SA	O	ET		Exercise during Pump Testing
80-25	B				x			12	SC	SA	O	ET		Exercise during Pump Testing
80-08	B						x	12	G	M	LO	--		
80-28	B						x	12	G	M	LO	--		
80-07	B						x	12	G	M	LO	--		
80-27	B						x	12	G	M	LO	--		
80-67	B				x			3	SC	SA	O	ET	02	
80-65	B				x			3	SC	SA	O	ET	02	
80-15	B			x				12	G	AO	O	ET		Stroke time = 60 sec.
80-16	B			x				12	G	AO	O	ET		Stroke time = 60 sec.

Valve No.	Class	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Test Requirements	Relief Requests	Remarks
			A	B	C	D	E							
80-35	B			x				12	G	AO	O	ET		Stroke time = 60 sec.
80-36	B			x				12	G	AO	O	ET		Stroke time = 60 sec.
80-40			x				x	6	G	AO	C	ET	10	Valves to be added to App. J Testing
80-41			x				x	6	G	AO	C	ET	10	Valves to be added to App. J Testing
80-43			x				x	6	G	M	-C	ET	10	Valves to be added to App. J Testing
80-44			x				x	6	G	AO	C	ET	10	Valves to be added to App. J Testing
80-45			x				x	6	G	AO	C	ET	10	Valves to be added to App. J Testing
80-01	B			x				12	G	MO-AC	O	ET		Stroke time = 70 sec.
80-02	B			x				12	G	MO-AC	O	ET		Stroke time = 70 sec.
80-21	B			x				12	G	MO-AC	O	ET		Stroke time = 70 sec.
80-22	B			x				12	G	MO-AC	O	ET		Stroke time = 70 sec.



Valve No.	Class	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Test Requirements	Relief Requests	Remarks
			A	B	C	D	E							
81-11	B						x	12	G	M	LO	-		
81-12	B						x	12	G	M	LO	-		
81-31	B						x	12	G	M	LO	-		
81-32	B						x	12	G	M	LO	-		

Valve No.	Class	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Test Requirements	Relief Requests	Remarks
			A	B	C	D	E							
72-66	C				x			4	SC	SA	O	ET		Exercised during D/G Testing
72-67	C				x			4	SC	SA	O	ET		Exercised during D/G Testing
72-68	C				x			4	SC	SA	O	ET		Exercised during D/G Testing
72-69	C				x			4	SC	SA	O	ET		Exercised during D/G Testing



Valve No.	Class	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Test Requirements	Relief Requests	Remarks
			A	B	C	D	E							
44.2-15				x				2	G	AO	O	ET		Stroke Time = 60 sec
44.2-16				x				2	G	AO	O	ET		Stroke Time = 60 sec
44.2-17				x				2	G	AO	O	ET		Stroke Time = 60 sec
44.2-18				x				2	G	AO	O	ET		Stroke Time = 60 sec
CV-126				x				3/4	G	AO	C	ET	07	
CV-127				x				3/4	G	AO	C	ET	07	
138					x			1/2	SC	SA	O	ET	07	



APPENDIX B
VALVE RELIEF REQUESTS



VALVE RELIEF REQUESTS

Appendix B contains relief requests for valves so indicated in Appendix A. The detailed information is presented in standard forms to document that the burden in complying with the code requirements is not justified by the increased level of safety obtained from the testing.

The majority of the relief requests are for the exercising of nontestable swing check valves in Nine Mile Point Unit 1. These valves do not have the necessary instrumentation needed to comply with code requirements. In some cases, however, the adequate closing of the valve will be demonstrated during the inservice testing of an associated pump.

Full-stroke valve cycling in the Main Steam system during nominal power level operations could subject the plant to undesirable operating conditions, such as high pressure and/or high flux scram. A drop to 40% power is proposed to enable testing without a scram. Such a reduction in power occurs several times per year (i.e., during rod swapping, etc.) and provides an opportunity for the test.

Category A leak valve testing will be conducted in accordance with Appendix J to 10 CFR 50, except those exemptions requested from that appendix (see Attachment A to letter from G.K. Rhode "Request for Exemption" dated March 3, 1977). Appendix J is recognized by the NRC as the governing regulation for containment leak rate testing. Since all Category A valves are containment isolation valves and are tested under Appendix J, we believe a duplicate leak rate testing program for ASME Section XI Pumps and Valves would not be justified.



RELIEF REQUEST BASIS 01

<u>Valve ID</u>	<u>Function</u>	<u>P & ID</u>
42.1-02	Prevent back leakage from reactor vessel to the liquid poison system.	18019
42.1-03		
Test Requirement:	Full stroke exercising of the valve quarterly.	
Basis for Relief:	This valve does not have an attached position indicating device (local or remote), nor does the system have adequate sensing devices to give secondary indications of the valve position.	
Alternate Testing:	During every refueling outage the liquid poison system is tested. These valves will be exercised during this test.	

RELIEF REQUEST BASIS 02

<u>Valve ID</u>	<u>Function</u>	<u>P & ID</u>
80-17 80-18 80-37 80-38	To prevent back flow from Drywell spargers to the balance of the system when redundant loop is operating.	18012
80-19 80-65 80-66 80-67 80-68 80-39	To prevent back flow from the Torus	18012
Test Requirement:	Full stroke exercising of valve quarterly.	
Basis for Relief:	These valves do not have an attached position indicating device (local or remote), nor does the system have adequate sensing devices to give secondary indications of the valve position. Testing would require pressurization of the drywell, necessitating shutdown quarterly.	
Alternate Testing:	During the Appendix J type A test, which is conducted every refueling outage, the valve is stroked to the open position.	



RELIEF REQUEST BASIS 03

<u>Valve ID</u>	<u>Function</u>	<u>P & ID</u>
34-02	To prevent back flow from the reactor vessel into the head spray system.	18002
Test Requirement:	Full stroke exercising of the valve quarterly.	
Basis for Relief:	This valve does not have an attached position indicating device (local or remote), nor does the system have adequate sensing devices to give secondary indications of the valve position. The valve passively fulfills its safety function.	
Alternate Testing:	This valve is leak rate tested under Appendix J every refueling outage.	

