Dresden Nuclear Power Station
Units 2 & 3

Inservice Testing Program
Third Ten Year Interval

Revision 4

Commercial Service Dates:

Unit 2 – 06/09/72
Unit 3 – 11/16/71

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REVISION LOG

Effective Date	Revision Description	Prepared; IST Program Engineer	Date	Approved; Engr. Programs Supervisor	Date
8/20/01	IST Program Plan Submittal to the NRC, Revision 4. Plan revised to implement the check valve portion of the 1996 Addenda of the ASME OM Code.	[signature]	8/20/01	[signature]	8/20/01

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1.0 INTRODUCTION

1.1 Purpose

To provide requirements for the performance and administration of assessing the operational readiness of those pumps and valves whose specific functions that are required to:

- Shutdown the reactor to the cold shutdown condition,
- Maintaining the cold shutdown condition, or
- To mitigate the consequences of an accident.

1.2 Scope

The program plan was prepared to meet the requirements of the following subsections of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI (1989 Edition with no Addenda.)

- Subsection IWP, "*Inservice Testing of Pumps in Nuclear Power Plants*"

  ASME Section XI Sub-article IWP-1100 requires pump testing be performed in accordance with the requirements stated in the ASME/ANSI Operations and Maintenance of Nuclear Power Plant Standard, Part 6, 1987 Edition through the 1988 Addenda (OMa –1988).

- Subsection IWV, "*Inservice Testing of Valves in Nuclear Power Plants*"

  ASME Section XI Article IWV-1100 requires valve testing be performed in accordance with the requirements stated in the ASME/ANSI Operations and Maintenance of Nuclear Power Plant Standard, Part 10, 1987 Edition through the 1988 Addenda (OMa –1988).

- ASME OM Code-1995 Edition, 1996 addenda (including Appendix II) for check valves.

The Dresden Nuclear Power Station third 120-month interval Pump and Valve Inservice Testing Plan will be in effect from March 1, 1992 to February 28, 2002. Paragraph IWA-2430(e) of ASME Section XI allows the 120-month inservice testing interval to be extended for a period of time equivalent to the duration a unit is out of service continuously for six months or more. During D2R14 refueling outage Unit 2 was shut down for 325 days and during D3R13 refueling outage Unit 3 was shut down for 245 days. The Dresden IST testing interval will be extended 245 days since this is the most conservative of the two shutdowns. The addition of 245 day to the current testing interval changes the test interval end date from 2/28/02 to 10/31/02.

This plan will be updated as required in accordance with 10CFR50.55a(f).

This program plan provides a complete listing of those pumps and valves included in the program per the requirements of:

- OM-1987, Part 1 (OM-1), "*Requirements for Inservice Performance Testing of Nuclear Power Plant Pressure Relief Devices,*"
- OMa-1988, Part 6 (OM-6), "*Inservice Testing of Pumps in Light-Water Reactor Power Plants*", and
- OMa-1988, Part 10 (OM-10), "*Inservice Testing of Valves in Light-Water Reactor Power Plants*"
- OM-1995, 1996 Addenda, Check valve sections of "*Inservice Testing of Valves in Light-Water Reactor Power Plants*"

2.0 INSERVICE TESTING PLAN FOR PUMPS

2.1 Pump Inservice Testing Plan Description

This program plan meets the requirements of ASME/ANSI Oma-1988, Part 6 (OM-6) with the exception of specific relief requests contained in Attachment 2.

2.2 Pump Plan Table Description

The pumps included in the Dresden Nuclear Power Station IST Plan are listed in Attachment 14. The information contained in these tables identifies those pumps required to be tested to the requirements of ASME Section XI, the testing parameters and frequency of testing, and associated relief requests and remarks. The headings for the pump tables are delineated below.

<u>System</u> — The system abbreviation codes for the system containing the pump. A list of pump system codes and descriptions are provided in Attachment 13.

<u>Pump Name</u> — The descriptive name for the pump.

<u>Pump EPN</u> — The unique Equipment Part Number (EPN) for the pump. Each EPN is preceded with a Unit designator for the pump:

2/3	Unit 0
2	Unit 2
3	Unit 3

<u>Safety Class</u> — The ASME Code classification of the valve

1	Class 1
2	Class 2
3	Class 3
NC	Non-Code, Safety Related
NS	Non-Safety Related

2.2 Pump Plan Table Description (Cont'd)

P&ID	The Piping and Instrumentation Drawing on which the pump is represented.	
P&ID Coor.	The P&ID Coordinate location of the pump.	
Pump Type	The type of pump.	
	C	Centrifugal
	PD	Positive Displacement
Pump Driver	The type of pump driver.	
	MOTOR	Motor driven
	TURBINE	Steam turbine driven
	GEAR	Gear driven
Test Type	Measured test parameters.	
	PUMP SPEED	Measured only for variable speed pumps.
	DIFFERENTIAL PRESSURE	Calculated from suction and discharge pressures or obtained by direct measurement.
	DISCHARGE PRESSURE	Measured for positive displacement pumps.
	FLOW RATE	Measured using a rate or quantity meter installed in the pump test circuit.
	VIBRATION	Pump bearing vibration.

2.2 Pump Plan Table Description (Cont'd)

Test Freq. — The frequency for performing the specified inservice test.

M3	Quarterly (92 Days)

Relief Request — A relief request number is listed when a specific code requirement is determined to be impracticable.

Tech. Pos. — A technical position number is listed when the requirements of the code are not easily interpreted and clarifying information is needed. The technical position is used to document how Code requirements are being implemented at the station. Attachment 9 contains a index of all the Station Technical Positions included in Attachment 10. Station Technical Position numbers are prefixed with "TP". Attachment 11 contains a index of all the Corporate Technical Positions included in Attachment 12. Corporate Technical Position numbers are prefixed with "CTP"

Station Technical Position numbers are in the following format:

TP-NNX

Where;
- TP: Technical position identifier.
- NN: The first two numbers of the EPN are used for system dependant Technical Positions. The number 00 is used for Technical Positions applying to more than one system.
- X: A unique, sequential alphabetical character used for identifying multiple Technical Positions on the same system.

Corporate Technical Position numbers are in the following format:

CTPNN-XX

Where;
- CTP: Corporate Technical Position identifier.
- NN: The last two numbers of the year the Corporate Technical Position was issued.
- XX: A unique, sequential number used for identifying multiple Corporate Technical Positions issued during a year.

Notes — Miscellaneous pump information

3.0 INSERVICE TESTING PLAN FOR VALVES

3.1 Valve Inservice Testing Plan Description

This plan establishes the test intervals, parameters to be measured and meets the requirements of OM 1, OM-10 and OM-1995/1996 Addenda for check valves with the exception of the specific relief requests contained in Attachment 4.

Where the frequency requirements for valve testing have been determined to be impracticable, Cold Shutdown or Refuel Outage Justifications have been identified and written. These justifications are provided in Attachments 6 and 8 respectively.

3.2 Valve Plan Table Description

The valves included in the Dresden Nuclear Power Station IST Plan are listed in Attachment 16. The information contained in these tables identify those valves that are required to be tested to the requirements of OM 1, OM-10 and ISTC, the test parameters, frequency of testing, and the associated relief requests. The headings for the valve tables are delineated below.

System — The unique system identifier. A list of valve system codes and descriptions are provided in Attachment 15.

Valve Name — The description of the valve.

Valve EPN — A unique identifier for the valve. Each EPN is preceded with a Unit designator for the valve:

2/3	Unit 0
2	Unit 2
3	Unit 3

Safety Class — The ASME Class abbreviation.

1	Class 1
2	Class 2
3	Class 3
NC	Non-Code, Safety Related
NS	Non-Safety Related

3.2 Valve Plan Table Description (Cont'd)

P&ID	The Piping and Instrumentation Drawing (P&ID) number on which the valve appears. If the valve appears on multiple P&IDs, the primary P&ID will be listed.
P&ID Coor.	The coordinate location on the P&ID where the valve appears.
Category	The code category (or categories) as defined in paragraph 1.4 of OM-10.

A	Seat Leakage Limited.
B	Seat Leakage Not Required.
C	Self-Actuating Valves.
D	Single Use Valves.
AC	Both Categories A and C.

Size	The nominal pipe size of the valve, in inches.
Valve Type	The valve body style abbreviation.

BAL	Ball Valve
BTF	Butterfly Valve
CK	Check Valve
DAM	Damper
DIA	Diaphragm Valve
GA	Gate Valve
GL	Globe Valve
PLG	Plug Valve
RPD	Rupture Disk
RV	Relief Valve
SCK	Stop Check Valve
SHR	Shear Valve/SQUIB Valve
3W	3-Way Valve
4W	4-Way Valve
XFC	Excess Flow Check Valve

3.2 Valve Plan Table Description (Cont'd)

Act. Type — The actuator type abbreviation.

AO	Air Operator
EXP	Explosive Actuator
HO	Hydraulic Operator
M	Manual
MO	Motor Operator
SA	Self-Actuating
SO	Solenoid Operator

Normal Position — The normal position abbreviation. The valve's position during normal power operation. If the system does not operate during power operation, then the normal position is the position of the valve when the system is not operating.

C	Closed
LC	Locked Closed
D	De-energized (3-way and 4-way valves)
E	Energized (3-way and 4-way valves)
O	Open
LO	Locked Open
SYS	System Condition Dependent

3.2 Valve Plan Table Description (Cont'd)

Safety Position

The safety function position(s). For valves that perform safety functions in the open and closed positions more than one safety function position may be specified.

C	Closed
D	De-energized (3-way and 4-way valves)
E	Energized (3-way and 4-way valves)
D/E	De-energized or Energized
O	Open
O/C	Open or Closed

Test Type

The test type abbreviation.

LT	Leakage Rate Test
LTJ	Appendix J, Leakage Test
SC	Exercise Closed
SD	De-energize
SE	Energize
SO	Exercise Open
RT	Relief Valve Test
CC	Exercised Closed – Check Valve[1]
CO	Exercise Open – Check Valve[1]
CP	Partial Exercise Open[1]
DT	Rupture Disk / Explosive Valves
FC	Fail Safe Test Closed
FO	Fail Safe Test Open
FD	Fail Safe Test to Deenergized Position
PI	Position Indication Test

[1]Three letter designations should be used for check valve condition monitoring tests to differentiate between the various methods of exercising check valves. The letter following "CC", "CO", or "CP" should be "A" for acoustics, "D" for disassembly and inspection, "F" for flow indication, "M" for magnetics, "R" for radiography, "U" for ultrasonics, or "X" for manual exercise.

3.2 Valve Plan Table Description (Cont'd)

Test Freq. The test frequency abbreviation.

AJ	Appendix J
CM	Condition Monitoring[1]
CS	Cold Shutdown
M3	Quarterly
M6	Semiannual
OP	Operating Activities[2]
RR	Refuel Outage
SA2	Explosive Charge Sample
SA	Check Valve Disassembly Sample[3]
YX	X Years (X = 1,2,..., 10)

[1]Frequency is as indicated in respective Condition Monitoring Plan for that valve group.
[2]Satisfied i.a.w. Exelon IST Program Technical Position, TP-EXE-01-01, "Non-Safety Check Valve Exercise Testing By Normal Operations."
[3]Used for check valve disassembly/inspection per ISTC requirements or to indicate Condition Monitoring frequency (refer to respective Condition Monitoring Plan for that valve group

Relief Request A relief request number is listed when a specific code requirement is determined to be impracticable.

Deferred Just. Deferred Test Justification. This section refers to Cold Shutdown Justifications and Refuel Outage Justifications.

A Cold Shutdown Justification number is listed when the testing frequency coincides with Cold Shutdowns instead of being performed quarterly. Cold Shutdown Justification numbers for valves are prefixed with "CS".

A Refuel Outage Justification number is listed when the testing frequency coincides with Refuel Outages instead of being performed quarterly or during Cold Shutdowns. Refuel Outage Justification numbers for valves are prefixed with "RJ".

3.2 Valve Plan Table Description (Cont'd)

Tech. Pos.

A technical position number is listed when the requirements of the code are not easily interpreted and clarifying information is needed. The technical position is used to document how Code requirements are being implemented at the station. Attachment 9 contains a index of all the Station Technical Positions included in Attachment 10. Station Technical Position numbers are prefixed with "TP". Attachment 11 contains a index of all the Corporate Technical Positions included in Attachment 12. Corporate Technical Position numbers are prefixed with "CTP"

Station Technical Position numbers are in the following format:

TP-NNX

Where;
- TP: Technical position identifier.
- NN: The first two numbers of the EPN are used for system dependant Technical Positions. The number 00 is used for Technical Positions applying to more than one system.
- X: A unique, sequential alphabetical character used for identifying multiple Technical Positions on the same system.

Corporate Technical Position numbers are in the following format:

CTPNN-XX

Where;
- CTP: Corporate Technical Position identifier.
- NN: The last two numbers of the year the Corporate Technical Position was issued.
- XX: A unique, sequential number used for identifying multiple Corporate Technical Positions issued during a year.

Notes

Miscellaneous valve information

4.0 ATTACHMENTS:

Attachment 1
Pump Relief Request Index

Attachment 2
Pump Relief Requests

Attachment 3
Valve Relief Request Index

Attachment 4
Valve Relief Requests

Attachment 5
Cold Shutdown Justification Index

Attachment 6
Cold Shutdown Justifications

Attachment 7
Refuel Outage Justification Index

Attachment 8
Refuel Outage Justifications

Attachment 9
Station Technical Position Index

Attachment 10
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Corporate Technical Position Index

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Attachment 13
Inservice Testing Pump Table Index

Attachment 14
Inservice Testing Pump Table

Attachment 15
Inservice Testing Valve Table Index

Attachment 16
Inservice Testing Valve Table

ATTACHMENT 1

PUMP RELIEF REQUEST INDEX
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Designator	Description	Approval Date
RP-00A	Relief Request Deleted.	
RP-00B	Relief Request Deleted.	
RP-11A	Relief Request Deleted.	
RP-11B	Relief Request Deleted.	
RP-11C	**SBLC Pumps** Vibration Monitor Frequency Response.	04/96
RP-14A	**ECCS Keep Fill Pumps** Hydraulic parameters will not be established or measured.	08/95
RP-19A	Relief Request Deleted	
RP-23A	Relief Request Deleted.	
RP-52A	Converted to Technical Approach and Position TP-52A.	

