

FOR INFORMATION ONLY

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INSERVICE TESTING PROGRAM  
FOR PUMPS AND VALVES  
PILGRIM NUCLEAR POWER STATION

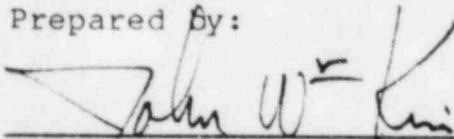
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# Revision Control Sheet

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Pilgrim Nuclear Power Station

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Tables for IST Valve Program	1			
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INTRODUCTION

Revision 1 of the Pilgrim Nuclear Power Station (PNPS) Unit 1 ASME Inservice Testing Program for Pumps and Valves will be in effect from December 8, 1982 through and including December 7, 1992. The period of time this revision of the program is effective represents the second 120 month (10 year) inspection interval. This program will be updated prior to the start of the third inspection interval in accordance with the requirements of 10CFR50.55a(g).

The program contained herein outlines the Inservice Testing (IST) requirements for Pilgrim Nuclear Power Station. This program is based on the requirements of Section XI of the ASME Boiler and Pressure Vessel Code, 1980 Edition through the Winter 1980 Addenda. All references to IWP or IWV in this document correspond to Subsection IWP or IWV of ASME Section XI, 1980 Edition through the Winter 1980 Addenda unless otherwise noted.

This IST program was developed using the ISI classification boundaries and the following documents:

- ° Title 10, Code of Federal Regulations, Chapter 50.55a(g)
- ° Division 1 Regulatory Guides
- ° Standard Review Plan 3.9.6, "Inservice Testing of Pumps and Valves"
- ° Division 1 Draft Regulatory Guide and Value/Impact Statement, "Identification of Valves for Inclusion in Inservice Test Programs"
- ° "NRC Staff Guidance for Preparing Pump and Valve Testing Programs and Associated

Relief Request," January 1978

- ° Final Safety Analysis Report, Pilgrim Nuclear Power Station
- ° Technical Specifications, Pilgrim Nuclear Power Station

The inservice tests identified in this program will verify the operational readiness of pumps and valves whose functions are required for safety. Pumps and valves which function to mitigate the consequences of an accident or to bring the reactor to a stable condition have been included in this program. The IST classification of each pump and valve matches the ISI classification indicated on the P&IDs with one exception, pumps and valves in the IST program which are not within the ISI classification boundaries are indicated as non-classed (NC).

## 2.0 INSERVICE TESTING PROGRAM FOR PUMPS

### 2.1 General Information

#### 2.1.1 Applicable Code

This Inservice Testing Program for ISI Class 1, 2, 3 and NC Pumps meets the requirements of Subsection IWP of Section XI of the ASME Boiler and Pressure Vessel Code, 1980 Edition through the Winter 1980 Addenda. Where these requirements are determined to be impractical, specific requests for relief have been written and included in Section 2.2.

#### 2.1.2 Pump Program Table Description

The tables in Section 2.3 list all pumps included in the Pilgrim Nuclear Power Station IST Program. The data contained in these tables identifies all pumps subject to inservice testing, the inservice test quantities, the inservice testing interval, and any applicable remarks. The column headings in these tables are listed and explained below:

- ° PUMP NUMBER: The pump identification number
- ° PUMP NAME: Keys to the pump names are given in Table 2.1-1
- ° CLASS: The ISI classification of the pump
- ° P&ID: The Bechtel PNPS drawing number for the P&ID
- ° COOR: The coordinate location on the P&ID where the pump appears.
- ° SPEED, INLET PRES, DIFF PRES, FLOW RATE, VIBRATION and BEARING TEMP: Inservice Test Quantities to be measured in accordance with Table IWP-3100-1

- ° TEST INTERVAL: The frequency of IST as prescribed in IWP-3400
- ° REMARKS: Remarks in the IST Program are coded as Note 001, Note 002, etc. Any remarks will be listed in the Pump IST Program Remarks.

### 2.1.3 "Inservice Test Quantities" Columns

When the character "Y" appears in a particular test quantity column, that quantity will be measured during inservice testing in accordance with Subsection IWP. If a modified test is planned or if the character "N" appears in a particular test quantity column, a request for relief number will be referenced. Requests for relief are abbreviated RP- \_\_\_\_\_. The actual request for relief is attached to Section 2.2.

### 2.1.4 Measurement of Inservice Test Quantities

- ° Speed: Per IWP-4400, shaft speed measurements are not applicable (NA) for pumps coupled to synchronous or induction type drivers. For variable speed pumps, the pump speed shall be set at the reference speed per IWP-3100.
- ° Inlet Pressure: For pumps taking suction from the Salt Service Water Complex basin, inlet pressure will be calculated (using appropriate density corrections) from a measured tank or basin level. Pumps taking suction from a tank (i.e. SLC Pumps) shall have the tank level recorded and monitored within an acceptance range. All other inlet pressure measurements will be taken using pressure instruments at or near the pump inlet.

- ° Differential Pressure: Differential pressure measurements will be calculated from inlet and discharge pressure measurements except for the SLC pumps which will use only discharge pressure for acceptance evaluations (see RP-7).
- ° Flow Rate: Pump discharge flow rate shall be measured.
- ° Vibration: Pump vibration velocity shall be measured at the designated monitoring point.
- ° Bearing Temperature: Pump bearing temperature(s) shall not be measured (See RP-2).

#### 2.1.5 Allowable Ranges of Test Quantities

In accordance with the intent of ASME Code Interpretation XI-1-79-19, owner specified ranges for the test quantities have been determined and are given in Table 2.1-2. Technical justifications are available in FSAR, Technical Specification, plant design documents and startup tests which show that the overall pump performance has not degraded from its intended function if the ranges in Table 2.1-2 are used. In some cases, the performance of a pump may be adequate to fulfill its safety function even though there may be some degradation, as compared to the reference value.

#### 2.1.6 Bearing Lubricant

As specified in Table IWP-3100-1, the pump bearing lubricant level, pressure, or flow will be observed during inservice testing.

#### 2.1.7 Instrument Accuracy

A program for investigating instrument accuracies is being initiated. Any deficiencies discovered by this investigations will be resolved to the satisfaction of the commission no later than December 8, 1983 (or no later than 12 months after the expiration of the initial 120 month period) as allowed by 10CFR50.55a(g)(4)(iv).

#### 2.1.8 Exempted Pumps Within Systems Classified for ISI

The reactor recirculation jet pumps have been exempted from the IST program because Subsection IWP is applicable to centrifugal and positive displacement pumps only. These pumps have been exempted in accordance with IWP-1100.

TABLE 2.1-1

## KEY TO PUMP NAMES

<u>Pump Name</u>	<u>Pump Description</u>
RBCCW	Reactor Building Closed Cooling Water System Pumps
RHR	Residual Heat Removal System Pumps
HPCI	High Pressure Core Injection System Pump
SLC	Standby Liquid Control System Pumps
SSW	Salt Service Water System Pumps
CS	Core Spray System Pumps
DOT	Diesel Oil Transfer Pumps



TABLE 2.1-2

OWNER SPECIFIED RANGES FOR TEST QUANTITIES

SYSTEM PUMPS	ACCEPTANCE RANGE	ALERT RANGE	REQUIRED ACTION RANGE
=====			
<u>RBCCW</u>			
P-202A	TDH $\geq$ 98 ft.	Note 1	TDH < 98 ft.
P-202B			
P-202C	Q=0	Note 2	Note 2
P-202D			
P-202E	V $\leq$ .314 ips	.314 ips < V $\leq$ .628 ips	V > .628 ips
P-202F			
<hr/>			
<u>RHR</u>			
P-203A	Pd $\geq$ 172 psig, Note 3	Note 1	Pd < 172 psig
P-203B			
P-203C	Q=4800 gpm	Note 2	Note 2
P-203D			
	V $\leq$ .314 ips	.314 ips < V $\leq$ .628 ips	V > .628 ips
<hr/>			
<u>HPCI</u>			
P-205	Pd $\geq$ 1195, Note 3	Note 1	Pd < 1195 psig
	Q=4250 gpm	Note 2	Note 2
	N=4000 rpm	Note 2	Note 2
	V $\leq$ .314 ips	.314 ips < V $\leq$ .628 ips	V > .628 ips
<hr/>			



TABLE 2.1-2 (Continued)

## OWNER SPECIFIED RANGES FOR TEST QUANTITIES

SYSTEM PUMPS	ACCEPTANCE RANGE	ALERT RANGE	REQUIRED ACTION RANGE
=====			
<u>SLC</u>			
P-207A	Pd=1275 psig, Note 3	Note 2	Note 2
P-207B	Q $\geq$ 39 gpm	Note 1	Q < 39 gpm
	V $\leq$ .314 ips	.314 ips < V $\leq$ .628 ips	V > .628 ips
<hr/>			
<u>SSW</u>			
P-208A	TDH $\geq$ 148 ft.	Note 1	TDH < 148 ft.
P-208B			
P-208C	Q=0	Note 2	Note 2
P-208D			
P-208E	V $\leq$ .314 ips	.314 ips < V $\leq$ .628 ips	V > .628 ips
<hr/>			
<u>CS</u>			
P-215A	Pd $\geq$ 252 psig	Note 1	Pd < 252 psig
P-215B	(P-215A, Note 3)		(P-215A)
	Pd $\geq$ 253 psig	Note 2	Pd < 253 psig
	(P-215B, Note 3)		(P-215B)
	V $\leq$ .314 ips	.314 ips < V $\leq$ .628 ips	V > .628 ips
<hr/>			

TABLE 2.1-2 (Continued)

OWNER SPECIFIED RANGES FOR TEST QUANTITIES

SYMBOLS

- TDH - Total dynamic head (feet of water)  
Pd - Discharge pressure (psig) of tested pump to be used in lieu of differential pressure. See Relief Request RP-7.  
Q - Flow rate (gpm)  
V - Vibration Velocity (inches per second, ips)

NOTE 1: The acceptance ranges for the lower limits are based on FSAR requirements. An alert range of .93 times the reference value as defined in Table IWP-3100-2 for pressure or flow rate is not used because the resulting lower alert limits are less than the FSAR requirement.

Values greater than 1.1 times the reference value will be investigated on a per observation basis in accordance with IWP-3220 and IWP-3230(c)(d). Test quantities will be trended to identify at an early stage pump degradation. Trend criteria and the point for increased observation will be established by the owner and specified in the pump record.

NOTE 2: This test quantity, either flow rate or discharge pressure, is the independent variable and is set to a specified value. The dependent variable is measured and compared to the acceptance range. Speed is set to a specified value.

TABLE 2.1-2 (Continued)

OWNER SPECIFIED RANGES FOR TEST QUANTITIES

NOTE 3: Discharge pressure will be used for the acceptance test. See Relief Request RP-7.

NOTE 4: The acceptance limit of 148 ft of TDH is the shut off head for the SSW pumps and it is based on the SSW pump performance curve given in BECO Purchase Order No. 41964.

SECTION 2.2

RELIEF REQUESTS FOR INSERVICE PUMP TESTING PROGRAM

RELIEF REQUEST RP-1

PUMP: RBCCW Pumps P-202A, P-202B, P-202C, P-202D, P-202E, P-202F

CLASS: 3

FUNCTION: Emergency Equipment Cooling

TEST REQUIREMENT: Measure pump flow rate.

BASIS FOR RELIEF: Instrumentation is not installed to measure flow rate. Redesign of the system would be necessary to install flow instrumentation or to utilize portable flow instrumentation. There is no method available to control the flow rates of individual pumps. Shutoff head will provide a repeatable parameter for measuring pump performance. Pumps are not run at shutoff head for more than 60 seconds by procedure.

ALTERNATE TESTING: Measure pump shutoff head and total system flow quarterly.

RELIEF REQUEST RP-2

PUMP: Salt Service Water Pumps P-208A, P-208B, P-208C, P-208D,  
P-208E

Standby Liquid Control Pumps P-207A, P-207B

High Pressure Coolant Injection Pump P-205

Reactor Building Closed Cooling Water Pumps P-202A,  
P-202B, P-202C, P-202D, P-202E, P-202F

Core Spray Pumps P-215A, P-215B

Residual Heat Removal Pumps P-203A, P-203B, P-203C, P-203D

CLASS: 2, 3

FUNCTION: Emergency Equipment Cooling, Reactor Shutdown Without  
Control Rods, Emergency Core Cooling.

TEST REQUIREMENT: Pump vibration and bearing temperature  
measurements are used to detect changes in the  
mechanical characteristics of a pump. Regular testing  
should detect developing problems, thus repairs can be  
initiated prior to a pump becoming inoperable (i.e.  
unable to perform its function). ASME Section XI  
requires measurement of vibration amplitude displacement  
in mils (thousandths of an inch) every three months and  
bearing temperature once per year.

BASIS FOR RELIEF: Pilgrim 1 Generating Station proposes an  
alternate program which is believed to be more  
comprehensive than that required by Section XI. The  
proposed program is based on vibration readings measured  
in velocity units rather than vibration amplitude in

RELIEF REQUEST RP-2 (continued)

mils displacement. This technique is an industry-accepted method which is more sensitive to small changes that are indicative of developing mechanical problems and hence more meaningful. Velocity measurements detect not only high amplitude vibrations that indicate a major mechanical problem, but also the equally harmful low amplitude high frequency vibrations resulting from misalignment, imbalance, or bearing wear that usually go undetected by simple displacement measurements.