RELIEF REQUEST BASIS 04

<u>Valve ID</u>	<u>Function</u>	<u>P & ID</u>
01-04 01-03 01-02 01-01	Main Steam Blocking Valve	18002
Test Requirement:	Full stroke exercising and stroke time verification quarterly.	
Basis for Relief:	Full-stroke testing at full power would cause a scram on high pressure and subject the plant to undue thermal cycling stress. Reduction in power to 40% should limit the adverse effects of testing.	
Alternate Testing:	During rod swapping and other times when power is reduced to the 40% level, testing shall commence (not to exceed once per quarter). Full stroke testing and stroke time verification will be performed during each refueling outage.	



RELIEF REQUEST BASIS 05

<u>Valve ID</u>	<u>Function</u>	<u>P & ID</u>
NR-108-A thru F	Electromatic relief valves	18002
Test Requirement:	Full relief test exercising of valves quarterly.	
Basis for Relief:	Full stroke testing of the electromatics on a quarterly basis would cause undue thermal stresses on the suppression chamber.	
Alternate Testing:	These valves are tested at the beginning of every refueling outage.	

RELIEF REQUEST BASIS 06

<u>Valve ID</u>	<u>Function</u>	<u>P & ID</u>
31-01 31-02	To prevent back flow into the feedwater system from the reactor.	18005
Test Requirement:	Full stroke exercising quarterly.	
Basis for Relief:	These valves do not have an attached position indicating device (local or remote), nor does the system have adequate sensing devices to give secondary indications of the valve position.	
Alternate Testing:	The valves shall be integrated leak rate tested every refueling outage.	



RELIEF REQUEST BASIS 07

<u>Valve ID</u>	<u>Function</u>	<u>P & ID</u>
CV 126	Low side scram control valve.	18016
CV 127	High side scram control valve.	
138	Cooling water header check valve.	

Test Requirement: Full stroke exercising testing quarterly.

Basis for Relief: Exercising these valves quarterly would:

1. Increase wear on the control rod drive seals due to isolation of cooling water.
2. Cause undue thermal shock.
3. Cause fuel damage due to flux peaks.

Alternate Testing: Following each refueling outage all control rods are scram tested, following each scram from rated pressure, the mean 90% insertion time for at least 8 control rods is determined and after each outage not initiated by a scram, eight rods are scram tested, results of the above listed test verifies proper operation of these valves.

RELIEF REQUEST BASIS 08

<u>Valve ID</u>	<u>Function</u>	<u>P & ID</u>
34-01	Head Spray outside isolation valve	18002

Test Requirement: Full stroke exercising test and stroke-time verification quarterly.

Basis for Relief: This valve is a normally closed passive component not required to change its position to fulfill its safety function.

Alternate Testing: The valve shall be integrated leak-tested every refueling outage.



RELIEF REQUEST BASIS 09

<u>Valve ID</u>	<u>Function</u>	<u>P & ID</u>
111, 112 121, 122	Core spray injection pumps	18007
111, 112 121, 122	Core spray topping pumps	18007
111, 112 121, 122	Containment spray pumps	18012
CRD 11, 12	Control rod drive pumps	18016
111, 112 121, 122	Containment spray raw water pumps	18012

Test Requirement: Monthly test.

Basis for Relief: The past record at NMP-1 indicates the reliability of the pumps, which would not improve by monthly cycling, which would promote excess stress and strain on pump/motor design life.

Alternate Testing: Testing will be scheduled quarterly.

RELIEF REQUEST BASIS 10

<u>Valve ID</u>	<u>Function</u>	<u>P & ID</u>
80-40 80-41 80-43 80-44 80-45	Containment spray and raw water system gate valve..	18012
201-07, 08, 09, 10, 16, 17, 31, 32	Drywell and torus gate valves	18014
201.2-32, 03, 06, 33	Drywell and torus gate valves.	18006, 18014

Test Requirement: Exercising of the valve from its normal position.

Basis for Relief: This valve is not required to change its position to fulfill its safety function due to its passive nature.

Alternate Testing: Verify and record valve position before and after each valve operation when the environment permits. In addition, these valves are leak tested per Appendix J.



RELIEF REQUEST BASIS 11

<u>Valve ID</u>	<u>Function</u>	<u>P & ID</u>
33-03	Prevent backflow from reactor feedwater header into reactor cleanup system.	18009

Test Requirement: Full stroke exercising quarterly.

Basis for Relief: This valve does not have an attached position indicating device (local or remote) nor does the system have adequate sensing devices to give secondary indication of the valve position.

Alternate testing: The valve is included in the Appendix J type A leak test which is performed every refueling outage.

RELIEF REQUEST BASIS 12

<u>Valve ID</u>	<u>Function</u>	<u>P & ID</u>
39-06 39-05	Emergency cooling outside isolation valve	18017

Test Requirement: Full store exercising and stroke time verification quarterly.

Basis for Relief: Full-stroke testing at power or stand by conditions would subject the plant to undue thermal cycling stress.

Alternate Testing: Full stroke testing and stroke time verification will be performed during each cold shutdown (not to exceed once per quarter).



RELIEF REQUEST BASIS 13

<u>Valve ID</u>	<u>Function</u>	<u>P & ID</u>
05-01, 02, 03, 04	Containment isolation	18017
3 9-11, 12, 13; 14		18017
68-08, 09, 10		18006
201.7-08, 09, 10, 11		18014

Test Requirement: Conduct trend analysis of stroke times.

Basis for Relief: Trend analysis of fast acting valves is inconclusive of valve operation due to the speed at which these valves operate.

Alternate Testing: Corrective action will be taken if the stroke time exceeds 5 seconds.

RELIEF REQUEST BASIS 14

<u>Valve ID</u>	<u>Function</u>	<u>P & ID</u>
58.1-01	Core spray torus makeup isolation valve	18007

Test Requirement: Full stroke exercising test and stroke-time verification quarterly.

Basis for Relief: This valve is a normally closed passive component not required to change its position to fulfill its safety function.

Alternate Testing: The valve is included in the Appendix J type A leak test which is performed every refueling outage.



RELIEF REQUEST BASIS 15

<u>Valve ID</u>	<u>Function</u>	<u>P & ID</u>
38-01	Isolate reactor shutdown cooling system from reactor.	18018
38-02		
38-12		
38-13		

Test Requirement: Full stroke exercising and stroke-time verification quarterly.

Basis for Relief: This valve is a normally closed passive component not required to change position to fulfill its safety function.

Alternate testing: These valves are included in the Appendix J, type A leak test which is performed every refueling outage.