ATTACHMENT 2

PUMP RELIEF REQUESTS

RELIEF REQUEST: RP-11C

(Page 1 of 3)

DESCRIPTION

Frequency response range of vibration monitoring equipment for the Standby Liquid Control (SBLC) pumps.

COMPONENT IDENTIFICATION/FUNCTION

PUMP	CLASS	P&ID CORD	FUNCTION
2A-1102	2	33/D7	Standby Liquid Control Pump
2B-1102	2	33/E7	Standby Liquid Control Pump
3A-1102	2	364/D7	Standby Liquid Control Pump
3B-1102	2	364/E7	Standby Liquid Control Pump

CODE REQUIREMENT(S)

ANSI/ASME OMa-1988, Part 6, Paragraph 4.6.1.6, Frequency Response Range: The frequency response range of the vibration measuring transducers and their readout system shall be from one-third minimum pump shaft rotational speed to at least 1000 Hz.

BASIS FOR RELIEF

The SBLC pumps are Model No. TD-60 triplex reciprocating positive displacement pumps which were supplied by Union Pump Company. The crankshaft bearings are tapered roller bearings. Reduction gears attached to the motor reduce the SBLC pump speed to 420 rpm, which corresponds to a frequency of 7 Hz.

The frequency response range required by the OMa-1988, Part 6, for these pumps is 2.3 Hz to 1000 Hz. Dresden Station has 2 vibration measurement systems. The very low frequency (VLF) system has a calibrated response range of 1 Hz to 500 Hz. The other vibration measurement system has a calibrated response range of 5 Hz to 10K Hz. Neither system satisfies the Code frequency response range requirement for the SBLC pumps.

Vibration measurements taken with two instruments with different frequency response ranges cannot be combined to provide a single number for comparison to the acceptance criteria of Part 6. The IRD FFT data loggers in use at Dresden Station integrate measured vibrations over specific frequency ranges, or "bins", to obtain an overall (RMS) vibration levels. The datalogger then multiplies the RMS vibration values of each frequency bin by the square root of 2, sums the vibration values from all bins, and

RELIEF REQUEST: RP-11C

BASIS FOR RELIEF (Con't)

displays the measured vibration as a single overall peak value. Therefore, the indicated value is dependent not only on the amplitude of the measured vibrations, but also on the frequency range and the datalogger's analysis parameters (i.e. - lines of resolution, maximum frequency of interest, types of averaging, number of averages, etc.). Commonwealth Edison has determined that vibration analysis below pump running speed would not provide any additional insight regarding degradation of the slow speed SBLC pumps. Commonwealth Edison has also consulted with technical experts from the Union Pump Company and they concur with this determination. The primary vibration response peaks for a triplex reciprocating pump would be at 1 times and 3 times pump running speed. Peaks would also be expected at 2 times and 6 times running speed due to the natural unbalance of the 3 connecting rods on the crankshaft. Higher frequency responses would be expected at gear mesh and bearing ball pass frequencies, and multiples thereof. In general, rubbing of mechanical components could be indicated at multiples of 1/2 times running speed. However, Union Pump Company stated that it is doubtful that the energy generated by rubs (at the connecting rod bushings or plunger seals) would be sufficient to provide indications at frequencies less than running speed because of the slow speed of the SBLC pumps. There are no other known pump degradation mechanisms that would be detected at frequencies less than running speed for the SBLC pumps. Since these pumps do not have journal bearings, oil whip (which would be indicated at slightly less than 1/2 running speed) is not a consideration.

Dresden Station has one VLF transducer and datalogger. However, additional VLF vibration equipment would have to be procured in case the current components break or require calibration. Additional VLF components would cost approximately $15,000 plus additional costs for calibration. It may be possible to procure a transducer that could be calibrated from 2 to 1000 Hz. However, the use of such a sensor with the Dresden IRD vibration measurement equipment would require the addition of a signal conditioner in the instrument loop, would require a special calibration procedure to be developed, and would unnecessarily complicate the taking of vibration readings. The cost of this alternative would be well in excess of $15,000.

Measurement of SBLC pump vibration with a frequency response range from minimum pump speed to at least 1000 Hz would provide reasonable assurance of operational readiness because no useful indications of degradation would be detected by measurement of vibration at frequencies less than pump running speed. The costs to procure, maintain and calibrate the components needed to comply with the frequency response range requirements of Part 6 would be a burden for the utility without a compensating increase in quality or safety.

RELIEF REQUEST: RP-11C

PROPOSED ALTERNATIVE

The calibrated frequency response range of the transducers and readout system for vibration measurements of the SBLC pumps will be from minimum pump running speed to at least 1000 Hz.

RELIEF REQUEST: RP-14A

DESCRIPTION

Relief is requested from establishing and measuring differential pressure and flow rate.

COMPONENT IDENTIFICATION/FUNCTION

PUMP	CLASS	P&ID CORD	FUNCTION
2-1401-4	2	27/E8	Unit 2 ECCS Keep Fill Pump
3-1401-4	2	358/E8	Unit 3 ECCS Keep Fill Pump

CODE REQUIREMENT(S)

OMa-1988, Part 6, Section 5.2: An inservice test shall be conducted with the pump operating at specified test reference conditions. The differential pressure and flow rate will be measured.

BASIS FOR RELIEF

Instrumentation does not exist for measuring pressures or flow rates. Pump output varies with system operation and with system leakage. Establishing set flow rates for vibration measurement purposes is not practicable. System modification to provide test measuring locations and a standard test flow path places undue burden on the utility without demonstrating any increase in the level of plant safety. These pumps are in continuous operation.

The Condensate Transfer system provides an additional non-Safety Related source of water for maintaining the ECCS pump discharge headers in a filled condition.

ALTERNATIVE TEST

Vibration measurements will be taken under normal operating conditions. Additionally, the LPCI and Core Spray systems are vented prior to each pump run and these systems have alarms that indicate if the discharge lines are not maintained full which gives further indication that the system is performing acceptably.

ATTACHMENT 3

VALVE RELIEF REQUEST INDEX

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Designator	Description	Approval Date
RV-00A	Deleted.	
RV-00B	Deleted. (Converted to RJ-00A and CTP98-02)	
RV-00C	Deleted. (Converted to RJ-00B)	
RV-02A	Deleted. (Withdrawn)	
RV-02B	Deleted.	
RV-02C	Deleted. (Converted to RJ-00B)	
RV-02D	Deleted. (Converted to RJ-02A)	
RV-02E	Deleted. (Withdrawn)	
RV-02F	Deleted. (Converted to RJ-00B)	
RV-02G	Deleted. (Converted to RJ-00B)	
RV-02H	Deleted. (Converted to CS-02B)	
RV-03A	Deleted. (Converted to RJ-03A)	
RV-03B	**CRD Scram Inlet and Outlet Valves** Individual scram insertion times and exercising will be performed in accordance with the Technical Specifications.	08/95
RV-03C	Deleted. (Converted to RJ-03B)	
RV-11A	Deleted. (Converted to RJ-11A)	

VALVE RELIEF REQUEST INDEX

(Page 2 of 3)

Designator	Description	Approval Date
RV-13A	Deleted. (Withdrawn due to implementation of check valve condition monitoring)	
RV-14A	Deleted. (Withdrawn due to implementation of check valve condition monitoring)	
RV-14B	Deleted. (ISTC 4.5.7 allows without relief)	
RV-14C	Deleted. (Converted to RJ-14A)	
RV-15A	Deleted. (Withdrawn due to implementation of check valve condition monitoring)	
RV-15B	Deleted. (ISTC 4.5.7 allows without relief)	
RV-23A	Deleted. (Withdrawn due to implementation of check valve condition monitoring)	
RV-23B	Deleted. (Converted to RJ-23B)	
RV-23C	Deleted. (ISTC 4.5.7 allows without relief)	
RV-23D	Deleted. (Withdrawn due to implementation of check valve condition monitoring)	
RV-23E	Deleted. (Converted to RJ-23A)	
RV-23F	Deleted. (Withdrawn due to implementation of check valve condition monitoring)	
RV-23G	Deleted. (Withdrawn due to implementation of check valve condition monitoring)	

VALVE RELIEF REQUEST INDEX
(Page 3 of 3)

Designator	Description	Approval Date
RV-23H	**HPCI Drain Pot Solenoid** Exercise valve quarterly without timing.	08/95
RV-24A	Deleted. (Converted to RJ-00B)	
RV-25A	Deleted. (Converted to RJ-002B)	
RV-37A	Deleted. (Converted to RJ-00B)	
RV-47A	Converted to Technical Approach and Position RJ-00B.	
RV-57A	**C.R. HVAC Cooling Water Flow Control Valve** Fail Safe test and monitor stem travel for degradation without timing.	08/95
RV-66A	Deleted. (Converted to TP-66A)	

ATTACHMENT 4

VALVE RELIEF REQUESTS

RELIEF REQUEST: RV-03B
(Page 1 of 2)

DESCRIPTION

Relief from Code timing and information on valve exercising frequency in accordance with Technical Specification frequency.

COMPONENT IDENTIFICATION/FUNCTION

There are 177 of each of the valve numbers listed below for each of the CRD Hydraulic Control Units (HCU).

VALVE	SIZE	CAT	CLASS	P&ID/ CORD	FUNCTION
2-0305-114	0.75"	C	2	34-2/2D	CRD Scram Outlet Check
2-0305-126	0.5"	B	1	34-2/1C	CRD Scram Inlet Valve
2-0305-127	0.5"	B	1	34-2/2C	CRD Scram Outlet Valve
3-0305-114	0.75"	C	2	365-2/2D	CRD Scram Outlet Check
3-0305-126	0.5"	B	1	365-2/1C	CRD Scram Inlet Valve
3-0305-127	0.5"	B	1	365-2/2D	CRD Scram Outlet Valve

CODE REQUIREMENT(S)

OM-10, Paragraph 4.2.1.1 Test Frequency: Category A and B vales shall be exercised at least once every 3 months.

OM-10, Paragraph 4.2.1.4(b) Power Operated Valves: Stroke timing to the nearest second.

OM-10, Paragraph 4.3.2.1 Check valves shall be exercised nominally every 3 months.

BASIS FOR RELIEF

To exercise these valves requires scramming the individual CRD's.

The proper operation of each of the valves is demonstrated by the Technical Specification required scram testing. To exercise these valves more than the current Technical Specification requirements is not practical.

RELIEF REQUEST: RV-03B
(Page 2 of 2)

BASIS FOR RELIEF (Con't)

These valves are exercised and each individual control rod drive scram insertion is timed and must meet specific time increments as stated in the Technical Specifications. This individual rod timing ensures that the valves function properly.

ALTERNATE TEST

Individual scram insertion times and subsequent valve exercising will be performed per the Technical Specification requirements. The required frequency is as follows:

1. Following core alteration or shutdown greater than 120 days and with reactor pressure greater than 800 psig, and prior to thermal power exceeding 40% of rated thermal power, all control rods shall be subject to scram-time tests.

2. At least 10% of the control rods, on a rotating basis, at least once per 120 days of power operation.

In the Spring of 2001 Dresden will convert to Improved Technical Specifications. At this time the required frequency will be:

1. Prior to exceeding 40% rated thermal power (RTP) after each reactor shutdown ≥120 days and with reactor steam dome pressure ≥800 psig, each control rod will be scram time tested.

2. At least once per 120 days of cumulative power operation, a representative sample of the control rods will be scram time tested.

3. After performing work on a control rod or the CRD System that could affect scram time and with any reactor steam dome pressure, each affected control rod will be scram time tested.

4. Prior to exceeding 40& RTP after fuel movement within the affected core cell and prior to exceeding 40% RTP after work on a control rod or the CRD System that could affect scram time, with reactor steam dome pressure ≥800 psig, each affected control rod will be scram time tested.

This Relief Request complies with Generic Letter 89-04, Position 7.

RELIEF REQUEST: RV-23H
(Page 1 of 2)

DESCRIPTION

Relief is requested from stroke timing the High Pressure Coolant Injection (HPCI) drain pot solenoid valves.

COMPONENT IDENTIFICATION/FUNCTION

VALVE	SIZE	CAT	CLASS	P&ID/ CORD	FUNCTION
2-2301-32	1"	B	2	51/C7	HPCI Drain Pot Solenoid
3-2301-32	1"	B	2	374/C7	HPCI Drain Pot Solenoid

CODE REQUIREMENT(S)

OM-10, Paragraph 4.2.1.1 Valve exercising Test: Category A and B valves shall be tested nominally every three months.

BASIS FOR RELIEF

These valves function as a backup to the exhaust line drain pot steam trap. During normal operation of the turbine using high quality steam, the drain path from the drain pot to the torus via the steam trap is adequate to remove condensate from the turbine exhaust line. However, during turbine operation with low pressure and low quality steam (which is seen during HPCI surveillance testing during plant startup and as would be expected during HPCI operation during a small break LOCA), condensate collects in the drain pot faster than it can be drained through the trap. Under these conditions, valve 2301-32 opens automatically to drain to the gland seal condenser upon receipt of a signal from a drain pot level switch when the drain pot level reaches the high level alarm setpoint. A high level condition sounds an alarm in the control room.

