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February 27, 2013

10 CFR 50.55a

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

SUBJECT: Duke Energy Carolinas, LLC (Duke Energy)  
McGuire Nuclear Station Units 1 and 2  
Docket Numbers 50-369 and 50-370  
Fourth Ten-Year Inservice Testing Interval  
Inservice Testing Program, Revision 28

Pursuant to 10 CFR 50.55a, Duke Energy is submitting the Inservice Testing (IST) Program for the Fourth Ten-Year Interval at the McGuire Nuclear Station. The Fourth Ten-Year IST interval will begin on March 1, 2014 for both units and the attached program, Revision 28, applies to both units.

Two specific pump relief requests, MC-SRP-KC-01 and MC-SRP-ND-01, included in Section 5.2 of this submittal, are submitted for your approval. Section 8.0 contains a revision summary for the IST Program Revision 28.

If you have any questions or require additional information, please contact P. T. Vu at (980) 875-4302.

Sincerely,

Steven D. Capps

Attachment

A047  
NRL

U. S. Nuclear Regulatory Commission  
February 27, 2013  
Page 2

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**DUKE ENERGY**  
**McGuire Nuclear Station**

**ASME Inservice Testing Program**

**Revision 28**  
**March 1, 2013**

**Commercial Service Dates**  
Unit 1 (050-00369): December 1981  
Unit 2 (050-00370): March 1984

Prepared by: (Robert W. Kirk Jr) Robert W. Kirk Jr. Date: 2/18/13  
Reviewed by: Edward L. Hyland E L Hyland Date: 2/18/13  
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## McGuire Nuclear Station Table of Contents

<u>SECTION</u>	<u>PAGES</u>
<b>1.0 McGuire Nuclear Station Program Documents</b>	
<b>1.1 Inservice Testing Program Document Rev 5</b>	1 - 30
<b>1.2 Snubber Engineering Support Document Rev 3</b>	1 - 22
<b>2.0 Table Of Abbreviations</b>	1 - 3
<b>3.0 PUMP INSERVICE TESTING PROGRAM</b>	
<b>3.1 Pump Inservice Testing General Data - Unit 1 and Unit 2</b>	1 - 28
<b>4.0 VALVE INSERVICE TESTING PROGRAM</b>	
<b>4.1 Valve Inservice Testing General Data - Unit 1 and Unit 2</b>	
	<b>Page Number</b>
Steam Generator Blowdown Recycle	BB 1 - 2
Auxiliary Feedwater System	CA 3 - 11
Feedwater System	CF 12 - 15
Refueling Water System	FW 16 - 17
Nitrogen System	GN 18 - 19
Containment Personnel Airlock System	IAE 20 - 23
Component Cooling System	KC 24 - 31
Diesel Generator Engine Lube Oil System	LD 32
Miscellaneous Station Instrumentation	MI 33 - 35
Boron Recycle System	NB 36
Reactor Coolant System	NC 37 - 44
Residual Heat Removal	ND 45 - 49
Ice Condenser Refrigeration System	NF 50 - 51
Safety Injection System	NI 52 - 68
Nuclear Sampling System	NM 69 - 75
Containment Spray	NS 76 - 80
Chemical & Volume Control System	NV 81 - 87
Fire Protection System	RF 88
Nuclear Service Water System	RN 89 - 102
Containment Ventilation Cooling Water System	RV 103 - 106
Main Steam Supply to Auxiliary Equipment	SA 107 - 108
Main Steam	SM 109 - 111
Main Steam Relief to Atmosphere	SV 112 - 115
Breathing Air System	VB 116
Control Room HVAC System	VC 117

**McGuire Nuclear Station  
Table of Contents**

<u>SECTION</u>	<u>PAGES</u>
<b>4.0 VALVE INSERVICE TESTING PROGRAM - Continued</b>	
<b>4.1 Valve Inservice Testing General Data - Unit 1 and Unit 2</b>	
Annulus Ventilation System	VE 118 - 119
Instrument Air System	VI 120 - 126
Containment Purge Ventilation System	VP 127 - 129
Containment Air Release & Addition System	VQ 130 - 131
Station Air System	VS 132
Containment Air Return Exchange and Hydrogen Skimmer System	VX 133 - 134
Liquid Waste Recycle System	WL 135 - 138
Diesel Generator Room Sump Pump System	WN 139
Groundwater Drainage System	WZ 140
Chilled Water System	YC 141
Makeup Demineralized Water System	YM 142
	<u>PAGES</u>
<b>5.0 RELIEF REQUEST</b>	
5.1 Pumps - Generic Relief Request	1 - 1
5.2 Pumps - Specific Relief Request	1 - 1
5.3 Valves - Generic Relief Request	1 - 1
5.4 Valves - Specific Relief Request	1 - 1
<b>6.0 JUSTIFICATION FOR DEFERRAL</b>	
6.1 Valves - Justification for Deferral	1 - 4
<b>7.0 SUPPLEMENTAL TEST PROGRAM</b>	
7.1 Supplemental Testing Program - Valves	1 - 21
7.2 Supplemental Testing Program - Pumps	1 - 3
<b>8.0 CORRESPONDENCE</b>	
McGuire 4th Interval (Rev 28) IST Program Revision Summary	1-12
Inservice Testing Program Document Rev 4 (Superseded)	1 - 30

**McGUIRE NUCLEAR STATION  
ASME OM CODE  
In-Service Testing Program Document**

**February 18, 2013**

**REVISION 5**

Prepared by: (Robert W. Kirk Jr) Robert W. Kirk Jr

Date: 2-18-13

Reviewed by: Edward L. Hyland Sr

Date: 2/19/13

Approved by: Howard Nudi

Date: 2/20/13

## TABLE OF CONTENTS

<b>1.0</b>	<b>Scope of Document</b>
<b>2.0</b>	<b>References</b>
<b>3.0</b>	<b>Definitions and Terms</b>
<b>4.0</b>	<b>Valve Program</b>
4.1	In-Service Testing (IST) Program
4.2	Valve Testing Program Exemptions and Position Statements
4.3	Check Valve Testing
4.4	Relief Valve Testing
4.5	Leak Rate Testing
4.6	Testing From Remote Location
4.7	Post-Maintenance and Modification Testing (Retest)
4.8	Fail-Safe Testing of Valves
4.9	Skid-Mounted Valves
4.10	Valve Test Acceptance Criteria
<b>5.0</b>	<b>Pump Program</b>
5.1	In-Service Testing (IST) Program
5.2	Pump Testing Program Exemption and Position Statements
5.3	Vibration Monitoring
5.4	Testing From Remote Locations
5.5	Post-Maintenance and Modification Testing (Retest)
5.6	Skid-Mounted Pumps
5.7	Pump Test Acceptance Criteria
<b>6.0</b>	<b>Snubber Program</b>
6.1	Purpose
6.2	Scope
<b>7.0</b>	<b>Relief Requests</b>
7.1	Implementation of Relief Request
7.2	Interim Relief Request
<b>8.0</b>	<b>Justification for Deferrals</b>
8.1	Testing Deferral Justifications (Practicality Determinations)
<b>9.0</b>	<b>Appendices</b>
Appendix A:	IST Program Responsibilities
Appendix B:	Supplemental Test Program Guidance Document
Appendix C:	Notification of Program Changes
<b>10.0</b>	<b>Enclosures</b>
Enclosure 10.1:	Revising the Program Document
Enclosure 10.2:	Generic Relief Request Form
Enclosure 10.3:	Justification for Deferral Form
Enclosure 10.4:	Specific Relief Request Form
Enclosure 10.5:	System Piping Classification Correlation

## 1.0 SCOPE OF DOCUMENT

Technical Specifications require performance of pump and valve testing in accordance with ASME O&M Codes. Failure to meet the requirements of this program are a violation of Technical Specifications and 10CFR 50.55a.

The purpose of this program document is to define the McGuire Nuclear Station (or hereafter referred to as "licensee" or "MNS") In-Service Testing (IST) Program for performing valve and pump testing. This document will also outline the process for additions, changes, and deletions of pumps and valves from the MNS IST program.

### 1.1 Program Period:

Fourth Ten-Year Interval (120 month period beginning March 1, 2014):

Unit(s) 1 and 2 Concurrently

Supporting documentation for the above interval is in PIP M-11-9439 CA 2:

- \* 9-9-99 Correspondence from Duke to NRC
- \* 2-3-00 SER from NRC to Duke
- \* 8-12-04 Correspondence from Duke to NRC
- \* 9-6-05 SER from NRC to Duke

### 1.2 Applicable ASME Code(s) and Addenda:

ASME OM Code – 2004 Revision through 2006 Addenda

### 1.3 Program Changes:

The NRC shall be notified of IST program changes; however, component additions and deletions may be submitted and testing implemented or deleted without prior NRC approval. In the instance where a component has been added to the IST program, testing and the appropriate program changes will take place **within 90 days** of revising the program documents unless determined to be impractical.

The content of this program document is based on recommendations stated in NUREG-1482 and is intended for the purpose of maintaining program continuity and documenting additional discussions and positions relative to ASME Code interpretations. Therefore, changes to the IST Program Document will not require prior NRC review and/or approval unless the licensee determines a need to do so.



## 2.0 REFERENCES

The following documents were used as references in the development of this document:

ASME OM Code 2004 through OMB – 2006; sections ISTA, ISTB, ISTC, ISTD, Appendix I and Appendix II

NRC Generic Letter 89-04

NRC Generic Letter 96-05

NRC Generic Letter 96-06

10 CFR 50, Appendix B

10 CFR 50.55a

Technical Specifications

Updated Final Safety Analysis Report (UFSAR)

Nuclear System Directive: 408. Testing

Reg. Guide 1.26

NRC Inspection Procedure 73756

NUREG/CP-0123, Proceedings of the NRC/ASME Symposiums on Pump and Valve Testing

NUREG-1482, Rev 1, Guidelines for In-service Testing at Nuclear Power Plants, January 2005

NRC Information Notice 97-90

NRC Information Notice 97-16

### 3.0 DEFINITIONS and TERMS

Generic Letter 96 – 05	the NRC letter providing on-going requirements in testing MOVs to design basis conditions.
Generic Letter 89-04 -	the NRC letter providing supplemental guidance on developing and enhancing plant IST programs.
ASME OM Code -	the section of ASME Codes and Standards Manual that determines how to perform in-service testing of light water reactor nuclear plant components.
ASME ISTA Code -	the part of ASME OM Codes dealing with the general program requirements.
ASME ISTB Code -	the part of ASME OM Codes dealing with the in-service testing of pumps.
ASME ISTC Code -	the part of ASME OM Codes dealing with the in-service testing of valves.
ASME ISTD Code -	the part of ASME OM Codes dealing with the in-service testing of snubbers.
Frequencies -	the interval of time between in-service testing of the components. These intervals are defined in MNS Technical Specifications: <ol style="list-style-type: none"><li>1) Quarterly (3 months) - 115 days maximum</li><li>2) Cold Shutdown (CSD) - Average Coolant Temperature (<math>T_{avg}</math>) <math>\leq</math> 200°F</li><li>3) Refueling (RF) - Unit at shutdown for the purpose of replacing or rearranging all or a portion of the fuel assemblies or control rods.</li></ol>
IST Component -	components (valves and pumps) that are required to be tested per ASME OM Codes. Sections 4.1 and 5.1 of this document define the criteria.
Supplemental Test Components -	components (valves and pumps) tested under of 10CFR50, Appendix B.
App. J Component -	components leak tested for containment integrity under 10CFR50, Appendix J (including Option B).
Active Component -	a component that must perform a mechanical motion during the course of accomplishing a system safety function.
Passive Component -	a component that does not perform a mechanical motion during the course of accomplishing a system safety function.
System Resistance-	the hydraulic resistance to flow in a system
Trending-	a comparison of current data to previous data obtained under similar conditions for the same equipment.
Set Point -	the value for which relief valves are set to relieve pressure.
Leak Test -	testing of valves to verify seat leakage is limited to a specified maximum.
Stroke-Time -	the time interval from valve actuation to the limit switch indication light or OAC point at the end of the actuating cycle.
Limiting Stroke-Time -	the owner specified maximum time allowed for a valve to stroke before becoming immediately inoperable.
Relief Requests -	A request submitted to the NRC requesting relief from the requirements of the Code for testing a particular component or a generic group of components.
Justif. for Deferrals -	A documented explanation of why a valve can only be tested at a cold shutdown or refueling outage frequency as opposed to quarterly.

## **4.0 VALVE PROGRAM**

### **4.1 In-Service Testing (IST) Program**

As required by 10CFR50.55a, valves that are classified in accordance of NRC Regulatory Guide 1.26 as ISI Class A, B, or C, which corresponds to ASME Class 1, 2, or 3 respectively, under the scope of ISTA, are included in the MNS IST Program. The following defines the criteria for inclusion of equipment in the IST Program:

- a) All Category A valves that fall within the Duke ISI Class A, B, or C boundaries.
- b) All Category B and C valves that fall within the Duke ISI Class A, B, or C boundaries and are required to perform a specific function in shutting down a reactor to the safe shutdown condition, in maintaining the safe shutdown condition, or in mitigating the consequences of the Design Basis Accidents (Design Basis Accidents are defined as those described in Chapter 15 of the UFSAR).
- c) Valves in systems specifically required by Technical Specifications to be tested per ASME OM Codes.

MNS has some valves that are active in certain non-Design Basis Events, are cold shutdown valves not associated with an UFSAR Chapter 15 event, are significant to plant safety, or are of economic importance that are beyond the scope of 10CFR50.55a. Such valves may be tested in the Supplemental Test Program, (10CFR50 Appendix B). See Appendix B of this document for a discussion of this program.

The scope of the OM Standards and Code has not been expanded to include all safety-related pumps and valves in the IST program. Until the scope of 10CFR50.55a is changed, the scope of the IST program will continue to be limited to only those components within the applicable ASME Code class 1, 2, or 3 systems unless otherwise determined by the licensee.

### **4.2 Valve Testing Program Exemptions and Position Statements**

Valves tested under jurisdiction of this program will be tested per requirements of ISTC (OMB-2006), at the specified frequencies unless it has been determined to be impractical. This section of the program document provides MNS positions on interpretations, guidance and other options regarding testing alternatives.

- 4.2.1 Category A and A/C valves (containment and pressure isolation valves) will be leak tested in accordance with ISTC - 3600.
- 4.2.2 Valves that stroke in less than 2 seconds are exempted from reference ranges specified in ISTC – 5100 paragraphs and the maximum limiting stroke time shall be 2 seconds as provided in same paragraphs.
- 4.2.3 Stopwatches used to measure stroke times will be calibrated annually.
- 4.2.4 ISTA – 9230 requires the printed (or typed) name and signature of the person or persons responsible for conducting and analyzing the test. At MNS, the initials of the person or persons responsible for conducting and analyzing the test may be used in place of a printed or typed signature in the record of the tests.

## 4.2 Valve Testing Program Exemptions and Position Statements (continued)

- 4.2.5 It is the licensee's position that valve testing will be deferred if the normal code required test frequency or plant conditions would result in increased personnel risk or damage to plant equipment. Practicality of such deferral shall be determined by the licensee and documented in the "Justification for Deferral" section of the IST Program manual. In such cases, the licensee will not perform any type of destructive testing to determine the period of time at which damage to the equipment or risk to personnel would occur. Exercising valves on a cold shutdown or refueling outage frequency is not a deviation from the code (reference NUREG-1482, Section 2.4.5).

NOTE: For cold shutdowns less than 48 hours, valve testing does not have to be performed. For cold shutdowns expected to exceed 48 hours, valve testing may commence as soon as possible, but no later than 48 hours after reaching cold shutdown. Valve testing will proceed in a normal manner until all testing is complete or the plant is ready to return to power. A completion of all valve testing is not a prerequisite to return to power. Any testing not completed by the end of one cold shutdown will be performed during subsequent cold shutdowns, starting from the last test performed at the previous cold shutdown.

- 4.2.6 Manual valves that meet the scope requirements of ISTA or are credited in the safety analysis as capable of being repositioned to shut down the plant, to maintain the plant in a safe shutdown condition, or to mitigate the consequences of an accident will be tested in accordance with ISTC-3540. However, 10 CFR 50.55a stipulates that the exercising of such valves should not exceed a two year frequency.
- 4.2.7 Valves that are not categorized as ISI Class A, B, or C need not be included in the IST Program. However, according to GL 89-04, Position 11, "The intent of 10 CFR 50 Appendix A, GDC-1, and Appendix B, Criterion XI, is that all components, such as pumps and valves, necessary for safe operation are to be tested to demonstrate that they will perform satisfactorily in service." The licensee may opt to include valves which do not meet these criteria in the IST Program or in the Supplemental Program. In such cases, MNS will not submit Relief Requests or Justification for Deferrals for "Non-Code"- Class valves.
- 4.2.8 **Thermal Relief Valves** that meet the scope requirements of ISTA or are credited in the safety analysis for being capable of relieving pressure due to thermal expansion in code class 1, 2 and 3 piping systems by maintaining the plant in a safe shutdown condition, or in mitigating the consequences of an accident will be included in the IST program. However, testing of such valves will be based on exercising frequencies established by the component type and requirements of Appendix I.
- 4.2.9. **Thermal Expansion Check Valves** A review of piping configurations inside containment which could result in thermal expansion over pressurization was conducted to insure protection had been provided, if necessary. Thermal expansion results when an incompressible fluid trapped between two closed valves inside containment is heated to post accident containment temperatures and expands. Pressure relief is required to prevent failure of the piping between the valves. Relief for containment penetrations is accomplished by the differential pressure across the check valve in its flow direction and does not necessarily require full opening of the inside containment isolation check valve or a bypass check valve around a motor operated inside containment isolation valve. Containment penetrations equipped with Thermal Expansion Check Valves relieve this pressure back to containment. The amount of opening required to relieve possible over pressurization is small enough such that there is not a credible failure of the check valve in the open direction which would prevent this.

Following recent discussions with the industry it has been concluded that it is no longer desirable to maintain the position that thermal expansion check valves are Passive. Effective 1EOC22 these valves will be considered Active and tested accordingly (note that the Unit 1 valves do not have to be tested in 1EOC22 per Appendix II: a test period of 5 years or 2 refueling outages, whichever is less, applies in the absence of an analysis to set up Condition Monitoring frequency).

4.2.10 **Containment Purge Valves (VPs)**, which are passive in the closed direction, will be leak tested per 10 CFR 50, Appendix J but not stroke-timed for IST purposes. Containment Purge valves are "passive" in Modes 1-4. During a postulated fuel handling accident inside the containment, no credit for containment isolation or mixing in the containment is taken. System design assures a safe release path from the containment with the VP system in operation. The radiological consequences of a postulated fuel handling accident are within the exposure guideline values of 10CFR 100.

### 4.3 Check Valve Testing

Check valves tested under the jurisdiction of this program will be tested per Code requirements at the specified frequencies unless it has been determined to be impractical. This section of the program document is to provide the MNS positions concerning interpretations, guidance and other options and testing alternatives for check valves in the IST program.

- 4.3.1 Full stroke testing of check valves will not necessarily constitute the obturator contacting the back-stop. Where possible, sufficient flow will be passed through the valve to verify design basis accident flow. If full flow is not practical, then the licensee will perform correlation testing, partial stroking, or other alternatives as provided by ISTC-3500. Additionally, the code allows use of indirect evidence (such as system pressure, flow, temperature, or level) or other positive means to verify flow or pressure requirements. These indirect methods will not be subject to the range and accuracy requirements of ISTC-3800. (ref. ISTC-3530).
- 4.3.2 Seismic boundary check valves will be included in the program.
- 4.3.3 Check valves included in the sample disassembly portion of the IST program will be disassembled and inspected under the provisions and guidelines given in ISTC-5221.
- 4.3.4 Where applicable to the MNS IST program, reverse flow testing of check valves will be performed by methods as follows:
- Pump Discharge Check Valves - verified closed by meeting a parallel pump's acceptance criteria while cross-connected.
  - Appendix J Testing -
  - Measure back flow through the valve using an open vent on the backside of the valve or ultrasonic flow measurement techniques;
  - Pressure drop across a pump;
  - Pump wind-milling;
  - Observation of external indication on valve stem.
- 4.3.5 As an alternative to the testing and/or examination requirements of ISTC-3510, ISTC-3520, ISTC-3530, ISTC-3550, and ISTC-5221, the Licensee has established a condition monitoring program for check valves (Ref. Appendix D). Details of that program may be found in the program document (McGuire Check Valve Condition Monitoring Program) available upon request.
- 4.3.6 The licensee recognizes the NRC's endorsement of non-intrusive techniques (N.I.T.) for testing check valves and will randomly apply N.I.T. to the check valve test program. However, the industry's use of N.I.T. equipment is still evolving and in many cases the test equipment is not supplied from the vendor with the same elements of the Q.A. program as with other types of test equipment utilized for testing safety related components (e.g. software qualifications, calculation validity, engineering correlation, etc.). Because of this, validation of such equipment is the responsibility of the licensee. Therefore N.I.T. remains a **voluntary** option and will be evaluated on an individual application basis.

#### **4.4 Relief Valve Testing**

Relief valves tested under the jurisdiction of this program will be tested per code requirements of Appendix I unless it has been determined to be impractical. A relief valve shall be considered for inclusion in the program if it performs a specific function or if it provides overpressure protection for portions of systems that perform a specific function in shutting down a reactor or in mitigating the consequences of an accident.

#### **4.5 Leak Rate Testing**

All category A valves will be tested per ISTC-3600, except those valves which function in the course of plant operation in a manner that demonstrates adequate seat leak-tightness. In such cases (e.g., Containment Purge Isolation Valves) proper administrative controls will be implemented and the valves leak tested during refueling outages.

- 4.5.1 Category A containment isolation valves will be tested per 10CFR50, Appendix J (Option B) which allows testing interval extension beyond the nominal 30 months for those CIVs with acceptable performance. Where Section 4.1 lists "Option B" for frequency, a nominal frequency of RF (refueling) is specified for valves on penetrations that do not qualify for interval extension of their Appendix J leak rate test. Extension of the testing interval is evaluated prior to each refueling outage based on previous work history and acceptable as-found leak rate test results.

Where a valve is identified as a containment isolation valve in the Technical Specification or FSAR and if it is determined to be an "active" valve with respect to this function, it will be exercised to both the closed and open positions. Containment isolation valves that are maintained closed by a manual valve or administratively controlled valves are typically not active.

#### **4.6 Testing from Remote Location**

ISTC-3700 requires valves with remote position indication to be tested at least once every 2 years to verify that the valve operation is accurately indicated. Valves that have remote operating switches and/or power supplies will be tested and verified for proper indication from the remote location. Other valve operating parameters (such as timing) may not be performed from the remote location during this testing.

#### **4.7 Post Maintenance and Modification Testing (Retest)**

Reference Nuclear System Directive 408 Testing.

#### **4.8 Fail-Safe Testing of Valves**

All fail-safe valves will be tested in accordance with ISTC-3560. Valves used only for system control, are typically excluded from testing in the IST program. However, if a control valve must change position to support a safety-related function and it has a fail-safe position, then it will be included in the program and tested to verify the ability to perform that function with power and/or air removed (or simulated power and/or air removal).

#### **4.9 Skid-Mounted Valves**

As specified in ISTC-1200, skid-mounted valves will be excluded from the scope of IST test requirements provided they are adequately tested as part of the 'major' component. The licensee however, may opt to include certain components contained on these skids in the IST program for testing and trending purposes. In such cases, any program changes, exceptions, exemptions, or deferrals will not be submitted to the NRC for approval, but may be documented in the program plan. FD, KD, VG and most of the LD system valves have been excluded from the scope of IST test requirements because they are all skid-mounted valves. They are included in the Supplemental Test Program.

#### 4.10 Valve Test Acceptance Criteria

All valve test acceptance criteria (IST-TAC) will be developed in accordance with the provisions specified in ISTC-3300 and ISTC-5100. Where IST-TAC other than that required by code is established for a given valve (e.g., additional N.I.T. diagnostics or GL 96-05 testing), the documentation of that criteria will be at the discretion of the licensee and not required to be part of the test record. IST-TAC should not be confused with the acceptance criteria specified in UFSAR, DBD associated TAC Sheets, or Technical Specifications (such acceptance criteria is often the most limiting values that can not be exceeded). IST-TAC are set to verify operational readiness of the valves and to identify valve degradation before the 'most limiting' acceptance criteria is exceeded. Valve IST-TAC will be evaluated to verify that other acceptance criteria specified (UFSAR, DBD, Tech. Specifications, etc.) will not be exceeded.

Leakage criteria for valves (other than those tested in accordance to 10CFR50, Appendix J, Technical Specifications, or system specific criteria) will be determined based on leakage rates specified by the licensee or using the guidance provided in ISTC3630.

Relief Valve IST-TAC will be established per Appendix I or developed using Licensee calculations as permitted per OM Code.

##### 4.10.1 Valve Stroke-Time Acceptance Criteria:

The following cases present the options available for determining valve operability based on stroke time:

CASE 1 : The valve strokes within its acceptable stroke time. The valve is considered operable.

CASE 2 : The valve fails to change position on the first try or exceeds the LIMITING VALUE. This valve shall be immediately declared inoperable.

CASE 3 : The valve fails to meet the acceptance stroke time, but strokes in less than the LIMITING-VALUE. Per ISTC-5100, the valve shall be either declared inoperable or immediately stroked again to achieve an acceptable stroke time. Per the McGuire valve testing program:

- a. If the valve successfully strokes on the second stroke, the valve is considered operable. The cause of the initial deviation shall be analyzed and the results documented in the test procedure. **This evaluation needs to include valves in similar applications (for example, evaluation of a Steam Generator (SG) PORV outside the reference range needs to include the other seven SG PORVs to evaluate if repetitive or common issue, and determine cause). (Ref. PIP M-12-2710)** A third valve stroke may be performed to demonstrate consistent valve operation.
- b. If the valve does not fall within the acceptable range on the second stroke, then the valve will be analyzed within 96 hours OR declared inoperable (if applicable). An evaluation must be performed to determine the cause of the failed test. The evaluation may determine that either corrective maintenance must be performed on the valve or the new stroke data is acceptable and new baselines must be established. Such results must be documented in the test procedure. **This evaluation needs to include valves in similar applications (for example, evaluation of a Steam Generator (SG) PORV outside the reference range needs to include the other seven SG PORVs to evaluate if repetitive or common issue, and determine cause). (Ref. PIP M-12-2710)**
- c. In the event the initial stroke and the second test results are inconsistent, but the engineering evaluation shows the new stroke-time is acceptable, a third test may be performed to verify consistent behavior. Documentation of the third test will be optional if it shows no deviation from the second stroke.



#### 4.10.2 Valve Stroke-Time Measurements and Methods:

McGuire normally uses the DAC for stroke-timing. However, valve stroke-times may be measured with a stopwatch. The stopwatch is started when the valve is actuated and it is stopped when the testing coordinator has determined the proper signal is received indicating the valve has completed the full stroke.

#### 4.10.3 Limiting-Value Stroke-Time Acceptance Criteria:

Limiting-Values for stroke-times will be established in accordance with guidance given in Generic Letter 89-04, Position 5. It is the position of the licensee that these values will be determined as follows (with the limitations of Tech. Specs. and Safety Analysis limits being the most limiting):

<u>Valve Type</u>	<u>Limiting Value Calculation</u>
EMO (> 10secs.)	1.3R (up to the nearest 5sec. increment)
EMO ( $\leq$ 10secs.)	1.5R (up to the nearest 5sec. increment)
AOV (> 10secs.)	2.0R (up to the nearest 5sec. increment)
AOV ( $\leq$ 10secs.)	2.25R (up to the nearest 5sec.increment)

Note: Where 'R' represents the valve reference value at acceptable operation.

## **5.0 PUMP PROGRAM**

### **5.1 In-Service Testing (IST) Program**

As required by 10CFR50.55a certain pumps that are classified in accordance of NRC Regulatory Guide 1.26 as ISI Class A, B, or C, which corresponds to ASME Class 1, 2, or 3 respectively, under the scope of ISTA, are included in the IST Program. The following defines the criteria for inclusion of equipment in the IST Program:

- a) Pumps in systems specifically required by Technical Specifications to be tested per ASME OM Code ISTB.
- b) All pumps that fall within the Duke ISI Class A, B, or C boundaries that are required to perform a specific function in shutting down a reactor to the safe shutdown condition, in maintaining the safe shutdown condition, or in mitigating the consequences of the Design Basis Accidents (Design Basis Accidents are defined as those described in Chapter 15 of the UFSAR).

### **5.2 Pump Testing Program Exemptions and Position Statements**

Pumps tested under the jurisdiction of this program will be tested per code requirements of ISTB at the specified frequencies unless it has been determined to be impractical. The purpose of this section of the program document is to provide MNS positions on interpretations, guidance and other options regarding testing alternatives.

- 5.2.1 ISTA-9230 requires the signature of the person or persons responsible for conducting and analyzing the test. The dated initials of the person or persons responsible for conducting and analyzing the test may be used in place of a signature in the record of the tests.
- 5.2.2 Pumps whose only safety function is predicated on plant shutdown and recovery from a fire per commitments made as a result of 10CFR50, Appendix R are not required to be included in the IST Program. The licensee will test these in accordance with Appendix R requirements.
- 5.2.3 Pumps that are not provided with an emergency source of power will not be required to meet IST requirements. The licensee however, may elect to include these pumps in the IST program for testing purpose only.

### **5.3 Vibration Monitoring**

Pump vibrations monitored under the jurisdiction of this program will be performed per code requirements at the specified frequencies unless it has been determined to be impractical or a specific deviation from code is needed.

### **5.4 Testing required from Remote Locations (Not Applicable to McGuire Nuclear Station)**

### **5.5 Post Maintenance and Modification Testing (Retest)**

Reference Nuclear System Directive: 408 Testing.

## **5.6 Skid-Mounted Pumps**

As specified in ISTB-1200, skid-mounted pumps will be excluded from the scope of IST requirements provided they are adequately tested as part of the 'major' component. The licensee however, may opt to include certain components contained on these skids in the IST program for testing and trending purposes. In such cases, any program changes, exceptions, exemptions, or deferrals will not be submitted to the NRC for approval, but may be documented in the program plan.

## **5.7 Pump Test Acceptance Criteria**

All pump test acceptance criteria (IST-TAC) will be developed in accordance with the provisions specified in ISTB. The applicable acceptance criteria will be developed when the pump is known to be performing in a satisfactory manner. Where IST-TAC other than that required by code is established for a given pump (i.e., pump curves), the documentation of that criteria will be at the discretion of the licensee and may not be part of the test record.

'IST-TAC' may not be the same acceptance criteria specified in DBDs, DBD associated TAC Sheets, Technical Specifications, or UFSAR. IST-TAC are set to verify operational readiness of the pumps and to identify pump degradation before the 'most limiting' acceptance criteria are exceeded. Pump IST-TAC will be evaluated to verify that other acceptance criteria specified (DBDs, DBD TAC Sheets, Tech. Specs., or UFSAR) will not be exceeded.

## 6.0 SNUBBER PROGRAM

### 6.1 Purpose

The intent of the ISTD – Snubber Program is to demonstrate and ensure snubber operational readiness through periodic examinations, testing and service life monitoring. Title 10CFR50.55a invokes preservice and inservice testing of snubbers per ASME OM Code and establishes the requirements that each nuclear power plant must develop and implement a preservice and inservice examinations and testing program for snubbers.

### 6.2 Scope

The Snubber Program includes all snubbers installed at McGuire Nuclear Station Unit 1 and Unit 2. Those snubbers tested in the program are selected and tested in accordance with the ASME Code for Operations and Maintenance of Nuclear Power Plants, 2004 Editions of ISTA and ISTD up through the 2006 Addenda.

## 7.0 RELIEF REQUESTS

The purpose of a Relief Request is to submit a request for NRC review and approval of alternative testing to those requirements of the Code that cannot be followed. If the testing on the component can not be performed due to plant configuration, plant safety, equipment limitations, type, or hazards to personnel, relief from the code will be requested. Submitted relief requests will:

- 1) Give an alternative method that ensures an acceptable level of quality and safety.
- 2) Explain the hardship with meeting the code requirement.
- 3) Provide a schedule or alternative test frequency (or duration for interim Relief Request).

At the end of each 'Ten Year Interval', all Relief Request will be reviewed for next interval applicability. In cases where a "Specific Relief" was previously submitted to the NRC and approval granted, but the conditions and provisions do not change (i.e. no code change or modification to equipment or system) to eliminate the relief, the relief will continue to be applicable the next interval. Relief Requests will not be written for any non-Code Class components that are included in the IST Program at the licensee's discretion.

### 7.1 Implementing Relief Requests:

When a Relief Request is submitted for those requirements which have been determined to be clearly impractical, the licensee may implement the proposed alternative testing while the NRC is reviewing the Relief Request, provided the alternative does not compromise the level of safety provided by the code testing requirement (reference from NUREG-1482, section 2.5).

### 7.2 Interim Relief Requests:

When a Relief Request is required on an interim basis, the licensee will submit the relief for review, but as with section 6.1, may implement the relief while the NRC is reviewing the request. Updates to schedules or impacts to modification implementation of the component with interim relief will be communicated to the NRC as the program is updated. Interim Relief Requests shall be withdrawn when the licensee no longer requires them.

## 8.0 JUSTIFICATIONS FOR DEFERRALS:

Justification for Deferrals (JFDs) will be written when a component can not be tested at the specified code frequency. This could be due to an impracticality of testing the component at power or due to plant safety concerns introduced by the testing configuration. The basis for determining the impracticality of testing at power and expanding the component's testing frequency to a Cold Shutdown or Refueling Outage frequency is documented in the Justification for Deferral.

In-Service Testing to be performed at Cold Shutdown shall:

- a) be performed during each cold shutdown when the planned length is of sufficient duration to establish the necessary test conditions and to perform the test, and
- b) be performed as to not impact the timely completion of the shutdown related activities and subsequent return to operation. For shutdowns when the planned length is not of sufficient duration to complete all tests, testing will start within 48 hours of reaching cold shutdown conditions, or
- c) be performed at the next available cold shutdown consistent with the above criteria if an opportunity to test the valve is not available. Completion of the IST is not a prerequisite to return to operation.

Any testing required to be performed during a refueling outage shall be completed prior to plant operation. Components tested during start-up will not delay start-up if the site Technical Specifications allow start-up with the component out of service or inoperable. Retest and corrective actions shall be performed at the first available opportunity.

## 8.1 Testing Deferral Justifications:

8.1.1 Purpose: The purpose of the Justification for Deferral form is to document the reason a pump or valve can only be tested at cold shutdown or at refueling outage.

Valid reasons could be plant configuration for testing which would jeopardize the safety of plant operation, access to the component which would be against ALARA, access to the component due to the environmental conditions endangering personnel safety, plant configuration for testing would require the plant to be in a mode not suitable for power production, or testing renders systems inoperable for extended periods of time. It is not the intent of IST to cause unwarranted plant shutdowns or to unnecessarily challenge other safety systems.

Note: The Justification of Deferral Form is found in Enclosure 9.3.

## 9.0 APPENDICES

### Appendix A: IST PROGRAM RESPONSIBILITIES

#### 9.1 SITE IST ENGINEER

The IST Engineer position will be filled by a qualified individual knowledgeable of plant system operation. He/she ensures the site is in compliance by its performance testing and trending methods. The IST Engineer will accomplish this by maintaining consistency among the System Engineers and overall program management.

The IST Engineer may publish an overall summary (as an annual summary), on the current status of the site performance monitoring of the valves and pumps tested under the requirements of the IST or Supplemental Test Program.

The IST Engineer will be responsible for:

- notifying Regulatory Compliance of any changes to the Valve and Pump Testing Program described in this document, including changes to the data sheet information,
- updating and maintaining the IST Database,
- ensure all IST-TAC is accurate and not in conflict with other specified TAC,
- coordinating and implementing the program update and renewal per 10CFR50 every 10 years.

#### 9.2 Fleet IST Coordinator

The Fleet IST Coordinator will be an individual responsible for overall corporate IST program management. He/she ensures corporate strategies for the IST Program align with industry and regulatory standards. This individual is knowledgeable of each site's IST programs including program administration and will be responsible for ensuring each site is in compliance with the applicable ASME Codes and IST guidelines (ISTA, ISTB, ISTC, ISTD, NRC Generic Letters, and NUREG-1482 etc.).

The Fleet IST Coordinator is the technical consultant on any Code-related issues that require interpretation or involve Operability determinations (at the discretion of the IST Engineer and site management). The Fleet IST Coordinator will provide support for internal and external IST program audits.

The Fleet IST Coordinator is the Single Point of Contact on any issues that involve site-site interaction. The Fleet IST Coordinator is responsible for ensuring consistency where practical.

The Fleet IST Coordinator will represent Duke Energy's interest for Code development.

## Appendix A: IST PROGRAM RESPONSIBILITIES (Continued)

### 9.2 Fleet IST Coordinator - Continued

The Fleet IST Coordinator is responsible for assisting with review and updating the IST program per 10CFR50 each 10-year interval. He/she will assist the sites in preparing, submitting, and reviewing interim revisions to the IST program. The Fleet IST Coordinator will assist the site IST Engineer in developing position statements, Relief Requests, and Justification for Deferrals. He/she will perform periodic reviews of site Relief Requests and/or Justification for Deferrals for consistency and compliance.

The Fleet IST Coordinator will see that progress addressing technical issues will be made by the IST Working Group (ISTWG). This includes defining appropriate tasks, tracking action items, conducting periodic meetings, interface with the appropriate BEST contacts, and maintaining overall group focus.

### 9.3 SITE ENGINEERING

Site Engineering is responsible for the components within their systems which are in the program. If the status of a component changes, Site Engineering is responsible for initiating the required changes to the program (see Appendix C).

Site Engineering is responsible for the following:

- ensuring the accuracy of IST dataset information,
- defining test acceptance criteria (TAC),
- ensuring code testing requirements are met,
- documenting reasons for scope or code deviation,
- providing tech. assistance for developing test procedures,
- complete valve and pump data sheets for program revisions,
- notifying the IST Engineer of maintenance that could affect the baseline data for any IST component,
- overall administration of the relief valve testing program (Appendix I),
- administrating the check valve sample disassembly program, provide input when evaluating specific component issues (why failed test, baseline changed, etc.).

### 9.4 OPERATIONS TEST GROUP (OTG)

This group is responsible for the following:

- input data into procedure and Olympus,
- performing tests,
- accurately recording and notifying Site Engineering of any testing problems,
- initiating a PIP when a test is failed or a problem is encountered,
- documenting test discrepancies on the procedure.

## 9.5 OPERATIONS PROCEDURE GROUP

This group is responsible for the following:

- updating and maintaining all IST procedures,
- verifying all technical changes with the IST Engineer.



## Appendix B:

### McGUIRE NUCLEAR STATION Supplemental (10CFR50, Appendix B) Test Program Guidance Document

#### S1.0 SCOPE

10CFR50, Appendix B establishes requirements for test programs that monitor plant structures, systems, and components. The Supplemental Test Program (STP) program assures testing shall be performed in accordance with approved written test procedures that incorporate the requirements and acceptance limits contained in applicable design documents. This program shall include the following:

- Periodic test during plant operation of structures, systems, and components.
- Trending of test parameters at owner specified frequencies.

STP test procedures shall include provisions for assuring that all prerequisites and acceptance criteria for the given test have been met. In addition, adequate test instrumentation shall be used and testing performed under suitable environmental conditions (as per 10 CFR 50, App B). Test frequencies will be as specified valve and pump tables of the STP unless otherwise documented in this section (Section S6.0, "SUPPLEMENTAL TEST PROGRAM POSITIONS/EXCEPTIONS.")

Deviations from 'guidelines' will be documented in Section S6.0, "SUPPLEMENTAL TEST PROGRAM POSITIONS/EXCEPTIONS."

#### S2.0 PUMP AND VALVE TEST SELECTION CRITERIA

The pumps and valves in this program shall be limited to those pumps and valves not covered in the scope of ASME OM Code.

#### S3.0 PROGRAM ELEMENTS

***Pump and Valve Selection*** - This task involves identifying all components that fall within the scope of the Supplemental Test Program.

***Testing Support*** - Develop acceptance criteria, necessary test procedures, and establish the correct frequencies for performing operational tests.

***Demonstrate Operability*** - Perform base-line testing (if applicable) of components to ensure functionality of the component and to obtain data for future surveillance activities.

***Documentation and Trending*** -

- Establish documentation and trending system for all STP components.
- Establish monitoring system for periodic surveillance testing and performance parameters.
- Establish feedback mechanism to ensure that results and failures influence the frequency and extent of future testing.

## Supplemental Test Program Guidance Document - Continued

### S4.0 PROGRAM ORGANIZATION AND RESPONSIBILITIES

Fleet IST Coordinator - This is the individual responsible for the following:

- General direction for program elements.
- Program oversight and liaison.
- Assistance in site program implementation.
- Industry, regulatory, and corporate interface.
- Assist stations in resolving generic issues.
- Provide lead, coordinate and/or interface with other groups to ensure consistent implementation.

Site IST/Engineering Contact - This is the site engineering support responsible for the following:

- Pump and Valve Selection.
- Categorizing for analysis and testing.
- Resolution of operability concerns.
- Station modifications which affect components in the STP.
- Operability testing of components.
- Maintaining STP documents in an auditable format and condition.
- Maintain working procedures, guidelines, and other documents.
- Final review and trending of component test data and acceptance criteria.
- Implement STP changes in response to any corporate and industry direction.

## Supplemental Test Program Guidance Document - Continued

### S5.0 DEFINITIONS

active: a valve that must perform a mechanical motion during the course of accomplishing a system safety function. Note that valves in the STP do not perform safety functions under ISTA scope.

passive: a valve that does not perform a mechanical motion during the course of accomplishing system safety function.

safety-related: required to mitigate the consequences of an accident, shutdown, or maintain shutdown of the reactor.

component: an item in a nuclear power plant such as a vessel, pump, valve, or piping system.

cold shutdown: (see plant technical specifications).

engineering evaluation: an evaluation of indications that exceed allowable acceptance standards to determine if the margins required by the design specifications and construction code are maintained.

exercising (of a valve): the demonstration based on direct or indirect visual or other positive indication that the moving parts function satisfactorily.

full-stroke time: that time interval from initiation of the actuation signal to the end of the actuation cycle.

test: a procedure to obtain information (through measurement or observation) to determine the operational readiness of a component or system while under controlled conditions.

hot standby: (see plant technical specifications).

operational readiness: the ability of a component or system to perform its intended function when required.

owner: the organization legally responsible for the operation, maintenance, safety, and power generation of the nuclear power plant.

normal plant operating conditions: the operating conditions during reactor startup, operation at power, hot standby, and reactor shutdown conditions. (Note: test conditions are excluded).

obturator: valve closure member (disk, gate, plug, ball, etc.)

reference values: one or more values of test parameters measured or determined when the equipment is known to be operating acceptably.

## Supplemental Test Program Guidance Document - Continued

### S6.0 SUPPLEMENT TEST PROGRAM POSITIONS/EXCEPTIONS

- 6.1 The MNS STP may be administered using the ASME IST Code as guidance for testing and trending.
- 6.2 Relief Requests and Justification for Deferrals will not be submitted for STP components.
- 6.3 Per McGuire's GL 89-04 response, STP manual valves are NORMALLY stroked at a refueling frequency.
- 6.4 Deviations from standard test practices will be allowed only if substantiated in writing per the methods outlined in approved site directives and procedures.

## Appendix C: NOTIFICATION OF PROGRAM CHANGES

The System Engineer shall initiate program changes as changes are made to the respective system, DBDs, or active/passive valve calculations. Notification of external customers (e.g. Regulatory Compliance Group) of such changes to the program will occur by issuing the appropriate administrative mechanism (i.e. PIP, Minor Modification Request, etc.).

To ensure Code compliance for the MNS Pump and Valve Testing Program, the IST Engineer should be notified of any of the following changes:

- changing the active/passive status of a component,
- changing the leakage requirements of the component,
- changing the piping classification of the component (Duke Class and ISI Class),
- something changes with how the component may be tested,
- a commitment is made or changed for testing or operation of a component,
- taking credit for a new function, flow path, etc.,
- a modification to the component is planned which can/will significantly affect the components baseline TAC.

## 10.0 ENCLOSURES:

### Enclosure 10.1

(RESERVED FOR "REVISING THE PROGRAM DOCUMENT")

- Revision 1 (4/27/01): Changed thermal expansion check valve "1(2)NI165" to "1(2)NI-171" in section 4.2.9 to be consistent with the other Loop A check valve 1(2)NI60 which is listed for overpressure protection from thermal expansion of penetration 1(2)M-352. (Reference PIP M-00-1870 CA#2).  
Revised the format under section 4.3.7.  
Pages 1, 8, 9 and 24 revised.
- Revision 2 (8/1/01): Added ASME OM Code - 1995, Subsections ISTC and Appendix II to Applicable Codes  
Added 1995 Code and Information Notice 97-16 to Non-Mandatory References  
Revised description of containment penetration thermal expansion check valve opening requirements and reclassified that as a non-active function in section 4.2.9.  
Added section 4.3.8 to describe Check Valve Condition Monitoring Program  
Revised description of non-intrusive testing in section 4.3.9.  
Revised description of section 4.9 Skid Mounted Valves to incorporate adoption of position by ASME Omb-1977  
Deleted header 4.10.4 for future revision "Engineering Evaluations"  
Deleted header 5.3 for future revision "Miniflow and Full Flow Pump Testing"  
Revised description of section 5.6 Skid Mounted Pumps to incorporate adoption of position by ASME Omb-1977  
Deleted header for future revision "Pump Hydraulic Acceptance Criteria"  
Deleted Enclosure 9.7 "Summary of IST Program Submittal Changes"
- Revision 3 (3/1/04): Updated all several references to OM Code – 1998 (including Omb-2000 Addenda).  
Added ISTA references to several sections.  
Updated program period to third ten-year interval,  
Revised section 4.3.5 which describes the Check Valve Condition Monitoring Program.  
Revised description of section 4.9 Skid Mounted Valves to incorporate adoption of position by ASME Omb-2000.  
Revised description of section 5.6 Skid Mounted Pumps to incorporate adoption of position by ASME Omb-2000.  
Revised list of thermal expansion check valves in section 4.2.9 to separate active and passive classification,  
Revised section 4.6.1 to include discussion of 10CFR50 Appendix J Option B,  
Revised sections of 4.3 that exempted reverse flow testing for applicable check valves.  
Updated Appendix A to reflect recent organization changes.
- Revision 4 (7/31/12) Revised Section 1.1 (Program Period) to include reference to PIP M-11-9439 (and supporting documentation for the current interval date)  
Revised Section 4.2.9: added new Note & noted passive list as "currently"  
In Section 4.2.9 added 1(2)NF-1464  
In 4.10.1 Case 3 'b', changed "the root cause" to "the cause"  
In 4.10.1 Case 3 'a' and 'b', added evaluation of similar valves for PIP M-12-2710  
Added new Appendix D for PIP M-12-3683 (1998/1999/2000 Code editorial/format errors subsequently corrected in the Code), and related references to Code in 4.3.5  
Revised for position titles (due to organizational changes)  
Revised App. A, 4.0 (OTG) from "IST Administrator" to "Olympus" data entry

Revision 5 (2/18/13) Updated references to OM Code - 2004 (through Omb-2006 Addenda)  
Updated program to fourth ten-year interval  
Updated discussion (and list descriptions) of thermal expansion check valves in Section 4.2.9  
Deleted Appendix D (included in 3/1/13 IST Submittal IST Program Document submitted for historical information only: errors in 1998 Code)  
Added Section 6 (Snubber Program)

# Generic Relief Request

---

**Item Number:**

**Component Number (s):**

**Flow Diagram (s):**

**Function (s):**

**ISI Class/Duke Class:**

**Code Category:**

**Test Requirement (s):**

**Basis for Relief:**

**Code Alternative:**



McGuire Nuclear Station - Unit 1  
McGuire Nuclear Station - Unit 2

# Justification for Deferral

---

**Item Number:**

**Valve:**

**Flow Diagram(s):**

**Code Category:**

**ASME Class:**

**Function:**

**Test Requirement:**

**Basis for Deferral:**

**Test Alternative/Frequency:**

McGuire Nuclear Station - Unit 1  
McGuire Nuclear Station - Unit 2

# Specific Relief Request

---

**Item Number:**

**Component Number(s):**

**Flow Diagram (s):**

**Code Category:**

**ASME Class:**

**Function:**

**Test Requirement (s):**

**Basis for Relief:**

**Test Alternative/Frequency:**

## Enclosure 10.5

### System Piping Classification Correlation

<u>Duke System Piping Classification</u>	<u>(1) Safety Related</u>	<u>NRC Quality Group</u>	<u>Duke QA Condition</u>	<u>ANSI Safety Class</u>	<u>Code Des. Criteria (6)</u>	<u>Seismic Pressure Boundary Integrity</u>	<u>Seismic Category</u>	<u>Normally Contains Radioactive Material</u>
A	YES	A	1	1	Class 1, ASME Sect. III	YES	SC-1	YES
B	YES	B	1	2	Class 2, ASME Sect. III	YES	SC-1	YES
C	YES	C	1	3	Class 3, ASME Sect. III	YES	SC-1	YES
E	NO	D(3)	2(4)	NNS(2)	ANSI B31.1.0	NO	N/A	YES
F	YES	-	(4)	NNS(2)	ANSI B31.1.0	YES	SC-1	NO
G	NO	-	-(4)	-	ANSI B31.1.0	NO	N/A	NO
H	NO	-	-(4)	-	Duke Energy Spec.	NO	N/A	NO
H (HVAC)	YES	-	-(6)	-	Duke Energy Spec	YES	SC-1	NO

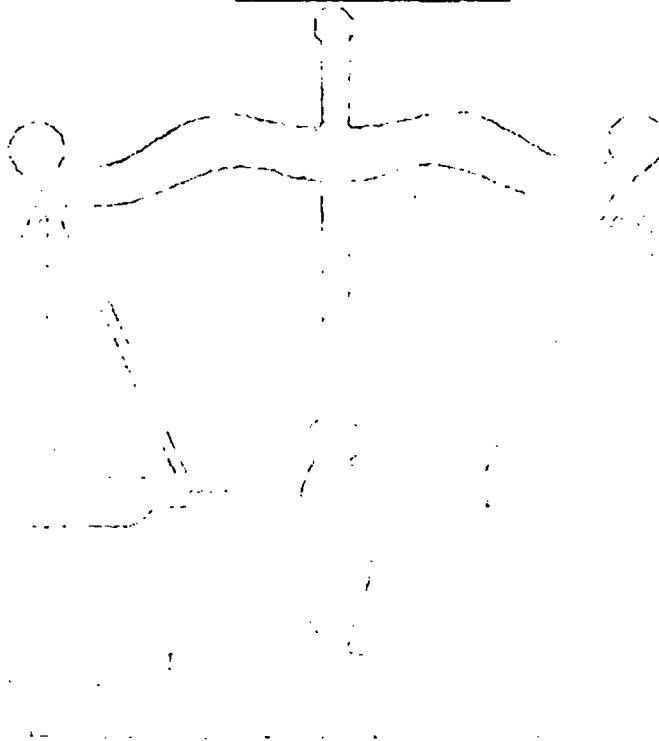
**NOTES:**

- (1) Safety Related as used herein is in accordance with 10CFR50 Appendix A General Design Criteria for Nuclear Power Plants and is applicable to function only; i.e., structures, systems, and components required to function such that the facility can be operated without undue risk to the health and safety of the public are safety related.
- (2) NNS = Non-Nuclear Safety
- (3) Class E piping is equivalent to NRC Quality Group D; i.e., the system is designed to normally carry a radioactive fluid; however, is considered NNS as a component failure would not result in a calculated potential exposure in excess of the limits established by 10 CFR PART 20.
- (4) Class E, G, and H piping systems may also be assigned QA Condition 3 and/or 4 to denote additional requirements for fire protection of safety related components and/ or seismic structural integrity (except pressure boundary) to preclude adverse interactions with safety related structures, systems and components, respectively; refer to Duke Nuclear Guide 1.29.
- (5) Code and Standards Applicability: Duke Energy establishes an "effective code date" in accordance with 10CFR50, par. 50.55a for McGuire Nuclear Station. Due to the numerous code and standards references applicable to each station, no attempt is made to specifically identify these references as they are amended, superseded, or substituted. Duke reviews and complies with all or portions of the latest versions of the above Codes and Standards unless materials and/ or design commitments have progressed to a stage that it is not practical to make a change. When only portions of addenda to Codes and Standards are utilized, the appropriate engineering review of the entire agenda assures that the overall intent of the Code Standard is still maintained.
- (6) HVAC Duct Systems may be constructed of either sheet metal or piping materials depending upon the design function and requirements. Non-Safety Related HVAC may be assigned QA Condition 4, SC-11 Support Restraints to preclude adverse interactions with safety related structures, systems, and components. Refer to Duke Nuclear Guide 1.29.
- (7) Seismic Category II hangers may be use on Class E, G, or H piping systems when pressure boundary integrity is not required. See Duke Guide 1.29.

**MCGUIRE NUCLEAR STATION  
SNUBBER  
ENGINEERING SUPPORT DOCUMENT**

**Revision:**     3    

**Date:**     2/7/2013    



**Prepared by:** Brian Lukowski  
**Signature:** *Brian Lukowski*

**Date:** 2/7/2013  
**Date:** 2/7/13

**Approved by:** Ray Kayler  
**Signature:** *Ray Kayler*

**Date:** 2/7/2013  
**Date:** 2/7/13

<b>1.0</b>	<b>DOCUMENT DESCRIPTION .....</b>	<b>3</b>
1.1	PURPOSE .....	3
1.2	FORMAT .....	3
<b>2.0</b>	<b>GENERIC SNUBBER INFORMATION.....</b>	<b>3</b>
2.1	GENERAL DESCRIPTION .....	3
2.1.1	<u>Functional Description</u> .....	4
2.1.2	<u>Mechanical Snubbers</u> .....	4
2.1.3	<u>Hydraulic Snubbers</u> .....	5
2.2	MONITORING AND TRENDING PROGRAMS .....	6
2.2.1	<u>Failure Monitoring</u> .....	6
2.2.2	<u>Service Life Monitoring</u> .....	7
2.3	MONITORING AND TRENDING RESULTS .....	8
2.3.1	<u>Failure Trending</u> .....	8
2.3.2	<u>Service Life Monitoring</u> .....	8
2.4	INDUSTRY-WIDE PLANS FOR ENHANCEMENTS .....	8
2.4.1	<u>SNUG Initiatives</u> .....	8
2.4.2	<u>ASME Code Committees</u> .....	9
<b>3.0</b>	<b>SITE SPECIFIC INFORMATION .....</b>	<b>10</b>
3.1	GENERAL DESCRIPTION .....	10
3.1.1	<u>Functional Description</u> .....	10
3.1.2	<u>Model Specific Functional Descriptions</u> .....	10
3.2	MONITORING PROGRAMS .....	11
3.4	REFERENCES .....	14
3.4.1	<u>Vendors Contacts</u> .....	14
3.4.2	<u>Design Specifications</u> .....	15
3.4.3	<u>Licensing Documents</u> .....	15
3.4.6	<u>Drawings</u> .....	16
3.4.7	<u>Code References</u> .....	17
3.4.8	<u>Miscellaneous References</u> .....	17
3.4.9	<u>NRC References</u> .....	18
3.4.10	<u>SNUG References</u> .....	19
3.4.11	<u>EPRI References</u> .....	19
3.4.12	<u>INPO References</u> .....	20
3.4.13	<u>Technical Reports</u> .....	20
3.5	MISCELLANEOUS .....	21
3.5.1	<u>Guidelines for Turnover</u> .....	21
3.5.2	<u>Snubber Testing/Inspection Example Process</u> .....	21
3.5.3	<u>Typical Outage Work Process</u> .....	22
3.5.4	<u>Failure Evaluation</u> .....	22
3.5.5	<u>Snubber Data Base</u> .....	22

## **1.0 Document Description**

### **1.1 Purpose**

The purpose of this document is to provide a single source to provide basic generic information with regard to snubbers as well as a definitive outline of the snubber program specific to McGuire Nuclear Station. The intent of this document is to provide basic information for the casual reader as well as specific information to the more knowledgeable user. It is hoped that through the use of this document the former will be able to ascertain and understand the basic requirements of a successful snubber testing and maintenance program. The more knowledgeable reader will be able to utilize this document to examine, evaluate, and/or administer the specific program defined herein.

### **1.2 Format**

The format utilized for this document supports the twofold purpose outlined in the previous paragraph. Section 2 provides generic information that apply to snubbers and snubber programs in general. Section 3 contains information that is specific to McGuire Nuclear Station. It is Section 3 that defines and documents the site specific snubber program.

## **2.0 Generic Snubber Information**

### **2.1 General Description**

Snubbers are dynamic restraints that are utilized to allow slow, constant movement of an attached component while providing rigid restraint against rapid motion due to dynamic loads. This type of device restrains movements due to dynamic loading such as seismic motion, water and steam hammer, and relief valve thrust loads. Snubbers should not restrict the relatively slow movements that are associated with thermal expansion. Motions from dynamic forces are controlled when the snubber activates and becomes a load carrying member between the SSC and the building structure. Snubbers are of two basic designs, mechanical or hydraulic, as explained in the functional description in Section 2.1.1 of this document. Snubbers are generally installed on almost all plant systems, both those that are important to safety as well as those secondary systems that are not.

As the nuclear power industry developed most early plant designs utilized hydraulic snubbers to provide dynamic restraint to the pipe systems. Operating experience soon revealed fluid leakage was a major concern with these components. This presented problems with regard to reliability of the component as well as contamination concerns. For this reason stringent pre-service and in-service testing requirements for hydraulic snubbers were added to the licensing requirements for most generating facilities. In response to this mechanical snubbers were developed to eliminate the leakage concern and avoid the resource intensive testing requirements for hydraulic snubbers. It soon became apparent that reliability issues also existed for the mechanical snubber designs. These manifested themselves in the areas of high resistance to pipe movement, unintentional activation, or loss of activation. Therefore the licensing requirements were again revised to include stringent and extensive testing requirements for mechanical as well as hydraulic snubbers.

It is these reliability issues and licensing requirements that form the basis for today's snubber testing and maintenance programs. Generally these programs involve three distinct commitments. One is to

conduct visual examinations of the entire snubber population at some defined time interval. A second commitment is to conduct periodic functional testing of a statistical sample of the population to verify a high degree of confidence in the reliability of the population as a whole. A third requirement is to establish and maintain a service life monitoring program for all snubbers in the program. In addition, some licensing documents require some type of post-transient testing on certain systems.