RELIEF REQUEST BASIS 16

<u>Valve ID</u>	<u>Function</u>	<u>P & ID</u>
201.2-39	Prevent backflow into N ₂ purge-tip system	18014
201.2-40		
201.2-67	Prevent backflow into drywell H ₂ -O ₂ Sampling system	18014
201.2-68		
201.2-70	Prevent backflow into torus H ₂ -O ₂ Sampling system	18-14
201.2-71		

Test Requirements: Full stroke exercising quarterly.

Basis for Relief: This valve does not have an attached position indicating device (local or remote), nor does the system have adequate sensing devices to give secondary indication of the valve position. Testing would require pressurization of the drywell, quarterly.

Alternate Testing: These valves are included in the Appendix J, type A leak test which is performed every refueling outage.



RELIEF REQUEST BASIS 17

<u>Valve ID</u>	<u>Function</u>	<u>P & ID</u>
39-03	Prevent reverse flow of the emergency	18017
39-04	Cooling system	

Test Requirement: Exercise test quarterly.

Basis for Relief: Full-stroke exercise testing at power or standby conditions would subject the plant to undue thermal cycling stress, nor does the valve have an attached position indicating device (local or remote).

Alternate Testing: The valve will be full stroked during the hydrostatic test following each refueling outage.





NUCLEAR ENERGY SERVICES, INC.

DOCUMENT NO. 81A0416

PAGE C1 OF 20

APPENDIX C
TEST SCHEDULES



TEST SCHEDULES

The pump inservice testing frequency is the Pump List of Appendix A. Appendix C presents the testing requirements and frequencies for the inservice testing of valves. These tables are intended to provide scheduling information for Nine Mile Point Unit 1 operating personnel in integrating Section XI Pump and Valve Inservice Testing requirements with Technical Specification surveillance testing programs.

Table C-1 lists all required valve testing grouped by system. Valve ID's, test frequencies, field test procedures and test limits are specified.

Table C-2 reorganizes the same information by frequency and field test procedures.

The schedules presented here are applicable to a 20 month period starting in December, 1979 and ending in August, 1981. The program will be updated to applicable Code Addenda for subsequent 20 month intervals.

System	Valve I.D.	C a t.	Test 1 Req's.	Test Limits	Freq. 2	NMPC field test procedure	NES general procedure
Main Steam	01-01	A	LRT	Leak=12.9 scfh @ 22 psig	C	N1-ISP-25.1	81A0411
			ET/p	7% part stroke	Wb	N1-ST-V4	81A0412
			ET	Stroke time=10 sec	C	N1-ST-R8	81A0412
			PIT		C	N1-ST-R8	81A0413
	01-02	A	LRT	Leak=12.9 scfh @ 22 psig	C	N1-ISP-25.1	81A0411
			ET/p	7% part stroke	Wb	N1-ST-V4	81A0412
			ET	Stroke time=10 sec	C	N1-ST-R8	81A0412
			PIT		C	N1-ST-R8	81A0413
	01-03	A	LRT	Leak=12.9 scfh @ 22 psig	C	N1-ISP-25.1	81A0411
			ET/p	7% part stroke	Wb	N1-ST-V4	81A0412
			ET,	Stroke time=10 sec	C	N1-ST-R8	81A0412
			FST				
	01-04	A	LRT	Leak=12.9 scfh @ 22 psig	C	N1-ISP-25.1	81A0411
			ET/p	7% part stroke	Wb	N1-ST-V4	81A0412
			ET,	Stroke time=10 sec.	C	N1-ST-R8	81A0412
			FST				
	NR-108A	C	SRT	Setpoint=1090 psig	C	N1-ST-C2	81A0415
	NR-108B	C	SRT	Setpoint=1090 psig	C	N1-ST-C2	81A0415
	NR-108C	C	SRT	Setpoint=1095 psig	C	N1-ST-C2	81A0415
	NR-108D	C	SRT	Setpoint=1095 psig	C	N1-ST-C2	81A0415
	NR-108E	C	SRT	Setpoint=1100 psig	C	N1-ST-C2	81A0415
	NR-108F	C	SRT	Setpoint=1100 psig	C	N1-ST-C2	81A0415

¹ LRT Leak Rate Test
ET/p Part-stroke Exercise Testing
ET Full-stroke Exercise Testing
SRT Safety Relief Test
PIT Position Indicator Test
FST Fail Safe Test
XT Explosive Test

² C Cyclic (every scheduled refueling outage)
2C Once every two cycles
Q Quarterly
Wb Bi-weekly

Table C-1

System	Valve I.D.	C a t.	Test 1 Req's.	Test Limits	Freq. ²	NMPC field test procedure	NES general procedure
Main Steam	N7A*	C	SRT	Setpoint=1218 psig	2C	by NMPC	81A0415
	N7B	C	SRT	Setpoint=1227 psig	2C	by NMPC	81A0415
	N7C	C	SRT	Setpoint=1236 psig	2C	by NMPC	81A0415
	N7D	C	SRT	Setpoint=1227 psig	2C	by NMPC	81A0415
	N7E	C	SRT	Setpoint=1236 psig	2C	by NMPC	81A0415
	N7F	C	SRT	Setpoint=1218 psig	2C	by NMPC	81A0415
	N7G	C	SRT	Setpoint=1227 psig	2C	by NMPC	81A0415
	N7H	C	SRT	Setpoint=1245 psig	2C	by NMPC	81A0415
	N7J	C	SRT	Setpoint=1218 psig	2C	by NMPC	81A0415
	N7K	C	SRT	Setpoint=1236 psig	2C	by NMPC	81A0415
	N7M	C	SRT	Setpoint=1218 psig	2C	by NMPC	81A0415
	N7N	C	SRT	Setpoint=1245 psig	2C	by NMPC	81A0415
	N7U	C	SRT	Setpoint=1254 psig	2C	by NMPC	81A0415
	N7R	C	SRT	Setpoint=1254 psig	2C	by NMPC	81A0415
	N7S	C	SRT	Setpoint=1245 psig	2C	by NMPC	81A0415
	N7T	C	SRT	Setpoint=1254 psig	2C	by NMPC	81A0415

*This test should be scheduled by the valve serial no.'s, not by flange locations.