In addition, these readings go far beyond the capabilities of a bearing temperature monitoring program. A bearing will be seriously degraded prior to the detection of increased heat at the bearing housing. Quarterly vibration velocity readings will achieve a much higher probability of detecting developing problems than annual bearing temperature readings.

Finally, IWP-3500 requires "three successive readings taken at ten minute intervals that do not vary more than three percent." Meeting this requirement for pumps having no recirculation test loop would be very difficult because the system water temperature, and consequently the lubricant temperature, are expected to drift more than three percent during 20 minutes. Also, the temperature of the lubricating fluid will vary with ambient conditions and make meaningful data trending impractical.

As described above, a program of bearing temperature trends and the evaluation of the results would in some cases be difficult to analyze. Improper interpretation of results could result in unnecessary pump



RELIEF REQUEST RP-2 (continued)

maintenance. In addition, it is impractical to measure bearing temperatures on many of the pumps in the program. Some specific examples are as follows:

1. Salt Service Water Pumps: There is no installed instrumentation to measure bearing temperature. Also, pump bearings are under water and, therefore, inaccessible.
2. Standby Liquid Control Pumps: There is no installed instrumentation to measure bearing temperature. Bearings are inaccessible for direct measurement due to the size of the bearing housing and the location of the bearing within the housing. Bearings are in an oil bath which is inaccessible.
3. HPCI Pump: No installed instrumentation to measure bearing temperature. Bearings are inaccessible for direct measurement due to the bearing housing and the location of the bearing within the housing. Measurement of lube oil temperature is not practical because this lube oil supplies several bearings and control valves and would not necessarily reflect the pump bearing temperature.
4. Core Spray Pumps: There is no installed instrumentation to measure bearing temperature. Bearings are inaccessible for direct measurement due to the size of the bearing housing and the location of the bearing within the housing. Bearings are process liquid lubricated.



RELIEF REQUEST RP-2 (continued)

5. Residual Heat Removal Pumps: There is no installed instrumentation to measure bearing temperature. Bearings are inaccessible for direct measurement due to the size of the bearing housing and the location of the bearing within the housing. Bearings are process liquid lubricated.

In conclusion, the foregoing reasons demonstrate that the proposed program of vibration measurements is a more practical method of testing which meets the intent of the requirements of the ASME Code.

ALTERNATE TESTING: Pump vibration measurements will be taken in vibration velocity (in/sec). The alert range begins at .314 in/sec and the required action range begins at .628 in/sec for all pumps. These values are recommended by IRD Mechanalysis Inc., and correspond to rough and very rough operating conditions, respectively. Similar velocity ranges can be obtained by the Hydraulic Institute Standards, 13th Edition, Figure 66.

Bearing temperature will not be measured.

RELIEF REQUEST RP-3

PUMP: Standby Liquid Control Pumps P-207A, P-207B

CLASS: 2

FUNCTION: Provide a method of shutting down the reactor without use of control rods

TEST REQUIREMENT: Run pumps for five minutes under stable conditions. (Per IWP-3500)

BASIS FOR RELIEF: Standby Liquid Control Pump is tested by pumping demineralized water into a test tank. The tank capacity does not allow operation of the pump for longer than three minutes.

ALTERNATE TESTING: Pumps will be run for three minutes.

NOTE: Relief Request RP-2 applies to vibration measurements and Relief Request RP-7 applies to differential pressure measurements for the Standby Liquid Control Pumps.

RELIEF REQUEST RP-4

PUMP: Salt Service Water Pump P-208A, P-208B, P-208C, P-208D,  
P-208E

CLASS: 3

FUNCTION: Emergency Equipment Cooling

TEST REQUIREMENT: Measure pump inlet pressure

BASIS FOR RELIEF: No instrumentation is installed to measure  
pump inlet pressure.

ALTERNATE TESTING: Tide level will be used to calculate pump  
inlet pressure.

RELIEF REQUEST RP-5

PUMP: Salt Service Water Pumps P-208A, P-208B, P-208C P-208D, P-208E

CLASS: 3

FUNCTION: Emergency Equipment Cooling

TEST REQUIREMENT: Measure pump flow rate

BASIS FOR RELIEF: Instrumentation is not installed to measure individual pump flow rate. Redesign of the system would be necessary to install flow instrumentation. There is no method available to control the flow rates of individual pumps. Shut off head will provide a repeatable parameter for measuring pump performance. Pumps are not run at shutoff head for more than 60 seconds by procedure.

ALTERNATE TESTING: Measure pump shutoff head and total system flow quarterly.

RELIEF REQUEST RP-6

PUMP: Salt Service Water Pumps P-208A, P-208B, P-208C, P-208D,  
P-208E

CLASS: 3

FUNCTION: Emergency Equipment Cooling

TEST REQUIREMENT: Measure pump vibration

BASIS FOR RELIEF: The pump casing is physically located under  
water and, therefore, inaccessible.

ALTERNATE TESTING: Measure pump motor vibration at upper bearing  
per the Hydraulic Institute Standards.

NOTE: Relief Request RP-2 applies to vibration measurements for  
the Salt Service Water Pumps.

RELIEF REQUEST RP-7

PUMP: Residual Heat Removal Pumps P-203A, P-203B, P-203C, P-203D

High Pressure Coolant Injection Pump P-205

Core Spray Pumps P-215A, P-215B

Standby Liquid Control Pumps P-207A, P-207B

CLASS: 2

FUNCTION: Emergency Core Cooling, Reactor Shutdown Without  
Control Rods

TEST REQUIREMENT: Differential pressure shall be an inservice  
test quantity.

BASIS FOR RELIEF: Discharge pressure will be used when  
determining acceptable performance instead of  
differential pressure. Inlet pressure will be controled  
to ensure repeatability. Use of discharge pressure will  
simplify the pump acceptance analyses.

ALTERNATE TESTING: Discharge pressure will be used instead of  
differential pressure when determining acceptable pump  
performance.

RELIEF REQUEST RP-8

PUMP: Diesel Oil Transfer Pumps

CLASS: NC

FUNCTION: Diesel Oil Transfer from Main Storage Tank to Day Tank

TEST REQUIREMENT: Inlet pressure, differential pressure, flow rate, vibration, bearing temperature shall be inservice test quantities.

BASIS FOR RELIEF: Discharge pressure or flow rate cannot be controlled to the point of insuring repeatability of the reference test quantity. Pump startup is initiated automatically when the oil level drops below the low level set point in the day tank during the diesel operability tests. When the high level set point is reached the pump shuts off.

Because the mass of the pump housing and impeller are small relative to the connecting pipes, it is the opinion of PNPS that vibration measurements would be highly susceptible to spurious vibrations and therefore meaningless for the prediction of pump degradation.

No instrumentation is installed to measure fluid temperature.

ALTERNATE TESTING: During the diesel operability tests, the refilling of the day tank from the low to high level set-points will be verified in conjunction with procedure 8.9.1. This operability test is performed on a monthly basis.

SECTION 2.3

INSERVICE PUMP TESTING PROGRAM



TABLE 2.3-1

BOSTON EDISON COMPANY

INSERVICE TESTING PROGRAM  
ISI CLASS 1,2,3 AND NC PUMPS  
PILGRIM NUCLEAR POWER STATION

Page 1

IST Program Revision 001 12/08/82

INSERVICE TEST QUANTITIES

Pump Number	Pump Name	ISI Class	P&ID P&ID	P&ID Coor	Speed	Inlet Press	Diff Press	Flow Rate	Vibra	Bear Temp	Test Interval	Remarks
P-202A	RBCCW	3	M-215	F-3	NA	Y	Y	Y:RP-1	Y:RP-2	N:RP-2	QUARTERLY	
P-202B	RBCCW	3	M-215	F-3	NA	Y	Y	Y:RP-1	Y:RP-2	N:RP-2	QUARTERLY	
P-202C	RBCCW	3	M-215	G-3	NA	Y	Y	Y:RP-1	Y:RP-2	N:RP-2	QUARTERLY	
P-202D	RBCCW	3	M-215	G-5	NA	Y	Y	Y:RP-1	Y:RP-2	N:RP-2	QUARTERLY	
P-202E	RBCCW	3	M-215	G-5	NA	Y	Y	Y:RP-1	Y:RP-2	N:RP-2	QUARTERLY	
P-202F	RBCCW	3	M-215	F-5	NA	Y	Y	Y:RP-1	Y:RP-2	N:RP-2	QUARTERLY	
P-203A	RHR	2	M-241	K-4	NA	Y	Y:RP-7	Y	Y:RP-2	N:RP-2	QUARTERLY	
P-203B	RHR	2	M-241	K-10	NA	Y	Y:RP-7	Y	Y:RP-2	N:RP-2	QUARTERLY	
P-203C	RHR	2	M-241	J-4	NA	Y	Y:RP-7	Y	Y:RP-2	N:RP-2	QUARTERLY	
P-203D	RHR	2	M-241	J-10	NA	Y	Y:RP-7	Y	Y:RP-2	N:RP-2	QUARTERLY	
P-205	HPCI	2	M-244	F-9	Y	Y	Y	Y	Y:RP-2	N:RP-2	QUARTERLY	
P-207A	SLC	2	M-249	E-5	NA	Y:RP-3	Y:RP-3	Y:RP-3	Y:RP-3	N:RP-2	QUARTERLY	
P-207B	SLC	2	M-249	F-5	NA	Y:RP-3	Y:RP-3	Y:RP-3	Y:RP-3	N:RP-2	QUARTERLY	
P-208A	SSW	3	M-212	B-7	NA	Y:RP-4	Y	Y:RP-5	Y:RP-6	N:RP-2	QUARTERLY	
P-208B	SSW	3	M-212	B-8	NA	Y:RP-4	Y	Y:RP-5	Y:RP-6	N:RP-2	QUARTERLY	
P-208C	SSW	3	M-212	B-7	NA	Y:RP-4	Y	Y:RP-5	Y:RP-6	N:RP-2	QUARTERLY	
P-208D	SSW	3	M-212	B-6	NA	Y:RP-4	Y	Y:RP-5	Y:RP-6	N:RP-2	QUARTERLY	
P-208E	SSW	3	M-212	B-5	NA	Y:RP-4	Y	Y:RP-5	Y:RP-6	N:RP-2	QUARTERLY	
P-215A	CS	2	M-242	F-7	NA	Y	Y:RP-7	Y	Y:RP-2	N:RP-2	QUARTERLY	
P-215B	CS	2	M-242	F-9	NA	Y	Y:RP-7	Y	Y:RP-2	N:RP-2	QUARTERLY	
P-141A	DOT	NC	M-223	F-6	NA	N:RP-8	N:RP-8	N:RP-8	N:RP-8	N:RP-8	MONTHLY	
P-141B	DOT	NC	M-223	E-6	NA	N:RP-8	N:RP-8	N:RP-8	N:RP-8	N:RP-8	MONTHLY	

### 3.0 INSERVICE TESTING PROGRAM FOR VALVES

#### 3.1 General Information

This Inservice Testing Program for ISI Class 1, 2, 3 and NC Valves meets the requirements of Subsection IWV of Section XI of the ASME Boiler and Pressure Vessel Code, 1980 Edition through the Winter 1980 Addenda. Where these requirements are determined to be impractical, specific requests for relief have been written and included in Section 3.2

##### 3.1.1 Valve Program Table Description

The tables in Section 3.3 list all ISI Class 1, 2, 3 and NC valves that have been assigned valve categories. The tables are arranged by P&ID number, which is given on each page of the tables. Certain valves have not yet been placed on a P&ID. These valves appear toward the end of the tables and bogus P&ID numbers have been assigned to them. The bogus P&ID numbers have the form X-001, X-002, etc.

Valves exempt per IWV-1200 are not listed. The following information is included for each valve:

- ° VALVE NUMBER: The valve identification number.
- ° P&ID COORDINATE: The coordinate location on the P&ID where the valve appears.
- ° CLASS: The ISI Classification of the valve.
- ° VALVE CATEGORY: The category(s) assigned to the valve based on the definitions of IWV-2200. Four (4) separate categories are defined in the Code:

CATEGORY A - valves for which seat leakage is limited to a specific maximum amount in the closed position for fulfillment of their safety function.

CATEGORY B - valves for which a specific amount of leakage in the closed position is not measured but which require stroke testing to verify their ability to fulfill their safety function.

CATEGORY C - valves which are self-actuating in response to some system characteristic, such as pressure (relief valves) or flow direction (check valves).

CATEGORY D - valves which are actuated by an energy source capable of only one operation, such as rupture disks or explosive-actuated valves.

- ° VALVE SIZE: The nominal pipe size of the valve in inches.
- ° VALVE TYPE: The valve body design as indicated by the following abbreviations:

ANGLE	AN
BALL	BL
BUTTERFLY	BF
CHECK	CK
GATE	GA
GLOBE	GL
NEEDLE	ND
PLUG	PG
RELIEF	RL
RUPTURE DIAPHRAGM	RD
SAFETY	SV
SHEAR	SH
STOP CHECK	SC

SPRING CHECK	SK
3-WAY	3WY
EXPLOSIVE	XP

- ° ACTUATOR TYPE: The type of valve actuator as indicated by the following abbreviations:

MOTOR OPERATOR	MO
AIR OPERATOR	A
SOLENOID OPERATOR	S
HYDRAULIC OPERATOR	H
EXPLOSIVE ACTUATOR	XP
MANUAL	M
SELF ACTUATED	SA
SELF ACTUATED,	
TESTABLE	SAT
RUPTURE DISC	RD

- ° NORMAL POSITION: The normal position of the valve during plant operation. This is specified as follows:

O	Normally Open
C	Normally Closed
O/LO	Normally Open/Locked Open
O/LC	Normally Open/Locked Closed
O/KL	Normally Open/Key Locked
O/FO	Normally Open/Fail Open
O/FC	Normally Open/Fail Closed
O/KO	Normally Open/Key Locked and Fail Open
C/LO	Normally Closed/Locked Open
C/LC	Normally Closed/Locked Closed
C/KL	Normally Closed/Key Locked
C/FO	Normally Closed/Fail Open

C/FC	Normally Closed/Fail Closed
C/KC	Normally Closed/Key Locked and Fail Closed
NE	Normally Energized
ND	Normally De-energized
TH	Throttled
S	Valve position determined by other system parameters as in the case of check valves.