Each of the previously listed tasks are separate and distinct commitments which must be met. It is especially important to note that the completion of the required examinations and functional tests do not of themselves satisfy the requirements of a service life monitoring program. Further details of these aspects of the program are provided in Section 2.2 of this document.

### 2.1.1 Functional Description

The function of both mechanical and hydraulic snubbers is to provide dynamic restraint without impairing thermal motion. A mechanical snubber, as the name implies, functions through the physical interaction of mechanical components such as springs, gears, cams, or threaded shafts. A hydraulic snubber generally utilizes fluid flow through either a fixed orifice or a spring adjusted poppet valve.

The primary design characteristics of snubbers are the drag and motion limiting values. Drag is the internal frictional resistance of the snubber to movement. Drag forces oppose the thermal expansion of the pipe system and thus have the potential of inducing stresses in the pipe system. For this reason drag values are considered as valid indicators of a mechanical snubber's ability to function as designed. Drag is generally not considered to be a significant parameter for hydraulic snubbers.

The motion limiting characteristics are generally separated into two categories, activation level and release rate. Activation level refers to the velocity or acceleration threshold that initiates the restraint mechanism of a snubber. The release (or bleed) rate is the measure of movement allowed under load subsequent to activation. Generally the limits for these rates are defined by assumptions made in the pipe stress analysis qualification, as the motion limits define the dynamic response of the piping system.

The failure mode of a snubber is significant in deciding the appropriate actions to take when a failure occurs. A snubber that does not activate affects the postulated dynamic response of the system but does not necessarily imply actual damage to the piping system. A locked snubber can significantly increase the thermal loads and stresses in the pipe and indicates that past conditions should be evaluated in order to determine the current operability of the supported system.

### 2.1.2 Mechanical Snubbers

Mechanical snubbers are generally of two basic design principles. The most common design operates on the principle of limiting the linear acceleration of the supported component below a defined maximum value. In this way the pipe system is prevented from exceeding the dynamic response parameters assumed in the qualifying pipe stress analysis calculations. The second mechanical design type also limits the response of the supported system, but does so by limiting velocity rather than acceleration.

The most prevalent acceleration limiting design utilizes a threaded shaft and ball screw to convert the linear motion of a telescoping tube to the rotational motion of a drum assembly. The drum assembly is coupled to an inertia mass by means of a resilient capstan spring. The rotational motion causes the angular acceleration of the inertia mass through the capstan spring. At accelerations that exceed the design value the inertial resistance of the mass causes the spring to tighten around the drum. This provides resistance to the rotation of the ball screw, which in turn provides resistance to the linear telescoping motion. This design is intended to provide a constant braking force rather than completely locking the snubber in a rigid condition. The inertia mass is mounted to turn freely, so that once the acceleration drops below the activation limit the braking force is released. The result is to continuously throttle the motion to limit the acceleration. During gradual movement, such as that caused by pipe thermal expansion, the acceleration is below the design limit. Therefore the mass rotates slowly and the capstan spring is not engaged, allowing unrestrained motion of the supported component.

In general, velocity limiting mechanical snubbers operate by using an oscillating type escapement mechanism to restrict motion to a constant velocity. This is accomplished by utilizing an oscillating verge and connected gearing to limit the velocity of a geared rack. The rack is connected to the supported component and generally is allowed to displace with relatively small resistance. When an external force is applied the linear rack movement is transferred through gearing to cause a verge wheel to rotate. The oscillation of the verge limits the movement of the rack to a velocity proportional to the applied force. The angular surfaces of the verge are designed to force the verge to reverse direction for each half tooth rotation of the wheel. The frequency of the oscillation is determined by the force applied to the rack, thus controlling the linear velocity of the rack. Since the gear and verge assemblies are positively engaged at all times the snubber is instantly engaged upon the application of any motion.

The failure modes for mechanical snubbers are similar regardless of the design type. The snubber may lock up and allow absolutely no motion to occur, it may develop a high resistance to normal motion (drag), or it may fail to activate upon the application of force. A snubber that is locked up or exhibits high drag is detrimental to the function of the supported system. These failure modes can often lead to physical damage to the supported system or components caused by thermal movements during normal operating conditions. A snubber that fails to activate cannot fulfill the intended function of dynamically restraining the pipe or equipment, but generally will not cause damage to the system under normal operating conditions.

### 2.1.3 Hydraulic Snubbers

Hydraulic snubbers utilize fluid flow to provide the restraining mechanism. The snubbers consist of a piston rod mechanism that displaces a fluid medium when the snubber compresses or extends. Piston rod motion causes flow of the working fluid to be directed through either a fixed orifice or a valve assembly. In a fixed orifice design the flow is limited to a maximum design velocity by the size of the orifice itself. These snubbers do not activate, as the orifice opening is fixed. The size of the opening is designed to limit the rod velocity for the given fluid.

For designs utilizing a valve assembly the flow is usually directed through the main flow valve until a preset fluid velocity is reached, at which point the valve will close and flow will be restricted to a separate bleed path at a fixed velocity. Varying arrangements of valves and bleed paths are utilized to achieve the desired values, but the basic operating principle is the same for all cases. The valve allows



snubber rod velocity to increase up to the designed activation point, whereupon all flow is then forced through the bleed path until the fluid velocity drops below the activation point and the main valve opens.

The fluids utilized in hydraulic snubbers are obviously an important aspect of the component design. Flow characteristics must be predictable for a wide variety of environmental and operating conditions in order for the snubber to function as designed. Fluid viscosity and thermal characteristics are factored into the snubber design.

The failure mode for hydraulic snubbers is generally a passive failure, in which the snubber allows movement at all times (i.e. fails to activate). A prevalent failure mode would be loss of fluid due to leakage. In that case the snubber would normally allow motion, but would not be able to activate and provide the required dynamic restraint. However, it is possible that changes in fluid characteristics could also result in viscosity changes that would affect the velocity limiting characteristics of the snubber. Under extreme conditions radiation exposure can result in hydraulic fluids too viscous to readily flow through the orifice or valve openings. This obviously affects the force required to move the piston rod and could result in undesired loads on pipe or components during thermal expansion. On the other hand, a change in the fluid viscosity could allow it to flow too easily through the snubber.

## **2.2 Monitoring and Trending Programs**

### **2.2.1 Failure Monitoring**

Failure monitoring relies largely on functional tests to identify installed snubbers that fail to meet the specified operability criteria. These activities are generally statistical in nature, relying on partial samples of the population to draw conclusions about the population as a whole. The data from these activities provides a certain confidence that at the time of the tests the population as a whole meets an acceptable level for reliability. Care must be taken to ensure that the sample populations utilized are in accordance with the assumptions made in the development of the statistical analysis. The functional test activities do not normally account for degradation trends or provide valid data for service life determinations.

Failures identified by visual examinations are also identified and recorded. For mechanical snubbers this inspection is of limited use as only the most obvious of failures can be identified by visual inspection only.

Snubber failures that are identified by any other means are also monitored. This includes failures discovered while in service or during preventive maintenance and service life monitoring activities.

#### **2.2.1.1 Parameters**

The parameters addressed in visual examinations not only involve those items which obviously impact the function of the snubber (i.e. fluid levels, corrosion, and any signs of obvious damage to the snubber) but also a visual inspection of the connecting members for corrosion, damage, broken welds, loose fasteners, or interference items that may restrict thermal movements. For functional tests the parameters tested are those which have a set acceptance criteria. These generally are specific values for drag force, activation velocity or acceleration, and release (bleed) rates.

#### **2.2.1.2 Goals**

The goal of such examinations and testing is to show that the population is acceptable per the statistical method used.

#### 2.2.1.3 Methods

Generally the method used for visual examinations is a 100% inspection of the snubber population on a given frequency. Most programs have statistically derived tables that allow this frequency to vary depending upon the number of snubbers in the population and the number of visual failures recorded. Isolated failures, which are readily corrected, may not be required to be counted as failures against the population for purposes of determining the next inspection frequency.

Functional testing is conducted at intervals mandated by the licensing documents, using one of several statistical sampling options. Generally the frequency is every refueling outage, and the sample plan specified is either a stated percentage of the population or a statistically fixed number. Failures require further sampling until the specific plan requirements are met.

### 2.2.2 Service Life Monitoring

#### 2.2.2.1 Parameters

Parameters measured for Service Life Monitoring purposes are generally more extensive and subjective than those utilized for failure monitoring. These parameters include not only the failure data previously identified, but also all aspects of degraded service. Degradation criteria can be established for measurable functional parameters such as drag force, activation level, and bleed rate. Application specific data such as temperature, humidity, radiation, and vibration conditions may be tracked to determine service life groups based upon environment and application.

#### 2.2.2.2 Goals

The goal of Service Life Monitoring is to establish, with confidence, a predicted service life for installed snubbers. Once the key parameters and application or environmental factors have been identified, service life groups can then be established to minimize testing and maintenance requirements without sacrificing the quality of the installed population.

#### 2.2.2.3 Methods

Service life monitoring is accomplished by defining those parameters that provide meaningful data, then recording and trending that data. Due to the limitations of the functional testing required for failure monitoring, it may be necessary to perform expanded testing to develop accurate and meaningful data. Initial testing may encompass an entire population, including all possible environmental conditions. If this is done then the testing and trending must be performed on those snubbers in the worst case conditions in order to be conservative. To avoid being over conservative, sub-groups within the population may be established based upon application and environment.

The testing program may consist of complete functional testing, stroke testing, dis-assembly inspections, or a combination of these. It is important that a consistent approach be taken to build a useful data base for trending the information gathered. A long-term approach should be taken to obtain data that provides valid data over time for a given environment and application. The effects of the testing itself on individual snubbers must be taken into consideration. For mechanical snubbers stroke testing with experienced personnel has been proven to be effective in identifying degraded snubbers, but it is also a very effective preventive maintenance practice. However, data taken from a population of snubbers which

are regularly stroked may be not accurately represent a population of snubbers which are not stroked. Care must be taken not to extrapolate data outside of the defined environment.

A specific service life monitoring plan must be clearly established and adhered to in order to be effective. Due to the inconsistencies between snubbers from application to application, and plant to plant; there is no single plan which will encompass all situations. Therefore each plant must develop a plan which addresses their concerns and then carefully and completely implement all aspects of the plan.

There are practical limitations on the ability to define a specific service life for each snubber installation. For large populations a random test plan may only test a small percentage of the total, making it impossible to clearly define the worst case locations based solely on actual test data. It may also be impractical to attempt detailed environmental monitoring (temperature, humidity, vibration, etc.) for each snubber location in a large population. For such situations a programmatic approach of preventive maintenance practices across the entire population may be a justified as a means of assuring reliable service as an alternative to location specific predictive service life monitoring. Such an approach may eliminate the need for resource intensive data collection and trending.

## **2.3 Monitoring and Trending Results**

### **2.3.1 Failure Trending**

Failure trending is generally a rather straightforward task, since functional failure data has historically been the most readily available. Raw data related to the number of failures is usually available on a historical basis for the simplest of comparisons to trend failures over time. More detailed data with regard to failure modes, failure causes, applications, environments, etc should be recorded where possible. All failure data should be summarized and evaluated on a regular basis in order to establish significant trend data. A minimum time frame for this is once per fuel cycle, but a shorter frequency can be advantageous if non-outage testing and data collecting is performed.

### **2.3.2 Service Life Monitoring**

Service life monitoring results are not as easily compiled as failure data, since the data is often more subjective in nature. The service life monitoring program must include programmatic requirements for summarizing and evaluating the data resulting from the monitoring tests/inspections. The data should be evaluated on a regular basis in order to identify trends and initiate preventive and corrective actions. Since much of this data can be collected during non-outage periods, periodic summary reports may be appropriate. The reports should include not only a summary of the collected data, but should also address any conclusions drawn and actions required.

## **2.4 Industry-Wide Plans for Enhancements**

### **2.4.1 SNUG Initiatives**

- Most recent SNUG activities include a focus on benchmarking across the industry with respect to Service Life practices, licensing basis, and preventive maintenance. SNUG conferences in

2012 also focused on NRC guidance addressing the need for consistency and program documentation in accordance with NUREG-1482.

- Manuals; SNUG currently provides generic “living document” manuals on line via the internet for both mechanical and hydraulic snubbers. These provide information with regard to service life monitoring, failure evaluations, material selection, preventive maintenance, and other areas of interest as they develop.
- A comprehensive bench marking effort is integral to all SNUG meetings. This includes discussions by all present on a set list of topics. This is intended to allow plants with similar circumstances to be identified and grouped together for further discussion.
- SNUG has initiated working groups to address the following issues:
  - Industry Standardization (including developing good practice standards)
  - Service Life Monitoring and Life Extension
  - Industry Knowledge Retention and Training
  - Code and Regulatory Issue Awareness

#### 2.4.2 ASME Code Committees

- ISTD; currently the ISTD working group is reviewing the latest revision of Section ISTD in an effort to make it more readable and consistent with the rest of the code. Ongoing work includes incorporation of Risk Informed Testing, on-line testing guidance, failure mode grouping, and the possible elimination of visual inspections for mechanical snubbers. Code Case OMN-13 has been published to allow a ten year interval for visual examinations under ISTD. Code Case OMN-15 to allow the skipping of a cycle for functional testing has been published but not endorsed by the NRC. Salem Nuclear has received approval for use of the code case using a Relief Request. The NRC added several restrictions to the Salem relief in addition to the code case requirements. Efforts are being made to revise the code case to address the NRC concerns.

4.1 QME/QDR; Subsection QDR was published in the fall of 2002.

## **3.0 Site Specific Information**

### **3.1 General Description**

McGuire Nuclear Station utilizes snubbers as described in Section 2.1 of this document. Snubbers are used primarily for the seismic restraint of safety related pipe. To a lesser degree snubbers are also used to mitigate the results of relief valve thrust loads and system transient events. A list of all snubbers installed at McGuire is maintained in a data base controlled by Plant Engineering personnel. Functional testing and inspection requirements are met by the completion of model work orders using the data base listing as a basis for scope determination. Snubbers are identified by Hanger ID number in the station EDB (Electronic Data Base), under Equipment Type HG. The EDB listing and the snubber data base are periodically cross referenced to one another as an accuracy check.

Snubber surveillance and testing requirements are conducted per the requirements of ASME OM Code 2004 edition, with OMa-2005 OMB-2006 addenda ( hereafter referred to as "OM code") subsections ISTA and ISTD in accordance with 10 CFR 50.55a(b)

#### **3.1.1 Functional Description**

The snubber population at McGuire is a split between Mechanical and Hydraulic snubbers. The majority of Unit 1 snubbers are hydraulic snubbers, and some Mechanicals, where as the majority of Unit 2 snubbers are Mechanicals, with some hydraulic snubbers.

#### **3.1.2 Model Specific Functional Descriptions**

All PSA models are acceleration limiting mechanical snubbers that utilize a threaded shaft and rotating inertia mass as described in Section 2.1.2. Model numbers essentially designate the load rating of the snubber, as the model number indicates the rated capacity in kips (one kip = 1000 pound force).

The PSA ¼ and PSA ½ models are relatively small and incorporate two guide rods inside the telescoping end due to the small diameter of the threaded shaft. These models are very susceptible to handling damage, as any twisting will deform the guide rods and prevent the snubber from functioning. The small diameter of the shaft also requires that the threads be very fine, and therefore susceptible to damage from dropping or rough handling.

The PSA 1, PSA 3, and PSA 10 are all of similar design except the shaft is of sufficient size to preclude the need for the guide rods. These units utilize a ball nut assembly which is staked into the telescoping tube in order to transfer linear movement into rotational motion. Although sturdier than the units with guide rods, these models are also susceptible to damage from twisting or rotation since this may cause the staking to fail and allow free rotation.

PSA 35 and PSA 100 models are much larger and incorporate a ring gear design to provide a 7 to 1 reduction in the inertia mass rotation.

AD-70R snubbers are mechanical units originally manufactured by Anchor Darling, and are used as equivalents to the PSA 1/2. These snubbers are velocity limiting units using a verge wheel design as

described in Section 2.1.2 of this document. These units are somewhat sturdier than the PSA models but they are somewhat more susceptible to high drag problems.

The hydraulic snubbers used at McGuire are manufactured by Grinnell / Anvil (formally Grinnell) and Lisegas. The hydraulic snubber population as a whole varies, but the majority of hydraulic snubbers are Grinnell / Anvil Fig. 200 / 201s. Most of these are the older design with adjustable valves, but are being replaced as service life expires with the new Anvil Fig. 200 /201 config. B snubbers with fixed valves. The Lisega and Anvil 3306/3307 snubbers utilize a fixed poppet valve and bleed assembly as described in Section 2.1.3 of this document. The Lisega and Anvil 3306/3307 are typically used as acceptable substitutes for the PSA mechanical snubbers.

### **3.2 Monitoring Programs**

*In order to verify operability, in-service examinations and testing is performed to verify the values of drag and activation for mechanical snubbers, and the lock up and bleed rates for hydraulic units. At McGuire these examinations and testing are performed as defined per ISTA and ISTD subsections of the OM Code. See Section 3.6 of this document for examples of testing/examination scenarios and flow path.*

A data base listing all snubbers is maintained using a PC based data base called Snubbworks. The data base contains software which is designed to select snubbers for testing/inspection and to maintain the test records. It is also possible to include information specific to individual snubber locations such as shielding and scaffolding requirements, special tools, or special instructions for rigging or access.

Visual examinations are required to be preformed per ISTA-3000 and ISTD-4200. McGuire divides the snubber population into two categories, accessible and inaccessible for work load reduction during outages, but considers the complete population as one for examination intervals per table ISTD4252-1. Code Case OMN-13 Rev. 0 will be used after transition to OM Code. Traditionally McGuire snubber examinations were governed by SLC 16.9.15. SLC 16.9.15 Test Requirement TR16.9.15.1 and Table 16.9.15.1 met the same visual inspections requirements as ISTD-4220, ISTD-4240, ISTD-4251, ISTD-4252(a), ISTD-4252(b), ISTD-4252(C) and Table ISTD-4252-1. Visual examinations are performed using procedure PT/0/A/4200/006. This procedure meets the visual examination requirements of ISTD-4210 ISTD-4230. Currently visual examinations are performed every other outage for inaccessible snubbers, with the accessible snubbers being performed just before the corresponding outage. Past visual examination results, have shown that McGuire has consistently been under the threshold for interval reduction. Based on visual examination history and the basis that the current SLC visual examinations meet the examination requirements of OM Code subset ISTD, and Code Case OMN-13 Rev. 0, Code Case OMN-13 Rev 0 will be implemented with the transition to OM Code.

Freedom of motion inspections (stroke tests) are performed on the entire population on a rotating basis. Due to the variance in numbers of mechanical snubbers on McGuire Unit 1 vs. Unit 2 the rotating population percentage is different for each unit. McGuire Unit 1 has approximately 490 mechanical snubber, and therefore half of the entire mechanical snubber population is stroked each outage. McGuire Unit 2 has approximately 1150, and therefore 25% of the entire mechanical snubber population is stroked each outage. These inspections are performed per procedure PT/0/A/4200/035 to verify that the snubbers may be manually stroked and are not locked up. The freedom of motion test is

an excellent method of detecting degrading snubbers prior to their becoming operability concerns, and is a valuable service life monitoring/preventive maintenance tool.

Functional testing is performed at each refueling outage on a random sample of snubbers. McGuire considers the total snubber population one DTPG, except as required by ISTD-5253. The random sample of snubbers is generated from the Defined Test Plan Group (DTPG) in accordance with ISTD-5262(b), the 37 testing sample plan. If an unacceptable snubber is found during testing, continued testing is performed per ISTD-5270, until the requirements of ISTD-5430 are met. The functional testing consists of testing the actual snubber assemblies on a hydraulically operated test bench which tests for drag, activation, and bleed rates as appropriate. Failures are evaluated as required per ISTD-5271.

IST-5253 requires that Large bore snubbers attached to the Reactor coolant pumps (RCPs) and/or Steam Generators (SGs) shall be tested as at least one, separate DTPG. McGuire does not have large bore snubbers on the RCPs, but does have Large Bore Lisega snubbers on the SGs. The Lisega steam generator snubber are tested in accordance of ISTD-5261(a) "the 10% testing sample plan". Due to the size of the Lisega large bore snubbers on the SGs, the control valve assemblies are removed and tested in a surrogate cylinder rather than removing the very large snubber bodies themselves. This testing is in accordance with ISTD-5225. Service life monitoring for these snubbers per ISTD-6400, was conducted via a complete tear down and rebuild of one of the oldest snubbers of this type. This snubber rebuild included a fluid evaluation and seal life evaluation. These were performed by the vendor (Lisega) and also a independent evaluator (Lake Engineering). The preliminary results of this study are showing 40+ year service life, but the actual service life will not be used until final report has been received.

Test results from the surrogate snubber have to be converted due to the difference in cylinder bore size. Conversion factors are as listed below:

Lockup Rate:

Tension:  $\text{Surrogate Reading} / 3.3262 = \text{Corrected Reading}$

Compression:  $\text{Surrogate Reading} / 3.1617 = \text{Corrected Reading}$

Bleed Rate:

Tension:  $\text{Surrogate Reading} / 3.3262 = \text{Corrected Reading}$

Compression:  $\text{Surrogate Reading} / 3.1617 = \text{Corrected Reading}$

### **Predefined Model Work Order Descriptions**

Predefined work orders have been established to perform the inspections and tests on a periodic basis as required.

Innage Work Scope:

- Visual examination of accessible snubbers
  - Unit 1
    - PM model WO : 390476
    - Equipment ID: 1XWC PM HST1A
  - Unit 2
    - PM model WO : 390516
    - Equipment ID: 2XWC PM HST1A

**Outage Related Work Scope:**

- Visual examination of accessible snubbers
  - Unit 1
    - PM model WO : 396292
    - Equipment ID: 1XWC PM HST1B
  - Unit 2
    - PM model WO : 396293
    - Equipment ID: 2XWC PM HST1B
- SG Snubber Testing (Removal and testing of SG snubber control valves)
  - Unit 1
    - PM model WO : 399662
    - Equipment ID: 1NC HG TEST
  - Unit 2
    - PM model WO : 399651
    - Equipment ID: 2NC HG TEST
- Functional Testing (Testing of snubbers on test bench)
  - Unit 1
    - PM model WO : 390475
    - Equipment ID: 1XWC PM HST2
  - Unit 2
    - PM model WO : 390517
    - Equipment ID: 2XWC PM HST2
- Freedom of Motion (Manually stroking mechanical snubbers through full range of motion)
  - Unit 1
    - PM model WO : 396295
    - Equipment ID: 1XWC PM HST3
  - Unit 2
    - PM model WO : 396294
    - Equipment ID: 2XWC PM HST3

It is noted that the Predefined Work Orders do not identify the scope of work as related to particular snubbers and supports. Unique work orders generated from the models must have the actual scope identified by the Responsible Engineer based upon random sample plans and past history. The frequency of the Visual Inspection predefined work orders will also be updated by the Responsible Engineer as needed at each usage based the results of each inspection.

Section 3.6 to this document provides more detail on the use of the Predefined Work Orders and the associated responsibilities.



### **3.3 Service Life Monitoring Program Description**

#### **3.3.1 Parameters**

A service life monitoring program for snubbers can consist of a wide variety of activities encompassing many parameters to be trended and evaluated. These parameters may include environmental conditions, operating conditions, snubber orientation, test data, and maintenance observations. For mechanical snubbers test data trended includes drag and acceleration values. For hydraulic snubbers activation and bleed rates may be trended. For service life monitoring purposes the recording and trending of degradation causes are vital.

#### **3.3.2 Goals**

The goal of the service life monitoring program is to assure that the population of installed snubbers remains reliable for continued service until the next testing or periodic maintenance interval.

#### **3.3.3 Methods**

One approach for Service Life Monitoring is to determine the optimum service life for each type and model of snubber for a given set of application and location parameters. As a result it is then possible to predict service life with confidence and to more effectively plan preventive maintenance activities to maximize the life of each installed snubber. This in turn increases the overall reliability of the snubber population and the supported systems or components.

This type of monitoring is accomplished by first identifying the critical parameters that affect the service life for each snubber model. Once these parameters are identified the installed snubbers may be grouped according to their susceptibility to these parameters. By monitoring the most susceptible snubbers in each group a conservative service life can then be determined for all snubbers in the group.

The above method is time and resource intensive for a large population of snubbers. An alternative method is to develop and implement a preventive maintenance program that provides assurance that any significant degradation in the snubber population will be detected prior to in-service failures occurring. The rotating stroke program for mechanical snubbers is one approach used to provide this assurance and is the primary service life monitoring process utilized at McGuire.

By stroking a percentage of the population each cycle the entire mechanical snubber population is hand stroked every other outage for unit 1 and every 4 outages for unit 2. This program essentially verifies actual operability of the entire mechanical snubber population every 2 or 4 cycles respectively. This provides a reasonable level of assurance that the expected service life of each mechanical snubber installed will not be exceeded prior to the next time it is stroked. The overall results of the stroke program is monitored each outage to verify that there are no large scale generic concerns or trends emerging that may challenge that assumption of population reliability.

### **3.4 References**

#### **3.4.1 Vendors Contacts**

Basic-PSA  
269 Jari Drive  
Johnstown, PA 15904

Phone: 814 266-8646

Anvil International (Formerly Grinnell Corporation)  
160 Frenchtown Road  
N. Kingstown, RI 02852  
Phone: 401 886-3076

Lisega  
370 East Dumplin Valley Road  
Kodak, TN 37764  
Phone: 865 940-5200

Ideal Concepts  
7655 W. Gulf to Lake Highway, suite 14  
Crystal River, FL 34429  
Phone: 352 563 6020

#### 3.4.2 Design Specifications

- MCS-1144.30-00-0001, "Design Specification For Pipe Supports and Restraints"
- MCS-1206.12-02-0001, "Procedures, Supplemental Requirements and Tolerances for Fabrication and Erection of Pipe Supports and Restraints"
- MCS-1206.00-04-0003, "Component Support Procurement Specification"
- MCS-1206.02-09-0001, "Piping Analysis Specification for Code Compliance"
- MCS-1117.03-00-0001, "Specification for the Fabrication and Furnishing of Hydraulic Snubbers for Steam Generators" Unit 2
- CS-1117.03-00-0002, Specification for the Fabrication and Furnishing of Hydraulic Snubbers for Steam Generators" Unit 1

#### 3.4.3 Licensing Documents

- McGuire UFSAR, Section 3.9.3.2.9, "Supports, Restraints, and Anchors"
- McGuire UFSAR Section 16.9.15, "Selected Licensee Commitments" (formerly in Technical Specification, Section 3/4.7.8)

#### 3.4.4 Snubber Related Procedures

- MP/0/A/7650/44, Support/Restraints(Hangers) Erection, Modification, Deletion, Removal, and Installation
- MP/0/A/7650/46, Hydraulic Snubber Corrective Maintenance

- MP/0/A/7650/51, Mechanical and Hydraulic Snubber Removal, Inservice Corrective Maintenance and Installation
- MP/0/A/7650/190, Steam Generator Lisega Snubber Maintenance Activities
- MP/0/A/7650/233, ITT Grinnell Model 5434-3 Snubber Test Bench Calibration
- MP/0/A/7650/232, Operability Testing of Hydraulic Snubbers (using Grinnell bench)
- MP/0/A/7650/228, Operation Of Barker/Diacon S-2000 Snubber Test Machine
- QAF-2, Piping Support Installation Inspection Procedure
- QAL-14, ISI Visual Examination VT-3 and VT-3C Procedure

#### 3.4.5 Vendor Documents

- MCM-1206.00-0918, Grinnell Snubber Instruction Book
- MCM-1206.00-0913, Maintenance and Installation Manual
- MCM-1193.00-00-0036, Installation Instructions for Anchor/Daring Enterprises Snubber Replacement Devices
- MCM-1193.00-0041 to -0044 Grinnell Corp. Load Capacity Data Sheets for Figs 1306N and 1307N
- MCM-1193.00-0045 to -0046 A/D load capacity Data sheets
- MCM-1206.00-1059 ANVIL INTERNATIONAL DRS/LCD PACKAGE
- Bergen-Paterson (B-P) Catalog, #66, 82, 82R and Load Capacity Data Sheets
- ITT-Grinnell Catalog PH-74, PH-76, PH-79, PH-81, PH-87, PH-90, Revised and Hanger Standard (HS) Catalog and ITT-Grinnell Design Report Summary (DRS) or Load Capacity Data Sheets (LCD)
- Pacific Scientific Catalog, Mechanical Shock Arrestors, PSA-4
- Lisega, Hydraulic Snubber Technical Manual
- Anchor/Darling Catalog
- Test Equipment
- Barker/Diacon S-2000 Test Bench

#### 3.4.6 Drawings

- MC-1690-11.1 and 11.2, Typical Supports and Installation Instructions for Snubber Manifold Reservoir
- MC-1690-156, ITT-G Fig 200 Snubber End Assembly Modification

- MC- 1690-212, Field fabrication Details for M.S.S.S. and H.S.S.S.
- MC-1690-215, Rear Bracket Details of ITT-Grinnell Fig. 200, 201, 211, 306, 307
- MC-1690-217, Substitution of Hyd. Snubbers with Mech. Snubbers
- MCM 1117.03-0104.001 ANVIL TYPE 3306N/3307N SIZE 1 SNUBBER-
- MCM 1117.03-0104.002 ANVIL TYPE 3306N/3307N SIZE 3 SNUBBER-
- MCM 1117.03-0104.003 ANVIL TYPE 3306N/3307N SIZE 10 SNUBBER-
- MCM 1117.03-0104.004 ANVIL 3306/3307 SIZE 3 OPTIONAL PARTS LIST-
- MCM 1117.03-0104.005 ANVIL 3306/3307 SIZE 10 OPTIONAL PARTS LIST-
- MCM 1117.03-0056.001 Lisega Steam Generator Detail
- MCM 1117.03-0055.001 Lisega Steam Generator Parts Location
- MCM 1117.03-0054.003 to 0006 Lisega Steam Generator Parts List / Details
- MCM 1117.03-0053.001, Lisega Operation & Maintenance Manual

#### 3.4.7 Code References

- ASME Boiler and Pressure Vessel Code, Division 1, Section III, 1971 (Basic) Edition through Summer and Winter 1971 Addenda
- ASME OM Code 2004 edition , with OMa-2005 OMB-2006 addenda
- ANSI B31.1, 1973 Edition through Summer 1975 Addenda
- ANSI N45.2, 1971, Quality Assurance Program Requirements for Nuclear Power Plants
- MSS-SP-58, 1993, Pipe Hangers and Supports - Materials, Design and Manufacture
- MSS-SP-69, 1991, Pipe Hangers and Supports - Selection and Application
- MSS-SP-89, 1991, Pipe Hangers and Supports - Fabrication and Installation Practices
- MSS-SP-90, 1980, Guidelines on Terminology for Pipe Hangers and Supports
- AISC, Manual of Steel Construction, Seventh and Eighth Editions

#### 3.4.8 Miscellaneous References

- INPO, Snubber Maint. Program, Good Practice MA-313
- ASME Sec. XI, IWF 1980, OM4, Duke Power Sec XI Manual

### 3.4.9 NRC References

#### Generic Letters

- GL-84-13, Technical Specification For Snubbers
- GL-89-09, ASME Section III Component Replacements
- GL 90-09, Visual Inspection Frequency
- GL 91-18, Operability Guidelines

#### Bulletins

- B73-03, Defective Hydraulic Shock Suppressors
- B73-04, Defective Bergen Paterson Hydraulic Shock Suppressors
- B75-05, Operability of Hydraulic Shock Suppressors
- B78-10, Bergen Paterson Hydraulic Shock Suppressor Accumulator Spring Coils
- B79-02, Pipe Support Anchor Bolts
- B79-14, Pipe Support Anchor Bolts
- B81-01, Failures/Surveillance of Mechanical Snubbers

#### Information Notices

- N79-01, Bergen Paterson Hydraulic Shock Arrestors
- N79-05, Improper Materials in Safety Related Components
- N80-42, Radiation Effects on Hydraulic Snubber Fluid
- N82-12, Failure/Surveillance of Hydraulic Snubbers
- N83-13, Misapplication of Bergen Paterson Clamp
- N83-20, ITT-G Fig. 306/307 Mechanical Snubber Attachment Interference
- N83-47, Failure of Hydraulic Snubbers
- N84-67, Recent Snubber Testing High Failure Rate
- N84-73, Down Rating of Self Aligning Ball Bushings
- N86-102, Repeated Multiple Failures of SG Snubbers
- N88-95, Inadequate Validation of Procured Parts for Anchor Darling Mechanical Snubbers
- N89-30, High Temperature Environment
- N94-48, High Temperature Environment
- N95-09, Use of Inappropriate Guidelines/Criteria for Operability Evaluations of Pipe and Supports
- N97-16, Pre-conditioning of Components Prior to IST
- N97-71, Inappropriate Use of 50.59 Regarding Reduced Seismic Criteria for Temporary Conditions
- RIS 2010-06, Inservice Inspection and Testing Requirements of Dynamic Restraints (Snubbers)
- EGM 10-001, Enforcement Guidance Memorandum, Dispositioning Violations for Inservice Examination and Testing Requirements for Dynamic Restraints (Snubbers)

#### Circulars

- C76-05, Bleed and Lock-up Velocities on ITT-G Figure 200 and 201 Hydraulic Shock Suppressors

C78-07, Damaged Components of Bergen Paterson Series 25000 Test Stand  
C79-25, Bergen Paterson Shock Arrestor Strut Assembly Interference  
C81-05, Self-Aligning Rod End Bushings for Pipe Supports

#### NUREGs

CR-2175, Snubber Sensitivity Study  
CR-2032, Single Vs. Dual Snubber Installations  
CR-2136, Effects of Postulated Event Devices on Normal Operation of Piping Systems in Nuclear Power Plants  
CR-4279, Aging and Service Wear of Hydraulic and Mechanical Snubbers Used on Safety-Related Piping and Components of Nuclear Power Plants  
CR-5386, Basis for Snubber Aging Research  
CR-5416, Generic Issue 113, Dynamic Qualification and Testing of Large Bore Hydraulic Snubbers  
CR-5646, Piping System Response During High Level Simulated Seismic test at the Heissdampfreaktor Facility (SHAM Test Facility)  
CR-5870, Results of LWR Snubber Aging Research  
CR-6027, Evaluation of Snubber Single Failures

#### 3.4.10 SNUG References

##### Letters

To Arnold Lee, USNRC, dated 1/13/1995, re: IN 94-48

##### White Papers

*"Vibration and Fretting Corrosion in Mechanical Snubbers"*, presented 2/5/1997.  
*"Lubrication Working Group Report"*, presented 6/4/1998.  
*"Snubber/Strut End Attachment Gaps"*, presented Feb. 1995.

##### Manuals

Seal Life Manual  
Mechanical Snubber Issues Manual  
Hydraulic Snubber Issues Manual

#### 3.4.11 EPRI References

##### EPRI Reports

NP-2297, *"Snubber Reliability Improvement Study"*  
NP-5854, Assessing the Costs, Risks, and Benefits of Snubber Reduction: A Comprehensive Framework (June 1988).  
NP-6443, *"Improved Criteria for Snubber Functional Testing"*, July 1989.  
NSAC-104, *"Guidelines for Reducing Snubbers on Nuclear Piping Systems"*  
TR-1010968, Tier 2, Volume 1, Guidelines and Criteria for Nuclear Piping and Support Evaluation and Design, Integration of Methods and Guidelines to Evaluate Nuclear Piping and Pipe Support Design and Operability Issues.. (Not NRC endorsed).  
TR-1010968, Tier 2, Volume 4, Guidelines and Criteria for Nuclear Piping and Support Evaluation and Design, Behavior and Failure Mode of Standard Pipe Supports Beyond Their Design Conditions

TR-102363, Tier 1 & 2, Evaluation of Snubber Functional Test Methods.  
TR-6270-1, Snubber Reduction Program (October 1985)

### 3.4.12 INPO References

#### INPO Reports

86-014, Good Practice MA-313, "*Snubber Maintenance Program*"

#### Operating Experience Events

- OE-9983 Snubber Functional Testing (For Information Only)
- OE-31296 RHR Snubber Failed Functional Testing (Limerick U1) (For Information Only)
- OE-31255 Snubber failures during 2010 refuel outage due to dry grease (Nine Mile Point) (For Information Only)
- OE30580 Moisture Intrusion into Mechanical Snubbers Resulted in Accelerated Lubrication Degradation (River Bend) (For Information Only)
- Plant Event #45812 - Farley – Retracted
- OE35794 (Indian Point 2) Four Bergen-Patterson snubbers degraded – Not Applicable to CNS

#### Operations and Maintenance Reminders

- OMR-19, Grinnell Snubber Orientation
- OMR-20, Corroded INS Mechanical Snubbers
- OMR-38, Grinnell Snubber Orientation
- OMR-83, ITT Grinnell Hydraulic Snubbers
- OMR-115, Steam Generator Snubber Failures
- OMR-146, Failure of PSA Mechanical Snubbers
- OMR-223, Waterhammer in RHR System Damages Snubber
- OMR-310, Aux. Feedwater Pump Trip

#### Significant Event Reports

- SER22-81, Corrosion Failure of Mechanical Snubbers
- SER54-81, ECCS Piping Damaged
- SER90-81, High Occurrence of Degraded Hydraulic Snubbers

### 3.4.13 Technical Reports

- Combustion Engineering Report 82-02, Installation of Grinnell Hydraulic Snubbers
- General Electric Report SIL021, Seals for Bergen Paterson Hydraulic Shock Suppressors
- General Electric Report SIL021S1, Seals for Bergen Paterson Hydraulic Shock Suppressors
- General Electric Report SIL021S2, Seals for Bergen Paterson Hydraulic Shock Suppressors
- General Electric Report SIL021S3, Seals for Bergen Paterson Hydraulic Shock Suppressors
- General Electric Report SIL021S4, Snubber Surveillance Program
- General Electric Report SIL021S5, Seals for Grinnell Hydraulic Shock Suppressors

General Electric Report SIL070, Hydraulic Shock Suppressor Application

General Electric Report SIL339, Mechanically Locked Snubbers

### **3.5 Miscellaneous**

#### **3.5.1 Guidelines for Turnover**

Prior to turnover of engineering responsibilities the replacement engineer should be trained in or acquainted with the following:

- Contents of this document
- Design and Operating characteristics of all snubber models utilized at Catawba
- Failure evaluation procedures
- Rebuild procedures
- Work control process and pre-defined models used for snubber work
- Operation of snubber data base
- Operation of snubber test bench
- Maintenance procedures for snubber/hanger work
- Engineer's files on individual snubbers
- SNUG resources/commitments
- ASME Code requirements
- NSD's
- EDB
- Modification Process

#### **3.5.2 Snubber Testing/Inspection Example Process**

**Innager Responsibilities**

**During Innages the Responsible Engineer shall:**

- Maintain snubber database.
- Coordinate Innager visual inspections as required.
- Ensure functional testing is performed as required for snubber discrepancies identified during maintenance activities.
- Resolve discrepancies, perform Failure Evaluations as required for failed snubbers
- Provide corrective actions as required for discrepancies.

##### **Prior to a Scheduled Outage**

- Review snubber database and inspection records to verify tests and inspections due per SLC requirements, identify scope of tests, finalize scope of any required visual inspections which are Outage-related.
- Verify database, perform backup as required.
- Perform random sample extraction from database for Functional testing.
- Provide scope of Functional testing to Job Planner, Work Window Manager
- Verify all appropriate work orders have been generated from predefines.



### Outage Responsibilities

During Routine Outages the Responsible Engineer shall:

- Resolve discrepancies and initiate corrective actions from testing/inspection. Discrepancies classified as failures require a Failure Evaluation to be documented.
- Review and document all testing and inspection results.
- Identify scope of additional testing as required by initial sample results.

### 3.5.3 Typical Outage Work Process

#### Stroke Testing

Prior to the start of a Refueling Outage the Responsible Engineer will provide a list of snubbers to be stroke tested per each model work order to the Job Supervisor and planner (per outage planning milestone dates). Stroke testing consists of unpinning the individual snubber in place and manually inducing motion to verify freedom of motion. For smaller snubbers this is done by hand, while the larger models may require the use of a special tool to induce movement. Predefined Model work orders and tasks exist which categorize the stroke testing by plant system. Accessible snubbers may be stroked weeks immediately prior to the outage. Inaccessible snubbers are usually stroked as soon as possible once the outage starts.

#### Functional Testing

Functional testing on a random sample of snubbers is performed using the Barker/Diacon test bench. Snubbworks is used to generate the random sample of 37 snubbers for functional testing under the "37 plan". One steam generator snubber is picked for functional testing per the 10% plan. The steam generator snubber tests are rotated each outage until the entire population has been tested. Once the snubbers for testing are identified they are listed and supplied to the planner and outage scheduling personnel.

### 3.5.4 Failure Evaluation

Failure evaluation is documented and captured in the associated PIP generated for the degraded/ failed snubber.

### 3.5.5 Snubber Data Base

The snubber data base for McGuire is maintained via a Windows/Access data base program called SNUBBWORKS, a product of Iddeal Concepts.

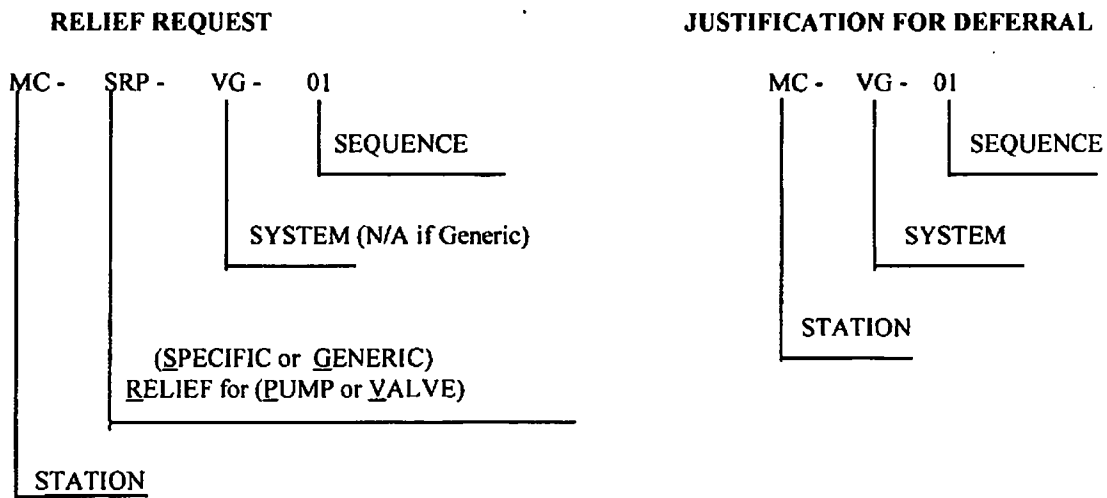
### TABLE OF ABBREVIATIONS

<u>Duke System Valve Class</u>	<u>Code Design Criteria</u>	<u>Designed for Seismic Loading</u>	<u>ANS Safety Class</u>
A	Class 1, ASME Section III, 1971	Yes	1
B	Class 2, ASME Section III, 1971	Yes	2
C	Class 3, ASME Section III, 1971	Yes	3
D	Class 2, ASME Section III, 1971	No	2
E	ANSI B31.1.0 (1967)	No	NNS
F	ANSI B31.1.0 (1967)	Yes	NNS
G	ANSI B31.1.0 (1967)	No	---
H	Duke Power Company Specification	No	---

NNS=Non-Nuclear Safety

### Numbering Sequence for Relief Request and Justification For Deferral

Examples:



## TABLE OF ABBREVIATIONS

### PUMP TYPE

CT  
VLS

### Description

Centrifugal  
Vertical Line Shaft

### VALVE TYPE

BF  
CK  
DP  
GA  
GL  
LC  
PR  
RV  
ST  
SV  
SW  
VB  
WC  
3W

### Description

Butterfly  
Check  
Diaphragm  
Gate  
Globe  
Lift Check  
Press Regulated  
Relief  
Stop Check  
Solenoid  
Swing Check  
Vacuum Breaker  
Wafer Check  
Threeway

### ACTUATOR DESIGN

AO  
MA  
ML  
MR  
SA  
SO

### Description

Air Operated  
Manual  
Motor Limitorque  
Motor Rotork  
Self Actuated  
Solenoid

**ISTB PUMP  
CATEGORIES**

Group A  
Group B

**Description**

Operated normally or for refueling operations  
Standby normally or operated for testing only

**ISTC VALVE  
CATEGORIES**

Category A  
Category B  
Category C

**Description**

Leakage is Critical  
Leakage is NOT Critical  
Self Actuating (Checks, Reliefs, Etc.,)

**DUKE ENERGY**  
**McGUIRE NUCLEAR STATION**

**Pump Inservice Testing Program**

**SECTION 3.0**

Revision 28  
March 1, 2013

# MCGUIRE NUCLEAR STATION

## CA - AUXILIARY FEEDWATER SYSTEM

Equipment ID	Flow Diagram	Pump Design	Pump Group	ASME Class	Relief Request	Test Plan	Frequency
1CAPU0001	MCFD-1592-01.01	CP >= 600	B	3		Group B CA Pump 1A DP Test	Tested once quarterly
						CA Pump 1A H3H Vibration Test	Tested once quarterly
						CA Pump 1A H4H Vibration Test	Tested once quarterly
						CA Pump 1A A4H Vibration Test	Tested once quarterly
						Comprehensive CA Pump 1A DP Test	Tested once every two years
						CA Pump 1A V3H Vibration Test	Tested once quarterly
						CA Pump 1A V4H Vibration Test	Tested once quarterly
1CAPU0002	MCFD-1592-01.01	CP >= 600	B	3		Group B CA Pump 1B DP Test	Tested once quarterly
						CA Pump 1B H3H Vibration Test	Tested once quarterly
						CA Pump 1B H4H Vibration Test	Tested once quarterly
						CA Pump 1B A4H Vibration Test	Tested once quarterly
						Comprehensive CA Pump 1B DP Test	Tested once every two years
						CA Pump 1B V3H Vibration Test	Tested once quarterly
						CA Pump 1B V4H Vibration Test	Tested once quarterly
1CAPU0003	MCFD-1592-01.01	CP >= 600	B	3		Group B TDCA Pump 1 DP Test	Tested once quarterly
						TDCA Pump 1 H3H Vibration Test	Tested once quarterly
						TDCA Pump 1 V3H Vibration Test	Tested once quarterly
						TDCA Pump 1 H4H Vibration Test	Tested once quarterly
						TDCA Pump 1 V4H Vibration Test	Tested once quarterly
						TDCA Pump 1 A4H Vibration Test	Tested once quarterly

# MCGUIRE NUCLEAR STATION

## CA - AUXILIARY FEEDWATER SYSTEM

Equipment ID	Flow Diagram	Pump Design	Pump Group	ASME Class	Relief Request	Test Plan	Frequency
						Comprehensive TDCA Pump 1 DP Test	Tested once every two years
2CAPU0001	MCFD-2592-01.01	CP >= 600	B	3		Group B CA Pump 2A DP Test	Tested once quarterly
						CA Pump 2A H3H Vibration Test	Tested once quarterly
						CA Pump 2A H4H Vibration Test	Tested once quarterly
						CA Pump 2A V4H Vibration Test	Tested once quarterly
						CA Pump 2A A4H Vibration Test	Tested once quarterly
						Comprehensive CA Pump 2A DP Test	Tested once every two years
						CA Pump 2A V3H Vibration Test	Tested once quarterly
2CAPU0002	MCFD-2592-01.01	CP >= 600	B	3		Group B CA Pump 2B DP Test	Tested once quarterly
						CA Pump 2B H3H Vibration Test	Tested once quarterly
						CA Pump 2B H4H Vibration Test	Tested once quarterly
						Comprehensive CA Pump 2B DP Test	Tested once every two years
						CA Pump 2B A4H Vibration Test	Tested once quarterly
						CA Pump 2B V4H Vibration Test	Tested once quarterly
						CA Pump 2B V3H Vibration Test	Tested once quarterly
2CAPU0003	MCFD-2592-01.01	CP >= 600	B	3		Group B TDCA Pump 2 DP Test	Tested once quarterly
						TDCA Pump 2 H3H Vibration Test	Tested once quarterly
						TDCA Pump 2 V3H Vibration Test	Tested once quarterly
						TDCA Pump 2 H4H Vibration Test	Tested once quarterly
						TDCA Pump 2 V4H Vibration Test	Tested once quarterly

# MCGUIRE NUCLEAR STATION

## CA - AUXILIARY FEEDWATER SYSTEM

Equipment ID	Flow Diagram	Pump Design	Pump Group	ASME Class	Relief Request	Test Plan	Frequency
						TDCA Pump 2 A4H Vibration Test	Tested once quarterly
						Comprehensive TDCA Pump 2 DP Test	Tested once every two years



# MCGUIRE NUCLEAR STATION

## KC - COMPONENT COOLING SYSTEM

Equipment ID	Flow Diagram	Pump Design	Pump Group	ASME Class	Relief Request	Test Plan	Frequency
1KCPU0001	MCFD-1573-01.00	CP >= 600	A	3	MC-SRP-KC-01	Group A KC Pump 1A1 DP Test	Tested once quarterly
						KC Pump 1A1 H3H Vibration Test	Tested once quarterly
						KC Pump 1A1 V3H Vibration Test	Tested once quarterly
						KC Pump 1A1 H4H Vibration Test	Tested once quarterly
						KC Pump 1A1 V4H Vibration Test	Tested once quarterly
						Comprehensive KC Pump 1A1 DP Test	Tested once every two years
						KC Pump 1A1 A4H Vibration Test	Tested once quarterly
1KCPU0002	MCFD-1573-01.00	CP >= 600	A	3	MC-SRP-KC-01	Group A KC Pump 1A2 DP Test	Tested once quarterly
						Comprehensive KC Pump 1A2 DP Test	Tested once every two years
						KC Pump 1A2 H3H Vibration Test	Tested once quarterly
						KC Pump 1A2 V3H Vibration Test	Tested once quarterly
						KC Pump 1A2 A4H Vibration Test	Tested once quarterly
						KC Pump 1A2 V4H Vibration Test	Tested once quarterly
						KC Pump 1A2 H4H Vibration Test	Tested once quarterly
1KCPU0003	MCFD-1573-01.00	CP >= 600	A	3	MC-SRP-KC-01	Group A KC Pump 1B1 DP Test	Tested once quarterly
						Comprehensive KC Pump 1B1 DP Test	Tested once every two years
						KC Pump 1B1 H3H Vibration Test	Tested once quarterly
						KC Pump 1B1 H4H Vibration Test	Tested once quarterly
						KC Pump 1B1 V4H Vibration Test	Tested once quarterly
						KC Pump 1B1 A4H Vibration Test	Tested once quarterly

# MCGUIRE NUCLEAR STATION

## KC - COMPONENT COOLING SYSTEM

Equipment ID	Flow Diagram	Pump Design	Pump Group	ASME Class	Relief Request	Test Plan	Frequency
						KC Pump 1B1 V3H Vibration Test	Tested once quarterly
1KCPU0004	MCFD-1573-01.00	CP >= 600	A	3	MC-SRP-KC-01	Group A KC Pump 1B2 DP Test	Tested once quarterly
						KC Pump 1B2 V3H Vibration Test	Tested once quarterly
						KC Pump 1B2 H4H Vibration Test	Tested once quarterly
						Comprehensive KC Pump 1B2 DP Test	Tested once every two years
						KC Pump 1B2 H3H Vibration Test	Tested once quarterly
						KC Pump 1B2 V4H Vibration Test	Tested once quarterly
						KC Pump 1B2 A4H Vibration Test	Tested once quarterly
2KCPU0001	MCFD-2573-01.00	CP >= 600	A	3	MC-SRP-KC-01	Group A KC Pump 2A1 DP Test	Tested once quarterly
						KC Pump 2A1 H3H Vibration Test	Tested once quarterly
						KC Pump 2A1 V3H Vibration Test	Tested once quarterly
						KC Pump 2A1 H4H Vibration Test	Tested once quarterly
						KC Pump 2A1 V4H Vibration Test	Tested once quarterly
						Comprehensive KC Pump 2A1 DP Test	Tested once every two years
						KC Pump 2A1 A4H Vibration Test	Tested once quarterly
2KCPU0002	MCFD-2573-01.00	CP >= 600	A	3	MC-SRP-KC-01	Group A KC Pump 2A2 DP Test	Tested once quarterly
						KC Pump 2A2 H3H Vibration Test	Tested once quarterly
						KC Pump 2A2 V3H Vibration Test	Tested once quarterly
						KC Pump 2A2 H4H Vibration Test	Tested once quarterly
						Comprehensive KC Pump 2A2 DP Test	Tested once every two years

# MCGUIRE NUCLEAR STATION

## KC - COMPONENT COOLING SYSTEM

Equipment ID	Flow Diagram	Pump Design	Pump Group	ASME Class	Relief Request	Test Plan	Frequency
						KC Pump 2A2 V4H Vibration Test	Tested once quarterly
						KC Pump 2A2 A4H Vibration Test	Tested once quarterly
2KCPU0003	MCFD-2573-01.00	CP >= 600	A	3	MC-SRP-KC-01	Group A KC Pump 2B1 DP Test	Tested once quarterly
						Comprehensive KC Pump 2B1 DP Test	Tested once every two years
						KC Pump 2B1 H3H Vibration Test	Tested once quarterly
						KC Pump 2B1 V3H Vibration Test	Tested once quarterly
						KC Pump 2B1 H4H Vibration Test	Tested once quarterly
						KC Pump 2B1 V4H Vibration Test	Tested once quarterly
						KC Pump 2B1 A4H Vibration Test	Tested once quarterly
2KCPU0004	MCFD-2573-01.00	CP >= 600	A	3	MC-SRP-KC-01	Group A KC Pump 2B2 DP Test	Tested once quarterly
						KC Pump 2B2 H4H Vibration Test	Tested once quarterly
						Comprehensive KC Pump 2B2 DP Test	Tested once every two years
						KC Pump 2B2 H3H Vibration Test	Tested once quarterly
						KC Pump 2B2 V3H Vibration Test	Tested once quarterly
						KC Pump 2B2 V4H Vibration Test	Tested once quarterly
						KC Pump 2B2 A4H Vibration Test	Tested once quarterly

# MCGUIRE NUCLEAR STATION

## ND - RESIDUAL HEAT REMOVAL

Equipment ID	Flow Diagram	Pump Design	Pump Group	ASME Class	Relief Request	Test Plan	Frequency
1NDPU0001	MCFD-1561-01.00	CP >= 600	A	2	MC-SRP-ND-01	Group A ND Pump 1A X2H Vibration Test	Tested once quarterly
						Group A ND Pump 1A Y2H Vibration Test	Tested once quarterly
						Group A ND Pump 1A A2H Vibration Test	Tested once quarterly
						Comprehensive ND Pump 1A dP Test	Tested once every two years
						Comprehensive ND Pump 1A X2H Vibration Test	Tested once every two years
						Comprehensive ND Pump 1A Y2H Vibration Test	Tested once every two years
						Comprehensive ND Pump 1A A2H Vibration Test	Tested once every two years
						Group A ND Pump 1A dP Test	Tested once quarterly
1NDPU0002	MCFD-1561-01.00	CP >= 600	A	2	MC-SRP-ND-01	Group A ND Pump 1B dP Test	Tested once quarterly
						Group A ND Pump 1B X2H Vibration Test	Tested once quarterly
						Group A ND Pump 1B Y2H Vibration Test	Tested once quarterly
						Group A ND Pump 1B A2H Vibration Test	Tested once quarterly
						Comprehensive ND Pump 1B dP Test	Tested once every two years
						Comprehensive ND Pump 1B X2H Vibration Test	Tested once every two years
						Comprehensive ND Pump 1B Y2H Vibration Test	Tested once every two years
						Comprehensive ND Pump 1B A2H Vibration Test	Tested once every two years
2NDPU0001	MCFD-2561-01.00	CP >= 600	A	2	MC-SRP-ND-01	Group A ND Pump 2A dP Test	Tested once quarterly
						Group A ND Pump 2A X2H Vibration Test	Tested once quarterly
						Group A ND Pump 2A Y2H Vibration Test	Tested once quarterly
						Group A ND Pump 2A A2H Vibration Test	Tested once quarterly

# MCGUIRE NUCLEAR STATION

## ND - RESIDUAL HEAT REMOVAL

Equipment ID	Flow Diagram	Pump Design	Pump Group	ASME Class	Relief Request	Test Plan	Frequency
						Comprehensive ND Pump 2A dP Test	Tested once every two years
						Comprehensive ND Pump 2A X2H Vibration Test	Tested once every two years
						Comprehensive ND Pump 2A Y2H Vibration Test	Tested once every two years
						Comprehensive ND Pump 2A A2H Vibration Test	Tested once every two years
2NDPU0002	MCFD-2561-01.00	CP >= 600	A	2	MC-SRP-ND-01	Group A ND Pump 2B dP test	Tested once quarterly
						Group A ND Pump 2B X2H Vibration Test	Tested once quarterly
						Group A ND Pump 2B Y2H Vibration Test	Tested once quarterly
						Group A ND Pump 2B A2H Vibration Test	Tested once quarterly
						Comprehensive ND Pump 2B dP Test	Tested once every two years
						Comprehensive ND Pump 2B X2H Vibration Test	Tested once every two years
						Comprehensive ND Pump 2B Y2H Vibration Test	Tested once every two years
						Comprehensive ND Pump 2B A2H Vibration Test	Tested once every two years

# MCGUIRE NUCLEAR STATION

## NI - SAFETY INJECTION SYSTEM

Equipment ID	Flow Diagram	Pump Design	Pump Group	ASME Class	Relief Request	Test Plan	Frequency
1NIPU0009	MCFD-1562-03.00	CP >= 600	A	2		Comprehensive NI Pump 1A dP Test	Tested once every two years
						Group A NI Pump 1A dP Test	Tested once quarterly
						Group A NI Pump 1A A4H Vibration Test	Tested once quarterly
						Group A NI Pump 1A V4H Vibration Test	Tested once quarterly
						Group A NI Pump 1A H4H Vibration Test	Tested once quarterly
						Group A NI Pump 1A V3H Vibration Test	Tested once quarterly
						Group A NI Pump 1A H3H Vibration Test	Tested once quarterly
						Comprehensive NI Pump 1A A4H Vibration Test	Tested once every two years
						Comprehensive NI Pump 1A H3H Vibration Test	Tested once every two years
						Comprehensive NI Pump 1A H4H Vibration Test	Tested once every two years
						Comprehensive NI Pump 1A V3H Vibration Test	Tested once every two years
						Comprehensive NI Pump 1A V4H Vibration Test	Tested once every two years
1NIPU0010	MCFD-1562-03.00	CP >= 600	A	2		Group A NI Pump 1B V4H Vibration Test	Tested once quarterly
						Comprehensive NI Pump 1B dP Test	Tested once every two years
						Group A NI Pump 1B dP Test	Tested once quarterly
						Group A NI Pump 1B A4H Vibration Test	Tested once quarterly
						Group A NI Pump 1B H4H Vibration Test	Tested once quarterly
						Group A NI Pump 1B V3H Vibration Test	Tested once quarterly
						Group A NI Pump 1B H3H Vibration Test	Tested once quarterly
						Comprehensive NI Pump 1B A4H Vibration Test	Tested once every two years