These valves are equipped with hand switches to enable remote manual operation from the control room; however, they are not equipped with position indicators and the valves are totally enclosed, so valve position cannot be verified by direct observation. Therefore, it is impractical to exercise and stroke time these valves in accordance with Code requirements. Valve actuation may be indirectly verified by removing the HPCI system from service, filling the drain pot with water until the high level alarm is received, and observing that the high level alarm clears. It is impractical to assign a maximum limiting stroke time to these valves using this test method because the time for the alarm to clear would depend primarily on variables such as the rate of filling and the level of the drain pot when the filling is secured. The steam line drain pot is not equipped with direct level indication; therefore, the time required for the alarm to clear may vary significantly and operation of valve 2301-32 cannot be verified by operation of the hand switch.

RELIEF REQUEST: RV-23H

BASIS FOR RELIEF (Con't)

Failure of these valves to perform their safety function would be indicated by a drain pot high level alarm during operation with low pressure steam. Functional tests are conducted on the drain pot level alarm switches at least once each cycle to verify their operability. Additionally, condensate entrapped in the steam would cause significant fluctuations in exhaust steam header pressure.

Compliance with the quarterly exercising and stroke timing requirements of the Code would require either system modifications to replace these valves with ones of testable design, or to purchase non-intrusive test equipment and develop new test methods and procedures. These alternatives would be burdensome due to the costs involved.

ALTERNATE TEST

These valves will be exercised quarterly using the handswitch. They will also be functionally tested each refueling outage by filling the drain pot and verifying that valve 2301-32 actuates as indicated by the high level alarm clearing.

Because exercising of these valves without stroke timing provides no measure of valve degradation, maintenance activities were instituted to compensate for testing deficiencies. Following discussions with the manufacturer regarding valve design and application, it was decided to disassemble, inspect and repair or replace these valves every third cycle in addition to the above testing.

RELIEF REQUEST: RV-57A
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DESCRIPTION

This requests relief for full stroke exercising the Control Room HVAC Refrigerant Heat Exchanger Cooling Water Outlet Flow Control Valve.

COMPONENT IDENTIFICATION/FUNCTION

VALVE	SIZE	CAT	CLASS	P&ID/ CORD	FUNCTION
2/3-5741-62	2.5"	B	3	3121/3B	Control Room HVAC Refrigerant Service Water Outlet Flow Control

CODE REQUIREMENT(S)

OM-10, Paragraph 4.2.1.4 — Power Operated Valves Stroke Testing: The limiting value(s) of full-stroke time of each power operated valve shall be specified by the owner.

BASIS FOR RELIEF

This valve controls the cooling water flow through the Control Room HVAC Refrigerant heat exchanger. The valve receives a signal from a pressure transmitter located on the refrigerant side. When the pressure increases due to the refrigerant temperature rising, the 2/3-5741-62 throttles open further to allow more cooling. Similarly, the valve throttles flow down when the pressure drops.

Since the valve open and closes based on a signal from a pressure transmitter, the valve cannot be accurately timed. Forcing the valve to stroke by disconnecting the air tubing from the transducer and connecting an external air source is cumbersome and will not yield repeatable data. The valve stem is readily visible and can easily be observed for degrading conditions.

ALTERNATE TEST

This valve will be exercised and fail safe tested quarterly by isolating the air to the valve. Stem conditions and motion will be observed for evidence of degrading conditions.

ATTACHMENT 5

COLD SHUTDOWN JUSTIFICATION INDEX

(Page 1 of 1)

Designator	Description	Revision Date
CS-00A	**CS & LPCI Check Valves** Reactor pressure is too high during operations to exercise these valves with full flow.	06/00
CS-00B	Deleted.	
CS-02A	**Recirc Pump Discharge Valves** Load drops during operations would be required to stroke the valves.	03/92
CS-02B	**MSIV's** Full stroke and failsafe testing of the MSIV's during cold shutdown.	03/92
CS-02C	Deleted.	
CS-03A	**CRD Accumulator Charging Water Check Valve** To verify closure requires securing the CRD pump which could damage the recirc pump mechanical seals.	03/92
CS-10A	**SDC Inlet/Outlet Valves** SDC is isolated over 350°F.	03/92
CS-15A	Deleted.	
CS-16A	Deleted.	
CS-23A	Deleted.	
CS-37A	**RBCCW Containment Isolation Valves** Both recirc pumps need to be secured prior to exercising these valves closed.	03/92
CS-47A	**Instrument Air Containment Isolation Valves** Closing these valves could cause the MSIV's close.	03/92

ATTACHMENT 6

COLD SHUTDOWN JUSTIFICATIONS

COLD SHUTDOWN JUSTIFICATION: CS-00A

(Page 1 of 1)

Component Number	System	Code Class	Category
2(3)-1402-8A	CORE SPRAY	2	C
2(3)-1402-8A	CORE SPRAY	2	C
2(3)-1402-9A	CORE SPRAY	1	AC
2(3)-1402-9B	CORE SPRAY	1	AC
2(3)-1501-25A	LPCI	1	AC
2(3)-1501-25B	LPCI	1	AC

JUSTIFICATION

Core Spray and LPCI are both low pressure systems. During normal plant operation, reactor pressure is too high for these systems to be able to inject into the reactor.

Therefore, the 2(3)-1402-9A(B) and 2(3)-1501-25A(B) valves will be exercised during cold shutdown.

The 2(3)-1402-8A(B) valves will be full stroke exercised during cold shutdown and partial stroke exercised quarterly.

COLD SHUTDOWN JUSTIFICATION: CS-02A

Component Number	System	Code Class	Category
2(3)-0202-5A	RX RECIRC	1	B
2(3)-0202-5B	RX RECIRC	1	B

JUSTIFICATION

For Unit 2, the recirculation pump discharge valves cannot be full stroke tested during reactor operation because it would require a load drop (of approximately 400 megawatts) to a minimum recirculation pump speed of 28%. This is deemed impractical.

For Unit 3, the recirculation pump discharge valves cannot be full stroke tested during reactor operation because it would require a load drop to a minimum recirculation pump speed of 28% and insertion of control rods to achieve less than 80% Flow Control Line. The closure logic for these valves would result in the recirculation pump trip and would place the plant in an unwanted system/power transient, and could result in a Technical Specifications mandated shutdown and an un-analyzed condition for the reactor recirculation piping.

The potential of operating in the prohibited region of the power flow map [above 80% Flow Control Line (FCL), below 39% core flow] exists when one (1) recirculation pump is shut down. The low flow/high power region of the operating map typically exhibits less margin to stability than other regions. Instabilities result in LPRM and APRM Oscillations significantly greater than normal noise levels.

To place the plant in this potential condition is deemed impractical.

Therefore, these valves will be full stroke tested during cold shutdown when the reactor recirculation system can be secured.

COLD SHUTDOWN JUSTIFICATION: CS-02B
(Page 1 of 1)

Component Number	System	Code Class	Category
2(3)-0203-1A	MAIN STEAM	1	A
2(3)-0203-1B	MAIN STEAM	1	A
2(3)-0203-1C	MAIN STEAM	1	A
2(3)-0203-1D	MAIN STEAM	1	A
2(3)-0203-2A	MAIN STEAM	1	A
2(3)-0203-2B	MAIN STEAM	1	A
2(3)-0203-2C	MAIN STEAM	1	A
2(3)-0203-2D	MAIN STEAM	1	A

JUSTIFICATION

These valves are normally open and are required to close for containment isolation. They provide primary containment isolation for the main steam system. These valves are air operated open and air to close with spring assist.

To completely fail-safe exercise these valves to the closed position, the air lines to the valves must be disconnected. Thus, with the loss of air, the fail-safe mechanism (springs) would be demonstrated. The resultant exercising of the Main Steam Isolation Valves (MSIV's) could place the plant in an unsafe mode of operation causing transient conditions which would result in a reactor scram. Furthermore, the inboard MSIVs are inaccessible during power operation.

NUREG-1482 "Guidelines for Inservice Testing at Nuclear Power Plants", Section 2.4.5, "Deferring Valve Testing to Clod Shutdown or Refuel Ourages" identifies "Impractical conditions justifying test deferrals" as those conditions that could result in an unnecessary plant shutdown, cause unnecessary challenges to safety systems, place undue stress on components, cause unnecessary cycling of equipment, or unnecessarily reduce the life expectancy of the plant systems and components. Section 2.4.5 also identified that any testing that could cause a plant trip or require a power reduction can be considered examples of impractical conditions. The note at the end of NUREG-1482, Section 4.2.4, "Main Steam Isolation Valves" also identified that the revised standard technical specification bases for MSIV surveillance requirements states the "MSIV's should not be exercised at power, since even a partial stroke exercise increases the risk of a valve closure when the unit is generating power.

No reduction from high power levels (>75% power) will be made specifically to accomplish this testing. The MSIV's will be full-stroke timed and fail-safe tested during cold shutdowns. In addition, these valves will be partially stroke closed at least once per quarter.

COLD SHUTDOWN JUSTIFICATION: CS-03A

Component Number	System	Code Class	Category
2(3)-0305-115	CRD	1	C

JUSTIFICATION

In order to verify closure of these valves, the control rod drive pump would need to be secured. In doing this, the seal purge water flow to the recirculation pump seals and cooling water to the control rod drive seals would be stopped and possible damage to these seals could result. Procedures dictate that loss of CRD pumps require a manual reactor scram.

Therefore, these valves will be exercised during cold shutdowns when the charging water header can be depressurized. Monitoring individual accumulator pressure and alarms will be performed to verify that the check valves have closed on reversed flow.

COLD SHUTDOWN JUSTIFICATION: CS-10A

(Page 1 of 1)

Component Number	**System**	**Code Class**	**Category**
2(3)-1001-1A	SDC	1	A
2(3)-1001-1B	SDC	1	A
2(3)-1001-2A	SDC	1	A
2(3)-1001-2B	SDC	1	A
2(3)-1001-2C	SDC	1	A
2(3)-1001-5A	SDC	1	A
2(3)-1001-5B	SDC	1	A

JUSTIFICATION

These SDC inlet and outlet isolation valves are normally closed during operations and open when the SDC system is being used during shutdowns. They are required to close for containment isolation.

Since the primary function of the SDC system is to cool the reactor water from 350°F to 125°F, these valves are interlocked closed when the Recirc Loop temperature exceeds 350°F and therefore cannot be exercised every 3 months.

These valves will be exercised during cold shutdown.

COLD SHUTDOWN JUSTIFICATION: CS-37A

(Page 1 of 1)

Component Number	System	Code Class	Category
2(3)-3702	RBCCW	2	A
2(3)-3703	RBCCW	2	A
2(3)-3706	RBCCW	2	A

JUSTIFICATION

These valves are normally open and are required to close for containment isolation. They provide primary containment isolation for the reactor building cooling water system. To exercise these valves to the closed position would require both recirculation pumps to be out of service because the recirculation pumps require RBCCW cooling water for the pump seal and lube oil coolers in order to remain operable. This action is considered impractical during normal operation.

These valves will be exercised during cold shutdowns.

COLD SHUTDOWN JUSTIFICATION: CS-47A

(Page 1 of 1)

Component Number	System	Code Class	Category
2(3)-4722	DRYWELL PNEUMATIC	NC	A

JUSTIFICATION

The 2(3)-4722 valves provide the containment isolation function for the drywell instrument air system which supplies various fail-safe valves, including the Main Steam Isolation Valves (MSIV's). Exercising and fail-safe testing of the 2(3)-4722 valves during reactor operation could cause the instrument air system to bleed down should the 2(3)-4722 fail closed. Without air to hold open the MSIV's, the MSIV's would be exercised to their fail-safe position (closed). Closure of the MSIV's during reactor operation would cause transient conditions which would result in a reactor scram and loss of the reactor's primary heat sink.

Therefore, these valves will be exercised and fail-safe tested during cold shutdown periods.

ATTACHMENT 7

REFUEL OUTAGE JUSTIFICATION INDEX

(Page 1 of 1)

Designator	Description	Revision Date
RJ-00A	**Excess Flow Check Valves** Exercise during refuel outages	06/00
RJ-00B	**Check Valve Exercising During Refuel Outages**	06/00
RJ-02A	**MSIV Accumulator Check Valves** Exercise closed test	06/00
RJ-02B	**Rx Recirc Bypass Check Valve** Exercise open test.	06/00
RJ-03A	**CRD Backup Scram and Scram Dump Valves** Exercise without timing and verify proper venting during cold shutdowns.	08/01
RJ-03B	**ARI/ATWS Valves** Exercise without timing and verify proper operation during refuel outages.	08/01
RJ-11A	Deleted. (Withdrawn due to implementation of check valve condition monitoring)	
RJ-12A	**RWCU Bypass Check Valve** Exercise open test.	06/00
RJ-14A	**Core Spray Injection Check Valves** Verify closure function with leakage test on refuel outage basis.	06/00
RJ-16A	**Pressure Suppression Air Operated Valves** Partial failsafe tested during refuel outages.	06/00
RJ-23A	**HPCI Turbine Exhaust Check Valve** Leak test during reactor refueling outages.	06/00
RJ-23B	Deleted. (Withdrawn due to implementation of check valve condition monitoring)	
RJ-23C	**HPCI Keep Fill Valves** Full stroke exercise open and closed during reactor refueling outages.	06/00

ATTACHMENT 8

REFUEL OUTAGE JUSTIFICATIONS

REFUEL OUTAGE JUSTIFICATION: RJ-00A

Component Number	System	Code Class	Category
All Excess Flow Check Valves	Various	1	A/C

Component Function(s)

The excess flow check valves limit flow (leakage) from failed instrument lines connected to the Reactor Coolant Pressure Boundary (RCPB). These valves must close in the event of an instrument or instrument line failure outside of primary containment.

Justification

Excess Flow Check Valves are tested in accordance with the Technical Specifications, Updated Final Safety Analysis Report, and ComEd Corporate Position TP-CWE-IST-98-02. These valves must close in the event of an instrument or instrument line failure outside of containment.

Excess flow check valves will be exercised closed during the excess flow check valve leakage test that is conducted during the Reactor Vessel Inservice Leak or Hydrostatic test performed during each reactor refueling outage.