Valves with fail-safe positions are indicated as either FO-fail open or FC-fail closed.

- ° TEST: The test(s) that will be performed to fulfill the requirements of Subsection IWV. The test definitions and abbreviations used are identified in Table 3.1-1.
- ° TEST FREQUENCY: The frequency at which the above mentioned tests will be performed. Test frequencies are defined in Table 3.1-2.
- ° MAXIMUM STROKE TIME: The limiting value of full stroke time, in seconds, for power operated valves in Category A or B.
- ° MAXIMUM LEAKAGE: The maximum leakage allowed during the specified leak test. The abbreviations for the units of measurement are:

C	Standard cubic feet per minute
F	Degrees Fahrenheit

- ° RELIEF REQUEST: The reference to a relief request in Section 3.2 for valve testing that is considered impractical to implement. Relief requests are also provided to justify valve testing at a frequency other than what is specified in Section XI.
- ° REMARKS: Remarks in the IST Program are coded as Note 001, Note 002, etc. For a complete listing see the Valve IST Program Remarks.

#### 3.1.2 Excess Flow Check Valves

Excess flow check valves are tested once per cycle in accordance with Technical Specification Section 4.7.D. A complete list of excess flow check valves is given in Procedure No. 8.M.3-2. The existing tests and procedures described in Procedure No. 8.M.3-2 are considered adequate, therefore, these valves will not be subject to any ASME test requirements.

#### 3.1.3 Valve Numbering

A program is currently underway to revise P&ID's for identification of valves. Some valves listed in Table 3.3-1 may have revisions to numbering. The program will be revised as P&ID's are approved.



TABLE 3.1-1  
INSERVICE VALVE TESTS

<u>TEST</u>	<u>TEST NAME</u>	<u>TEST DESCRIPTION</u>
AT-1	Type C Leak Test	Containment isolation valves will be seat leak tested in accordance with Technical Specification requirements and Appendix J, 10CFR50.
AT-2	Vacuum Breaker Leak Test	The suppression chamber-drywell vacuum breakers will be leak tested in accordance with PNPS Technical Specification, Section 4.7.A.
AT-3	Safety and Relief Valve Leak Test	Safety and relief valve leakage is continuously monitored by the safety and relief valve tailpipe temperature monitor. An alarm at 212°F indicates safety or relief valve leakage. Refer to PNPS Technical Specification, Section 4.6.D.
BT-O	Full Stroke Exercise Test to the Open Position (IWV-3412 and 3413)	Exercise testing in the open direction, verified by stroke time measurement, will be performed to confirm the full stroke capability of each valve. The stroke direction tested and timed (open) is based on the direction the valve disk must travel to fulfill a safety function. The maximum allowable stroke time is specified by the owner.
BT-C	Full Stroke Exercise Test to the Close Position (IWV-3412 and 3413)	Exercise testing in the close direction, verified by stroke time measurement, will be performed to confirm the full stroke capability of each valve. The stroke direction tested and timed (close) is based on the direction the valve disk must travel to fulfill a safety function. The maximum allowable stroke time is specified by the owner.

TABLE 3.1-1  
INSERVICE VALVE TESTS (continued)

<u>TEST</u>	<u>TEST NAME</u>	<u>TEST DESCRIPTION</u>
BT-OT	Full Stroke Exercise Test to the Open Position (IWV-3412 and 3413)	Exercise testing in the open direction, verified by stroke time measurement, will be performed to confirm the full stroke capability of each valve. The stroke direction tested and timed (open) is based on the direction the valve disk must travel to fulfill a safety function. The maximum allowable stroke time is specified by Technical Specifications.
BT-CT	Full Stroke Exercise Test to the Close Position (IWV-3412 and 3413)	Exercise testing in the close direction, verified by stroke time measurement, will be performed to confirm the full stroke capability of each valve. The stroke direction tested and timed (close) is based on the direction the valve disk must travel to fulfill a safety function. The maximum allowable stroke time is specified by Technical Specifications.
CT-O	Check Valve Exercise Test to the Open Position (IWV-3412)	Check valves will be exercised from the full closed to the full open position. Verification of safety basis system flow through a check valve shall be adequate demonstration that the valve is full open. The stroke direction tested (open) is based on the direction the valve disk must travel to fulfill a safety function.
CT-C	Check Valve Exercise Test to the Close Position (IWV-3412)	Check valves will be exercised from the full open to the full closed positions. The stroke direction tested (closed) is based on the direction the valve disk must travel to fulfill a safety function.
CT-SP	Relief Valve Set Point Verification Test (IWV-3510)	Relief and safety valve set points will be verified in accordance with IWV-3510.
DTR	Rupture Disk Test (IWV-3620)	Rupture disks will be tested in accordance with manufacutrer's instructions, if applicable.



TABLE 3.1-1  
INSERVICE VALVE TESTS (continued)

<u>TEST</u>	<u>TEST NAME</u>	<u>TEST DESCRIPTION</u>
DTX	Explosive Valve Test (IWV-3610)	Explosive valves will be tested accordance with IWV-3610.
FST	Fail-Safe Test (IWV-3415)	All valves with fail-safe actuators will be tested to verify proper fail-safe operation upon loss of actuator power.
PAS	Passive Valve Operational Check	Operational checks shall verify the position of passive valves before operations are performed and after operations are completed. Passive valves are valves that are not required to change position to accomplish their safety function.
PIT	Position Indication Check (IWV-3300)	<p>All valves stroke timed with position indicators will be checked to verify that remote valve indicators accurately reflect valve operation.</p> <p>In the interest of ALARA, any individual valve for which a PIT would require expenditure of greater than or equal to one man-rem will not have a PIT performed. Valves falling under this exemption will be identified prior to test and justification for exemption will be recorded.</p>

TABLE 3.1-2  
TEST FREQUENCY

BOS-03-0201  
Revision 1

TEST FREQUENCY	(1) OPERATIONAL CONDITION	FREQUENCY OF TESTING
OP	Power Operation	At least once per 92 days
CS	Cold Shutdown	See (2) Below
RR	Refueling	Tests shall be performed during each reactor refueling but in no case at intervals greater than two years
SP	See applicable relief request	See applicable relief request
5Y	No operational condition limitations	At least every five years per Article IWV-3511. Applies to CT-SP test.
2Y	No operational condition limitations	Every two years (see Article IWV-3300). Applies to PIT test.
NA	No operational condition limitations	Tests are not required for Category B, C, and D passive valves according to IWV-3700. Therefore, test frequency is not applicable for these valves.

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- (1) Operational conditions are defined in Technical Specification, Section 2.0.
- (2) Inservice valve testing not completed before startup may be completed during the subsequent cold shutdown. In the case of frequent cold shutdowns, valve testing need not be performed more often than once every three months.

In the case of longer planned cold shutdowns, the testing need not be started within the 48 hour limitation. However, in these instances, all valve testing must be completed prior to start-up.

NOTE: It is expected that the required testing will normally be completed in 96 hours following cold shutdown. However, completion of all valve testing during cold shutdown is not required if plant operating conditions will not permit the testing of specific valves.

SECTION 3.2

RELIEF REQUESTS FOR INSERVICE VALVE TESTING PROGRAM

RELIEF REQUEST RV-01

SYSTEMS: ALL SYSTEMS PENETRATING PRIMARY CONTAINMENT

VALVE: Valves subject to Appendix J, Type C leak testing (AT-1).

CATEGORY: A, A/C

CLASS: 1, 2, 3, NC

FUNCTION: The subject valves perform a containment isolation function as defined in 10CFR50, Appendix J.

TEST REQUIREMENT Corrective action is based on the requirements of IWV-3427.

BASIS FOR RELIEF: The Type C test leakages from all containment isolation valves are summed and added to the leakage from all Type B tests. This total leakage is compared to  $0.6L_p$  where  $L_p$  is defined in Technical Specifications Section 4.7.A.b. Along with the above maximum allowable leak rate, no isolation valve leakage can exceed  $0.05L_{t0}$  where  $L_{t0} = 0.75L_p$ . The main steam isolation valve leakage cannot exceed 11.5 SCFH (0.192 SCFM).

Comparing the two leakage criteria, the  $0.6L_p$  criteria is approximately seven times more restrictive than the  $0.05L_{t0}$  maximum leakage criteria, when the  $0.05L_{t0}$  leakage is summed for all isolation valves.

Given the conservatism of the  $0.6L_p$  criteria and the requirements of the  $0.05L_{t0}$  criteria, no further ASME test requirements as described in IWV-3427 are necessary to ensure the leakage integrity of the containment isolation valves.

RELIEF REQUEST RV-01 (continued)

ALTERNATE TESTING: Containment isolation valves will be tested  
in accordance with Technical Specification Section  
4.7.A.

RELIEF REQUEST RV-02

SYSTEM: RBCCW

VALVE: 4009A, 4009B, 4002

CATEGORY: A, B

CLASS: 3

FUNCTION: These valves are RBCCW to drywell and the non-safety related component isolation valves.

TEST REQUIREMENT: Exercise valve for operability and measure stroke time every quarter.

BASIS FOR RELIEF: Cycling this valve would cause loss of cooling water flow to the recirculation pump lube oil and seal water coolers and drywell coolers. This action could result in damage to the recirculation pumps. The recirculation pumps are required to be running during normal operation and cold shutdown. Partial stroking is precluded by valve design.

ALTERNATE TESTING: Exercise valve for operability and measure stroke time at refueling.

RELIEF REQUEST RV-03

SYSTEM: RBCCW

VALVE: 40124

CATEGORY: A/C

CLASS: 2

FUNCTION: This valve is the recirculation pump seal water  
outboard check valve.

TEST REQUIREMENTS: Exercise valve for operability every quarter.

BASIS FOR RELIEF: Verification of valve closure can only be  
accomplished by leak testing, which is performed at  
refueling.

ALTERNATE TESTING: Exercise valve for operability at refueling.

RELIEF REQUEST RV-04

SYSTEM: COMPRESSED AIR

VALVE: AO-4356

CATEGORY: A

CLASS: 2

FUNCTION: This valve is the nitrogen/instrument air to drywell isolation valve.

TEST REQUIREMENT: Exercise valve for operability, observe proper operation of fail-safe mechanism, and measure stroke time every quarter.

BASIS FOR RELIEF: If this valve fails closed during cycling, it would cause a loss of nitrogen/instrument air to the drywell. This would cause a reactor trip due to closure of the inboard MSIVs. Part stroking is precluded by valve design.

ALTERNATE TESTING: Exercise valve for operability, observe proper operation of fail-safe mechanism, and measure stroke time during cold shutdown.



RELIEF REQUEST RV-05

SYSTEM: ALL SYSTEMS

VALVE: Valves equipped to fail open or closed.

CATEGORY: A, B

CLASS: 1, 2, 3, NC

FUNCTION: Upon loss of electrical power, the valve must stroke to its fail-safe position.

TEST REQUIREMENT: Solenoid valves which control the air supply to air operated valves and direct solenoid operated valves must stroke to their fail-safe position upon interruption of their electrical supply.

BASIS FOR RELIEF: De-energizing the solenoid valve has the same effect as loss of electrical power. Therefore, stroking the valve from the control room to its fail-safe position constitutes a Fail-Safe Test (FST). No additional testing is necessary.

ALTERNATE TESTING: Normal stroking, to the fail-safe position of valves equipped to fail open or closed constitutes a Fail-Safe Test. No additional testing is necessary.

RELIEF REQUEST RV-06

SYSTEM: COMPRESSED AIR

VALVE: 3"267

CATEGORY: A/C

CLASS: 2

FUNCTION: This valve is the instrument air to drywell check valve.

TEST REQUIREMENT: Exercise valve for operability every quarter.

BASIS FOR RELIEF: Verification of valve closure can only be accomplished by leak testing, which is performed at refueling.

ALTERNATE TESTING: Exercise valve for operability at refueling.

RELIEF REQUEST RV-07

SYSTEM: CONTAINMENT ATMOSPHERE CONTROL

VALVE: AO-5045A AO-5045G  
AO-5045B AO-5045H  
AO-5045C  
AO-5045D AO-5045J  
AO-5045E AO-5045K  
AO-5045F

CATEGORY: A/C

CLASS: NC

FUNCTION: These valves are the pressure suppression chamber to drywell vacuum breaker valves which equalize the pressure between the two volumes when the suppression chamber pressure exceeds the drywell pressure.

TEST REQUIREMENT: Measure valve seat leakage and compare the measured leakage to a specific maximum leakage for each valve (IWV-3426).