# MCGUIRE NUCLEAR STATION

## NI - SAFETY INJECTION SYSTEM

Equipment ID	Flow Diagram	Pump Design	Pump Group	ASME Class	Relief Request	Test Plan	Frequency
						Comprehensive NI Pump 1B H3H Vibration Test	Tested once every two years
						Comprehensive NI Pump 1B H4H Vibration Test	Tested once every two years
						Comprehensive NI Pump 1B V3H Vibration Test	Tested once every two years
						Comprehensive NI Pump 1B V4H Vibration Test	Tested once every two years
2NIPU0009	MCFD-2562-03.00	CP >= 600	A	2		Comprehensive NI Pump 2A dP Test	Tested once every two years
						Group A NI Pump 2A dP Test	Tested once quarterly
						Group A NI Pump 2A V4H Vibration Test	Tested once quarterly
						Group A NI Pump 2A A4H Vibration Test	Tested once quarterly
						Group A NI Pump 2A H4H Vibration Test	Tested once quarterly
						Group A NI Pump 2A V3H Vibration Test	Tested once quarterly
						Group A NI Pump 2A H3H Vibration Test	Tested once quarterly
						Comprehensive NI Pump 2A H3H Vibration Test	Tested once every two years
						Comprehensive NI Pump 2A V3H Vibration Test	Tested once every two years
						Comprehensive NI Pump 2A H4H Vibration Test	Tested once every two years
						Comprehensive NI Pump 2A V4H Vibration Test	Tested once every two years
						Comprehensive NI Pump 2A A4H Vibration Test	Tested once every two years
2NIPU0010	MCFD-2562-03.00	CP >= 600	A	2		Comprehensive NI Pump 2B dP Test	Tested once every two years
						Group A NI Pump 2B dP Test	Tested once quarterly
						Group A NI Pump 2B A4H Vibration Test	Tested once quarterly
						Group A NI Pump 2B V4H Vibration Test	Tested once quarterly

# MCGUIRE NUCLEAR STATION

## NI - SAFETY INJECTION SYSTEM

Equipment ID	Flow Diagram	Pump Design	Pump Group	ASME Class	Relief Request	Test Plan	Frequency
						Group A NI Pump 2B H4H Vibration Test	Tested once quarterly
						Group A NI Pump 2B V3H Vibration Test	Tested once quarterly
						Group A NI Pump 2B H3H Vibration Test	Tested once quarterly
						Comprehensive NI Pump 2B A4H Vibration Test	Tested once every two years
						Comprehensive NI Pump 2B H3H Vibration Test	Tested once every two years
						Comprehensive NI Pump 2B H4H Vibration Test	Tested once every two years
						Comprehensive NI Pump 2B V3H Vibration Test	Tested once every two years
						Comprehensive NI Pump 2B V4H Vibration Test	Tested once every two years



# MCGUIRE NUCLEAR STATION

## NS - CONTAINMENT SPRAY SYSTEM

Equipment ID	Flow Diagram	Pump Design	Pump Group	ASME Class	Relief Request	Test Plan	Frequency
1NSPU0001	MCFD-1563-01.00	CP >= 600	B	2		Group B NS Pump 1A dP Test	Tested once quarterly
						Group B NS Pump 1A X2H Vibration Test	Tested once quarterly
						Group B NS Pump 1A Y2H Vibration Test	Tested once quarterly
						Group B NS Pump 1A A2H Vibration Test	Tested once quarterly
						Comprehensive NS Pump 1A dP Test	Tested once every two years
						Comprehensive NS Pump 1A X2H Vibration Test	Tested once every two years
						Comprehensive NS Pump 1A Y2H Vibration Test	Tested once every two years
						Comprehensive NS Pump 1A A2H Vibration Test	Tested once every two years
						Group B NS Pump 1A Flow Test	Tested once quarterly
1NSPU0002	MCFD-1563-01.00	CP >= 600	B	2		Group B NS Pump 1B dP Test	Tested once quarterly
						Group B NS Pump 1B X2H Vibration Test	Tested once quarterly
						Group B NS Pump 1B Y2H Vibration Test	Tested once quarterly
						Group B NS Pump 1B A2H Vibration Test	Tested once quarterly
						Comprehensive NS Pump 1B dP Test	Tested once every two years
						Comprehensive NS Pump 1B X2H Vibration Test	Tested once every two years
						Comprehensive NS Pump 1B Y2H Vibration Test	Tested once every two years
						Comprehensive NS Pump 1B A2H Vibration Test	Tested once every two years
						Group B NS Pump 1B Flow Test	Tested once quarterly
2NSPU0001	MCFD-2563-01.00	CP >= 600	B	2		Group B NS Pump 2A dP Test	Tested once quarterly
						Group B NS Pump 2A X2H Vibration Test	Tested once quarterly

# MCGUIRE NUCLEAR STATION

## NS - CONTAINMENT SPRAY SYSTEM

Equipment ID	Flow Diagram	Pump Design	Pump Group	ASME Class	Relief Request	Test Plan	Frequency
						Group B NS Pump 2A Y2H Vibration Test	Tested once quarterly
						Group B NS Pump 2A A2H Vibration Test	Tested once quarterly
						Comprehensive NS Pump 2A dP Test	Tested once every two years
						Comprehensive NS Pump 2A X2H Vibration Test	Tested once every two years
						Comprehensive NS Pump 2A Y2H Vibration Test	Tested once every two years
						Comprehensive NS Pump 2A A2H Vibration Test	Tested once every two years
						Group B NS Pump 2A Flow Test	Tested once quarterly
2NSPU0002	MCFD-2563-01.00	CP >= 600	B	2		Group B NS Pump 2B dP Test	Tested once quarterly
						Group B NS Pump 2B X2H Vibration Test	Tested once quarterly
						Group B NS Pump 2B Y2H Vibration Test	Tested once quarterly
						Group B NS Pump 2B A2H Vibration Test	Tested once quarterly
						Comprehensive NS Pump 2B dP Test	Tested once every two years
						Comprehensive NS Pump 2B X2H Vibration Test	Tested once every two years
						Comprehensive NS Pump 2B Y2H Vibration Test	Tested once every two years
						Comprehensive NS Pump 2B A2H Vibration Test	Tested once every two years
						Group B NS Pump 2B Flow Test	Tested once quarterly

# MCGUIRE NUCLEAR STATION

## NV - CHEMICAL AND VOLUME CONTROL

Equipment ID	Flow Diagram	Pump Design	Pump Group	ASME Class	Relief Request	Test Plan	Frequency
1NVPU0015	MCFD-1554-03.01	CP >= 600	A	2		Group A NV Pump 1A dP Test (Charging)	Tested once quarterly
						Group A NV Pump 1A H5H Vibration Test (Charging)	Tested once quarterly
						Group A NV Pump 1A V5H Vibration Test (Charging)	Tested once quarterly
						Group A NV Pump 1A V6H Vibration Test (Charging)	Tested once quarterly
						Group A NV Pump 1A H6H Vibration Test (Charging)	Tested once quarterly
						Group A NV Pump 1A A6H Vibration Test (Charging)	Tested once quarterly
						Comprehensive NV Pump 1A dP Test	Tested once every two years
						Comprehensive NV Pump 1A H5H Vibration Test	Tested once every two years
						Comprehensive NV Pump 1A H6H Vibration Test	Tested once every two years
						Comprehensive NV Pump 1A V6H Vibration Test	Tested once every two years
						Comprehensive NV Pump 1A A6H Vibration Test	Tested once every two years
						Group A NV Pump 1A H5H Vibration Test (Recirc)	No specified test frequency
						Group A NV Pump 1A V5H Vibration Test (Recirc)	No specified test frequency
						Group A NV Pump 1A V6H Vibration Test (Recirc)	No specified test frequency
						Group A NV Pump 1A H6H Vibration Test (Recirc)	No specified test frequency
						Group A NV Pump 1A A6H Vibration Test (Recirc)	No specified test frequency
						Comprehensive NV Pump 1A V5H Vibration Test	Tested once every two years
						Group A NV Pump 1A dP Test (Recirc)	No specified test frequency
1NVPU0016	MCFD-1554-03.01	CP >= 600	A	2		Group A NV Pump 1B dP Test (Charging)	Tested once quarterly
						Group A NV Pump 1B H5H Vibration Test (Charging)	Tested once quarterly

# MCGUIRE NUCLEAR STATION

## NV - CHEMICAL AND VOLUME CONTROL

Equipment ID	Flow Diagram	Pump Design	Pump Group	ASME Class	Relief Request	Test Plan	Frequency
						Group A NV Pump 1B V5H Vibration Test (Charging)	Tested once quarterly
						Group A NV Pump 1B H6H Vibratoin Test (Charging)	Tested once quarterly
						Group A NV Pump 1B V6H Vibration Test (Charging)	Tested once quarterly
						Group A NV Pump 1B A6H Vibration Test (Charging)	Tested once quarterly
						Comprehensive NV Pump 1B dP Test	Tested once every two years
						Comprehensive NV Pump 1B V6H Vibration Test	Tested once every two years
						Comprehensive NV Pump 1B A6H Vibration Test	Tested once every two years
						Group A NV Pump 1B H5H Vibration Test (Recirc)	No specified test frequency
						Group A NV Pump 1B V5H Vibration Test (Recirc)	No specified test frequency
						Group A NV Pump 1B H6H Vibration Test (Recirc)	No specified test frequency
						Group A NV Pump 1B V6H Vibration Test (Recirc)	No specified test frequency
						Group A NV Pump 1B A6H Vibration Test (Recirc)	No specified test frequency
						Comprehensive NV Pump 1B H5H Vibration Test	Tested once every two years
						Comprehensive NV Pump 1B H6H Vibration Test	Tested once every two years
						Comprehensive NV Pump 1B V5H Vibration Test	Tested once every two years
						Group A NV Pump 1B dP Test (Recirc)	No specified test frequency
1NVPU0027	MCFD-1554-05.00	CP >= 600	A	3		Group A Boric Acid Transfer Pump 1A dP Test	Tested once quarterly
						Comprehensive Boric Acid Transfer Pump 1A dP Test	Tested once every two years
						Boric Acid Transfer Pump 1A H1H Vibration Test	Tested once quarterly
						Boric Acid Transfer Pump 1A V1H Vibration Test	Tested once quarterly

# MCGUIRE NUCLEAR STATION

## NV - CHEMICAL AND VOLUME CONTROL

Equipment ID	Flow Diagram	Pump Design	Pump Group	ASME Class	Relief Request	Test Plan	Frequency
						Boric Acid Transfer Pump 1A A1H Vibration Test	Tested once quarterly
						Boric Acid Transfer Pump 1A H2H Vibration Test	Tested once quarterly
						Boric Acid Transfer Pump 1A V2H Vibration Test	Tested once quarterly
1NVP0028	MCFD-1554-05.00	CP >= 600	A	3		Group A Boric Acid Transfer Pump 1B dP Test	Tested once quarterly
						Comprehensive Boric Acid Transfer Pump 1B dP Test	Tested once every two years
						Boric Acid Transfer Pump 1B H1H Vibration Test	Tested once quarterly
						Boric Acid Transfer Pump 1B V1H Vibration Test	Tested once quarterly
						Boric Acid Transfer Pump 1B A1H Vibration Test	Tested once quarterly
						Boric Acid Transfer Pump 1B H2H Vibration Test	Tested once quarterly
						Boric Acid Transfer Pump 1B V2H Vibration Test	Tested once quarterly
2NVP0015	MCFD-2554-03.01	CP >= 600	A	2		Group A NV Pump 2A dP Test (Charging)	Tested once quarterly
						Group A NV Pump 2A H5H Vibration Test (Charging)	Tested once quarterly
						Group A NV Pump 2A V5H Vibration Test (Charging)	Tested once quarterly
						Group A NV Pump 2A H6H Vibration Test (Charging)	Tested once quarterly
						Group A NV Pump 2A V6H Vibration Test (Charging)	Tested once quarterly
						Comprehensive NV Pump 2A dP Test	Tested once every two years
						Comprehensive NV Pump 2A H5H Vibration Test	Tested once every two years
						Comprehensive NV Pump 2A V5H Vibration Test	Tested once every two years
						Comprehensive NV Pump 2A H6H Vibration Test	Tested once every two years
						Comprehensive NV Pump 2A V6H Vibration Test	Tested once every two years

# MCGUIRE NUCLEAR STATION

## NV - CHEMICAL AND VOLUME CONTROL

Equipment ID	Flow Diagram	Pump Design	Pump Group	ASME Class	Relief Request	Test Plan	Frequency
						Group A NV Pump 2A A6H Vibration Test (Charging)	Tested once quarterly
						Group A NV Pump 2A H5H Vibration Test (Recirc)	No specified test frequency
						Group A NV Pump 2A V5H Vibration Test (Recirc)	No specified test frequency
						Group A NV Pump 2A H6H Vibration Test (Recirc)	No specified test frequency
						Group A NV Pump 2A V6H Vibration Test (Recirc)	No specified test frequency
						Group A NV Pump 2A A6H Vibration Test (Recirc)	No specified test frequency
						Comprehensive NV Pump 2A A6H Vibration Test	Tested once every two years
						Group A NV Pump 2A dP Test (Recirc)	No specified test frequency
2NVPU0016	MCFD-2554-03.01	CP >= 600	A	2		Group A NV Pump 2B dP Test (Charging)	Tested once quarterly
						Group A NV Pump 2B H5H Vibration Test (Charging)	Tested once quarterly
						Group A NV Pump 2B V5H Vibration Test (Charging)	Tested once quarterly
						Group A NV Pump 2B H6H Vibration Test (Charging)	Tested once quarterly
						Comprehensive NV Pump 2B dP Test	Tested once every two years
						Comprehensive NV Pump 2B H5H Vibration Test	Tested once every two years
						Comprehensive NV Pump 2B V5H Vibration Test	Tested once every two years
						Comprehensive NV Pump 2B H6H Vibration Test	Tested once every two years
						Comprehensive NV Pump 2B V6H Vibration Test	Tested once every two years
						Comprehensive NV Pump 2B A6H Vibration Test	Tested once every two years
						Group A NV Pump 2B V6H Vibration Test (Charging)	Tested once quarterly
						Group A NV Pump 2B A6H Vibration Test (Charging)	Tested once quarterly

# MCGUIRE NUCLEAR STATION

## NV - CHEMICAL AND VOLUME CONTROL

Equipment ID	Flow Diagram	Pump Design	Pump Group	ASME Class	Relief Request	Test Plan	Frequency
						Group A NV Pump 2B H5H Vibration Test (Recirc)	No specified test frequency
						Group A NV Pump 2B V5H Vibration Test (Recirc)	No specified test frequency
						Group A NV Pump 2B H6H Vibration Test (Recirc)	No specified test frequency
						Group A NV Pump 2B V6H Vibration Test (Recirc)	No specified test frequency
						Group A NV Pump 2B A6H Vibration Test (Recirc)	No specified test frequency
						Group A NV Pump 2B dP Test (Recirc)	No specified test frequency
2NVPU0027	MCFD-2554-05.00	CP >= 600	A	3		Group A Boric Acid Transfer Pump 2A dP Test	Tested once quarterly
						Comprehensive Boric Acid Transfer Pump 2A dP Test	Tested once every two years
						Boric Acid Transfer Pump 2A H1H Vibration Test	Tested once quarterly
						Boric Acid Transfer Pump 2A V1H Vibration Test	Tested once quarterly
						Boric Acid Transfer Pump 2A A1H Vibration Test	Tested once quarterly
						Boric Acid Transfer Pump 2A H2H Vibration Test	Tested once quarterly
						Boric Acid Transfer Pump 2A V2H Vibration Test	Tested once quarterly
2NVPU0028	MCFD-2554-05.00	CP >= 600	A	3		Group A Boric Acid Pump 2B dP Test	Tested once quarterly
						Comprehensive Boric Acid Transfer Pump 2B dP Test	Tested once every two years
						Boric Acid Transfer Pump 2B V1H Vibration Test	Tested once quarterly
						Boric Acid Transfer Pump 2B A1H Vibration Test	Tested once quarterly
						Boric Acid Transfer Pump 2B H2H Vibration Test	Tested once quarterly
						Boric Acid Transfer Pump 2B V2H Vibration Test	Tested once quarterly
						Boric Acid Transfer Pump 2B H1H Vibration Test	Tested once quarterly

# MCGUIRE NUCLEAR STATION

## RN - NUCLEAR SERVICE WATER SYSTEM

Equipment ID	Flow Diagram	Pump Design	Pump Group	ASME Class	Relief Request	Test Plan	Frequency
1RNPU0003	MCFD-1574-01.01	CP >= 600	A	3		Group A RN Pump 1A DP Test	Tested once quarterly
						Group A RN Pump 1A H3H Vibration Test	Tested once quarterly
						Group A RN Pump 1A V3H Vibration Test	Tested once quarterly
						Group A RN Pump 1A H4H Vibration Test	Tested once quarterly
						Group A RN Pump 1A V4H Vibration Test	Tested once quarterly
						Group A RN Pump 1A A4H Vibration Test	Tested once quarterly
						Comprehensive RN Pump 1A DP Test	Tested once every two years
						Comprehensive RN Pump 1A H3H Vibration Test	Tested once every two years
						Comprehensive RN Pump 1A V3H Vibration Test	Tested once every two years
						Comprehensive RN Pump 1A H4H Vibration Test	Tested once every two years
						Comprehensive RN Pump 1A V4H Vibration Test	Tested once every two years
						Comprehensive RN Pump 1A A4H Vibration Test	Tested once every two years
1RNPU0004	MCFD-1574-01.01	CP >= 600	A	3		Group A RN Pump 1B DP Test	Tested once quarterly
						Group A RN Pump 1B H3H Vibration Test	Tested once quarterly
						Group A RN Pump 1B V3H Vibration Test	Tested once quarterly
						Group A RN Pump 1B H4H Vibration Test	Tested once quarterly
						Group A RN Pump 1B V4H Vibration Test	Tested once quarterly
						Group A RN Pump 1B A4H Vibration Test	Tested once quarterly
						Comprehensive RN Pump 1B DP Test	Tested once every two years
						Comprehensive RN Pump 1B H3H Vibration Test	Tested once every two years



# MCGUIRE NUCLEAR STATION

## RN - NUCLEAR SERVICE WATER SYSTEM

Equipment ID	Flow Diagram	Pump Design	Pump Group	ASME Class	Relief Request	Test Plan	Frequency
						Comprehensive RN Pump 1B V3H Vibration Test	Tested once every two years
						Comprehensive RN Pump 1B H4H Vibration Test	Tested once every two years
						Comprehensive RN Pump 1B V4H Vibration Test	Tested once every two years
						Comprehensive RN Pump 1B A4H Vibration Test	Tested once every two years
1RNPU0007	MCFD-1574-05.00	CP >= 600	A	3		Group A RN Strainer Backwash Pump 1A DP Test	Tested once quarterly
						RN Strainer Backwash Pump 1A H3H Vibration Test	Tested once quarterly
						RN Strainer Backwash Pump 1A V3H Vibration Test	Tested once quarterly
						RN Strainer Backwash Pump 1A H4H Vibration Test	Tested once quarterly
						RN Strainer Backwash Pump 1A V4H Vibration Test	Tested once quarterly
						RN Strainer Backwash Pump 1A A4H Vibration Test	Tested once quarterly
						Comprehensive RN Strainer Backwash Pump 1A DP Test	Tested once every two years
1RNPU0008	MCFD-1574-05.00	CP >= 600	A	3		Group A RN Strainer Backwash Pump 2A DP Test	Tested once quarterly
						RN Strainer Backwash Pump 1B H3H Vibration Test	Tested once quarterly
						RN Strainer Backwash Pump 1B V3H Vibration Test	Tested once quarterly
						RN Strainer Backwash Pump 1B H4H Vibration Test	Tested once quarterly
						RN Strainer Backwash Pump 1B V4H Vibration Test	Tested once quarterly
						RN Strainer Backwash Pump 1B A4H Vibration Test	Tested once quarterly
						Comprehensive RN Strainer Backwash Pump 1B DP Test	Tested once every two years
2RNPU0003	MCFD-2574-01.01	CP >= 600	A	3		Group A RN Pump 2A DP Test	Tested once quarterly
						Group A RN Pump 2A H3H Vibration Test	Tested once quarterly

# MCGUIRE NUCLEAR STATION

## RN - NUCLEAR SERVICE WATER SYSTEM

Equipment ID	Flow Diagram	Pump Design	Pump Group	ASME Class	Relief Request	Test Plan	Frequency
						Group A RN Pump 2A H4H Vibration Test	Tested once quarterly
						Group A RN Pump 2A V4H Vibration Test	Tested once quarterly
						Group A RN Pump 2A A4H Vibration Test	Tested once quarterly
						Comprehensive RN Pump 2A DP Test	Tested once every two years
						Group A RN Pump 2A V3H Vibration Test	Tested once quarterly
						Comprehensive RN Pump 2A H3H Vibration Test	Tested once every two years
						Comprehensive RN Pump 2A H4H Vibration Test	Tested once every two years
						Comprehensive RN Pump 2A V4H Vibration Test	Tested once every two years
						Comprehensive RN Pump 2A A4H Vibration Test	Tested once every two years
						Comprehensive RN Pump 2A V3H Vibration Test	Tested once every two years
2RNPU0004	MCFD-2574-01.01	CP >= 600	A	3		Group A RN Pump 2B DP Test	Tested once quarterly
						Group A RN Pump 2B H3H Vibration Test	Tested once quarterly
						Group A RN Pump 2B H4H Vibration Test	Tested once quarterly
						Group A RN Pump 2B V4H Vibration Test	Tested once quarterly
						Group A RN Pump 2B A4H Vibration Test	Tested once quarterly
						Comprehensive RN Pump 2B DP Test	Tested once every two years
						Group A RN Pump 2B V3H Vibration Test	Tested once quarterly
						Comprehensive RN Pump 2B H3H Vibration Test	Tested once every two years
						Comprehensive RN Pump 2B V3H Vibration Test	Tested once every two years
						Comprehensive RN Pump 2B H4H Vibration Test	Tested once every two years

# MCGUIRE NUCLEAR STATION

## RN - NUCLEAR SERVICE WATER SYSTEM

Equipment ID	Flow Diagram	Pump Design	Pump Group	ASME Class	Relief Request	Test Plan	Frequency
						Comprehensive RN Pump 2B V4H Vibration Test	Tested once every two years
						Comprehensive RN Pump 2B A4H Vibration Test	Tested once every two years
2RNPU0007	MCFD-2574-05.00	CP >= 600	A	3		Group A RN Strainer Backwash Pump 2A DP Test	Tested once quarterly
						RN Strainer Backwash Pump 2A H3H Vibration Test	Tested once quarterly
						RN Strainer Backwash Pump 2A V3H Vibration Test	Tested once quarterly
						RN Strainer Backwash Pump 2A H4H Vibration Test	Tested once quarterly
						RN Strainer Backwash Pump 2A V4H Vibration Test	Tested once quarterly
						RN Strainer Backwash Pump 2A A4H Vibration Test	Tested once quarterly
						Comprehensive RN Strainer Backwash Pump 2A DP Test	Tested once every two years
2RNPU0008	MCFD-2574-05.00	CP >= 600	A	3		Group A RN Strainer Backwash Pump 2B DP Test	Tested once quarterly
						RN Strainer Backwash Pump 2B A4H Vibration Test	Tested once quarterly
						RN Strainer Backwash Pump 2B V4H Vibration Test	Tested once quarterly
						RN Strainer Backwash Pump 2B H4H Vibration Test	Tested once quarterly
						RN Strainer Backwash Pump 2B H3H Vibration Test	Tested once quarterly
						RN Strainer Backwash Pump 2B V3H Vibration Test	Tested once quarterly
						Simple Flow + Simple DP (with Alert Ranges)	Tested once every two years
						Simple DP (with Alert Range) + Flow Band	Tested once every two years

# MCGUIRE NUCLEAR STATION

## WN - D/G ROOM SUMP PUMP

Equipment ID	Flow Diagram	Pump Design	Pump Group	ASME Class	Relief Request	Test Plan	Frequency
1WNPU0094	MCFD-1609-07.00	CP >= 600	B	3		Comprehensive WN Pump 1A2 dP Test	Tested once every two years
						Comprehensive WN Pump 1A2 A3H Vibration Test	Tested once every two years
						Comprehensive WN Pump 1A2 X3H Vibration Test	Tested once every two years
						Comprehensive WN Pump 1A2 Y3H Vibration Test	Tested once every two years
						Comprehensive WN Pump 1A2 Y4H Vibration Test	Tested once every two years
						Comprehensive WN Pump 1A2 X4H Vibration Test	Tested once every two years
1WNPU0095	MCFD-1609-07.00	CP >= 600	B	3		Comprehensive WN Pump 1B2 dP Test	Tested once every two years
						Comprehensive WN Pump 1B2 X3H Vibration Test	Tested once every two years
						Comprehensive WN Pump 1B2 Y3H Vibration Test	Tested once every two years
						Comprehensive WN Pump 1B2 A3H Vibration Test	Tested once every two years
						Comprehensive WN Pump 1B2 Y4H Vibration Test	Tested once every two years
						Comprehensive WN Pump 1B2 X4H Vibration Test	Tested once every two years
1WNPU0096	MCFD-1609-07.00	CP >= 600	B	3		Comprehensive WN Pump 1A3 dP Test	Tested once every two years
						Comprehensive WN Pump 1A3 X3H Vibration Test	Tested once every two years
						Comprehensive WN Pump 1A3 Y3H Vibration Test	Tested once every two years
						Comprehensive WN Pump 1A3 A3H Vibration Test	Tested once every two years
						Comprehensive WN Pump 1A3 Y4H Vibration Test	Tested once every two years
						Comprehensive WN Pump 1A3 X4H Vibration Test	Tested once every two years
1WNPU0097	MCFD-1609-07.00	CP >= 600	B	3		Comprehensive WN Pump 1B3 dP Test	Tested once every two years
						Comprehensive WN Pump 1B3 X3H Vibration Test	Tested once every two years

# MCGUIRE NUCLEAR STATION

## WN - D/G ROOM SUMP PUMP

Equipment ID	Flow Diagram	Pump Design	Pump Group	ASME Class	Relief Request	Test Plan	Frequency
						Comprehensive WN Pump 1B3 Y3H Vibration Test	Tested once every two years
						Comprehensive WN Pump 1B3 A3H Vibration Test	Tested once every two years
						Comprehensive WN Pump 1B3 Y4H Vibration Test	Tested once every two years
						Comprehensive WN Pump 1B3 X4H Vibration Test	Tested once every two years
2WNPU0094	MCFD-2609-07.00	CP >= 600	B	3		Comprehensive WN Pump 2A2 dP Test	Tested once every two years
						Comprehensive WN Pump 2A2 X3H Vibration Test	Tested once every two years
						Comprehensive WN Pump 2A2 Y3H Vibration Test	Tested once every two years
						Comprehensive WN Pump 2A2 A3H Vibration Test	Tested once every two years
						Comprehensive WN Pump 2A2 Y4H Vibration Test	Tested once every two years
						Comprehensive WN Pump 2A2 X4H Vibration Test	Tested once every two years
2WNPU0095	MCFD-2609-07.00	CP >= 600	B	3		Comprehensive WN Pump 2B2 dP Test	Tested once every two years
						Comprehensive WN Pump 2B2 Y3H Vibration Test	Tested once every two years
						Comprehensive WN Pump 2B2 X3H Vibration Test	Tested once every two years
						Comprehensive WN Pump 2B2 A3H Vibration Test	Tested once every two years
						Comprehensive WN Pump 2B2 Y4H Vibration Test	Tested once every two years
						Comprehensive WN Pump 2B2 X4H Vibration Test	Tested once every two years
2WNPU0096	MCFD-2609-07.00	CP >= 600	B	3		Comprehensive WN Pump 2A3 dP Test	Tested once every two years
						Comprehensive WN Pump 2A3 X3H Vibration Test	Tested once every two years
						Comprehensive WN Pump 2A3 Y3H Vibration Test	Tested once every two years
						Comprehensive WN Pump 2A3 A3H Vibration Test	Tested once every two years

# MCGUIRE NUCLEAR STATION

## WN - D/G ROOM SUMP PUMP

Equipment ID	Flow Diagram	Pump Design	Pump Group	ASME Class	Relief Request	Test Plan	Frequency
						Comprehensive WN Pump 2A3 Y4H Vibration Test	Tested once every two years
						Comprehensive WN Pump 2A3 X4H Vibration Test	Tested once every two years
2WNPU0097	MCFD-2609-07.00	CP >= 600	B	3		Comprehensive WN Pump 2B3 dP Test	Tested once every two years
						Comprehensive WN Pump 2B3 X3H Vibration Test	Tested once every two years
						Comprehensive WN Pump 2B3 Y3H Vibration Test	Tested once every two years
						Comprehensive WN Pump 2B3 A3H Vibration Test	Tested once every two years
						Comprehensive WN Pump 2B3 Y4H Vibration Test	Tested once every two years
						Comprehensive WN Pump 2B3 X4H Vibration Test	Tested once every two years

# MCGUIRE NUCLEAR STATION

## WZ - GROUNDWATER DRAINAGE SYSTEM

Equipment ID	Flow Diagram	Pump Design	Pump Group	ASME Class	Relief Request	Test Plan	Frequency
0WZPU0001	MCFD-1581-01.00	CP >= 600	A	3		Group A WZ Sump A Pump A DP Test	Tested once quarterly
						Comprehensive WZ Sump A Pump A DP Test	Tested once every two years
						WZ Sump A Pump A A3H Vibration Test	Tested once quarterly
						WZ Sump A Pump A Y3H Vibration Test	Tested once quarterly
						WZ Sump A Pump A X3H Vibration Test	Tested once quarterly
0WZPU0002	MCFD-1581-01.00	CP >= 600	A	3		Group A WZ Sump A Pump B DP Test	Tested once quarterly
						WZ Sump A Pump B X3H Vibration Test	Tested once quarterly
						WZ Sump A Pump B Y3H Vibration Test	Tested once quarterly
						WZ Sump A Pump B A3H Vibration Test	Tested once quarterly
						Comprehensive WZ Sump A Pump B DP Test	Tested once every two years
0WZPU0003	MCFD-1581-01.00	CP >= 600	A	3		Group A WZ Sump B Pump A DP Test	Tested once quarterly
						WZ Sump B Pump A Y3H Vibration Test	Tested once quarterly
						WZ Sump B Pump A A3H Vibration Test	Tested once quarterly
						Comprehensive WZ Sump B Pump A DP Test	Tested once every two years
						WZ Sump B Pump A X3H Vibration Test	Tested once quarterly
0WZPU0004	MCFD-1581-01.00	CP >= 600	A	3		Group A WZ Sump B Pump B DP Test	Tested once quarterly
						Comprehensive WZ Sump B Pump B DP Test	Tested once every two years
						WZ Sump B Pump B A3H Vibration Test	Tested once quarterly
						WZ Sump B Pump B X3H Vibration Test	Tested once quarterly
						WZ Sump B Pump B Y3H Vibration Test	Tested once quarterly

# MCGUIRE NUCLEAR STATION

## WZ - GROUNDWATER DRAINAGE SYSTEM

Equipment ID	Flow Diagram	Pump Design	Pump Group	ASME Class	Relief Request	Test Plan	Frequency
0WZPU0005	MCFD-1581-01.00	CP >= 600	A	3		Group A WZ Sump C Pump A DP Test	Tested once quarterly
						WZ Sump C Pump A X3H Vibration Test	Tested once quarterly
						WZ Sump C Pump A Y3H Vibration Test	Tested once quarterly
						WZ Sump C Pump A A3H Vibration Test	Tested once quarterly
						Comprehensive WZ Sump C Pump A DP Test	Tested once every two years
0WZPU0006	MCFD-1581-01.00	CP >= 600	A	3		Group A WZ Sump C Pump B DP Test	Tested once quarterly
						WZ Sump C Pump B X3H Vibration Test	Tested once quarterly
						WZ Sump C Pump B A3H Vibration Test	Tested once quarterly
						Comprehensive WZ Sump C Pump B DP Test	Tested once every two years
						WZ Sump C Pump B Y3H Vibration Test	Tested once quarterly



# MCGUIRE NUCLEAR STATION

## YC - CHILLED WATER SYSTEM

Equipment ID	Flow Diagram	Pump Design	Pump Group	ASME Class	Relief Request	Test Plan	Frequency
0YCPU0003	MCFD-1618-01.00	CP >= 600	A	3		Group A YC Pump A dP Test	Tested once quarterly
						Comprehensive YC Pump A dP Test	Tested once every two years
						YC Pump A A4H Vibration Test	Tested once quarterly
						YC Pump A V4H Vibration Test	Tested once quarterly
						YC Pump A H4H Vibration Test	Tested once quarterly
						YC Pump A V3H Vibration Test	Tested once quarterly
						YC Pump A H3H Vibration Test	Tested once quarterly
0YCPU0004	MCFD-1618-01.00	CP >= 600	A	3		YC Pump B V3H Vibration Test	Tested once quarterly
						Comprehensive YC Pump B dP Test	Tested once every two years
						Group A YC Pump B dP Test	Tested once quarterly
						YC Pump B H3H Vibration Test	Tested once quarterly
						YC Pump B H4H Vibration Test	Tested once quarterly
						YC Pump B V4H Vibration Test	Tested once quarterly
						YC Pump B A4H Vibration Test	Tested once quarterly

**DUKE ENERGY**  
**McGUIRE NUCLEAR STATION**

**Valve Inservice Testing Program**

**SECTION 4.0**

Revision 28  
March 1, 2013

# MCGUIRE NUCLEAR STATION

## BB - S/G BLOWDOWN RECYCLE

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1BB-1B	MCFD-1580-01.00	AO	Category B	GA	Yes	2		MC-BB-01	1BB-1B - Position Indicator (Open and Closed)	Tested once every two years
									1BB-1B - Stroke Time (Opn to Cls)	Tested at cold shutdown
1BB-2B	MCFD-1580-01.00	AO	Category B	GA	Yes	2		MC-BB-01	1BB-2B - Position Indicator (Open and Closed)	Tested once every two years
									1BB-2B - Stroke Time (Opn to Cls)	Tested at cold shutdown
1BB-3B	MCFD-1580-01.00	AO	Category B	GA	Yes	2		MC-BB-01	1BB-3B - Position Indicator (Open and Closed)	Tested once every two years
									1BB-3B - Stroke Time (Opn to Cls)	Tested at cold shutdown
1BB-4B	MCFD-1580-01.00	AO	Category B	GA	Yes	2		MC-BB-01	1BB-4B - Position Indicator (Open and Closed)	Tested once every two years
									1BB-4B - Stroke Time (Opn to Cls)	Tested at cold shutdown
1BB-5A	MCFD-1580-01.00	AO	Category B	GA	Yes	2		MC-BB-01	1BB-5A - Position Indicator (Open and Closed)	Tested once every two years
									1BB-5A - Stroke Time (Opn to Cls)	Tested at cold shutdown
1BB-6A	MCFD-1580-01.00	AO	Category B	GA	Yes	2		MC-BB-01	1BB-6A - Position Indicator (Open and Closed)	Tested once every two years
									1BB-6A - Stroke Time (Opn to Cls)	Tested at cold shutdown
1BB-7A	MCFD-1580-01.00	AO	Category B	GA	Yes	2		MC-BB-01	1BB-7A - Position Indicator (Open and Closed)	Tested once every two years
									1BB-7A - Stroke Time (Opn to Cls)	Tested at cold shutdown
1BB-8A	MCFD-1580-01.00	AO	Category B	GA	Yes	2		MC-BB-01	1BB-8A - Position Indicator (Open and Closed)	Tested once every two years
									1BB-8A - Stroke Time (Opn to Cls)	Tested at cold shutdown
2BB-1B	MCFD-2580-01.00	AO	Category B	GA	Yes	2		MC-BB-01	2BB-1B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2BB-1B - Position Indicator (Open and Closed)	Tested once every two years
2BB-2B	MCFD-2580-01.00	AO	Category B	GA	Yes	2		MC-BB-01	2BB-2B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2BB-2B - Position Indicator (Open and Closed)	Tested once every two years

# MCGUIRE NUCLEAR STATION

## BB - S/G BLOWDOWN RECYCLE

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2BB-3B	MCFD-2580-01.00	AO	Category B	GA	Yes	2		MC-BB-01	2BB-3B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2BB-3B - Position Indicator (Open and Closed)	Tested once every two years
2BB-4B	MCFD-2580-01.00	AO	Category B	GA	Yes	2		MC-BB-01	2BB-4B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2BB-4B - Position Indicator (Open and Closed)	Tested once every two years
2BB-5A	MCFD-2580-01.00	AO	Category B	GA	Yes	2		MC-BB-01	2BB-5A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2BB-5A - Position Indicator (Open and Closed)	Tested once every two years
2BB-6A	MCFD-2580-01.00	AO	Category B	GA	Yes	2		MC-BB-01	2BB-6A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2BB-6A - Position Indicator (Open and Closed)	Tested once every two years
2BB-7A	MCFD-2580-01.00	AO	Category B	GA	Yes	2		MC-BB-01	2BB-7A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2BB-7A - Position Indicator (Open and Closed)	Tested once every two years
2BB-8A	MCFD-2580-01.00	AO	Category B	GA	Yes	2		MC-BB-01	2BB-8A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2BB-8A - Position Indicator (Open and Closed)	Tested once every two years

## MCGUIRE NUCLEAR STATION

### CA - AUXILIARY FEEDWATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1CA-7AC	MCFD-1592-01.01	MR	Category B	GA	Yes	3		MC-CA-04	1CA-7AC - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1CA-7AC - Position Indicator (Open and Closed)	Tested once every two years
1CA-8	MCFD-1592-01.01	SA	Category C	SW	Yes	3			1CA-8 - Exercise (Both)	Condition Monitoring
1CA-9B	MCFD-1592-01.01	MR	Category B	GA	Yes	3		MC-CA-04	1CA-9B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1CA-9B - Position Indicator (Open and Closed)	Tested once every two years
1CA-10	MCFD-1592-01.01	SA	Category C	SW	Yes	3			1CA-10 - Exercise (Both)	Condition Monitoring
1CA-11A	MCFD-1592-01.01	MR	Category B	GA	Yes	3		MC-CA-04	1CA-11A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1CA-11A - Position Indicator (Open and Closed)	Tested once every two years
1CA-12	MCFD-1592-01.01	SA	Category C	SW	Yes	3			1CA-12 - Exercise (Both)	Condition Monitoring
1CA-15A	MCFD-1592-01.01	MR	Category B	GA	Yes	3			1CA-15A - Stroke Time (Cls to Opn)	Tested once quarterly
									1CA-15A - Position Indicator (Open and Closed)	Tested once every two years
1CA-18B	MCFD-1592-01.01	MR	Category B	GA	Yes	3			1CA-18B - Stroke Time (Cls to Opn)	Tested once quarterly
									1CA-18B - Position Indicator (Open and Closed)	Tested once every two years
1CA-22	MCFD-1592-01.01	SA	Category AC	3W	Yes	3			1CA-22 - Full Stroke (Open)	Tested once quarterly
									1CA-22 - Full Stroke (Closed)	Tested once quarterly
									1CA-22 - Leak Test Non-Appendix J	Tested once every two years
1CA-26	MCFD-1592-01.01	SA	Category AC	3W	Yes	3			1CA-26 - Full Stroke (Open)	Tested once quarterly
									1CA-26 - Full Stroke (Closed)	Tested once quarterly
									1CA-26 - Leak Test Non-Appendix J	Tested once every two years
1CA-31	MCFD-1592-01.01	SA	Category AC	3W	Yes	3			1CA-31 - Full Stroke (Open)	Tested once quarterly

# MCGUIRE NUCLEAR STATION

## CA - AUXILIARY FEEDWATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									1CA-31 - Full Stroke (Closed)	Tested once quarterly
									1CA-31 - Leak Test Non-Appendix J	Tested once every two years
1CA-36AB	MCFD-1592-01.00	AO	Category B	GA	Yes	3			1CA-36AB - Stroke Time (Cls to Opn)	Tested once quarterly
									1CA-36AB - Position Indicator (Open and Closed)	Tested once every two years
1CA-37	MCFD-1592-01.00	SA	Category C	SW	Yes	2			1CA-37 - Exercise (Both)	Condition Monitoring
1CA-38B	MCFD-1592-01.00	MR	Category B	GA	Yes	2			1CA-38B - Stroke Time (Open to Closed)	Tested once quarterly
									1CA-38B - Stroke Time (Closed to Open)	Tested once quarterly
									1CA-38B - Position Indicator (Open and Closed)	Tested once every two years
1CA-40B	MCFD-1592-01.00	AO	Category B	GA	Yes	3			1CA-40B - Stroke Time (Cls to Opn)	Tested once quarterly
									1CA-40B - Position Indicator (Open and Closed)	Tested once every two years
1CA-41	MCFD-1592-01.00	SA	Category C	SW	Yes	2			1CA-41 - Exercise (Both)	Condition Monitoring
1CA-42B	MCFD-1592-01.00	MR	Category B	GA	Yes	2			1CA-42B - Stroke Time (Open to Closed)	Tested once quarterly
									1CA-42B - Stroke Time (Closed to Open)	Tested once quarterly
									1CA-42B - Position Indicator (Open and Closed)	Tested once every two years
1CA-44B	MCFD-1592-01.00	AO	Category B	GA	Yes	3			1CA-44B - Stroke Time (Cls to Opn)	Tested once quarterly
									1CA-44B - Position Indicator (Open and Closed)	Tested once every two years
1CA-45	MCFD-1592-01.00	SA	Category C	SW	Yes	2			1CA-45 - Exercise (Both)	Condition Monitoring
1CA-46B	MCFD-1592-01.00	MR	Category B	GA	Yes	2			1CA-46B - Stroke Time (Open to Closed)	Tested once quarterly
									1CA-46B - Stroke Time (Closed to Open)	Tested once quarterly
									1CA-46B - Position Indicator (Open and Closed)	Tested once every two years

# MCGUIRE NUCLEAR STATION

## CA - AUXILIARY FEEDWATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1CA-48AB	MCFD-1592-01.00	AO	Category B	GA	Yes	3			1CA-48AB - Stroke Time (Cls to Opn)	Tested once quarterly
									1CA-48AB - Position Indicator (Open and Closed)	Tested once every two years
1CA-49	MCFD-1592-01.00	SA	Category C	SW	Yes	2			1CA-49 - Exercise (Both)	Condition Monitoring
1CA-50B	MCFD-1592-01.00	MR	Category B	GA	Yes	2			1CA-50B - Stroke Time (Open to Closed)	Tested once quarterly
									1CA-50B - Stroke Time (Closed to Open)	Tested once quarterly
									1CA-50B - Position Indicator (Open and Closed)	Tested once every two years
1CA-52AB	MCFD-1592-01.00	AO	Category B	GA	Yes	3			1CA-52AB - Stroke Time (Cls to Opn)	Tested once quarterly
									1CA-52AB - Position Indicator (Open and Closed)	Tested once every two years
1CA-53	MCFD-1592-01.00	SA	Category C	SW	Yes	2			1CA-53 - Exercise (Both)	Condition Monitoring
1CA-54AC	MCFD-1592-01.00	MR	Category B	GA	Yes	2			1CA-54AC - Stroke Time (Open to Closed)	Tested once quarterly
									1CA-54AC - Stroke Time (Closed to Open)	Tested once quarterly
									1CA-54AC - Position Indicator (Open and Closed)	Tested once every two years
1CA-56A	MCFD-1592-01.00	AO	Category B	GA	Yes	3			1CA-56A - Stroke Time (Cls to Opn)	Tested once quarterly
									1CA-56A - Position Indicator (Open and Closed)	Tested once every two years
1CA-57	MCFD-1592-01.00	SA	Category C	SW	Yes	2			1CA-57 - Exercise (Both)	Condition Monitoring
1CA-58A	MCFD-1592-01.00	MR	Category B	GA	Yes	2			1CA-58A - Stroke Time (Open to Closed)	Tested once quarterly
									1CA-58A - Stroke Time (Closed to Open)	Tested once quarterly
									1CA-58A - Position Indicator (Open and Closed)	Tested once every two years
1CA-60A	MCFD-1592-01.00	AO	Category B	GA	Yes	3			1CA-60A - Stroke Time (Cls to Opn)	Tested once quarterly
									1CA-60A - Position Indicator (Open and Closed)	Tested once every two years

# MCGUIRE NUCLEAR STATION

## CA - AUXILIARY FEEDWATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1CA-61	MCFD-1592-01.00	SA	Category C	SW	Yes	2			1CA-61 - Exercise (Both)	Condition Monitoring
1CA-62A	MCFD-1592-01.00	MR	Category B	GA	Yes	2			1CA-62A - Stroke Time (Open to Closed)	Tested once quarterly
									1CA-62A - Stroke Time (Closed to Open)	Tested once quarterly
									1CA-62A - Position Indicator (Open and Closed)	Tested once every two years
1CA-64AB	MCFD-1592-01.00	AO	Category B	GA	Yes	3			1CA-64AB - Stroke Time (Cls to Opn)	Tested once quarterly
									1CA-64AB - Position Indicator (Open and Closed)	Tested once every two years
1CA-65	MCFD-1592-01.00	SA	Category C	SW	Yes	2			1CA-65 - Exercise (Both)	Condition Monitoring
1CA-66AC	MCFD-1592-01.00	MR	Category B	GA	Yes	2			1CA-66AC - Stroke Time (Open to Closed)	Tested once quarterly
									1CA-66AC - Stroke Time (Closed to Open)	Tested once quarterly
									1CA-66AC - Position Indicator (Open and Closed)	Tested once every two years
1CA-86A	MCFD-1592-01.01	MR	Category B	GA	Yes	3			1CA-86A - Stroke Time (Cls to Opn)	Tested once quarterly
									1CA-86A - Position Indicator (Open and Closed)	Tested once every two years
1CA-116B	MCFD-1592-01.01	MR	Category B	GA	Yes	3			1CA-116B - Stroke Time (Cls to Opn)	Tested once quarterly
									1CA-116B - Position Indicator (Open and Closed)	Tested once every two years
1CA-128	MCFD-1592-01.01	SA	Category C	RV	Yes	3			1CA-128 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1CA-165	MCFD-1592-01.01	SA	Category C	SW	Yes	3			1CA-165 - Exercise (Both)	Condition Monitoring
1CA-166	MCFD-1592-01.01	SA	Category C	SW	Yes	3			1CA-166 - Exercise (Both)	Condition Monitoring
1CA-167	MCFD-1592-01.01	SA	Category C	RV	Yes	3			1CA-167 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1CA-168	MCFD-1592-01.01	SA	Category C	RV	Yes	3			1CA-168 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule



# MCGUIRE NUCLEAR STATION

## CA - AUXILIARY FEEDWATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1CA-232	MCFD-1592-01.01	SA	Category C	SW	Yes	3			1CA-232 - Exercise (Both)	Condition Monitoring
1CA-235	MCFD-1592-01.01	SA	Category C	SW	Yes	3			1CA-235 - Exercise (Both)	Condition Monitoring
1CA-238	MCFD-1592-01.01	SA	Category C	SW	Yes	3			1CA-238 - Exercise (Both)	Condition Monitoring
2CA-7A	MCFD-2592-01.01	MR	Category B	GA	Yes	3		MC-CA-04	2CA-7A - Stroke Time (Opn to CIs)	Tested at cold shutdown
									2CA-7A - Position Indicator (Open and Closed)	Tested once every two years
2CA-8	MCFD-2592-01.01	SA	Category C	SW	Yes	3			2CA-8 - Exercise (Both)	Condition Monitoring
2CA-9B	MCFD-2592-01.01	MR	Category B	GA	Yes	3		MC-CA-04	2CA-9B - Stroke Time (Opn to CIs)	Tested at cold shutdown
									2CA-9B - Position Indicator (Open and Closed)	Tested once every two years
2CA-10	MCFD-2592-01.01	SA	Category C	SW	Yes	3			2CA-10 - Exercise (Both)	Condition Monitoring
2CA-11A	MCFD-2592-01.01	MR	Category B	GA	Yes	3		MC-CA-04	2CA-11A - Stroke Time (Opn to CIs)	Tested at cold shutdown
									2CA-11A - Position Indicator (Open and Closed)	Tested once every two years
2CA-12	MCFD-2592-01.01	SA	Category C	SW	Yes	3			2CA-12 - Exercise (Both)	Condition Monitoring
2CA-15A	MCFD-2592-01.01	MR	Category B	GA	Yes	3			2CA-15A - Stroke Time (CIs to Opn)	Tested once quarterly
									2CA-15A - Position Indicator (Open and Closed)	Tested once every two years
2CA-18B	MCFD-2592-01.01	MR	Category B	GA	Yes	3			2CA-18B - Stroke Time (CIs to Opn)	Tested once quarterly
									2CA-18B - Position Indicator (Open and Closed)	Tested once every two years
2CA-22	MCFD-2592-01.01	SA	Category AC	3W	Yes	3			2CA-22 - Full Stroke (Open)	Tested once quarterly
									2CA-22 - Full Stroke (Closed)	Tested once quarterly
									2CA-22 - Leak Test Non-Appendix J	Tested once every two years
2CA-26	MCFD-2592-01.01	SA	Category AC	3W	Yes	3			2CA-26 - Full Stroke (Open)	Tested once quarterly

# MCGUIRE NUCLEAR STATION

## CA - AUXILIARY FEEDWATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									2CA-26 - Full Stroke (Closed)	Tested once quarterly
									2CA-26 - Leak Test Non-Appendix J	Tested once every two years
2CA-31	MCFD-2592-01.01	SA	Category AC	3W	Yes	3			2CA-31 - Full Stroke (Open)	Tested once quarterly
									2CA-31 - Full Stroke (Closed)	Tested once quarterly
									2CA-31 - Leak Test Non-Appendix J	Tested once every two years
2CA-36AB	MCFD-2592-01.00	AO	Category B	GA	Yes	3			2CA-36AB - Stroke Time (Cls to Opn)	Tested once quarterly
									2CA-36AB - Position Indicator (Open and Closed)	Tested once every two years
2CA-37	MCFD-2592-01.00	SA	Category C	SW	Yes	2			2CA-37 - Exercise (Both)	Condition Monitoring
2CA-38B	MCFD-2592-01.00	MR	Category B	GA	Yes	2			2CA-38B - Stroke Time (Open to Closed)	Tested once quarterly
									2CA-38B - Stroke Time (Closed to Open)	Tested once quarterly
									2CA-38B - Position Indicator (Open and Closed)	Tested once every two years
2CA-40B	MCFD-2592-01.00	AO	Category B	GA	Yes	3			2CA-40B - Stroke Time (Cls to Opn)	Tested once quarterly
									2CA-40B - Position Indicator (Open and Closed)	Tested once every two years
2CA-41	MCFD-2592-01.00	SA	Category C	SW	Yes	2			2CA-41 - Exercise (Both)	Condition Monitoring
2CA-42B	MCFD-2592-01.00	MR	Category B	GA	Yes	2			2CA-42B - Stroke Time (Open to Closed)	Tested once quarterly
									2CA-42B - Stroke Time (Closed to Open)	Tested once quarterly
									2CA-42B - Position Indicator (Open and Closed)	Tested once every two years
2CA-44B	MCFD-2592-01.00	AO	Category B	GA	Yes	3			2CA-44B - Stroke Time (Cls to Opn)	Tested once quarterly
									2CA-44B - Position Indicator (Open and Closed)	Tested once every two years
2CA-45	MCFD-2592-01.00	SA	Category C	SW	Yes	2			2CA-45 - Exercise (Both)	Condition Monitoring

# MCGUIRE NUCLEAR STATION

## CA - AUXILIARY FEEDWATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2CA-46B	MCFD-2592-01.00	MR	Category B	GA	Yes	2			2CA-46B - Stroke Time (Open to Closed)	Tested once quarterly
									2CA-46B - Stroke Time (Closed to Open)	Tested once quarterly
									2CA-46B - Position Indicator (Open and Closed)	Tested once every two years
2CA-48AB	MCFD-2592-01.00	AO	Category B	GA	Yes	3			2CA-48AB - Stroke Time (CIs to Opn)	Tested once quarterly
									2CA-48AB - Position Indicator (Open and Closed)	Tested once every two years
2CA-49	MCFD-2592-01.00	SA	Category C	SW	Yes	2			2CA-49 - Exercise (Both)	Condition Monitoring
2CA-50B	MCFD-2592-01.00	MR	Category B	GA	Yes	2			2CA-50B - Stroke Time (Open to Closed)	Tested once quarterly
									2CA-50B - Stroke Time (Closed to Open)	Tested once quarterly
									2CA-50B - Position Indicator (Open and Closed)	Tested once every two years
2CA-52AB	MCFD-2592-01.00	AO	Category B	GA	Yes	3			2CA-52AB - Stroke Time (CIs to Opn)	Tested once quarterly
									2CA-52AB - Position Indicator (Open and Closed)	Tested once every two years
2CA-53	MCFD-2592-01.00	SA	Category C	SW	Yes	2			2CA-53 - Exercise (Both)	Condition Monitoring
2CA-54AC	MCFD-2592-01.00	MR	Category B	GA	Yes	2			2CA-54AC - Stroke Time (Open to Closed)	Tested once quarterly
									2CA-54AC - Stroke Time (Closed to Open)	Tested once quarterly
									2CA-54AC - Position Indicator (Open and Closed)	Tested once every two years
2CA-56A	MCFD-2592-01.00	AO	Category B	GA	Yes	3			2CA-56A - Stroke Time (CIs to Opn)	Tested once quarterly
									2CA-56A - Position Indicator (Open and Closed)	Tested once every two years
2CA-57	MCFD-2592-01.00	SA	Category C	SW	Yes	2			2CA-57 - Exercise (Both)	Condition Monitoring
2CA-58A	MCFD-2592-01.00	MR	Category B	GA	Yes	2			2CA-58A - Stroke Time (Open to Closed)	Tested once quarterly
									2CA-58A - Stroke Time (Closed to Open)	Tested once quarterly

# MCGUIRE NUCLEAR STATION

## CA - AUXILIARY FEEDWATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									2CA-58A - Position Indicator (Open and Closed)	Tested once every two years
2CA-60A	MCFD-2592-01.00	AO	Category B	GA	Yes	3			2CA-60A - Stroke Time (Cls to Opn)	Tested once quarterly
									2CA-60A - Position Indicator (Open and Closed)	Tested once every two years
2CA-61	MCFD-2592-01.00	SA	Category C	SW	Yes	2			2CA-61 - Exercise (Both)	Condition Monitoring
2CA-62A	MCFD-2592-01.00	MR	Category B	GA	Yes	2			2CA-62A - Stroke Time (Open to Closed)	Tested once quarterly
									2CA-62A - Stroke Time (Closed to Open)	Tested once quarterly
									2CA-62A - Position Indicator (Open and Closed)	Tested once every two years
2CA-64AB	MCFD-2592-01.00	AO	Category B	GA	Yes	3			2CA-64AB - Stroke Time (Cls to Opn)	Tested once quarterly
									2CA-64AB - Position Indicator (Open and Closed)	Tested once every two years
2CA-65	MCFD-2592-01.00	SA	Category C	SW	Yes	2			2CA-65 - Exercise (Both)	Condition Monitoring
2CA-66AC	MCFD-2592-01.00	MR	Category B	GA	Yes	2			2CA-66AC - Stroke Time (Open to Closed)	Tested once quarterly
									2CA-66AC - Stroke Time (Closed to Open)	Tested once quarterly
									2CA-66AC - Position Indicator (Open and Closed)	Tested once every two years
2CA-86A	MCFD-2592-01.01	MR	Category B	GA	Yes	3			2CA-86A - Stroke Time (Cls to Opn)	Tested once quarterly
									2CA-86A - Position Indicator (Open and Closed)	Tested once every two years
2CA-116B	MCFD-2592-01.01	MR	Category B	GA	Yes	3			2CA-116B - Stroke Time (Cls to Opn)	Tested once quarterly
									2CA-116B - Position Indicator (Open and Closed)	Tested once every two years
2CA-128	MCFD-2592-01.01	SA	Category C	RV	Yes	3			2CA-128 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2CA-165	MCFD-2592-01.01	SA	Category C	SW	Yes	3			2CA-165 - Exercise (Both)	Condition Monitoring
2CA-166	MCFD-2592-01.01	SA	Category C	SW	Yes	3			2CA-166 - Exercise (Both)	Condition Monitoring

## MCGUIRE NUCLEAR STATION

### CA - AUXILIARY FEEDWATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2CA-167	MCFD-2592-01.01	SA	Category C	RV	Yes	3			2CA-167 - Relief Valve Test (CIs to Opn)	Test relief valve per Appendix I schedule
2CA-168	MCFD-2592-01.01	SA	Category C	RV	Yes	3			2CA-168 - Relief Valve Test (CIs to Opn)	Test relief valve per Appendix I schedule
2CA-232	MCFD-2592-01.01	SA	Category C	SW	Yes	3			2CA-232 - Exercise (Both)	Condition Monitoring
2CA-235	MCFD-2592-01.01	SA	Category C	SW	Yes	3			2CA-235 - Exercise (Both)	Condition Monitoring
2CA-238	MCFD-2592-01.01	SA	Category C	SW	Yes	3			2CA-238 - Exercise (Both)	Condition Monitoring