REFUEL OUTAGE JUSTIFICATION: RJ-00B

Component Number	System	Code Class	Category
2(3)-0205-27*	Head Cooling	1	AC
2(3)-0220-058A(B)	Feedwater	1	AC
2(3)-0220-059	Feedwater	1	AC
2(3)-0220-062A(B)	Feedwater	1	AC
2(3)-0220-141	Rx Recirc	2	AC
2(3)-0299-097A(B)	RVWLIS	1	AC
2(3)-0299-098A(B)	RVWLIS	1	AC
2(3)-0299-099A(B)	RVWLIS	1	AC
2(3)-0299-100A(B)	RVWLIS	1	AC
2(3)-0399-593	CRD	NC	AC
2(3)-0399-594	CRD	NC	AC
2(3)-1201-158	RWCU	2	C
2(3)-1299-285	RWCU	2	AC
2(3)-2499-CK-1A(B)	CAM	NC	AC
2(3)-2499-CK-2A(B)	CAM	NC	AC
2(3)-2499-CK-3A(B)	CAM	NC	AC
2(3)-2499-CK-4A(B)	CAM	NC	AC
2(3)-4799-281A	TRV PNEUMATIC	NC	AC
2(3)-4799-514**	TIP PURGE	NC	AC

JUSTIFICATION

These valves can only be exercised closed by performing a leakage test. This testing is impractical to perform during reactor operation or cold shutdown periods since the affected systems would be required to be out of service for an extended period of time.

Additionally, exercise testing during cold shutdowns would impose a significant hardship on Dresden due to the extensive system lineups and test equipment configurations required for leakage testing.

The subject valve will be tested during each refueling outage.

This justification is in accordance with the position detailed in NUREG 1482, Paragraph 4.1.4, "Extension of Test Interval to Refueling Outage for Check Valves Verified Closed by Leakage Testing".

* The non-safety open exercise test of the 2(3)-0205-27 is satisfactory demonstrated every refueling outage during the vessel leakage and hydro tests when flow through this valve is used to pressurize the reactor.

** The non-safety open exercise test of the 2(3)-4799-514 valve is performed semi-annual during calibration of the nitrogen purge flowrator.

REFUEL OUTAGE JUSTIFICATION: RJ-02A

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Component Number	System	Code Class	Category
2(3)-0220-84A	MAIN STEAM	SR	AC
2(3)-0220-84B	MAIN STEAM	SR	AC
2(3)-0220-84C	MAIN STEAM	SR	AC
2(3)-0220-84D	MAIN STEAM	SR	AC
2(3)-0220-85A	MAIN STEAM	SR	AC
2(3)-0220-85B	MAIN STEAM	SR	AC
2(3)-0220-85C	MAIN STEAM	SR	AC
2(3)-0220-85D	MAIN STEAM	SR	AC

JUSTIFICATION

The Main Steam Isolation Valve (MSIV) Accumulator check valves will not be exercised quarterly or during cold shutdowns. Verifying closure of these valves during power operation or cold shutdown requires deinerting and entering the drywell and X-area to perform the appropriate leak rate tests. The average dose rates for these areas is considered to be extremely high. Additionally, to perform the necessary leak test, an extensive amount of accumulator piping must be disassembled to isolate the check valves. This extensive maintenance will delay unit startup if the unit is in cold shutdown. This test is impractical to perform during normal operation or cold shutdown due to the dose considerations and the burden of disassembling the MSIV accumulator piping.

These valves will be exercised closed each reactor refueling.

Note: In addition to normal operations verifying these check valves open to the Non-safety position, the valves are also tested open after the leakage test is performed during refuel outages. Following the leakage test the MSIV accumulator check valve is exercised open when the accumulator is repressurized.

REFUEL OUTAGE JUSTIFICATION: RJ-02B

Component Number	System	Code Class	Category
2(3)-0220-141	RX RECIRC	2	AC

JUSTIFICATION

This valve is required to open to relieve any overpressure that may occur following closure of the reactor recirculation isolation valves for containment isolation. This function ensures the piping integrity and the ability of the containment isolation valves to mitigate the consequences of an accident.

These valves can not be tested to the open position during normal operation or cold shutdown since a full flow or diagnostic test would require realigning the reactor recirculation system. This evolution would require a reduction in plant power and place the plant is a condition outside normal operating practices.

These valves will be exercised open during reactor refueling outages when the reactor recirculation system is not required.

REFUEL OUTAGE JUSTIFICATION: RJ-03A

(Page 1 of 2)

Component Number	System	Code Class	Category
2(3)-0302-19A	CRD	NC	B
2(3)-0302-19B	CRD	NC	B
2(3)-0301-122	CRD	NC	C
2(3)-0302-20A	CRD	NC	B
2(3)-0302-20B	CRD	NC	B

JUSTIFICATION

The Control Rod Drive Backup Scram and Scram Dump Valves will not be exercised or timed quarterly or during cold shutdown periods. To exercise these valves requires inserting all of the control rod drives. This is not considered practical during normal operation.

Since all control rods are fully inserted during cold shutdowns, exercising these valves during cold shutdowns could damage the CRD seals by trying to force the control rod further in. The only way to prevent damaging the CRD seals is by draining the water side of each accumulator. To drain the accumulators requires opening 177 manual drain valves, waiting for the water to stop flowing out, and then closing the valve. This operation also requires independent verification by another operator and would be labor intensive during cold shutdowns and could delay the unit startup. Radiation levels at the manual drain valves are significantly high and result in a relatively large dose to the operators.

Approximately 1200 gallons of water would be discharged to radwaste when the accumulators are drained. This is approximately 10% of the radwaste capacity and therefore the potential to overload the radwaste system exists.

These 0.5" valves operate too rapidly and there is no position indication for any practical timing measurements. The backup scram and scram dump valves operate to vent instrument air from the scram valves and the scram discharge volume vent and drain valves. Valves 0302-19A and 0302-19B are in series and each shift to vent air. Check valve, 0301-122, bypasses 0302-19A to provide flow to 0302-19B. The series of valves provide multiple vent paths. Valve 0302-20B and 0302-20A are in series. Valve 0302-20B shifts to provide flow to 0302-20A.

REFUEL OUTAGE JUSTIFICATION: RJ-03A

Valves 0302-19A and 0302-19B vent directly to atmosphere, and air flow can be verified to exit through both ports. Flow through 0302-19B and 0301-122 cannot be independently quantified. Flow only vents from 0302-20A if both 0302-20A and 0302-20B shift. Additional system manipulations are not necessary to verify that all valves stroke.

These valves will be exercised, without timing, and proper venting will be verified during reactor refuel outages. The time to depressurize the scram air header from 75 psig to 10 psig or under will be measured and verified to be under 15 seconds.

REFUEL OUTAGE JUSTIFICATION: RJ-03B
(Page 1 of 2)

Component Number	System	Code Class	Category
2(3)-0399-524A	CRD	NC	B
2(3)-0399-524B	CRD	NC	B
2(3)-0399-525	CRD	NC	C
2(3)-0399-548A	CRD	NC	B
2(3)-0399-548B	CRD	NC	B
2(3)-0399-549A	CRD	NC	B
2(3)-0399-549B	CRD	NC	B

JUSTIFICATION

The Alternate Rod Insertion/Anticipated Transient Without Scram (ARI/ATWS) Air Header Bleed Off valves quarterly or during cold shutdown periods will not be exercised or timed quarterly or during cold shutdowns.

These solenoid operated valves provide an alternate method of relieving the CRD scram air header pressure so as to provide CRD insertion.

To exercise these valves requires inserting all of the control rod drives. This is not considered practical during normal operation.

Since all control rods are fully inserted during cold shutdowns, exercising these valves during cold shutdowns could damage the CRD seals by trying to force the control rod further in. The only way to prevent damaging the CRD seals is by draining the water side of each accumulator. To drain the accumulators requires opening 177 manual drain valves, waiting for the water to stop flowing out, and then closing the valve. This operation also requires independent verification by another operator and would be labor intensive during cold shutdowns and could delay the unit startup. Radiation levels at the manual drain valves are up to 2 Rem at 6 inches, which results in a relatively large dose to the operators.

Approximately 1200 gallons of water would be discharge to radwaste when the accumulators are drained. This is approximately 10% of the radwaste capacity and therefore the potential to overload the radwaste system exists.

REFUEL OUTAGE JUSTIFICATION: RJ-03B
(Page 2 of 2)

These 0.5" valves operate too rapidly and there is no position indication for any practical timing measurements. Check valve, 0399-525, bypasses 0399-524A to provide flow to 0399-524B. Valves 0399-524A and 0399-524B vent directly to atmosphere, and air flow can be verified to exit through both ports. Flow through 0399-524B and 0399-525 cannot be independently quantified.

These valves will be exercised, without timing, and proper venting will be verified during reactor refuel outages. The time to depressurize the scram air header from 75 psig to 10 psig or under will be measured and verified to be under 15 seconds.

REFUEL OUTAGE JUSTIFICATION: RJ-12A

(Page 1 of 1)

Component Number	System	Code Class	Category
2(3)-1299-285	RWCU	2	AC

JUSTIFICATION

This valve is required to open to relieve any overpressure that may occur following closure of the reactor water cleanup isolation valves for containment isolation. This function ensures the piping integrity and the ability of the containment isolation valves to mitigate the consequences of an accident.

These valves can not be tested to the open position during normal operation or cold shutdown since a full flow or diagnostic test would require realigning the reactor water cleanup system. This evolution would require a reduction in plant power and place the plant is a condition outside normal operating practices.

These valves will be exercised open during reactor refueling outages when the reactor water cleanup system is not required.

REFUEL OUTAGE JUSTIFICATION: RJ-14A

(Page 1 of 1)

Component Number	System	Code Class	Category
2(3)-1402-9A	CORE SPRAY	1	AC
2(3)-1402-9B	CORE SPRAY	1	AC

JUSTIFICATION

The 2(3)-1402-9A(B) valves are the Core Spray Injection Check Valves. These valves will not be exercised closed quarterly or during cold shutdown. To verify the above check valves closed requires quantifying leakage with a reverse flow test or seat leakage test.

The 1402-9A(B) valves are located on the third floor of the drywell. Since testing these valves under power would require primary containment to be violated and radiological concerns make access to the drywell impractical, no direct or indirect methods exist for quantifying leakage during power operation. In addition, performing closure test during cold shutdowns requires removing the system from service, draining the piping, performing a seat leakage test, returning the system to service and filling and venting the piping. These tasks could delay plant startup as described in NUREG-1482 Section 4.1.4.

Operability of the above check valves in the closed position will be verified each reactor refueling outage. Closure will be verified during performance of a high pressure seat leakage test in which seat leakage will be quantified.

REFUEL OUTAGE JUSTIFICATION: RJ-16A

Component Number	System	Code Class	Category
2(3)-1601-20A	PRESSURE SUPPRESSION	NC	A
2(3)-1601-20B	PRESSURE SUPPRESSION	NC	A
2(3)-1601-21	PRESSURE SUPPRESSION	NC	A
2(3)-1601-22	PRESSURE SUPPRESSION	NC	A
2(3)-1601-23	PRESSURE SUPPRESSION	NC	A
2(3)-1601-24	PRESSURE SUPPRESSION	NC	A
2(3)-1601-56	PRESSURE SUPPRESSION	NC	A
2(3)-1601-60	PRESSURE SUPPRESSION	NC	A
2(3)-1601-63	PRESSURE SUPPRESSION	NC	A

Justification

In order to ensure the Pressure Suppression system functions, these valves must fail to the required position following a loss of control air or control power. The design of these valves control system utilizes two different control logic's to position the valve to the fail safe position. Which fail safe logic and control is used is dependent upon whether the failure is a loss of normal control air or loss of control power. Thus, two different "fail safe" tests are required to be performed to ensure full fail safe capability of these valves. Loss of control power fail safe test is satisfied during the quarterly valve stroke test. Loss of actuating air system fail safe test requires the associated pneumatic piping system to be disassembled to bleed down the air header. Since the loss of actuating air fail safe test requires system disassembly, performance of this fail safe test on a quarterly basis is not practical, due to the potential for system damage with each disassembly. Additionally, the quarterly stroke test ensures that 2/3 of the fail safe ability (i.e. solenoid valve shift and main valve action) is verified for these valves. Per NUREG 1482 Section 2.4.5, impractical conditions which would justify deferral of a test frequency are those that could place undo stress on components or unnecessary reduce the life expectancy of plant components. Therefore, based on the guidance of NUREG 1482, these valves will be fail safe tested (loss of air) during reactor refueling outages and following valve maintenance that could affect the valves ability to achieve its fail safe position.

REFUEL OUTAGE JUSTIFICATION: RJ-23A

(Page 1 of 1)

Component Number	System	Code Class	Category
2(3)-2301-45	HPCI	2	AC

JUSTIFICATION

The 2(3)-2301-45 High Pressure Coolant Injection (HPCI) turbine exhaust check valve will not be exercised closed quarterly or during cold shutdown. To verify the above check valves closed requires quantifying leakage with a reverse flow test or seat leakage test.

These valves have a safety function in the closed direction for primary containment isolation and are stroke closed during the 10 CFR 50, Appendix J, LLRT seat leakage test. Testing these valves in this fashion requires moving the LLRT test apparatus into an area located just off of the torus catwalk. Establishing the test conditions, conducting the test, and returning the system to normal line-up renders leak testing impractical during power operation and cold shutdown outages as described in NUREG-1482, Section 4.1.4.

Additionally, conduct of this test during cold shutdown could unnecessarily delay Unit startup.

The 2(3)-2301-45 valves will be exercised closed during the Appendix J leak rate test each reactor refueling outage as described in NUREG 1482, Section 4.1.4.