¹ LRT Leak Rate Test
 ET/p Part-stroke Exercise Testing
 ET Full-stroke Exercise Testing
 SRT Safety Relief Test
 PIT Position Indicator Test
 FST Fail Safe Test
 XT Explosive Test

² C Cyclic (every scheduled refueling outage)
 2C Once every two cycles
 Q Quarterly
 Wb Bi-weekly

Table C-1



System	Valve I.D.	C a t.	Test 1 Req's.	Test Limits	Freq. 2	NMPC field test procedure	NES general procedure
Feedwater	31-03	B	ET/p ET PIT	7% part stroke Stroke time=10 sec	Wb C C	N1-ST-V4 N1-ST-R8 N1-ST-R8	81A0412 81A0412 81A0413
	31-04	B	ET/p ET PIT	7% part stroke Stroke time=10 sec	Wb C C	N1-ST-V4 N1-ST-R8 N1-ST-R8	81A0412 81A0412 81A0413
	68-01	C	ET		Q	by NMPC	81A0415
	68-02	C	ET		Q	by NMPC	81A0415
	68-03	C	ET		Q	by NMPC	81A0415
	68-04	C	ET		Q	by NMPC	81A0415

¹ LRT Leak Rate Test
ET/p Part-stroke Exercise Testing
ET Full-stroke Exercise Testing
SRT Safety Relief Test
PIT Position Indicator Test
FST Fail Safe Test
XT Explosive Test

² C Cyclic (every scheduled refueling outage)
2C Once every two cycles
Q Quarterly
Wb Bi-weekly

Table C-1



System	Valve I.D.	C a t.	Test Req's. ¹	Test Limits	Freq. ²	NMPC field test procedure	NES general procedure
Reactor Cleanup	33-01	B	ET PIT	Stroke time=18 sec	Q C	N1-ST-Q4 N1-ST-Q4	81A0412 81A0413
	33-02	B	ET PIT	Stroke time=18 sec	Q C	N1-ST-Q4 N1-ST-Q4	81A0412 81A0413
	33-04	B	ET	Stroke time=18 sec	Q	N1-ST-Q4	81A0412
	72-66	C	ET		Q	by NMPC	81A0415
	72-67	C	ET		Q	by NMPC	81A0415
	72-68	C	ET		Q	by NMPC	81A0415
	72-69	C	ET		Q	by NMPC	81A0415

¹ LRT Leak Rate Test
ET/p Part-stroke Exercise Testing
ET Full-stroke Exercise Testing
SRT Safety Relief Test
PIT Position Indicator Test
FST Fail Safe Test
XT Explosive Test

² C Cyclic (every scheduled refueling outage)
2C Once every two cycles
Q Quarterly
Wb Bi-weekly

Table C-1



System	Valve I.D.	Cat.	Test 1 Req's.	Test Limits	Freq. ²	NMPC field test procedure	NES general procedure
Shutdown Cooling	38-01	A	ET PIT	Stroke time=40 sec	C C	N1-ST-R8 N1-ST-R8	81A0412 81A0413
	38-13	A/C	ET PIT	Stroke time=40 sec	C C	N1-ST-R8 N1-ST-R8	81A0412 81A0413
	38-02	A/C	ET	Stroke time=40 sec	C	N1-ST-R8	81A0412
	38-12	A	ET	Stroke time=40 sec	C	N1-ST-R8	81A0412

¹ LRT Leak Rate Test
ET/p Part-stroke Exercise Testing
ET Full-stroke Exercise Testing
SRT Safety Relief Test
PIT Position Indicator Test
FST Fail Safe Test
XT Explosive Test

² C Cyclic (every scheduled refueling outage)
2C Once every two cycles
Q Quarterly
Wb Bi-weekly

Table C-1



System	Valve I.D.	Cat.	Test 1 Req's.	Test Limits	Freq. ²	NMPC. field test procedure	NES general procedure.
Emergency Condenser	39-09	B	ET	Stroke time=38 sec	Q	N1-ST-Q4	81A0412
	39-10	B	ET	Stroke time=38 sec	Q	N1-ST-Q4	81A0412
	39-07	B	ET	Stroke time=38 sec	Q	N1-ST-Q4	81A0412
	39-08	B	ET	Stroke time=38 sec	Q	N1-ST-Q4	81A0412
	39-05	B	ET, FST	Stroke time=60 sec	C	N1-ST-Q4	81A0412
	39-06	B	ET, FST	Stroke time=60 sec	C	N1-ST-Q4	81A0412
	39-11	B	ET, FST	Stroke time=5 sec	Q	N1-ST-Q4	81A0412
	39-12	B	ET, FST	Stroke time=5 sec	Q	N1-ST-Q4	81A0412
	39-13	B	ET, FST	Stroke time=5 sec	Q	N1-ST-Q4	81A0412
Emergency Cond. Make Up	39-14	B	ET, FST	Stroke time=5 sec	Q	N1-ST-Q4	81A0412
	60-17	B	ET	No limit on stroke time.	Q	N1-ST-M2	81A0412
	60-18	B	ET	No limit on stroke time.	Q	N1-ST-M2	81A0412

¹ LRT Leak Rate Test
 ET/p Part-stroke Exercise Testing
 ET Full-stroke Exercise Testing
 SRT Safety Relief Test
 PIT Position Indicator Test
 FST Fail Safe Test
 XT Explosive Test

² C Cyclic (every scheduled refueling outage)
 2C Once every two cycles
 Q Quarterly
 Wb Bi-weekly

Table C-1



System	Valve I.D.	C a t.	Test 1 Req's.	Test Limits	Freq. ²	NMPC field test procedure	NES general procedure
Core Spray	81-01	B	ET	Stroke time=90 sec	Q	N1-ST-Q1	81A0412
	81-02	B	ET	Stroke time=90 sec	Q	N1-ST-Q1	81A0412
	81-21	B	ET	Stroke time=90 sec	Q	N1-ST-Q1	81A0412
	81-22	B	ET	Stroke time=90 sec	Q	N1-ST-Q1	81A0412
	40-05	B	ET	Stroke time=25 sec	Q	N1-ST-Q1	81A0412
	40-06	B	ET	Stroke time=25 sec	Q	N1-ST-Q1	81A0412
	40-02	B	ET	Stroke time=25 sec	Q	N1-ST-Q1	81A0412
	40-12	B	ET	Stroke time=25 sec	Q	N1-ST-Q1	81A0412
	40-01	B	ET PIT	Stroke time=25 sec	Q C	N1-ST-Q1 N1-ST-Q1	81A0412 81A0413
	40-09	B	ET PIT	Stroke time=25 sec	Q C	N1-ST-Q1 N1-ST-Q1	81A0412 81A0413
	40-10	B	ET PIT	Stroke time=25 sec	Q C	N1-ST-Q1 N1-ST-Q1	81A0412 81A0413
	40-11	B	ET PIT	Stroke time=25 sec	Q C	N1-ST-Q1 N1-ST-Q1	81A0412 81A0413
	93-51	B	ET	No stroke time limit	Q	N1-ST-Q1	81A0412
	93-52	B	ET	No stroke time limit	Q	N1-ST-Q1	81A0412