# MCGUIRE NUCLEAR STATION

## CF - FEEDWATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1CF-17AB	MCFD-1591-01.01	AO	Category B	GL	Yes	NA		MC-CF-02	1CF-17AB - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1CF-17AB - Position Indicator (Open and Closed)	Tested once every two years
1CF-20AB	MCFD-1591-01.01	AO	Category B	GL	Yes	NA		MC-CF-02	1CF-20AB - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1CF-20AB - Position Indicator (Open and Closed)	Tested once every two years
1CF-23AB	MCFD-1591-01.01	AO	Category B	GL	Yes	NA		MC-CF-02	1CF-23AB - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1CF-23AB - Position Indicator (Open and Closed)	Tested once every two years
1CF-26AB	MCFD-1591-01.01	AO	Category B	GA	Yes	2		MC-CF-01	1CF-26AB - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1CF-26AB - Position Indicator (Open and Closed)	Tested once every two years
1CF-28AB	MCFD-1591-01.01	AO	Category B	GA	Yes	2		MC-CF-01	1CF-28AB - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1CF-28AB - Position Indicator (Open and Closed)	Tested once every two years
1CF-30AB	MCFD-1591-01.01	AO	Category B	GA	Yes	2		MC-CF-01	1CF-30AB - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1CF-30AB - Position Indicator (Open and Closed)	Tested once every two years
1CF-32AB	MCFD-1591-01.01	AO	Category B	GL	Yes	NA		MC-CF-02	1CF-32AB - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1CF-32AB - Position Indicator (Open and Closed)	Tested once every two years
1CF-35AB	MCFD-1591-01.01	AO	Category B	GA	Yes	2		MC-CF-01	1CF-35AB - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1CF-35AB - Position Indicator (Open and Closed)	Tested once every two years
1CF-104AB	MCFD-1591-01.01	AO	Category B	GL	Yes	NA		MC-CF-04	1CF-104AB - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1CF-104AB - Position Indicator (Open and Closed)	Tested once every two years
1CF-105AB	MCFD-1591-01.01	AO	Category B	GL	Yes	NA		MC-CF-04	1CF-105AB - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1CF-105AB - Position Indicator (Open and Closed)	Tested once every two years

# MCGUIRE NUCLEAR STATION

## CF - FEEDWATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1CF-106AB	MCFD-1591-01.01	AO	Category B	GL	Yes	NA		MC-CF-04	1CF-106AB - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1CF-106AB - Position Indicator (Open and Closed)	Tested once every two years
1CF-107AB	MCFD-1591-01.01	AO	Category B	GL	Yes	NA		MC-CF-04	1CF-107AB - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1CF-107AB - Position Indicator (Open and Closed)	Tested once every two years
1CF-118	MCFD-1591-01.01	SA	Category C	SW	Yes	2			1CF-118 - Exercise (Both)	Condition Monitoring
1CF-119	MCFD-1591-01.01	SA	Category C	SW	Yes	2			1CF-119 - Exercise (Both)	Condition Monitoring
1CF-120	MCFD-1591-01.01	SA	Category C	SW	Yes	2			1CF-120 - Exercise (Both)	Condition Monitoring
1CF-121	MCFD-1591-01.01	SA	Category C	SW	Yes	2			1CF-121 - Exercise (Both)	Condition Monitoring
1CF-126B	MCFD-1591-01.01	MR	Category B	GA	Yes	2		MC-CF-03	1CF-126B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1CF-126B - Position Indicator (Open and Closed)	Tested once every two years
1CF-127B	MCFD-1591-01.01	MR	Category B	GA	Yes	2		MC-CF-03	1CF-127B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1CF-127B - Position Indicator (Open and Closed)	Tested once every two years
1CF-128B	MCFD-1591-01.01	MR	Category B	GA	Yes	2		MC-CF-03	1CF-128B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1CF-128B - Position Indicator (Open and Closed)	Tested once every two years
1CF-129B	MCFD-1591-01.01	MR	Category B	GA	Yes	2		MC-CF-03	1CF-129B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1CF-129B - Position Indicator (Open and Closed)	Tested once every two years
2CF-17AB	MCFD-2591-01.01	AO	Category B	GL	Yes	NA		MC-CF-02	2CF-17AB - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2CF-17AB - Position Indicator (Open and Closed)	Tested once every two years
2CF-20AB	MCFD-2591-01.01	AO	Category B	GL	Yes	NA		MC-CF-02	2CF-20AB - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2CF-20AB - Position Indicator (Open and Closed)	Tested once every two years

# MCGUIRE NUCLEAR STATION

## CF - FEEDWATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2CF-23AB	MCFD-2591-01.01	AO	Category B	GL	Yes	NA		MC-CF-02	2CF-23AB - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2CF-23AB - Position Indicator (Open and Closed)	Tested once every two years
2CF-26AB	MCFD-2591-01.01	AO	Category B	GA	Yes	2		MC-CF-01	2CF-26AB - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2CF-26AB - Position Indicator (Open and Closed)	Tested once every two years
2CF-28AB	MCFD-2591-01.01	AO	Category B	GA	Yes	2		MC-CF-01	2CF-28AB - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2CF-28AB - Position Indicator (Open and Closed)	Tested once every two years
2CF-30AB	MCFD-2591-01.01	AO	Category B	GL	Yes	2		MC-CF-01	2CF-30AB - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2CF-30AB - Position Indicator (Open and Closed)	Tested once every two years
2CF-32AB	MCFD-2591-01.01	AO	Category B	GA	Yes	NA		MC-CF-02	2CF-32AB - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2CF-32AB - Position Indicator (Open and Closed)	Tested once every two years
2CF-35AB	MCFD-2591-01.01	AO	Category B	GA	Yes	2		MC-CF-01	2CF-35AB - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2CF-35AB - Position Indicator (Open and Closed)	Tested once every two years
2CF-104AB	MCFD-2591-01.01	AO	Category B	GL	Yes	NA		MC-CF-04	2CF-104AB - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2CF-104AB - Position Indicator (Open and Closed)	Tested once every two years
2CF-105AB	MCFD-2591-01.01	AO	Category B	GL	Yes	NA		MC-CF-04	2CF-105AB - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2CF-105AB - Position Indicator (Open and Closed)	Tested once every two years
2CF-106AB	MCFD-2591-01.01	AO	Category B	GL	Yes	NA		MC-CF-04	2CF-106AB - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2CF-106AB - Position Indicator (Open and Closed)	Tested once every two years
2CF-107AB	MCFD-2591-01.01	AO	Category B	GL	Yes	NA		MC-CF-04	2CF-107AB - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2CF-107AB - Position Indicator (Open and Closed)	Tested once every two years



# MCGUIRE NUCLEAR STATION

## CF - FEEDWATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2CF-118	MCFD-2591-01.01	SA	Category C	SW	Yes	2			2CF-118 - Exercise (Both)	Condition Monitoring
2CF-119	MCFD-2591-01.01	SA	Category C	SW	Yes	2			2CF-119 - Exercise (Both)	Condition Monitoring
2CF-120	MCFD-2591-01.01	SA	Category C	SW	Yes	2			2CF-120 - Exercise (Both)	Condition Monitoring
2CF-121	MCFD-2591-01.01	SA	Category C	SW	Yes	2			2CF-121 - Exercise (Both)	Condition Monitoring
2CF-126B	MCFD-2591-01.01	MR	Category B	GA	Yes	2		MC-CF-03	2CF-126B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2CF-126B - Position Indicator (Open and Closed)	Tested once every two years
2CF-127B	MCFD-2591-01.01	MR	Category B	GA	Yes	2		MC-CF-03	2CF-127B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2CF-127B - Position Indicator (Open and Closed)	Tested once every two years
2CF-128B	MCFD-2591-01.01	MR	Category B	GA	Yes	2		MC-CF-03	2CF-128B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2CF-128B - Position Indicator (Open and Closed)	Tested once every two years
2CF-129B	MCFD-2591-01.01	MR	Category B	GA	Yes	2		MC-CF-03	2CF-129B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2CF-129B - Position Indicator (Open and Closed)	Tested once every two years

# MCGUIRE NUCLEAR STATION

## FW - REFUELING WATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1FW-1A	MCFD-1571-01.00	MR	Category B	GA	Yes	2			1FW-1A - Stroke Time (Opn to Cls)	Tested once quarterly
									1FW-1A - Position Indicator (Open and Closed)	Tested once every two years
1FW-4	MCFD-1571-01.00	MA	Category A	GA	No	2			1FW-4 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
1FW-5	MCFD-1571-01.00	SA	Category AC	SW	Yes	2			1FW-5 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1FW-5 - Exercise (Both)	Condition Monitoring
1FW-11	MCFD-1571-01.00	MA	Category A	DP	No	2			1FW-11 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
1FW-13	MCFD-1571-01.00	MA	Category A	DP	No	2			1FW-13 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
1FW-27A	MCFD-1571-01.00	MR	Category B	GA	Yes	2		MC-FW-01	1FW-27A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1FW-27A - Position Indicator (Open and Closed)	Tested once every two years
1FW-28	MCFD-1571-01.00	SA	Category C	SW	Yes	2			1FW-28 - Exercise (Both)	Condition Monitoring
1FW-32B	MCFD-1571-01.00	MR	Category B	GA	Yes	2			1FW-32B - Stroke Time (Opn to Cls)	Tested once quarterly
									1FW-32B - Position Indicator (Open and Closed)	Tested once every two years
1FW-33A	MCFD-1571-01.00	MR	Category B	GL	Yes	2			1FW-33A - Stroke Time (Opn to Cls)	Tested once quarterly
									1FW-33A - Position Indicator (Open and Closed)	Tested once every two years
1FW-49B	MCFD-1571-01.00	MR	Category B	GL	Yes	2			1FW-49B - Stroke Time (Opn to Cls)	Tested once quarterly
									1FW-49B - Position Indicator (Open and Closed)	Tested once every two years
1FW-67	MCFD-1571-01.00	SA	Category AC	SW	Yes	2			1FW-67 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1FW-67 - Exercise (Both)	Condition Monitoring
1FW-74	MCFD-1571-01.00	SA	Category C	SW	Yes	3			1FW-74 - Exercise (Both)	Condition Monitoring
2FW-1A	MCFD-2571-01.00	MR	Category B	GA	Yes	2			2FW-1A - Stroke Time (Opn to Cls)	Tested once quarterly

# MCGUIRE NUCLEAR STATION

## FW - REFUELING WATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									2FW-1A - Position Indicator (Open and Closed)	Tested once every two years
2FW-4	MCFD-2571-01.00	MA	Category A	GA	No	2			2FW-4 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
2FW-5	MCFD-2571-01.00	SA	Category AC	SW	Yes	2			2FW-5 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2FW-5 - Exercise (Both)	Condition Monitoring
2FW-11	MCFD-2571-01.00	MA	Category A	DP	No	2			2FW-11 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
2FW-13	MCFD-2571-01.00	MA	Category A	DP	No	2			2FW-13 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
2FW-27A	MCFD-2571-01.00	MR	Category B	GA	Yes	2		MC-FW-01	2FW-27A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2FW-27A - Position Indicator (Open and Closed)	Tested once every two years
2FW-28	MCFD-2571-01.00	SA	Category C	SW	Yes	2			2FW-28 - Exercise (Both)	Condition Monitoring
2FW-32B	MCFD-2571-01.00	MR	Category B	GA	Yes	2			2FW-32B - Stroke Time (Opn to Cls)	Tested once quarterly
									2FW-32B - Position Indicator (Open and Closed)	Tested once every two years
2FW-33A	MCFD-2571-01.00	MR	Category B	GL	Yes	2			2FW-33A - Stroke Time (Opn to Cls)	Tested once quarterly
									2FW-33A - Position Indicator (Open and Closed)	Tested once every two years
2FW-49B	MCFD-2571-01.00	MR	Category B	GL	Yes	2			2FW-49B - Stroke Time (Opn to Cls)	Tested once quarterly
									2FW-49B - Position Indicator (Open and Closed)	Tested once every two years
2FW-63	MCFD-2571-01.00	SA	Category AC	SW	Yes	2			2FW-63 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2FW-63 - Exercise (Both)	Condition Monitoring
2FW-74	MCFD-2571-01.00	SA	Category C	SW	Yes	3			2FW-74 - Exercise (Both)	Condition Monitoring

# MCGUIRE NUCLEAR STATION

## GN - NITROGEN SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1GN-173	MCFD-1602-01.02	SA	Category AC	CK	Yes	2			1GN-173 Leak Test Non-Appendix J	Tested every refueling outage
									1GN-173 - Exercise (Both)	Condition Monitoring
1GN-174	MCFD-1602-01.02	SA	Category AC	CK	Yes	2			1GN-174 - Leak Test Non-Appendix J	Tested every refueling outage
									1GN-174 - Exercise (Both)	Condition Monitoring
1GN-177	MCFD-1602-01.02	SA	Category AC	CK	Yes	2			1GN-177 Leak Test Non-Appendix J	Tested every refueling outage
									1GN-177 - Exercise (Both)	Condition Monitoring
1GN-178	MCFD-1602-01.02	SA	Category AC	CK	Yes	2			1GN-178 Leak Test Non-Appendix J	Tested every refueling outage
									1GN-178 - Exercise (Both)	Condition Monitoring
1GN-185	MCFD-1602-01.02	SA	Category AC	CK	Yes	2			1GN-185 - Leak Test Non-Appendix J	Tested every refueling outage
									1GN-185 - Exercise (Both)	Condition Monitoring
1GN-186	MCFD-1602-01.02	SA	Category AC	CK	Yes	2			1GN-186 - Leak Test Non-Appendix J	Tested every refueling outage
									1GN-186 - Exercise (Both)	Condition Monitoring
1GN-190	MCFD-1602-01.02	SA	Category AC	CK	Yes	2			1GN-190 - Leak Test Non-Appendix J	Tested every refueling outage
									1GN-190 - Exercise (Both)	Condition Monitoring
1GN-191	MCFD-1602-01.02	SA	Category AC	CK	Yes	2			1GN-191 - Leak Test Non-Appendix J	Tested every refueling outage
									1GN-191 - Exercise (Both)	Condition Monitoring
2GN-173	MCFD-2602-01.00	SA	Category AC	CK	Yes	2			2GN-173 - Leak Test Non-Appendix J	Tested every refueling outage
									2GN-173 - Exercise (Both)	Condition Monitoring
2GN-174	MCFD-2602-01.00	SA	Category AC	CK	Yes	2			2GN-174 - Leak Test Section XI (Accident Dir)	Tested every refueling outage
									2GN-174 - Exercise (Both)	Condition Monitoring

## MCGUIRE NUCLEAR STATION

### GN - NITROGEN SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2GN-177	MCFD-2602-01.00	SA	Category AC	CK	Yes	2			2GN-177- Leak Test Non-Appendix J	Tested every refueling outage
									2GN-177 - Exercise (Both)	Condition Monitoring
2GN-178	MCFD-2602-01.00	SA	Category AC	CK	Yes	2			2GN-178 Leak Test Non-Appendix J	Tested every refueling outage
									2GN-178 - Exercise (Both)	Condition Monitoring
2GN-185	MCFD-2602-01.00	SA	Category AC	CK	Yes	2			2GN-185 Leak Test Non-Appendix J	Tested every refueling outage
									2GN-185 - Exercise (Both)	Condition Monitoring
2GN-186	MCFD-2602-01.00	SA	Category AC	CK	Yes	2			2GN-186 Leak Test Non-Appendix J	Tested every refueling outage
									2GN-186 - Exercise (Both)	Condition Monitoring
2GN-190	MCFD-2602-01.00	SA	Category AC	CK	Yes	2			2GN-190 Leak Test Non-Appendix J	Tested every refueling outage
									2GN-190 - Exercise (Both)	Condition Monitoring
2GN-191	MCFD-2602-01.00	SA	Category AC	CK	Yes	2			2GN-191 Leak Test Non-Appendix J	Tested every refueling outage
									2GN-191 - Exercise (Both)	Condition Monitoring

# MCGUIRE NUCLEAR STATION

## IAE - CONTAINMENT PERSONNEL AIR LOCK

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
11AE-508A		SO	Category A	GL	Yes	2			11AESV5080 - Fast Acting Stroke Time (Opn to Cls)	Tested once quarterly
									11AESV5080 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									11AESV5080 - Position Indicator (Open and Closed)	Tested once every two years
11AE-516A		SO	Category A	GL	Yes	2			11AESV5160 - Fast Acting Stroke Time (Opn to Cls)	Tested once quarterly
									11AESV5160 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									11AESV5160 - Position Indicator (Open and Closed)	Tested once every two years
11AECV5260		SA	Category AC	CK	Yes	2			11AECV5260 - Leak Test Non-Appendix J	Every 6 months, See Tech Spec
									11AECV5260 - Exercise (Both)	Condition Monitoring
11AECV5270		SA	Category AC	CK	Yes	2			11AECV5270 - Exercise (Both)	Condition Monitoring
									11AECV5270 - Leak Test Non-Appendix J	Every 6 months, See Tech Spec
11AECV5280		SA	Category AC	CK	Yes	2			11AECV5280 - Leak Test Non-Appendix J	Every 6 months, See Tech Spec
									11AECV5280 - Exercise (Both)	Condition Monitoring
11AECV5290		SA	Category AC	CK	Yes	2			11AECV5290 - Exercise (Both)	Condition Monitoring
									11AECV5290 - Leak Test Non-Appendix J	Every 6 months, See Tech Spec
11AECV5300		SA	Category AC	CK	Yes	2			11AECV5300 - Exercise (Both)	Condition Monitoring
									11AECV5300 - Leak Test Non-Appendix J	Every 6 months, See Tech Spec
11AECV5310		SA	Category AC	CK	Yes	2			11AECV5310 - Exercise (Both)	Condition Monitoring
									11AECV5310 - Leak Test Non-Appendix J	Every 6 months, See Tech Spec
11AECV5320		SA	Category AC	CK	Yes	2			11AECV5320 - Exercise (Both)	Condition Monitoring
									11AECV5320 - Leak Test Non-Appendix J	Every 6 months, See Tech Spec

# MCGUIRE NUCLEAR STATION

## IAE - CONTAINMENT PERSONNEL AIR LOCK

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1IAECV5330		SA	Category AC	CK	Yes	2			1IAECV5330 - Exercise (Both)	Condition Monitoring
									1IAECV5330 - Leak Test Non-Appendix J	Every 6 months, See Tech Spec
1IAECV5340		SA	Category AC	CK	Yes	2			1IAECV5340 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1IAECV5340 - Exercise (Both)	Condition Monitoring
1IAECV5350		SA	Category AC	CK	Yes	2			1IAECV5350 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1IAECV5350 - Exercise (Both)	Condition Monitoring
1IAECV5360		SA	Category AC	CK	Yes	2			1IAECV5360 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1IAECV5360 - Exercise (Both)	Condition Monitoring
1IAECV5370		SA	Category AC	CK	Yes	2			1IAECV5370 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1IAECV5370 - Exercise (Both)	Condition Monitoring
1IAECV5380		SA	Category AC	CK	Yes	2			1IAECV5380 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1IAECV5380 - Exercise (Both)	Condition Monitoring
1IAECV5390		SA	Category AC	CK	Yes	2			1IAECV5390 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1IAECV5390 - Exercise (Both)	Condition Monitoring
2IAE-508A		SO	Category A	GL	Yes	2			2IAESV5080 - Fast Acting Stroke Time (Opn to Cls)	Tested once quarterly
									2IAESV5080 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2IAESV5080 - Position Indicator (Open and Closed)	Tested once every two years
2IAE-516A		SO	Category A	GL	Yes	2			2IAESV5160 - Fast Acting Stroke Time (Opn to Cls)	Tested once quarterly
									2IAESV5160 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2IAESV5160 - Position Indicator (Open and Closed)	Tested once every two years

# MCGUIRE NUCLEAR STATION

## IAE - CONTAINMENT PERSONNEL AIR LOCK

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2IAECV5260		SA	Category AC	CK	Yes	2			2IAECV5260 - Exercise (Both)	Condition Monitoring
									2IAECV5260 - Leak Test Non-Appendix J	Every 6 months, See Tech Spec
2IAECV5270		SA	Category AC	CK	Yes	2			2IAECV5270 - Exercise (Both)	Condition Monitoring
									2IAECV5270 - Leak Test Non-Appendix J	Every 6 months, See Tech Spec
2IAECV5280		SA	Category AC	CK	Yes	2			2IAECV5280 - Exercise (Both)	Condition Monitoring
									2IAECV5280 - Leak Test Non-Appendix J	Every 6 months, See Tech Spec
2IAECV5290		SA	Category AC	CK	Yes	2			2IAECV5290 - Exercise (Both)	Condition Monitoring
									2IAECV5290 - Leak Test Non-Appendix J	Every 6 months, See Tech Spec
2IAECV5300		SA	Category AC	CK	Yes	2			2IAECV5300 - Exercise (Both)	Condition Monitoring
									2IAECV5300 - Leak Test Non-Appendix J	Every 6 months, See Tech Spec
2IAECV5310		SA	Category AC	CK	Yes	2			2IAECV5310 - Exercise (Both)	Condition Monitoring
									2IAECV5310 - Leak Test Non-Appendix J	Every 6 months, See Tech Spec
2IAECV5320		SA	Category AC	CK	Yes	2			2IAECV5320 - Exercise (Both)	Condition Monitoring
									2IAECV5320 - Leak Test Non-Appendix J	Every 6 months, See Tech Spec
2IAECV5330		SA	Category AC	CK	Yes	2			2IAECV5330 - Exercise (Both)	Condition Monitoring
									2IAECV5330 - Leak Test Non-Appendix J	Every 6 months, See Tech Spec
2IAECV5340		SA	Category AC	CK	Yes	2			2IAECV5340 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2IAECV5340 - Exercise (Both)	Condition Monitoring
2IAECV5350		SA	Category AC	CK	Yes	2			2IAECV5350 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2IAECV5350 - Exercise (Both)	Condition Monitoring



# MCGUIRE NUCLEAR STATION

## IAE - CONTAINMENT PERSONNEL AIR LOCK

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2IAECV5360		SA	Category AC	CK	Yes	2			2IAECV5360 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2IAECV5360 - Exercise (Both)	Condition Monitoring
2IAECV5370		SA	Category AC	CK	Yes	2			2IAECV5370 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2IAECV5370 - Exercise (Both)	Condition Monitoring
2IAECV5380		SA	Category AC	CK	Yes	2			2IAECV5380 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2IAECV5380 - Exercise (Both)	Condition Monitoring
2IAECV5390		SA	Category AC	CK	Yes	2			2IAECV5390 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2IAECV5390 - Exercise (Both)	Condition Monitoring

# MCGUIRE NUCLEAR STATION

## KC - COMPONENT COOLING SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1KC-1A	MCFD-1573-01.00	MR	Category B	BF	Yes	3			1KC-1A - Stroke Time (Opn to Cls)	Tested once quarterly
									1KC-1A - Position Indicator (Open and Closed)	Tested once every two years
1KC-2B	MCFD-1573-01.00	MR	Category B	BF	Yes	3			1KC-2B - Stroke Time (Opn to Cls)	Tested once quarterly
									1KC-2B - Position Indicator (Open and Closed)	Tested once every two years
1KC-3A	MCFD-1573-01.00	MR	Category B	GA	Yes	3			1KC-3A - Stroke Time (Opn to Cls)	Tested once quarterly
									1KC-3A - Position Indicator (Open and Closed)	Tested once every two years
1KC-5	MCFD-1573-01.00	SA	Category C	SW	Yes	3			1KC-5 - Exercise (Both)	Condition Monitoring
1KC-8	MCFD-1573-01.00	SA	Category C	SW	Yes	3			1KC-8 - Exercise (Both)	Condition Monitoring
1KC-11	MCFD-1573-01.00	SA	Category C	SW	Yes	3			1KC-11 - Exercise (Both)	Condition Monitoring
1KC-14	MCFD-1573-01.00	SA	Category C	SW	Yes	3			1KC-14 - Exercise (Both)	Condition Monitoring
1KC-18B	MCFD-1573-01.00	MR	Category B	GA	Yes	3			1KC-18B - Stroke Time (Opn to Cls)	Tested once quarterly
									1KC-18B - Position Indicator (Open and Closed)	Tested once every two years
1KC-47	MCFD-1573-04.00	SA	Category AC	SW	Yes	2			1KC-47 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1KC-47 - Exercise (Both)	Condition Monitoring
1KC-50A	MCFD-1573-01.00	MR	Category B	BF	Yes	3			1KC-50A - Stroke Time (Opn to Cls)	Tested once quarterly
									1KC-50A - Position Indicator (Open and Closed)	Tested once every two years
1KC-51A	MCFD-1573-01.00	MR	Category B	GA	Yes	3			1KC-51A - Stroke Time (Cls to Opn)	Tested once quarterly
									1KC-51A - Position Indicator (Open and Closed)	Tested once every two years
1KC-53B	MCFD-1573-01.00	MR	Category B	BF	Yes	3			1KC-53B - Stroke Time (Opn to Cls)	Tested once quarterly
									1KC-53B - Position Indicator (Open and Closed)	Tested once every two years

# MCGUIRE NUCLEAR STATION

## KC - COMPONENT COOLING SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1KC-54B	MCFD-1573-01.00	MR	Category B	GA	Yes	3			1KC-54B - Stroke Time (Cls to Opn)	Tested once quarterly
									1KC-54B - Position Indicator (Open and Closed)	Tested once every two years
1KC-56A	MCFD-1573-01.01	MR	Category B	BF	Yes	3			1KC-56A - Stroke Time (Cls to Opn)	Tested once quarterly
									1KC-56A - Position Indicator (Open and Closed)	Tested once every two years
1KC-57A	MCFD-1573-01.01	AO	Category B	BF	Yes	3			1KC-57A - Stroke Time (Cls to Opn)	Tested once quarterly
									1KC-57A - Position Indicator (Open and Closed)	Tested once every two years
1KC-81B	MCFD-1573-01.01	MR	Category B	BF	Yes	3			1KC-81B - Stroke Time (Cls to Opn)	Tested once quarterly
									1KC-81B - Position Indicator (Open and Closed)	Tested once every two years
1KC-82B	MCFD-1573-01.01	AO	Category B	BF	Yes	3			1KC-82B - Stroke Time (Cls to Opn)	Tested once quarterly
									1KC-82B - Position Indicator (Open and Closed)	Tested once every two years
1KC-123	MCFD-1573-01.01	SA	Category C	VB	Yes	3			1KC-123 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1KC-228B	MCFD-1573-01.00	MR	Category B	GA	Yes	3			1KC-228B - Stroke Time (Opn to Cls)	Tested once quarterly
									1KC-228B - Position Indicator (Open and Closed)	Tested once every two years
1KC-230A	MCFD-1573-01.00	MR	Category B	GA	Yes	3			1KC-230A - Stroke Time (Opn to Cls)	Tested once quarterly
									1KC-230A - Position Indicator (Open and Closed)	Tested once every two years
1KC-279	MCFD-1573-03.01	SA	Category AC	SW	Yes	2			1KC-279 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1KC-279 - Exercise (Both)	Condition Monitoring
1KC-280	MCFD-1573-03.01	SA	Category AC	LC	Yes	2			1KC-280 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1KC-280 - Exercise (Both)	Condition Monitoring
1KC-281	MCFD-1573-03.01	SA	Category C	RV	Yes	3			1KC-281 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix

# MCGUIRE NUCLEAR STATION

## KC - COMPONENT COOLING SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
										I schedule
1KC-305B	MCFD-1573-03.01	MR	Category B	GA	Yes	2			1KC-305B - Stroke Time (Opn to Cls)	Tested once quarterly
									1KC-305B - Position Indicator (Open and Closed)	Tested once every two years
1KC-313	MCFD-1573-03.01	SA	Category C	RV	Yes	2			1KC-313 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1KC-315B	MCFD-1573-03.01	MR	Category B	GA	Yes	2			1KC-315B - Stroke Time (Opn to Cls)	Tested once quarterly
									1KC-315B - Position Indicator (Open and Closed)	Tested once every two years
1KC-320A	MCFD-1573-03.01	AO	Category A	DP	Yes	2		MC-KC-04	1KC-320A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1KC-320A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1KC-320A - Position Indicator (Open and Closed)	Tested once every two years
1KC-322	MCFD-1573-03.01	SA	Category AC	SW	Yes	2			1KC-322 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1KC-322 - Exercise (Both)	Condition Monitoring
1KC-332B	MCFD-1573-03.01	AO	Category A	DP	Yes	2		MC-KC-03	1KC-332B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1KC-332B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1KC-332B - Position Indicator (Open and Closed)	Tested once every two years
1KC-333A	MCFD-1573-03.01	AO	Category A	DP	Yes	2		MC-KC-03	1KC-333A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1KC-333A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1KC-333A - Position Indicator (Open and Closed)	Tested once every two years
1KC-338B	MCFD-1573-03.01	MR	Category A	BF	Yes	2		MC-KC-02	1KC-338B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1KC-338B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1KC-338B - Position Indicator (Open and Closed)	Tested once every two years

# MCGUIRE NUCLEAR STATION

## KC - COMPONENT COOLING SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1KC-340	MCFD-1573-03.01	SA	Category AC	SW	Yes	2			1KC-340 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1KC-340 - Exercise (Both)	Condition Monitoring
1KC-424B	MCFD-1573-03.01	MR	Category A	BF	Yes	2		MC-KC-01	1KC-424B - Stroke Time (Opn to CIs)	Tested at cold shutdown
									1KC-424B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1KC-424B - Position Indicator (Open and Closed)	Tested once every two years
1KC-425A	MCFD-1573-03.01	MR	Category A	BF	Yes	2		MC-KC-01	1KC-425A - Stroke Time (Opn to CIs)	Tested at cold shutdown
									1KC-425A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1KC-425A - Position Indicator (Open and Closed)	Tested once every two years
1KC-429B	MCFD-1573-04.00	MR	Category A	GL	Yes	2			1KC-429B - Stroke Time (Opn to CIs)	Tested once quarterly
									1KC-429B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1KC-429B - Position Indicator (Open and Closed)	Tested once every two years
1KC-430A	MCFD-1573-04.00	MR	Category A	GL	Yes	2			1KC-430A - Stroke Time (Opn to CIs)	Tested once quarterly
									1KC-430A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1KC-430A - Position Indicator (Open and Closed)	Tested once every two years
1KC-972	MCFD-1573-01.01	SA	Category C	RV	Yes	3			1KC-972 - Relief Valve Test (CIs to Opn)	Test relief valve per Appendix I schedule
2KC-1A	MCFD-2573-01.00	MR	Category B	BF	Yes	3			2KC-1A - Stroke Time (Opn to CIs)	Tested once quarterly
									2KC-1A - Position Indicator (Open and Closed)	Tested once every two years
2KC-2B	MCFD-2573-01.00	MR	Category B	BF	Yes	3			2KC-2B - Stroke Time (Opn to CIs)	Tested once quarterly
									2KC-2B - Position Indicator (Open and Closed)	Tested once every two years
2KC-3A	MCFD-2573-01.00	MR	Category B	GA	Yes	3			2KC-3A - Stroke Time (Opn to CIs)	Tested once quarterly

## MCGUIRE NUCLEAR STATION

### KC - COMPONENT COOLING SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									2KC-3A - Position Indicator (Open and Closed)	Tested once every two years
2KC-5	MCFD-2573-01.00	SA	Category C	SW	Yes	3			2KC-5 - Exercise (Both)	Condition Monitoring
2KC-8	MCFD-2573-01.00	SA	Category C	SW	Yes	3			2KC-8 - Exercise (Both)	Condition Monitoring
2KC-11	MCFD-2573-01.00	SA	Category C	SW	Yes	3			2KC-11 - Exercise (Both)	Condition Monitoring
2KC-14	MCFD-2573-01.00	SA	Category C	SW	Yes	3			2KC-14 - Exercise (Both)	Condition Monitoring
2KC-18B	MCFD-2573-01.00	MR	Category B	GA	Yes	3			2KC-18B - Stroke Time (Opn to Cls)	Tested once quarterly
									2KC-18B - Position Indicator (Open and Closed)	Tested once every two years
2KC-47	MCFD-2573-04.00	SA	Category AC	LC	Yes	2			2KC-47 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2KC-47 - Exercise (Both)	Condition Monitoring
2KC-50A	MCFD-2573-01.00	MR	Category B	BF	Yes	3			2KC-50A - Stroke Time (Opn to Cls)	Tested once quarterly
									2KC-50A - Position Indicator (Open and Closed)	Tested once every two years
2KC-51A	MCFD-2573-01.00	MR	Category B	GA	Yes	3			2KC-51A - Stroke Time (Cls to Opn)	Tested once quarterly
									2KC-51A - Position Indicator (Open and Closed)	Tested once every two years
2KC-53B	MCFD-2573-01.00	MR	Category B	BF	Yes	3			2KC-53B - Stroke Time (Opn to Cls)	Tested once quarterly
									2KC-53B - Position Indicator (Open and Closed)	Tested once every two years
2KC-54B	MCFD-2573-01.00	MR	Category B	GA	Yes	3			2KC-54B - Stroke Time (Cls to Opn)	Tested once quarterly
									2KC-54B - Position Indicator (Open and Closed)	Tested once every two years
2KC-56A	MCFD-2573-01.01	MR	Category B	BF	Yes	3			2KC-56A - Stroke Time (Cls to Opn)	Tested once quarterly
									2KC-56A - Position Indicator (Open and Closed)	Tested once every two years
2KC-57A	MCFD-2573-01.01	AO	Category B	BF	Yes	3			2KC-57A - Stroke Time (Cls to Opn)	Tested once quarterly

# MCGUIRE NUCLEAR STATION

## KC - COMPONENT COOLING SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									2KC-57A - Position Indicator (Open and Closed)	Tested once every two years
2KC-81B	MCFD-2573-01.01	ML	Category B	BF	Yes	3			2KC-81B - Stroke Time (Cls to Opn)	Tested once quarterly
									2KC-81B - Position Indicator (Open and Closed)	Tested once every two years
2KC-82B	MCFD-2573-01.01	AO	Category B	BF	Yes	3			2KC-82B - Stroke Time (Cls to Opn)	Tested once quarterly
									2KC-82B - Position Indicator (Open and Closed)	Tested once every two years
2KC-123	MCFD-2573-01.01	SA	Category C	VB	Yes	3			2KC-123 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2KC-228B	MCFD-2573-01.00	MR	Category B	GA	Yes	3			2KC-228B - Stroke Time (Opn to Cls)	Tested once quarterly
									2KC-228B - Position Indicator (Open and Closed)	Tested once every two years
2KC-230A	MCFD-2573-01.00	MR	Category B	GA	Yes	3			2KC-230A - Stroke Time (Opn to Cls)	Tested once quarterly
									2KC-230A - Position Indicator (Open and Closed)	Tested once every two years
2KC-279	MCFD-2573-03.01	SA	Category AC	SW	Yes	2			2KC-279 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2KC-279 - Exercise (Both)	Condition Monitoring
2KC-280	MCFD-2573-03.01	SA	Category AC	LC	Yes	2			2KC-280 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2KC - 280 - Exercise (Both)	Condition Monitoring
2KC-281	MCFD-2573-03.01	SA	Category C	RV	Yes	3			2KC-281 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2KC-305B	MCFD-2573-03.01	MR	Category B	GA	Yes	2			2KC-305B - Stroke Time (Opn to Cls)	Tested once quarterly
									2KC-305B - Position Indicator (Open and Closed)	Tested once every two years
2KC-313	MCFD-2573-03.01	SA	Category C	RV	Yes	2			2KC-313 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2KC-315B	MCFD-2573-03.01	MR	Category B	GA	Yes	2			2KC-315B - Stroke Time (Opn to Cls)	Tested once quarterly

## MCGUIRE NUCLEAR STATION

### KC - COMPONENT COOLING SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									2KC-315B - Position Indicator (Open and Closed)	Tested once every two years
2KC-320A	MCFD-2573-03.01	AO	Category A	DP	Yes	2		MC-KC-04	2KC-320A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2KC-320A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2KC-320A - Position Indicator (Open and Closed)	Tested once every two years
2KC-322	MCFD-2573-03.01	SA	Category AC	SW	Yes	2			2KC-322 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2KC-322 - Exercise (Both)	Condition Monitoring
2KC-332B	MCFD-2573-03.01	AO	Category A	DP	Yes	2		MC-KC-03	2KC-332B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2KC-332B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2KC-332B - Position Indicator (Open and Closed)	Tested once every two years
2KC-333A	MCFD-2573-03.01	AO	Category A	DP	Yes	2		MC-KC-03	2KC-333A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2KC-333A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2KC-333A - Position Indicator (Open and Closed)	Tested once every two years
2KC-338B	MCFD-2573-03.01	ML	Category A	BF	Yes	2		MC-KC-02	2KC-338B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2KC-338B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2KC-338B - Position Indicator (Open and Closed)	Tested once every two years
2KC-340	MCFD-2573-03.01	SA	Category AC	SW	Yes	2			2KC-340 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2KC-340 - Exercise (Both)	Condition Monitoring
2KC-424B	MCFD-2573-03.01	ML	Category A	BF	Yes	2		MC-KC-01	2KC-424B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2KC-424B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2KC-424B - Position Indicator (Open and Closed)	Tested once every two years



## MCGUIRE NUCLEAR STATION

### KC - COMPONENT COOLING SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2KC-425A	MCFD-2573-03.01	ML	Category A	BF	Yes	2		MC-KC-01	2KC-425A - Stroke Time (Opn to CIs)	Tested at cold shutdown
									2KC-425A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2KC-425A - Position Indicator (Open and Closed)	Tested once every two years
2KC-429B	MCFD-2573-04.00	MR	Category A	GL	Yes	2			2KC-429B - Stroke Time (Opn to CIs)	Tested once quarterly
									2KC-429B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2KC-429B - Position Indicator (Open and Closed)	Tested once every two years
2KC-430A	MCFD-2573-04.00	MR	Category A	GL	Yes	2			2KC-430A - Stroke Time (Opn to CIs)	Tested once quarterly
									2KC-430A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2KC-430A - Position Indicator (Open and Closed)	Tested once every two years
2KC-972	MCFD-2573-01.01	SA	Category C	RV	Yes	3			2KC-972 - Relief Valve Test (CIs to Opn)	Test relief valve per Appendix I schedule

## MCGUIRE NUCLEAR STATION

### LD - D/G ENGINE LUBE OIL

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1LD-108A	MCFD-1609-02.00	MR	Category B	GA	Yes	3			1LD-108A - Stroke Time (Cls to Opn)	Tested once quarterly
									1LD-108A - Position Indicator (Open and Closed)	Tested once every two years
1LD-113B	MCFD-1609-02.01	MR	Category B	GA	Yes	3			1LD-113B - Stroke Time (Cls to Opn)	Tested once quarterly
									1LD-113B - Position Indicator (Open and Closed)	Tested once every two years
2LD-108A	MCFD-2609-02.00	MR	Category B	GA	Yes	3			2LD-108A - Stroke Time (Cls to Opn)	Tested once quarterly
									2LD-108A - Position Indicator (Open and Closed)	Tested once every two years
2LD-113B	MCFD-2609-02.01	MR	Category B	GA	Yes	3			2LD-113B - Stroke Time (Cls to Opn)	Tested once quarterly
									2LD-113B - Position Indicator (Open and Closed)	Tested once every two years

# MCGUIRE NUCLEAR STATION

## MI - MISCELLANEOUS STATION INST

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1MISV5580		SO	Category A	GL	Yes	2			1MISV5580 - Fast Acting Stroke Time (Opn to Cls)	Tested once quarterly
									1MISV5580 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1MISV5580 - Position Indicator (Open and Closed)	Tested once every two years
1MISV5581		SO	Category A	GL	Yes	2			1MISV5581 - Fast Acting Stroke Time (Opn to Cls)	Tested once quarterly
									1MISV5581 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1MISV5581 - Position Indicator (Open and Closed)	Tested once every two years
1MISV5582		SO	Category A	GL	Yes	2			1MISV5582 - Fast Acting Stroke Time (Opn to Cls)	Tested once quarterly
									1MISV5582 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1MISV5582 - Position Indicator (Open and Closed)	Tested once every two years
1MISV5583		SO	Category A	GL	Yes	2			1MISV5583 - Fast Acting Stroke Time (Opn to Cls)	Tested once quarterly
									1MISV5583 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1MISV5583 - Position Indicator (Open and Closed)	Tested once every two years
1MISV6870		SO	Category A		No	2			1MISV6870 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
1MISV6880		SO	Category A		No	2			1MISV6880 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
1MISV6890		SO	Category A		No	2			1MISV6890 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
1MISV6900		SO	Category A		No	2			1MISV6900 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
1MISV6910		SO	Category A		No	2			1MISV6910 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
1MISV6920		SO	Category A		No	2			1MISV6920 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
1MISV6930		SO	Category A		No	2			1MISV6930 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
1MISV6940		SO	Category A		No	2			1MISV6940 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B

# MCGUIRE NUCLEAR STATION

## MI - MISCELLANEOUS STATION INST

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1MI-6980		MA	Category A	GL	No	2			1MI-6980 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
1MI-6990		MA	Category A	GL	No	2			1MI-6990 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
1MI-7000		MA	Category A	GL	No	2			1MI-7000 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
1MI-7010		MA	Category A	GL	No	2			1MI-7010 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
1MI-7020		MA	Category A	GL	No	2			1MI-7020 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
1MI-7030		MA	Category A	GL	No	2			1MI-7030 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
2MISV5580		SO	Category A	GL	Yes	2			2MISV5580 - Fast Acting Stroke Time (Opn to Cls)	Tested once quarterly
									2MISV5580 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2MISV5580 - Position Indicator (Open and Closed)	Tested once every two years
2MISV5581		SO	Category A	GL	Yes	2			2MISV5581 - Fast Acting Stroke Time (Opn to Cls)	Tested once quarterly
									2MISV5581 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2MISV5581 - Position Indicator (Open and Closed)	Tested once every two years
2MISV5582		SO	Category A	GL	Yes	2			2MISV5582 - Fast Acting Stroke Time (Opn to Cls)	Tested once quarterly
									2MISV5582 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2MISV5582 - Position Indicator (Open and Closed)	Tested once every two years
2MISV5583		SO	Category A	GL	Yes	2			2MISV5583 - Fast Acting Stroke Time (Opn to Cls)	Tested once quarterly
									2MISV5583 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2MISV5583 - Position Indicator (Open and Closed)	Tested once every two years
2MISV6870		SO	Category A		No	2			2MISV6870 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
2MISV6880		SO	Category A		No	2			2MISV6880 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B

# MCGUIRE NUCLEAR STATION

## MI - MISCELLANEOUS STATION INST

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2MISV6890		SO	Category A		No	2			2MISV6890 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
2MISV6900		SO	Category A		No	2			2MISV6900 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
2MISV6910		SO	Category A		No	2			2MISV6910 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
2MISV6920		SO	Category A		No	2			2MISV6920 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
2MISV6930		SO	Category A		No	2			2MISV6930 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
2MISV6940		SO	Category A		No	2			2MISV6940 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
2MI-6980		MA	Category A	GL	No	2			2MI-6980 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
2MI-6990		MA	Category A	GL	No	2			2MI-6990 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
2MI-7000		MA	Category A	GL	No	2			2MI-7000 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
2MI-7010		MA	Category A	GL	No	2			2MI-7010 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
2MI-7020		MA	Category A	GL	No	2			2MI-7020 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
2MI-7030		MA	Category A	GL	No	2			2MI-7030 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B

# MCGUIRE NUCLEAR STATION

## NB - BORON RECYCLE SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	A5ME Class	Relief Request	JOD	Test Plan	Frequency
1NB-103	MCFD-1556-01.01	SA	Category C	SW	Yes	3			1NB-103 - Exercise (Both)	Condition Monitoring
1NB-260B	MCFD-1556-03.00	MR	Category A	GL	No	2			1NB-260B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
1NB-262	MCFD-1556-03.00	SA	Category A	LC	Yes	2			1NB-262 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1NB-262 - Exercise (Both)	Condition Monitoring
2NB-260B	MCFD-2556-03.00	MR	Category A	GL	No	2			2NB-260B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
2NB-262	MCFD-2556-03.00	SA	Category A	LC	Yes	2			2NB-262 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2NB-262 - Exercise (Both)	Condition Monitoring

# MCGUIRE NUCLEAR STATION

## NC - REACTOR COOLANT SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1NC-1	MCFD-1553-02.00	SA	Category C	RV	Yes	1			1NC-1 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1NC-2	MCFD-1553-02.00	SA	Category C	RV	Yes	1			1NC-2 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1NC-3	MCFD-1553-02.00	SA	Category C	RV	Yes	1			1NC-3 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1NC-31B	MCFD-1553-02.00	MR	Category B	GA	Yes	1		MC-NC-06	1NC-31B - Stroke Time (Opn to CIs)	Tested once quarterly
									1NC-31B - Position Indicator (Open and Closed)	Tested once every two years
									1NC-31B - Stroke Time (Closed to Open)	Tested once quarterly
1NC-32B	MCFD-1553-02.00	AO	Category B	GL	Yes	1		MC-NC-01	1NC-32B - Fast Acting Stroke Time (Closed to Open)	CSD, hot tested prior to LTOP
									1NC-32B - Fast Acting Stroke Time (Closed to Open)	Tested at cold shutdown
									1NC-32B - Fast Acting Stroke Time (Open to Closed)	CSD, hot tested prior to LTOP
									1NC-32B - Fast Acting Stroke Time (Open to Closed)	Tested at cold shutdown
									1NC-32B - Position Indicator (Open and Closed)	Tested once every two years
1NC-33A	MCFD-1553-02.00	MR	Category B	GA	Yes	1		MC-NC-06	1NC-33A - Stroke Time (Opn to CIs)	Tested once quarterly
									1NC-33A - Position Indicator (Open and Closed)	Tested once every two years
									1NC-33A - Stroke Time (Closed to Open)	Tested once quarterly
1NC-34A	MCFD-1553-02.00	AO	Category B	GL	Yes	1		MC-NC-01	1NC-34A - Fast Acting Stroke Time (Closed to Open)	Tested at cold shutdown
									1NC-34A - Fast Acting Stroke Time (Closed to Open)	CSD, hot tested prior to LTOP

## MCGUIRE NUCLEAR STATION

### NC - REACTOR COOLANT SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									1NC-34A - Fast Acting Stroke Time (Open to Closed)	Tested at cold shutdown
									1NC-34A - Fast Acting Stroke Time (Open to Closed)	CSD, hot tested prior to LTOP
									1NC-34A - Position Indicator (Open and Closed)	Tested once every two years
1NC-35B	MCFD-1553-02.00	MR	Category B	GA	Yes	1		MC-NC-06	1NC-35B - Stroke Time (Opn to Cls)	Tested once quarterly
									1NC-35B - Position Indicator (Open and Closed)	Tested once every two years
									1NC-35B - Stroke Time (Closed to Open)	Tested once quarterly
1NC-36B	MCFD-1553-02.00	AO	Category B	GL	Yes	1		MC-NC-01	1NC-36B - Fast Acting Stroke Time (Closed to Open)	CSD, hot tested prior to LTOP
									1NC-36B - Fast Acting Stroke Time (Closed to Open)	Tested at cold shutdown
									1NC-36B - Fast Acting Stroke Time (Open to Closed)	CSD, hot tested prior to LTOP
									1NC-36B - Fast Acting Stroke Time (Open to Closed)	Tested at cold shutdown
									1NC-36B - Position Indicator (Open and Closed)	Tested once every two years
1NC-53B	MCFD-1553-02.01	MR	Category A	GL	Yes	2			1NC-53B - Stroke Time (Opn to Cls)	Tested once quarterly
									1NC-53B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1NC-53B - Position Indicator (Open and Closed)	Tested once every two years
1NC-54A	MCFD-1553-02.01	MR	Category A	GL	Yes	2			1NC-54A - Stroke Time (Opn to Cls)	Tested once quarterly
									1NC-54A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B



# MCGUIRE NUCLEAR STATION

## NC - REACTOR COOLANT SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									1NC-54A - Position Indicator (Open and Closed)	Tested once every two years
1NC-56B	MCFD-1553-02.01	MR	Category A	GA	Yes	2			1NC-56B - Stroke Time (Opn to Cls)	Tested once quarterly
									1NC-56B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1NC-56B - Position Indicator (Open and Closed)	Tested once every two years
1NC-57	MCFD-1553-02.01	SA	Category AC	SW	Yes	2			1NC-57 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1NC-57 - Exercise (Both)	Condition Monitoring
1NC-59	MCFD-1553-02.01	SA	Category C	SW	Yes	2			1NC-59 - Exercise (Both)	Condition Monitoring
1NC-141	MCFD-1553-04.00	MA	Category A	DP	No	2			1NC-141 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
1NC-142	MCFD-1553-04.00	MA	Category A	DP	No	2			1NC-142 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
1NC-195B	MCFD-1553-04.00	MR	Category A	GL	No	2			1NC-195B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
1NC-196A	MCFD-1553-04.00	MR	Category A	GL	No	2			1NC-196A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
1NC-259	MCFD-1553-04.00	SA	Category AC	SW	Yes	2			1NC-259 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1NC-259 - Exercise (Both)	Condition Monitoring
1NC-261	MCFD-1553-04.00	SA	Category AC	SW	Yes	2			1NC-261 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1NC-261 - Exercise (Both)	Condition Monitoring
1NC-272AC	MCFD-1553-02.01	SO	Category B	GL	Yes	1		MC-NC-02	1NC-272AC Fast Acting Stroke Time (Closed to Open)	Tested at cold shutdown
									1NC-272AC - Position Indicator (Open and Closed)	Tested once every two years
									1NC-272AC Fast Acting Stroke Time (Open to Closed)	Tested at cold shutdown

# MCGUIRE NUCLEAR STATION

## NC - REACTOR COOLANT SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1NC-273AC	MCFD-1553-02.01	SO	Category B	GL	Yes	1		MC-NC-02	1NC-273AC Fast Acting Stroke Time (Closed to Open)	Tested at cold shutdown
									1NC-273AC - Position Indicator (Open and Closed)	Tested once every two years
									1NC-273AC Fast Acting Stroke Time (Open to Closed)	Tested at cold shutdown
1NC-274B	MCFD-1553-02.01	SO	Category B	GL	Yes	1		MC-NC-02	1NC-274B Fast Acting Stroke Time (Closed to Open)	Tested at cold shutdown
									1NC-274B - Position Indicator (Open and Closed)	Tested once every two years
									1NC-274B Fast Acting Stroke Time (Open to Closed)	Tested at cold shutdown
1NC-275B	MCFD-1553-02.01	SO	Category B	GL	Yes	1		MC-NC-02	1NC-275B Fast Acting Stroke Time (Closed to Open)	Tested at cold shutdown
									1NC-275B - Position Indicator (Open and Closed)	Tested once every two years
									1NC-275B Fast Acting Stroke Time (Open to Closed)	Tested at cold shutdown
1NC-284	MCFD-1553-02.01	SA	Category C	SW	Yes	NA			1NC-284 - Exercise (Both)	Condition Monitoring
2NC-1	MCFD-2553-02.00	SA	Category C	RV	Yes	1			2NC-1 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2NC-2	MCFD-2553-02.00	SA	Category C	RV	Yes	1			2NC-2 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2NC-3	MCFD-2553-02.00	SA	Category C	RV	Yes	1			2NC-3 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2NC-31B	MCFD-2553-02.00	MR	Category B	GA	Yes	1		MC-NC-06	2NC-31B - Stroke Time (Opn to Cls)	Tested once quarterly
									2NC-31B - Position Indicator (Open and Closed)	Tested once every two years
									2NC-31B - Stroke Time (Closed to Open)	Tested once quarterly

# MCGUIRE NUCLEAR STATION

## NC - REACTOR COOLANT SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2NC-32B	MCFD-2553-02.00	AO	Category B	GL	Yes	1		MC-NC-01	2NC-32B - Fast Acting Stroke Time (Closed to Open)	CSD, hot tested prior to LTOP
									2NC-32B - Fast Acting Stroke Time (Closed to Open)	Tested at cold shutdown
									2NC-32B - Fast Acting Stroke Time (Open to Closed)	CSD, hot tested prior to LTOP
									2NC-32B - Fast Acting Stroke Time (Open to Closed)	Tested at cold shutdown
									2NC-32B - Position Indicator (Open and Closed)	Tested once every two years
2NC-33A	MCFD-2553-02.00	MR	Category B	GA	Yes	1		MC-NC-06	2NC-33A - Stroke Time (Opn to Cls)	Tested once quarterly
									2NC-33A - Position Indicator (Open and Closed)	Tested once every two years
									2NC-33A - Stroke Time (Closed to Open)	Tested once quarterly
2NC-34A	MCFD-2553-02.00	AO	Category B	GL	Yes	1		MC-NC-01	2NC-34A - Fast Acting Stroke Time (Closed to Open)	Tested at cold shutdown
									2NC-34A - Fast Acting Stroke Time (Closed to Open)	CSD, hot tested prior to LTOP
									2NC-34A - Fast Acting Stroke Time (Open to Closed)	Tested at cold shutdown
									2NC-34A - Fast Acting Stroke Time (Open to Closed)	CSD, hot tested prior to LTOP
									2NC-34A - Position Indicator (Open and Closed)	Tested once every two years
2NC-35B	MCFD-2553-02.00	MR	Category B	GA	Yes	1		MC-NC-06	2NC-35B - Stroke Time (Opn to Cls)	Tested once quarterly
									2NC-35B - Position Indicator (Open and Closed)	Tested once every two years
									2NC-35B - Stroke Time (Closed to Open)	Tested once quarterly

# MCGUIRE NUCLEAR STATION

## NC - REACTOR COOLANT SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2NC-36B	MCFD-2553-02.00	AO	Category B	GL	Yes	1		MC-NC-01	2NC-36B - Fast Acting Stroke Time (Closed to Open)	CSD, hot tested prior to LTOP
									2NC-36B - Fast Acting Stroke Time (Closed to Open)	Tested at cold shutdown
									2NC-36B - Fast Acting Stroke Time (Open to Closed)	CSD, hot tested prior to LTOP
									2NC-36B - Fast Acting Stroke Time (Open to Closed)	Tested at cold shutdown
									2NC-36B - Position Indicator (Open and Closed)	Tested once every two years
2NC-53B	MCFD-2553-02.01	ML	Category A	GL	Yes	2			2NC-53B - Stroke Time (Opn to Cls)	Tested once quarterly
									2NC-53B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2NC-53B - Position Indicator (Open and Closed)	Tested once every two years
2NC-54A	MCFD-2553-02.01	MR	Category A	GL	Yes	2			2NC-54A - Stroke Time (Opn to Cls)	Tested once quarterly
									2NC-54A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2NC-54A - Position Indicator (Open and Closed)	Tested once every two years
2NC-56B	MCFD-2553-02.01	AO	Category A	DP	Yes	2			2NC-56B - Stroke Time (Opn to Cls)	Tested once quarterly
									2NC-56B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2NC-56B - Position Indicator (Open and Closed)	Tested once every two years
2NC-57	MCFD-2553-02.01	SA	Category AC	SW	Yes	2			2NC-57 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2NC-57 - Exercise (Both)	Condition Monitoring
2NC-59	MCFD-2553-02.01	SA	Category C	SW	Yes	2			2NC-59 - Exercise (Both)	Condition Monitoring

# MCGUIRE NUCLEAR STATION

## NC - REACTOR COOLANT SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2NC-141	MCFD-2553-04.00	MA	Category A	DP	No	2			2NC-141 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
2NC-142	MCFD-2553-04.00	MA	Category A	DP	No	2			2NC-142 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
2NC-195B	MCFD-2553-04.00	ML	Category A	GL	No	2			2NC-195B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
2NC-196A	MCFD-2553-04.00	ML	Category A	GL	No	2			2NC-196A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
2NC-259	MCFD-2553-04.00	SA	Category AC	SW	Yes	2			2NC-259 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2NC-259 - Exercise (Both)	Condition Monitoring
2NC-261	MCFD-2553-04.00	SA	Category AC	SW	Yes	2			2NC-261 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2NC-261 - Exercise (Both)	Condition Monitoring
2NC-272AC	MCFD-2553-02.01	SO	Category B	GL	Yes	1		MC-NC-02	2NC-272AC Fast Acting Stroke Time (Closed to Open)	Tested at cold shutdown
									2NC-272AC - Position Indicator (Open and Closed)	Tested once every two years
									2NC-272AC Fast Acting Stroke Time (Open to Closed)	Tested at cold shutdown
2NC-273AC	MCFD-2553-02.01	SO	Category B	GL	Yes	1		MC-NC-02	2NC-273AC Fast Acting Stroke Time (Closed to Open)	Tested at cold shutdown
									2NC-273AC - Position Indicator (Open and Closed)	Tested once every two years
									2NC-273AC Fast Acting Stroke Time (Open to Closed)	Tested at cold shutdown
2NC-274B	MCFD-2553-02.00	SO	Category B	GL	Yes	1		MC-NC-02	2NC-274B Fast Acting Stroke Time (Closed to Open)	Tested at cold shutdown

# MCGUIRE NUCLEAR STATION

## NC - REACTOR COOLANT SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									2NC-274B - Position Indicator (Open and Closed)	Tested once every two years
									2NC-274B Fast Acting Stroke Time (Open to Closed)	Tested at cold shutdown
2NC-275B	MCFD-2553-02.00	SO	Category B	GL	Yes	1		MC-NC-02	2NC-275B Fast Acting Stroke Time (Closed to Open)	Tested at cold shutdown
									2NC-275B - Position Indicator (Open and Closed)	Tested once every two years
									2NC-275B Fast Acting Stroke Time (Open to Closed)	Tested at cold shutdown

# MCGUIRE NUCLEAR STATION

## ND - RESIDUAL HEAT REMOVAL

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1ND-1B	MCFD-1561-01.00	MR	Category A	GA	Yes	1		MC-ND-01	1ND-1B - Leak Test Non-Appendix J	Per Tech Spec
									1ND-1B - Stroke Time (Open to Closed)	Tested at cold shutdown
									1ND-1B - Stroke Time (Closed to Open)	Tested at cold shutdown
									1ND-1B - Position Indicator (Open and Closed)	Tested once every two years
1ND-2AC	MCFD-1561-01.00	MR	Category A	GA	Yes	1		MC-ND-01	1ND-2AC - Leak Test Non-Appendix J	Per Tech Spec
									1ND-2AC - Stroke Time (Open to Closed)	Tested at cold shutdown
									1ND-2AC - Stroke Time (Closed to Open)	Tested at cold shutdown
									1ND-2AC - Position Indicator (Open and Closed)	Tested once every two years
1ND-3	MCFD-1561-01.00	SA	Category C	RV	Yes	2			1ND-3 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1ND-4B	MCFD-1561-01.00	MR	Category B	GA	Yes	2		MC-ND-07	1ND-4B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1ND-4B - Position Indicator (Open and Closed)	Tested once every two years
									1ND-4B - Stroke Time (Cls to Open)	Tested at cold shutdown
1ND-8	MCFD-1561-01.00	SA	Category C	SW	Yes	2			1ND-8 - Exercise (Both)	Condition Monitoring
1ND-14	MCFD-1561-01.00	AO	Category B	BF	Yes	2			1ND-14 - Stroke Time (Cls to Opn)	Tested once quarterly
									1ND-14 - Position Indicator (Open and Closed)	Tested once every two years
1ND-15B	MCFD-1561-01.00	MR	Category B	GA	Yes	2		MC-ND-03	1ND-15B - Stroke Time (Open to Closed)	Tested at cold shutdown
									1ND-15B - Stroke Time (Closed to Open)	Tested at cold shutdown
									1ND-15B - Position Indicator (Open and Closed)	Tested once every two years
1ND-19A	MCFD-1561-01.00	MR	Category B	GA	Yes	2		MC-ND-07	1ND-19A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1ND-19A - Position Indicator (Open and Closed)	Tested once every two years