REFUEL OUTAGE JUSTIFICATION: RJ-23C

COMPONENT IDENTIFICATION/FUNCTION

VALVE	SIZE	CAT	CLASS	P&ID/ CORD	FUNCTION
2-2354-500	0.75"	C	2	M51/7C	HPCI Keep Fill
2-2354-501	0.75"	C	2	M51/7C	HPCI Keep Fill
2-2354-502	0.75"	B	2	M51/7C	HPCI Keep Fill
3-2354-500	0.75"	C	2	M374/7C	HPCI Keep Fill
3-2354-501	0.75"	C	2	M374/7C	HPCI Keep Fill
3-2354-502	0.75"	B	2	M374/7C	HPCI Keep Fill

JUSTIFICATION

The High Pressure Coolant Injection keep fill valves will not be exercised quarterly or during cold shutdowns. Exercising these valves requires entering the X-area to gain access to the test/vent connection. The average dose rates for the X-area is considered to be extremely high. Independently exercising closed the High Pressure Coolant Injection keep fill check valves is not possible because two check valves are in series combination and both cannot be back pressurized during normal High Pressure Coolant Injection pump tests. In addition, test connections between the valves do not exist, therefore, no method of independent valve position verification exists. The keep fill line to HPCI discharge piping is normally isolated and is not required to be operable under normal conditions. The discharge piping is maintained full from the static head of the Condensate Storage Tank. These valves will be exercised open and closed during reactor refueling outages. These valves will be tested closed as a series as described in TP-00I.

ATTACHMENT 9

STATION TECHNICAL POSITION INDEX

(Page 1 of 2)

Designator	Description	Revision Date
TP-00A	**Testing of Fast Acting Valves**	06/00
TP-00B	**Pressure Isolation Valves** All pressure isolation valves will receive Appendix J type leak tests.	08/95
TP-00C	Deleted. (Withdrawn due to implementation of check valve condition monitoring)	
TP-00D	Deleted.	08/95
TP-00E	Deleted.	08/95
TP-00F	**Testing of Valves with Both Active and Passive Safety Functions.**	06/00
TP-00G	**Definition of Vertical Line Shaft Pumps**	06/00
TP-00H	**Appendix J Exemption for Category B PCIVS**	06/00
TP-00I	**ECCS Keep Fill Check Valves** Test as a series combination with both being repaired or replaced as necessary	08/01
TP-02A	Deleted (Converted to RJ-02A)	06/00
TP-02B	Deleted.	
TP-03A	**CRD Cooling Water Check Valves** Exercise during normal control rod exercising.	08/01
TP-03B	**CRD Scram Inlet and Outlet Valves** Individual scram insertion times and exercising will be performed in accordance with the Technical Specifications.	08/95

STATION TECHNICAL POSITION INDEX
(Page 2 of 2)

Designator	Description	Revision Date
TP-19A	Deleted. (Withdrawn)	06/00
TP-23A	Deleted.	08/95
TP-23B	Deleted (Added to RV-23D)	06/00
TP-25A	Deleted.	08/95
TP-47A	Deleted (Converted to RJ-00B)	06/00
TP-52A	**Diesel Fuel Oil Transfer Pump** Suction pressure, differential pressure, and flow rate will not be measured.	08/95
TP-66A	Deleted (Added to TP-EXE-IST-00-04)	
TP-75A	Deleted.	08/95
TP-75B	**SBGT Blower Inlet Air Operated Valves** Failsafe tested at reactor refueling outage frequency	06/00
TP-75C	**SBGT Blower Inlet Air Operated Valves** Exercise valves quarterly without timing	12/00

ATTACHMENT 10

STATION TECHNICAL POSITIONS

STATION TECHNICAL POSITION: TP-00A

Component Number	System	Code Class	Category
Category A and B valves with a reference stroke time of ≤1.000 second (i.e., fast acting valves)	Various	All	A & B

Code Requirement(s)

OM Part 10, Paragraph 4.2.1.8(e)

Position Statement

The maximum limiting stroke time of 2 seconds allowed by paragraph 4.2.1.8(e) will be applied to only those valves that have a reference stroke time of ≤ 1.000 second. The criteria specified in paragraphs 4.2.1.8(c) and 4.2.1.8(d) will be applied to those valves with reference stroke times of > 1.000 second.

Justification

OM Part 10, Paragraph 4.2.1.8(e) states that "valves that stroke in less than 2 seconds may be exempted from the acceptance criteria specified in paragraphs 4.2.1.8(c) and 4.2.1.8(d). In such cases the maximum limiting stroke time shall be 2 seconds."
For valves with a reference stroke time of between 1.000 and 2.000 seconds, the acceptable range is considerably tight. (i.e. actual stroke time = 1.800 seconds with a max stroke time of 2.000 seconds leaves an Acceptable range of only 0.200 seconds).
On fast acting valves, operator and timing device inconsistency is the most significant contributor to the difference in stroke time from one test to the next. Since it is undesirable to unnecessarily declare a valve inoperable based on an unreasonably tight acceptance range, the maximum limiting stroke time of 2 seconds allowed by paragraph 4.2.1.8(e) will be applied to only those valves that have a reference stroke time of ≤ 1.000 second. The criteria specified in paragraphs 4.2.1.8(c) and 4.2.1.8(d) will be applied to those valves with reference stroke times of > 1.000 second.

STATION TECHNICAL POSITION: TP-00B

(Page 1 of 2)

Component Number	System	Code Class	Category
2(3)-1402-9A	Core Spray	1	AC
2(3)-1402-9B	Core Spray	1	AC
2(3)-1402-25A	Core Spray	1	A
2(3)-1402-25B	Core Spray	1	A
2(3)-1501-22A	LPCI	1	A
2(3)-1501-22B	LPCI	1	A
2(3)-1501-25A	LPCI	1	AC
2(3)-1501-25B	LPCI	1	AC

JUSTIFICATION

This Technical Approach and Position addressed and identifies Pressure Isolation Valves (PIVs). PIVs are defined for each interface as any two valves in series, within the reactor coolant pressure boundary which isolate reactor coolant system pressure from an attached low pressure system.

The 2(3)-1402-25A(B), 2(3)-1501-22A(B) and 2(3)-1501-25A(B) Category A Valves are PIV's in the IST Program. They are also Primary Containment Isolation Valves and receive Appendix J Type C leak tests. As stated in OMa-1988, Part 10, Section 4.2.2.3.b.4 it is permissible to test at pressure differentials lower than functional pressure differential provided valve design is such that higher test pressure would tend to diminish leakage by pressing the disk into or onto the seat with greater force. However, measured leakage rates must be adjusted to the maximum function differential pressure. The following PIV's are gate and check valves which are examples of valve types that seat more tightly at greater pressure differentials. Additionally, system indicators and annunciators continuously monitor pressure and would alert operations personnel in the event of significant seat leakage at full functional differential pressure. Station annunciator procedures alert Operations of potential PIV seat leakage and direct appropriate actions.

The IST Leakage Limit for the 2(3)-1402-25A(B), 2(3)-1501-22A(B) and 2(3)-1501-25A(B) valves has been determined by converting the Appendix J type C air leak test to an equivalent water test at functional differential pressure. The IST maximum leakage allowed during the Appendix J Type C leak test for the valves listed above is required to be less than or equal to 56.5 SCFH. Calculation FAI/94-96 rev. 0, NDIT No. MSD-95-011, CHRON No. 213521, Section 5.2 provides the basis for this conversion. This Calculation demonstrates that measured air leakage of 30.5 SCFH at the appendix J LLRT differential pressure (48 psid) corresponds to water leakage of 2.7 gpm at 1000 psid. This result was used to show that an Appendix J Type C leak test with a leakage limit of 56.5 SCFH ensures that water leakage will be ≤ 5 gpm at 1000 psid functional pressure.

STATION TECHNICAL POSITION: TP-00B

The 2(3)-1402-9A(B) PIVs are Category A Valves in the IST program and receive a seat leakage test using high pressure water at functional differential pressure. These valves do not receive an Appendix J type leakage test because they are not primary containment isolation valves.

The 2(3)-1402-9A(B) valves are tested every 2 years (refueling outage) and after valve maintenance.

STATION TECHNICAL POSITION: TP-00F

Testing of valves with both active and passive safety functions.

AFFECTED VALVES:

Power operated valves requiring stroke time testing.

JUSTIFICATION:

The IST program requires valves to be exercised to the position(s) required to fulfill their safety function(s). In addition, valves with remote position indication shall have their position indication verified. The Code does not restrict position indication to active valves.

Several valves included in the plant are designed to perform passive safety functions during accident conditions and then based on plant accident response are designed to change positions to perform another (active) function. Once in their final position, there exists no conditions in which they would be required to be placed in their original passive position.

These valves are typically emergency core cooling system valves which require changing position during different phases of the accident. After the original passive safety function (ex. Provide flow path) is performed then the valves are repositioned to perform the active safety function (ex. Provide containment isolation). The valves are not required to return to their original position.

Based on ASME Inquiry OMI 98-07, these valves with passive functions in one direction and active in the other, will be exercised to only their active position. If these valves have position indication, the position indication verification will include verification of both positions.

STATION TECHNICAL POSITION: TP-00G
(Page 1 of 1)

Component Number	**System**	**Code Class**	**Category**
2(3)-1401A & B	Core Spray	2	N/A
2(3)-1502A, B, C & D	LPCI	2	N/A

Code Requirement(s)

OMa-1988, Part 6

Position Statement

The pumps identified above are vertically mounted, but are not considered vertical line shaft pumps. The test parameters for these pumps are established and analyzed in accordance with the centrifugal pump type criteria of OM Part 6 Tables 2 and 3.

Justification

OM Part 6 does not provide a definition of what constitutes a vertical line shaft pump.

Dresden defines a vertical line shaft pump as a deep draft pump where only the upper motor bearing(s) is accessible for vibration measurement. Centrifugal pumps where the motor and pump housing are mounted in the vertical plane, and all necessary bearings are accessible for vibration measurement, are not considered to be vertical line shaft pumps.

STATION TECHNICAL POSITION: TP-00H

Component Number	System	Code Class	Category
2(3)-1402-3A(B)	CORE SPRAY	2	B
2(3)-1402-38A(B)	CORE SPRAY	2	B
2(3)-1402-4A(B)	CORE SPRAY	2	B
2(3)-1501-5A, B, C, D	LPCI	2	B
2(3)-1501-13A(B)	LPCI	2	B
3-1501-13A(RV)	LPCI	2	C
3-1501-13B(RV)	LPCI	2	C
3-1501-13C(D)	LPCI	2	C
2(3)-1501-20A(B)	LPCI	2	B
2(3)-1501-38A(B)	LPCI	2	B
2-1599-13A, B, C, D	LPCI	2	C
2(3)-2301-14	HPCI	2	B
2(3)-2301-34	HPCI	2	C
2(3)-2301-35 & 36	HPCI	2	B
2(3)-2301-71	HPCI	2	C

Justification

These PCIVs are considered to be Category B and C and are not leak tested due to the system accident condition configuration, as well as being closed systems, and having a qualified inboard water seal.

Primary Containment Isolation Valves (PCIVs) are normally Category "A" valves subject to leak rate testing in accordance with the Appendix J Type "C" test program. However, These valves are considered to be Category "B" and "C" PCIVs. These valves are not subject to the Plant Appendix J Test Program due to the system accident condition configuration, as well as being closed systems, and having a qualified inboard water seal. This exemption is verified through the Plant Appendix J Testing Program.

STATION TECHNICAL POSITION: TP-00I

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Component Number	System	Code Class	Category
2-1402-34A	Core Spray	2	C
3-1499-34A	Core Spray	2	C
2(3)-1402-34B	Core Spray	2	C
2(3)-1402-36A	Core Spray	2	C
2(3)-1402-36B	Core Spray	2	C
2(3)-1501-66A	LPCI	2	C
2(3)-1501-66B	LPCI	2	C
2(3)-1501-67A	LPCI	2	C
2(3)-1501-67B	LPCI	2	C
2(3)-2354-500	HPCI	2	C
2(3)-2354-501	HPCI	2	C

Justification

Independently exercising closed the Core Spray, Low Pressure Coolant Injection and High Pressure Injection keep fill check valves is not possible because two check valves are in series combination and both cannot be back pressurized during normal pump tests. In addition, test connections between the valves do not exist, therefore, no method of independent valve position verification exists.

Position

These valves will be tested closed as a series combination as allowed per ISTC 4.5.7. Should the series combination fail to operate satisfactory, both valves in the series will be disassembled, inspected, and repaired or replaced as necessary as described in NUREG 1482 Section 4.1.1 and ISTC 4.5.8.

STATION TECHNICAL POSITION: TP-03A

(Page 1 of 1)

Component Number	System	Code Class	Category
2(3)-0305-138 (typical of 177)	CRD	1	C

Justification

The Control Rod Drive Cooling Water Check Valves valves function as a part of each Control Rod Drive Hydraulic Control Unit (HCU). As identified in NRC Staff Position 7 " Testing Individual Scram Valves for Control Rods in Boiling Water Reactors" of Appendix A of NUREG-1482 (also Generic Letter 89-04), industry experience has shown that normal control rod motion may verify the cooling water header check valve moving to its safety function position. This can be demonstrated because rod motion may not occur if this check valve were to fail in the open position. When a drive is in motion, pressure in the manifold to the drive insert riser is higher than the cooling water pressure and the check valve closes to stop the flow of cooling water to the drives.

Position

Generic Letter 89-04, Position 7, recognizes the ability to conduct normal rod motion as providing verification that this valve moves to its safety related closed position. A single-notch rod insertion surveillance is performed for all withdrawn control rods not required to have their directional control valves disarmed. This test is performed weekly in accordance with Technical Specification Surveillance Requirement 3.1.3.2 and 3.1.3.3 when above the low power setpoint of the Rod Worth Minimizer. Non-safety open exercise testing per the requirements of ISTC 4.5 is not applicable to these skid mounted valves [TP-EXE-IST-00-04]. A Control Room high temperature alarm indicates if cooling flow is lost through these valves, therefore normal operations verifies these valves open.