BASIS FOR RELIEF: A specific maximum leakage per valve is not applicable to the vacuum breaker valve testing. A pressure decay test is performed on the pressure suppression chamber atmosphere in accordance with Technical Specification Section 4.7.A.4.b on a quarterly basis. This pressure decay test demonstrates the leak tightness of the vacuum breaker valves.

ALTERNATE TESTING: The leak tightness of the pressure suppression chamber to drywell vacuum breakers shall be demonstrated in accordance with Technical Specification Section 4.7.A.4.b.

RELIEF REQUEST RV-08

SYSTEM: CONTAINMENT ATMOSPHERE CONTROL

VALVE: CV-5065-10 through 5065-27, CV-5065-31 through 5065-38

CATEGORY: A

CLASS: 2

FUNCTION: These valves are the O<sub>2</sub> analyzer and H<sub>2</sub> analyzer shutoff valves.

TEST REQUIREMENT: Measure and trend stroke time every quarter.

BASIS FOR RELIEF: The O<sub>2</sub> analyzer valves are operated in two banks of nine valves each, valves CV-5065-10 through 16, CV-5065-26 and CV-5065-27 on one bank and valves CV-5065-17 through 25 on the other bank. The H<sub>2</sub> analyzer valves are operated in two banks of 4 valves each, valves CV-5065-31, 32, 35 and 36 on one bank and valves CV-5065-33, 34, 37 and 38 on the other bank. Each bank is controlled by a single hand switch and operation of individual valves is not possible. The valves are all 1" air operated gate valves which are required to operate in less than five seconds by Technical Specifications. Stroke times of these valves vary depending upon air pressure to the valve operators. The valves often stroke too fast (less than one second) to time accurately. Note that valves CV-5065-12 and CV-5065-19 have been removed.

ALTERNATE TESTING: Verify that all valves operate in less than five seconds. No stroke time trending will be performed.

RELIEF REQUEST RV-09

SYSTEM: CONTAINMENT ATMOSPHERE CONTROL

VALVE: 1"223, 1"223

CATEGORY: A/C

CLASS: 2

FUNCTION: These valves serve as containment atmosphere control system containment isolation valves.

TEST REQUIREMENT: Exercise valve for operability quarterly.

BASIS FOR RELIEF: Verification of valve closure can only be accomplished by leak testing, which is performed at refueling.

ALTERNATE TESTING: Exercise valve for operability at refueling.

RELIEF REQUEST RV-10

SYSTEM: CONTAINMENT ATMOSPHERE CONTROL

VALVE: 1"276M3, 1"276M3

CATEGORY: C

CLASS: NC

FUNCTION: These valves prevent back flow from the air accumulators.

TEST REQUIREMENT: Exercise valve for operability every quarter.

BASIS FOR RELIEF: Verification of valve closure can only be accomplished by disassembling a portion of the air supply system. Therefore, exercise tests can only be performed during reactor refueling.

ALTERNATE TESTING: Exercise valve for operability at refueling.

RELIEF REQUEST RV-11

SYSTEM: CONTAINMENT ATMOSPHERE CONTROL

VALVE: .5"223

CATEGORY: A/C

CLASS: NC

FUNCTION: This valve serves as the isolation valve for the TIP  
purge system.

TEST REQUIREMENT: Exercise valve for operability every quarter.

BASIS FOR RELIEF: Verification of valve closure can only be  
accomplished by leak testing, which is performed at  
refueling.

ALTERNATE TESTING: Exercise valve for operability at refueling.

RELIEF REQUEST RV-12

SYSTEM: RESIDUAL HEAT REMOVAL

VALVE: 1001-47, 1001-50

CATEGORY: A

CLASS: 1

FUNCTION: These valves are the RHR shutdown cooling suction valves.

TEST REQUIREMENT: Exercise valve for operability and measure stroke time every quarter.

BASIS FOR RELIEF: The valves are interlocked to prevent opening when reactor pressure is greater than 100 psig.

ALTERNATE TESTING: Exercise valve for operability and measure stroke time during cold shutdown.



RELIEF REQUEST RV-13

SYSTEM: RESIDUAL HEAT REMOVAL

VALVE: 1001-68A, 1001-68B

CATEGORY: C

CLASS: 1

FUNCTION: These valves are the low pressure coolant injection check valves.

TEST REQUIREMENT: Exercise valve for operability quarterly.

BASIS FOR RELIEF: Exercising these valves to the open position can only be accomplished by verifying flow to the vessel as exhibited by the ability to maintain the proper vessel temperature. Forward flow through these valves is confirmed during shutdown cooling operations. During a given cold shutdown, only one cooling loop is used. The other cooling loop is used during the subsequent cold shutdown.

ALTERNATE TESTING: Exercise each valve for operability during every other cold shutdown.

RELIEF REQUEST RV-14

SYSTEM: CORE SPRAY

VALVE: 1400-9A, 1400-9B

CATEGORY: C

CLASS: 1

FUNCTION: These valves are the core spray injection check valves.

TEST REQUIREMENT: Exercise valve for operability every quarter.

BASIS FOR RELIEF: Exercising these valves to the open position can only be accomplished by manual manipulation. The temperature in the vicinity of these valves is in excess of 150°F for at least 96 hours after achieving cold shutdown; therefore, the area is not habitable. Manual manipulation of these valves can only be accomplished during reactor refueling.

ALTERNATE TESTING: Exercise valve for operability at refueling.

RELIEF REQUEST RV-15

SYSTEM: HPCI

VALVE: 2301-7

CATEGORY: C

CLASS: 1

FUNCTION: This valve is the HPCI injection check valve.

TEST REQUIREMENT: Exercise valve for operability every quarter.

BASIS FOR RELIEF: Testing this valve during normal operation would require injecting cold water into the reactor vessel using the HPCI system. This would result in both a reactivity excursion and thermal shock to the feedwater nozzle and piping. The thermal shock condition can also exist during cold shutdown when the vessel metal temperature is above 212°F.

ALTERNATE TESTING: Exercise valve for operability during reactor refueling.

RELIEF REQUEST RV-16

SYSTEM: HPCI

VALVE: HO-1, HO-2

CATEGORY: B

CLASS: 2

FUNCTION: These valves are the HPCI turbine throttle valves.

TEST REQUIREMENT: Measure valve stroke time every quarter.

BASIS FOR RELIEF: The purpose of these valves is to regulate steam to the HPCI Turbine. Operability of these valves are adequately demonstrated by turbine operation. Valve position is steam line pressure dependent and therefore will not repeatedly throttle to the same position. During turbine operation, these valves move in response to control signals.

ALTERNATE TESTING: Proper response of the valves will be verified by performing the HPCI System test.

RELIEF REQUEST RV-17

SYSTEMS: HPCI

VALVE: 2301-34, 2301-45

CATEGORY: C

CLASS: 2

FUNCTION: These valves prevent back flow in the HPCI turbine exhaust and exhaust drain lines.

TEST REQUIREMENT Exercise valve for operability every quarter.

BASIS FOR RELIEF: Verification of valve closure can only be accomplished by leak testing, which is performed at refueling.

ALTERNATE TESTING: Exercise valve for operability at refueling.

RELIEF REQUEST RV-18

SYSTEMS: RCIC

VALVE: 1301-40, 1301-41, 1301-47

CATEGORY: C

CLASS: NC

FUNCTION: These valves prevent back flow in the RCIC turbine exhaust, vaccum pump discharge and minimum flow by-pass lines.

TEST REQUIREMENT: Exercise valve for operability every quarter.

BASIS FOR RELIEF: Verification of valve closure can only be accomplished by leak testing, which is performed at refueling.

ALTERNATE TESTING: Exercise valve for operability at refueling.

RELIEF REQUEST RV-19

SYSTEMS: STANDBY LIQUID CONTROL

VALVE: 1101-15, 1101-16

CATEGORY: C, A/C

CLASS: 1

FUNCTION: These valves are the SLC inlet check valves.

TEST REQUIREMENT: Exercise valve for operability every quarter.

BASIS FOR RELIEF: Testing valves would require either injection of demineralized water by the Standby Liquid Control System or connection of a test pump to the test connection. Either of these could render the Standby Liquid Control System inoperative. This system is required to be operative during normal operation and cold shutdown.

ALTERNATE TESTING: Exercise valve for operability at refueling.

RELIEF REQUEST RV-20

SYSTEM: CRD Hydraulic

VALVE: 302-21A, 302-21B, 302-22

CATEGORY: B

CLASS: 2

FUNCTION: These valves are the scram discharge volume isolation valves.

TEST REQUIREMENT: Exercise valve for operability, observe proper operation of fail-safe mechanism, and measure stroke time every quarter.

BASIS FOR RELIEF: If the valves fail closed during cycling, water accumulates in the scram discharge volume. If more than 39 gallons accumulate, the reactor trips on High Level in the Scram Discharge Volume. Partial stroking is precluded by valve design.

ALTERNATE TESTING: Exercise valve for operability, observe proper operation of fail-safe mechanism, and measure stroke time during cold shutdown.



RELIEF REQUEST RV-21

SYSTEM: CRD Hydraulic

VALVES: CV-126, CV-127 (typical of 145 each)

CATEGORY: B

CLASS: 2

FUNCTION: These valves are the CRD scram inlet and exhaust valves.

TEST REQUIREMENT: Exercise valve for operability, observe proper operation of fail-safe mechanism, and measure stroke time every quarter.

BASIS FOR RELIEF: These valves operate in coincidence to rapidly insert control rods. Valves will be tested by SCRAM timing control rod drives in accordance with Technical Specification Section 4.3. This requires testing of 50% of the drives every 16 weeks and 100% every 32 weeks. Additionally, 100% of the drives are tested each shutdown. Timing of the SCRAM function will be substituted for individual valve times.

ALTERNATE TESTING: SCRAM function timing will be substituted for individual valve timing. No timing or trending will be performed under control of this program.

RELIEF REQUEST RV-22

SYSTEM: CRD Hydraulic

VALVES: 114, 115, 138 (typical of 145)

CATEGORY: C

CLASS: 2

FUNCTION: These valves are CRD cooling water check valves.

TEST REQUIREMENT: Exercise for operability every quarter.

BASIS FOR RELIEF: Failure of these valves to seat in the reverse direction would result in the loss of insert drive water flow. They are therefore indirectly tested with each rod movement evolution. Valves will be tested in accordance with Technical Specification Section 4.3.

ALTERNATE TESTING: Tested per code by meeting Technical Specification Section 4.3. No testing will be performed under control of this program.

RELIEF REQUEST RV-23

SYSTEM: NUCLEAR BOILER

VALVES: 203-3A (ADS)\* 203-4A  
203-3B (ADS)\* 203-4B  
203-3C (ADS)\*  
203-3D (ADS)\*  
\*Automatic Depressurization System (ADS)

CATEGORY: A/C

CLASS: 1

FUNCTIONS: The functions of the relief valves are: (1) open upon receipt of an auto depressurization signal to blowdown reactor (for the ADS valves only) and (2) act as a primary system relief valve which can be manually actuated from the control room. A primary system safety valve actuates on high system pressure.

TEST REQUIREMENT: Perform leak tests not less than once every two years.

BASIS FOR RELIEF: There are three major concerns associated with safety and relief valve seat leakage: (1) the sizing of the drywell cooling system is based on a limited amount of heat being rejected to the containment atmosphere by the main steam relief valve discharge lines; (2) the suppression pool temperature will increase slowly if the relief valves leak; and (3) if a safety valve leaks, steam will be vented directly to the drywell atmosphere.

RELIEF REQUEST RV-23 (continued)

Continuous seat leakage indication is provided on these valves by the safety and relief valve tailpipe temperature monitors and acoustic monitors. Excessive leakage is indicated by a control room alarm when the tailpipe temperature monitor exceeds 212°F. No special test to measure seat leakage is planned.

ALTERNATE TESTING: The tailpipe temperature indicator will be used to confirm that the safety and relief valves are leaktight.

RELIEF REQUEST RV-24

SYSTEM: NUCLEAR BOILER

VALVES: 203-3A  
203-3B  
203-3C  
203-3D

CATEGORY: A/C

CLASS: 1

FUNCTION: The functions of the reactor relief valves are: (1) open upon receipt of an auto depressurization signal to blowdown reactor (for the ADS valves only) and (2) act as a primary system relief valve which can be manually actuated from the control room.

TEST REQUIREMENT: Exercise valves every quarter.

BASIS FOR RELIEF: Relief is requested from the Section XI required testing frequency of once every three months. Exercising these valves during normal operation would cause primary system pressure spikes and reactor power fluctuations which could lead to a reactor scram. These valves will be exercised once per operating cycle as specified in Technical Specification Section 4.5.E.

In addition, relief is requested from the stroke timing requirements of Section XI. It is impractical to measure stroke times for relief and solenoid valves since the stroke times are on the order of 100 ms. An abrupt change in the turbine bypass valve position will verify that the solenoid and relief valves have performed their function.

RELIEF REQUEST RV-24 (continued)

ALTERNATE TESTING: These valves will be exercised at least once per operating cycle. The response of these valves will be verified by observing an abrupt change in the turbine bypass valve position. No stroke times will be measured.

RELIEF REQUEST RV-25

SYSTEM: NUCLEAR BOILER

VALVES: 220-46  
220-47

CATEGORY: B

CLASS: 1

FUNCTION: These valves are used to vent the reactor vessel head and main steam line "A" during startup.

TEST REQUIREMENT: Exercise and time valves for operability every quarter.