# MCGUIRE NUCLEAR STATION

## ND - RESIDUAL HEAT REMOVAL

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									1ND-19A - Stroke Time (Cls to Open)	Tested at cold shutdown
1ND-23	MCFD-1561-01.00	SA	Category C	SW	Yes	2			1ND-23 - Exercise (Both)	Condition Monitoring
1ND-29	MCFD-1561-01.00	AO	Category B	BF	Yes	2			1ND-29 - Stroke Time (Cls to Opn)	Tested once quarterly
									1ND-29 - Position Indicator (Open and Closed)	Tested once every two years
1ND-30A	MCFD-1561-01.00	MR	Category B	GA	Yes	2		MC-ND-03	1ND-30A - Stroke Time (Open to Closed)	Tested at cold shutdown
									1ND-30A - Stroke Time (Closed to Open)	Tested at cold shutdown
									1ND-30A - Position Indicator (Open and Closed)	Tested once every two years
1ND-56	MCFD-1561-01.00	SA	Category C	RV	Yes	2			1ND-56 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1ND-58A	MCFD-1561-01.00	MR	Category B	GA	Yes	2		MC-ND-02	1ND-58A - Stroke Time (Cls to Opn)	Tested at cold shutdown
									1ND-58A - Position Indicator (Open and Closed)	Tested once every two years
									1ND-58A - Stroke Time (Open to Closed)	Tested at cold shutdown
1ND-61	MCFD-1561-01.00	SA	Category C	RV	Yes	2			1ND-61 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1ND-64	MCFD-1561-01.00	SA	Category C	RV	Yes	2			1ND-64 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1ND-67B	MCFD-1561-01.00	MR	Category B	GL	Yes	2			1ND-67B - Stroke Time (Open to Closed)	Tested once quarterly
									1ND-67B - Stroke Time (Closed to Open)	Tested once quarterly
									1ND-67B - Position Indicator (Open and Closed)	Tested once every two years
1ND-68A	MCFD-1561-01.00	MR	Category B	GL	Yes	2			1ND-68A - Stroke Time (Open to Closed)	Tested once quarterly
									1ND-68A - Stroke Time (Closed to Open)	Tested once quarterly
									1ND-68A - Position Indicator (Open and Closed)	Tested once every two years



# MCGUIRE NUCLEAR STATION

## ND - RESIDUAL HEAT REMOVAL

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1ND-70	MCFD-1561-01.00	SA	Category C	SW	Yes	2			1ND-70 - Exercise (Both)	Condition Monitoring
1ND-71	MCFD-1561-01.00	SA	Category C	SW	Yes	2			1ND-71 - Exercise (Both)	Condition Monitoring
1ND-120	MCFD-1561-01.00	SA	Category C	RV	Yes	2			1ND-120 - Relief Valve Test (Closed to Open)	Test relief valve per Appendix I schedule
2ND-1B	MCFD-2561-01.00	MR	Category A	GA	Yes	1		MC-ND-01	2ND-1B - Leak Test Non-Appendix J	Per Tech Spec
									2ND-1B - Stroke Time (Open to Closed)	Tested at cold shutdown
									2ND-1B - Stroke Time (Closed to Open)	Tested at cold shutdown
									2ND-1B - Position Indicator (Open and Closed)	Tested once every two years
2ND-2AC	MCFD-2561-01.00	MR	Category A	GA	Yes	1		MC-ND-01	2ND-2AC - Leak Test Non-Appendix J	Per Tech Spec
									2ND-2AC - Stroke Time (Open to Closed)	Tested at cold shutdown
									2ND-2AC - Stroke Time (Closed to Open)	Tested at cold shutdown
									2ND-2AC - Position Indicator (Open and Closed)	Tested once every two years
2ND-3	MCFD-2561-01.00	SA	Category C	RV	Yes	2			2ND-3 - Relief Valve Test (CIs to Opn)	Test relief valve per Appendix I schedule
2ND-4B	MCFD-2561-01.00	MR	Category B	GA	Yes	2		MC-ND-07	2ND-4B - Stroke Time (Opn to CIs)	Tested at cold shutdown
									2ND-4B - Position Indicator (Open and Closed)	Tested once every two years
									2ND-4B - Stroke Time (CIs to Open)	Tested at cold shutdown
2ND-8	MCFD-2561-01.00	SA	Category C	SW	Yes	2			2ND-8 - Exercise (Both)	Condition Monitoring
2ND-14	MCFD-2561-01.00	AO	Category B	BF	Yes	2			2ND-14 - Stroke Time (CIs to Opn)	Tested once quarterly
									2ND-14 - Position Indicator (Open and Closed)	Tested once every two years
2ND-15B	MCFD-2561-01.00	MR	Category B	GA	Yes	2		MC-ND-03	2ND-15B - Stroke Time (Open to Closed)	Tested at cold shutdown

# MCGUIRE NUCLEAR STATION

## ND - RESIDUAL HEAT REMOVAL

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									2ND-15B - Stroke Time (Closed to Open)	Tested at cold shutdown
									2ND-15B - Position Indicator (Open and Closed)	Tested once every two years
2ND-19A	MCFD-2561-01.00	MR	Category B	GA	Yes	2		MC-ND-07	2ND-19A - Stroke Time (Opn to CIs)	Tested at cold shutdown
									2ND-19A - Position Indicator (Open and Closed)	Tested once every two years
									2ND-19A - Stroke Time (CIs to Open)	Tested at cold shutdown
2ND-23	MCFD-2561-01.00	SA	Category C	SW	Yes	2			2ND-23 - Exercise (Both)	Condition Monitoring
2ND-29	MCFD-2561-01.00	AO	Category B	BF	Yes	2			2ND-29 - Stroke Time (CIs to Opn)	Tested once quarterly
									2ND-29 - Position Indicator (Open and Closed)	Tested once every two years
2ND-30A	MCFD-2561-01.00	MR	Category B	GA	Yes	2		MC-ND-03	2ND-30A - Stroke Time (Open to Closed)	Tested at cold shutdown
									2ND-30A - Stroke Time (Closed to Open)	Tested at cold shutdown
									2ND-30A - Position Indicator (Open and Closed)	Tested once every two years
2ND-56	MCFD-2561-01.00	SA	Category C	RV	Yes	2			2ND-56 - Relief Valve Test (CIs to Opn)	Test relief valve per Appendix I schedule
2ND-58A	MCFD-2561-01.00	MR	Category B	GA	Yes	2		MC-ND-02	2ND-58A - Stroke Time (CIs to Opn)	Tested at cold shutdown
									2ND-58A - Position Indicator (Open and Closed)	Tested once every two years
									2ND-58A - Stroke Time (Open to Closed)	Tested at cold shutdown
2ND-61	MCFD-2561-01.00	SA	Category C	RV	Yes	2			2ND-61 - Relief Valve Test (CIs to Opn)	Test relief valve per Appendix I schedule
2ND-64	MCFD-2561-01.00	SA	Category C	RV	Yes	2			2ND-64 - Relief Valve Test (CIs to Opn)	Test relief valve per Appendix I schedule
2ND-67B	MCFD-2561-01.00	MR	Category B	GL	Yes	2			2ND-67B - Stroke Time (Open to Closed)	Tested once quarterly
									2ND-67B - Stroke Time (Closed to Open)	Tested once quarterly

## MCGUIRE NUCLEAR STATION

### ND - RESIDUAL HEAT REMOVAL

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									2ND-67B - Position Indicator (Open and Closed)	Tested once every two years
2ND-68A	MCFD-2561-01.00	MR	Category B	GL	Yes	2			2ND-68A - Stroke Time (Open to Closed)	Tested once quarterly
									2ND-68A - Stroke Time (Closed to Open)	Tested once quarterly
									2ND-68A - Position Indicator (Open and Closed)	Tested once every two years
2ND-70	MCFD-2561-01.00	SA	Category C	SW	Yes	2			2ND-70 - Exercise (Both)	Condition Monitoring
2ND-71	MCFD-2561-01.00	SA	Category C	SW	Yes	2			2ND-71 - Exercise (Both)	Condition Monitoring
2ND-120	MCFD-2561-01.00	SA	Category C	RV	Yes	2			2ND-120 - Relief Valve Test (Closed to Open)	Test relief valve per Appendix I schedule

## MCGUIRE NUCLEAR STATION

### NF - ICE CONDENSER REFRIGERATION

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1NF-228A	MCFD-1558-04.00	AO	Category A	DP	Yes	2		MC-NF-02	1NF-228A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1NF-228A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1NF-228A - Position Indicator (Open and Closed)	Tested once every two years
1NF-229	MCFD-1558-04.00	SA	Category AC	SW	Yes	2			1NF-229 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1NF-229 - Exercise (Both)	Condition Monitoring
1NF-233B	MCFD-1558-04.00	AO	Category A	DP	Yes	2		MC-NF-02	1NF-233B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1NF-233B - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
									1NF-233B - Position Indicator (Open and Closed)	Tested once every two years
1NF-234A	MCFD-1558-04.00	AO	Category A	DP	Yes	2		MC-NF-02	1NF-234A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1NF-234A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1NF-234A - Position Indicator (Open and Closed)	Tested once every two years
1NF-1460	MCFD-1558-04.00	SA	Category C	RV	Yes	2			1NF-1460 - Relief Valve Test (Closed to Open)	Test relief valve per Appendix I schedule
1NF-1462	MCFD-1558-01.01	SA	Category C	RV	Yes	2			1NF-1462 - Relief Valve Test (Closed to Open)	Test relief valve per Appendix I schedule
1NF-1464	MCFD-1558-04.00	SA	Category AC	LC	Yes	2			1NF-1464 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1NF-1464 - Exercise (Both)	Condition Monitoring
2NF-228A	MCFD-2558-04.00	AO	Category A	DP	Yes	2		MC-NF-02	2NF-228A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2NF-228A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2NF-228A - Position Indicator (Open and Closed)	Tested once every two years
2NF-229	MCFD-2558-04.00	SA	Category AC	SW	Yes	2			2NF-229 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B

# MCGUIRE NUCLEAR STATION

## NF - ICE CONDENSER REFRIGERATION

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									2NF-229 - Exercise (Both)	Condition Monitoring
2NF-233B	MCFD-2558-04.00	AO	Category A	DP	Yes	2		MC-NF-02	2NF-233B - Stroke Time (Opn to CIs)	Tested at cold shutdown
									2NF-233B - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
									2NF-233B - Position Indicator (Open and Closed)	Tested once every two years
2NF-234A	MCFD-2558-04.00	AO	Category A	DP	Yes	2		MC-NF-02	2NF-234A - Stroke Time (Opn to CIs)	Tested at cold shutdown
									2NF-234A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2NF-234A - Position Indicator (Open and Closed)	Tested once every two years
2NF-1464	MCFD-2558-04.00	SA	Category AC	LC	Yes	2			2NF-1464 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2NF-1464 - Exercise (Both)	Condition Monitoring

# MCGUIRE NUCLEAR STATION

## NI - SAFETY INJECTION SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1NI-9A	MCFD-1562-01.00	MR	Category B	GA	Yes	2		MC-NI-01	1NI-9A - Stroke Time (Cls to Opn)	Tested at cold shutdown
									1NI-9A - Position Indicator (Open and Closed)	Tested once every two years
									1NI-9A - Stroke Time (Open to Closed)	Tested at cold shutdown
1NI-10B	MCFD-1562-01.00	MR	Category B	GA	Yes	2		MC-NI-01	1NI-10B - Stroke Time (Cls to Opn)	Tested at cold shutdown
									1NI-10B - Position Indicator (Open and Closed)	Tested once every two years
									1NI-10B - Stroke Time (Open to Closed)	Tested at cold shutdown
1NI-12	MCFD-1562-01.00	SA	Category C	SW	Yes	2			1NI-12 - Exercise (Both)	Condition Monitoring
1NI-15	MCFD-1562-01.00	SA	Category C	LC	Yes	1			1NI-15 - Exercise (Both)	Condition Monitoring
1NI-17	MCFD-1562-01.00	SA	Category C	LC	Yes	1			1NI-17 - Exercise (Both)	Condition Monitoring
1NI-19	MCFD-1562-01.00	SA	Category C	LC	Yes	1			1NI-19 - Exercise (Both)	Condition Monitoring
1NI-21	MCFD-1562-01.00	SA	Category C	LC	Yes	1			1NI-21 - Exercise (Both)	Condition Monitoring
1NI-47A	MCFD-1562-02.00	MR	Category A	GL	Yes	2			1NI-47A - Stroke Time (Opn to Cls)	Tested once quarterly
									1NI-47A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1NI-47A - Position Indicator (Open and Closed)	Tested once every two years
1NI-48	MCFD-1562-02.00	SA	Category AC	LC	Yes	2			1NI-48 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1NI-48 - Exercise (Both)	Condition Monitoring
1NI-52	MCFD-1562-02.00	SA	Category C	RV	Yes	2			1NI-52 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1NI-59	MCFD-1562-02.00	SA	Category AC	SW	Yes	1			1NI-59 - Leak Test Non-Appendix J	Per Tech Spec
									1NI-59 - Exercise (Both)	Condition Monitoring
1NI-60	MCFD-1562-02.00	SA	Category AC	SW	Yes	1			1NI-60 - Leak Test Non-Appendix J	Per Tech Spec

# MCGUIRE NUCLEAR STATION

## NI - SAFETY INJECTION SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									1NI-60 - Exercise (Both)	Condition Monitoring
1NI-63	MCFD-1562-02.00	SA	Category C	RV	Yes	2			1NI-63 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1NI-70	MCFD-1562-02.00	SA	Category AC	SW	Yes	1			1NI-70 - Leak Test Non-Appendix J	Per Tech Spec
									1NI-70 - Exercise (Both)	Condition Monitoring
1NI-71	MCFD-1562-02.00	SA	Category AC	SW	Yes	1			1NI-71 - Leak Test Non-Appendix J	Per Tech Spec
									1NI-71 - Exercise (Both)	Condition Monitoring
1NI-74	MCFD-1562-02.01	SA	Category C	RV	Yes	2			1NI-74 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1NI-81	MCFD-1562-02.01	SA	Category AC	SW	Yes	1			1NI-81 - Leak Test Non-Appendix J	Per Tech Spec
									1NI-81 - Exercise (Both)	Condition Monitoring
1NI-82	MCFD-1562-02.01	SA	Category AC	SW	Yes	1			1NI-82 - Leak Test Non-Appendix J	Per Tech Spec
									1NI-82 - Exercise (Both)	Condition Monitoring
1NI-86	MCFD-1562-02.01	SA	Category C	RV	Yes	2			1NI-86 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1NI-93	MCFD-1562-02.01	SA	Category AC	SW	Yes	1			1NI-93 - Leak Test Non-Appendix J	Per Tech Spec
									1NI-93 - Exercise (Both)	Condition Monitoring
1NI-94	MCFD-1562-02.01	SA	Category AC	SW	Yes	1			1NI-94 - Leak Test Non-Appendix J	Per Tech Spec
									1NI-94 - Exercise (Both)	Condition Monitoring
1NI-95A	MCFD-1562-02.01	MR	Category A	GL	Yes	2			1NI-95A - Stroke Time (Opn to Cls)	Tested once quarterly
									1NI-95A - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
									1NI-95A - Position Indicator (Open and Closed)	Tested once every two years

# MCGUIRE NUCLEAR STATION

## NI - SAFETY INJECTION SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1NI-96B	MCFD-1562-02.01	MR	Category A	GL	Yes	2			1NI-96B - Stroke Time (Opn to Cls)	Tested once quarterly
									1NI-96B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1NI-96B - Position Indicator (Open and Closed)	Tested once every two years
1NI-100B	MCFD-1562-03.00	MR	Category B	GA	Yes	2		MC-NI-02	1NI-100B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1NI-100B - Position Indicator (Open and Closed)	Tested once every two years
1NI-101	MCFD-1562-03.00	SA	Category C	SW	Yes	2			1NI-101 - Exercise (Both)	Condition Monitoring
1NI-102	MCFD-1562-03.00	SA	Category C	RV	Yes	2			1NI-102 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1NI-103A	MCFD-1562-03.00	MR	Category B	GA	Yes	2		MC-NI-06	1NI-103A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1NI-103A - Position Indicator (Open and Closed)	Tested once every two years
1NI-114	MCFD-1562-03.00	SA	Category C	LC	Yes	2			1NI-114 - Exercise (Both)	Condition Monitoring
1NI-115B	MCFD-1562-03.00	MR	Category B	GL	Yes	2		MC-NI-03	1NI-115B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1NI-115B - Position Indicator (Open and Closed)	Tested once every two years
1NI-116	MCFD-1562-03.00	SA	Category C	SW	Yes	2			1NI-116 - Exercise (Both)	Condition Monitoring
1NI-118A	MCFD-1562-03.00	MR	Category B	GA	Yes	2			1NI-118A - Stroke Time (Opn to Cls)	Tested once quarterly
									1NI-118A - Position Indicator (Open and Closed)	Tested once every two years
1NI-119	MCFD-1562-03.00	SA	Category C	RV	Yes	2			1NI-119 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1NI-120B	MCFD-1562-03.00	MR	Category A	GL	Yes	2			1NI-120B - Stroke Time (Opn to Cls)	Tested once quarterly
									1NI-120B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1NI-120B - Position Indicator (Open and Closed)	Tested once every two years



# MCGUIRE NUCLEAR STATION

## NI - SAFETY INJECTION SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1NI-121A	MCFD-1562-03.00	MR	Category B	GA	Yes	2		MC-NI-04	1NI-121A - Stroke Time (Cls to Opn)	Tested at cold shutdown
									1NI-121A - Position Indicator (Open and Closed)	Tested once every two years
									1NI-121A - Stroke Time (Open to Closed)	Tested at cold shutdown
1NI-124	MCFD-1562-03.00	SA	Category AC	LC	Yes	1			1NI-124 - Leak Test Non-Appendix J	Per Tech Spec
									1NI-124 - Exercise (Both)	Condition Monitoring
1NI-125	MCFD-1562-03.00	SA	Category AC	SW	Yes	1			1NI-125 - Leak Test Non-Appendix J	Per Tech Spec
									1NI-125 - Exercise (Both)	Condition Monitoring
1NI-126	MCFD-1562-03.00	SA	Category AC	SW	Yes	1			1NI-126 - Leak Test Non-Appendix J	Per Tech Spec
									1NI-126 - Exercise (Both)	Condition Monitoring
1NI-128	MCFD-1562-03.00	SA	Category AC	LC	Yes	1			1NI-128 - Leak Test Non-Appendix J	Per Tech Spec
									1NI-128 - Exercise (Both)	Condition Monitoring
1NI-129	MCFD-1562-03.00	SA	Category AC	SW	Yes	1			1NI-129 - Leak Test Non-Appendix J	Per Tech Spec
									1NI-129 - Exercise (Both)	Condition Monitoring
1NI-134	MCFD-1562-03.00	SA	Category AC	SW	Yes	1			1NI-134 - Leak Test Non-Appendix J	Per Tech Spec
									1NI-134 - Exercise (Both)	Condition Monitoring
1NI-135B	MCFD-1562-03.00	MR	Category B	GA	Yes	2		MC-NI-25	1NI-135B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1NI-135B - Position Indicator (Open and Closed)	Tested once every two years
1NI-136B	MCFD-1562-03.00	MR	Category B	GA	Yes	2		MC-NI-20	1NI-136B - Stroke Time (Cls to Opn)	Tested at cold shutdown
									1NI-136B - Position Indicator (Open and Closed)	Tested once every two years
									1NI-136B - Stroke Time (Open to Closed)	Tested at cold shutdown

# MCGUIRE NUCLEAR STATION

## NI - SAFETY INJECTION SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1NI-143	MCFD-1562-03.00	SA	Category C	LC	Yes	2			1NI-143 - Exercise (Both)	Condition Monitoring
1NI-144B	MCFD-1562-03.00	MR	Category B	GL	Yes	2			1NI-144B - Stroke Time (Opn to Cls)	Tested once quarterly
									1NI-144B - Position Indicator (Open and Closed)	Tested once every two years
1NI-147A	MCFD-1562-03.00	MR	Category B	GL	Yes	2		MC-NI-03	1NI-147A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1NI-147A - Position Indicator (Open and Closed)	Tested once every two years
1NI-148	MCFD-1562-03.00	SA	Category C	SW	Yes	2			1NI-148 - Exercise (Both)	Condition Monitoring
1NI-150B	MCFD-1562-03.00	MR	Category B	GA	Yes	2			1NI-150B - Stroke Time (Opn to Cls)	Tested once quarterly
									1NI-150B - Position Indicator (Open and Closed)	Tested once every two years
1NI-151	MCFD-1562-03.00	SA	Category C	RV	Yes	2			1NI-151 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1NI-152B	MCFD-1562-03.00	MR	Category B	GA	Yes	2		MC-NI-04	1NI-152B - Stroke Time (Cls to Opn)	Tested at cold shutdown
									1NI-152B - Position Indicator (Open and Closed)	Tested once every two years
									1NI-152B - Stroke Time (Open to Closed)	Tested at cold shutdown
1NI-156	MCFD-1562-03.00	SA	Category AC	LC	Yes	1			1NI-156 - Leak Test Non-Appendix J	Per Tech Spec
									1NI-156 - Exercise (Both)	Condition Monitoring
1NI-157	MCFD-1562-03.00	SA	Category AC	SW	Yes	1			1NI-157 - Exercise (Both)	Condition Monitoring
									1NI-157 - Leak Test Non-Appendix J	Per Tech Spec
1NI-159	MCFD-1562-03.00	SA	Category AC	LC	Yes	1			1NI-159 - Leak Test Non-Appendix J	Per Tech Spec
									1NI-159 - Exercise (Both)	Condition Monitoring
1NI-160	MCFD-1562-03.00	SA	Category AC	SW	Yes	1			1NI-160 - Leak Test Non-Appendix J	Per Tech Spec
									1NI-160 - Exercise (Both)	Condition Monitoring

# MCGUIRE NUCLEAR STATION

## NI - SAFETY INJECTION SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1NI-161	MCFD-1562-03.01	SA	Category C	RV	Yes	2			1NI-161 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1NI-162A	MCFD-1562-03.01	MR	Category B	GA	Yes	2		MC-NI-05	1NI-162A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1NI-162A - Position Indicator (Open and Closed)	Tested once every two years
1NI-165	MCFD-1562-03.01	SA	Category AC	LC	Yes	1			1NI-165 - Leak Test Non-Appendix J	Per Tech Spec
									1NI-165 - Exercise (Both)	Condition Monitoring
1NI-167	MCFD-1562-03.01	SA	Category AC	LC	Yes	1			1NI-167 - Leak Test Non-Appendix J	Per Tech Spec
									1NI-167 - Exercise (Both)	Condition Monitoring
1NI-169	MCFD-1562-03.01	SA	Category AC	LC	Yes	1			1NI-169 - Leak Test Non-Appendix J	Per Tech Spec
									1NI-169 - Exercise (Both)	Condition Monitoring
1NI-171	MCFD-1562-03.01	SA	Category AC	LC	Yes	1			1NI-171 - Leak Test Non-Appendix J	Per Tech Spec
									1NI-171 - Exercise (Both)	Condition Monitoring
1NI-173A	MCFD-1562-03.01	MR	Category B	GA	Yes	2		MC-NI-07	1NI-173A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1NI-173A - Position Indicator (Open and Closed)	Tested once every two years
									1NI-173A - Stroke Time (Closed to Open)	Tested at cold shutdown
1NI-175	MCFD-1562-03.01	SA	Category AC	SW	Yes	1			1NI-175 - Leak Test Non-Appendix J	Per Tech Spec
									1NI-175 - Exercise (Both)	Condition Monitoring
1NI-176	MCFD-1562-03.01	SA	Category AC	SW	Yes	1			1NI-176 - Leak Test Non-Appendix J	Per Tech Spec
									1NI-176 - Exercise (Both)	Condition Monitoring
1NI-178B	MCFD-1562-03.01	MR	Category B	GA	Yes	2		MC-NI-07	1NI-178B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1NI-178B - Position Indicator (Open and Closed)	Tested once every two years

# MCGUIRE NUCLEAR STATION

## NI - SAFETY INJECTION SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									1NI-178B - Stroke Time (Closed to Open)	Tested at cold shutdown
1NI-180	MCFD-1562-03.01	SA	Category AC	SW	Yes	1			1NI-180 - Leak Test Non-Appendix J	Per Tech Spec
									1NI-180 - Exercise (Both)	Condition Monitoring
1NI-181	MCFD-1562-03.01	SA	Category AC	SW	Yes	1			1NI-181 - Leak Test Non-Appendix J	Per Tech Spec
									1NI-181 - Exercise (Both)	Condition Monitoring
1NI-183B	MCFD-1562-03.00	MR	Category B	GA	Yes	2		MC-NI-09	1NI-183B - Stroke Time (Cls to Opn)	Tested at cold shutdown
									1NI-183B - Position Indicator (Open and Closed)	Tested once every two years
									1NI-183B - Stroke Time (Open to Closed)	Tested at cold shutdown
1NI-184B	MCFD-1562-03.01	MR	Category B	GA	Yes	2		MC-NI-10	1NI-184B - Stroke Time (Cls to Opn)	Tested at cold shutdown
									1NI-184B - Position Indicator (Open and Closed)	Tested once every two years
									1NI-184B - Stroke Time (Open to Closed)	Tested at cold shutdown
1NI-185A	MCFD-1562-03.01	MR	Category B	GA	Yes	2		MC-NI-10	1NI-185A - Stroke Time (Cls to Opn)	Tested at cold shutdown
									1NI-185A - Position Indicator (Open and Closed)	Tested once every two years
									1NI-185A - Stroke Time (Open to Closed)	Tested at cold shutdown
1NI-332A	MCFD-1562-03.00	MR	Category B	GA	Yes	2		MC-NI-11	1NI-332A - Stroke Time (Cls to Opn)	Tested at cold shutdown
									1NI-332A - Position Indicator (Open and Closed)	Tested once every two years
1NI-333B	MCFD-1562-03.00	MR	Category B	GA	Yes	2		MC-NI-11	1NI-333B - Stroke Time (Cls to Opn)	Tested at cold shutdown
									1NI-333B - Position Indicator (Open and Closed)	Tested once every two years
1NI-334B	MCFD-1562-03.00	MR	Category B	GA	Yes	2		MC-NI-08	1NI-334B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1NI-334B - Position Indicator (Open and Closed)	Tested once every two years

## MCGUIRE NUCLEAR STATION

### NI - SAFETY INJECTION SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1NI-347	MCFD-1562-01.00	SA	Category C	LC	Yes	1			1NI-347 - Exercise (Both)	Condition Monitoring
1NI-348	MCFD-1562-01.00	SA	Category C	LC	Yes	1			1NI-348 - Exercise (Both)	Condition Monitoring
1NI-349	MCFD-1562-01.00	SA	Category C	LC	Yes	1			1NI-349 - Exercise (Both)	Condition Monitoring
1NI-354	MCFD-1562-01.00	SA	Category C	LC	Yes	1			1NI-354 - Exercise (Both)	Condition Monitoring
1NI-430A	MCFD-1562-02.00	ML	Category B	GL	Yes	2			1NI-430A - Stroke Time (Cls to Opn)	Tested once quarterly
									1NI-430A - Position Indicator (Open and Closed)	Tested once every two years
									1NI-430A - Stroke Time (Open to Closed)	Tested once quarterly
1NI-431B	MCFD-1562-02.00	ML	Category B	GL	Yes	2			1NI-431B - Stroke Time (Cls to Opn)	Tested once quarterly
									1NI-431B - Position Indicator (Open and Closed)	Tested once every two years
									1NI-431B - Stroke Time (Open to Closed)	Tested once quarterly
1NI-436	MCFD-1562-02.01	SA	Category AC	SW	Yes	2			1NI-436 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1NI-436 - Exercise (Both)	Condition Monitoring
1NI-861	MCFD-1562-03.01	MA	Category A	GL	No	2			1NI-861 - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
1NI-862	MCFD-1562-03.01	MA	Category A	GL	No	2			1NI-862 - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
1NI-863	MCFD-1562-03.01	MA	Category A	GL	No	2			1NI-863 - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
1NI-864	MCFD-1562-03.01	MA	Category A	GL	No	2			1NI-864 - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
1NI-865	MCFD-1562-03.01	MA	Category A	GL	No	2			1NI-865 - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
1NI-866	MCFD-1562-03.01	MA	Category A	GL	No	2			1NI-866 - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
1NI-867	MCFD-1562-03.01	MA	Category A	GL	No	2			1NI-867 - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
1NI-868	MCFD-1562-03.01	MA	Category A	GL	No	2			1NI-868 - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B

# MCGUIRE NUCLEAR STATION

## NI - SAFETY INJECTION SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1NI-869	MCFD-1562-03.01	MA	Category A	BV	No	2			1NI-869 - Leak Test Non-Appendix J	10CFR50, App J, Opt B
1NI-870	MCFD-1562-03.01	MA	Category A	BV	No	2			1NI-870 - Leak Test Non-Appendix J	10CFR50, App J, Opt B
1NI-871	MCFD-1562-03.01	MA	Category A	BV	No	2			1NI-871 - Leak Test Non-Appendix J	10CFR50, App J, Opt B
1NI-872	MCFD-1562-03.01	MA	Category A	BV	No	2			1NI-872 - Leak Test Non-Appendix J	10CFR50, App J, Opt B
1NI-873	MCFD-1562-03.01	MA	Category A	BV	No	2			1NI-873 - Leak Test Non-Appendix J	10CFR50, App J, Opt B
1NI-874	MCFD-1562-03.01	MA	Category A	BV	No	2			1NI-874 - Leak Test Non-Appendix J	10CFR50, App J, Opt B
1NI-875	MCFD-1562-03.01	MA	Category A	BV	No	2			1NI-875 - Leak Test Non-Appendix J	10CFR50, App J, Opt B
1NI-876	MCFD-1562-03.01	MA	Category A	BV	No	2			1NI-876 - Leak Test Non-Appendix J	10CFR50, App J, Opt B
2NI-9A	MCFD-2562-01.00	MR	Category B	GA	Yes	2		MC-NI-01	2NI-9A - Stroke Time (Cls to Opn)	Tested at cold shutdown
									2NI-9A - Position Indicator (Open and Closed)	Tested once every two years
									2NI-9A - Stroke Time (Open to Closed)	Tested at cold shutdown
2NI-10B	MCFD-2562-01.00	MR	Category B	GA	Yes	2		MC-NI-01	2NI-10B - Stroke Time (Cls to Opn)	Tested at cold shutdown
									2NI-10B - Position Indicator (Open and Closed)	Tested once every two years
									2NI-10B - Stroke Time (Open to Closed)	Tested at cold shutdown
2NI-12	MCFD-2562-01.00	SA	Category C	SW	Yes	2			2NI-12 - Exercise (Both)	Condition Monitoring
2NI-15	MCFD-2562-01.00	SA	Category C	LC	Yes	1			2NI-15 - Exercise (Both)	Condition Monitoring
2NI-17	MCFD-2562-01.00	SA	Category C	LC	Yes	1			2NI-17 - Exercise (Both)	Condition Monitoring
2NI-19	MCFD-2562-01.00	SA	Category C	LC	Yes	1			2NI-19 - Exercise (Both)	Condition Monitoring
2NI-21	MCFD-2562-01.00	SA	Category C	LC	Yes	1			2NI-21 - Exercise (Both)	Condition Monitoring
2NI-47A	MCFD-2562-02.00	MR	Category A	GL	Yes	2			2NI-47A - Stroke Time (Opn to Cls)	Tested once quarterly

# MCGUIRE NUCLEAR STATION

## NI - SAFETY INJECTION SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									2NI-47A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2NI-47A - Position Indicator (Open and Closed)	Tested once every two years
2NI-48	MCFD-2562-02.00	SA	Category AC	LC	Yes	2			2NI-48 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2NI-48 - Exercise (Both)	Condition Monitoring
2NI-52	MCFD-2562-02.00	SA	Category C	RV	Yes	2			2NI-52 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2NI-59	MCFD-2562-02.00	SA	Category AC	SW	Yes	1			2NI-59 - Leak Test Non-Appendix J	Per Tech Spec
									2NI-59 - Exercise (Both)	Condition Monitoring
2NI-60	MCFD-2562-02.00	SA	Category AC	SW	Yes	1			2NI-60 - Leak Test Non-Appendix J	Per Tech Spec
									2NI-60 - Exercise (Both)	Condition Monitoring
2NI-63	MCFD-2562-02.00	SA	Category C	RV	Yes	2			2NI-63 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2NI-70	MCFD-2562-02.00	SA	Category AC	SW	Yes	1			2NI-70 - Leak Test Non-Appendix J	Per Tech Spec
									2NI-70 - Exercise (Both)	Condition Monitoring
2NI-71	MCFD-2562-02.00	SA	Category AC	SW	Yes	1			2NI-71 - Leak Test Non-Appendix J	Per Tech Spec
									2NI-71 - Exercise (Both)	Condition Monitoring
2NI-74	MCFD-2562-02.01	SA	Category C	RV	Yes	2			2NI-74 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2NI-81	MCFD-2562-02.01	SA	Category AC	SW	Yes	1			2NI-81 - Leak Test Non-Appendix J	Per Tech Spec
									2NI-81 - Exercise (Both)	Condition Monitoring
2NI-82	MCFD-2562-02.01	SA	Category AC	SW	Yes	1			2NI-82 - Leak Test Non-Appendix J	Per Tech Spec
									2NI-82 - Exercise (Both)	Condition Monitoring

# MCGUIRE NUCLEAR STATION

## NI - SAFETY INJECTION SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2NI-86	MCFD-2562-02.01	SA	Category C	RV	Yes	2			2NI-86 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2NI-93	MCFD-2562-02.01	SA	Category AC	SW	Yes	1			2NI-93 - Leak Test Non-Appendix J	Per Tech Spec
									2NI-93 - Exercise (Both)	Condition Monitoring
2NI-94	MCFD-2562-02.01	SA	Category AC	SW	Yes	1			2NI-94 - Leak Test Non-Appendix J	Per Tech Spec
									2NI-94 - Exercise (Both)	Condition Monitoring
2NI-95A	MCFD-2562-02.01	MR	Category A	GL	Yes	2			2NI-95A - Stroke Time (Opn to Cls)	Tested once quarterly
									2NI-95A - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
									2NI-95A - Position Indicator (Open and Closed)	Tested once every two years
2NI-96B	MCFD-2562-02.01	MR	Category A	GL	Yes	2			2NI-96B - Stroke Time (Opn to Cls)	Tested once quarterly
									2NI-96B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2NI-96B - Position Indicator (Open and Closed)	Tested once every two years
2NI-100B	MCFD-2562-03.00	MR	Category B	GA	Yes	2		MC-NI-02	2NI-100B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2NI-100B - Position Indicator (Open and Closed)	Tested once every two years
2NI-101	MCFD-2562-03.00	SA	Category C	SW	Yes	2			2NI-101 - Exercise (Both)	Condition Monitoring
2NI-102	MCFD-2562-03.00	SA	Category C	RV	Yes	2			2NI-102 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2NI-103A	MCFD-2562-03.00	MR	Category B	GA	Yes	2		MC-NI-06	2NI-103A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2NI-103A - Position Indicator (Open and Closed)	Tested once every two years
2NI-114	MCFD-2562-03.00	SA	Category C	LC	Yes	2			2NI-114 - Exercise (Both)	Condition Monitoring
2NI-115B	MCFD-2562-03.00	MR	Category B	GL	Yes	2		MC-NI-03	2NI-115B - Stroke Time (Opn to Cls)	Tested at cold shutdown



# MCGUIRE NUCLEAR STATION

## NI - SAFETY INJECTION SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									2NI-115B - Position Indicator (Open and Closed)	Tested once every two years
2NI-116	MCFD-2562-03.00	SA	Category C	SW	Yes	2			2NI-116 - Exercise (Both)	Condition Monitoring
2NI-118A	MCFD-2562-03.00	MR	Category B	GA	Yes	2			2NI-118A - Stroke Time (Opn to Cls)	Tested once quarterly
									2NI-118A - Position Indicator (Open and Closed)	Tested once every two years
2NI-119	MCFD-2562-03.00	SA	Category C	RV	Yes	2			2NI-119 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2NI-120B	MCFD-2562-03.00	MR	Category A	GL	Yes	2			2NI-120B - Stroke Time (Opn to Cls)	Tested once quarterly
									2NI-120B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2NI-120B - Position Indicator (Open and Closed)	Tested once every two years
2NI-121A	MCFD-2562-03.00	MR	Category B	GA	Yes	2		MC-NI-04	2NI-121A - Stroke Time (Cls to Opn)	Tested at cold shutdown
									2NI-121A - Position Indicator (Open and Closed)	Tested once every two years
									2NI-121A - Stroke Time (Open to Closed)	Tested at cold shutdown
2NI-124	MCFD-2562-03.00	SA	Category AC	LC	Yes	1			2NI-124 - Leak Test Non-Appendix J	Per Tech Spec
									2NI-124 - Exercise (Both)	Condition Monitoring
2NI-125	MCFD-2562-03.00	SA	Category AC	SW	Yes	1			2NI-125 - Leak Test Non-Appendix J	Per Tech Spec
									2NI-125 - Exercise (Both)	Condition Monitoring
2NI-126	MCFD-2562-03.00	SA	Category AC	SW	Yes	1			2NI-126 - Leak Test Non-Appendix J	Per Tech Spec
									2NI-126 - Exercise (Both)	Condition Monitoring
2NI-128	MCFD-2562-03.00	SA	Category AC	LC	Yes	1			2NI-128 - Leak Test Non-Appendix J	Per Tech Spec
									2NI-128 - Exercise (Both)	Condition Monitoring
2NI-129	MCFD-2562-03.00	SA	Category AC	SW	Yes	1			2NI-129 - Leak Test Non-Appendix J	Per Tech Spec

# MCGUIRE NUCLEAR STATION

## NI - SAFETY INJECTION SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									2NI-129 - Exercise (Both)	Condition Monitoring
2NI-134	MCFD-2562-03.00	SA	Category AC	SW	Yes	1			2NI-134 - Leak Test Non-Appendix J	Per Tech Spec
									2NI-134 - Exercise (Both)	Condition Monitoring
2NI-135B	MCFD-2562-03.00	MR	Category B	GA	Yes	2		MC-NI-25	2NI-135B - Stroke Time (Opn to CIs)	Tested at cold shutdown
									2NI-135B - Position Indicator (Open and Closed)	Tested once every two years
2NI-136B	MCFD-2562-03.00	MR	Category B	GA	Yes	2		MC-NI-20	2NI-136B - Stroke Time (CIs to Opn)	Tested at cold shutdown
									2NI-136B - Position Indicator (Open and Closed)	Tested once every two years
									2NI-136B - Stroke Time (Open to Closed)	Tested at cold shutdown
2NI-143	MCFD-2562-03.00	SA	Category C	LC	Yes	2			2NI-143 - Exercise (Both)	Condition Monitoring
2NI-144B	MCFD-2562-03.00	MR	Category B	GL	Yes	2			2NI-144B - Stroke Time (Opn to CIs)	Tested once quarterly
									2NI-144B - Position Indicator (Open and Closed)	Tested once every two years
2NI-147A	MCFD-2562-03.00	MR	Category B	GL	Yes	2		MC-NI-03	2NI-147A - Stroke Time (Opn to CIs)	Tested at cold shutdown
									2NI-147A - Position Indicator (Open and Closed)	Tested once every two years
2NI-148	MCFD-2562-03.00	SA	Category C	SW	Yes	2			2NI-148 - Exercise (Both)	Condition Monitoring
2NI-150B	MCFD-2562-03.00	MR	Category B	GA	Yes	2			2NI-150B - Stroke Time (Opn to CIs)	Tested once quarterly
									2NI-150B - Position Indicator (Open and Closed)	Tested once every two years
2NI-151	MCFD-2562-03.00	SA	Category C	RV	Yes	2			2NI-151 - Relief Valve Test (CIs to Opn)	Test relief valve per Appendix I schedule
2NI-152B	MCFD-2562-03.00	MR	Category B	GA	Yes	2		MC-NI-04	2NI-152B - Stroke Time (CIs to Opn)	Tested at cold shutdown
									2NI-152B - Position Indicator (Open and Closed)	Tested once every two years
									2NI-152B - Stroke Time (Open to Closed)	Tested at cold shutdown

# MCGUIRE NUCLEAR STATION

## NI - SAFETY INJECTION SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2NI-156	MCFD-2562-03.00	SA	Category AC	LC	Yes	1			2NI-156 - Leak Test Non-Appendix J	Per Tech Spec
									2NI-156 - Exercise (Both)	Condition Monitoring
2NI-157	MCFD-2562-03.00	SA	Category AC	LC	Yes	1			2NI-157 - Leak Test Non-Appendix J	Per Tech Spec
									2NI-157 - Exercise (Both)	Condition Monitoring
2NI-159	MCFD-2562-03.00	SA	Category AC	LC	Yes	1			2NI-159 - Leak Test Non-Appendix J	Per Tech Spec
									2NI-159 - Exercise (Both)	Condition Monitoring
2NI-160	MCFD-2562-03.00	SA	Category AC	LC	Yes	1			2NI-160 - Leak Test Non-Appendix J	Per Tech Spec
									2NI-160 - Exercise (Both)	Condition Monitoring
2NI-161	MCFD-2562-03.01	SA	Category C	RV	Yes	2			2NI-161 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2NI-162A	MCFD-2562-03.01	MR	Category B	GA	Yes	2		MC-NI-05	2NI-162A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2NI-162A - Position Indicator (Open and Closed)	Tested once every two years
2NI-165	MCFD-2562-03.01	SA	Category AC	LC	Yes	1			2NI-165 - Leak Test Non-Appendix J	Per Tech Spec
									2NI-165 - Exercise (Both)	Condition Monitoring
2NI-167	MCFD-2562-03.01	SA	Category AC	LC	Yes	1			2NI-167 - Leak Test Non-Appendix J	Per Tech Spec
									2NI-167 - Exercise (Both)	Condition Monitoring
2NI-169	MCFD-2562-03.01	SA	Category AC	LC	Yes	1			2NI-169 - Leak Test Non-Appendix J	Per Tech Spec
									2NI-169 - Exercise (Both)	Condition Monitoring
2NI-171	MCFD-2562-03.01	SA	Category AC	LC	Yes	1			2NI-171 - Leak Test Non-Appendix J	Per Tech Spec
									2NI-171 - Exercise (Both)	Condition Monitoring
2NI-173A	MCFD-2562-03.01	MR	Category B	GA	Yes	2		MC-NI-07	2NI-173A - Stroke Time (Opn to Cls)	Tested at cold shutdown

## MCGUIRE NUCLEAR STATION

### NI - SAFETY INJECTION SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									2NI-173A - Position Indicator (Open and Closed)	Tested once every two years
									2NI-173A - Stroke Time (Closed to Open)	Tested at cold shutdown
2NI-175	MCFD-2562-03.01	SA	Category AC	SW	Yes	1			2NI-175 - Leak Test Non-Appendix J	Per Tech Spec
									2NI-175 - Exercise (Both)	Condition Monitoring
2NI-176	MCFD-2562-03.01	SA	Category AC	SW	Yes	1			2NI-176 - Leak Test Non-Appendix J	Per Tech Spec
									2NI-176 - Exercise (Both)	Condition Monitoring
2NI-178B	MCFD-2562-03.01	MR	Category B	GA	Yes	2		MC-NI-07	2NI-178B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2NI-178B - Position Indicator (Open and Closed)	Tested once every two years
									2NI-178B - Stroke Time (Closed to Open)	Tested at cold shutdown
2NI-180	MCFD-2562-03.01	SA	Category AC	SW	Yes	1			2NI-180 - Leak Test Non-Appendix J	Per Tech Spec
									2NI-180 - Exercise (Both)	Condition Monitoring
2NI-181	MCFD-2562-03.01	SA	Category AC	SW	Yes	1			2NI-181 - Leak Test Non-Appendix J	Per Tech Spec
									2NI-181 - Exercise (Both)	Condition Monitoring
2NI-183B	MCFD-2562-03.00	MR	Category B	GA	Yes	2		MC-NI-09	2NI-183B - Stroke Time (Cls to Opn)	Tested at cold shutdown
									2NI-183B - Position Indicator (Open and Closed)	Tested once every two years
									2NI-183B - Stroke Time (Open to Closed)	Tested at cold shutdown
2NI-184B	MCFD-2562-03.01	MR	Category B	GA	Yes	2		MC-NI-10	2NI-184B - Stroke Time (Cls to Opn)	Tested at cold shutdown
									2NI-184B - Position Indicator (Open and Closed)	Tested once every two years
									2NI-184B - Stroke Time (Open to Closed)	Tested at cold shutdown
2NI-185A	MCFD-2562-03.01	MR	Category B	GA	Yes	2		MC-NI-10	2NI-185A - Stroke Time (Cls to Opn)	Tested at cold shutdown

# MCGUIRE NUCLEAR STATION

## NI - SAFETY INJECTION SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									2NI-185A - Position Indicator (Open and Closed)	Tested once every two years
									2NI-185A - Stroke Time (Open to Closed)	Tested at cold shutdown
2NI-332A	MCFD-2562-03.00	MR	Category B	GA	Yes	2		MC-NI-11	2NI-332A - Stroke Time (CIs to Opn)	Tested at cold shutdown
									2NI-332A - Position Indicator (Open and Closed)	Tested once every two years
2NI-333B	MCFD-2562-03.00	MR	Category B	GA	Yes	2		MC-NI-11	2NI-333B - Stroke Time (CIs to Opn)	Tested at cold shutdown
									2NI-333B - Position Indicator (Open and Closed)	Tested once every two years
2NI-334B	MCFD-2562-03.00	MR	Category B	GA	Yes	2		MC-NI-08	2NI-334B - Stroke Time (Opn to CIs)	Tested at cold shutdown
									2NI-334B - Position Indicator (Open and Closed)	Tested once every two years
2NI-347	MCFD-2562-01.00	SA	Category C	LC	Yes	1			2NI-347 - Exercise (Both)	Condition Monitoring
2NI-348	MCFD-2562-01.00	SA	Category C	LC	Yes	1			2NI-348 - Exercise (Both)	Condition Monitoring
2NI-349	MCFD-2562-01.00	SA	Category C	LC	Yes	1			2NI-349 - Exercise (Both)	Condition Monitoring
2NI-354	MCFD-2562-01.00	SA	Category C	LC	Yes	1			2NI-354 - Exercise (Both)	Condition Monitoring
2NI-430A	MCFD-2562-02.00	ML	Category B	GL	Yes	2			2NI-430A - Stroke Time (CIs to Opn)	Tested once quarterly
									2NI-430A - Position Indicator (Open and Closed)	Tested once every two years
									2NI-430A - Stroke Time (Open to Closed)	Tested once quarterly
2NI-431B	MCFD-2562-02.00	ML	Category B	GL	Yes	2			2NI-431B - Stroke Time (CIs to Opn)	Tested once quarterly
									2NI-431B - Position Indicator (Open and Closed)	Tested once every two years
									2NI-431B - Stroke Time (Open to Closed)	Tested once quarterly
2NI-436	MCFD-2562-02.01	SA	Category AC	SW	Yes	2			2NI-436 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2NI-436 - Exercise (Both)	Condition Monitoring

# MCGUIRE NUCLEAR STATION

## NI - SAFETY INJECTION SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2NI-861	MCFD-2562-03.01	MA	Category A	GL	No	2			2NI-861 - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
2NI-862	MCFD-2562-03.01	MA	Category A	GL	No	2			2NI-862 - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
2NI-863	MCFD-2562-03.01	MA	Category A	GL	No	2			2NI-863 - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
2NI-864	MCFD-2562-03.01	MA	Category A	GL	No	2			2NI-864 - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
2NI-865	MCFD-2562-03.01	MA	Category A	GL	No	2			2NI-865 - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
2NI-866	MCFD-2562-03.01	MA	Category A	GL	No	2			2NI-866 - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
2NI-867	MCFD-2562-03.01	MA	Category A	GL	No	2			2NI-867 - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
2NI-868	MCFD-2562-03.01	MA	Category A	GL	No	2			2NI-868 - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
2NI-869	MCFD-2562-03.01	MA	Category A	BV	No	2			2NI-869 - Leak Test Non-Appendix J	10CFR50, App J, Opt B
2NI-870	MCFD-2562-03.01	MA	Category A	BV	No	2			2NI-870 - Leak Test Non-Appendix J	10CFR50, App J, Opt B
2NI-871	MCFD-2562-03.01	MA	Category A	BV	No	2			2NI-871 - Leak Test Non-Appendix J	10CFR50, App J, Opt B
2NI-872	MCFD-2562-03.01	MA	Category A	BV	No	2			2NI-872 - Leak Test Non-Appendix J	10CFR50, App J, Opt B
2NI-873	MCFD-2562-03.01	MA	Category A	BV	No	2			2NI-873 - Leak Test Non-Appendix J	10CFR50, App J, Opt B
2NI-874	MCFD-2562-03.01	MA	Category A	BV	No	2			2NI-874 - Leak Test Non-Appendix J	10CFR50, App J, Opt B
2NI-875	MCFD-2562-03.01	MA	Category A	BV	No	2			2NI-875 - Leak Test Non-Appendix J	10CFR50, App J, Opt B
2NI-876	MCFD-2562-03.01	MA	Category A	BV	No	2			2NI-876 - Leak Test Non-Appendix J	10CFR50, App J, Opt B

# MCGUIRE NUCLEAR STATION

## NM - NUCLEAR SAMPLING SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1NM-3AC	MCFD-1572-01.00	MR	Category A	GL	Yes	2		MC-NM-02	1NM-3AC - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1NM-3AC - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1NM-3AC - Position Indicator (Open and Closed)	Tested once every two years
1NM-6AC	MCFD-1572-01.00	MR	Category A	GL	Yes	2		MC-NM-02	1NM-6AC - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1NM-6AC - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1NM-6AC - Position Indicator (Open and Closed)	Tested once every two years
1NM-7B	MCFD-1572-01.00	MR	Category A	GL	Yes	2		MC-NM-02	1NM-7B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1NM-7B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1NM-7B - Position Indicator (Open and Closed)	Tested once every two years
1NM-22AC	MCFD-1572-01.00	MR	Category A	GL	Yes	2		MC-NM-02	1NM-22AC - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1NM-22AC - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1NM-22AC - Position Indicator (Open and Closed)	Tested once every two years
1NM-25AC	MCFD-1572-01.00	MR	Category A	GL	Yes	2		MC-NM-02	1NM-25AC - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1NM-25AC - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1NM-25AC - Position Indicator (Open and Closed)	Tested once every two years
1NM-26B	MCFD-1572-01.00	MR	Category A	GL	Yes	2		MC-NM-02	1NM-26B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1NM-26B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1NM-26B - Position Indicator (Open and Closed)	Tested once every two years
1NM-69	MCFD-1572-01.01	SA	Category AC	RV	Yes	2			1NM-69 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
									1NM-69 - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B

# MCGUIRE NUCLEAR STATION

## NM - NUCLEAR SAMPLING SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1NM-72B	MCFD-1572-01.01	MR	Category A	GL	Yes	2			1NM-72B - Stroke Time (Opn to Cls)	Tested once quarterly
									1NM-72B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1NM-72B - Position Indicator (Open and Closed)	Tested once every two years
1NM-75B	MCFD-1572-01.01	MR	Category A	GL	Yes	2			1NM-75B - Stroke Time (Opn to Cls)	Tested once quarterly
									1NM-75B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1NM-75B - Position Indicator (Open and Closed)	Tested once every two years
1NM-78B	MCFD-1572-01.01	MR	Category A	GL	Yes	2			1NM-78B - Stroke Time (Opn to Cls)	Tested once quarterly
									1NM-78B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1NM-78B - Position Indicator (Open and Closed)	Tested once every two years
1NM-81B	MCFD-1572-01.01	MR	Category A	GL	Yes	2			1NM-81B - Stroke Time (Opn to Cls)	Tested once quarterly
									1NM-81B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1NM-81B - Position Indicator (Open and Closed)	Tested once every two years
1NM-82A	MCFD-1572-01.01	MR	Category A	GL	Yes	2			1NM-82A - Stroke Time (Opn to Cls)	Tested once quarterly
									1NM-82A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1NM-82A - Position Indicator (Open and Closed)	Tested once every two years
1NM-187A	MCFD-1572-03.00	MR	Category B	GL	Yes	2			1NM-187A - Stroke Time (Opn to Cls)	Tested once quarterly
									1NM-187A - Position Indicator (Open and Closed)	Tested once every two years
1NM-190A	MCFD-1572-03.00	MR	Category B	GL	Yes	2			1NM-190A - Stroke Time (Opn to Cls)	Tested once quarterly
									1NM-190A - Position Indicator (Open and Closed)	Tested once every two years
1NM-191B	MCFD-1572-03.00	MR	Category B	GL	Yes	2			1NM-191B - Stroke Time (Opn to Cls)	Tested once quarterly



# MCGUIRE NUCLEAR STATION

## NM - NUCLEAR SAMPLING SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									1NM-191B - Position Indicator (Open and Closed)	Tested once every two years
1NM-197B	MCFD-1572-03.00	MR	Category B	GL	Yes	2			1NM-197B - Stroke Time (Opn to Cls)	Tested once quarterly
									1NM-197B - Position Indicator (Open and Closed)	Tested once every two years
1NM-200B	MCFD-1572-03.00	MR	Category B	GL	Yes	2			1NM-200B - Stroke Time (Opn to Cls)	Tested once quarterly
									1NM-200B - Position Indicator (Open and Closed)	Tested once every two years
1NM-201A	MCFD-1572-03.00	MR	Category B	GL	Yes	2			1NM-201A - Stroke Time (Opn to Cls)	Tested once quarterly
									1NM-201A - Position Indicator (Open and Closed)	Tested once every two years
1NM-207A	MCFD-1572-03.00	MR	Category B	GL	Yes	2			1NM-207A - Stroke Time (Opn to Cls)	Tested once quarterly
									1NM-207A - Position Indicator (Open and Closed)	Tested once every two years
1NM-210A	MCFD-1572-03.00	MR	Category B	GL	Yes	2			1NM-210A - Stroke Time (Opn to Cls)	Tested once quarterly
									1NM-210A - Position Indicator (Open and Closed)	Tested once every two years
1NM-211B	MCFD-1572-03.00	MR	Category B	GL	Yes	2			1NM-211B - Stroke Time (Opn to Cls)	Tested once quarterly
									1NM-211B - Position Indicator (Open and Closed)	Tested once every two years
1NM-217B	MCFD-1572-03.00	MR	Category B	GL	Yes	2			1NM-217B - Stroke Time (Opn to Cls)	Tested once quarterly
									1NM-217B - Position Indicator (Open and Closed)	Tested once every two years
1NM-220B	MCFD-1572-03.00	MR	Category B	GL	Yes	2			1NM-220B - Stroke Time (Opn to Cls)	Tested once quarterly
									1NM-220B - Position Indicator (Open and Closed)	Tested once every two years
1NM-221A	MCFD-1572-03.00	MR	Category B	GL	Yes	2			1NM-221A - Stroke Time (Opn to Cls)	Tested once quarterly
									1NM-221A - Position Indicator (Open and Closed)	Tested once every two years
1NM-420	MCFD-1572-01.00	SA	Category AC	LC	Yes	2			1NM-420 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B

## MCGUIRE NUCLEAR STATION

### NM - NUCLEAR SAMPLING SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									1NM-420 - Exercise (Both)	Condition Monitoring
1NM-421	MCFD-1572-01.00	SA	Category AC	CK	Yes	2			1NM-421 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1NM-421 - Exercise (Both)	Condition Monitoring
1NM-424	MCFD-1572-03.00	SA	Category C	SW	Yes	2			1NM-424 - Exercise (Both)	Condition Monitoring
1NM-425	MCFD-1572-03.00	SA	Category C	SW	Yes	2			1NM-425 - Exercise (Both)	Condition Monitoring
1NM-426	MCFD-1572-03.00	SA	Category C	SW	Yes	2			1NM-426 - Exercise (Both)	Condition Monitoring
1NM-427	MCFD-1572-03.00	SA	Category C	SW	Yes	2			1NM-427 - Exercise (Both)	Condition Monitoring
2NM-3AC	MCFD-2572-01.00	MR	Category A	GL	Yes	2		MC-NM-02	2NM-3AC - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2NM-3AC - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2NM-3AC - Position Indicator (Open and Closed)	Tested once every two years
2NM-6AC	MCFD-2572-01.00	MR	Category A	GL	Yes	2		MC-NM-02	2NM-6AC - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2NM-6AC - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2NM-6AC - Position Indicator (Open and Closed)	Tested once every two years
2NM-7B	MCFD-2572-01.00	MR	Category A	GL	Yes	2		MC-NM-02	2NM-7B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2NM-7B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2NM-7B - Position Indicator (Open and Closed)	Tested once every two years
2NM-22AC	MCFD-2572-01.00	MR	Category A	GL	Yes	2		MC-NM-02	2NM-22AC - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2NM-22AC - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2NM-22AC - Position Indicator (Open and Closed)	Tested once every two years
2NM-25AC	MCFD-2572-01.00	MR	Category A	GL	Yes	2		MC-NM-02	2NM-25AC - Stroke Time (Opn to Cls)	Tested at cold shutdown

# MCGUIRE NUCLEAR STATION

## NM - NUCLEAR SAMPLING SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									2NM-25AC - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2NM-25AC - Position Indicator (Open and Closed)	Tested once every two years
2NM-26B	MCFD-2572-01.00	MR	Category A	GL	Yes	2		MC-NM-02	2NM-26B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2NM-26B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2NM-26B - Position Indicator (Open and Closed)	Tested once every two years
2NM-69	MCFD-2572-01.01	SA	Category AC	RV	Yes	2			2NM-69 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
									2NM-69 - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
2NM-72B	MCFD-2572-01.01	MR	Category A	GL	Yes	2			2NM-72B - Stroke Time (Opn to Cls)	Tested once quarterly
									2NM-72B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2NM-72B - Position Indicator (Open and Closed)	Tested once every two years
2NM-75B	MCFD-2572-01.01	MR	Category A	GL	Yes	2			2NM-75B - Stroke Time (Opn to Cls)	Tested once quarterly
									2NM-75B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2NM-75B - Position Indicator (Open and Closed)	Tested once every two years
2NM-78B	MCFD-2572-01.01	MR	Category A	GL	Yes	2			2NM-78B - Stroke Time (Opn to Cls)	Tested once quarterly
									2NM-78B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2NM-78B - Position Indicator (Open and Closed)	Tested once every two years
2NM-81B	MCFD-2572-01.01	MR	Category A	GL	Yes	2			2NM-81B - Stroke Time (Opn to Cls)	Tested once quarterly
									2NM-81B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2NM-81B - Position Indicator (Open and Closed)	Tested once every two years
2NM-82A	MCFD-2572-01.01	MR	Category A	GL	Yes	2			2NM-82A - Stroke Time (Opn to Cls)	Tested once quarterly