STATION TECHNICAL POSITION: TP-03B

Component Number	System	Code Class	Category
2(3)-0305-117	CRD	NC	B
2(3)-0305-118	CRD	NC	B
2(3)-0305-120	CRD	1	B
2(3)-0305-121	CRD	1	B
2(3)-0305-122	CRD	1	B
2(3)-0305-123	CRD	1	B
2(3)-0305-137	CRD	1	C

JUSTIFICATION

These valves will be exercised in accordance with Technical Specifications. To exercise these valves requires scramming the individual CRD's.

The proper operation of each of the valves is demonstrated by the Technical Specification required scram testing. To exercise these valves more than the current Technical Specification requirements is not practical.

These valves are exercised and each individual control rod drive scram insertion is timed and must meet specific time increments as stated in the Technical Specifications. This individual rod timing ensures that the valves function properly.

Individual scram insertion times and subsequent valve exercising will be performed per the Technical Specification requirements. The required frequency is as follows:

1. Following core alteration or shutdown greater than 120 days and with reactor pressure greater than 800 psig, and prior to thermal power exceeding 40% of rated thermal power, all control rods shall be subject to scram-time tests.

2. At least 10% of the control rods, on a rotating basis, at least once per 120 days of power operation.

In the Spring of 2001 Dresden will convert to Improved Technical Specifications. At this time the required frequency will be:

1. Prior to exceeding 40% rated thermal power (RTP) after each reactor shutdown ≥120 days and with reactor steam dome pressure ≥800 psig, each control rod will be scram time tested.

2. At least once per 120 days of cumulative power operation, a representative sample of the control rods will be scram time tested.

STATION TECHNICAL POSITION: TP-03B

(Page 2 of 2)

3. After performing work on a control rod or the CRD System that could affect scram time and with any reactor steam dome pressure, each affected control rod will be scram time tested.

4. Prior to exceeding 40& RTP after fuel movement within the affected core cell and prior to exceeding 40% RTP after work on a control rod or the CRD System that could affect scram time, with reactor steam dome pressure ≥800 psig, each affected control rod will be scram time tested.

This Technical Position complies with Generic Letter 89-04, Position 7.

STATION TECHNICAL POSITION: TP-52A

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DESCRIPTION

Flow rate will not be measured.

PUMP	CLASS	P&ID CORD	FUNCTION
2-5203	SR	41-2/E6	Diesel Fuel Oil Transfer Pump
2/3-5203	SR	41-2/D2	Diesel Fuel Oil Transfer Pump
3-5203	SR	41-2/B6	Diesel Fuel Oil Transfer Pump

DISCUSSION

The Diesel Fuel Oil Transfer Pumps are positive displacement gear type pumps that operate at a constant speed. The pumps discharge into the top of a vented tank. The discharge piping is not provided with flow measuring devices. Measuring flow rate by change in tank level is not accurate enough to provide useful information. Modification of this system to install accurate flow rate instrumentation places unnecessary burden on the utility without providing any significant improvement in monitoring pump performance or degradation, and leads to no increase in plant safety.

POSITION

Vibration measurements will be taken and discharge pressure will be observed. Pump discharge capacity will be verified to be adequate to fill the day tank while the diesel is operating.

STATION TECHNICAL POSITION: TP-75B

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COMPONENT IDENTIFICATION/FUNCTION

Component Number	System	Code Class	Category
2/3-7510A	SBGT	NC	B
2/3-7510B	SBGT	NC	B

JUSTIFICATION

In order to ensure the Stand By Gas Treatment system functions, these valves must fail to the open position following a loss of control air or control power. Which fail safe logic and control is used is dependent upon whether the failure is a loss of normal control air or loss of control power. The fail safe test requires the associated pneumatic piping system to be disassembled to bleed down the air header. Since the fail safe test requires system disassembly, performance of this fail safe test on a quarterly basis is not practical, due to the potential for system damage with each disassembly. Per NUREG 1482 Section 2.4.5, impractical conditions which would justify deferral of a test frequency are those that could place undo stress on components or unnecessary reduce the life expectancy of plant components. Therefore, based on the guidance of NUREG 1482, these valves will be failsafe tested at a reactor refueling outage frequency and following valve maintenance that could affect the valves ability to achieve its fail safe position.

STATION TECHNICAL POSITION: TP-75C

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COMPONENT IDENTIFICATION/FUNCTION

Component Number	System	Code Class	Category
2/3-7510A	SBGT	NC	B
2/3-7510B	SBGT	NC	B

JUSTIFICATION

These air operated flow control valves are non-code class valves that must open to provide a suction flow path for the SBGT system fan. These valves are designed to fail open upon loss of instrument air or control power to the flow controller. Normally, this valve is open. When the system is started, the valve closes down to an intermediate position to regulate SBGT flow within the required flow band of 3600 scfm to 4400 scfm. These valves are required to be tested in accordance with the Code requirements for IST to monitor the valves for degrading conditions. The ASME Code requires that these valves be fail-safe tested and stroke time tested. Simply verifying that the valves function is not an acceptable alternative when the stroke time measurement by the conventional method is impractical.

NUREG-1482 section 4.2.9 "Control Valves With Safety Function" states that an alternative test method is acceptable if the method, possibly in combination with a periodic valve stroke, provides an indication of degrading conditions. Although stroke timing by an alternative method is preferred based on the Code requirements, the licensee can use other methods if stroke timing is impractical. Stroke timing of these valves using an alternative method was performed by inputting a signal to close the valve and then removing the signal to allow the valve to stroke open. The stroke times obtained by using this non-conventional method of timing have produced results that are not consistent from test to test. The cause for the inconsistency in stroke times has been investigated and it appears that the valves are sticking in the seat when taken to the closed position. A review of the valve design data has shown that the operator installed on these valves was sized to operate the valve from the open to mid position. Performing a stroke time test from the closed position to the open position will not be consistent and will not provide an indication of degrading valve condition. The OEM has been consulted and has provided reassurance that these valves will not become stuck in the seat by pointing out that the torque required to seat the disc in Pratt Molded Seat valves is the same as the torque required to unseat the disc.

STATION TECHNICAL POSITION: TP-75C

NUREG-1482 section 4.2.9 "Control Valves With Safety Function" states an acceptable alternative that may be used in lieu of stroke timing is "enhanced maintenance with a periodic stroke which may not be timed." Another acceptable alternative is the use of the motor-operated valve testing program established in accordance with GL 89-10 which is performed on a periodic schedule, along with a periodic valve stroke, because it would yield more information on valve condition. These AOV valves are flow scan tested on a 4 year frequency. The flow scan test is comparable to the GL 89-10 Votes testing for MOVs. Although the information would be obtained less frequently than the code required stroke time, the data obtained will yield more information on the valve condition. The EPRI preventive maintenance templates recommend a 6 year frequency for the flow scan test, but the flow scan frequency for these valves will remain at 4 years due to the fact that these valves are not stroke time tested. Additionally, these valves are fail safe tested on an 18 month frequency and will be periodically stroked from the closed to open position quarterly without timing.

ATTACHMENT 11

CORPORATE TECHNICAL POSITION INDEX

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Designator	Description	Date
TP-CWE-IST-98-01, Rev 0	Instrument Accuracy Requirements for Pump Testing	9/28/98
TP-EXE-IST-98-02, Rev. 4	Excess Flow Check Valve Testing	6/8/01
TP-CWE-IST-98-03, Rev. 0	Elimination of PIT and Exercise Testing for Safety and Relief Valves	1/20/99
TP-CWE-IST-99-01, Rev. 0	Repair Activities for Valves Exceeding Seat Leakage Test Acceptance Criteria	2/1/99
TP-CWE-IST-00-02, Rev. 0	Check Valve Condition Monitoring	8/14/00
TP-EXE-IST-00-04, Rev. 1	Classification of Skid Mounted Components	6/8/01
TP-EXE-IST-01-01, Rev. 0	Non-Safety Check Valve Exercise Testing by Normal Operations	4/9/01
TP-EXE-IST-01-02, Rev. 0	Thermal Relief Valve Scoping	4/27/01
TP-EXE-IST-01-03, Rev. 0	Justification for Exception to Exercise Check Valves after Reassembly	4/9/01

ATTACHMENT 12

CORPORATE TECHNICAL POSITIONS

TP-CWE-IST-98-01
Final Status
September 28, 1998

ComEd IST Program Technical Position
Instrument Accuracy Requirements for Pump Testing

Purpose

This paper clarifies the instrument accuracy requirements of OM-1987 with OMa-1988, Part 6, Paragraph 4.6.1.1 and Table 1. It is applicable to pump testing at all ComEd stations. The need for this position was identified at Quad Cities during the 1998 AE Inspection during which the accuracy of pressure and flow gauges used for pump testing was called into question. This position is only applicable to Section XI testing of pumps. This is an interim position until it is validated by the ASME OM-6 Working Group through the inquiry process.

Position

- The accuracy requirements of OM-1987 with OMa-1988, Part 6, Paragraph 4.6.1.1 and Table 1 apply to the accuracy to which installed instruments are calibrated.
- For instrument loops, the accuracy requirements apply to the accuracy to which the instrument loop is calibrated. If the instrument loop is not calibrated as a loop, then a loop accuracy calculation is performed.
- To calculate loop accuracy, either the reference accuracies for individual components or the calibration accuracies for the individual components should be summed using square root of the sum of squares.

Justification.

This position is based on a review of code interpretations and definitions in recent versions of the Code. Discussions with ASME OM-6 working group members indicate that this position is consistent with industry practice and code intent. The purpose of the accuracy requirements in the code is to ensure that measurements can be used to trend pump performance and identify degradation. Calibration of instruments to the criteria in Table 1 of OM-6 provides the level of quality and assurance to fulfill this purpose. A code inquiry will be issued to formalize this position and change the status of this technical position to final.

Interpretation 91-3 states that Table 1 of Part 6 applies only to the calibration of the instrument. (This was in response to a question on whether the final indication of flow rate on an analog instrument must be within 2% of full scale of actual process flow rate, taking into account attributes such as orifice plate tolerances, tap locations, and process temperatures.)

Question 1 of Interpretation 95-07 states that it is the intent of Part 6 "to consider only the instrument's reference accuracy, such as supplied by the instrument manufacturer, in determination of instrument loop accuracy." An instrument loop is defined in the code as "two or more instruments or components working together to provide a single output." It was this interpretation that led to the assumption during the AE inspection that the only permissible way to determine loop accuracy was to combine reference accuracies of the individual loop components using square root of the sum of squares. However, discussions with OM-6 working group members indicate that the intent of this interpretation was to clarify that loop accuracy calculations did not need to consider environmental effects, process effects, and vibration effects on loop accuracy (see Question 2 of Interpretation 95-07).

Section 5.5.4 of NUREG 1482 discusses the accuracy of flow rate instrument loops. It states that the accuracy for analog instruments specified in Section XI IWP and OM-6 applies only to the calibration of the instruments.

Starting with the OM-1994 addendum of the code, the definition of instrument accuracy is clarified to read, "the allowable inaccuracy of an instrument loop based on the square root of the sum of the square of the inaccuracies of each instrument or component in the loop when considered separately. Alternatively, the allowable inaccuracy of the instrument loop may be based on the output for a known input into the instrument loop." From this definition, it is clear that calibration of an instrument or instrument loop to the OM Code accuracy criteria meets the Code requirements.

References

1. US NRC letter to Commonwealth Edison (Oliver Kingsley) dated May 6, 1998; "Quad Cities Nuclear Power Station – Design Inspection (NRC Inspection Report Nos. 50-254/98-201 and 50-265/98-201)"; Section E1.2.3.2a (Instrument Uncertainty – ASME XI)
2. ASME OM Code-1987 with OMa-1988, Part 6; "Inservice Testing of Pumps in Light Water Reactor Power Plants"
3. ASME OM Code-1995, Subsection ISTB; "Inservice Testing of Pumps in Light Water Reactor Power Plants"
4. OM Code-1990 Interpretations and OM Code-1995 Interpretations
5. NUREG-1482; "Guidelines for Inservice Testing of Nuclear Power Plants"

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Final Status
June 8, 2001
Revision 4
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Exelon IST Program Technical Position
Excess Flow Check Valve Testing

Purpose

The purpose of this position paper is to eliminate leakage testing and clarify open testing for excess flow check valves. Closure testing at pressures less than design pressure is adequate to meet IST requirements. Open testing is satisfied in the course of normal plant operations. This position supports goals to reduce outage duration by eliminating unnecessary critical path work. This position is only applicable to Dresden, LaSalle and Quad Cities Stations.

Position

- No leakage testing of excess flow check valves is required to meet IST and Appendix J requirements.
- Closure testing of excess flow check valves can be performed at all system pressures between 600 psig and the system design basis pressure. Acceptance criteria for the test shall be audible click denoting valve closure or significant reduction in flow. For LaSalle excess flow check valves, position indication testing may be performed in conjunction with closure testing at reduced system pressure.
- Open (non-safety direction) exercise testing is satisfied through normal plant operations.

Justification.

- Excess flow check valves (EFCV) are utilized in BWR containments to limit the release of fluid in the event of an instrument line break.
- These valves are classified as containment isolation valves. However, isolation of instrument lines during a LOCA is not prudent, since these instrument lines provide safety functions for reactor protection and containment isolation which need to be operable during a LOCA. Consequently, the valve disks are drilled to intentionally allow leakage past the valve.
- ASME OM Code-1987 with OMa-1988, Part 10 defers to Appendix J of 10CFR50 for leakage testing of containment isolation valves.
- In reference 1, the NRC provides Quad Cities with an exemption from Appendix J testing of instrument lines as long as the these lines are not isolated during 10-year ILRT tests.
- LaSalle UFSAR Table 6.2.21 indicates that instrument line pressure integrity is verified during periodic Type A (ILRT) testing. No requirement for Type C (LLRT) valve leakage testing exists. The analysis for Instrument Line Break in Section 15.6.2 does not take any credit for excess flow check valves.