¹ LRT Leak Rate Test
ET/p Part-stroke Exercise Testing
ET Full-stroke Exercise Testing
SRT Safety Relief Test
PIT Position Indicator Test
FST Fail Safe Test
XT Explosive Test

² C Cyclic (every scheduled refueling outage)
2C Once every two cycles
Q Quarterly
Wb Bi-weekly

Table C-1



System	Valve I.D.	Cat.	Test ¹ Req's.	Test Limits	Freq. ²	NMPC field test procedure	NES general procedure
Core Spray	81-07	C	ET			by NMPC	81A0415
	81-08	C	ET			by NMPC	81A0415
	81-27	C	ET			by NMPC	81A0415
	81-28	C	ET			by NMPC	81A0415
	CV-NC-11	B	ET		Q Q		81A0412
	NC-12	B	ET				81A0412
	CV-126 127	B B					

¹ LRT Leak Rate Test
ET/p Part-stroke Exercise Testing
ET Full-stroke Exercise Testing
SRT Safety Relief Test
PIT Position Indicator Test
FST Fail Safe Test
XT Explosive Test

² C Cyclic (every scheduled refueling outage)
2C Once every two cycles
Q Quarterly
Wb Bi-weekly

Table C-1

System	Valve I.D.	Cat.	Test ¹ Req's.	Test Limits	Freq. ²	NMPC field test procedure	NES general procedure
Containment Spray	93-09	C	ET		Q	by NMPC	81A0415
	93-10	C	ET		Q	by NMPC	81A0415
	93-11	C	ET		Q	by NMPC	81A0415
	93-12	C	ET		Q	by NMPC	81A0415

¹ LRT Leak Rate Test
ET/p Part-stroke Exercise Testing
ET Full-stroke Exercise Testing
SRT Safety Relief Test
PIT Position Indicator Test
FST Fail Safe Test
XT Explosive Test

² C Cyclic (every scheduled refueling outage)
2C Once every two cycles
Q Quarterly
Wb Bi-weekly

Table C-1

System	Valve I.D.	C a t.	Test 1 Req's.	Test Limits	Freq. 2	NMPC field test procedure	NES general procedure
Core Spray	81-73	C	SRT	Setpoint=75 psig	2C	by NMPC	81A0415
	81-74	C	SRT	Setpoint=75 psig	2C	by NMPC	81A0415
	81-75	C	SRT	Setpoint=75 psig	2C	by NMPC	81A0415
	81-76	C	SRT	Setpoint=75 psig	2C	by NMPC	81A0415
	81-11	C	SRT	Setpoint=320 psig	2C	by NMPC	81A0415
	81-31	C	SRT	Setpoint=320 psig	2C	by NMPC	81A0415
	81-77	C	SRT	Setpoint=60 psig	2C	by NMPC	81A0415
	81-78	C	SRT	Setpoint=60 psig	2C	by NMPC	81A0415
	81-79	C	SRT	Setpoint=60 psig	2C	by NMPC	81A0415
	81-80	C	SRT	Setpoint=60 psig	2C	by NMPC	81A0415

¹ LRT Leak Rate Test
 ET/p Part-stroke Exercise Testing
 ET Full-stroke Exercise Testing
 SRT Safety Relief Test
 PIT Position Indicator Test
 FST Fail Safe Test
 XT Explosive Test

² C Cyclic (every scheduled refueling outage)
 2C Once every two cycles
 Q Quarterly
 Wb Bi-weekly

Table C-1



System	Valve I.D.	C a t.	Test 1 Req's.	Test Limits	Freq. ²	NMPC field test procedure	NES general procedure
Containment Spray	80-01	B	ET	Stroke time=70 sec	Q	N1-ST-Q5	81A0412
	80-02	B	ET	Stroke time=70 sec	Q	N1-ST-Q5	81A0412
	80-21	B	ET	Stroke time=70 sec	Q	N1-ST-Q5	81A0412
	80-22	B	ET	Stroke time=70 sec	Q	N1-ST-Q5	81A0412
	80-15	B	ET	Stroke time=60 sec	Q	N1-ST-Q5	81A0412
	80-16	B	ET	Stroke time=60 sec	Q	N1-ST-Q5	81A0412
	80-35	B	ET	Stroke time=60 sec	Q	N1-ST-Q5	81A0412
	80-36	B	ET	Stroke time=60 sec	Q	N1-ST-Q5	81A0412
	80-05	C	ET		Q	by NMPC	81A0415
	80-06	C	ET		Q	by NMPC	81A0415
	80-25	C	ET		Q	by NMPC	81A0415
	80-26	C	ET		Q	by NMPC	81A0415
	90-21	E					
	90-22	E					
	90-23	E					
	90-24	E					

¹ LRT Leak Rate Test
ET/p Part-stroke Exercise Testing
ET Full-stroke Exercise Testing
SRT Safety Relief Test
PII Position Indicator Test
FST Fail Safe Test
XT Explosive Test

² C Cyclic (every scheduled refueling outage)
2C Once every two cycles
Q Quarterly
Wb Bi-weekly

Table C-1

System	Valve I.D.	C a t.	Test 1 Req's.	Test Limits	Freq. ²	NMPC field test procedure	NES general procedure
Containment Spray Raw Water	93-25	B	ET	No stroke time limit	Q	N1-ST-Q5	81A0412
	93-26	B	ET	No stroke time limit	Q	N1-ST-Q5	81A0412
	93-27	B	ET	No stroke time limit	Q	N1-ST-Q5	81A0412
	93-28	B	ET	No stroke time limit	Q	N1-ST-Q5	81A0412

¹ LRT Leak Rate Test
ET/p Part-stroke Exercise Testing
ET Full-stroke Exercise Testing
SRT Safety Relief Test
PIT Position Indicator Test
FST Fail Safe Test
XT Explosive Test

² C Cyclic (every scheduled refueling outage)
2C Once every two cycles
Q Quarterly
Wb Bi-weekly