BASIS FOR RELIEF: Exercising one of these valves during normal operation leaves the other valve as the only barrier between the reactor vessel and the drywell sump. Any leakage through the closed valve could potentially pressurize the drywell which is an unnecessary risk for the sole purpose of testing a valve. Finally, operating procedures prohibit operation of these valves during power operation.

ALTERNATE TESTING: These valves will be full stroke exercised during cold shutdown.

RELIEF REQUEST RV-26

SYSTEM: NUCLEAR BOILER

VALVES: 6-58A 6-62A  
6-58B 6-62B

CATEGORY: A/C

CLASS: 1

FUNCTION: These valves serve as the feedwater inlet check valves.

TEST REQUIREMENT: Exercise valve for operability every quarter.

BASIS FOR RELIEF: Verification of valve closure can only be accomplished by leak testing, which is performed at refueling.

ALTERNATE TESTING: Exercise valve for operability at refueling.



RELIEF REQUEST RV-27

SYSTEM: NUCLEAR BOILER

VALVES: 1"273M3 (four ADS air accumulator check valves)

84A	85A
84B	85B
84C	85C
84D	85D

CATEGORY: C

CLASS: 2

FUNCTION: These valves provide isolation for the ADS, inboard MSIV and outboard MSIV air accumulators.

TEST REQUIREMENT: Exercise valve for operability every quarter.

BASIS FOR RELIEF: Verification of valve closure can only be accomplished by disassembling a portion of the air supply system. Therefore, exercise tests can only be performed during reactor refueling.

ALTERNATE TESTING: Exercise valve for operability at refueling.

RELIEF REQUEST RV-28

SYSTEM: RECIRCULATION PUMP SEAL WATER

VALVES: FO-13A FO-17A  
FO-13B FO-17B

CATEGORY: A/C

CLASS: 2

FUNCTION: These valves serve as the recirculation pump seal water inboard and outboard check valves.

TEST REQUIREMENT: Exercise valve for operability every quarter.

BASIS FOR RELIEF: Verification of valve closure can only be accomplished by leak testing, which is performed at refueling.

ALTERNATE TESTING: Exercise valve for operability at refueling.

RELIEF REQUEST RV-29

SYSTEM: TRANSVERSING INCORE PROBE

VALVES: TIP-BALA TIP-BALC  
TIP-BALB TIP-BALD

CATEGORY: A

CLASS: NC

FUNCTION: These valves provide containment isolation.

TEST REQUIREMENT: Exercise and time valves for operability every quarter.

BASIS FOR RELIEF: Per Operability Procedure 9.5, each TIP ball valve is exercised during probe insertion tests every 1000 effective full power reactor hours. After each probe insertion test, the valves are confirmed closed. These valves are never stroked without confirmation of valve closure, therefore, no timing requirements are necessary to show valve operability.

ALTERNATE TESTING: Verify valve closure coincident with LPRM calibration procedure 9.5. Stroke times will not be measured.

RELIEF REQUEST RV-30

SYSTEM: CONTAINMENT ATMOSPHERE CONTROL

VALVE: CV-5046, 1"276

CATEGORY: A, A/C

CLASS: NC

FUNCTION: These valves provide containment isolation.

TEST REQUIREMENT: Exercise or exercise and time valves for operability every quarter.

BASIS FOR RELIEF: Verification of valve closure can only be accomplished by leak testing, which is performed at refueling. Also, there is no means to measure valve closure time for CV-5046.

ALTERNATE TESTING: Exercise valves for operability at refueling. Valve closure time will not be measured for CV-5046.

RELIEF REQUEST RV-31

SYSTEM: HPCI

VALVE: 2301-39

CATEGORY: C

CLASS: 2

FUNCTION: This valve prevents back flow in the HPCI pump suction line.

TEST REQUIREMENT: Exercise valve for operability every quarter.

BASIS FOR RELIEF: During the HPCI pump operability tests, water is taken from the condensate storage tank and not the suppression pool. Therefore, disc movement cannot be confirmed by flow verification every quarter. Different testing methods are now being investigated. Considering the difficulty in testing this valve, testing will be deferred to reactor refueling.

ALTERNATE TESTING: Exercise valves for operability at refueling.

RELIEF REQUEST RV-32

SYSTEM: SALT SERVICE WATER

VALVE: 3915, 3925

CATEGORY: B

CLASS: 2

FUNCTION: These valves isolate the service water system from the screen wash system when LOCA occurs.

TEST REQUIREMENT: Exercise and time valve for operability every quarter.

BASIS FOR RELIEF: When the screen wash pumps are turned off, these valves receive a signal to close. There are no position indicator lights to show when the valves have closed after the pumps are tripped, therefore, the stroke times cannot be determined. Proper valve closure is verified by observation of actuator stem position change after the screen wash pumps have tripped.

ALTERNATE TESTING: Exercise valves for operability every quarter. Valve closure times will not be measured.

RELIEF REQUEST RV-33

SYSTEM: DIESEL OIL TRANSFER

VALVE: AO-4521, AO-4522

CATEGORY: B

CLASS: NC

FUNCTION: These valves open automatically upon initiation of the diesel oil transfer pumps to allow oil to flow into the day tank.

TEST REQUIREMENT: Exercise and time valve for operability every quarter.

BASIS FOR RELIEF: These valves are not equipped with position indicators, therefore, stroke times cannot be obtained. Valve opening is indirectly verified by proper system operation.

ALTERNATE TESTING: Exercise valve for operability every quarter. Valve opening times will not be measured.

RELIEF REQUEST RV-34

SYSTEM: HPCI

VALVE: AO-9313

CATEGORY: B

CLASS: 2

FUNCTION: This valve must close so as to isolate the nitrogen supply system from the turbine exhaust line.

TEST REQUIREMENT: Exercise and time valve for operability every quarter.

BASIS FOR RELIEF: Both AO-9312 and AO-9313 operate in tandem and provide isolation of the nitrogen supply system. AO-9313 is in the IST program because the ISI boundary stops at this valve. There is no direct method for confirming that AO-9312 and AO-9313 close. If these valves do not close properly, primary containment pressure will slowly increase. An increase in containment pressure will be detected by the primary containment monitoring system.

ALTERNATE TESTING: Valves will be exercised during the HPCI operability tests every quarter. No increase in primary containment pressure following the HPCI operability tests implies that these valves have closed properly.



SECTION 3.3

INSERVICE VALVE TESTING PROGRAM

TABLE 3.3-1

LIST OF SYSTEMS INCLUDED  
IN PNPS  
VALVE PROGRAM

<u>SYSTEM</u>	<u>P&amp;ID</u>	<u>REV</u>	<u>PAGE</u>
Salt Service Water	M-212	E4	1
RBCCW	M-215	E4	2
Compressed Air	M-220	E5	4
Diesel Oil Transfer	M-223	9	5
Containment Atmosphere Control	M-227	E4	6
Post Accident Purge & Vent	M-227	E4	14
Radwaste Collection	M-232	E4	16
Analyzer	M-239	10	17
Residual Heat Removal	M-241	E2	19
Core Spray	M-242	E1	24
HPCI (Sheet 1)	M-243	15	26
HPCI (Sheet 2)	M-244	14	28
RCIC	M-245	E2	29
Reactor Water Clean-Up	M-247	E2	30
Standby Liquid Control	M-249	E2	31
CRD Hydraulic	M-250	E3	32
Nuclear Boiler	M-252	E1	33
Recirculation Pump Seal Water	X-001	-	37
Transversing In-Core Probe	X-002	-	38
Post Accident Sampling	X-003	-	39
C-19 Return	X-004	-	40

TABLE 3.3-2

VALVE IST PROGRAM REMARKS

Note-001	Test with Pump Test.
Note-002	Rupture discs are non-testable and are therefore exempt per IWV-3620.
Note-003	Stroke time is to be determined by owner.
Note-004	This valve is typical of 145 valves.
Note-005	ADS air accumulator check valve is typical of four valves.
Note-006	Inboard MSIV air accumulator check valve is typical of four valves.
Note-007	Outboard MSIV air accumulator check valve is typical of four valves.
Note-008	One SLC explosive valve is discharged every refueling. Both explosive valves are tested in the course of two refueling cycles.
Note-009	TIP explosive valves are tested in accordance with IWV-3610.

TABLE 3.3-3

INSERVICE TESTING PROGRAM  
 ISI CLASS 1,2,3 AND NC VALVES  
 PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&ID: M-212 REVISION: E4  
 SYSTEM: Salt Service Water

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Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
3800	G-8	3	B	18	BF	MO	0	BT-0 PIT	OP 2Y				003
3806	G-5	3	B	18	BF	MO	0	BT-0 PIT	OP 2Y				003
3808	C-6	3	B	12	BF	MO	0	BT-C BT-0 PIT	OP OP 2Y				003 003
3813	C-6	3	B	12	BF	MO	0	BT-C BT-0 PIT	OP OP 2Y				003 003
3915	D-4	3	B	6	BF	A	0/FC	BT-C FST PIT	OP OP 2Y			RV-32 RV-05	
3925	C-4	3	B	6	BF	A	0/FC	BT-C FST PIT	OP OP 2Y			RV-32 RV-05	
38100	C-8	3	C	12	CK	SA	S	CT-C CT-0	OP OP				001 001
38103	C-7	3	C	12	CK	SA	S	CT-C CT-0	OP OP				001 001
38105	C-6	3	C	12	CK	SA	S	CT-C CT-0	OP OP				001 001
38107	C-6	3	C	12	CK	SA	S	CT-C CT-0	OP OP				001 001
38109	C-5	3	C	12	CK	SA	S	CT-C CT-0	OP OP				001 001

TABLE 3.3-3

INSERVICE TESTING PROGRAM  
 ISI CLASS 1,2,3 AND NC VALVES  
 PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&ID: M-215 REVISION: E4  
 SYSTEM: RBCCW

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 IST Program Revision 001, 12/08/82

Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
4002	C-4	NC	A	6	GA	MO	0	AT-1 BT-C PIT	RR RR 2Y		0.296C	RV-01 RV-02	003
4009A	D-6	3	B	8	GA	MO	0	BT-C PIT	RR 2Y			RV-02	003
4009B	C-4	3	B	8	GA	MO	0	BT-C PIT	RR 2Y			RV-02	003
4010A	G-7	3	B	12	GA	MO	C	BT-0 PIT	OP 2Y				003
4010B	H-7	3	B	12	GA	MO	C	BT-0 PIT	OP 2Y				003
4060A	C-2	3	B	12	GA	MO	C	BT-0 PIT	OP 2Y				003
4060B	D-2	3	B	12	GA	MO	C	BT-0 PIT	OP 2Y				003
4083	E-4	3	B	10	BF	MO	C	BT-0 PIT	OP 2Y				003
4084	F-4	3	B	10	BF	MO	C	BT-0 PIT	OP 2Y				003
4085A	E-2	3	B	8	GA	MO	0	CT-C PIT	OP 2Y				003
4085B	D-3	3	B	8	GA	MO	0	CT-C PIT	OP 2Y				003
40102	G-3	3	C	8	CK	SA	S	CT-C CT-0	OP OP				001 001

TABLE 3.3-3

INSERVICE TESTING PROGRAM  
ISI CLASS 1,2,3 AND NC VALVES  
PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&amp;ID: M-215 REVISION: E4

SYSTEM: RBCCW

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Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Position	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
40105	G-3	3	C	8	CK	SA	S	CT-C CT-O	OP OP				001 001
40108	G-3	3	C	8	CK	SA	S	CT-C CT-O	OP OP				001 001
40111	E-3	3	B	14	BF	M	C	PAS	NA				
40112	E-4	3	B	12	BF	M	C	PAS	NA				
40114	F-5	3	C	8	CK	SA	S	CT-C CT-O	OP OP				001 001
40117	G-5	3	C	8	CK	SA	S	CT-C CT-O	OP OP				001 001
40120	G-5	3	C	8	CK	SA	S	CT-C CT-O	OP OP				001 001
40124	C-6	NC	A/C	6	CK	SA	S	AT-1 CT-C	RR RR		0.296C	RV-01 RV-03	

TABLE 3.3-3

INSERVICE TESTING PROGRAM  
 ISI CLASS 1,2,3 AND NC VALVES  
 PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&amp;ID: M-220 REVISION: E5

SYSTEM: Compressed Air

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Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
A0-4356	D-3	NC	A	3	GA	A	O/FC	AT-1 BT-C FST PIT	RR CS CS 2Y		0.296C	RV-01 RV-04 RV-05	003
3"267	D-3	NC	A/C	3	CK	SA	S	AT-1 CT-C	RR RR		0.296C	RV-01 RV-06	

TABLE 3.3-3  
INSERVICE TESTING PROGRAM  
ISI CLASS 1,2,3 AND NC VALVES  
PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&ID: M-223 REVISION:  
SYSTEM: Diesel Transfer Oil

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Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
AO-4521	G-5	NC	B	1.5	BL	AO	C/FO	BT-0	OP	NA		RV-33	
AO-4522	E-5	NC	B	1.5	BL	AO	C/FO	BT-0	OP	NA		RV-33	
1"223	F-5	NC	C	1	CK	SA	C	CT-C CT-0	OP OP				
1"223	E-5	NC	C	1	CK	SA	C	CT-C CT-0	OP OP				
FOOT-VAL-A	F-7	NC	C	2.5	CK	SA	C	CT-C CT-0	OP OP				
FOOT-VAL-B	D-7	NC	C	2.5	CK	SA	C	CT-C CT-0	OP OP				