Technical Specifications

- LaSalle, Dresden and Quad Cities Tech Spec SR 3.6.1.3.8 requires the excess flow check valves (EFCVs) to be demonstrated to be operable at least once per 24 months by verifying each EFCV actuates to the isolation position on an actual or simulated instrument line break.
- The Dresden and Quad Cities TS Bases state; The test is performed by blowing down the instrument line during an inservice leak or hydrostatic test and verifying a distinctive 'click' when the poppet valve seats, or a quick reduction in flow.

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- Dresden UFSAR 6.2.4.2.1 states; Instrument lines are exempt from Type C testing provided they are not isolated from containment during the performance of a Type A ILRT.
- Check valves are designed to close when the flow rate past the valve disk is sufficient to pull the disk to the closed position. System pressure has little impact on check valve performance during the closure test. In fact, a higher system pressure is likely to create a higher flow rate through the valve while it is open. Therefore, testing the valves at lower than design pressure should be conservative with respect to closure capability.
- The LaSalle excess flow check valve drawings indicate that this valve is designed to fully close at only 10 psid differential pressure. Therefore, past problems with dual indication during closure tests were not caused by testing at less than design pressure.
- A review of industry practices indicates that several other utilities only require closure testing of the subject valves. These utilities specify minimum test pressures between 200 psig and 600 psig to ensure flow rates and pressure across the valves are sufficient to allow satisfactory performance.
- Non-safety direction (open) testing requirements of OMa-1996 ISTC 4.5 are satisfied in the course of normal plant operations (Ref. 3) by proper operation of associated instruments. At LaSalle, position indication testing further verifies opening of the poppet post closure testing.

References

1. USNRC letter from Domenic Vassallo to Dennis Farrar dated June 12, 1984.
2. ASME OM Code-1987 with OMa-1988, Part 10, "Inservice Testing of Valves in Light-Water Reactor Power Plants".
3. Exelon IST Program Technical Position, TP-EXE-IST-01-01, "Non-Safety Check Valve Exercise Testing by Normal Operations".
4. ASME OM Code-1995 with OMa-1996, ISTC 4.5, "Inservice Exercising Tests for Category C Check Valves".

TP-CWE-IST-98-03
Final Status
January 20, 1999
Revision 0
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ComEd IST Program Technical Position
Elimination of PIT and Exercise Testing for Safety and Relief Valves

Purpose
The purpose of this technical position is to clarify that no Inservice Testing Program requirement exists for performing Position Indication Tests and Exercise tests of safety and relief valves at ComEd stations.

Background
Inservice Testing Programs at ComEd stations currently require that safety and relief valves be tested in accordance with both OM-10 (IVW-3000 for Dresden) and OM-1 requirements. Consequently, Exercise Tests are performed on ComEd relief valves in accordance with OM-10 / IWV-3000. For valves with auxiliary operating devices, stroke times are measured when exercising the valves. In addition, Position Indication Tests are performed for safety and relief valves with remote position indication.

Position
- OM-10 (ISTB) defers to OM-1 (OM Code Appendix I) for relief valve testing requirements.
- OM-1 and later editions of the ASME OM Code do not require Exercising Tests for safety and relief valves.
- Exercising at a frequency greater than OM-1 setpoint testing shall be performed when required by Tech Specs or when valve performance history indicates that exercising is needed to keep the valve setpoint from increasing. However, stroke timing during exercising is not required, unless a commitment to measure stroke time has been made to the NRC.
- OM-1 and later editions of the ASME OM Code do not require Position Indication Tests for safety and relief valves.

Justification
- NUREG 1482, Section 4.3.9 states "As licensees began applying the requirements of OM-1, it became clear that clarifications were needed. The OM working group has clarified several issues in the 1994 addenda to the 1990 OM Code. The clarifications discussed below may be used without further NRC approval. Other clarifications identified by licensees may also be used without further NRC approval if it is determined to be clarification only and is documented in the IST program or test procedures, as necessary."
- In the ASME OMa 1996 edition of the Code, a new paragraph was added at the end of Section ISTC section 1.2. This paragraph states, "Category A and B Safety and

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- Relief valves are excluded from the requirements of ISTC 4.1, Valve Position Verification and ISTC 4.2, Inservice Exercising Test."
- Summary of Public Workshops, Section 2.4.18 states, "Licensees should note that the OM Code has been revised (i.e., in the 1996 Addenda) to clarify that Category A and B safety and relief valves are excluded from the requirements of ISTC 4.1, Valve Position Verification, and ISTC 4.2, Inservice Exercising Test. Therefore, these valves will only be required to be tested in accordance with Appendix I. As discussed in NUREG-1482, Section 4.3.9, clarifications may be used without further NRC approval." (emphasis added)
- A comparison of Appendix I in ASME OM 1995 with Appendix I in ASME OMa 1996 indicates that no new testing requirements were added as replacements for ISTC 4.1, Valve Position Verification and ISTC 4.2, Inservice Exercising Test. Consequently, it is appropriate to classify the subject 1996 code change as a clarification.
- Stroke time measurements have not benefited ComEd in preventing safety and relief valve failures. In fact, exercising tests have been attributed to subsequent seat leakage failures, especially for fast stroking relief valves. Consequently, exercising is only appropriate when valve performance history indicates that exercising on a frequency greater than OM-1 setpoint testing is needed to prevent setpoint elevation due to adhesion between the seat and disk.
- Position indication testing serves little purpose for valves that are not susceptible to mispositioning. Position indication testing at ComEd has not identified problems with stuck open relief valves being remotely indicated as closed.

References

1. ASME OM Code-1987 with OMa-1988, Part 10; "Inservice Testing of Valves in Light Water Reactor Power Plants"
2. ASME OM Code-1987, Part 1; "Requirements for Inservice Performance Testing of Nuclear Power Plant Pressure Relief Devices"
3. ASME OM Code-1995, Subsection ISTC; "Inservice Testing of Valves in Light Water Reactor Power Plants" and Appendix I; "Inservice Testing of Pressure Relief Devices in Light-Water Reactor Plants"
4. ASME OMa Code-1996, Subsection ISTC; "Inservice Testing of Valves in Light Water Reactor Power Plants" and Appendix I; "Inservice Testing of Pressure Relief Devices in Light-Water Reactor Plants"
5. Summary of Public Workshops Held in NRC Regions on Inspection Procedure 73756, "Inservice Testing of Pumps and Valves," And Answers to Panel Questions on Inservice Testing Issues; published July 18, 1997
6. NUREG-1482; "Guidelines for Inservice Testing of Nuclear Power Plants"

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Assumptions
None

Status
Final

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ComEd IST Program Technical Position
Repair Activities for Valves Exceeding Seat Leakage Test Acceptance Criteria

Purpose
The purpose of this technical position is to clarify code requirements for repairing valves that exceed seat leakage test acceptance criteria during Inservice Testing.

Background
On February 1, 1999, Dresden station performed testing on CRD check valves 3-0399-593 and 3-0399-594. The measured leakage rate of >2.0 gpm significantly exceeded the acceptance criteria of 0.01 gpm and the valves were declared inoperable. After flushing the line containing the valves, the measured leakage through the valves was 0 gpm. These 2 ½" spring-assisted lift-check valves were installed during the last Dresden Unit 3 outage and did not fail the previous IST seat leakage tests (refueling outage test periodicity).

Position
Flushing of lines containing valves that fail seat leakage testing requirements is considered sufficient corrective action provided the following conditions are met:

- A review of past valve performance history does not indicate seat leakage failures of the valves are repetitive.
- The seat leakage criterion is met following the flushing evolution.

Justification

- The ASME OM-10 Code and the AMSE IWV-3000 Code require that valves failing seat leakage tests be repaired or replaced.
- NUREG 1482 and the 1997 Inservice Testing Workshop Questions and Answers do not provide guidance on what activities constitute repair. However, NUREG 1482 states that repair activities for relief valve setpoint test failures are not limited to Section XI repair activities. (A Section XI repair or replacement activity is defined as a repair by welding, brazing, or metal removal of the pressure-retaining parts of a component or the replacement of pressure-retaining parts.) It is appropriate to assume that the same logic applied by the NRC in determining appropriate corrective actions for relief valve setpoint drift can be used to determine appropriate corrective actions for seat leakage failures.
- Debris on valve seats is a common cause of valve seat leakage problems. Flushing of lines is an effective method of removing debris that is preventing a valve from passing the seat leakage acceptance criteria. Past experiences with MSIVs at Quad Cities and other valves at ComEd stations support the use of flushing to eliminate isolated cases of seat leakage.

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- Repeated seat leakage failures indicate that the installed valve design is incompatible with system conditions (such as fluid cleanliness). Consequently, repetitive correction of seat leakage problems by flushing is not appropriate.
- Corporate Engineering notes that the Dresden valves have not previously experienced failures during IST testing. Therefore, flushing is an appropriate corrective actions for these valves.

References

1. ASME OM Code-1987 with OMa-1988, Part 10; "Inservice Testing of Valves in Light Water Reactor Power Plants"
2. ASME Section XI Article IWV-3000, "Test Requirements"
3. NUREG-1482; "Guidelines for Inservice Testing of Nuclear Power Plants"

Assumptions

None

Status

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ComEd IST Program Technical Position
Check Valve Condition Monitoring

Purpose
The purpose of this technical position is to provide the Corporate Inservice Testing (IST) Program position on implementing a check valve condition monitoring program. The condition monitoring process allows certain flexibility in establishing the types of tests, examination, and preventative maintenance activities and their associated intervals, when justified based on the valve's performance and operating condition.

Background
10CFR50.55a was revised 11/22/99 to endorse the ASME OMa-1996 Code which includes provisions (Appendix II) for implementing a check valve condition monitoring program for IST Check valves. A letter dated April 18, 2000 was sent to the NRC requesting approval to implement the check valve portion of the ASME OM Code-1995 Edition, 1996 Addenda, at all ComEd Nuclear Stations. By letter dated June 7, 2000 the NRC approved ComEd to implement ASME OMa-1996 and the modifications required to implement Appendix II for all check valves at all ComEd Stations. Corporate Engineering Programs issued Nuclear Engineering Standard NES-MS-08.5, Condition Monitoring for Inservice Testing of Check Valves on June 30, 2000.

Position
- All ComEd Stations will perform check valve testing in accordance with the ASME OMa-1996 Code, including Appendix II.
- Full implementation of the ASME OMa-1996 Code will be completed by September 1, 2001 (Reference 8 and 9).
- Check valves not included in the Appendix II program will be tested to the requirements of ASME OMa-1996 Code, ISTC 4.5.1 through 4.5.4.
- Referencing this technical position in the program plan indicates that test requirements for a check valve are supported by a condition monitoring plan meeting Reference 6 requirements.
- The following modifications to Appendix II are required by the NRC (Reference 9 and 10).
  - Valve opening and closing functions must be demonstrated when flow testing or examination methods (e.g., nonintrusive or disassembly and inspection) are used.

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- The initial interval for tests and associated examinations will not exceed two fuel cycles or 3 years, whichever is longer. Any extension of this interval will not exceed one fuel cycle per extension with the maximum interval not to exceed 10 years. Trending and evaluation of existing data will be used to reduce or extend the time interval between tests.

- If the Appendix II condition monitoring program is discontinued, then the requirements of ISTC 4.5.1 through 4.5.4 must be implemented.

- Check valve condition monitoring plans shall be developed in accordance with Nuclear Engineering Standard NES-MS-08.5, Condition Monitoring for Inservice Testing of Check Valves.

Justification

- The NRC recently endorsed the ASME OM Code-1995 Edition, 1996 Addenda (Reference 3 and 10) which allows the use of Appendix II as an alternative to certain check valve testing requirements in Subsection ISTC of the OM Code.

- ComEd implementation of ASME OMa-1996 (including the modifications required to implement Appendix II) for all check valves at all ComEd Stations was approved by NRC letter dated June 7, 2000.

- Implementation of condition monitoring for check valves provides the opportunity to optimize check valve testing requirements for valves in the IST program as discussed in Reference 6.

References

1. NSP-ER-3015, "Inservice Testing Program Implementing Procedure"

2. ER-AA-321, "Administrative Requirements for Inservice Testing"

3. ASME OMa Code-1996 Addendum to OM Code-1995 Edition, Appendix II, "Check Valve Condition Monitoring Program"

4. Nuclear Engineering Standard NES-MS-08.2, "Inservice Testing Plan Format and Content"

5. Nuclear Engineering Standard NES-MS-08.1, "Inservice Testing Bases Document Format and Content"

6. Nuclear Engineering Standard NES-MS-08.5, "Condition Monitoring for Inservice Testing of Check Valves"

7. ER-AA-400, "Check Valve Monitoring and Preventive Maintenance Program"

8. ComEd letter dated April 18, 2000 to the NRC, "Request to implement a Portion of the 1995 Edition and the 1996 Addenda of the ASME Code for Operation and Maintenance of Nuclear Power Plants Regarding Appendix II, "Check Valve Condition Monitoring Program"

9. Nuclear Regulatory Commission letter dated June 7, 2000, "Approval to Implement a Check Valve Inservice Testing Program Using ASME OM Code-1995 Edition, OMa-1996 Addenda at the Commonwealth Edison Company Nuclear Stations (TAC Nos. MA8703, MA8704, MA8715, MA8716, MA8717, MA8718, MA8803, MA8804, MA8733, and MA8734)

10. Nuclear Regulatory Commission Final Rule 10CFR Part 50 "Industry Codes and Standards; Amended Requirements," (64 FR 63892) dated September 22, 1999

Assumptions
None

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Final

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Exelon IST Program Technical Position
Classification of Skid Mounted Components

Purpose

The purpose of this technical position is to clarify requirements for classification of various components including Diesel Oil Transfer Pumps as skid mounted components, and to clarify testing requirements of check valves designated as skid mounted.