## MCGUIRE NUCLEAR STATION

### NM - NUCLEAR SAMPLING SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									2NM-82A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2NM-82A - Position Indicator (Open and Closed)	Tested once every two years
2NM-187A	MCFD-2572-03.00	MR	Category B	GL	Yes	2			2NM-187A - Stroke Time (Opn to Cls)	Tested once quarterly
									2NM-187A - Position Indicator (Open and Closed)	Tested once every two years
2NM-190A	MCFD-2572-03.00	MR	Category B	GL	Yes	2			2NM-190A - Stroke Time (Opn to Cls)	Tested once quarterly
									2NM-190A - Position Indicator (Open and Closed)	Tested once every two years
2NM-191B	MCFD-2572-03.00	MR	Category B	GL	Yes	2			2NM-191B - Stroke Time (Opn to Cls)	Tested once quarterly
									2NM-191B - Position Indicator (Open and Closed)	Tested once every two years
2NM-197B	MCFD-2572-03.00	MR	Category B	GL	Yes	2			2NM-197B - Stroke Time (Opn to Cls)	Tested once quarterly
									2NM-197B - Position Indicator (Open and Closed)	Tested once every two years
2NM-200B	MCFD-2572-03.00	MR	Category B	GL	Yes	2			2NM-200B - Stroke Time (Opn to Cls)	Tested once quarterly
									2NM-200B - Position Indicator (Open and Closed)	Tested once every two years
2NM-201A	MCFD-2572-03.00	MR	Category B	GL	Yes	2			2NM-201A - Stroke Time (Opn to Cls)	Tested once quarterly
									2NM-201A - Position Indicator (Open and Closed)	Tested once every two years
2NM-207A	MCFD-2572-03.00	MR	Category B	GL	Yes	2			2NM-207A - Stroke Time (Opn to Cls)	Tested once quarterly
									2NM-207A - Position Indicator (Open and Closed)	Tested once every two years
2NM-210A	MCFD-2572-03.00	MR	Category B	GL	Yes	2			2NM-210A - Stroke Time (Opn to Cls)	Tested once quarterly
									2NM-210A - Position Indicator (Open and Closed)	Tested once every two years
2NM-211B	MCFD-2572-03.00	MR	Category B	GL	Yes	2			2NM-211B - Stroke Time (Opn to Cls)	Tested once quarterly
									2NM-211B - Position Indicator (Open and Closed)	Tested once every two years

# MCGUIRE NUCLEAR STATION

## NM - NUCLEAR SAMPLING SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOB	Test Plan	Frequency
2NM-217B	MCFD-2572-03.00	MR	Category B	GL	Yes	2			2NM-217B - Stroke Time (Opn to Cls)	Tested once quarterly
									2NM-217B - Position Indicator (Open and Closed)	Tested once every two years
2NM-220B	MCFD-2572-03.00	MR	Category B	GL	Yes	2			2NM-220B - Stroke Time (Opn to Cls)	Tested once quarterly
									2NM-220B - Position Indicator (Open and Closed)	Tested once every two years
2NM-221A	MCFD-2572-03.00	MR	Category B	GL	Yes	2			2NM-221A - Stroke Time (Opn to Cls)	Tested once quarterly
									2NM-221A - Position Indicator (Open and Closed)	Tested once every two years
2NM-420	MCFD-2572-01.00	SA	Category A	LC	No	2			2NM-420 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2NM-420 - Exercise (Both)	Condition Monitoring
2NM-421	MCFD-2572-01.00	SA	Category A	LC	No	2			2NM-421 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2NM-421 - Exercise (Both)	Condition Monitoring
2NM-424	MCFD-2572-03.00	SA	Category C	SW	Yes	2			2NM-424 - Exercise (Both)	Condition Monitoring
2NM-425	MCFD-2572-03.00	SA	Category C	SW	Yes	2			2NM-425 - Exercise (Both)	Condition Monitoring
2NM-426	MCFD-2572-03.00	SA	Category C	SW	Yes	2			2NM-426 - Exercise (Both)	Condition Monitoring
2NM-427	MCFD-2572-03.00	SA	Category C	SW	Yes	2			2NM-427 - Exercise (Both)	Condition Monitoring

# MCGUIRE NUCLEAR STATION

## NS - CONTAINMENT SPRAY SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1NS-1B	MCFD-1563-01.00	MR	Category B	GA	Yes	2		MC-NS-06	1NS-1B - Stroke Time (Cls to Opn)	Tested at cold shutdown
									1NS-1B - Position Indicator (Open and Closed)	Tested once every two years
1NS-2	MCFD-1563-01.00	SA	Category C	RV	Yes	2			1NS-2 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1NS-3B	MCFD-1563-01.00	MR	Category B	GA	Yes	2		MC-NS-05	1NS-3B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1NS-3B - Position Indicator (Open and Closed)	Tested once every two years
1NS-4	MCFD-1563-01.00	SA	Category C	SW	Yes	2			1NS-4 - Exercise (Both)	Condition Monitoring
1NS-12B	MCFD-1563-01.00	MR	Category B	GA	Yes	2			1NS-12B - Stroke Time (Cls to Opn)	Tested once quarterly
									1NS-12B - Position Indicator (Open and Closed)	Tested once every two years
									1NS-12B - Stroke Time (Open to Closed)	Tested once quarterly
1NS-13	MCFD-1563-01.00	SA	Category C	SW	Yes	2			1NS-13 - Exercise (Both)	Condition Monitoring
1NS-15B	MCFD-1563-01.00	MR	Category B	GA	Yes	2			1NS-15B - Stroke Time (Cls to Opn)	Tested once quarterly
									1NS-15B - Position Indicator (Open and Closed)	Tested once every two years
									1NS-15B - Stroke Time (Open to Closed)	Tested once quarterly
1NS-16	MCFD-1563-01.00	SA	Category C	SW	Yes	2			1NS-16 - Exercise (Both)	Condition Monitoring
1NS-18A	MCFD-1563-01.00	MR	Category B	GA	Yes	2		MC-NS-06	1NS-18A - Stroke Time (Cls to Opn)	Tested at cold shutdown
									1NS-18A - Position Indicator (Open and Closed)	Tested once every two years
1NS-19	MCFD-1563-01.00	SA	Category C	RV	Yes	2			1NS-19 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1NS-20A	MCFD-1563-01.00	MR	Category B	GA	Yes	2		MC-NS-05	1NS-20A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1NS-20A - Position Indicator (Open and Closed)	Tested once every two years

# MCGUIRE NUCLEAR STATION

## NS - CONTAINMENT SPRAY SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1NS-21	MCFD-1563-01.00	SA	Category C	SW	Yes	2			1NS-21 - Exercise (Both)	Condition Monitoring
1NS-29A	MCFD-1563-01.00	MR	Category B	GA	Yes	2			1NS-29A - Stroke Time (Cls to Opn)	Tested once quarterly
									1NS-29A - Position Indicator (Open and Closed)	Tested once every two years
									1NS-29A - Stroke Time (Open to Closed)	Tested once quarterly
1NS-30	MCFD-1563-01.00	SA	Category C	SW	Yes	2			1NS-30 - Exercise (Both)	Condition Monitoring
1NS-32A	MCFD-1563-01.00	MR	Category B	GA	Yes	2			1NS-32A - Stroke Time (Cls to Opn)	Tested once quarterly
									1NS-32A - Position Indicator (Open and Closed)	Tested once every two years
									1NS-32A - Stroke Time (Open to Closed)	Tested once quarterly
1NS-33	MCFD-1563-01.00	SA	Category C	SW	Yes	2			1NS-33 - Exercise (Both)	Condition Monitoring
1NS-38B	MCFD-1563-01.00	MR	Category B	GA	Yes	2		MC-NS-01	1NS-38B - Stroke Time (Cls to Opn)	Tested at cold shutdown
									1NS-38B - Position Indicator (Open and Closed)	Tested once every two years
									1NS-38B - Stroke Time (Open to Closed)	Tested at cold shutdown
1NS-41	MCFD-1563-01.00	SA	Category C	SW	Yes	2			1NS-41 - Exercise (Both)	Condition Monitoring
1NS-43A	MCFD-1563-01.00	MR	Category B	GA	Yes	2		MC-NS-01	1NS-43A - Stroke Time (Cls to Opn)	Tested at cold shutdown
									1NS-43A - Position Indicator (Open and Closed)	Tested once every two years
									1NS-43A - Stroke Time (Open to Closed)	Tested at cold shutdown
1NS-46	MCFD-1563-01.00	SA	Category C	CK	Yes	2			1NS-46 - Exercise (Both)	Condition Monitoring
1NS-140	MCFD-1563-01.00	SA	Category C	WC	Yes	2			1NS-140 - Exercise (Both)	Condition Monitoring
1NS-141	MCFD-1563-01.00	SA	Category C	WC	Yes	2			1NS-141 - Exercise (Both)	Condition Monitoring
1NS-161	MCFD-1563-01.00	SA	Category AC	CK	Yes	2			1NS-161- Leak Test Non-Appendix J	Tested once every two years

## MCGUIRE NUCLEAR STATION

### NS - CONTAINMENT SPRAY SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									1NS-161 - Exercise (Both)	Condition Monitoring
1NS-163	MCFD-1563-01.00	SA	Category AC	CK	Yes	2			1NS-163 - Exercise (Both)	Condition Monitoring
									1NS-163 - Leak Test Non-Appendix J	Tested once every two years
1NSSV5550	MCFD-1563-01.00	SO	Category A	SV	Yes	2			1NSSV5550 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1NSSV5550 Fast Acting Stroke Time (Open to Closed)	Tested once quarterly
									1NSSV5550 - Position Indicator (Open and Closed)	Tested once every two years
1NSSV5551	MCFD-1563-01.00	SO	Category A	SV	Yes	2			1NSSV5551 - Fast Acting Stroke Time (Opn to Cls)	Tested once quarterly
									1NSSV5551 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1NSSV5551 - Position Indicator (Open and Closed)	Tested once every two years
2NS-1B	MCFD-2563-01.00	MR	Category B	GA	Yes	2		MC-NS-06	2NS-1B - Stroke Time (Cls to Opn)	Tested at cold shutdown
									2NS-1B - Position Indicator (Open and Closed)	Tested once every two years
2NS-2	MCFD-2563-01.00	SA	Category C	RV	Yes	2			2NS-2 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2NS-3B	MCFD-2563-01.00	MR	Category B	GA	Yes	2		MC-NS-05	2NS-3B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2NS-3B - Position Indicator (Open and Closed)	Tested once every two years
2NS-4	MCFD-2563-01.00	SA	Category C	SW	Yes	2			2NS-4 - Exercise (Both)	Condition Monitoring
2NS-12B	MCFD-2563-01.00	MR	Category B	GA	Yes	2			2NS-12B - Stroke Time (Cls to Opn)	Tested once quarterly
									2NS-12B - Position Indicator (Open and Closed)	Tested once every two years
									2NS-12B - Stroke Time (Open to Closed)	Tested once quarterly



# MCGUIRE NUCLEAR STATION

## NS - CONTAINMENT SPRAY SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2NS-13	MCFD-2563-01.00	SA	Category C	SW	Yes	2			2NS-13 - Exercise (Both)	Condition Monitoring
2NS-15B	MCFD-2563-01.00	MR	Category B	GA	Yes	2			2NS-15B - Stroke Time (Cls to Opn)	Tested once quarterly
									2NS-15B - Position Indicator (Open and Closed)	Tested once every two years
									2NS-15B - Stroke Time (Open to Closed)	Tested once quarterly
2NS-16	MCFD-2563-01.00	SA	Category C	SW	Yes	2			2NS-16 - Exercise (Both)	Condition Monitoring
2NS-18A	MCFD-2563-01.00	MR	Category B	GA	Yes	2		MC-NS-06	2NS-18A - Stroke Time (Cls to Opn)	Tested at cold shutdown
									2NS-18A - Position Indicator (Open and Closed)	Tested once every two years
2NS-19	MCFD-2563-01.00	SA	Category C	RV	Yes	2			2NS-19 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2NS-20A	MCFD-2563-01.00	MR	Category B	GA	Yes	2		MC-NS-05	2NS-20A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2NS-20A - Position Indicator (Open and Closed)	Tested once every two years
2NS-21	MCFD-2563-01.00	SA	Category C	SW	Yes	2			2NS-21 - Exercise (Both)	Condition Monitoring
2NS-29A	MCFD-2563-01.00	MR	Category B	GA	Yes	2			2NS-29A - Stroke Time (Cls to Opn)	Tested once quarterly
									2NS-29A - Position Indicator (Open and Closed)	Tested once every two years
									2NS-29A - Stroke Time (Open to Closed)	Tested once quarterly
2NS-30	MCFD-2563-01.00	SA	Category C	SW	Yes	2			2NS-30 - Exercise (Both)	Condition Monitoring
2NS-32A	MCFD-2563-01.00	MR	Category B	GA	Yes	2			2NS-32A - Stroke Time (Cls to Opn)	Tested once quarterly
									2NS-32A - Position Indicator (Open and Closed)	Tested once every two years
									2NS-32A - Stroke Time (Open to Closed)	Tested once quarterly
2NS-33	MCFD-2563-01.00	SA	Category C	SW	Yes	2			2NS-33 - Exercise (Both)	Condition Monitoring
2NS-38B	MCFD-2563-01.00	MR	Category B	GA	Yes	2		MC-NS-01	2NS-38B - Stroke Time (Cls to Opn)	Tested at cold shutdown

# MCGUIRE NUCLEAR STATION

## NS - CONTAINMENT SPRAY SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									2NS-38B - Position Indicator (Open and Closed)	Tested once every two years
									2NS-38B - Stroke Time (Open to Closed)	Tested at cold shutdown
2NS-41	MCFD-2563-01.00	SA	Category C	SW	Yes	2			2NS-41 - Exercise (Both)	Condition Monitoring
2NS-43A	MCFD-2563-01.00	MR	Category B	GA	Yes	2		MC-NS-01	2NS-43A - Stroke Time (CIs to Opn)	Tested at cold shutdown
									2NS-43A - Position Indicator (Open and Closed)	Tested once every two years
									2NS-43A - Stroke Time (Open to Closed)	Tested at cold shutdown
2NS-46	MCFD-2563-01.00	SA	Category C	SW	Yes	2			2NS-46 - Exercise (Both)	Condition Monitoring
2NS-161	MCFD-2563-01.00	SA	Category AC	CK	Yes	2			2NS-161 - Leak Test Non-Appendix J	Tested once every two years
									2NS-161 - Exercise (Both)	Condition Monitoring
2NS-163	MCFD-2563-01.00	SA	Category AC	CK	Yes	2			2NS-163 - Leak Test Non-Appendix J	Tested once every two years
									2NS-163 - Exercise (Both)	Condition Monitoring
2NSSV5550	MCFD-2563-01.00	SO	Category A		Yes	2			2NSSV5550 - Fast Acting Stroke Time (Opn to CIs)	Tested once quarterly
									2NSSV5550 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2NSSV5550 - Position Indicator (Open and Closed)	Tested once every two years
2NSSV5551	MCFD-2563-01.00	SO	Category A		Yes	2			2NSSV5551 - Fast Acting Stroke Time (Opn to CIs)	Tested once quarterly
									2NSSV5551 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2NSSV5551 - Position Indicator (Open and Closed)	Tested once every two years

# MCGUIRE NUCLEAR STATION

## NV - CHEMICAL AND VOLUME CONTROL

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1NV-6	MCFD-1554-01.02	SA	Category C	RV	Yes	2			1NV-6 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1NV-7B	MCFD-1554-01.02	MR	Category B	GL	Yes	2		MC-NV-02	1NV-7B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1NV-7B - Position Indicator (Open and Closed)	Tested once every two years
1NV-29	MCFD-1554-01.00	SA	Category C	LC	Yes	2			1NV-29 - Exercise (Both)	Condition Monitoring
1NV-31	MCFD-1554-01.00	SA	Category C	LC	Yes	1			1NV-31 - Exercise (Both)	Condition Monitoring
1NV-35A	MCFD-1554-01.02	AO	Category B	GA	Yes	2		MC-NV-19	1NV-35A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1NV-35A - Position Indicator (Open and Closed)	Tested once every two years
1NV-45	MCFD-1554-01.00	SA	Category C	LC	Yes	2			1NV-45 - Exercise (Both)	Condition Monitoring
1NV-47	MCFD-1554-01.00	SA	Category C	LC	Yes	1			1NV-47 - Exercise (Both)	Condition Monitoring
1NV-61	MCFD-1554-01.01	SA	Category C	LC	Yes	2			1NV-61 - Exercise (Both)	Condition Monitoring
1NV-63	MCFD-1554-01.01	SA	Category C	LC	Yes	1			1NV-63 - Exercise (Both)	Condition Monitoring
1NV-77	MCFD-1554-01.01	SA	Category C	LC	Yes	2			1NV-77 - Exercise (Both)	Condition Monitoring
1NV-79	MCFD-1554-01.01	SA	Category C	LC	Yes	1			1NV-79 - Exercise (Both)	Condition Monitoring
1NV-93	MCFD-1554-01.01	SA	Category C	RV	Yes	2			1NV-93 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1NV-94AC	MCFD-1554-01.01	MR	Category B	GA	Yes	2		MC-NV-01	1NV-94AC - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1NV-94AC - Position Indicator (Open and Closed)	Tested once every two years
1NV-95B	MCFD-1554-01.01	MR	Category B	GA	Yes	2		MC-NV-01	1NV-95B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1NV-95B - Position Indicator (Open and Closed)	Tested once every two years
1NV-96	MCFD-1554-01.01	SA	Category C	LC	Yes	2			1NV-96 - Exercise (Both)	Condition Monitoring

# MCGUIRE NUCLEAR STATION

## NV - CHEMICAL AND VOLUME CONTROL

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1NV-141A	MCFD-1554-02.00	MR	Category B	GA	Yes	2		MC-NV-04	1NV-141A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1NV-141A - Position Indicator (Open and Closed)	Tested once every two years
1NV-142B	MCFD-1554-02.00	MR	Category B	GA	Yes	2		MC-NV-04	1NV-142B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1NV-142B - Position Indicator (Open and Closed)	Tested once every two years
1NV-150B	MCFD-1554-02.01	MR	Category B	GL	Yes	2		MC-NV-08	1NV-150B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1NV-150B - Position Indicator (Open and Closed)	Tested once every two years
									1NV-150B - Stroke Time (Closed to Open)	Tested at cold shutdown
1NV-151A	MCFD-1554-02.01	MR	Category B	GL	Yes	2		MC-NV-08	1NV-151A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1NV-151A - Position Indicator (Open and Closed)	Tested once every two years
									1NV-151A - Stroke Time (Closed to Open)	Tested at cold shutdown
1NV-170	MCFD-1554-02.00	SA	Category C	RV	Yes	2			1NV-170 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1NV-218	MCFD-1554-03.00	SA	Category C	SW	Yes	2			1NV-218 - Exercise (Both)	Condition Monitoring
1NV-221A	MCFD-1554-03.01	MR	Category B	GA	Yes	2		MC-NV-06	1NV-221A - Stroke Time (Open to Closed)	Tested at cold shutdown
									1NV-221A - Stroke Time (Closed to Open)	Tested at cold shutdown
									1NV-221A - Position Indicator (Open and Closed)	Tested once every two years
1NV-222B	MCFD-1554-03.01	MR	Category B	GA	Yes	2		MC-NV-06	1NV-222B - Stroke Time (Open to Closed)	Tested at cold shutdown
									1NV-222B - Stroke Time (Closed to Open)	Tested at cold shutdown
									1NV-222B - Position Indicator (Open and Closed)	Tested once every two years
1NV-223	MCFD-1554-03.01	SA	Category C	SW	Yes	2			1NV-223 - Exercise (Both)	Condition Monitoring
1NV-225	MCFD-1554-03.01	SA	Category C	SW	Yes	2			1NV-225 - Exercise (Both)	Condition Monitoring

# MCGUIRE NUCLEAR STATION

## NV - CHEMICAL AND VOLUME CONTROL

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1NV-227	MCFD-1554-03.01	SA	Category C	LC	Yes	2			1NV-227 - Exercise (Both)	Condition Monitoring
1NV-229	MCFD-1554-03.01	SA	Category C	RV	Yes	2			1NV-229 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1NV-231	MCFD-1554-03.01	SA	Category C	SW	Yes	2			1NV-231 - Exercise (Both)	Condition Monitoring
1NV-233	MCFD-1554-03.01	SA	Category C	LC	Yes	2			1NV-233 - Exercise (Both)	Condition Monitoring
1NV-244A	MCFD-1554-03.00	MR	Category B	GA	Yes	2		MC-NV-05	1NV-244A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1NV-244A - Position Indicator (Open and Closed)	Tested once every two years
1NV-245B	MCFD-1554-03.00	MR	Category B	GA	Yes	2		MC-NV-05	1NV-245B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1NV-245B - Position Indicator (Open and Closed)	Tested once every two years
1NV-264	MCFD-1554-03.01	SA	Category C	SW	Yes	2			1NV-264 - Exercise (Both)	Condition Monitoring
1NV-265B	MCFD-1554-03.01	MR	Category B	GL	Yes	2		MC-NV-09	1NV-265B - Stroke Time (Cls to Opn)	Tested at cold shutdown
									1NV-265B - Position Indicator (Open and Closed)	Tested once every two years
1NV-383	MCFD-1554-05.00	SA	Category C	LC	Yes	3			1NV-383 - Exercise (Both)	Condition Monitoring
1NV-386	MCFD-1554-05.00	SA	Category C	LC	Yes	3			1NV-386 - Exercise (Both)	Condition Monitoring
1NV-457A	MCFD-1554-01.02	AO	Category B	GA	Yes	2		MC-NV-19	1NV-457A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1NV-457A - Position Indicator (Open and Closed)	Tested once every two years
1NV-458A	MCFD-1554-01.02	AO	Category B	GA	Yes	2		MC-NV-19	1NV-458A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1NV-458A - Position Indicator (Open and Closed)	Tested once every two years
1NV-810	MCFD-1554-01.00	SA	Category C	LC	Yes	1			1NV-810 - Exercise (Both)	Condition Monitoring
1NV-811	MCFD-1554-01.00	SA	Category C	LC	Yes	1			1NV-811 - Exercise (Both)	Condition Monitoring
1NV-812	MCFD-1554-01.01	SA	Category C	LC	Yes	1			1NV-812 - Exercise (Both)	Condition Monitoring

# MCGUIRE NUCLEAR STATION

## NV - CHEMICAL AND VOLUME CONTROL

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1NV-813	MCFD-1554-01.01	SA	Category C	LC	Yes	1			1NV-813 - Exercise (Both)	Condition Monitoring
1NV-841	MCFD-1554-01.02	SA	Category C	SW	Yes	2			1NV-841 - Exercise (Both)	Condition Monitoring
1NV-849AC	MCFD-1554-01.03	MR	Category A	GL	Yes	2			1NV-849AC - Stroke Time (Opn to CIs)	Tested once quarterly
									1NV-849AC - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1NV-849AC - Position Indicator (Open and Closed)	Tested once every two years
1NV-1002	MCFD-1554-01.03	SA	Category AC	LC	Yes	2			1NV-1002 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1NV-1002 - Exercise (Both)	Condition Monitoring
2NV-6	MCFD-2554-01.02	SA	Category C	RV	Yes	2			2NV-6 - Relief Valve Test (CIs to Opn)	Test relief valve per Appendix I schedule
2NV-7B	MCFD-2554-01.02	MR	Category B	GL	Yes	2		MC-NV-02	2NV-7B - Stroke Time (Opn to CIs)	Tested at cold shutdown
									2NV-7B - Position Indicator (Open and Closed)	Tested once every two years
2NV-29	MCFD-2554-01.00	SA	Category C	LC	Yes	2			2NV-29 - Exercise (Both)	Condition Monitoring
2NV-31	MCFD-2554-01.00	SA	Category C	LC	Yes	1			2NV-31 - Exercise (Both)	Condition Monitoring
2NV-35A	MCFD-2554-01.02	AO	Category B	GA	Yes	2		MC-NV-19	2NV-35A - Stroke Time (Opn to CIs)	Tested at cold shutdown
									2NV-35A - Position Indicator (Open and Closed)	Tested once every two years
2NV-45	MCFD-2554-01.00	SA	Category C	LC	Yes	2			2NV-45 - Exercise (Both)	Condition Monitoring
2NV-47	MCFD-2554-01.00	SA	Category C	LC	Yes	1			2NV-47 - Exercise (Both)	Condition Monitoring
2NV-61	MCFD-2554-01.01	SA	Category C	LC	Yes	2			2NV-61 - Exercise (Both)	Condition Monitoring
2NV-63	MCFD-2554-01.01	SA	Category C	LC	Yes	1			2NV-63 - Exercise (Both)	Condition Monitoring
2NV-77	MCFD-2554-01.01	SA	Category C	LC	Yes	2			2NV-77 - Exercise (Both)	Condition Monitoring

# MCGUIRE NUCLEAR STATION

## NV - CHEMICAL AND VOLUME CONTROL

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2NV-79	MCFD-2554-01.01	SA	Category C	LC	Yes	1			2NV-79 - Exercise (Both)	Condition Monitoring
2NV-93	MCFD-2554-01.01	SA	Category C	RV	Yes	2			2NV-93 - Relief Valve Test (CIs to Opn)	Test relief valve per Appendix I schedule
2NV-94AC	MCFD-2554-01.01	MR	Category B	GA	Yes	2		MC-NV-01	2NV-94AC - Stroke Time (Opn to CIs)	Tested at cold shutdown
									2NV-94AC - Position Indicator (Open and Closed)	Tested once every two years
2NV-95B	MCFD-2554-01.01	MR	Category B	GA	Yes	2		MC-NV-01	2NV-95B - Stroke Time (Opn to CIs)	Tested at cold shutdown
									2NV-95B - Position Indicator (Open and Closed)	Tested once every two years
2NV-96	MCFD-2554-01.01	SA	Category C	LC	Yes	2			2NV-96 - Exercise (Both)	Condition Monitoring
2NV-141A	MCFD-2554-02.00	MR	Category B	GA	Yes	2		MC-NV-04	2NV-141A - Stroke Time (Opn to CIs)	Tested at cold shutdown
									2NV-141A - Position Indicator (Open and Closed)	Tested once every two years
2NV-142B	MCFD-2554-02.00	MR	Category B	GA	Yes	2		MC-NV-04	2NV-142B - Stroke Time (Opn to CIs)	Tested at cold shutdown
									2NV-142B - Position Indicator (Open and Closed)	Tested once every two years
2NV-150B	MCFD-2554-02.01	ML	Category B	GL	Yes	2		MC-NV-08	2NV-150B - Stroke Time (Opn to CIs)	Tested at cold shutdown
									2NV-150B - Position Indicator (Open and Closed)	Tested once every two years
									2NV-150B - Stroke Time (Closed to Open)	Tested at cold shutdown
2NV-151A	MCFD-2554-02.01	MR	Category B	GL	Yes	2		MC-NV-08	2NV-151A - Stroke Time (Opn to CIs)	Tested at cold shutdown
									2NV-151A - Position Indicator (Open and Closed)	Tested once every two years
									2NV-151A - Stroke Time (Closed to Open)	Tested at cold shutdown
2NV-170	MCFD-2554-02.00	SA	Category C	RV	Yes	2			2NV-170 - Relief Valve Test (CIs to Opn)	Test relief valve per Appendix I schedule
2NV-218	MCFD-2554-03.00	SA	Category C	SW	Yes	2			2NV-218 - Exercise (Both)	Condition Monitoring

# MCGUIRE NUCLEAR STATION

## NV - CHEMICAL AND VOLUME CONTROL

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2NV-221A	MCFD-2554-03.01	MR	Category B	GA	Yes	2		MC-NV-06	2NV-221A - Stroke Time (Open to Closed)	Tested at cold shutdown
									2NV-221A - Stroke Time (Closed to Open)	Tested at cold shutdown
									2NV-221A - Position Indicator (Open and Closed)	Tested once every two years
2NV-222B	MCFD-2554-03.01	MR	Category B	GA	Yes	2		MC-NV-06	2NV-222B - Stroke Time (Open to Closed)	Tested at cold shutdown
									2NV-222B - Stroke Time (Closed to Open)	Tested at cold shutdown
									2NV-222B - Position Indicator (Open and Closed)	Tested once every two years
2NV-223	MCFD-2554-03.01	SA	Category C	SW	Yes	2			2NV-223 - Exercise (Both)	Condition Monitoring
2NV-225	MCFD-2554-03.01	SA	Category C	SW	Yes	2			2NV-225 - Exercise (Both)	Condition Monitoring
2NV-227	MCFD-2554-03.01	SA	Category C	LC	Yes	2			2NV-227 - Exercise (Both)	Condition Monitoring
2NV-229	MCFD-2554-03.01	SA	Category C	RV	Yes	2			2NV-229 - Relief Valve Test (CIs to Opn)	Test relief valve per Appendix I schedule
2NV-231	MCFD-2554-03.01	SA	Category C	SW	Yes	2			2NV-231 - Exercise (Both)	Condition Monitoring
2NV-233	MCFD-2554-03.01	SA	Category C	LC	Yes	2			2NV-233 - Exercise (Both)	Condition Monitoring
2NV-244A	MCFD-2554-03.00	MR	Category B	GA	Yes	2		MC-NV-05	2NV-244A - Stroke Time (Opn to CIs)	Tested at cold shutdown
									2NV-244A - Position Indicator (Open and Closed)	Tested once every two years
2NV-245B	MCFD-2554-03.00	MR	Category B	GA	Yes	2		MC-NV-05	2NV-245B - Stroke Time (Opn to CIs)	Tested at cold shutdown
									2NV-245B - Position Indicator (Open and Closed)	Tested once every two years
2NV-264	MCFD-2554-03.01	SA	Category C	SW	Yes	2			2NV-264 - Exercise (Both)	Condition Monitoring
2NV-265B	MCFD-2554-03.01	MR	Category B	GL	Yes	2		MC-NV-09	2NV-265B - Stroke Time (CIs to Opn)	Tested at cold shutdown
									2NV-265B - Position Indicator (Open and Closed)	Tested once every two years
2NV-383	MCFD-2554-05.00	SA	Category C	LC	Yes	3			2NV-383 - Exercise (Both)	Condition Monitoring



## MCGUIRE NUCLEAR STATION

### NV - CHEMICAL AND VOLUME CONTROL

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2NV-386	MCFD-2554-05.00	SA	Category C	LC	Yes	3			2NV-386 - Exercise (Both)	Condition Monitoring
2NV-457A	MCFD-2554-01.02	AO	Category B	GA	Yes	2		MC-NV-19	2NV-457A - Stroke Time (Opn to Cts)	Tested at cold shutdown
									2NV-457A - Position Indicator (Open and Closed)	Tested once every two years
2NV-458A	MCFD-2554-01.02	AO	Category B	GA	Yes	2		MC-NV-19	2NV-458A - Stroke Time (Opn to Cts)	Tested at cold shutdown
									2NV-458A - Position Indicator (Open and Closed)	Tested once every two years
2NV-810	MCFD-2554-01.00	SA	Category C	LC	Yes	1			2NV-810 - Exercise (Both)	Condition Monitoring
2NV-811	MCFD-2554-01.00	SA	Category C	LC	Yes	1			2NV-811 - Exercise (Both)	Condition Monitoring
2NV-812	MCFD-2554-01.01	SA	Category C	LC	Yes	1			2NV-812 - Exercise (Both)	Condition Monitoring
2NV-813	MCFD-2554-01.01	SA	Category C	LC	Yes	1			2NV-813 - Exercise (Both)	Condition Monitoring
2NV-841	MCFD-2554-01.02	SA	Category C	SW	Yes	2			2NV-841 - Exercise (Both)	Condition Monitoring
2NV-849AC	MCFD-2554-01.03	MR	Category A	GL	Yes	2			2NV-849AC - Stroke Time (Opn to Cts)	Tested once quarterly
									2NV-849AC - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2NV-849AC - Position Indicator (Open and Closed)	Tested once every two years
2NV-1002	MCFD-2554-01.03	SA	Category AC	LC	Yes	2			2NV-1002 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2NV-1002 - Exercise (Both)	Condition Monitoring

# MCGUIRE NUCLEAR STATION

## RF - FIRE PROTECTION SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1RF-821A	MCFD-1599-02.02	AO	Category A	DP	Yes	2		MC-RF-02	1RF-821A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1RF-821A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1RF-821A - Position Indicator (Open and Closed)	Tested once every two years
1RF-823	MCFD-1599-02.02	SA	Category AC	CK	Yes	2			1RF-823 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1RF-823 - Exercise (Both)	Condition Monitoring
1RF-832A	MCFD-1599-02.02	AO	Category A	DP	Yes	2		MC-RF-02	1RF-832A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1RF-832A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1RF-832A - Position Indicator (Open and Closed)	Tested once every two years
1RF-834	MCFD-1599-02.02	SA	Category AC	SW	Yes	2			1RF-834 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1RF-834 - Exercise (Both)	Condition Monitoring

# MCGUIRE NUCLEAR STATION

## RN - NUCLEAR SERVICE WATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
0RN-2B	MCFD-1574-01.00	ML	Category B	BF	Yes	3			0RN-2B - Stroke Time (Opn to Cls)	Tested once quarterly
									0RN-2B - Position Indicator (Open and Closed)	Tested once every two years
0RN-3A	MCFD-1574-01.00	ML	Category B	BF	Yes	3			0RN-3A - Stroke Time (Opn to Cls)	Tested once quarterly
									0RN-3A - Position Indicator (Open and Closed)	Tested once every two years
0RN-4AC	MCFD-1574-01.00	ML	Category B	BF	Yes	3			0RN-4AC - Stroke Time (Opn to Cls)	Tested once quarterly
									0RN-4AC - Position Indicator (Open and Closed)	Tested once every two years
0RN-5B	MCFD-1574-01.00	ML	Category B	BF	Yes	3			0RN-5B - Stroke Time (Opn to Cls)	Tested once quarterly
									0RN-5B - Position Indicator (Open and Closed)	Tested once every two years
0RN-7A	MCFD-1574-01.00	ML	Category B	BF	Yes	3			0RN-7A - Stroke Time (Opn to Cls)	Tested once quarterly
									0RN-7A - Position Indicator (Open and Closed)	Tested once every two years
0RN-9B	MCFD-1574-01.00	ML	Category B	BF	Yes	3			0RN-9B - Stroke Time (Cls to Opn)	Tested once quarterly
									0RN-9B - Position Indicator (Open and Closed)	Tested once every two years
0RN-10AC	MCFD-1574-01.00	ML	Category B	BF	Yes	3			0RN-10AC - Stroke Time (Opn to Cls)	Tested once quarterly
									0RN-10AC - Position Indicator (Open and Closed)	Tested once every two years
0RN-11B	MCFD-1574-01.00	ML	Category B	BF	Yes	3			0RN-11B - Stroke Time (Opn to Cls)	Tested once quarterly
									0RN-11B - Position Indicator (Open and Closed)	Tested once every two years
0RN-12AC	MCFD-1574-01.00	ML	Category B	BF	Yes	3			0RN-12AC - Stroke Time (Cls to Opn)	Tested once quarterly
									0RN-12AC - Position Indicator (Open and Closed)	Tested once every two years
0RN-13A	MCFD-1574-01.00	ML	Category B	BF	Yes	3			0RN-13A - Stroke Time (Cls to Opn)	Tested once quarterly
									0RN-13A - Position Indicator (Open and Closed)	Tested once every two years

# MCGUIRE NUCLEAR STATION

## RN - NUCLEAR SERVICE WATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
ORN-14A	MCFD-1574-01.00	ML	Category B	BF	Yes	3			ORN-14A - Stroke Time (Opn to Cls)	Tested once quarterly
									ORN-14A - Position Indicator (Open and Closed)	Tested once every two years
ORN-15B	MCFD-1574-01.00	ML	Category B	BF	Yes	3			ORN-15B - Stroke Time (Opn to Cls)	Tested once quarterly
									ORN-15B - Position Indicator (Open and Closed)	Tested once every two years
ORN-147AC	MCFD-1574-01.00	ML	Category B	BF	Yes	3			ORN-147AC - Stroke Time (Cls to Opn)	Tested once quarterly
									ORN-147AC - Position Indicator (Open and Closed)	Tested once every two years
									ORN-147AC - Stroke Time (Open to Closed)	Tested once quarterly
ORN-148AC	MCFD-1574-01.00	ML	Category B	BF	Yes	3			ORN-148AC - Stroke Time (Cls to Opn)	Tested once quarterly
									ORN-148AC - Position Indicator (Open and Closed)	Tested once every two years
ORN-149A	MCFD-1574-01.00	ML	Category B	BF	Yes	3			ORN-149A - Stroke Time (Opn to Cls)	Tested once quarterly
									ORN-149A - Position Indicator (Open and Closed)	Tested once every two years
ORN-150A	MCFD-1574-01.00	ML	Category B	BF	Yes	3			ORN-150A - Stroke Time (Opn to Cls)	Tested once quarterly
									ORN-150A - Position Indicator (Open and Closed)	Tested once every two years
ORN-151B	MCFD-1574-01.00	ML	Category B	BF	Yes	3			ORN-151B - Stroke Time (Opn to Cls)	Tested once quarterly
									ORN-151B - Position Indicator (Open and Closed)	Tested once every two years
ORN-152B	MCFD-1574-01.00	ML	Category B	BF	Yes	3			ORN-152B - Stroke Time (Cls to Opn)	Tested once quarterly
									ORN-152B - Position Indicator (Open and Closed)	Tested once every two years
ORN-283AC	MCFD-1574-01.00	ML	Category B	BF	Yes	3			ORN-283AC - Stroke Time (Opn to Cls)	Tested once quarterly
									ORN-283AC - Position Indicator (Open and Closed)	Tested once every two years
ORN-284B	MCFD-1574-01.00	ML	Category B	BF	Yes	3			ORN-284B - Stroke Time (Opn to Cls)	Tested once quarterly

# MCGUIRE NUCLEAR STATION

## RN - NUCLEAR SERVICE WATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									0RN-284B - Position Indicator (Open and Closed)	Tested once every two years
0RN-301AC	MCFD-1574-01.00	ML	Category B	BF	Yes	3			0RN-301AC - Stroke Time (Opn to Cls)	Tested once quarterly
									0RN-301AC - Position Indicator (Open and Closed)	Tested once every two years
0RN-302B	MCFD-1574-01.00	ML	Category B	BF	Yes	3			0RN-302B - Stroke Time (Opn to Cls)	Tested once quarterly
									0RN-302B - Position Indicator (Open and Closed)	Tested once every two years
1RN-16A	MCFD-1574-01.01	ML	Category B	BF	Yes	3		MC-RN-07	1RN-16A - Stroke Time (Cls to Opn)	Tested at cold shutdown
									1RN-16A - Position Indicator (Open and Closed)	Tested once every two years
1RN-18B	MCFD-1574-01.01	ML	Category B	BF	Yes	3		MC-RN-07	1RN-18B - Stroke Time (Cls to Opn)	Tested once quarterly
									1RN-18B - Position Indicator (Open and Closed)	Tested once every two years
1RN-21A	MCFD-1574-01.01	AO	Category B	DP	Yes	3			1RN-21A - Stroke Time (Opn to Cls)	Tested once quarterly
									1RN-21A - Position Indicator (Open and Closed)	Tested once every two years
									1RN-21A - Stroke Time (Closed to Open)	Tested once quarterly
1RN-25B	MCFD-1574-01.01	AO	Category B	DP	Yes	3			1RN-25B - Stroke Time (Opn to Cls)	Tested once quarterly
									1RN-25B - Position Indicator (Open and Closed)	Tested once every two years
									1RN-25B - Stroke Time (Closed to Open)	Tested once quarterly
1RN-28	MCFD-1574-01.01	SA	Category C	SW	Yes	3			1RN-28 - Exercise (Both)	Condition Monitoring
1RN-30	MCFD-1574-01.01	SA	Category C	SW	Yes	3			1RN-30 - Exercise (Both)	Condition Monitoring
1RN-40A	MCFD-1574-01.01	MR	Category B	BF	Yes	3			1RN-40A - Stroke Time (Opn to Cls)	Tested once quarterly
									1RN-40A - Position Indicator (Open and Closed)	Tested once every two years
1RN-41B	MCFD-1574-01.01	MR	Category B	BF	Yes	3			1RN-41B - Stroke Time (Opn to Cls)	Tested once quarterly

# MCGUIRE NUCLEAR STATION

## RN - NUCLEAR SERVICE WATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									1RN-41B - Position Indicator (Open and Closed)	Tested once every two years
1RN-42A	MCFD-1574-04.00	MR	Category B	BF	Yes	3			1RN-42A - Stroke Time (Opn to Cls)	Tested once quarterly
									1RN-42A - Position Indicator (Open and Closed)	Tested once every two years
1RN-43A	MCFD-1574-01.01	MR	Category B	BF	Yes	3			1RN-43A - Stroke Time (Opn to Cls)	Tested once quarterly
									1RN-43A - Position Indicator (Open and Closed)	Tested once every two years
1RN-63B	MCFD-1574-01.00	MR	Category B	BF	Yes	3			1RN-63B - Stroke Time (Opn to Cls)	Tested once quarterly
									1RN-63B - Position Indicator (Open and Closed)	Tested once every two years
1RN-64A	MCFD-1574-01.00	MR	Category B	BF	Yes	3			1RN-64A - Stroke Time (Opn to Cls)	Tested once quarterly
									1RN-64A - Position Indicator (Open and Closed)	Tested once every two years
1RN-68A	MCFD-1574-01.01	AO	Category B	DP	Yes	3			1RN-68A - Fast Acting Stroke Time (Cls to Open)	Tested once quarterly
									1RN-68A - Position Indicator (Open and Closed)	Tested once every two years
1RN-69A	MCFD-1574-02.00	MR	Category B	GA	Yes	3			1RN-69A - Stroke Time (Cls to Opn)	Tested once quarterly
									1RN-69A - Position Indicator (Open and Closed)	Tested once every two years
1RN-70A	MCFD-1574-02.00	MR	Category B	BF	Yes	3			1RN-70A - Stroke Time (Cls to Opn)	Tested once quarterly
									1RN-70A - Position Indicator (Open and Closed)	Tested once every two years
1RN-86A	MCFD-1574-02.00	ML	Category B	BF	Yes	3			1RN-86A - Stroke Time (Cls to Opn)	Tested once quarterly
									1RN-86A - Position Indicator (Open and Closed)	Tested once every two years
1RN-89A	MCFD-1574-02.00	AO	Category B	BF	Yes	3			1RN-89A - Stroke Time (Cls to Opn)	Tested once quarterly
									1RN-89A - Position Indicator (Open and Closed)	Tested once every two years
1RN-103A	MCFD-1574-02.01	AO	Category B	DP	Yes	3			1RN-103A - Fast Acting Stroke Time (Cls to Open)	Tested once quarterly

# MCGUIRE NUCLEAR STATION

## RN - NUCLEAR SERVICE WATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									1RN-103A - Position Indicator (Open and Closed)	Tested once every two years
1RN-112A	MCFD-1574-02.00	AO	Category B	DP	Yes	3			1RN-112A - Stroke Time (Cls to Opn)	Tested once quarterly
									1RN-112A - Position Indicator (Open and Closed)	Tested once every two years
1RN-114A	MCFD-1574-02.01	AO	Category B	DP	Yes	3			1RN-114A - Stroke Time (Cls to Opn)	Tested once quarterly
									1RN-114A - Position Indicator (Open and Closed)	Tested once every two years
1RN-117A	MCFD-1574-02.00	AO	Category B	DP	Yes	3			1RN-117A - Stroke Time (Cls to Opn)	Tested once quarterly
									1RN-117A - Position Indicator (Open and Closed)	Tested once every two years
1RN-126A	MCFD-1574-02.01	AO	Category B	DP	Yes	3			1RN-126A - Stroke Time (Cls to Opn)	Tested once quarterly
									1RN-126A - Position Indicator (Open and Closed)	Tested once every two years
1RN-130A	MCFD-1574-02.01	AO	Category B	DP	Yes	3			1RN-130A - Fast Acting Stroke Time (Cls to Open)	Tested once quarterly
									1RN-130A - Position Indicator (Open and Closed)	Tested once every two years
1RN-134A	MCFD-1574-02.01	ML	Category B	BF	Yes	3			1RN-134A - Stroke Time (Cls to Opn)	Tested once quarterly
									1RN-134A - Position Indicator (Open and Closed)	Tested once every two years
1RN-137A	MCFD-1574-02.01	ML	Category B	BF	Yes	3			1RN-137A - Stroke Time (Cls to Opn)	Tested once quarterly
									1RN-137A - Position Indicator (Open and Closed)	Tested once every two years
1RN-140A	MCFD-1574-02.00	AO	Category B	DP	Yes	3			1RN-140A - Fast Acting Stroke Time (Cls to Open)	Tested once quarterly
									1RN-140A - Position Indicator (Open and Closed)	Tested once every two years
1RN-161B	MCFD-1574-01.01	AO	Category B	DP	Yes	3			1RN-161B - Fast Acting Stroke Time (Cls to Open)	Tested once quarterly
									1RN-161B - Position Indicator (Open and Closed)	Tested once every two years
1RN-162B	MCFD-1574-03.00	MR	Category B	GA	Yes	3			1RN-162B - Stroke Time (Cls to Opn)	Tested once quarterly

# MCGUIRE NUCLEAR STATION

## RN - NUCLEAR SERVICE WATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									1RN-162B - Position Indicator (Open and Closed)	Tested once every two years
1RN-166A	MCFD-1574-02.00	AO	Category B	DP	Yes	3			1RN-166A - Fast Acting Stroke Time (CIs to Open)	Tested once quarterly
									1RN-166A - Position Indicator (Open and Closed)	Tested once every two years
1RN-170B	MCFD-1574-03.00	AO	Category B	DP	Yes	3			1RN-170B - Fast Acting Stroke Time (CIs to Open)	Tested once quarterly
									1RN-170B - Position Indicator (Open and Closed)	Tested once every two years
1RN-171B	MCFD-1574-03.00	MR	Category B	BF	Yes	3			1RN-171B - Stroke Time (CIs to Opn)	Tested once quarterly
									1RN-171B - Position Indicator (Open and Closed)	Tested once every two years
1RN-187B	MCFD-1574-03.00	ML	Category B	BF	Yes	3			1RN-187B - Stroke Time (CIs to Opn)	Tested once quarterly
									1RN-187B - Position Indicator (Open and Closed)	Tested once every two years
1RN-190B	MCFD-1574-03.00	AO	Category B	BF	Yes	3			1RN-190B - Stroke Time (CIs to Opn)	Tested once quarterly
									1RN-190B - Position Indicator (Open and Closed)	Tested once every two years
1RN-204B	MCFD-1574-03.01	AO	Category B	DP	Yes	3			1RN-204B - Fast Acting Stroke Time (CIs to Open)	Tested once quarterly
									1RN-204B - Position Indicator (Open and Closed)	Tested once every two years
1RN-213B	MCFD-1574-03.00	AO	Category B	DP	Yes	3			1RN-213B - Fast Acting Stroke Time (CIs to Open)	Tested once quarterly
									1RN-213B - Position Indicator (Open and Closed)	Tested once every two years
1RN-215B	MCFD-1574-03.01	AO	Category B	DP	Yes	3			1RN-215B - Stroke Time (CIs to Opn)	Tested once quarterly
									1RN-215B - Position Indicator (Open and Closed)	Tested once every two years
1RN-218B	MCFD-1574-03.00	AO	Category B	DP	Yes	3			1RN-218B - Stroke Time (CIs to Opn)	Tested once quarterly
									1RN-218B - Position Indicator (Open and Closed)	Tested once every two years
1RN-227B	MCFD-1574-03.01	AO	Category B	DP	Yes	3			1RN-227B - Fast Acting Stroke Time (CIs to Open)	Tested once quarterly



## MCGUIRE NUCLEAR STATION

### RN - NUCLEAR SERVICE WATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									1RN-227B - Position Indicator (Open and Closed)	Tested once every two years
1RN-231B	MCFD-1574-03.01	AO	Category B	DP	Yes	3			1RN-231B - Stroke Time (Cls to Opn)	Tested once quarterly
									1RN-231B - Position Indicator (Open and Closed)	Tested once every two years
1RN-235B	MCFD-1574-03.01	ML	Category B	BF	Yes	3			1RN-235B - Stroke Time (Cls to Opn)	Tested once quarterly
									1RN-235B - Position Indicator (Open and Closed)	Tested once every two years
1RN-238B	MCFD-1574-03.01	ML	Category B	BF	Yes	3			1RN-238B - Stroke Time (Cls to Opn)	Tested once quarterly
									1RN-238B - Position Indicator (Open and Closed)	Tested once every two years
1RN-240B	MCFD-1574-03.00	AO	Category B	DP	Yes	3			1RN-240B - Fast Acting Stroke Time (Cls to Open)	Tested once quarterly
									1RN-240B - Position Indicator (Open and Closed)	Tested once every two years
1RN-252B	MCFD-1574-04.00	AO	Category A	DP	Yes	2		MC-RN-01	1RN-252B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1RN-252B - Position Indicator (Open and Closed)	Tested once every two years
									1RN-252B - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage
1RN-253A	MCFD-1574-04.00	MR	Category A	DP	Yes	2		MC-RN-01	1RN-253A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1RN-253A - Position Indicator (Open and Closed)	Tested once every two years
									1RN-253A - Leak Test - Appendix J (Reverse Dir)	Tested every refueling outage
1RN-276A	MCFD-1574-04.00	MR	Category A	DP	Yes	2		MC-RN-02	1RN-276A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1RN-276A - Position Indicator (Open and Closed)	Tested once every two years
									1RN-276A - Leak Test - Appendix J (Reverse Dir)	Tested every refueling outage
1RN-277B	MCFD-1574-04.00	AO	Category A	DP	Yes	2		MC-RN-02	1RN-277B - Stroke Time (Opn to Cls)	Tested at cold shutdown

# MCGUIRE NUCLEAR STATION

## RN - NUCLEAR SERVICE WATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									1RN-277B - Position Indicator (Open and Closed)	Tested once every two years
									1RN-277B - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage
1RN-279B	MCFD-1574-01.00	MR	Category B	BF	Yes	3			1RN-279B - Stroke Time (Opn to Cls)	Tested once quarterly
									1RN-279B - Position Indicator (Open and Closed)	Tested once every two years
1RN-296A	MCFD-1574-01.00	ML	Category B	BF	Yes	3		MC-RN-08	1RN-296A - Stroke Time (Cls to Opn)	Tested once quarterly
									1RN-296A - Position Indicator (Open and Closed)	Tested once every two years
1RN-297B	MCFD-1574-01.00	ML	Category B	BF	Yes	3		MC-RN-08	1RN-297B - Stroke Time (Cls to Opn)	Tested once quarterly
									1RN-297B - Position Indicator (Open and Closed)	Tested once every two years
1RN-299A	MCFD-1574-01.00	MR	Category B	BF	Yes	3			1RN-299A - Stroke Time (Opn to Cls)	Tested once quarterly
									1RN-299A - Position Indicator (Open and Closed)	Tested once every two years
1RN-401	MCFD-1574-02.00	SA	Category C	SW	Yes	3			1RN-401 - Exercise (Both)	Condition Monitoring
1RN-1102	MCFD-1574-04.00	SA	Category AC	RV	Yes	2			1RN-1102 - Relief Valve Test (Closed to Open)	Test relief valve per Appendix I schedule
									1RN-1102 - Leak Test - Appendix J (Rev Direction)	10CFR50, App J, Opt B
1RN-1103	MCFD-1574-04.00	SA	Category AC	RV	Yes	2			1RN-1103 - Leak Test - Appendix J (Rev Direction)	10CFR50, App J, Opt B
									1RN-1103 - Relief Valve Test (Closed to Open)	Test relief valve per Appendix I schedule
1RN-1119	MCFD-1574-05.00	SA	Category C	SW	Yes	3			1RN-1119 - Exercise (Both)	Condition Monitoring
1RN-1130	MCFD-1574-05.00	SA	Category C	SW	Yes	3			1RN-1130 - Exercise (Both)	Condition Monitoring
2RN-16A	MCFD-2574-01.01	ML	Category B	BF	Yes	3		MC-RN-07	2RN-16A - Stroke Time (Cls to Opn)	Tested at cold shutdown

# MCGUIRE NUCLEAR STATION

## RN - NUCLEAR SERVICE WATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									2RN-16A - Position Indicator (Open and Closed)	Tested once every two years
2RN-18B	MCFD-2574-01.01	ML	Category B	BF	Yes	3		MC-RN-07	2RN-18B - Stroke Time (Cls to Opn)	Tested once quarterly
									2RN-18B - Position Indicator (Open and Closed)	Tested once every two years
2RN-21A	MCFD-2574-01.01	AO	Category B	DP	Yes	3			2RN-21A - Stroke Time (Opn to Cls)	Tested once quarterly
									2RN-21A - Position Indicator (Open and Closed)	Tested once every two years
									2RN-21A - Stroke Time (Closed to Open)	Tested once quarterly
2RN-25B	MCFD-2574-01.01	AO	Category B	DP	Yes	3			2RN-25B - Stroke Time (Opn to Cls)	Tested once quarterly
									2RN-25B - Position Indicator (Open and Closed)	Tested once every two years
									2RN-25B - Stroke Time (Closed to Open )	Tested once quarterly
2RN-26B	MCFD-2574-01.01	AO	Category B	DP	No	3			2RN-26B - Stroke Time (Opn to Cls)	Tested once quarterly
									2RN-26B - Position Indicator (Open and Closed)	Tested once every two years
2RN-28	MCFD-2574-01.01	SA	Category C	SW	Yes	3			2RN-28 - Exercise (Both)	Condition Monitoring
2RN-30	MCFD-2574-01.01	SA	Category C	SW	Yes	3			2RN-30 - Exercise (Both)	Condition Monitoring
2RN-40A	MCFD-2574-01.01	MR	Category B	BF	Yes	3			2RN-40A - Stroke Time (Opn to Cls)	Tested once quarterly
									2RN-40A - Position Indicator (Open and Closed)	Tested once every two years
2RN-41B	MCFD-2574-01.01	MR	Category B	BF	Yes	3			2RN-41B - Stroke Time (Opn to Cls)	Tested once quarterly
									2RN-41B - Position Indicator (Open and Closed)	Tested once every two years
2RN-42A	MCFD-2574-04.00	MR	Category B	BF	Yes	3			2RN-42A - Stroke Time (Opn to Cls)	Tested once quarterly
									2RN-42A - Position Indicator (Open and Closed)	Tested once every two years
2RN-43A	MCFD-2574-01.01	MR	Category B	BF	Yes	3			2RN-43A - Stroke Time (Opn to Cls)	Tested once quarterly

# MCGUIRE NUCLEAR STATION

## RN - NUCLEAR SERVICE WATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									2RN-43A - Position Indicator (Open and Closed)	Tested once every two years
2RN-63B	MCFD-2574-04.00	MR	Category B	BF	Yes	3			2RN-63B - Stroke Time (Opn to Cls)	Tested once quarterly
									2RN-63B - Position Indicator (Open and Closed)	Tested once every two years
2RN-64A	MCFD-2574-04.00	MR	Category B	BF	Yes	3			2RN-64A - Stroke Time (Opn to Cls)	Tested once quarterly
									2RN-64A - Position Indicator (Open and Closed)	Tested once every two years
2RN-68A	MCFD-2574-01.01	AO	Category B	DP	Yes	3			2RN-68A - Stroke Time (Cls to Opn)	Tested once quarterly
									2RN-68A - Position Indicator (Open and Closed)	Tested once every two years
2RN-69A	MCFD-2574-02.00	MR	Category B	GA	Yes	3			2RN-69A - Stroke Time (Cls to Opn)	Tested once quarterly
									2RN-69A - Position Indicator (Open and Closed)	Tested once every two years
2RN-70A	MCFD-2574-02.00	MR	Category B	BF	Yes	3			2RN-70A - Stroke Time (Cls to Opn)	Tested once quarterly
									2RN-70A - Position Indicator (Open and Closed)	Tested once every two years
2RN-86A	MCFD-2574-02.00	ML	Category B	BF	Yes	3			2RN-86A - Stroke Time (Cls to Opn)	Tested once quarterly
									2RN-86A - Position Indicator (Open and Closed)	Tested once every two years
2RN-89A	MCFD-2574-02.00	AO	Category B	BF	Yes	3			2RN-89A - Stroke Time (Cls to Opn)	Tested once quarterly
									2RN-89A - Position Indicator (Open and Closed)	Tested once every two years
2RN-103A	MCFD-2574-02.01	AO	Category B	DP	Yes	3			2RN-103A - Stroke Time (Cls to Opn)	Tested once quarterly
									2RN-103A - Position Indicator (Open and Closed)	Tested once every two years
									2RN-103A - Fast Acting Stroke Time (Cls to Open)	Tested once quarterly
2RN-112A	MCFD-2574-02.00	AO	Category B	DP	Yes	3			2RN-112A - Fast Acting Stroke Time (Cls to Open)	Tested once quarterly
									2RN-112A - Position Indicator (Open and Closed)	Tested once every two years