TABLE 3.3-3

INSERVICE TESTING PROGRAM  
ISI CLASS 1,2,3 AND NC VALVES  
PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&amp;ID: M-227 REVISION: E3

SYSTEM: Containment Atmosphere Control

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Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
X-212A	A-7	NC	A/C	20	CK	SA	S	AT-1 CT-C CT-O	RR OP OP		0.296C	RV-01	
X-212B	A-7	NC	A/C	20	CK	SA	S	AT-1 CT-C CT-O	RR OP OP		0.296C	RV-01	
AO-5033A	E-3	2	A	1	GL	A	O/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	10	0.296C	RV-01 RV-05	
AO-5033B	E-2	NC	A	4	GA	A	C/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	10	0.296C	RV-01 RV-05	
AO-5033C	E-3	2	A	1	GL	A	O/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	10	0.296C	RV-01 RV-05	
AO-5035A	D-3	2	A	20	BF	A	C/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	15	0.296C	RV-01 RV-05	
AO-5035B	D-2	NC	A	20	BF	A	C/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	15	0.296C	RV-01 RV-05	
AO-5036A	C-3	2	A	20	BF	A	C/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	15	0.296C	RV-01 RV-05	

TABLE 3.3-3  
INSERVICE TESTING PROGRAM  
ISI CLASS 1,2,3 AND NC VALVES  
PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&ID: M-227 REVISION: E3  
SYSTEM: Containment Atmosphere Control

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Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
AO-5036B	C-2	NC	A	20	BF	A	C/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	15	0.296C	RV-01 RV-05	
AO-5040A	B-7	2	A	20	BF	A	C/FO	AT-1 BT-C BT-O FST PIT	RR OP OP OP 2Y		0.296C	RV-01 RV-05	003 003
AO-5040B	B-7	2	A	20	BF	A	C/FO	AT-1 BT-C BT-O FST PIT	RR OP OP OP 2Y		0.296C	RV-01 RV-05	003 003
AO-5041A	D-7	NC	A	2	GL	A	C/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	10	0.296C	RV-01 RV-05	
AO-5041B	D-8	2	A	2	GL	A	C/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	10	0.296C	RV-01 RV-05	
AO-5042A	D-7	NC	A	20	BF	A	C/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	15	0.296C	RV-01 RV-05	
AO-5042B	D-7	2	A	20	BF	A	C/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	15	0.296C	RV-01 RV-05	

TABLE 3.3-3

INSERVICE TESTING PROGRAM  
ISI CLASS 1,2,3 AND NC VALVES  
PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&amp;ID: M-227 REVISION: E3

SYSTEM: Containment Atmosphere Control

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Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
AO-5043A	E-6	NC	A	2	GL	A	C/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	10	0.296C	RV-01  RV-05	
AO-5043B	E-6	2	A	2	GL	A	C/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	10	0.296C	RV-01  RV-05	
AO-5044A	F-7	NC	A	20	BF	A	C/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	15	0.296C	RV-01  RV-05	
AO-5044B	F-6	2	A	20	BF	A	C/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	15	0.296C	RV-01  RV-05	
AO-5045A	C-6	NC	A/C	18	CK	SAT	C	AT-2 CT-C CT-O PIT	RR OP OP 2Y		NA	RV-07	
AO-5045B	C-6	NC	A/C	18	CK	SAT	C	AT-2 CT-C CT-O PIT	RR OP OP 2Y		NA	RV-07	
AO-5045C	C-6	NC	A/C	18	CK	SAT	C	AT-2 CT-C CT-O PIT	RR OP OP 2Y		NA	RV-07	

TABLE 3.3-3

INSERVICE TESTING PROGRAM  
 ISI CLASS 1,2,3 AND NC VALVES  
 PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&amp;ID: M-227 REVISION: E3

SYSTEM: Containment Atmosphere Control

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Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
A0-5045D	C-6	NC	A/C	18	CK	SAT	C	AT-2 CT-C CT-O PIT	RR OP OP 2Y		NA	RV-07	
A0-5045E	C-6	NC	A/C	18	CK	SAT	C	AT-2 CT-C CT-O PIT	RR OP OP 2Y		NA	RV-07	
A0-5045F	C-6	NC	A/C	18	CK	SAT	C	AT-2 CT-C CT-O PIT	RR OP OP 2Y		NA	RV-07	
A0-5045G	C-6	NC	A/C	18	CK	SAT	C	AT-2 CT-C CT-O PIT	RR OP OP 2Y		NA	RV-07	
A0-5045H	C-6	NC	A/C	18	CK	SAT	C	AT-2 CT-C CT-O PIT	RR OP OP 2Y		NA	RV-07	
A0-5045J	C-6	NC	A/C	18	CK	SAT	C	AT-2 CT-C CT-O PIT	RR OP OP 2Y		NA	RV-07	

TABLE 3.3-3

INSERVICE TESTING PROGRAM  
ISI CLASS 1,2,3 AND NC VALVES  
PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&ID: M-227 REVISION: E3  
SYSTEM: Containment Atmosphere Control

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Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
A0-5045K	C-6	NC	A/C	18	CK	SAT	C	AT-2 CT-C CT-O PIT	RR OP OP 2Y		NA	RV-07	
CV-5046	C-6	NC	A	1	GL	A	C	AT-1 BT-C	RR RR		0.296C	RV-01 RV-30	
CV-5065-10	B-3	NC	A	1	GA	A	O/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	5	0.296C	RV-01 RV-08 RV-05	
CV-5065-11	B-3	NC	A	1	GA	A	O/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	5	0.296C	RV-01 RV-08 RV-05	
CV-5065-13	B-3	NC	A	1	GA	A	O/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	5	0.296C	RV-01 RV-08 RV-05	
CV-5065-14	B-3	NC	A	1	GA	A	O/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	5	0.296C	RV-01 RV-08 RV-05	
CV-5065-15	B-3	NC	A	1	GA	A	O/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	5	0.296C	RV-01 RV-08 RV-05	

TABLE 3.3-3

INSERVICE TESTING PROGRAM  
 ISI CLASS 1,2,3 AND NC VALVES  
 PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&amp;ID: M-227 REVISION: E3

SYSTEM: Containment Atmosphere Control

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Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
CV-5065-16	B-3	NC	A	1	GA	A	O/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	5	0.296C	RV-01 RV-08 RV-05	
CV-5065-17	C-3	2	A	1	GA	A	O/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	5	0.296C	RV-01 RV-08 RV-05	
CV-5065-18	C-3	2	A	1	GA	A	O/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	5	0.296C	RV-01 RV-08 RV-05	
CV-5065-20	C-3	2	A	1	GA	A	O/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	5	0.296C	RV-01 RV-08 RV-05	
CV-5065-21	C-3	2	A	1	GA	A	O/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	5	0.296C	RV-01 RV-08 RV-05	
CV-5065-22	C-3	2	A	1	GA	A	O/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	5	0.296C	RV-01 RV-08 RV-05	

TABLE 3.3-3

INSERVICE TESTING PROGRAM  
ISI CLASS 1,2,3 AND NC VALVES  
PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&amp;ID: M-227 REVISION: E3

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SYSTEM: Containment Atmosphere Control

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Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
CV-5065-23	C-3	2	A	1	GA	A	O/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	5	0.296C	RV-01 RV-08 RV-05	
CV-5065-24	C-4	2	A	1	GA	A	O/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	5	0.296C	RV-01 RV-08 RV-05	
CV-5065-25	B-5	2	A	1	GA	A	O/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	5	0.296C	RV-01 RV-08 RV-05	
CV-5065-26	B-4	NC	A	1	GA	A	O/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	5	0.296C	RV-01 RV-08 RV-05	
CV-5065-27	B-5	NC	A	1	GA	A	O/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	5	0.296C	RV-01 RV-08 RV-05	
1"223	E-3	2	A/C	1	CK	SA	S	AT-1 CT-C	RR RR		0.296C	RV-01 RV-09	
1"223	E-3	2	A/C	1	CK	SA	S	AT-1 CT-C	RR RR		0.296C	RV-01 RV-09	

TABLE 3.3-3

INSERVICE TESTING PROGRAM  
 ISI CLASS 1,2,3 AND NC VALVES  
 PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&amp;ID: M-227 REVISION: E3

SYSTEM: Containment Atmosphere Control

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Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
1"276	C-6	NC	A/C	1	CK	SA	S	AT-1 CT-C	RR RR		0.296C	RV-01 RV-30	
1"276M3	B-6	NC	C	1	CK	SA	S	CT-C	RR			RV-10	
1"276M3	B-7	NC	C	1	CK	SA	S	CT-C	RR			RV-10	
.5"223	C-2	NC	A/C	.5	CK	SA	S	AT-1 CT-C	RR RR		0.296C	RV-01 RV-11	



TABLE 3.3-3

INSERVICE TESTING PROGRAM  
ISI CLASS 1,2,3 AND NC VALVES  
PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&ID: M-227 REVISION: E4  
SYSTEM: Post Accident Purge & Vent

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Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
SV-5081A	H-8	NC	A	1	GL	SO	C/LC	AT-1	RR		0.296C	RV-01	
SV-5081B	H-8	NC	A	1	GL	SO	C/LC	AT-1	RR		0.296C	RV-01	
SV-5082A	H-7	NC	A	1	GL	SO	C/LC	AT-1	RR		0.296C	RV-01	
SV-5082B	H-7	NC	A	1	GL	SO	C/LC	AT-1	RR		0.296C	RV-01	
SV-5083A	C-8	NC	A	1	GL	SO	C/LC	AT-1	RR		0.296C	RV-01	
SV-5083B	C-8	NC	A	1	GL	SO	C/LC	AT-1	RR		0.296C	RV-01	
SV-5084A	C-8	NC	A	1	GL	SO	C/LC	AT-1	RR		0.296C	RV-01	
SV-5084B	C-8	NC	A	1	GL	SO	C/LC	AT-1	RR		0.296C	RV-01	
SV-5085A	F-4	NC	A	1	GL	SO	C/LC	AT-1	RR		0.296C	RV-01	
SV-5085B	F-4	NC	A	1	GL	SO	C/LC	AT-1	RR		0.296C	RV-01	
SV-5086A	F-4	NC	A	1	GL	SO	C/LC	AT-1	RR		0.296C	RV-01	
SV-5086B	F-4	NC	A	1	GL	SO	C/LC	AT-1	RR		0.296C	RV-01	

TABLE 5.3-3

INSERVICE TESTING PROGRAM  
 IST CLASS 1,2,3 AND NC VALVES  
 PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&ID: M-227 REVISION: E4  
 SYSTEM: Post Accident Purge & Vent

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Valve Number	P&ID Coor	IS Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
SV-5087A	F-4	NC	A	1	GL	SO	C/LC	AT-1	RR		0.296C	RV-01	
SV-5087B	F-4	NC	A	1	GL	SO	C/LC	AT-1	RR		0.296C	RV-01	
SV-5088A	F-4	NC	A	1	GL	SO	C/LC	AT-1	RR		0.296C	RV-01	
SV-5088B	F-4	NC	A	1	GL	SO	C/LC	AT-1	RR		0.296C	RV-01	

TABLE 3.3-3

INSERVICE TESTING PROGRAM  
 ISI CLASS 1,2,3 AND NC VALVES  
 PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&ID: M-232 REVISION: E4  
 SYSTEM: Radwaste Collection

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Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
AO-7011A	G-6	NC	A	2	PG	A	C/FC	AT-1	RR	20	0.296C	RV-01	
								BT-CT	OP				
								FST	OP				
								PIT	2Y				
AO-7011B	G-6	NC	A	2	PG	A	C/FC	AT-1	RR	20	0.296C	RV-01	
								BT-CT	OP				
								FST	OP				
								PIT	2Y				
AO-7017A	D-6	NC	A	2	PG	A	C/FC	AT-1	RR	20	0.296C	RV-01	
								BT-CT	OP				
								FST	OP				
								PIT	2Y				
AO-7017B	D-6	NC	A	2	PG	A	C/FC	AT-1	RR	20	0.296C	RV-01	
								BT-CT	OP				
								FST	OP				
								PIT	2Y				

TABLE 3.3-3

INSERVICE TESTING PROGRAM  
 ISI CLASS 1,2,3 AND NC VALVES  
 PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&ID: M-239 REVISION: 10  
 SYSTEM: Analyzer

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Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
CV-5065-31	B-5	NC	A	1	GL	A	C/LC	AT-1 BT-C FST PIT	RR OP OP 2Y	5	0.296C	RV-01 RV-08 RV-05	
CV-5065-32	A-5	NC	A	1	GL	A	C/LC	AT-1 BT-C FST PIT	RR OP OP 2Y	5	0.296C	RV-01 RV-08 RV-05	
CV-5065-33	B-6	NC	A	1	GL	A	C/LC	AT-1 BT-C FST PIT	RR OP OP 2Y	5	0.296C	RV-01 RV-08 RV-05	
CV-5065-34	A-6	NC	A	1	GL	A	C/LC	AT-1 BT-C FST PIT	RR OP OP 2Y	5	0.296C	RV-01 RV-08 RV-05	
CV-5065-35	B-5	NC	A	1	GL	A	C/LC	AT-1 BT-C FST PIT	RR OP OP 2Y	5	0.296C	RV-01 RV-08 RV-05	
CV-5065-36	A-5	NC	A	1	GL	A	C/LC	AT-1 BT-C FST PIT	RR OP OP 2Y	5	0.296C	RV-01 RV-08 RV-05	