Background

The ASME Code allows classification of some components as skid mounted when their satisfactory operation is demonstrated by the performance of major components. Testing of the major component is sufficient to satisfy IST testing requirements for skid mounted components. In the 1996a addenda to the ASME OM Code (endorsed by 10CFR50.55(a) in October 2000), the term skid-mounted was clarified by the addition of ISTA paragraph 1.7:

> ISTA 1.7 Definitions
>
> *Skid mounted components and component sub assemblies* – components integral to or that support operation of major components, even though these components may not be located directly on the skid. In general, these components are supplied by the manufacturer of the major component. Examples include: diesel skid-mounted fuel oil pumps and valves, steam admission and trip throttle valves for high-pressure coolant injection or auxiliary feedwater turbine-driven pumps, and solenoid-operated valve provided to control the air-operated valve.

This definition was further clarified in the 1998 ASME OM Code:

> ISTA-2000 DEFINITIONS
>
> *Skid mounted pumps and valves* – pumps and valves integral to or that support operation of major components, even though these components may not be located directly on the skid. In general, these pumps and valves are supplied by the manufacturer of the major component. Examples include:
>
> (a) diesel fuel oil pumps and valves;
> (b) steam admission and trip throttle valves for high-pressure coolant injection pumps;
> (c) steam admission and trip throttle valves for auxiliary feedwater turbine driven pumps;
> (d) solenoid-operated valves provided to control an air-operated valve.

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In section 3.4 of NUREG 1482, the NRC supports the designation of components as skid mounted:

> The staff has determined that the testing of the major component is an acceptable means for verifying the operational readiness of the skid-mounted and component subassemblies if the licensee documents this approach in the IST Program. This is acceptable for both Code class components and non-Code class components tested and tracked by the IST Program.

Subsection ISTC of OMa-1996, "Inservice Testing of Valves in Light-Water Reactor Power Plants", Paragraph 1.2, "Exclusions" states:

> "....Skid-mounted valves and component subassemblies are excluded from this Subsection provided they are tested as part of the major component and are determined by the Owner to be adequately tested."

Position

The 1998 ASME OM Code definition of skid mounted should be used for classification of components in the Exelon Inservice Testing Program. In addition, for a component to be considered skid mounted:

- The major component associated with the skid mounted component must be surveillance tested at a frequency sufficient to meet ASME OM Code test frequency for the skid mounted component.
- Satisfactory operation of the skid mounted component must be demonstrated by satisfactory operation of the major component.
- The IST Bases Document should describe the bases for classifying a component as skid mounted, and the IST Program Plan should reference this technical position for the component.

For Stations committed to the 1996 addenda of the 1995 OM Code for Inservice Exercise Testing of Category C Check Valves (ISTC 4.5 and Appendix II), testing as required by ISTC 4.5 does not apply for check valves designated as skid mounted.

Justification

Classification of components as skid mounted eliminates the need for testing of sub components that are redundant with testing of major components provided testing of the major components demonstrates satisfactory operation of the "skid mounted" components.

As recognized in section 3.4 of NUREG 1482:

> Various pumps and valves procured as part of larger component subassemblies are often not designed to meet the requirements for components in ASME code classes 1, 2, and 3.

References

All references are called out in the text of the technical position.

Assumptions

None

Status

Final

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Exelon IST Program Technical Position
Non-Safety Check Valve Exercise Testing By Normal Operations

Purpose

The purpose of this Technical Position is to establish the Company position for the verification of the non-safety exercise testing of check valves by normal plant operations. This is applicable to check valves in the Inservice Testing (IST) Program as related to the ASME OMa Code-1996 Addenda to the ASME OMa Code-1995.

Applicability

This Technical Position is NOT applicable to testing the safety function (position) of IST Check Valves. Safety function here means the function of the valve that meets a scoping requirement to be in the IST Program. This Technical Position is applicable to testing the **non-safety function** (position) of IST check valves. This Technical Position is applicable to check valves tested under Subsection ISTC, and to Appendix II (Condition Monitoring), of the ASME OMa Code-1996 Addenda.

Background

The ASME OMa Code-1996 Addenda in section ISTC 4.5.3, "Valves in Regular Use," states the following:

> "Check valves that operate in the course of plant operation at a frequency that would satisfy the exercising requirements of this Subsection need not be additionally exercised if the observations otherwise required for testing are made and analyzed during such operation and are recorded in the plant records at intervals not greater than specified in para. ISTC 4.5.1."

Section 4.5.1 indicates that check valves shall be exercised nominally every 3 months with exceptions (for extended exercise periods) referenced.

Section 4.5.4 (2) states that,

> "Check valves that have a safety function in only the open direction shall be exercised by initiating flow and observing that the obturator has traveled to either the full open position or to the position required to perform its intended function(s) (see para. ISTC 1.1), and verify closure."

Section 4.5.4 (3) states that,

> "Check valves that have a safety function in only the close direction shall be exercised by initiating flow and observing that the obturator has traveled to at least the partially open position[2],..."

Footnote 2 to this section indicates that the partially open position should correspond to the normal or expected system flow. NOTE: "Normal or expected," system flow rate may vary with plant conditions and configurations. The open safety function of a check valve usually requires meeting a specified, required limiting accident flow rate. As Operators are trained in recognizing normal plant conditions, Operator judgement is acceptable in ascertaining whether the non-safety open check valve position is providing normal or expected flow rates or plant conditions.

As stated in these two sections the non-safety function is satisfactorily demonstrated by verifying closure, or passing normal or expected flow to verify opening, as applicable.

Position

Verification of the non-safety position of IST check valves may be performed through the execution of a dedicated surveillance. Alternately this verification may be satisfied as follows:

- An appropriate means shall be determined which establishes how the open/closed non-safety function of the specified check valve is demonstrated during normal operations. The position determination may be by direct indicator, or by other positive means such as changes in system pressure, flow rate, level, temperature, seat leakage, etc. This determination shall be documented in the respective Condition Monitoring Plan in the "Bases for Testing and Inspection Strategy," for valves in the Condition Monitoring Program. For check valves governed by Subsection ISTC and not in Condition Monitoring this determination shall be documented in the respective IST Bases Document valve group in the, "Bases Statement," section.
- Automated processes may be used to provide for the "observation and analysis," that a check valve is appropriately satisfying its' non-safety position function. An example of this would be a check valve that has a safety function in only the close direction and normally has flow through it to maintain normal plant operations. If the check valve is not opening to pass flow, alarms or indications would identify the problem to the Operator who is trained to respond to such situations and take appropriate actions. Condition Reports are normally written for abnormal plant conditions attributable to material condition concerns such as check valve failures.

- The "observation and analysis," of logs and other such records is satisfied by Operator reviews. Operating personnel are trained to look for off-normal data and adverse trends and take actions as appropriate. This would effectively determine if a check valve were satisfactorily fulfilling its' non-safety function.
- The open/closed non-safety function shall be recorded at a periodicity required by ISTC 4.5.1, with exceptions as provided, in plant records such as Operator logs, Electronic Rounds, chart recorders, automated data loggers, etc. NOTE: The safety function testing of these valves constitutes requiring a Quality Record. Records as indicated above are appropriate for the non-safety testing. Should any concerns arise regarding the material condition/operation of these check valves a Condition Report is written which is a Quality Record. The method in which the check valve position is recorded shall be included in the Condition Monitoring Plan or Bases Document sections as indicated above.

Justification

This Technical Position requires that the method of determining the non-safety position be established. The plant systems and Operator actions provide for the observations and analysis that the valve is satisfying its' non-safety function. Finally, the recording of parameters demonstrating valve position is satisfied at a frequency specified in ISTC 4.5.1. These actions collectively satisfy demonstrating the non-safety position of IST check valves in regular use as required by ISTC 4.5.3.

Assumptions

None

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Exelon IST Program Technical Position
Thermal Relief Valve Scoping

Purpose

The purpose of this technical position is to provide the bases for determining whether thermal relief valves should be included in the Inservice Testing (IST) Program.

Background

A thermal relief valve is a relief that protects the associated system from over pressurization due to thermal expansion. Whether these valves need to be included in the IST Program depends on the function of the system or subsystem they are in.

Position

- If a systems or subsystem does NOT perform a required function in shutting down a reactor to the cold shutdown condition, in maintaining the cold shutdown condition, or in mitigating the consequences of an accident, then the thermal relief valve(s) in those systems/subsystems need not be placed in the IST Program.
- If a system or subsystem performs a required function in shutting down a reactor to the cold shutdown condition, in maintaining the cold shutdown condition, or in mitigating the consequences of an accident, then the thermal relief valve(s) in those systems/subsystems shall be placed in the IST Program. Allowed exceptions to this requirement are the exclusion of valves which do not provide overpressurization protection to those systems (or portions thereof) as established by design requirements.
- Plants whose licensing basis is to achieve Hot Standby need not include systems/components used to bring the reactor from hot standby to cold shutdown in their IST programs.

Justification

ANSI/ASME OMa-1988, Part 10, "Inservice Testing of Valves in Light Water Reactor Power Plants," Section 1.1, "Scope," states the following:

> "The pressure-relief devices covered are those for protecting systems or portions of systems which perform a required function in shutting down a reactor to the cold shutdown condition, in maintaining the cold shutdown condition, or in mitigating the consequences of an accident".

NUREG – 1482 "Guidelines for Inservice Testing at Nuclear Power Plants", Section 4.3.1 states the following:

> "The IST engineer may not have the documentation for the system design or development of the Section III overpressure analyses. However, if there are safety or relief valves that do not appear to perform a necessary safety or overpressure protection function, it may be possible to coordinate with a design engineering group for reanalyses. If the results of the overpressure protection "reanalysis" for a particular system indicate that a relief valve is not necessary, it may be removed from the scope of the IST program."

References

- ANSI/ASME OMa-1988, Part 10, "Inservice Testing of Valves in Light Water Reactor Power Plants"
- ANSI/ASME OM-1987, Part 1, "Requirements for Inservice Performance Testing of Nuclear Power Plant Pressure Relief Devices."
- NUREG 1482

Assumptions

None

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Exelon IST Program Technical Position

Justification for Exception to Exercise Check Valves after Reassembly

Code Requirements

The governing Code for this issue is found in the ASME OMa Code –1996 Addenda to ASME OM Code-1995, "Code for Operation and Maintenance of Nuclear Power Plants, Section ISTC, "Rules for Inservice Testing of Light-Water Reactor Power Plants."

Subsection ISTC, "Inservice Testing of Valves in Light-Water Reactor Power Plants," para. ISTC 6.2, "Test Plans," subpara. (e) requires documenting for check valves, "...justification for not performing an exercise test to at least a partially open position after reassembly or periodic exercising in accordance with para. ISTC 4.5.2;"

Subsection ISTC, "Inservice Testing of Valves in Light-Water Reactor Power Plants," para.ISTC4.5.4 subpara. (c)(4) states, "Before return to service, valves that were disassembled for examination or that received maintenance that could affect their performance, shall be exercised if practicable (see nonmandatory Appendix J, Check Valve Testing Following Valve Reassembly)".

Discussion of Code Requirement

Performing a partial open exercise after reassembly provides some assurance of the functionality of the check valve and that it has been installed in the proper flow direction.

Position

There are numerous measures in place to assure that check valves are maintained properly and installed in the proper orientation and flow direction. As such there is justification to not exercise the check valves after reassembly.

Justification

The following justifications demonstrate that exercising check valves after reassembly is unnecessary.

Match Marking: Match marking is the maintenance activity where the component (such as a check valve) and adjoining pipe section are marked adjacently. When the component is reinstalled it is done so the match marks align. This assures the component was reinstalled in the proper orientation/flow direction as when it was removed. The Nuclear Generation Group Maintenance Standards under "Expectations," regarding the execution of work states that parts should be match marked prior to disassembly to ensure

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proper orientation upon reassembly. Periodically a "Scorecard," which is a checklist used for supervisory oversight to assure proper maintenance practices, is performed. The Scorecard has an item requiring assessment that components have been match marked prior to disassembly to help ensure proper reassembly. During practical exercises in the training of maintenance workers they are assessed to assure that they follow match-marking practices where appropriate.

Procedures/Work Instructions: There are detailed procedures and work instructions to address that check valve maintenance, reassembly, and reinstallation is properly conducted.

Maintenance Oversight: Maintenance First Line Supervisors are expected to provide adequate oversight to assure the work is properly conducted

Quality Assurance Program: A 10 CFR 50 Appendix B, Quality Assurance Program, is utilized at the stations to assure those quality standards are maintained.

Foreign Material Exclusion: A rigorous Foreign Material Exclusion program exists to assure no adverse impact to systems and components due to such intrusions. Keeping foreign material out of check valves assures they will not have their stroking or closure adversely impacted by those materials.

Training: Maintenance personnel are properly trained to assure they have the proper skills and follow procedures and instructions in working on plant components.

Condition Reports: Problems and concerns including those in the maintenance area are captured with Condition Reports. These are part of the corrective actions program to address such concerns.

Engineering Inspections: Engineering inspections are frequently performed to procedures and checklists to assure proper check valve maintenance and function. In addition to numerous checks to assess the material condition and functionality of the check valve, part of the Engineering inspection is to assess "as-found" and "as-left" manual full stroke capability.

Oversight Activities: Oversight activities by Quality Control, Nuclear Oversight, and other oversight organizations periodically review maintenance activities. This process helps assure the maintenance program is adequately functioning.

Applicability

This Technical Position applies to all MWROG nuclear power plants except Clinton Station.

Conclusion

There are adequate measures in place to justify that partially open testing check valves after reassembly need not be performed.

Assumptions

None

Status

Final

ATTACHMENT 13

INSERVICE TESTING PUMP TABLE INDEX

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System Number	System Description
11	Standby Liquid Control
14	Core Spray
15	Containment Cooling Service Water
15	Low Pressure Coolant Injection
23	High Pressure Coolant Injection
39	Diesel Generator Cooling Water
52	Diesel Generator Fuel Oil Transfer
66	Diesel Generator Lube Oil