Table C-1



System	Valve I.D.	C a t.	Test 1 Req's.	Test Limits	Freq. ²	NMPC field test procedure	NES general procedure
Liquid Poison	NP-05A	D	XT		C	N1-MST-C2	81A0414
	05B	D	XT		C	N1-MST-C2	81A0414
	04A	C	SRT	Setpoint=1400 psig	2C	by NMPC	81A0415
	04B	C	SRT	Setpoint=1400 psig	2C	by NMPC	81A0415
	39-01	E					
	39-02	E					
	60.1-14	E					
	15	E					
	16	E					
	17	E					
	40-03	C			Q	by NMPC	81A0415
	40-13	C			Q	by NMPC	81A0415
	42-19	C			Q	by NMPC	81A0415
	42-20	C			Q	by NMPC	81A0415

¹ LRT Leak Rate Test
ET/p Part-stroke Exercise Testing
ET Full-stroke Exercise Testing
SRT Safety Relief Test
PIT Position Indicator Test
FST Fail Safe Test
XT Explosive Test

² C Cyclic (every scheduled refueling outage)
2C Once every two cycles
Q Quarterly
Wb Bi-weekly

Table C-1



Frequency	NMPC Field Procedure	System	Valve Number	Test Requirements
Quarterly	N1-ST-Q4	Cleanup	33-01	Exercising Test
			33-02	
		Emergency Condenser	33-04	
			39-09	
			39-10	
			39-07	
			39-08	
			CV-NC-11	
			NC-12	
			39-11	
			39-12	Exercising Test, Fail-Safe Test
			39-13	
			39-14	
	N1-ST-Q1	Core Spray	81-01	Exercising Test
			81-02	
			81-21	
			81-22	
			40-05	
			40-06	
			40-02	
			40-12	
			40-01	
			40-09	
			40-10	
			40-11	
			93-51	
			93-52	

TABLE C-2



Frequency	NMPC Field Procedure	System	Valve Number	Test Requirements
Quarterly (Cont'd)	N1-ST-Q5	Containment Spray	80-01	Exercising Test
			80-02	
			80-21	
			80-22	
			80-15	
			80-16	
			80-35	
			80-36	
			93-25	
			93-26	
			93-27	
			93-28	
	N1-ST-M2 by NMPC	Emerg. Cond Make Up	93-09	
			93-10	
		Core Spray	93-11	
			93-12	
			60-17	
			60-18	
			81-07	
			81-08	
			81-27	
			81-28	
		Containment Spray	80-05	
			80-06	
			80-25	
			80-26	
		Liquid Poison	42-19	
			42-20	
		Emer. Service Water	72-66	
			72-77	
			72-78	
			72-79	
			68-01	
			68-02	
			68-03	
			68-04	

TABLE C-2



Frequency	NMPC Field Procedure	System	Valve Number	Test Requirements
Bi-weekly	N1-ST-V4	Main Steam	01-01 01-02 01-03 01-04	Part stroke Exercising Test
		Feedwater	31-03 31-04	

TABLE C-2





Frequency	NMPC Field Procedure	System	Valve Number	Test Requirements
Every 2 cycles	by NMPC	Main Steam	N7A N7B N7C N7D N7E N7F N7G N7H N7J N7K N7M N7N N7U N7R N7S N7T	Safety Relief Test
		Core Spray	81-73 81-74 81-75 81-76 81-11 81-31 81-77 81-78 81-79 81-80	
		Liquid Poison	NP04A NP04B	

TABLE C-2

Frequency	NMPC Field Procedure	System	Valve Number	Test Requirements
Cyclic	N1-ISP-25.1	Main Steam	01-01 01-02 01-03 01-04	Leak Rate Test
	N1-ST-C2		NR-108 A thru F	Safety Relief Test
	N1-ST-R8		01-01 01-02	Exercising Test, Position Indicating Test
			01-03 01-04	Exercising Test, Fail-Safe
		Feedwater	31-03 31-04	Exercising Test, Position Indicating Test
		Shutdown Cooling	38-01 38-13 38-02	Exercising Test
	N1-MST-C2	Liquid Poison	NP05A NP05B	Explosive Test
	N1-ST-Q4	Cleanup	33-01 33-02	Position Indicating Test
		Emergency Condenser	39-05 39-06	Exercising Test, Fail-Safe
	N1-ST-Q1	Core Spray	40-01 40-09 40-10 40-11	Position Indicating Test

TABLE C-2



APPENDIX D**GENERAL TEST PROCEDURES**

APPENDIX D

GENERAL TEST PROCEDURES

The documents listed below cover general guidelines for the inservice testing of safety-related Class 1, 2 and 3 pumps and valves. They provide summaries of Section XI testing requirements, including coverage, type and frequency of tests, acceptable test limits, instrument requirements, data collection, evaluation of data and records.

<u>NES Document No.</u>	<u>Title</u>
NES 81A0410	General Procedure for ASME Section XI Inservice Testing of Pumps
81A0411	General Procedure for ASME Section XI Inservice Testing of Valves, Category A Valve Leak Rate Test
81A0412	General Procedure for ASME Section XI Inservice Testing of Valves, Category A, B, and C Valve Exercising Test
81A0413	General Procedure for ASME Section XI Inservice Testing of Valves, Valve Position Indicator Test
81A0414	General Procedure for ASME Section XI Inservice Testing of Valves, Explosively Actuated Valve Test
81A0415	General Procedure for ASME Section XI Category C Safety and Relief Valve Test

General instructions for data collection and preparation of data sheets, the evaluation of the data, and record management for the pump and valve tests are incorporated into these documents for optional use by Nine Mile Point Unit 1 personnel. These instructions, as well as forms, may be modified or replaced by approved equivalents to accommodate existing plant surveillance and maintenance procedures that fully comply with the requirements of Section XI. Other pump- and valve-specific information, such as hydraulic circuitry, actual test set-up and performance, precautionary measures, etc. are outlined in Field Test Procedures listed in Appendix F.





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APPENDIX E

RECORDS



RECORDS

Per Section XI, IWP-6000 and IWV-6000, summaries of the inservice testing programs for all pumps and valves should be maintained in a format that portray their current status. Section XI also requires the maintenance of test records, component records and records of corrective action. The General Test Procedures of Appendix D include forms that are designed to fulfill these requirements and primarily intended for program control, analysis and comparison, establishment of reference values, and documentation compliance. Test data, wherever required to be entered, may be transferred from data sheets used in the Field Test Procedures. The results of the analysis will be reflected in the "Test Results" section of the Field Test Procedures.

The following forms are attached to Appendix E and are duplicated from appropriate General Testing Procedures of Appendix D.