TABLE 3.3-3

INSERVICE TESTING PROGRAM  
 ISI CLASS 1,2,3 AND NC VALVES  
 PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&ID: M-239 REVISION: 10  
 SYSTEM: Analyzer

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Valve Number	P&ID Coor	ISI Class	Valve Cst	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
CV-5065-37	B-6	NC	A	1	GL	A	C/LC	AT-1	RR		0.296C	RV-01	
								BT-C	OP	5		RV-08	
								FST	OP			RV-05	
								PIT	2Y				
CV-5065-38	A-6	NC	A	1	GL	A	C/LC	AT-1	RR		0.296C	RV-01	
								BT-C	OP	5		RV-08	
								FST	OP			RV-05	
								PIT	2Y				

TABLE 3.3-3

INSERVICE TESTING PROGRAM  
ISI CLASS 1,2,3 AND NC VALVES  
PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&ID: M-241 REVISION: E2  
SYSTEM: Residual Heat Removal

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IST Program Revision 001, 12/08/82

Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
1001-2A	K-4	2	C	2	CK	SA	S	CT-C CT-O	OP OP				001 001
1001-2B	K-10	2	C	2	CK	SA	S	CT-C CT-O	OP OP				001 001
1001-2C	J-4	2	C	2	CK	SA	S	CT-C CT-O	OP OP				001 001
1001-2D	K-10	2	C	2	CK	SA	S	CT-C CT-O	OP OP				001 001
1001-7A	K-6	2	B	18	GA	MO	O/KL	BT-CT BT-O PIT	OP OP 2Y	90 90			
1001-7B	K-7	2	B	18	GA	MO	O/KL	BT-CT BT-O PIT	OP OP 2Y	90 90			
1001-7C	K-6	2	B	18	GA	MO	O/KL	BT-CT BT-O PIT	OP OP 2Y	90 90			
1001-7D	K-7	2	B	18	GA	MO	O/KL	BT-CT BT-O PIT	OP OP 2Y	90 90			
1001-16A	J-3	2	B	18	GA	MO	C	BT-C BT-O PIT	OP OP 2Y	99 99			
1001-16B	K-11	2	B	18	GA	MO	C	BT-C BT-O PIT	OP OP 2Y	99 99			

TABLE 3.3-3

INSERVICE TESTING PROGRAM  
ISI CLASS 1,2,3 AND NC VALVES  
PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&ID: M-241 REVISION: E2  
SYSTEM: Residual Heat Removal

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IST Program Revision 001, 12/08/82

Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
1001-18A	H-4	2	B	3	GA	MO	O	BT-C BT-O PIT	OP OP 2Y	20 20			
1001-18B	H-10	2	B	3	GA	MO	O	BT-C BT-O PIT	OP OP 2Y	20 20			
1001-19	H-4	2	B	18	GA	MO	O/KL	PAS	NA				
1001-21	F-11	2	B	4	GA	MO	C	BT-C PIT	OP 2Y	20			
1001-22A	C-2	2	C	1	RL	SA	C	CT-SP	5Y				
1001-22B	C-12	2	C	1	RL	SA	C	CT-SP	5Y				
1001-23A	B-5	2	A	10	GA	MO	C	AT-1 BT-C PIT	RR OP 2Y	14	0.296C	RV-01	
1001-23B	B-9	2	A	10	GA	MO	C	AT-1 BT-C PIT	RR OP 2Y	14	0.296C	RV-01	
1001-26A	B-6	NC	A	10	GA	MO	C	AT-1 BT-C PIT	RR OP 2Y	14	0.296C	RV-01	
1001-26B	B-8	NC	A	10	GA	MO	C	AT-1 BT-C PIT	RR OP 2Y	14	0.296C	RV-01	
1001-28A	C-5	2	A	18	GL	MO	C	AT-1 BT-C BT-O PIT	RR OP OP 2Y	30 30	0.296C	RV-01	



TABLE 3.3-3

INSERVICE TESTING PROGRAM  
 ISI CLASS 1,2,3 AND HC VALVES  
 PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&ID: M-241 REVISION: E2  
 SYSTEM: Residual Heat Removal

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Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
1001-28B	D-9	2	A	18	GL	MO	C	AT-1 BT-C BT-O PIT	RR OP OP 2Y	30 30	0.296C	RV-01	
1001-29A	D-4	1	A	18	GL	MO	O	AT-1 BT-C BT-O PIT	RR OP OP 2Y		0.296C	RV-01	003 003
1001-29B	D-9	1	A	18	GL	MO	O	AT-1 BT-C BT-O PIT	RR OP OP 2Y		0.296C	RV-01	003 003
1001-32	F-10	2	B	4	GA	MO	C	BT-C PIT	OP 2Y	20			
1001-34A	C-3	2	A	12	GA	MO	C	AT-1 BT-C BT-O PIT	RR OP OP 2Y	30 30	0.296C	RV-01	
1001-34B	C-11	2	A	12	GA	MO	C	AT-1 BT-C BT-O PIT	RR OP OP 2Y	30 30	0.296C	RV-01	
1001-36A	D-3	2	B	12	GL	MO	C	BT-C BT-O PIT	OP OP 2Y	30 30			
1001-36B	D-11	2	B	12	GL	MO	C	BT-C BT-O PIT	OP OP 2Y	30 30			



TABLE 3.3-3

INSERVICE TESTING PROGRAM  
ISI CLASS 1,2,3 AND NC VALVES  
PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&ID: M-241 REVISION: E2  
SYSTEM: Residual Heat Removal

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Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
1001-37A	D-3	2	A	6	GL	MO	C	AT-1 BT-C PIT	RR OP 2Y	33	0.296C	RV-01	
1001-37B	D-11	2	A	6	GL	MO	C	AT-1 BT-C PIT	RR OP 2Y	33	0.296C	RV-01	
1001-43A	K-6	2	B	18	GA	MO	C	PAS	NA				
1001-43B	K-8	2	B	18	GA	MO	C	PAS	NA				
1001-43C	J-6	2	B	18	GA	MO	C	PAS	NA				
1001-43D	J-8	2	B	18	GA	MO	C	PAS	NA				
1001-47	F-7	1	A	20	GA	MO	C	AT-1 BT-CT PIT	RR CS 2Y	30	0.296C	RV-01 RV-12	
1001-50	E-7	1	A	20	GA	MO	C	AT-1 BT-CT PIT	RR CS 2Y	30	0.296C	RV-01 RV-12	
1001-59	A-5	2	C	1	RL	SA	C	CT-SP	5Y				
1001-60	A-6	1	A	4	GA	MO	C	AT-1	RR		0.296C	RV-01	
1001-63	B-7	1	A	4	GA	MO	C	AT-1	RR		0.296C	RV-01	
1001-67A	K-3	2	C	12	CK	SA	S	CT-C CT-O	OP OP				001 001
1001-67B	K-10	2	C	12	CK	SA	S	CT-C CT-O	OP OP				001 001
1001-67C	J-3	2	C	12	CK	SA	S	CT-C CT-O	OP OP				001 001

TABLE 3.3-3

INSERVICE TESTING PROGRAM  
ISI CLASS 1,2,3 AND NC VALVES  
PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&amp;ID: M-241 REVISION: E2

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SYSTEM: Residual Heat Removal

IST Program Revision 001, 12/08/92

Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
1001-67D	K-10	2	C	12	OK	SA	S	CT-C	OP				001
								CT-O	OP				001
1001-68A	D-5	1	C	18	OK	SA	S	CT-O	SP			RV-13	
1001-68B	D-9	1	C	18	OK	SA	S	CT-O	SP			RV-13	
AO-8000	E-11	2	B	6	BF	A	C/FC	PAS	NA				
AO-8001	E-11	2	B	3	GL	A	C/FC	PAS	NA				
1001-103	J-12	2	C	2	OK	SA	S	CT-C	OP				001
1001-104	J-2	2	C	2	OK	SA	S	CT-C	OP				001
PSV-44	E-7	NC	C	1.5	RL	SA	C	CT-SP	5Y				

TABLE 3.3-3

INSERVICE TESTING PROGRAM  
 ISI CLASS 1,2,3 AND NC VALVES  
 PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&ID: M-242 REVISION: E1  
 SYSTEM: Core Spray

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Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
1400-3A	H-7	2	B	18	GA	MO	O/KL	PAS	NA				
1400-3B	H-8	2	B	18	GA	MO	O/KL	PAS	NA				003
1400-4A	C-6	2	B	6	GA	MO	C	BT-C PIT	OP 2Y	33			
1400-4B	C-6	2	B	6	GA	MO	C	BT-C PIT	OP 2Y	33			
1400-9A	D-3	1	C	10	CK	SA	S	CT-0	RR			RV-14	
1400-9B	B-3	1	C	10	CK	SA	S	CT-0	RR			RV-14	
1400-13A	E-7	2	C	3	SC	SA	C/L0	CT-0	OP				
1400-13B	E-9	2	C	3	SC	SA	C/L0	CT-0	OP				
1400-24A	D-5	2	A	10	GA	MO	O	AT-1 BT-C BT-0 PIT	RR OP OP 2Y		0.296C	RV-01	
1400-24B	B-5	2	A	10	GA	MO	O	AT-1 BT-C BT-0 PIT	RR OP OP 2Y		0.296C	RV-01	
1400-25A	D-4	1	A	10	GA	MO	C	AT-1 BT-C BT-0 PIT	RR OP OP 2Y		0.296C	RV-01	

TABLE 3.3-3

INSERVICE TESTING PROGRAM  
 ISI CLASS 1,2,3 AND NC VALVES  
 PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&ID: M-242 REVISION: E1  
 SYSTEM: Core Spray

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 IST Program Revision 001, 12/08/82

Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
1400-25B	B-4	1	A	10	GA	MD	C	AT-1 BT-C BT-O PIT	RR OP OP 2Y	12.5 12.5	0.296C	RV-01	
1400-35A	E-5	2	C	6	CK	SA	S	CT-C	OP				001
1400-35B	E-5	2	C	6	CK	SA	S	CT-C	OP				001
1400-36A	E-7	2	C	10	CK	SA	S	CT-O	OP				001
1400-36B	E-8	2	C	10	CK	SA	S	CT-O	OP				001
1400-100	D-7	2	C	2	CK	SA	S	CT-C	OP				001
1400-102	B-7	2	C	2	CK	SA	S	CT-C	OP				001
1401-28A	E-6	2	C	2	RL	SA	S	CT-SP	5Y				
1401-28B	C-7	2	C	2	RL	SA	S	CT-SP	5Y				

TABLE 3.3-3

INSERVICE TESTING PROGRAM  
 ISI CLASS 1,2,3 AND NC VALVES  
 PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&ID: M-243 REVISION: 15  
 SYSTEM: HPCI

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Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
2301-3	F-13	2	B	10	GA	MO	C	BT-O PIT	OP 2Y	22			
2301-4	D-4	1	A	10	GA	MO	O	AT-1 BT-CT BT-O PIT	RR OP OP 2Y	25 25	0.296C	RV-01	
2301-5	D-6	1	A	10	GA	MO	O	AT-1 BT-CT BT-O PIT	RR OP OP 2Y	25 25	0.296C	RV-01	
2301-6	C-10	2	B	16	GA	MO	O	BT-C PIT	OP 2Y	30			
2301-7	H-5	1	C	14	CK	SA	S	CT-O	RR			RV-15	
2301-8	H-5	1	A	14	GA	MO	C	AT-1 BT-CT BT-O PIT	RR OP OP 2Y	25 25	0.296C	RV-01	
2301-9	H-6	2	B	14	GA	MO	O	BT-O PIT	OP 2Y	25			
2301-10	E-6	2	B	10	GL	MO	C	BT-C PIT	OP 2Y	22			
2301-14	F-8	2	B	4	GL	MO	C	BT-C BT-O PIT	OP OP 2Y	11 11			

TABLE 3.3-3

INSERVICE TESTING PROGRAM  
 ISI CLASS 1,2,3 AND NC VALVES  
 PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&ID: M-243 REVISION: 15  
 SYSTEM: HPCI

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Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
2301-34	K-5	2	C	2	CK	SA	S	CT-C	RR			RV-17	
2301-35	E-9	2	B	16	GA	MO	C	BT-CT BT-O PIT	OP OP 2Y	30 30			
2301-36	M-5	2	B	16	GA	MO	C	BT-CT BT-O PIT	OP OP 2Y	30 30			
2301-39	M-6	2	C	16	CK	SA	S	CT-O	RR			RV-31	
2301-45	J-4	2	C	20	CK	SA	S	CT-O CT-C	OP RR			RV-17	001
2301-74	J-4	2	C	20	SC	SA	C/LO	CT-O	OP				001
A0-29	J-14	2	B	1	GL	A0	O/FC	BT-C FST PIT	OP OP 2Y			RV-05	003
A0-9313	K-10	2	B	1	GL	A0	C/FC	BT-C FST PIT	OP OP 2Y	NA		RV-34 RV-05	
VRV-9066	J-5	2	C	1	RL	SA	S	CT-C CT-O CT-SP	OP OP 5Y				001 001

TABLE 3.3-3  
INSERVICE TESTING PROGRAM  
ISI CLASS 1,2,3 AND NC VALVES  
PILGRIM NUCLEAR POWER STATION

P&ID: M-244 REVISION: 14  
SYSTEM: HPCI

Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
HO-1	E-12	2	B	10	GA	H	C	BT-O PIT	OP 2Y	NA		RV-16	
HO-2	E-11	2	B	10	GA	H	C	BT-O PIT	OP 2Y	NA		RV-16	
PSD-68	E-10	2	D	16	RD	SA	C	DTR					002
PSD-69	D-10	NC	D	16	RD	SA	C	DTR					002
2301-75	K-8	2	C	4	CK	SA	S	CT-C	OP				001



TABLE 3.3-3

INSERVICE TESTING PROGRAM  
ISI CLASS 1,2,3 AND NC VALVES  
PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&ID: M-245 REVISION: E2  
SYSTEM: RCIC

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Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
1301-16	C-6	1	A	3	GA	MO	O	AT-1 BT-CT PIT	RR OP 2Y	20	0.296C	RV-01	
1301-17	C-5	1	A	3	GA	MO	O	AT-1 BT-CT PIT	RR OP 2Y	20	0.296C	RV-01	
1301-25	L-8	NC	B	6	GA	MO	C	BT-C PIT	OP 2Y	55			
1301-40	J-9	NC	C	2	CK	SA	S	CT-C	RR			RV-18	
1301-41	J-6	NC	C	8	CK	SA	S	CT-C	RR			RV-18	
1301-47	H-8	2	C	2	CK	SA	S	CT-C	RR			RV-18	
1301-49	E-7	1	A	4	GA	MO	C	AT-1 BT-CT PIT	RR OP 2Y	20	0.296C	RV-01	



TABLE 5.3-3

INSERVICE TESTING PROGRAM  
 ISI CLASS 1,2,3 AND NC VALVES  
 PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&ID: M-247 REVISION: E2  
 SYSTEM: Reactor Water Clean-Up

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Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
1201-2	C-2	1	A	6	GA	MO	0	AT-1 BT-CT PIT	RR OP 2Y	25	0.296C	RV-01	
1201-5	C-3	1	A	6	GA	MO	0	AT-1 BT-CT PIT	RR OP 2Y	25	0.296C	RV-01	
1201-80	B-9	1	A	4	GL	MO	0	AT-1 BT-CT PIT	RR OP 2Y	30	0.296C	RV-01	

TABLE 3.3-3  
INSERVICE TESTING PROGRAM  
ISI CLASS 1,2,3 AND NC VALVES  
PILGRIM NUCLEAR POWER STATION

P&ID: M-249 REVISION: E2  
SYSTEM: Standby Liquid Control

Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
1101-15	J-1	1	C	1.5	OK	SA	S	CT-O	RR			RV-19	
1101-16	H-1	1	A/C	1.5	OK	SA	S	AT-1 CT-C CT-O	RR RR RR		0.296C	RV-01 RV-19 RV-19	
1101-43A	E-4	2	C	1.5	OK	SA	S	CT-C CT-O	OP OP				001 001
1101-43B	F-4	2	C	1.5	OK	SA	S	CT-C CT-O	OP OP				001 001
1106-A	E-2	2	D	1.5	PG	XP	C	DTX	RR				006
1106-B	E-2	2	D	1.5	PG	XP	C	DTX	RR				006
PSV-1105A	D-4	2	C	1	RL	SA	C	CT-SP	5Y				
PSV-1105B	H-4	2	C	1	RL	SA	C	CT-SP	5Y				

TABLE 3.3-3

INSERVICE TESTING PROGRAM  
ISI CLASS 1,2,3 AND NC VALVES  
PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&ID: M-250 REVISION: E3  
SYSTEM: CRD Hydraulic

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Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
302-21A	B-2	2	B	1	RG	A	O/FC	BT-C BT-O FST PIT	CS CS CS 2Y			RV-20 RV-20 RV-05	003 003
302-21B	B-10	2	B	1	RG	A	O/FC	BT-C BT-O FST PIT	CS CS CS 2Y			RV-20 RV-20 RV-05	003 003
302-22	D-6	2	B	2	RG	A	O/FC	BT-C BT-O FST PIT	CS CS CS 2Y			RV-20 RV-20 RV-05	003 003
CV-126	B-17	2	B	0.5	RG	A	C/FO	BT-C BT-O FST PIT	OP OP OP 2Y			RV-21 RV-21 RV-05	003,004 003
CV-127	A-17	2	B	0.5	RG	A	C/FO	BT-C BT-O FST PIT	OP OP OP 2Y			RV-21 RV-21 RV-05	003,004 003
RD-132	C-18	2	D	1	RD	SA	C	DTR	SP				002
114	A-18	2	C	0.5	CK	SA	S	CT-C CT-O	SP SP			RV-22 RV-22	004
115	C-19	2	C	0.5	CK	SA	S	CT-C CT-O	SP SP			RV-22 RV-22	004
138	C-16	2	C	0.5	CK	SA	S	CT-C CT-O	SP SP			RV-22 RV-22	004

TABLE 3.3-3

INSERVICE TESTING PROGRAM  
 ISI CLASS 1,2,3 AND NC VALVES  
 PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&ID: M-252 REVISION: E1  
 SYSTEM: Nuclear Boiler

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Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actual Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
203-1A	C-6	1	A	20	GL	A	O/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	5.5	0.192C	RV-01  RV-05	
203-1B	E-9	1	A	20	GL	A	O/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	5.5	0.192C	RV-01  RV-05	
203-1C	F-7	1	A	20	GL	A	O/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	5.5	0.192C	RV-01  RV-05	
203-1D	F-7	1	A	20	GL	A	O/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	5.5	0.192C	RV-01  RV-05	
203-2A	C-11	1	A	20	GL	A	O/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	5.5	0.192C	RV-01  RV-05	
203-2B	E-9	1	A	20	GL	A	O/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	5.5	0.192C	RV-01  RV-05	

TABLE 3.3-3

INSERVICE TESTING PROGRAM  
ISI CLASS 1,2,3 AND NC VALVES  
PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&ID: M-252 REVISION: E1  
SYSTEM: Nuclear Boiler

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Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
203-2C	F-7	1	A	20	GL	A	O/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	5.5	0.192C	RV-01  RV-05	
203-2D	F-7	1	A	20	GL	A	O/FC	AT-1 BT-CT FST PIT	RR OP OP 2Y	5.5	0.192C	RV-01  RV-05	
203-3A	C-7	1	A/C	6	RL	SA	C	AT-3 BT-0 CT-SP	SP RR 5Y		212F	RV-23 RV-24	003
203-3B	F-7	1	A/C	6	RL	SA	C	AT-3 BT-0 CT-SP	SP RR 5Y		212F	RV-23 RV-24	003
203-3C	F-7	1	A/C	6	RL	SA	C	AT-3 BT-0 CT-SP	SP RR 5Y		212F	RV-23 RV-24	003
203-3D	E-9	1	A/C	6	RL	SA	C	AT-3 BT-0 CT-SP	SP RR 5Y		212F	RV-23 RV-24	003
203-4A	E-8	1	A/C	6	RL	SA	C	AT-3 CT-SP	SP 5Y		212F	RV-23	
203-4B	F-7	1	A/C	6	RL	SA	C	AT-3 CT-SP	SP 5Y		212F	RV-23	

TABLE 3.3-3

INSERVICE TESTING PROGRAM  
 ISI CLASS 1,2,3 AND NC VALVES  
 PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&ID: M-252 REVISION: E1  
 SYSTEM: Nuclear Boiler

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Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
220-1	D-9	1	A	3	GA	MD	C	AT-1 BT-C PIT	RR OP 2Y	30	0.296C	RV-01	
220-2	D-11	1	A	3	GA	MD	C	AT-1 BT-C PIT	RR OP 2Y	30	0.296C	RV-01	
220-44	L-4	1	A	1	GL	A	C/FC	AT-1 BT-C FST PIT	RR OP OP 2Y	10	0.296C	RV-01 RV-05	
220-45	L-3	1	A	1	GL	A	C/FC	AT-1 BT-C FST PIT	RR OP OP 2Y	10	0.296C	RV-01 RV-05	
220-46	B-4	1	B	1	GL	A	C/FC	BT-C FST PIT	CS CS 2Y			RV-25 RV-05	003
220-47	B-5	1	B	1	GL	A	C/FC	BT-C FST PIT	CS CS 2Y			RV-25 RV-05	003
6-58A	E-4	1	A/C	12	CK	SA	S	AT-1 CT-C	RR RR		0.296C	RV-01 RV-26	
6-58B	F-4	1	A/C	12	CK	SA	S	AT-1 CT-C	RR RR		0.296C	RV-01 RV-26	
6-62A	E-3	1	A/C	12	CK	SA	S	AT-1 CT-C	RR RR		0.296C	RV-01 RV-26	

TABLE 3.3-3

INSERVICE TESTING PROGRAM  
 ISI CLASS 1,2,3 AND NC VALVES  
 PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&ID: M-252 REVISION: E1  
 SYSTEM: Nuclear Boiler

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Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
6-62B	F-3	1	A/C	18	OK	SA	S	AT-1 CT-C	RR RR		0.296C	RV-01 RV-26	
1"276M3	C-7	NC	C	1	OK	SA	S	CT-C	RR			RV-27	005
84A	B-9	NC	C	1	OK	SA	S	CT-C	RR			RV-27	
85A	B-11	NC	C	1	OK	SA	S	CT-C	RR			RV-27	
84B	E-9	NC	C	1	OK	SA	S	CT-C	RR			RV-27	
85B	E-9	NC	C	1	OK	SA	S	CT-C	RR			RV-27	
84C	F-8	NC	C	1	OK	SA	S	CT-C	RR			RV-27	
85C	F-8	NC	C	1	OK	SA	S	CT-C	RR			RV-27	
84D	F-8	NC	C	1	OK	SA	S	CT-C	RR			RV-27	
85D	F-8	NC	C	1	OK	SA	S	CT-C	RR			RV-27	

TABLE 3.3-3

INSERVICE TESTING PROGRAM  
 ISI CLASS 1,2,3 AND NC VALVES  
 PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&amp;ID: X-001 REVISION:

SYSTEM: Recirculation Pump Seal Water

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Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
F0-13A	-	2	A/C	0.75	CK	SA	S	AT-1 CT-C	RR RR		0.296C	RV-01 RV-28	
F0-13B	-	2	A/C	0.75	CK	SA	S	AT-1 CT-C	RR RR		0.296C	RV-01 R-28	
F0-17A	-	2	A/C	0.75	CK	SA	S	AT-1 CT-C	RR RR		0.296C	RV-01 RV-28	
F0-17B	-	2	A/C	0.75	CK	SA	S	AT-1 CT-C	RR RR		0.296C	RV-01 RV-28	



TABLE 3.3-3

INSERVICE TESTING PROGRAM  
ISI CLASS 1,2,3 AND NC VALVES  
PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&ID: X-002 REVISION:  
SYSTEM: Transversing In-Core Probe

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Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
TIP-BALA	-	NC	A	-	BL	S	C	AT-1 BT-C PIT	RR OP 2Y	5	0.296C	RV-01 RV-29	
TIP-BALB	-	NC	A	-	BL	S	C	AT-1 BT-C PIT	RR OP 2Y	5	0.296C	RV-01 RV-29	
TIP-BALC	-	NC	A	-	BL	S	C	AT-1 BT-C PIT	RR OP 2Y	5	0.296C	RV-01 RV-29	
TIP-BALD	-	NC	A	-	BL	S	C	AT-1 BT-C PIT	RR OP 2Y	5	0.296C	RV-01 RV-29	
TIP-SHA	-	NC	D	-	SH	XP	O	DTX	SP				007
TIP-SHB	-	NC	D	-	SH	XP	O	DTX	SP				007
TIP-SHC	-	NC	D	-	SH	XP	O	DTX	SP				007
TIP-SHD	-	NC	D	-	SH	XP	O	DTX	SP				007

TABLE 3.3-3

INSERVICE TESTING PROGRAM  
 ISI CLASS 1,2,3 AND NC VALVES  
 PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&ID: X-003 REVISION:  
 SYSTEM: Post Accident Sampling

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Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Freq	Max Stroke Time	Max Leakage	Relief Request	Notes
SV-5065-63	-	NC	A	1	GL	SO	C	AT-1	RR		0.296C	RV-01	
SV-5065-64	-	NC	A	1	GL	SO	C	AT-1	RR		0.296C	RV-01	
SV-5065-71	-	NC	A	1	GL	SO	C	AT-1	RR		0.296C	RV-01	
SV-5065-72	-	NC	A	1	GL	SO	C	AT-1	RR		0.296C	RV-01	
SV-5065-77	-	NC	A	1	GL	SO	C	AT-1	RR		0.296C	RV-01	
SV-5065-78	-	NC	A	1	GL	SO	C	AT-1	RR		0.296C	RV-01	
SV-5065-85	-	NC	A	1	GL	SO	C	AT-1	RR		0.296C	RV-01	
SV-5065-86	-	NC	A	1	GL	SO	C	AT-1	RR		0.296C	RV-01	

TABLE 3.3-3

INSERVICE TESTING PROGRAM  
 ISI CLASS 1,2,3 AND NC VALVES  
 PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

P&ID: X-004 REVISION:  
 SYSTEM: C-19 Return

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Valve Number	P&ID Coor	ISI Class	Valve Cat	Valve Size	Valve Type	Actuator Type	Normal Position	Test Test	Test Frag	Max Stroke Time	Max Leakage	Relief Request	Notes
CV-5065-91	-	NC	A	1	GL	SO	C	AT-1	RR		0.296C	RV-01	
CV-5065-92	-	NC	A	1	GL	SO	C	AT-1	RR		0.296C	RV-01	