Figure 1	Pump Summary Sheet
Figure 2	Pump Data Sheet
Figure 3	Pump Reference Data Sheet
Figure 4	Pump Analysis Sheet
Figure 5	Valve Summary Sheet
Figure 6	Valve Leak Rate Test Sheet
Figure 7	Exercising Test Data Sheet
Figure 8	Valve Position Indicator Test Data Sheet
Figure 9	Category D Explosively Activated Valve Test Sheet
Figure 10	Category C Safety and Relief Valve Test Data Sheet



Field Test
Proc. No. _____

Test No.	Test Date	Test Successful		Req'd Action Range	Comments	Ref. Data Set No.
		Accep. Range	Alert Range			

ASME SECTION XI INSERVICE TESTING PUMP DATA SHEET

Pump ID _____ System _____

Test No. _____

Manufacturer _____

Test Date _____
(from Field Test Procedure)

Model _____

Field Test
Proc. No./Rev. _____

Serial No. _____

Measured Parameter		Instrumentation		
		Model & Serial No.	✓	Calibr. Date
Speed	N _____ rpm			
Inlet Pressure	P _i 1. _____ psig 2. _____ psig			
Differential Pressure	ΔP _____ psi			
Flow Rate	Q _____ gpm			
Vibration Amplitude	V _____ mil			
Bearing Temperatures	T _b 1. _____ °F 2. _____ °F 3. _____ °F			
Lubricant Inlet Temp.	T _i _____ °F			
Pump Fluid Temperature	T _p _____ °F			

Note 1 : See Section 8.2.2

Lubricant at proper level or pressure? ☐ Yes ☐ No ☐ N.A.

1. _____

2. _____

Signature(s) and Title(s) of
Person(s) Performing Test

Date

FIGURE 2



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**ASME SECTION XI INSERVICE TESTING
PUMP REFERENCE DATA SHEET**

Pump ID _____ System _____

Ref. Data
Set No. _____

Manufacturer _____

Date _____

Model _____

Field Test
Proc. No./Rev. _____

Serial No. _____

☐ If box is checked, this Reference Data Set has become VOID.

Refer to Reference Data Set No. _____

Reason(s) for change _____

Measured Parameter	Nominal Value	Acceptable Range	Alert Range		Required Action Range	
			Low	High	Low	High
Inlet Press. P_i	_____ psig					
Diff. Press. ΔP	_____ psi					
Flow Rate Q	_____ gpm					
Vibr. Ampl. V	_____ mil					
Bearing Temp. T_b	_____ $^{\circ}F$					

Ranges are either from Table 1.3-1 or Owner-specified.

1. _____

2. _____

Signature(s) and Title(s) of
Person(s) Establishing
Reference Data Set

Date

FIGURE 3



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ASME SECTION XI INSERVICE TEST PUMP ANALYSIS SHEET

Pump ID _____ System _____

Test No. _____

Manufacturer _____

Test Date _____

Model _____

Ref. Data
Set No. _____

Serial No. _____

Field Test
Proc. No./Rev. _____

Measured Parameter		Comparison with Ref. Values (check applicable boxes)				
		Acceptable Range	Alert Range ¹		Req. Action ²	
			Low	High	Low	High
Inlet Press. P_i	_____ psig					
Diff. Press. ΔP	_____ psi					
Flow Rate Q	_____ gpm					
Vibr. Ampl. V	_____ mil					
Bearing Temp. T_b	_____ °F					

- (1) If deviations fall within the "Alert Range", the frequency of testing shall be doubled till the cause of deviation is corrected.
- (2) If deviations fall within the "Required Action Range", the pump shall be declared inoperative, and not returned to service till corrected.

Review of Data indicates that the pump test parameters are in the Acceptable Range: ☐ Yes ☐ No

If ☐ No, describe corrective action _____ Re-Test No. _____
Re-Test Date _____

Attach "Pump Data Sheet" and "Pump Analysis Sheet" confirming test of operational adequacy subsequent to corrective action taken.

1. _____
2. _____

Signature(s) and Title(s) of
Person(s) performing analysis

Date





ASME SECTION XI INSERVICE TESTING VALVE SUMMARY SHEET

Valve ID _____ Size _____ Type _____ Category _____

System _____ Manufacturer _____ Model _____

Field Test

Proc. No./Rev. _____

Page _____

Test No. ¹	Date	Pass	Fail	Remarks

- (1) LRT Leak Rate Test
ET Exercising Test
PIT Position Indicator Test
SRT Safety Relief Test
XT Explosive Test

Fig. 5



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ASME SECTION XI INSERVICE TESTING
CATEGORY A VALVE LEAK RATE TEST (LRT) DATA SHEET

Valve ID _____ Size _____ Type _____
 System _____ Manufacturer _____ Model _____
 Test No. LRT- _____ Date _____ Field Test
 Proc. No./Rev. _____

PART 1 Leakage Measurement

Test ΔP _____ psi Medium Temp. _____ °F

Permissible _____ ml/h (water) Measured _____ ml/h (water)
 Leak Rate: _____ scfd (air) Leak Rate: _____ scfd (air)

If Valve < 6", go to SUMMARY. If Valve ≥ 6", complete Parts 2 and 3.

PART 2 Margin Calculation

$$R = \frac{MR - LR}{MR - PR} = \frac{\quad - \quad}{\quad - \quad} =$$

MR Maximum Permissible Leak Rate
 LR Measured Leak Rate (This Test)
 PR Measured Leak Rate (Previous Test)

Check one : ☐ $R > 0.5$ (Pass)

☐ $R \leq 0.5$ (Fail)

PART 3 Projection Calculation

Estimate projected rate for next test if:

- (1) At least 3 successive tests have passed, and
- (2) Leakage rates increase with time.

Projected leak rate for next test (check one) : ☐ Not Applicable

☐ _____ ml/h (water)
 _____ scfd (air)

Check one : ☐ Projection below $1.1 \times MR$ (Pass)

☐ Projection above $1.1 \times MR$ (Fail)

(over)

Fig. 6





CATEGORY A VALVE LEAK RATE TEST (LRT) DATA SHEET (Cont.)

SUMMARY OF RESULTS.

Review of Data indicates that valve leak parameters are within allowable limits :

		Pass	Fail
Valve ≥ 6" only	PART 1 Leakage Measurement	<input type="checkbox"/>	<input type="checkbox"/>
	PART 2 Margin Calculation	<input type="checkbox"/>	<input type="checkbox"/>
	PART 3 Projection Calculation	<input type="checkbox"/>	<input type="checkbox"/>

If ☐ F , describe corrective action _____

1. Re-Test No. LRT- Re-Test Date _____

(1) Attach Data Sheet confirming test of satisfactory operation subsequent to corrective action taken.

1. _____

2. _____

Signature(s) and Title(s) of
Person(s) responsible for Test

Date

Fig. 6.1



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ASME SECTION XI INSERVICE TESTING
CATEGORY A AND B VALVE AND CATEGORY C CHECK VALVE
EXERCISING TEST (ET) DATA SHEET

Valve ID _____ Size _____ Type _____ Category _____

System _____ Manufacturer _____ Model _____

Test No. ET-

Date _____
(from Field Test
Procedure)

Field Test
Proc. No./Rev. _____

PART 1 Stroke Test

☐ Part-stroke test

☐ Test successful

☐ Full-stroke test

☐ Test not successful

If Category C Check Valve, go to SUMMARY OF RESULTS

PART 2 Power-operated Valve (Category A and B only)

i. Stroke Time Measurement

Measured Stroke Time _____ sec

Limiting Value of Stroke Time _____ sec

☐ Measured stroke time shorter than or equal to limiting time (Pass)

☐ Measured stroke time longer than limiting time (Fail)

ii. Increase in Stroke Time

$$R = \frac{\text{Measured stroke time (this test)}}{\text{Measured stroke time (previous)}} \frac{\text{sec}}{\text{sec}} =$$

If Limiting Stroke Time ≤ 10 sec, check one :

$R < 1.5$ ☐ (Pass)

$R \geq 1.5$ ☐ (Fail)

If Limiting Stroke Time > 10 sec, check one :

$R < 1.25$ ☐ (Pass)

$R \geq 1.25$ ☐ (Fail)

PART 3 Fail-Safe Valve (Category A and B only)

Did valve test satisfactorily on loss of actuator power ?

☐ Yes ☐ No

(over)





EXERCISING TEST (ET) DATA SHEET (Cont.)

SUMMARY OF RESULTS

Review of Data indicates that the valve exercising test is satisfactory :

	Yes	No
PART 1 (Stroke Test, Category A, B, and C)	<input type="checkbox"/>	<input type="checkbox"/>
PART 2 (Power-operated, Category A and B)		
Stroke Time	<input type="checkbox"/>	<input type="checkbox"/>
Increase in Stroke Time	<input type="checkbox"/>	<input type="checkbox"/>
PART 3 (Fail-Safe, Category A and B)	<input type="checkbox"/>	<input type="checkbox"/>

If ☐ No , describe corrective action _____

1 Re-test No. ET-_____ Re-Test Date _____

(1) Attach Data Sheet confirming test of satisfactory operation subsequent to corrective action taken.

1. _____
2. _____

Signature(s) and Title(s) of
Person(s) responsible for Test

Date .

Fig. 7.1





ASME SECTION XI INSERVICE TESTING
VALVE POSITION INDICATOR TEST (PIT) DATA SHEET

Valve ID _____ Size _____ Type _____ Category _____

System _____ Manufacturer _____ Model _____

Test No. PIT- Test Date _____ Field Test
Proc. No./Rev. _____

Remote valve indications accurately reflect valve operation :

☐ Yes ☐ No

If ☐ No , describe corrective action _____

Re-Test No. PIT- Re-Test Date _____

(1) Attach Data Sheet confirming test of satisfactory
operation subsequent to corrective action taken.

1. _____

2. _____

Signature(s) and Title(s) of
Person(s) responsible for Test

Date

Fig. 8





ASME SECTION XI INSERVICE TESTING
CATEGORY D EXPLOSIVELY ACTUATED VALVE TEST (XT) DATA SHEET

Valve ID _____ Size _____ Type _____

System _____ Manufacturer _____ Model _____

Test No. XT- _____

Test Date _____ Field Test
(from field Proc. No./Rev. _____
test procedure).

Number of Old Charge(s) Tested _____, Batch No. _____

☐ Charge Fired

☐ Charge Failed to Fire

Batch No. _____ of Replacement Charge(s)

If any charge(s) failed to fire, describe corrective action _____

Re-Test No. XT- _____ Re-Test Date _____

(1) Attach Data Sheet confirming test of satisfactory operation
subsequent to corrective action taken.

1. _____

2. _____

Signature(s) and Title(s) of
Person(s) responsible for Test

Date





ASME SECTION XI INSERVICE TESTING
CATEGORY C SAFETY AND RELIEF VALVE (SRT) DATA SHEET

Valve ID _____ Size _____ Type _____

System _____ Manufacturer _____ Model _____

Test No. SRT- _____ Test Date _____ Field Test
Proc. No./Rev. _____

☐ Valve Tested In-Place

☐ Valve Bench-Tested

Pressure required to lift valve _____ psig

Allowable range of set-point _____ - _____ psig

Review of Data indicates that the valve tested satisfactorily :

☐ Yes

☐ No

If ☐ No , describe corrective action _____

¹ Re-Test No. SRT- _____ Te-Test Date _____

(1) Attach Data Sheet confirming test of satisfactory operation
subsequent to corrective action taken.

1. _____

2. _____

Signature(s) and title(s) of
Person(s) responsible for Test

Date







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APPENDIX F
FIELD TEST PROCEDURES



FIELD TEST PROCEDURES

The following Nine Mile Point Field Test Procedures are part of the Pump and Valve Inservice Testing Program.

<u>Procedure No.</u>	<u>Title</u>
N1-ST-Q1	Core Spray Pumps and Motor Operated Valves Operability Test
N1-ST-Q6	Containment Spray and Raw Water Pumps Operability Test
N1-ST-Q2	Control Rod Drive Pumps Flow Rate Test
N1-ST-M1	Liquid Poison Pump Flow Rate Discharge Pressure Test
N1-ST-M4	Emergency Diesel Generators Manual Start and One Hour Rated Load Test
N1-ST-Q4	Reactor Coolant System Isolation Valves Exercising Test
N1-ST-R8	Reactor Coolant and Primary Containment Isolation Valves and Timing
N1-ST-Q5	Primary Containment Isolation Valves Exercising
N1-MST-C2	Liquid Poison Squib Valves Test Firing and Inspection
N1-ST-V4	Feedwater and Main Steam Line Power Operated Isolated Isolation Valves Exercise Test
N1-ST-C2	Manual Opening of the Solenoid-Actuated Pressure Relief Valves and Flow Verification
N1-ISP-25.1	Main Steam Isolation Valves Leak Rate Tests
N1-ST-M2	Emergency Cooling System Makeup Tank Level Control Valves Exercise Tests