# MCGUIRE NUCLEAR STATION

## RN - NUCLEAR SERVICE WATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2RN-114A	MCFD-2574-02.01	AO	Category B	DP	Yes	3			2RN-114A - Fast Acting Stroke Time (CIs to Open)	Tested once quarterly
									2RN-114A - Position Indicator (Open and Closed)	Tested once every two years
2RN-117A	MCFD-2574-02.00	AO	Category B	DP	Yes	3			2RN-117A - Fast Acting Stroke Time (CIs to Open)	Tested once quarterly
									2RN-117A - Position Indicator (Open and Closed)	Tested once every two years
2RN-126A	MCFD-2574-02.01	AO	Category B	DP	Yes	3			2RN-126A - Stroke Time (CIs to Opn)	Tested once quarterly
									2RN-126A - Position Indicator (Open and Closed)	Tested once every two years
2RN-130A	MCFD-2574-02.01	AO	Category B	DP	Yes	3			2RN-130A - Fast Acting Stroke Time (CIs to Open)	Tested once quarterly
									2RN-130A - Position Indicator (Open and Closed)	Tested once every two years
2RN-134A	MCFD-2574-02.01	ML	Category B	BF	Yes	3			2RN-134A - Stroke Time (CIs to Opn)	Tested once quarterly
									2RN-134A - Position Indicator (Open and Closed)	Tested once every two years
2RN-137A	MCFD-2574-02.01	ML	Category B	BF	Yes	3			2RN-137A - Stroke Time (CIs to Opn)	Tested once quarterly
									2RN-137A - Position Indicator (Open and Closed)	Tested once every two years
2RN-140A	MCFD-2574-02.00	AO	Category B	DP	Yes	3			2RN-140A - Fast Acting Stroke Time (CIs to Open)	Tested once quarterly
									2RN-140A - Position Indicator (Open and Closed)	Tested once every two years
2RN-161B	MCFD-2574-01.01	AO	Category B	DP	Yes	3			2RN-161B - Fast Acting Stroke Time (CIs to Open)	Tested once quarterly
									2RN-161B - Position Indicator (Open and Closed)	Tested once every two years
2RN-162B	MCFD-2574-03.00	MR	Category B	GA	Yes	3			2RN-162B - Stroke Time (CIs to Opn)	Tested once quarterly
									2RN-162B - Position Indicator (Open and Closed)	Tested once every two years
2RN-166A	MCFD-2574-02.00	AO	Category B	DP	Yes	3			2RN-166A - Stroke Time (CIs to Opn)	Tested once quarterly

# MCGUIRE NUCLEAR STATION

## RN - NUCLEAR SERVICE WATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									2RN-166A - Position Indicator (Open and Closed)	Tested once every two years
2RN-170B	MCFD-2574-03.00	AO	Category B	DP	Yes	3			2RN-170B - Stroke Time (Cls to Opn)	Tested once quarterly
									2RN-170B - Position Indicator (Open and Closed)	Tested once every two years
2RN-171B	MCFD-2574-03.00	MR	Category B	BF	Yes	3			2RN-171B - Stroke Time (Cls to Opn)	Tested once quarterly
									2RN-171B - Position Indicator (Open and Closed)	Tested once every two years
2RN-187B	MCFD-2574-03.00	ML	Category B	BF	Yes	3			2RN-187B - Stroke Time (Cls to Opn)	Tested once quarterly
									2RN-187B - Position Indicator (Open and Closed)	Tested once every two years
2RN-190B	MCFD-2574-03.00	AO	Category B	BF	Yes	3			2RN-190B - Stroke Time (Cls to Opn)	Tested once quarterly
									2RN-190B - Position Indicator (Open and Closed)	Tested once every two years
2RN-204B	MCFD-2574-03.01	AO	Category B	DP	Yes	3			2RN-204B - Fast Acting Stroke Time (Cls to Open)	Tested once quarterly
									2RN-204B - Position Indicator (Open and Closed)	Tested once every two years
2RN-213B	MCFD-2574-03.00	AO	Category B	DP	Yes	3			2RN-213B - Fast Acting Stroke Time (Cls to Open)	Tested once quarterly
									2RN-213B - Position Indicator (Open and Closed)	Tested once every two years
2RN-215B	MCFD-2574-03.01	AO	Category B	DP	Yes	3			2RN-215B - Stroke Time (Cls to Opn)	Tested once quarterly
									2RN-215B - Position Indicator (Open and Closed)	Tested once every two years
2RN-218B	MCFD-2574-03.00	AO	Category B	DP	Yes	3			2RN-218B - Fast Acting Stroke Time (Cls to Open)	Tested once quarterly
									2RN-218B - Position Indicator (Open and Closed)	Tested once every two years
2RN-227B	MCFD-2574-03.01	AO	Category B	DP	Yes	3			2RN-227B - Stroke Time (Cls to Opn)	Tested once quarterly
									2RN-227B - Position Indicator (Open and Closed)	Tested once every two years
2RN-231B	MCFD-2574-03.01	AO	Category B	DP	Yes	3			2RN-231B - Stroke Time (Cls to Opn)	Tested once quarterly

# MCGUIRE NUCLEAR STATION

## RN - NUCLEAR SERVICE WATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									2RN-231B - Position Indicator (Open and Closed)	Tested once every two years
2RN-235B	MCFD-2574-03.01	ML	Category B	BF	Yes	3			2RN-235B - Stroke Time (Cls to Opn)	Tested once quarterly
									2RN-235B - Position Indicator (Open and Closed)	Tested once every two years
2RN-238B	MCFD-2574-03.01	ML	Category B	BF	Yes	3			2RN-238B - Stroke Time (Cls to Opn)	Tested once quarterly
									2RN-238B - Position Indicator (Open and Closed)	Tested once every two years
2RN-240B	MCFD-2574-03.00	AO	Category B	DP	Yes	3			2RN-240B - Fast Acting Stroke Time (Cls to Open)	Tested once quarterly
									2RN-240B - Position Indicator (Open and Closed)	Tested once every two years
2RN-252B	MCFD-2574-04.00	AO	Category A	DP	Yes	2		MC-RN-01	2RN-252B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2RN-252B - Position Indicator (Open and Closed)	Tested once every two years
									2RN-252B - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage
2RN-253A	MCFD-2574-04.00	MR	Category A	DP	Yes	2		MC-RN-01	2RN-253A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2RN-253A - Position Indicator (Open and Closed)	Tested once every two years
									2RN-253A - Leak Test - Appendix J (Reverse Dir)	Tested every refueling outage
2RN-276A	MCFD-2574-04.00	MR	Category A	DP	Yes	2		MC-RN-02	2RN-276A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2RN-276A - Position Indicator (Open and Closed)	Tested once every two years
									2RN-276A - Leak Test - Appendix J (Reverse Dir)	Tested every refueling outage
2RN-277B	MCFD-2574-04.00	AO	Category A	DP	Yes	2		MC-RN-02	2RN-277B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2RN-277B - Position Indicator (Open and Closed)	Tested once every two years

# MCGUIRE NUCLEAR STATION

## RN - NUCLEAR SERVICE WATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									2RN-277B - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage
2RN-279B	MCFD-2574-04.00	MR	Category B	BF	Yes	3			2RN-279B - Stroke Time (Opn to CIs)	Tested once quarterly
									2RN-279B - Position Indicator (Open and Closed)	Tested once every two years
2RN-296A	MCFD-2574-01.01	ML	Category B	BF	Yes	3		MC-RN-08	2RN-296A - Stroke Time (CIs to Opn)	Tested once quarterly
									2RN-296A - Position Indicator (Open and Closed)	Tested once every two years
2RN-297B	MCFD-2574-03.00	ML	Category B	BF	Yes	3		MC-RN-08	2RN-297B - Stroke Time (CIs to Opn)	Tested once quarterly
									2RN-297B - Position Indicator (Open and Closed)	Tested once every two years
2RN-299A	MCFD-2574-04.00	MR	Category B	BF	Yes	3			2RN-299A - Stroke Time (Opn to CIs)	Tested once quarterly
									2RN-299A - Position Indicator (Open and Closed)	Tested once every two years
2RN-401	MCFD-2574-02.00	SA	Category C	SW	Yes	3			2RN-401 - Exercise (Both)	Condition Monitoring
2RN-1102		SA	Category AC	RV	Yes	2			2RN-1102 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2RN-1102 - Relief Valve Test (Closed to Open)	Test relief valve per Appendix I schedule
2RN-1119	MCFD-2574-05.00	SA	Category C	SW	Yes	3			2RN-1119 - Exercise (Both)	Condition Monitoring
2RN-1130	MCFD-2574-05.00	SA	Category C	SW	Yes	3			2RN-1130 - Exercise (Both)	Condition Monitoring
2RN-1137	MCFD-2574-01.01	SA	Category C		Yes	3			2RN-1137 - Exercise (Both)	Condition Monitoring



# MCGUIRE NUCLEAR STATION

## RV - CONT VENT COOLING WATER

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1RV-32A	MCFD-1604-03.00	MR	Category A	BF	Yes	2		MC-RV-01	1RV-32A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1RV-32A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1RV-32A - Position Indicator (Open and Closed)	Tested once every two years
1RV-33B	MCFD-1604-03.00	MR	Category A	BF	Yes	2		MC-RV-01	1RV-33B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1RV-33B - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
									1RV-33B - Position Indicator (Open and Closed)	Tested once every two years
1RV-76A	MCFD-1604-03.00	MR	Category A	BF	Yes	2		MC-RV-01	1RV-76A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1RV-76A - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
									1RV-76A - Position Indicator (Open and Closed)	Tested once every two years
1RV-77B	MCFD-1604-03.00	MR	Category A	BF	Yes	2		MC-RV-01	1RV-77B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1RV-77B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1RV-77B - Position Indicator (Open and Closed)	Tested once every two years
1RV-79A	MCFD-1604-03.00	AO	Category A	DP	Yes	2			1RV-79A - Stroke Time (Opn to Cls)	Tested once quarterly
									1RV-79A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1RV-79A - Position Indicator (Open and Closed)	Tested once every two years
1RV-80B	MCFD-1604-03.00	AO	Category A	DP	Yes	2			1RV-80B - Stroke Time (Opn to Cls)	Tested once quarterly
									1RV-80B - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
									1RV-80B - Position Indicator (Open and Closed)	Tested once every two years
1RV-101A	MCFD-1604-03.00	AO	Category A	DP	Yes	2			1RV-101A - Stroke Time (Opn to Cls)	Tested once quarterly
									1RV-101A - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B

# MCGUIRE NUCLEAR STATION

## RV - CONT VENT COOLING WATER

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									1RV-101A - Position Indicator (Open and Closed)	Tested once every two years
1RV-102B	MCFD-1604-03.00	AO	Category A	DP	Yes	2			1RV-102B - Stroke Time (Opn to Cls)	Tested once quarterly
									1RV-102B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1RV-102B - Position Indicator (Open and Closed)	Tested once every two years
1RV-445	MCFD-1604-03.00	SA	Category AC	RV	Yes	2			1RV-445 - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
									1RV-445 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1RV-446	MCFD-1604-03.00	SA	Category AC	RV	Yes	2			1RV-446 - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
									1RV-446 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1RV-481	MCFD-1604-03.00	SA	Category AC	RV	Yes	2			1RV-481 - Relief Valve Test (Closed to Open)	Test relief valve per Appendix I schedule
									1RV-481 - Leak Test - Appendix J (Rev Direction)	10CFR50, App J, Opt B
1RV-484	MCFD-1604-03.00	SA	Category AC	RV	Yes	2			1RV-484 - Relief Valve Test (Closed to Open)	Test relief valve per Appendix I schedule
									1RV-484 - Leak Test - Appendix J (Rev Direction)	10CFR50, App J, Opt B
2RV-32A	MCFD-2604-03.00	MR	Category A	BF	Yes	2		MC-RV-01	2RV-32A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2RV-32A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2RV-32A - Position Indicator (Open and Closed)	Tested once every two years
2RV-33B	MCFD-2604-03.00	MR	Category A	BF	Yes	2		MC-RV-01	2RV-33B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2RV-33B - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
									2RV-33B - Position Indicator (Open and Closed)	Tested once every two years

# MCGUIRE NUCLEAR STATION

## RV - CONT VENT COOLING WATER

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2RV-76A	MCFD-2604-03.00	MR	Category A	BF	Yes	2		MC-RV-01	2RV-76A - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2RV-76A - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
									2RV-76A - Position Indicator (Open and Closed)	Tested once every two years
2RV-77B	MCFD-2604-03.00	MR	Category A	BF	Yes	2		MC-RV-01	2RV-77B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2RV-77B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2RV-77B - Position Indicator (Open and Closed)	Tested once every two years
2RV-79A	MCFD-2604-03.00	AO	Category A	DP	Yes	2			2RV-79A - Stroke Time (Opn to Cls)	Tested once quarterly
									2RV-79A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2RV-79A - Position Indicator (Open and Closed)	Tested once every two years
2RV-80B	MCFD-2604-03.00	AO	Category A	DP	Yes	2			2RV-80B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2RV-80B - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
									2RV-80B - Position Indicator (Open and Closed)	Tested once every two years
2RV-101A	MCFD-2604-03.00	AO	Category A	DP	Yes	2			2RV-101A - Stroke Time (Opn to Cls)	Tested once quarterly
									2RV-101A - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
									2RV-101A - Position Indicator (Open and Closed)	Tested once every two years
2RV-102B	MCFD-2604-03.00	AO	Category A	DP	Yes	2			2RV-102B - Stroke Time (Opn to Cls)	Tested once quarterly
									2RV-102B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2RV-102B - Position Indicator (Open and Closed)	Tested once every two years
2RV-445	MCFD-2604-03.00	SA	Category AC	RV	Yes	2			2RV-445 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
									2RV-445 - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B

## MCGUIRE NUCLEAR STATION

### RV - CONT VENT COOLING WATER

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2RV-446	MCFD-2604-03.00	SA	Category AC	RV	Yes	2			2RV-446 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
									2RV-446 - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
2RV-480	MCFD-2604-03.00	SA	Category AC	RV	Yes	2			2RV-480 - Relief Valve Test (Closed to Open)	Test relief valve per Appendix I schedule
									2RV-480 - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
2RV-484	MCFD-2604-03.00	SA	Category AC	RV	Yes	2			2RV-484 - Relief Valve Test (Closed to Open)	Test relief valve per Appendix I schedule
									2RV-484 - Leak Test - Appendix J (Rev Direction)	10CFR50, App J, Opt B

# MCGUIRE NUCLEAR STATION

## SA - SM SUPPLY TO AUX EQ

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1SA-1	MCFD-1593-01.02	MA	Category B	GA	Yes	2			1SA-1 - Full Stroke (Closed)	Tested every refueling outage
1SA-2	MCFD-1593-01.02	MA	Category B	GA	Yes	2			1SA-2 - Full Stroke (Closed)	Tested every refueling outage
1SA-5	MCFD-1593-01.02	SA	Category C	ST	Yes	2			1SA-5 - Exercise (Both)	Condition Monitoring
1SA-6	MCFD-1593-01.02	SA	Category C	ST	Yes	2			1SA-6 - Exercise (Both)	Condition Monitoring
1SA-48ABC	MCFD-1593-01.02	AO	Category B	GA	Yes	2			1SA-48ABC - Stroke Time (Cls to Opn)	Tested once quarterly
									1SA-48ABC - Position Indicator (Open and Closed)	Tested once every two years
1SA-49AB	MCFD-1593-01.02	AO	Category B	GA	Yes	2			1SA-49AB - Stroke Time (Cls to Opn)	Tested once quarterly
									1SA-49AB - Position Indicator (Open and Closed)	Tested once every two years
1SA-77	MCFD-1593-01.02	MA	Category B	GA	Yes	2			1SA-77 - Full Stroke (Closed)	Tested every refueling outage
1SA-78	MCFD-1593-01.02	MA	Category B	GA	Yes	2			1SA-78 - Full Stroke (Closed)	Tested every refueling outage
2SA-1	MCFD-2593-01.02	MA	Category B	GA	Yes	2			2SA-1 - Full Stroke (Closed)	Tested every refueling outage
2SA-2	MCFD-2593-01.02	MA	Category B	GA	Yes	2			2SA-2 - Full Stroke (Closed)	Tested every refueling outage
2SA-5	MCFD-2593-01.02	SA	Category C	ST	Yes	2			2SA-5 - Exercise (Both)	Condition Monitoring
2SA-6	MCFD-2593-01.02	SA	Category C	ST	Yes	2			2SA-6 - Exercise (Both)	Condition Monitoring
2SA-48ABC	MCFD-2593-01.02	AO	Category B	GA	Yes	2			2SA-48ABC - Stroke Time (Cls to Opn)	Tested once quarterly
									2SA-48ABC - Position Indicator (Open and Closed)	Tested once every two years
2SA-49AB	MCFD-2593-01.02	AO	Category B	GA	Yes	2			2SA-49AB - Stroke Time (Cls to Opn)	Tested once quarterly

# MCGUIRE NUCLEAR STATION

## SA - SM SUPPLY TO AUX EQ

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									2SA-49AB - Position Indicator (Open and Closed)	Tested once every two years
2SA-77	MCFD-2593-01.02	MA	Category B	GA	Yes	2			2SA-77 - Full Stroke (Closed)	Tested every refueling outage
2SA-78	MCFD-2593-01.02	MA	Category B	GA	Yes	2			2SA-78 - Full Stroke (Closed)	Tested every refueling outage

# MCGUIRE NUCLEAR STATION

## SM - MAIN STEAM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1SM-1AB	MCFD-1593-01.03	AO	Category B	GL	Yes	2		MC-SM-01	1SM-1AB - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1SM-1AB - Position Indicator (Open and Closed)	Tested once every two years
1SM-3ABC	MCFD-1593-01.03	AO	Category B	GL	Yes	2		MC-SM-01	1SM-3AB - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1SM-3AB - Position Indicator (Open and Closed)	Tested once every two years
1SM-5AB	MCFD-1593-01.00	AO	Category B	GL	Yes	2		MC-SM-01	1SM-5AB - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1SM-5AB - Position Indicator (Open and Closed)	Tested once every two years
1SM-7AB	MCFD-1593-01.00	AO	Category B	GL	Yes	2		MC-SM-01	1SM-7AB - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1SM-7AB - Position Indicator (Open and Closed)	Tested once every two years
1SM-9AB	MCFD-1593-01.03	AO	Category B	GA	Yes	2			1SM-9AB - Position Indicator (Open and Closed)	Tested once every two years
									1SM-9AB - Stroke Time (Open to Closed)	Tested once quarterly
1SM-10AB	MCFD-1593-01.03	AO	Category B	GA	Yes	2			1SM-10AB - Stroke Time (Opn to Cls)	Tested once quarterly
									1SM-10AB - Position Indicator (Open and Closed)	Tested once every two years
1SM-11AB	MCFD-1593-01.00	AO	Category B	GA	Yes	2			1SM-11AB - Position Indicator (Open and Closed)	Tested once every two years
									1SM-11AB - Stroke Time (Open to Closed)	Tested once quarterly
1SM-12AB	MCFD-1593-01.00	AO	Category B	GA	Yes	2			1SM-12AB - Position Indicator (Open and Closed)	Tested once every two years
									1SM-12AB - Stroke Time (Open to Closed)	Tested once quarterly
1SM-83	MCFD-1593-01.00	AO	Category B	GL	Yes	2			1SM-83 Fail to Safe - Not Timed (Closed)	Tested once quarterly
									1SM-83 - Position Indicator (Open and Closed)	Tested once every two years
1SM-89	MCFD-1593-01.00	AO	Category B	GL	Yes	2			1SM-89 Fail to Safe - Not Timed (Closed)	Tested once quarterly
									1SM-89 - Position Indicator (Open and Closed)	Tested once every two years

# MCGUIRE NUCLEAR STATION

## SM - MAIN STEAM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1SM-95	MCFD-1593-01.03	AO	Category B	GL	Yes	2			1SM-95 Fail to Safe - Not Timed (Closed)	Tested once quarterly
									1SM-95 - Position Indicator (Open and Closed)	Tested once every two years
1SM-101	MCFD-1593-01.03	AO	Category B	GL	Yes	2			1SM-101 Fail to Safe - Not Timed (Closed)	Tested once quarterly
									1SM-101 - Position Indicator (Open and Closed)	Tested once every two years
2SM-1AB	MCFD-2593-01.03	AO	Category B	GL	Yes	2		MC-SM-01	2SM-1AB - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2SM-1AB - Position Indicator (Open and Closed)	Tested once every two years
2SM-3ABC	MCFD-2593-01.03	AO	Category B	GL	Yes	2		MC-SM-01	2SM-3AB - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2SM-3AB - Position Indicator (Open and Closed)	Tested once every two years
2SM-5AB	MCFD-2593-01.00	AO	Category B	GL	Yes	2		MC-SM-01	2SM-5AB - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2SM-5AB - Position Indicator (Open and Closed)	Tested once every two years
2SM-7AB	MCFD-2593-01.00	AO	Category B	GL	Yes	2		MC-SM-01	2SM-7AB - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2SM-7AB - Position Indicator (Open and Closed)	Tested once every two years
2SM-9AB	MCFD-2593-01.03	AO	Category B	GA	Yes	2			2SM-9AB - Stroke Time (Opn to Cls)	Tested once quarterly
									2SM-9AB - Position Indicator (Open and Closed)	Tested once every two years
2SM-10AB	MCFD-2593-01.03	AO	Category B	GA	Yes	2			2SM-10AB - Position Indicator (Open and Closed)	Tested once every two years
									2SM-10AB - Stroke Time (Open to Closed)	Tested once quarterly
2SM-11AB	MCFD-2593-01.00	AO	Category B	GA	Yes	2			2SM-11AB - Stroke Time (Opn to Cls)	Tested once quarterly
									2SM-11AB - Position Indicator (Open and Closed)	Tested once every two years
2SM-12AB	MCFD-2593-01.00	AO	Category B	GA	Yes	2			2SM-12AB - Position Indicator (Open and Closed)	Tested once every two years
									2SM-12AB - Stroke Time (Open to Closed)	Tested once quarterly



## MCGUIRE NUCLEAR STATION

### SM - MAIN STEAM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2SM-83	MCFD-2593-01.00	AO	Category B	GA	Yes	2			2SM-83 Fail to Safe - Not Timed (Closed)	Tested once quarterly
									2SM-83 - Position Indicator (Open and Closed)	Tested once every two years
2SM-89	MCFD-2593-01.00	AO	Category B	GL	Yes	2			2SM-89 Fail to Safe - Not Timed (Closed)	Tested once quarterly
									2SM-89 - Position Indicator (Open and Closed)	Tested once every two years
2SM-95	MCFD-2593-01.03	AO	Category B	GA	Yes	2			2SM-95 Fail to Safe - Not Timed (Closed)	Tested once quarterly
									2SM-95 - Position Indicator (Open and Closed)	Tested once every two years
2SM-101	MCFD-2593-01.03	AO	Category B	GL	Yes	2			2SM-101 Fail to Safe - Not Timed (Closed)	Tested once quarterly
									2SM-101 - Position Indicator (Open and Closed)	Tested once every two years

## MCGUIRE NUCLEAR STATION

### SV - MAIN STEAM VENT TO ATMOSPHERE

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1SV-1AB	MCFD-1593-01.03	AO	Category B	RV	Yes	2			1SV-1AB - Stroke Time (Opn to Cls)	Tested once quarterly
									1SV-1AB - Position Indicator (Open and Closed)	Tested once every two years
1SV-2	MCFD-1593-01.03	SA	Category C	RV	Yes	2			1SV-2 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1SV-3	MCFD-1593-01.03	SA	Category C	RV	Yes	2			1SV-3 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1SV-4	MCFD-1593-01.03	SA	Category C	RV	Yes	2			1SV-4 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1SV-5	MCFD-1593-01.03	SA	Category C	RV	Yes	2			1SV-5 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1SV-6	MCFD-1593-01.03	SA	Category C	RV	Yes	2			1SV-6 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1SV-7ABC	MCFD-1593-01.03	AO	Category B	RV	Yes	2			1SV-7ABC - Stroke Time (Opn to Cls)	Tested once quarterly
									1SV-7ABC - Position Indicator (Open and Closed)	Tested once every two years
1SV-8	MCFD-1593-01.03	SA	Category C	RV	Yes	2			1SV-8 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1SV-9	MCFD-1593-01.03	SA	Category C	RV	Yes	2			1SV-9 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1SV-10	MCFD-1593-01.03	SA	Category C	RV	Yes	2			1SV-10 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1SV-11	MCFD-1593-01.03	SA	Category C	RV	Yes	2			1SV-11 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1SV-12	MCFD-1593-01.03	SA	Category C	RV	Yes	2			1SV-12 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1SV-13AB	MCFD-1593-01.00	AO	Category B	RV	Yes	2			1SV-13AB - Stroke Time (Opn to Cls)	Tested once quarterly

# MCGUIRE NUCLEAR STATION

## SV - MAIN STEAM VENT TO ATMOSPHERE

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									1SV-13AB - Position Indicator (Open and Closed)	Tested once every two years
1SV-14	MCFD-1593-01.00	SA	Category C	RV	Yes	2			1SV-14 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1SV-15	MCFD-1593-01.00	SA	Category C	RV	Yes	2			1SV-15 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1SV-16	MCFD-1593-01.00	SA	Category C	RV	Yes	2			1SV-16 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1SV-17	MCFD-1593-01.00	SA	Category C	RV	Yes	2			1SV-17 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1SV-18	MCFD-1593-01.00	SA	Category C	RV	Yes	2			1SV-18 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1SV-19AB	MCFD-1593-01.00	AO	Category B	RV	Yes	2			1SV-19AB - Stroke Time (Opn to Cls)	Tested once quarterly
									1SV-19AB - Position Indicator (Open and Closed)	Tested once every two years
1SV-20	MCFD-1593-01.00	SA	Category C	RV	Yes	2			1SV-20 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1SV-21	MCFD-1593-01.00	SA	Category C	RV	Yes	2			1SV-21 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1SV-22	MCFD-1593-01.00	SA	Category C	RV	Yes	2			1SV-22 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1SV-23	MCFD-1593-01.00	SA	Category C	RV	Yes	2			1SV-23 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
1SV-24	MCFD-1593-01.00	SA	Category C	RV	Yes	2			1SV-24 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2SV-1AB	MCFD-2593-01.03	AO	Category B	RV	Yes	2			2SV-1AB - Stroke Time (Opn to Cls)	Tested once quarterly
									2SV-1AB - Position Indicator (Open and Closed)	Tested once every two years

# MCGUIRE NUCLEAR STATION

## SV - MAIN STEAM VENT TO ATMOSPHERE

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2SV-2	MCFD-2593-01.03	SA	Category C	RV	Yes	2			2SV-2 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2SV-3	MCFD-2593-01.03	SA	Category C	RV	Yes	2			2SV-3 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2SV-4	MCFD-2593-01.03	SA	Category C	RV	Yes	2			2SV-4 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2SV-5	MCFD-2593-01.03	SA	Category C	RV	Yes	2			2SV-5 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2SV-6	MCFD-2593-01.03	SA	Category C	RV	Yes	2			2SV-6 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2SV-7ABC	MCFD-2593-01.03	AO	Category B	RV	Yes	2			2SV-7ABC - Stroke Time (Opn to Cls)	Tested once quarterly
									2SV-7ABC - Position Indicator (Open and Closed)	Tested once every two years
2SV-8	MCFD-2593-01.03	SA	Category C	RV	Yes	2			2SV-8 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2SV-9	MCFD-2593-01.03	SA	Category C	RV	Yes	2			2SV-9 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2SV-10	MCFD-2593-01.03	SA	Category C	RV	Yes	2			2SV-10 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2SV-11	MCFD-2593-01.03	SA	Category C	RV	Yes	2			2SV-11 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2SV-12	MCFD-2593-01.03	SA	Category C	RV	Yes	2			2SV-12 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2SV-13AB	MCFD-2593-01.00	AO	Category B	RV	Yes	2			2SV-13AB - Stroke Time (Opn to Cls)	Tested once quarterly
									2SV-13AB - Position Indicator (Open and Closed)	Tested once every two years

## MCGUIRE NUCLEAR STATION

### SV - MAIN STEAM VENT TO ATMOSPHERE

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2SV-14	MCFD-2593-01.00	SA	Category C	RV	Yes	3			2SV-14 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2SV-15	MCFD-2593-01.00	SA	Category C	RV	Yes	2			2SV-15 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2SV-16	MCFD-2593-01.00	SA	Category C	RV	Yes	2			2SV-16 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2SV-17	MCFD-2593-01.00	SA	Category C	RV	Yes	2			2SV-17 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2SV-18	MCFD-2593-01.00	SA	Category C	RV	Yes	2			2SV-18 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2SV-19AB	MCFD-2593-01.00	AO	Category B	RV	Yes	2			2SV-19AB - Stroke Time (Opn to Cls)	Tested once quarterly
									2SV-19AB - Position Indicator (Open and Closed)	Tested once every two years
2SV-20	MCFD-2593-01.00	SA	Category C	RV	Yes	2			2SV-20 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2SV-21	MCFD-2593-01.00	SA	Category C	RV	Yes	2			2SV-21 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2SV-22	MCFD-2593-01.00	SA	Category C	RV	Yes	2			2SV-22 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2SV-23	MCFD-2593-01.00	SA	Category C	RV	Yes	2			2SV-23 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
2SV-24	MCFD-2593-01.00	SA	Category C	RV	Yes	2			2SV-24 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule

## MCGUIRE NUCLEAR STATION

### VB - BREATHING AIR SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1VB-49B	MCFD-1605-03.01	MR	Category A	GL	Yes	2			1VB-49B - Stroke Time (Opn to Cls)	Tested once quarterly
									1VB-49B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1VB-49B - Position Indicator (Open and Closed)	Tested once every two years
1VB-50	MCFD-1605-03.01	SA	Category AC	SW	Yes	2			1VB-50 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1VB-50 - Exercise (Both)	Condition Monitoring
2VB-49B	MCFD-2605-03.01	MR	Category A	GL	Yes	2			2VB-49B - Stroke Time (Opn to Cls)	Tested once quarterly
									2VB-49B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2VB-49B - Position Indicator (Open and Closed)	Tested once every two years
2VB-50	MCFD-2605-03.01	SA	Category AC	WC	Yes	2			2VB-50 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2VB-50 - Exercise (Both)	Condition Monitoring

# MCGUIRE NUCLEAR STATION

## VC - CONTROL AREA HVAC SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1VC-1A	MC -1578-01.00	MR	Category B	BF	Yes	NA			1VC-1A - Stroke Time (Opn to Cls)	Tested once quarterly
									1VC-1A - Position Indicator (Open and Closed)	Tested once every two years
1VC-2A	MC -1578-01.00	MR	Category B	BF	Yes	NA			1VC-2A - Stroke Time (Opn to Cls)	Tested once quarterly
									1VC-2A - Position Indicator (Open and Closed)	Tested once every two years
1VC-3B	MC -1578-01.00	MR	Category B	BF	Yes	NA			1VC-3B - Stroke Time (Opn to Cls)	Tested once quarterly
									1VC-3B - Position Indicator (Open and Closed)	Tested once every two years
1VC-4B	MC -1578-01.00	MR	Category B	BF	Yes	NA			1VC-4B - Stroke Time (Opn to Cls)	Tested once quarterly
									1VC-4B - Position Indicator (Open and Closed)	Tested once every two years
1VC-9A	MC -1578-01.00	MR	Category B	BF	Yes	NA			1VC-9A - Stroke Time (Opn to Cls)	Tested once quarterly
									1VC-9A - Position Indicator (Open and Closed)	Tested once every two years
1VC-10A	MC -1578-01.00	MR	Category B	BF	Yes	NA			1VC-10A - Stroke Time (Opn to Cls)	Tested once quarterly
									1VC-10A - Position Indicator (Open and Closed)	Tested once every two years
1VC-11B	MC -1578-01.00	MR	Category B	BF	Yes	NA			1VC-11B - Stroke Time (Opn to Cls)	Tested once quarterly
									1VC-11B - Position Indicator (Open and Closed)	Tested once every two years
1VC-12B	MC -1578-01.00	MR	Category B	BF	Yes	NA			1VC-12B - Stroke Time (Opn to Cls)	Tested once quarterly
									1VC-12B - Position Indicator (Open and Closed)	Tested once every two years

# MCGUIRE NUCLEAR STATION

## VE - ANNULUS VENTILATION

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1VE-5A	MC -1564-01.00	MR	Category A	GA	Yes	2			1VE-5A - Stroke Time (Opn to Cls)	Tested once quarterly
									1VE-5A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1VE-5A - Position Indicator (Open and Closed)	Tested once every two years
1VE-6B	MC -1564-01.00	MR	Category A	GA	Yes	2			1VE-6B - Stroke Time (Opn to Cls)	Tested once quarterly
									1VE-6B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1VE-6B - Position Indicator (Open and Closed)	Tested once every two years
1VE-8A	MC -1564-01.00	MR	Category B	GA	Yes	2			1VE-8A - Stroke Time (Opn to Cls)	Tested once quarterly
									1VE-8A - Position Indicator (Open and Closed)	Tested once every two years
1VE-10A	MC -1564-01.00	MR	Category A	DP	Yes	2			1VE-10A - Stroke Time (Opn to Cls)	Tested once quarterly
									1VE-10A - Position Indicator (Open and Closed)	Tested once every two years
									1VE-10A - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage
1VE-11	MC -1564-01.00	SA	Category AC	SW	No	2			1VE-11 - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage
2VE-5A	MC -2564-01.00	MR	Category A	GA	Yes	2			2VE-5A - Stroke Time (Opn to Cls)	Tested once quarterly
									2VE-5A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2VE-5A - Position Indicator (Open and Closed)	Tested once every two years
2VE-6B	MC -2564-01.00	MR	Category A	GA	Yes	2			2VE-6B - Stroke Time (Opn to Cls)	Tested once quarterly
									2VE-6B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2VE-6B - Position Indicator (Open and Closed)	Tested once every two years
2VE-8A	MC -2564-01.00	MR	Category B	GA	Yes	2			2VE-8A - Stroke Time (Opn to Cls)	Tested once quarterly



# MCGUIRE NUCLEAR STATION

## VE - ANNULUS VENTILATION

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									2VE-8A - Position Indicator (Open and Closed)	Tested once every two years
2VE-10A	MC -2564-01.00	MR	Category A	DP	Yes	2			2VE-10A - Stroke Time (Opn to Cls)	Tested once quarterly
									2VE-10A - Position Indicator (Open and Closed)	Tested once every two years
									2VE-10A - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage
2VE-11	MC -2564-01.00	SA	Category AC	CK	No	2			2VE-11 - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage

## MCGUIRE NUCLEAR STATION

### VI - INSTRUMENT AIR SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1VI-40	MCFD-1605-01.03	SA	Category AC	SW	Yes	2			1VI-40 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1VI-40 - Exercise (Both)	Condition Monitoring
1VI-124	MCFD-1605-01.02	SA	Category AC	SW	Yes	2			1VI-124 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1VI-124 - Exercise (Both)	Condition Monitoring
1VI-129B	MCFD-1605-01.17	MR	Category A	GL	Yes	2		MC-VI-04	1VI-129B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1VI-129B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1VI-129B - Position Indicator (Open and Closed)	Tested once every two years
1VI-148B	MCFD-1605-01.14	MR	Category A	GL	Yes	2			1VI-148B - Stroke Time (Opn to Cls)	Tested once quarterly
									1VI-148B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1VI-148B - Position Indicator (Open and Closed)	Tested once every two years
1VI-149	MCFD-1605-01.02	SA	Category AC	CK	Yes	2			1VI-149 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1VI-149 - Exercise (Both)	Condition Monitoring
1VI-150B	MCFD-1605-01.14	MR	Category A	GL	Yes	2		MC-VI-04	1VI-150B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1VI-150B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1VI-150B - Position Indicator (Open and Closed)	Tested once every two years
1VI-160B	MCFD-1605-01.17	MR	Category A	GL	Yes	2		MC-VI-04	1VI-160B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									1VI-160B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1VI-160B - Position Indicator (Open and Closed)	Tested once every two years
1VI-161	MCFD-1605-01.03	SA	Category AC	SW	Yes	2			1VI-161 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1VI-161 - Exercise (Both)	Condition Monitoring

# MCGUIRE NUCLEAR STATION

## VI - INSTRUMENT AIR SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1VI-362A	MCFD-1605-01.02	MR	Category A	GL	Yes	2			1VI-362A - Stroke Time (Opn to Cls)	Tested once quarterly
									1VI-362A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1VI-362A - Position Indicator (Open and Closed)	Tested once every two years
1VI-368	MCFD-1605-01.03	SA	Category C	SW	Yes	NA			1VI-368 - Exercise (Both)	Condition Monitoring
1VI-372	MCFD-1605-01.03	SA	Category C	SW	Yes	NA			1VI-372 - Exercise (Both)	Condition Monitoring
1VI-373	MCFD-1605-01.03	SA	Category C	SW	Yes	NA			1VI-373 - Exercise (Both)	Condition Monitoring
1VI-374	MCFD-1605-01.03	SA	Category C	SW	Yes	NA			1VI-374 - Exercise (Both)	Condition Monitoring
1VI-1906	MCFD-1605-01.13	SA	Category AC	CK	Yes	2			1VI-1906 - Leak Test Non-Appendix J	Tested every refueling outage
									1VI-1906 - Exercise (Both)	Condition Monitoring
1VI-1907	MCFD-1605-01.13	SA	Category AC	CK	Yes	2			1VI-1907 - Leak Test Non-Appendix J	Tested every refueling outage
									1VI-1907 - Exercise (Both)	Condition Monitoring
1VI-1914	MCFD-1605-01.13	SA	Category AC	CK	Yes	2			1VI-1914 - Leak Test Non-Appendix J	Tested every refueling outage
									1VI-1914 - Exercise (Both)	Condition Monitoring
1VI-1915	MCFD-1605-01.13	SA	Category AC	CK	Yes	2			1VI-1915 - Leak Test Non-Appendix J	Tested every refueling outage
									1VI-1915 - Exercise (Both)	Condition Monitoring
1VI-2013	MCFD-1605-01.13	SA	Category AC	CK	Yes	3			1VI-2013 - Leak Test Non-Appendix J	Tested every refueling outage
									1VI-2013 - Exercise (Both)	Condition Monitoring
1VI-2023	MCFD-1605-01.13	SA	Category AC	CK	Yes	3			1VI-2023 - Leak Test Non-Appendix J	Tested every refueling

# MCGUIRE NUCLEAR STATION

## VI - INSTRUMENT AIR SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
										outage
									1VI-2023 - Exercise (Both)	Condition Monitoring
1VI-2033	MCFD-1605-01.13	SA	Category AC	CK	Yes	3			1VI-2033 - Leak Test Non-Appendix J	Tested every refueling outage
									1VI-2033 - Exercise (Both)	Condition Monitoring
1VI-2043	MCFD-1605-01.13	SA	Category AC	CK	Yes	3			1VI-2043 - Leak Test Non-Appendix J	Tested every refueling outage
									1VI-2043 - Exercise (Both)	Condition Monitoring
1VI-2056	MCFD-1605-01.25	SA	Category AC	RV	Yes	3			1VI-2056 - Relief Valve Test (CIs to Opn)	Test relief valve per Appendix I schedule
									1VI-2056 - Leak Test Non-Appendix J	Tested once every two years
1VI-2064	MCFD-1605-01.25	SA	Category C	CK	Yes	3			1VI-2064 - Exercise (Both)	Condition Monitoring
1VI-2070	MCFD-1605-01.25	SA	Category AC	CK	Yes	3			1VI-2070 - Exercise (Both)	Condition Monitoring
									1VI-2070 - Leak Test Non-Appendix J	Tested once every two years
1VI-2073	MCFD-1605-01.25	SA	Category AC	RV	Yes	3			1VI-2073 - Relief Valve Test (CIs to Opn)	Test relief valve per Appendix I schedule
									1VI-2073 - Leak Test Non-Appendix J	Tested once every two years
1VI-2081	MCFD-1605-01.25	SA	Category C	CK	Yes	3			1VI-2081 - Exercise (Both)	Condition Monitoring
1VI-2087	MCFD-1605-01.25	SA	Category AC	CK	Yes	3			1VI-2087 - Exercise (Both)	Condition Monitoring
									1VI-2087 - Leak Test Non-Appendix J	Tested once every two years
1VI-2090	MCFD-1605-01.25	SA	Category AC	CK	Yes	3			1VI-2090 - Exercise (Both)	Condition Monitoring
									1VI-2090 - Leak Test Non-Appendix J	Tested once every two years

# MCGUIRE NUCLEAR STATION

## VI - INSTRUMENT AIR SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1VI-2091	MCFD-1605-01.25	SA	Category AC	RV	Yes	3			1VI-2091 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
									1VI-2091 - Leak Test Non-Appendix J	Tested once every two years
1VI-2093	MCFD-1605-01.25	SA	Category AC	CK	Yes	3			1VI-2093 - Exercise (Both)	Condition Monitoring
									1VI-2093 - Leak Test Non-Appendix J	Tested once every two years
1VI-2094	MCFD-1605-01.25	SA	Category AC	RV	Yes	3			1VI-2094 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
									1VI-2094 - Leak Test Non-Appendix J	Tested once every two years
2VI-40	MCFD-2605-01.03	SA	Category AC	CK	Yes	2			2VI-40 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2VI-40 - Exercise (Both)	Condition Monitoring
2VI-124	MCFD-2605-01.02	SA	Category AC	SW	Yes	2			2VI-124 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2VI-124 - Exercise (Both)	Condition Monitoring
2VI-129B	MCFD-2605-01.03	MR	Category A	GL	Yes	2		MC-VI-04	2VI-129B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2VI-129B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2VI-129B - Position Indicator (Open and Closed)	Tested once every two years
2VI-148B	MCFD-2605-01.02	MR	Category A	GL	Yes	2			2VI-148B - Stroke Time (Opn to Cls)	Tested once quarterly
									2VI-148B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2VI-148B - Position Indicator (Open and Closed)	Tested once every two years
2VI-149	MCFD-2605-01.02	SA	Category AC	SW	Yes	2			2VI-149 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2VI-149 - Exercise (Both)	Condition Monitoring
2VI-150B	MCFD-2605-01.02	MR	Category A	GL	Yes	2		MC-VI-04	2VI-150B - Stroke Time (Opn to Cls)	Tested at cold shutdown

# MCGUIRE NUCLEAR STATION

## VI - INSTRUMENT AIR SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									2VI-150B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2VI-150B - Position Indicator (Open and Closed)	Tested once every two years
2VI-160B	MCFD-2605-01.03	MR	Category A	GL	Yes	2		MC-VI-04	2VI-160B - Stroke Time (Opn to Cls)	Tested at cold shutdown
									2VI-160B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2VI-160B - Position Indicator (Open and Closed)	Tested once every two years
2VI-161	MCFD-2605-01.03	SA	Category AC	SW	Yes	2			2VI-161 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2VI-161 - Exercise (Both)	Condition Monitoring
2VI-362A	MCFD-2605-01.02	ML	Category A	GL	Yes	2			2VI-362A - Stroke Time (Opn to Cls)	Tested once quarterly
									2VI-362A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2VI-362A - Position Indicator (Open and Closed)	Tested once every two years
2VI-368	MCFD-2605-01.03	SA	Category C	SW	Yes	NA			2VI-368 - Exercise (Both)	Condition Monitoring
2VI-372	MCFD-2605-01.03	SA	Category C	SW	Yes	NA			2VI-372 - Exercise (Both)	Condition Monitoring
2VI-373	MCFD-2605-01.03	SA	Category C	SW	Yes	NA			2VI-373 - Exercise (Both)	Condition Monitoring
2VI-374	MCFD-2605-01.03	SA	Category C	SW	Yes	NA			2VI-374 - Exercise (Both)	Condition Monitoring
2VI-2013	MCFD-2605-01.13	SA	Category AC	CK	Yes	3			2VI-2013 - Leak Test Non-Appendix J	Tested once every two years
									2VI-2013 - Exercise (Both)	Condition Monitoring
2VI-2023	MCFD-2605-01.13	SA	Category AC	CK	Yes	3			2VI-2023 - Leak Test Non-Appendix J	Tested once every two years
									2VI-2023 - Exercise (Both)	Condition Monitoring
2VI-2033	MCFD-2605-01.13	SA	Category AC	CK	Yes	3			2VI-2033 - Leak Test Non-Appendix J	Tested once every two years
									2VI-2033 - Exercise (Both)	Condition Monitoring

# MCGUIRE NUCLEAR STATION

## VI - INSTRUMENT AIR SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2VI-2043	MCFD-2605-01.13	SA	Category AC	CK	Yes	3			2VI-2043 - Leak Test Non-Appendix J	Tested once every two years
									2VI-2043 - Exercise (Both)	Condition Monitoring
2VI-2056	MCFD-2605-01.19	SA	Category AC	RV	Yes	3			2VI-2056 - Relief Valve Test (CIs to Opn)	Test relief valve per Appendix I schedule
									2VI-2056 - Leak Test Non-Appendix J	Tested once every two years
2VI-2064	MCFD-2605-01.19	SA	Category C	CK	Yes	3			2VI-2064 - Exercise (Both)	Condition Monitoring
2VI-2070	MCFD-2605-01.19	SA	Category AC	CK	Yes	3			2VI-2070 - Exercise (Both)	Condition Monitoring
									2VI-2070 - Leak Test Non-Appendix J	Tested once every two years
2VI-2073	MCFD-2605-01.19	SA	Category AC	RV	Yes	3			2VI-2073 - Relief Valve Test (CIs to Opn)	Test relief valve per Appendix I schedule
									2VI-2073 - Leak Test Non-Appendix J	Tested once every two years
2VI-2081	MCFD-2605-01.19	SA	Category C	CK	Yes	3			2VI-2081 - Exercise (Both)	Condition Monitoring
2VI-2087	MCFD-2605-01.19	SA	Category AC	CK	Yes	3			2VI-2087 - Exercise (Both)	Condition Monitoring
									2VI-2087 - Leak Test Non-Appendix J	Tested once every two years
2VI-2090	MCFD-2605-01.19	SA	Category AC	CK	Yes	3			2VI-2090 - Leak Test Non-Appendix J	Tested once every two years
									2VI-2090 - Exercise (Both)	Condition Monitoring
2VI-2091	MCFD-2605-01.19	SA	Category AC	RV	Yes	3			1VI-2091 - Relief Valve Test (CIs to Opn)	Test relief valve per Appendix I schedule
									2VI-2091 - Leak Test Non-Appendix J	Tested once every two years
2VI-2093	MCFD-2605-01.19	SA	Category AC	CK	Yes	3			2VI-2093 - Exercise (Both)	Condition Monitoring
									2VI-2093 - Leak Test Non-Appendix J	Tested once every two years
2VI-2094	MCFD-2605-01.19	SA	Category AC	RV	Yes	3			2VI-2094 - Relief Valve Test (CIs to Opn)	Test relief valve per

# MCGUIRE NUCLEAR STATION

## VI - INSTRUMENT AIR SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
										Appendix I schedule
									2VI-2094 - Leak Test Non-Appendix J	Tested once every two years



# MCGUIRE NUCLEAR STATION

## VP - CONTAINMENT PURGE VENTILATION

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1VP-1B	MC -1576-01.00	AO	Category A	BF	No	2			1VP-1B - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage
1VP-2A	MC -1576-01.00	AO	Category A	BF	No	2			1VP-2A - Leak Test - Appendix J (Reverse Dir)	Tested every refueling outage
1VP-3B	MC -1576-01.00	AO	Category A	BF	No	2			1VP-3B - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage
1VP-4A	MC -1576-01.00	AO	Category A	BF	No	2			1VP-4A - Leak Test - Appendix J (Reverse Dir)	Tested every refueling outage
1VP-6B	MC -1576-01.00	AO	Category A	BF	No	2			1VP-6B - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage
1VP-7A	MC -1576-01.00	AO	Category A	BF	No	2			1VP-7A - Leak Test - Appendix J (Reverse Dir)	Tested every refueling outage
1VP-8B	MC -1576-01.00	AO	Category A	BF	No	2			1VP-8B - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage
1VP-9A	MC -1576-01.00	AO	Category A	BF	No	2			1VP-9A - Leak Test - Appendix J (Reverse Dir)	Tested every refueling outage
1VP-10A	MC -1576-01.00	AO	Category A	BF	No	2			1VP-10A - Leak Test - Appendix J (Reverse Dir)	Tested every refueling outage
1VP-11B	MC -1576-01.00	AO	Category A	BF	No	2			1VP-11B - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage
1VP-12A	MC -1576-01.00	AO	Category A	BF	No	2			1VP-12A - Leak Test - Appendix J (Reverse Dir)	Tested every refueling outage
1VP-13B	MC -1576-01.00	AO	Category A	BF	No	2			1VP-13B - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage
1VP-15A	MC -1576-01.00	AO	Category A	BF	No	2			1VP-15A - Leak Test - Appendix J (Reverse Dir)	Tested every refueling outage

# MCGUIRE NUCLEAR STATION

## VP - CONTAINMENT PURGE VENTILATION

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1VP-16B	MC -1576-01.00	AO	Category A	BF	No	2			1VP-16B - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage
1VP-17A	MC -1576-01.00	AO	Category A	BF	No	2			1VP-17A - Leak Test - Appendix J (Reverse Dir)	Tested every refueling outage
1VP-18B	MC -1576-01.00	AO	Category A	BF	No	2			1VP-18B - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage
1VP-19A	MC -1576-01.00	AO	Category A	BF	No	2			1VP-19A - Leak Test - Appendix J (Reverse Dir)	Tested every refueling outage
1VP-20B	MC -1576-01.00	AO	Category A	BF	No	2			1VP-20B - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage
2VP-1B	MC -2576-01.00	AO	Category A	BF	No	2			2VP-1B - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage
2VP-2A	MC -2576-01.00	AO	Category A	BF	No	2			2VP-2A - Leak Test - Appendix J (Reverse Dir)	Tested every refueling outage
2VP-3B	MC -2576-01.00	AO	Category A	BF	No	2			2VP-3B - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage
2VP-4A	MC -2576-01.00	AO	Category A	BF	No	2			2VP-4A - Leak Test - Appendix J (Reverse Dir)	Tested every refueling outage
2VP-6B	MC -2576-01.00	AO	Category A	BF	No	2			2VP-6B - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage
2VP-7A	MC -2576-01.00	AO	Category A	BF	No	2			2VP-7A - Leak Test - Appendix J (Reverse Dir)	Tested every refueling outage
2VP-8B	MC -2576-01.00	AO	Category A	BF	No	2			2VP-8B - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage
2VP-9A	MC -2576-01.00	AO	Category A	BF	No	2			2VP-9A - Leak Test - Appendix J (Reverse Dir)	Tested every refueling outage

# MCGUIRE NUCLEAR STATION

## VP - CONTAINMENT PURGE VENTILATION

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2VP-10A	MC -2576-01.00	AO	Category A	BF	No	2			2VP-10A - Leak Test - Appendix J (Reverse Dir)	Tested every refueling outage
2VP-11B	MC -2576-01.00	AO	Category A	BF	No	2			2VP-11B - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage
2VP-12A	MC -2576-01.00	AO	Category A	BF	No	2			2VP-12A - Leak Test - Appendix J (Reverse Dir)	Tested every refueling outage
2VP-13B	MC -2576-01.00	AO	Category A	BF	No	2			2VP-13B - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage
2VP-15A	MC -2576-01.00	AO	Category A	BF	No	2			2VP-15A - Leak Test - Appendix J (Reverse Dir)	Tested every refueling outage
2VP-16B	MC -2576-01.00	AO	Category A	BF	No	2			2VP-16B - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage
2VP-17A	MC -2576-01.00	AO	Category A	BF	No	2			2VP-17A - Leak Test - Appendix J (Reverse Dir)	Tested every refueling outage
2VP-18B	MC -2576-01.00	AO	Category A	BF	No	2			2VP-18B - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage
2VP-19A	MC -2576-01.00	AO	Category A	BF	No	2			2VP-19A - Leak Test - Appendix J (Reverse Dir)	Tested every refueling outage
2VP-20B	MC -2576-01.00	AO	Category A	BF	No	2			2VP-20B - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage

# MCGUIRE NUCLEAR STATION

## VQ - CONT AIR RELEASE & ADDITION

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1VQ-1A	MCFD-1585-01.00	AO	Category A	DP	Yes	2			1VQ-1A - Fast Acting Stroke Time (Opn to Cls)	Tested once quarterly
									1VQ-1A - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
									1VQ-1A - Position Indicator (Open and Closed)	Tested once every two years
1VQ-2B	MCFD-1585-01.00	AO	Category A	DP	Yes	2			1VQ-2B - Fast Acting Stroke Time (Opn to Cls)	Tested once quarterly
									1VQ-2B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1VQ-2B - Position Indicator (Open and Closed)	Tested once every two years
1VQ-5B	MCFD-1585-01.00	AO	Category A	DP	Yes	2			1VQ-5B - Fast Acting Stroke Time (Opn to Cls)	Tested once quarterly
									1VQ-5B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1VQ-5B - Position Indicator (Open and Closed)	Tested once every two years
1VQ-6A	MCFD-1585-01.00	AO	Category A	DP	Yes	2			1VQ-6A - Fast Acting Stroke Time (Opn to Cls)	Tested once quarterly
									1VQ-6A - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
									1VQ-6A - Position Indicator (Open and Closed)	Tested once every two years
2VQ-1A	MCFD-2585-01.00	AO	Category A	DP	Yes	2			2VQ-1A - Fast Acting Stroke Time (Opn to Cls)	Tested once quarterly
									2VQ-1A - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
									2VQ-1A - Position Indicator (Open and Closed)	Tested once every two years
2VQ-2B	MCFD-2585-01.00	AO	Category A	DP	Yes	2			2VQ-2B - Fast Acting Stroke Time (Opn to Cls)	Tested once quarterly
									2VQ-2B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2VQ-2B - Position Indicator (Open and Closed)	Tested once every two years
2VQ-5B	MCFD-2585-01.00	AO	Category A	DP	Yes	2			2VQ-5B - Fast Acting Stroke Time (Opn to Cls)	Tested once quarterly
									2VQ-5B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B

# MCGUIRE NUCLEAR STATION

## VQ - CONT AIR RELEASE & ADDITION

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									2VQ-5B - Position Indicator (Open and Closed)	Tested once every two years
2VQ-6A	MCFD-2585-01.00	AO	Category A	DP	Yes	2			2VQ-6A - Fast Acting Stroke Time (Opn to Cls)	Tested once quarterly
									2VQ-6A - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
									2VQ-6A - Position Indicator (Open and Closed)	Tested once every two years

# MCGUIRE NUCLEAR STATION

## VS - STATION AIR SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1VS-12B	MCFD-1605-02.02	MR	Category A	GL	Yes	2			1VS-12B - Stroke Time (Opn to Cls)	Tested once quarterly
									1VS-12B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1VS-12B - Position Indicator (Open and Closed)	Tested once every two years
1VS-13	MCFD-1605-02.02	SA	Category AC	SW	Yes	2			1VS-13 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1VS-13 - Exercise (Both)	Condition Monitoring
2VS-12B	MCFD-2605-02.02	MR	Category A	GL	Yes	2			2VS-12B - Stroke Time (Opn to Cls)	Tested once quarterly
									2VS-12B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2VS-12B - Position Indicator (Open and Closed)	Tested once every two years
2VS-13	MCFD-2605-02.02	SA	Category AC	SW	Yes	2			2VS-13 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2VS-13 - Exercise (Both)	Condition Monitoring

# MCGUIRE NUCLEAR STATION

## VX - CONT AIR RTN EXCH & HYD SKIM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1VX-1A	MC -1557-01.00	ML	Category B	BF	Yes	2			1VX-1A - Stroke Time (Cls to Opn)	Tested once quarterly
									1VX-1A - Position Indicator (Open and Closed)	Tested once every two years
1VX-2B	MC -1557-01.00	ML	Category B	BF	Yes	2			1VX-2B - Stroke Time (Cls to Opn)	Tested once quarterly
									1VX-2B - Position Indicator (Open and Closed)	Tested once every two years
1VX-30	MC -1557-01.00	SA	Category AC	SW	No	2			1VX-30 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
1VX-31A	MC -1557-01.00	AO	Category A	DP	Yes	2			1VX-31A - Fast Acting Stroke Time (Opn to Cls)	Tested once quarterly
									1VX-31A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1VX-31A - Position Indicator (Open and Closed)	Tested once every two years
1VX-33B	MC -1557-01.00	AO	Category A	DP	Yes	2			1VX-33B - Fast Acting Stroke Time (Opn to Cls)	Tested once quarterly
									1VX-33B - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
									1VX-33B - Position Indicator (Open and Closed)	Tested once every two years
1VX-34	MC -1557-01.00	MA	Category A	DP	No	2			1VX-34 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
1VX-40	MC -1557-01.00	MA	Category A	DP	No	2			1VX-40 - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
2VX-1A	MC -2557-01.00	ML	Category B	BF	Yes	2			2VX-1A - Stroke Time (Cls to Opn)	Tested once quarterly
									2VX-1A - Position Indicator (Open and Closed)	Tested once every two years
2VX-2B	MC -2557-01.00	ML	Category B	BF	Yes	2			2VX-2B - Stroke Time (Cls to Opn)	Tested once quarterly
									2VX-2B - Position Indicator (Open and Closed)	Tested once every two years
2VX-30	MC -2557-01.00	SA	Category AC	CK	No	2			2VX-30 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
2VX-31A	MC -2557-01.00	AO	Category A	DP	Yes	2			2VX-31A - Fast Acting Stroke Time (Opn to Cls)	Tested once quarterly
									2VX-31A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B

## MCGUIRE NUCLEAR STATION

### VX - CONT AIR RTN EXCH & HYD SKIM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									2VX-31A - Position Indicator (Open and Closed)	Tested once every two years
2VX-33B	MC -2557-01.00	AO	Category A	DP	Yes	2			2VX-33B - Fast Acting Stroke Time (Opn to CIs)	Tested once quarterly
									2VX-33B - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
									2VX-33B - Position Indicator (Open and Closed)	Tested once every two years
2VX-34	MC -2557-01.00	MA	Category A	DP	No	2			2VX-34 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
2VX-40	MC -2557-01.00	MA	Category A	DP	No	2			2VX-40 - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B



# MCGUIRE NUCLEAR STATION

## WL - LIQUID WASTE RECYCLE SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1WL-1B	MCFD-1565-01.01	MR	Category A	DP	Yes	2			1WL-1B - Stroke Time (Opn to Cls)	Tested once quarterly
									1WL-1B - Position Indicator (Open and Closed)	Tested once every two years
									1WL-1B - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage
1WL-2A	MCFD-1565-01.01	MR	Category A	DP	Yes	2			1WL-2A - Stroke Time (Opn to Cls)	Tested once quarterly
									1WL-2A - Position Indicator (Open and Closed)	Tested once every two years
									1WL-2A - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage
1WL-24	MCFD-1565-01.01	SA	Category AC	SW	Yes	2			1WL-24 - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage
									1WL-24 - Exercise (Both)	Condition Monitoring
1WL-39A	MCFD-1565-01.01	MR	Category A	GL	Yes	2			1WL-39A - Stroke Time (Opn to Cls)	Tested once quarterly
									1WL-39A - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
									1WL-39A - Position Indicator (Open and Closed)	Tested once every two years
1WL-41B	MCFD-1565-01.01	MR	Category A	GL	Yes	2			1WL-41B - Stroke Time (Opn to Cls)	Tested once quarterly
									1WL-41B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1WL-41B - Position Indicator (Open and Closed)	Tested once every two years
1WL-64A	MCFD-1565-01.00	MR	Category A	DP	Yes	2			1WL-64A - Stroke Time (Opn to Cls)	Tested once quarterly
									1WL-64A - Position Indicator (Open and Closed)	Tested once every two years
									1WL-64A - Leak Test - Appendix J (Reverse Dir)	Tested every refueling outage
1WL-65B	MCFD-1565-01.00	MR	Category A	DP	Yes	2			1WL-65B - Stroke Time (Opn to Cls)	Tested once quarterly
									1WL-65B - Position Indicator (Open and Closed)	Tested once every two years
									1WL-65B - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage

# MCGUIRE NUCLEAR STATION

## WL - LIQUID WASTE RECYCLE SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1WL-264	MCFD-1565-01.00	SA	Category AC	RV	Yes	2			1WL-264 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
									1WL-264 - Leak Test - Appendix J (Reverse Dir)	Tested every refueling outage
1WL-321A	MCFD-1565-07.00	MR	Category A	BF	Yes	2			1WL-321A - Stroke Time (Opn to Cls)	Tested once quarterly
									1WL-321A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1WL-321A - Position Indicator (Open and Closed)	Tested once every two years
1WL-322B	MCFD-1565-07.00	MR	Category A	BF	Yes	2			1WL-322B - Stroke Time (Opn to Cls)	Tested once quarterly
									1WL-322B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1WL-322B - Position Indicator (Open and Closed)	Tested once every two years
1WL-385	MCFD-1565-07.00	SA	Category AC	SW	Yes	2			1WL-385 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1WL-385 - Exercise (Both)	Condition Monitoring
1WL-1301B	MCFD-1565-01.00	MR	Category A	GL	No	2			1WL-1301B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
1WL-1302A	MCFD-1565-01.00	MR	Category A	GL	No	2			1WL-1302A - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B
2WL-1B	MCFD-2565-01.01	MR	Category A	DP	Yes	2			2WL-1B - Stroke Time (Opn to Cls)	Tested once quarterly
									2WL-1B - Position Indicator (Open and Closed)	Tested once every two years
									2WL-1B - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage
2WL-2A	MCFD-2565-01.01	MR	Category A	DP	Yes	2			2WL-2A - Stroke Time (Opn to Cls)	Tested once quarterly
									2WL-2A - Position Indicator (Open and Closed)	Tested once every two years
									2WL-2A - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage
2WL-24	MCFD-2565-01.01	SA	Category AC	SW	Yes	2			2WL-24 - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage

## MCGUIRE NUCLEAR STATION

### WL - LIQUID WASTE RECYCLE SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									2WL-24 - Exercise (Both)	Condition Monitoring
2WL-39A	MCFD-2565-01.01	MR	Category A	DP	Yes	2			2WL-39A - Stroke Time (Opn to Cls)	Tested once quarterly
									2WL-39A - Position Indicator (Open and Closed)	Tested once every two years
									2WL-39A - Leak Test - Appendix J (Reverse Dir)	Tested every refueling outage
2WL-41B	MCFD-2565-01.01	MR	Category A	DP	Yes	2			2WL-41B - Stroke Time (Opn to Cls)	Tested once quarterly
									2WL-41B - Position Indicator (Open and Closed)	Tested once every two years
									2WL-41B - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage
2WL-64A	MCFD-2565-01.00	MR	Category A	DP	Yes	2			2WL-64A - Stroke Time (Opn to Cls)	Tested once quarterly
									2WL-64A - Position Indicator (Open and Closed)	Tested once every two years
									2WL-64A - Leak Test - Appendix J (Reverse Dir)	Tested every refueling outage
2WL-65B	MCFD-2565-01.00	MR	Category A	DP	Yes	2			2WL-65B - Stroke Time (Opn to Cls)	Tested once quarterly
									2WL-65B - Position Indicator (Open and Closed)	Tested once every two years
									2WL-65B - Leak Test - Appendix J (Accident Dir)	Tested every refueling outage
2WL-264	MCFD-2565-01.00	SA	Category AC	RV	Yes	2			2WL-264 - Relief Valve Test (Cls to Opn)	Test relief valve per Appendix I schedule
									2WL-264 - Leak Test - Appendix J (Reverse Dir)	Tested every refueling outage
2WL-321A	MCFD-2565-07.00	MR	Category A	BF	Yes	2			2WL-321A - Stroke Time (Opn to Cls)	Tested once quarterly
									2WL-321A - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2WL-321A - Position Indicator (Open and Closed)	Tested once every two years
2WL-322B	MCFD-2565-07.00	MR	Category A	BF	Yes	2			2WL-322B - Stroke Time (Opn to Cls)	Tested once quarterly
									2WL-322B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B

## MCGUIRE NUCLEAR STATION

### WL - LIQUID WASTE RECYCLE SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
									2WL-322B - Position Indicator (Open and Closed)	Tested once every two years
2WL-385	MCFD-2565-07.00	SA	Category AC	SW	Yes	2			2WL-385 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2WL-385 - Exercise (Both)	Condition Monitoring
2WL-1301B	MCFD-2565-01.00	MR	Category A	GL	No	2			2WL-1301B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
2WL-1302A	MCFD-2565-01.00	MR	Category A	GL	No	2			2WL-1302A - Leak Test - Appendix J (Reverse Dir)	10CFR50, App J, Opt B

## MCGUIRE NUCLEAR STATION

### WN - D/G ROOM SUMP PUMP

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1WN-3	MCFD-1609-07.00	SA	Category C	SW	Yes	3			1WN-3 - Exercise (Both)	Condition Monitoring
1WN-5	MCFD-1609-07.00	SA	Category C	SW	Yes	3			1WN-5 - Exercise (Both)	Condition Monitoring
1WN-7	MCFD-1609-07.00	SA	Category C	SW	Yes	3			1WN-7 - Exercise (Both)	Condition Monitoring
1WN-11	MCFD-1609-07.00	SA	Category C	SW	Yes	3			1WN-11 - Exercise (Both)	Condition Monitoring
1WN-13	MCFD-1609-07.00	SA	Category C	SW	Yes	3			1WN-13 - Exercise (Both)	Condition Monitoring
1WN-15	MCFD-1609-07.00	SA	Category C	SW	Yes	3			1WN-15 - Exercise (Both)	Condition Monitoring
2WN-3	MCFD-2609-07.00	SA	Category C	SW	Yes	3			2WN-3 - Exercise (Both)	Condition Monitoring
2WN-5	MCFD-2609-07.00	SA	Category C	SW	Yes	3			2WN-5 - Exercise (Both)	Condition Monitoring
2WN-7	MCFD-2609-07.00	SA	Category C	SW	Yes	3			2WN-7 - Exercise (Both)	Condition Monitoring
2WN-11	MCFD-2609-07.00	SA	Category C	SW	Yes	3			2WN-11 - Exercise (Both)	Condition Monitoring
2WN-13	MCFD-2609-07.00	SA	Category C	SW	Yes	3			2WN-13 - Exercise (Both)	Condition Monitoring
2WN-15	MCFD-2609-07.00	SA	Category C	SW	Yes	3			2WN-15 - Exercise (Both)	Condition Monitoring

# MCGUIRE NUCLEAR STATION

## WZ - GROUNDWATER DRAINAGE SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1WZ-1	MCFD-1581-01.00	SA	Category C	SW	Yes	3			1WZ-1 - Exercise (Both)	Condition Monitoring
1WZ-3	MCFD-1581-01.00	SA	Category C	SW	Yes	3			1WZ-3 - Exercise (Both)	Condition Monitoring
1WZ-5	MCFD-1581-01.00	SA	Category C	SW	Yes	3			1WZ-5 - Exercise (Both)	Condition Monitoring
1WZ-7	MCFD-1581-01.00	SA	Category C	SW	Yes	3			1WZ-7 - Exercise (Both)	Condition Monitoring
1WZ-9	MCFD-1581-01.00	SA	Category C	SW	Yes	3			1WZ-9 - Exercise (Both)	Condition Monitoring
1WZ-11	MCFD-1581-01.00	SA	Category C	SW	Yes	3			1WZ-11 - Exercise (Both)	Condition Monitoring

# MCGUIRE NUCLEAR STATION

## YC - CHILLED WATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1YC-2A	MCFD-1618-01.00	MR	Category B	GL	Yes	3			1YC-2A - Stroke Time (Opn to Cls)	Tested once quarterly
									1YC-2A - Position Indicator (Open and Closed)	Tested once every two years
1YC-54	MCFD-1618-01.00	AO	Category B	GA	Yes	3			1YC-54 Fail to Safe - Not Timed (Open)	Tested once quarterly
1YC-76	MCFD-1618-01.00	AO	Category B	GA	Yes	3			1YC-76 Fail to Safe - Not Timed (Open)	Tested once quarterly
1YC-83B	MCFD-1618-01.00	MR	Category B	GL	Yes	3			1YC-83B - Stroke Time (Opn to Cls)	Tested once quarterly
									1YC-83B - Position Indicator (Open and Closed)	Tested once every two years
1YC-113	MCFD-1618-01.00	AO	Category B	GA	Yes	3			1YC-113 Fail to Safe - Not Timed (Open)	Tested once quarterly
1YC-135	MCFD-1618-01.00	AO	Category B	GA	Yes	3			1YC-135 Fail to Safe - Not Timed (Open)	Tested once quarterly
1YC-148	MCFD-1618-02.00	AO	Category B	CV	Yes	3			1YC-148 Fail to Safe - Not Timed (Open)	Tested once quarterly
1YC-162	MCFD-1618-02.00	AO	Category B	CV	Yes	3			1YC-162 Fail to Safe - Not Timed (Open)	Tested once quarterly
1YC-176	MCFD-1618-02.00	AO	Category B	CV	Yes	3			1YC-176 Fail to Safe - Not Timed (Open)	Tested once quarterly
1YC-190	MCFD-1618-02.00	AO	Category B	CV	Yes	3			1YC-190 Fail to Safe - Not Timed (Open)	Tested once quarterly
1YC-204	MCFD-1618-02.00	AO	Category B	CV	Yes	3			1YC-204 Fail to Safe - Not Timed (Open)	Tested once quarterly
1YC-218	MCFD-1618-02.00	AO	Category B	CV	Yes	3			1YC-218 Fail to Safe - Not Timed (Open)	Tested once quarterly
1YC-232	MCFD-1618-02.00	AO	Category B	CV	Yes	3			1YC-232 Fail to Safe - Not Timed (Open)	Tested once quarterly
1YC-246	MCFD-1618-02.00	AO	Category B	CV	Yes	3			1YC-246 Fail to Safe - Not Timed (Open)	Tested once quarterly
1YC-347	MCFD-1618-04.00	AO	Category B	GA	Yes	3			1YC-347 Fail to Safe - Not Timed (Open)	Tested once quarterly
1YC-357	MCFD-1618-04.00	AO	Category B	GA	Yes	3			1YC-357 Fail to Safe - Not Timed (Open)	Tested once quarterly

# MCGUIRE NUCLEAR STATION

## YM - MAKEUP DEMINERALIZER WATER

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1YM-115B	MCFD-1601-02.04	MR	Category A	GL	Yes	2			1YM-115B - Stroke Time (Opn to Cls)	Tested once quarterly
									1YM-115B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1YM-115B - Position Indicator (Open and Closed)	Tested once every two years
1YM-116	MCFD-1601-02.04	SA	Category AC	LC	Yes	2			1YM-116 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									1YM-116 - Exercise (Both)	Condition Monitoring
2YM-115B	MCFD-1601-02.04	MR	Category A	GL	Yes	2			2YM-115B - Stroke Time (Opn to Cls)	Tested once quarterly
									2YM-115B - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2YM-115B - Position Indicator (Open and Closed)	Tested once every two years
2YM-116	MCFD-1601-02.04	SA	Category AC	LC	Yes	2			2YM-116 - Leak Test - Appendix J (Accident Dir)	10CFR50, App J, Opt B
									2YM-116 - Exercise (Both)	Condition Monitoring



**DUKE ENERGY**  
**McGUIRE NUCLEAR STATION**

**RELIEF REQUEST**

**Section 5.0**

Revision 28  
March 1, 2013

5.1 PUMP GENERIC RELIEF REQUESTS

Relief Request	Applicability	Status
none		

## 5.2 PUMP SPECIFIC RELIEF REQUESTS

Relief Request	Applicability	Status
MC-SRP-CA-01	Deleted Revision 26	
MC-SRP-CA-02	Withdrawn-Revision 27	
MC-SRP-CA-03	Withdrawn-Revision 27	
MC-SRP-FD-01	DELETED-Revision 27	
MC-SRP-KC-01	Component Cooling Pumps	Revised-Revision 28
MC-SRP-KC-02	Withdrawn-Revision 27	
MC-SRP-ND-01	Residual Heat Removal Pumps	Revised-Revision 28
MC-SRP-ND-02	Withdrawn-Revision 27	
MC-SRP-NI-01	DELETED-Revision 27	
MC-SRP-NI-02	Withdrawn-Revision 27	
MC-SRP-NS-01	Containment Spray Pumps	Deleted-Revision 28
MC-SRP-NV-01	DELETED-Revision 27	
MC-SRP-NV-02	Withdrawn-Revision 27	
MC-SRP-NV-03	Withdrawn-Revision 27	
MC-SRP-RN-01	Deleted-Revision 22	
MC-SRP-RN-02	Withdrawn Revision 27	
MC-SRP-WN-01	Withdrawn Revision 27	
MC-SRP-WZ-01	Withdrawn Revision 27	
MC-SRP-YC-01	Withdrawn Revision 27	

# Specific Pump Relief Request

---

**RELIEF REQUEST:** MC-SRP-KC-01

**PUMPS:** 1KCPU0001, 1A1 Component Cooling Water Pump  
1KCPU0002, 1A2 Component Cooling Water Pump  
1KCPU0003, 1B1 Component Cooling Water Pump  
1KCPU0004, 1B2 Component Cooling Water Pump  
2KCPU0001, 2A1 Component Cooling Water Pump  
2KCPU0002, 2A2 Component Cooling Water Pump  
2KCPU0003, 2B1 Component Cooling Water Pump  
2KCPU0004, 2B2 Component Cooling Water Pump

**TEST REQUIREMENT:** Omb-2006, ISTB-3500 requires that the full scale range of the instrument shall be three times the reference value or less.

**BASIS FOR RELIEF:** The installed process instrumentation for the KC pump suction gauge is a 0-60 psig, 0.5 % accuracy. Typical values for the KC suction pressure during the KC pump testing is 15-20 psig; therefore, the process gauge does not meet the three times criteria. The accuracy of the process gauge (0.5 %) is well below the requirements specified in Table ISTB-3510-1 for pressure instrument accuracy (2 %). The actual reading error at test pressure due to the process instrument accuracy is 2 % ( $0.5 \cdot 60/15$ ). If a 0-45 psig test instrument is used (which meets the three times criteria) and it has an accuracy of 2 %, then the reading error would be 6 % ( $2 \cdot 45/15$ ). When the requirements of Omb-2006, ISTB-3500 and Table ISTB-3510-1 are combined, the actual instrument error introduced into the test is less than the code allowable (2 % vs. 6 %). Using the process instrument for suction pressure data does not degrade the quality of the test and meets the intent of the instrumentation requirements of the code; just not the specify range requirements of Omb-2006, ISTB-3500.

**ALTERNATE TESTING:** The installed process instrumentation will be used to measure KC suction pressure for the 1A1, 1A2, 1B1, and 1B2KC (2A1, 2A2, 2B1, and 2B2KC) pump tests.

# Specific Pump Relief Request

---

**RELIEF REQUEST:** MC-SRP-ND-01

**PUMPS:** 1NDPU0001, 1A Residual Heat Removal Pump  
1NDPU0002, 1B Residual Heat Removal Pump  
2NDPU0001, 2A Residual Heat Removal Pump  
2NDPU0002, 2B Residual Heat Removal Pump

**TEST REQUIREMENT:** Omb-2006, ISTB-3500 specifies the range of each instrument shall be three times the reference value or less.

**BASIS FOR RELIEF:** Range requirements will be waived for the tests. The purpose of the quarterly test is to verify *Technical Specification* requirements are met and to obtain vibration data for trending. The instrumentation used for the quarterly residual heat removal pump test will meet accuracy requirements for assuring residual heat removal pump operability per Technical Specifications.

**ALTERNATE TESTING:** The residual heat removal pumps will be tested according to the following program, which is consistent with NRC Generic Letter 89-04.

These pumps have process instrumentation installed such that there are two suction pressure gauges (0-60 psig and 0-600 psig), and one discharge pressure gauge, (0-1000 psig). Each has 0.5% accuracy. This is done to provide accurate pressure indication in either the recirculation or the heat removal condition of operation. As such, there are times when the 3 times the reference range requirements cannot be met.

Group A/Comprehensive Test

The residual heat removal pumps will be tested quarterly to verify *Technical Specifications* are met. The test measures differential pressure and velocity vibration data. The differential pressure and velocity vibration data will be trended. The instrument used to measure vibrations will meet the ASME Code requirements.

The test loop used in the test has a flow measuring orifice installed; however, the system resistance cannot be adjusted with the associated throttling valve without invalidating the residual heat removal system flow balance (a *Technical Specification* balance of flow to all 4 cold legs.) Therefore, flow through this loop will be recorded for information only.

**McGuire Nuclear Station - Unit 1**  
**McGuire Nuclear Station - Unit 2**

**RELIEF REQUEST:**

MC-SRP-ND-01 (Continued)

The instrumentation range requirements of OMB-2006, ISTB-3500 will be waived. Since the instrumentation used to measure suction and discharge pressure is more accurate than ASME Code requirements (0.5% vs. 2%) using the process instrument for this test will yield results within the overall accuracy requirements of the ASME Code and will meet applicable accuracy requirements for the determination of operability per *Technical Specifications*. Typical values for ND suction pressure in mini-flow are 48-81 psig, and discharge pressures are in the 230-260 psig range. Therefore, the process range for discharge pressure (0-1000 psig) will not meet the three times criteria; the appropriate suction pressure loop can be used, which is within the three times requirement. The accuracy of these process instruments (0.5%) is well below the requirements specified in Table ISTB-3510-1 for instrument accuracy (2%). The actual reading error at test pressure due to the process instrument is 2.2 % ( $0.5 * 1000/230$ ) for discharge pressure at the low end of this range (ND pump procedures specify that instrumentation must meet the three times criteria). If a 0-690 psig gauge was used with 2% accuracy, the reading error would be 6% ( $2 * 690/230$ ). When the requirements of OMB-2006 and ISTB-3500 are combined, the actual instrument error introduced into the test is less than the code allowable (2.2 % vs. 6 % at the low (conservative) end). Using the process instruments for suction and discharge pressure data does not degrade the quality of the test and meets the intent of the instrumentation requirements of the ASME Code.

# Specific Pump Relief Request

---

**Item Number:** MC-SRP-NS-01

**Pumps:** 1NSPU0001, 1A Containment Spray Pump  
1NSPU0002, 1B Containment Spray Pump  
2NSPU0001, 2A Containment Spray Pump  
2NSPU0002, 2B Containment Spray Pump

**DELETED BY REVISION 28**  
**3/01/2013**

5.3 VALVE GENERIC RELIEF REQUESTS

Relief Request	Applicability	Status
MC-GRV-01	DELETED-Revision 27	
MC-GRV-02	DELETED-Revision 27	
MC-GRV-03	DELETED-Revision 27	
MC-GRV-04	DELETED-Revision 27	



#### 5.4 VALVE SPECIFIC RELIEF REQUESTS

Relief Request	Applicability	Status
MC-SRV-CA-01	Deleted-Revision 28	Deleted-Revision 28
MC-SRV-NS-01	Deleted-Revision 28	Deleted-Revision 28
MC-SRV-RN-01	Deleted-Revision 21	
MC-SRV-VG-01	Deleted-Revision 21	
MC-SRV-WN-01	Deleted-Revision 27	

# Specific Valve Relief Request

---

**Item Number:** MC-SRV-CA-01  
**Valve:** 1CA-42B  
**Flow Diagram:** MCFD-1592-1.0

DELETED BY REVISION 28  
3/01/13

# Specific Valve Relief Request

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**Item Number:** MC-SRV-NS-01  
**Valve:** 1NS-13, 1NS-16, 1NS-30, 1NS-33, 1NS-41, 1NS-46  
**Flow Diagram:** MCFD-1563-1.0

**DELETED BY REVISION 28  
3/01/2013**

**DUKE ENERGY**

**McGUIRE NUCLEAR STATION**

**JUSTIFICATION FOR DEFERRAL**

**Section 6.0**

Revision 28  
March 1, 2013

## 6.1 JUSTIFICATION FOR DEFERRAL

<u>Justification Number</u>	<u>Applicability</u>	<u>Status</u>
MC-BB-01	BB Containment Isolation	Revised-Revision 28
MC-CA-01	DELETED-Revision 27	
MC-CA-02	DELETED-Revision 27	
MC-CA-03	DELETED-Revision 25	
MC-CA-04	CA Pump Suction Isolation	Revised-Revision 28
MC-CF-01	Feedwater & Containment Isolation	Revised-Revision 28
MC-CF-02	Feedwater Control	Revised-Revision 28
MC-CF-03	Feedwater & Containment Isolation	Revised-Revision 28
MC-CF-04	S/G Feedwater Control By Pass	Revised-Revision 28
MC-CF-05	DELETED-Revision 25	
MC-CF-06	DELETED-Revision 27	
MC-FW-01	FWST to ND Pump Isolation	Revised-Revision 28
MC-FW-02	DELETED-Revision 27	
MC-FW-03	DELETED-Revision 27	
MC-IA-01	DELETED-Revision 27	
MC-KC-01	KC to NC Pump Containment Isolation	Revised-Revision 28
MC-KC-02	KC to NC Pump Containment Isolation	Revised-Revision 28
MC-KC-03	KC to NCDT Hx Isolation Valves	Revised-Revision 28
MC-KC-04	KC to NCDT Hx Isolation Valves	Revised-Revision 28
MC-KC-05	DELETED-Revision 26	
MC-KC-06	DELETED-Revision 27	
MC-KC-07	DELETED-Revision 26	
MC-KC-08	DELETED-Revision 27	
MC-KC-09	DELETED-Revision 26	
MC-NB-01	DELETED-Revision 27	
MC-NB-02	DELETED-Revision 26	
MC-NB-03	DELETED-Revision 27	
MC-NC-01	Reactor Coolant System PORV	Revised-Revision 28
MC-NC-02	Reactor Vessel Head Vents	Revised-Revision 28
MC-NC-03	DELETED-Revision 26	

## 6.1 JUSTIFICATION FOR DEFERRAL

<u>Justification Number</u>	<u>Applicability</u>	<u>Status</u>
MC-NC-04	DELETED-Revision 27	
MC-NC-05	DELETED-Revision 27	
MC-NC-06	Pressurizer PORV Isolation	Revised-Revision 28
MC-ND-01	ND Pump Suction from NC	Revised-Revision 28
MC-ND-02	ND Pump Supply to NV and NI Pumps	Revised-Revision 28
MC-ND-03	ND Hx Crossover Block Valve	Revised-Revision 28
MC-ND-04	DELETED-Revision 27	
MC-ND-05	DELETED-Revision 27	
MC-ND-06	DELETED-Revision 27	
MC-ND-07	ND Pump Suction From FWST	Revised-Revision 28
MC-NF-01	DELETED-Revision 27	
MC-NF-02	NF Containment Isolation Checks	Revised-Revision 28
MC-NI-01	NC Cold Leg Injection From NV	Revised-Revision 28
MC-NI-02	FWST To NI Pumps	Revised-Revision 28
MC-NI-03	NI Pumps Miniflow Isolation	Revised-Revision 28
MC-NI-04	Safety Injection to Hot Leg	Revised-Revision 28
MC-NI-05	Safety Injection to Cold Leg	Revised-Revision 28
MC-NI-06	Safety Injection Suction Flow FWST	Revised-Revision 28
MC-NI-07	Flow for ND to Cold Leg	Revised-Revision 28
MC-NI-08	NV & NT Pump Suction Crossover	Revised-Revision 28
MC-NI-09	ND to Hot Leg Isolation	Revised-Revision 28
MC-NI-10	RX Building Sump to ND & NS	Revised-Revision 28
MC-NI-11	NV & NI Pump Suction Crossover	Revised-Revision 28
MC-NI-12	DELETED-Revision 27	
MC-NI-13	DELETED-Revision 27	
MC-NI-14	DELETED-Revision 27	
MC-NI-15	DELETED-Revision 27	
MC-NI-16	DELETED-Revision 27	
MC-NI-17	DELETED-Revision 27	
MC-NI-18	DELETED-Revision 27	

## 6.1 JUSTIFICATION FOR DEFERRAL

<u>Justification Number</u>	<u>Applicability</u>	<u>Status</u>
MC-NI-19	DELETED-Revision 26	
MC-NI-20	NI Pump Section from ND	Revised-Revision 28
MC-NI-21	DELETED-Revision 27	
MC-NI-22	DELETED-Revision 27	
MC-NI-23	DELETED-Revision 27	
MC-NI-24	DELETED-Revision 27	
MC-NI-25	NI Pump Suction from FWST	Revised-Revision 28
MC-NM-01	DELETED-Revision 26	
MC-NM-02	NM Containment Isolation	Revised-Revision 28
MC-NS-01	ND to NS Containment Isolation	Revised-Revision 28
MC-NS-02	DELETED-Revision 25	
MC-NS-03	DELETED-Revision 27	
MC-NS-04	DELETED-Revision 27	
MC-NS-05	NS Pump Suction Isolation Valves	Revised-Revision 28
MC-NS-06	Containment Sump to NS Pump Suction Isolation	Revised-Revision 28
MC-NS-07	DELETED-Revision 27	
MC-NV-01	NC Containment Isolation	Revised-Revision 28
MC-NV-02	Letdown Containment Isolation	Revised-Revision 28
MC-NV-03	DELETED-Revision 26	
MC-NV-04	Volume Control Tank Isolation	Revised-Revision 28
MC-NV-05	NV Charging Line Containment Isolation	Revised-Revision 28
MC-NV-06	NV Pump Suction from FWST	Revised-Revision 28
MC-NV-07	DELETED-Revision 27	
MC-NV-08	NV Isolation to Volume Control Tank	Revised-Revision 28
MC-NV-09	BA to NV Pumps	Revised-Revision 28
MC-NV-10	DELETED-Revision 27	
MC-NV-11	DELETED-Revision 27	
MC-NV-12	DELETED-Revision 27	
MC-NV-13	DELETED-Revision 27	
MC-NV-14	DELETED-Revision 27	

## 6.1 JUSTIFICATION FOR DEFERRAL

<u>Justification Number</u>	<u>Applicability</u>	<u>Status</u>
MC-NV-15	DELETED-Revision 27	
MC-NV-16	DELETED-Revision 22	
MC-NV-17	DELETED-Revision 27	
MC-NV-18	DELETED-Revision 26	
MC-NV-19	Let down Orifice Outlet	Revised-Revision 28
MC-RF-01	DELETED-Revision 27	
MC-RF-02	Containment Isolation Outside	Revised-Revision 28
MC-RN-01	RX Bldg. Non-Essential Supply Containment Isolation	Revised-Revision 28
MC-RN-02	NC Pump Air Cooler Relief	Revised-Revision 28
MC-RN-03	DELETED-Revision 21	
MC-RN-04	DELETED-Revision 21	
MC-RN-05	DELETED-Revision 21	
MC-RN-06	DELETED-Revision 22	
MC-RV-01	Containment Discharge Isolation	Revised-Revision 28
MC-SA-01	DELETED-Revision 27	
MC-SA-02	DELETED-Revision 27	
MC-SM-01	Main Steam Isolation Valves	Revised-Revision 28
MC-VB-01	DELETED-Revision 27	
MC-VI-01	DELETED-Revision 27	
MC-VI-02	DELETED-Revision 27	
MC-VI-03	DELETED-Revision 27	
MC-VI-04	Lower Containment Non-Essential Header Outside	Revised-Revision 28
MC-VS-01	DELETED-Revision 27	
MC-VX-01	DELETED-Revision 27	
MC-WL-01	DELETED-Revision 26	
MC-WL-02	DELETED-Revision 26	
MC-YM-01	DELETED-Revision 27	



# Justification for Deferral

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**Item Number:** MC-BB-01

**Valve:** 1BB-1B, 1BB-2B, 1BB-3B, 1BB-4B, 1BB-5A, 1BB-6A, 1BB-7A, 1BB-8A  
2BB-1B, 2BB-2B, 2BB-3B, 2BB-4B, 2BB-5A, 2BB-6A, 2BB-7A, 2BB-8A

**Flow Diagram:** MCFD-1580-1.0,  
MCFD-2580-1.0

**Code Category:** B

**ASME Class:** 2

**Function:** Closed to provide containment isolation for Steam Generator Blowdown system penetrations.

**Test Requirement:** Stroke Time – Quarterly  
Stroke time test in accordance with OMB-2006 ISTC-3500.

**Basis for Deferral:** These valves are open normally to provide continuous blowdown flow from the steam generator secondary side. Stroking the valves causes water hammer conditions when the blowdown flow is re-established. The water hammer poses equipment damage potential and a personnel safety hazard which could be reduced by stroking the valves during cold shutdown conditions.

NUREG-1482 and ISTC-3500 gives general guidance on deferring inservice testing to cold shutdown valves which when cycled could subject a system to "undue stress or reduce the life expectancy of plant components." Quarterly stroke testing will therefore be discontinued to prevent unnecessary stroking of and thus increase the life expectancy of the valves.

**Test Alternative/Frequency:** Valves will be full stroke exercised at cold shutdown.

## Justification for Deferral

---

**Item Number:** MC-CA-04

**Valve:** 1CA-7AC, 1CA-9B, 1CA-11A  
2CA-7A, 2CA-9B, 2CA-11A

**Flow Diagram:** MCFD-1592-1.1,  
MCFD-2592-1.1

**Code Category:** B

**ASME Class:** 3

**Function:** Closed to provide train separation between assured makeup source and non-safety piping after CA suction is aligned to RN.

**Test Requirement:** Full Stroke Exercise Closed - Quarterly  
Verify proper valve movement once per three months as required by OMB-2006, ISTC-3500.

**Basis for Deferral:** Stroke testing the valves on a quarterly frequency requires that operators rack out the associated pump breaker or isolate and disable the steam supply isolation valve to the CA pump turbine. This action is considered necessary to protect the pump from damage in the event it receives a start signal during the period when the pump suction isolation valve is closed.

This is considered 'not practicable' and sufficient justification to defer testing to a shutdown frequency.

**Test Alternative & Frequency:** Valves will be full stroke exercised and timed at cold shutdown.

# Justification for Deferral

---

**Item Number:** MC-CF-01

**Valve:** 1CF-26AB, 1CF-28AB, 1CF-30AB, 1CF-35AB  
2CF-26AB, 2CF-28AB, 2CF-30AB, 2CF-35AB

**Flow Diagram:** MCFD-1591-1.1,  
MCFD-2591-1.1

**Code Category:** B

**ASME Class:** 2

**Function:** Provide feedwater and containment isolation.

**Test Requirement:** Measure Full Stroke Time - Quarterly  
Stroke time test in accordance with Omb-2006, ISTC-3500.

**Basis for Deferral:** Closure of these valves would isolate the steam generator feedwater which could result in a severe transient in the steam generator, resulting in a unit trip.

**Test Alternative & Frequency:** Valve will be full stroke exercised and timed during cold shutdown.

# Justification for Deferral

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**Item Number:** MC-CF-02

**Valve:** 1CF-17AB, 1CF-20AB, 1CF-23AB, 1CF-32AB  
2CF-17AB, 2CF-20AB, 2CF-23AB, 2CF-32AB

**Flow Diagram:** MCFD-1591-1.1,  
MCFD-2591-1.1

**Code Category:** B

**ASME Class:** NA

**Function:** Feedwater control.

**Test Requirement:** Measure Full Stroke Time - Quarterly  
Stroke time test in accordance with Omb-2006, ISTC-3500.

**Basis for Deferral:** Closure of these valves would isolate the steam generator feedwater which could result in a severe transient in the steam generator, resulting in a unit trip.

**Test Alternative & Frequency:** Valve will be full stroke exercised and timed during cold shutdown

# Justification for Deferral

---

**Item Number:** MC-CF-03

**Valve:** 1CF-126B, 1CF-127B, 1CF-128B, 1CF-129B  
2CF-126B, 2CF-127B, 2CF-128B, 2CF-129B

**Flow Diagram:** MCFD-1591-1.1,  
MCFD-2591-1.1

**Code Category:** B

**ASME Class:** 2

**Function:** Provide feedwater and containment isolation.

**Test Requirement:** Measure Full Stroke Time - Quarterly  
*Stroke time test in accordance with OMB-2006, ISTC-3500.*

**Basis for Deferral:** Cycling valves during power operation could induce unwanted transients in the steam generators.

**Test Alternative & Frequency:** Valve will be full stroke exercised and timed during cold shutdown.

## Justification for Deferral

---

Item Number: MC-CF-04

Valve: 1CF-104AB, 1CF-105AB, 1CF-106AB, 1CF-107AB  
2CF-104AB, 2CF-105AB, 2CF-106AB, 2CF-107AB

Flow Diagram: MCFD-1591-1.1,  
MCFD-2591-1.1

Code Category: B

ASME Class: NA

Function: Provides tempering flow to the steam generators.

Test Requirement: Measure Full Stroke Time - Quarterly  
Stroke time test in accordance with Omb-2006, ISTC-3500.

Basis for Deferral: Closing these valves during operation would result in a feedwater transient and could result in loss of steam generator level control, causing a unit trip. These valves are normally open at power.

Test Alternative & Frequency: Valve will be full stroke exercised and timed during cold shutdown

# Justification for Deferral

---

**Item Number:** MC-FW-01

**Valve:** 1FW-27A  
2FW-27A

**Flow Diagram:** MCFD-1571-1.0,  
MCFD-2571-1.0

**Code Category:** B

**ASME Class:** 2

**Function:** Isolates low pressure injection from the refueling water storage tank.

**Test Requirement:** Measure Full Stroke Time - Quarterly  
Stroke time test in accordance with Omb-2006, ISTC-3500.

**Basis for Deferral:** Closure of this valve during normal power operation would render all low pressure injection inoperable. This valve is opened and power removed above mode four (4) per *Technical Specifications*.

**Test Alternative & Frequency:** Valve will be full stroke exercised and timed during cold shutdown.

## Justification for Deferral

---

**Item Number:** MC-KC-01

**Valve:** 1KC-424B, 1KC-425A  
2KC-424B, 2KC-425A

**Flow Diagram:** MCFD-1573-3.1,  
MCFD-2573-3.1

**Code Category:** A

**ASME Class:** 2

**Function:** Provide containment isolation for penetration M-320.

**Test Requirement:** Measure Full Stroke Time - Quarterly  
Leak-Rate Test to Appendix J Requirements  
Stroke time test in accordance with Omb-2006, ISTC-3500.

**Basis for Deferral:** Failure of either of these valves in the closed position during testing would inhibit the normal flow path from the reactor coolant pump motor coolers. This action could result in damage to the NC pumps. Within 15 to 30 minutes, the NC Pumps would be tripped on high bearing temperature, and an abnormal shutdown (natural circulation) would be required.

**Test Alternative & Frequency:** Valve will be full stroke exercised and timed during cold shutdown



## Justification for Deferral

---

**Item Number:** MC-KC-02

**Valve:** 1KC-338B  
2KC-338B

**Flow Diagram:** MCFD-1573-3.1,  
MCFD-2573-3.1

**Code Category:** A

**ASME Class:** 2

**Function:** Provide containment isolation for penetration M-327.

**Test Requirement:** Measure Full Stroke Time - Quarterly  
Leak-Rate Test to Appendix J Requirements  
Stroke time test in accordance with Omb-2006, ISTC-3500.

**Basis for Deferral:** Failure of this valve in the closed position during testing could result in damage to the NC pumps. Within 15 to 30 minutes, the NC Pumps would be tripped on high bearing temperature, and an abnormal shutdown (natural circulation) would be required.

**Test Alternative & Frequency:** Valve will be full stroke exercised and timed during cold shutdown.

## Justification for Deferral

---

**Item Number:** MC-KC-03

**Valve:** 1KC-332B, 1KC-333A  
2KC-332B, 2KC-333A

**Flow Diagram:** MCFD-1573-3.1,  
MCFD-2573-3.1

**Code Category:** A

**ASME Class:** 2

**Function:** Provide containment isolation for penetration M-355.

**Test Requirement:** Measure Full Stroke Time - Quarterly  
Leak-Rate Test to Appendix J Requirements  
Stroke time test in accordance with OMB-2006, ISTC-3500.

**Basis for Deferral:** Failure of one of these valves in the closed position during testing would inhibit flow through the reactor coolant drain tank heat exchanger. No alternate flow path for cooling water to the heat exchanger exists. Without flow to the heat exchanger, the drain tank would become overpressurized and steam would be released. Such a test would not be conservative, since reactor coolant would be released. This test would challenge the overpressure protection of a reactor coolant system component. It is concluded therefore that per NUREG-1482 that these valves should be excluded from quarterly testing.

**Test Alternative & Frequency:** Valve will be full stroke exercised and timed during cold shutdown.

## Justification for Deferral

---

Item Number: MC-KC-04

Valve: 1KC-320A  
2KC-320A

Flow Diagram: MCFD-1573-3.1,  
MCFD-2573-3.1

Code Category: A

ASME Class: 2

Function: Provide containment isolation for penetration M-376.

Test Requirement: Measure Full Stroke Time - Quarterly  
Leak-Rate Test to Appendix J Requirements  
Stroke time test in accordance with Omb-2006, ISTC-3500.

Basis for Deferral: Failure of this valve in the closed position during testing would inhibit flow through the reactor coolant drain tank heat exchanger. No alternate flow path for cooling water to the heat exchanger exists. Without flow to the heat exchanger, the drain tank would become over pressurized and steam would be released. Such a release of reactor coolant makes this test non-conservative and would challenge the overpressure protection of a reactor coolant system component. It is concluded therefore that per NUREG-1482 that this valve should be excluded from quarterly testing.

Test Alternative & Frequency: Valve will be full stroke exercised and timed during cold shutdown.

## Justification for Deferral

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**Item Number:** MC-NC-01

**Valve:** 1NC-32B, 1NC-34A, 1NC-36B  
2NC-32B, 2NC-34A, 2NC-36B

**Flow Diagram:** MCFD-1553-2.0,  
MCFD-2553-2.0

**Code Category:** B

**ASME Class:** 1

**Function:** Reactor Coolant System PORV. Opens to relieve pressure for the primary system.

**Test Requirement:** Measure Full Stroke Time - Quarterly  
Stroke time test in accordance with Omb-2006, ISTC-3500.

**Basis for Deferral:** In the event that an NC PORV block is leaking, stroking the respective PORV is impractical because it would subject a system to pressure in excess of design pressure. This could quickly fill the NCDT and challenge relief protection. MNS management directed Engineering that the initial shutdown PORV test prior to LTOP need not be using nitrogen from the associated Cold Leg Accumulator.

**Test Alternative & Frequency:** Stroke time testing will be performed at cold shutdown and in all cases prior to entering LTOP conditions in accordance with Generic Letter 90-06. Testing will not be required more often than once per quarter as defined in Omb-2006, ISTC-5100.

# Justification for Deferral

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**Item Number:** MC-NC-02

**Valve:** 1NC-272AC, 1NC-273AC, 1NC-274B, 1NC-275B  
2NC-272AC, 2NC-273AC, 2NC-274B, 2NC-275B

**Flow Diagram:** MCFD-1553-2.1,  
MCFD-2553-2.1

**Code Category:** B

**ASME Class:** 1

**Function:** Reactor vessel head vent.

**Test Requirement:** Measure Full Stroke Time - Quarterly  
Stroke time test in accordance with Omb-2006, ISTC-3500.

**Basis for Deferral:** Opening these valves at full pressure could cause damage to the valve seating surfaces. A reactor coolant leak could be caused.

**Test Alternative & Frequency:** Valve will be full stroke exercised and timed during cold shutdown.

# Justification for Deferral

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**Item Number:** MC-NC-06

**Valve:** 1NC-31B, 1NC-33A, 1NC-35B  
2NC-31B, 2NC-33A, 2NC-35B

**Flow Diagram:** MCFD-1553-2.0,  
MCFD-2553-2.0

**Code Category:** B

**ASME Class:** 1

**Function:** Must isolate PORVs.

**Test Requirement:** Stroke Time Closed-Quarterly  
Stroke time test in accordance with Omb-2006, ISTC-3500.

**Basis for Deferral:** In the event that an NC PORV is leaking, stroking the respective PORV block valve is impractical because it would subject a system to pressure in excess of design pressure. This could quickly fill the NCDT and challenge relief protection. For non-leaking PORVs, the block valves will be stroked quarterly as per ASME Code requirements.

**Test Alternative & Frequency:** Valves (on lines with leaking PORVs) will be full stroke exercised and timed during cold shutdown.

# Justification for Deferral

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**Item Number:** MC-ND-01

**Valve:** 1ND-1B, 1ND-2AC  
2ND-1B, 2ND-2AC

**Flow Diagram:** MCFD-1561-1.0,  
MCFD-2561-1.0

**Code Category:** A

**ASME Class:** 1

**Function:** Provides suction for residual heat removal pumps during normal cool down.

**Test Requirement:** Measure Full Stroke Time - Quarterly  
Stroke time test in accordance with OMB-2006, ISTC-3500.

**Basis for Deferral:** These valves have an interlock which prevents their opening when the reactor coolant system pressure is greater than 385psig.

**Test Alternative & Frequency:** Valve will be full stroke exercised and timed during cold shutdown.

# Justification for Deferral

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**Item Number:** MC-ND-02

**Valve:** 1ND-58A  
2ND-58A

**Flow Diagram:** MCFD-1561-1.0,  
MCFD-2561-1.0

**Code Category:** B

**ASME Class:** 2

**Function:** Provides suction to the centrifugal charging pumps and safety injection pumps from the residual heat removal system.

**Test Requirement:** Measure Full Stroke Time - Quarterly  
Stroke time test in accordance with Omb-2006, ISTC-3500.

**Basis for Deferral:** Opening 1(2) ND-58A would seat check valve 1(2) NV-223 (FWST to charging pump suction) closed, so that if 1(2) ND-58A failed in the open position, both trains of NV would be inoperable.

**Test Alternative & Frequency:** Valve will be full stroke exercised and timed during cold shutdown.



# Justification for Deferral

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**Item Number:** MC-ND-03

**Valve:** 1ND-15B, 1ND-30A  
2ND-15B, 2ND-30A

**Flow Diagram:** MCFD-1561-1.0,  
MCFD-2561-1.0

**Code Category:** B

**ASME Class:** 2

**Function:** ND Heat Exchanger Outlet Crossover Block Valves.

**Test Requirement:** Measure Full Stroke Time - Quarterly  
Perform Stroke time test in accordance with OMB-2006, ISTC-3500.

**Basis for Deferral:** One of the ECCS safety analysis assumptions is that each train of ND can supply flow to all four cold legs. If either of these valves failed closed during testing then only two cold legs could be supplied by each train of ND. This would make both trains of ND inoperable.

Power cannot be removed from these valves, since at least one of them must be closed for cold leg recirculation. If power was removed from one valve, a single failure on the opposite train would disable isolation of ND to the cold legs when needed (this isolation is needed for adequate cold leg recirculation flow).

**Test Alternative & Frequency:** Valve will be full stroke exercised and timed during cold shutdown.

# Justification for Deferral

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**Item Number:** MC-ND-07

**Valve:** 1ND-4B, 1ND19A  
2ND-4B, 2ND19A

**Flow Diagram:** MCFD-1561-1.0,  
MCFD-2561-1.0

**Code Category:** B

**ASME Class:** 2

**Function:** ND Pump Suction Isolation Valve

**Test Requirement:** Stroke Time - Quarterly  
Perform stroke time test in accordance with OMB-2006, ISTC-3500.

**Basis for Deferral:** Operator action would be required to restore function if accident occurred during testing. Also relief protection is blocked. The only other option is racking open the pump breakers. Closing 1ND-19A (with 1A ND pump racked out) defeats overpressure protection for 1B ND pump suction (to 1ND-120). On Unit 2, closing 2ND-4B (and racking out 2B ND pump) defeats overpressure protection for 2A pump (sump) suction. Testing 1ND-19A OR 2ND-4B would degrade both trains of ND. These are basis for deferral per NUREG 1482.

**Test Alternative & Frequency:** Valves will be full stroke exercised and timed during cold shutdown.

# Justification for Deferral

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<b>Item Number:</b>	MC-NF-02
<b>Valve:</b>	1NF-228A, 1NF-233B, 1NF-234A 2NF-228A, 2NF-233B, 2NF-234A
<b>Flow Diagram:</b>	MCFD-1558-4.0, MCFD-2558-4.0
<b>Code Category:</b>	A
<b>ASME Class:</b>	2
<b>Function:</b>	Closed to provide containment isolation
<b>Test Requirement:</b>	Stroke Time – Quarterly Leak-Rate Test to Appendix J Requirements Stroke time test in accordance with Omb-2006, ISTC-3500 and ISTC-5000.
<b>Basis for Deferral:</b>	<p>Stroke time testing the valves on a quarterly frequency requires that operators shutdown the glycol pumps and chillers to prevent equipment damage. This is considered 'not practicable' as described in ASME Code ISTC-3521 as justification for deferring testing to cold shutdown.</p> <p>Furthermore, if any of the three valves were to fail to open during stroke time testing, the ice condenser would begin to heat up, potentially compromising the safety function of the ice bed.</p> <p>The NF system normally provides continuous ice condenser cooling so that the ice will be ready to perform its required safety function if necessary in the event of a design basis accident. Interrupting this continuous function to perform quarterly stroke testing could jeopardize the ability of the ice condenser to perform its safety function. This is considered sufficient justification to defer testing to a shutdown frequency per NUREG-1482.</p>
<b>Test Alternative &amp; Frequency:</b>	These valves will be full stroke exercised and timed during cold shutdown.

# Justification for Deferral

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**Item Number:** MC-NI-01

**Valve:** 1NI-9A, 1NI-10B  
2NI-9A, 2NI-10B

**Flow Diagram:** MCFD-1562-1.0,  
MCFD-2562-1.0

**Code Category:** B

**ASME Class:** 2

**Function:** Flow path for centrifugal charging pumps to reactor coolant system cold legs.

**Test Requirement:** Measure Full Stroke Time - Quarterly  
Stroke time test in accordance with OMB-2006, ISTC-3500.

**Basis for Deferral:** Opening either of these valves during operation would increase the charging flow into the reactor coolant system resulting in an increase of pressure and a rapid change in the primary system boron concentration. This could create a transient and possible unit shutdown.

**Test Alternative & Frequency:** Valves will be full stroke exercised and timed during cold shutdown

# Justification for Deferral

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**Item Number:** MC-NI-02

**Valve:** 1NI-100B  
2NI-100B

**Flow Diagram:** MCFD-1562-3.0,  
MCFD-2562-3.0

**Code Category:** B

**ASME Class:** 2

**Function:** Flowpath from the refueling water storage tank to the safety injection Pump suction.

**Test Requirement:** Measure Full Stroke Time - Quarterly  
Stroke time test in accordance with Omb-2006, ISTC-3500.

**Basis for Deferral:** Closing this valve during operation would render both trains of safety injection inoperable. This valve is opened and power removed above mode four (4) per Technical Specification.

**Test Alternative & Frequency:** Valves will be full stroke exercised and timed during cold shutdown.

## Justification for Deferral

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Item Number: MC-NI-03

Valve: 1NI-147A, 1NI115B  
2NI-147A, 2NI115B

Flow Diagram: MCFD-1562-3.0,  
MCFD-2562-3.0

Code Category: B

ASME Class: 2

Function: 1(2)NI-147A provides flow path for both trains of safety injection recirculation line to the refueling water storage tank. 1(2)NI-115B provides flow path for A train of Safety Injection recirculation line to the refueling water storage tank.

Test Requirement: Measure Full Stroke Time - Quarterly  
Stroke time test in accordance with Omb-2006, ISTC-3500.

Basis for Deferral: Closing either of these valves during power operation renders both trains of Safety Injection inoperable. 1(2)NI-147A is open with power removed above Mode 4 per Technical Specification.

In the event of a loss of offsite power with the loss of 1(2)B diesel generator as the single failure, 1(2)NI-115B would not open, rendering A Train NI inoperable (due to loss of mini-flow path). B Train NI would already be inoperable due to the single failure.

Test Alternative & Frequency: Valves will be full stroke exercised and timed during cold shutdown.

# Justification for Deferral

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**Item Number:** MC-NI-04

**Valve:** 1NI-121A, 1NI-152B  
2NI-121A, 2NI-152B

**Flow Diagram:** MCFD-1562-3.0,  
MCFD-2562-3.0

**Code Category:** B

**ASME Class:** 2

**Function:** Isolates Safety Injection flow to the hot legs.

**Test Requirement:** Measure Full Stroke Time – Quarterly  
Stroke time test in accordance with Omb-2006, ISTC-3500

**Basis for Deferral:** Previous justification for deferring testing on these valves has been based on the valves being closed with power removed at all times above Mode 4. Although these valves are normally administratively closed with power removed above Mode 4, an acceptable method of stroking these valves after performing MOV PMs on-line has been considered (Ref. PIP M-99-5538). In order to maintain operability of the opposite train NI, this requires:

- a) Isolating the associated cold leg isolation valve and
- b) Racking in the breaker to allow stroking the hot leg isolation valve.

The annual PM generally does not require that the valve be stroked while the five year PM does require post maintenance testing.

While it would be possible to stroke time test these valves on a quarterly frequency, this would require similar valve isolation and breaker manipulation as the much less frequent PMs. Such requirements are considered impracticable and justification for deferring testing to cold shutdown.

**Test Alternative & Frequency:** Valves will be full stroke exercised and timed during cold shutdown.

# Justification for Deferral

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**Item Number:** MC-NI-05

**Valve:** 1NI-162A  
2NI-162A

**Flow Diagram:** MCFD-1562-3.1,  
MCFD-2562-3.1

**Code Category:** B

**ASME Class:** 2

**Function:** Isolates Safety Injection flow to the cold legs.

**Test Requirement:** Measure Full Stroke Time - Quarterly  
Stroke time test in accordance with OMB-2006, ISTC-3500.

**Basis for Deferral:** This valve is opened and power removed above mode four (4) per  
*Technical Specifications.*

**Test Alternative & Frequency:** Valves will be full stroke exercised and timed during cold shutdown.



# Justification for Deferral

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**Item Number:** MC-NI-06

**Valve:** 1NI-103A  
2NI-103A

**Flow Diagram:** MCFD-1562-3.0,  
MCFD-2562-3.0

**Code Category:** B

**ASME Class:** 2

**Function:** Provides A Train safety injection pump suction flow from the refueling water storage tank. Also provides a flow path for B Train residual heat removal pump discharge to B Train chemical and volume control pump suction.

**Test Requirement:** Measure Full Stroke Time - Quarterly  
Stroke time test in accordance with Omb-2006, ISTC-3500.

**Basis for Deferral:** Closing this valve during power operations degrades both trains of chemical and volume control. In the event of a loss of offsite power with the loss of 1(2) A diesel generator as the single failure when the valve was closed, B Train NV would be lost for sump recirculation mode. Since that could happen as fast as 30 minutes and would then be inaccessible due to dose rates, credit could not be taken for manually opening 1(2) NI-103A in this event. A Train NV would already be inoperable due to the single failure.

**Test Alternative & Frequency:** Valves will be full stroke exercised and timed during cold shutdown.

# Justification for Deferral

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**Item Number:** MC-NI-07

**Valve:** 1NI-173A, 1NI-178B  
2NI-173A, 2NI-178B

**Flow Diagram:** MCFD-1562-3.1,  
MCFD-2562-3.1

**Code Category:** B

**ASME Class:** 2

**Function:** Provides flow path for residual heat removal to the cold legs.

**Test Requirement:** Measure Full Stroke Time - Quarterly  
Stroke time test in accordance with Omb-2006, ISTC-3500.

**Basis for Deferral:** These valves are opened and power removed above mode four (4) per *Technical Specifications*.

**Test Alternative & Frequency:** Valves will be full stroke exercised and timed during cold shutdown.

## Justification for Deferral

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<b>Item Number:</b>	MC-NI-08
<b>Valve:</b>	1NI-334B 2NI-334B
<b>Flow Diagram:</b>	MCFD-1562-3.0, MCFD-2562-3.0
<b>Code Category:</b>	B
<b>ASME Class:</b>	2
<b>Function:</b>	Provides flow path from B Train of Residual Heat Removal to B Train of Chemical and Volume Control, and from A Train of Residual Heat Removal to A Train of Safety Injection.
<b>Test Requirement:</b>	Measure Full Stroke Time - Quarterly Stroke time test in accordance with OMB-2006, ISTC-3500.
<b>Basis for Deferral:</b>	Closing this valve during power operation makes both trains of ECCS inoperable. With the single failure of 1(2) B diesel generator, Train A of medium head safety injection, which is provided suction from residual heat removal via 1(2) NI-334B or 1(2) NI-136B, would be inoperable (since 1(2) NI-136B is normally closed). Train B of high head safety injection would already be inoperable due to the single failure.

**Test Alternative & Frequency:** Valves will be full stroke exercised and timed during cold shutdown.

## Justification for Deferral

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**Item Number:** MC-NI-09

**Valve:** 1NI-183B  
2NI-183B

**Flow Diagram:** MCFD-1562-3.0,  
MCFD-2562-3.0

**Code Category:** B

**ASME Class:** 2

**Function:** Isolates residual heat removal flow to the hot legs.

**Test Requirement:** Measure Full Stroke Time - Quarterly  
Stroke time test in accordance with Omb-2006, ISTC-3500.

**Basis for Deferral:** This valve is closed and power removed above mode four (4) per *Technical Specifications*.

**Test Alternative & Frequency:** Valves will be full stroke exercised and timed during cold shutdown.

## Justification for Deferral

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<b>Item Number:</b>	MC-NI-10
<b>Valve:</b>	1NI-184B, 1NI-185A 2NI-184B, 2NI-185A
<b>Flow Diagram:</b>	MCFD-1562-3.1, MCFD-2562-3.1
<b>Code Category:</b>	B
<b>ASME Class:</b>	2
<b>Function:</b>	Provides flow path from the containment sump to the residual heat removal pump and the containment spray pump suction.
<b>Test Requirement:</b>	Measure Full Stroke Time - Quarterly Stroke time test in accordance with OMB-2006, ISTC-3500.
<b>Basis for Deferral:</b>	Opening these valves during power operation would allow water to enter lower containment. To prevent this, 1(2) FW-27A would have to be closed, rendering both trains of residual heat removal inoperable. Voids in suction piping would be created requiring fill and vent operations to prevent ECCS pump damage.

**Test Alternative & Frequency:** Valves will be full stroke exercised and timed during cold shutdown.

## Justification for Deferral

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<b>Item Number:</b>	MC-NI-11
<b>Valve:</b>	1NI-332A, 1NI-333B 2NI-332A, 2NI-333B
<b>Flow Diagram:</b>	MCFD-1562-3.0, MCFD-2562-3.0
<b>Code Category:</b>	B
<b>ASME Class:</b>	2
<b>Function:</b>	Provides flow path to centrifugal charging pumps and safety injection pumps from residual heat removal pumps during recirculation phase.
<b>Test Requirement:</b>	Measure Full Stroke Time - Quarterly Stroke time test in accordance with Omb-2006, ISTC-3500.
<b>Basis for Deferral:</b>	Opening these valves during power operations requires 1(2) NI-334B to be closed to prevent aligning FWST to the suction of the centrifugal charging pumps. Injecting FWST boron concentrated water into the reactor coolant system would induce a transient. Closing 1(2) NI-334B makes both trains of safety injection inoperable as described in MC-NI-08.

**Test Alternative & Frequency:** Valves will be full stroke exercised and timed during cold shutdown.

## Justification for Deferral

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**Item Number:** MC-NI-20

**Valve:** 1NI-136B  
2NI-136B

**Flow Diagram:** MCFD-1562-3.0,  
MCFD-2562-3.0

**Code Category:** B

**ASME Class:** 2

**Function:** Provides suction to the centrifugal charging pumps and safety Injection pumps from the residual heat removal system.

**Test Requirement:** Measure Full Stroke Time - Quarterly  
Stroke time test in accordance with Omb-2006, ISTC-3500.

**Basis for Deferral:** Opening 1(2) NI-136B would require closing 1(2) NI-135B which is deferred to cold shutdown with basis documented in NC-NI-25.

**Test Alternative & Frequency:** Valves will be full stroke exercised and timed during cold shutdown.

# Justification for Deferral

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**Item Number:** MC-NI-25

**Valve:** 1NI-135B, 2NI-135B

**Flow Diagram:** MCFD-1562-3.0,  
MCFD-2562-3.0

**Code Category:** B

**ASME Class:** 2

**Function:** NI Pump Suction Isolation Valve

**Test Requirement:** Stroke Time - Quarterly  
Stroke time test in accordance with Omb-2006, ISTC-3500.

**Basis for Deferral:** Operator action would be required to restore function if accident occurred during testing. The only other option is racking open the pump breakers. Also when closed, relief protection is blocked for associated train suction piping. These are all basis for deferral per NUREG 1482.

**Test Alternative & Frequency:** Valves will be full stroke exercised and timed during cold shutdown.



## Justification for Deferral

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<b>Item Number:</b>	MC-NM-02
<b>Valve:</b>	1NM-3AC, 1NM-6AC, 1NM-7B, 1NM-22AC, 1NM-25AC, 1NM-26B 2NM-3AC, 2NM-6AC, 2NM-7B, 2NM-22AC, 2NM-25AC, 2NM-26B
<b>Flow Diagram:</b>	MCFD-1572-1.0, MCFD-2572-1.0
<b>Code Category:</b>	A
<b>ASME Class:</b>	2
<b>Function:</b>	Closed to provide containment isolation for NC system pressurizer and hot leg sample penetrations.
<b>Test Requirement:</b>	Stroke Time – Quarterly Leak-Rate Test to Appendix J Requirements Stroke time test in accordance with OMB-2006, ISTC-3500.
<b>Basis for Deferral:</b>	<p>These valves are either open or closed normally to provide continuous purge or sample flow from the pressurizer water or steam space or hot legs A or D and to isolate the alternate sample flow stream. Stroking the valves causes high loading on the valves close to their structural limit. There are several past examples of external leaks developing due to stroking these valves for testing purposes.</p> <p>NUREG-1482 gives general guidance on deferring testing to cold shutdown valves which when cycled could subject a system to undue stress or reduce the life expectancy of plant components. Quarterly stroke testing will therefore be discontinued to prevent unnecessary stroking of and thus increase the life expectancy of the valves.</p>
<b>Test Alternative &amp; Frequency:</b>	Valves will be full stroke exercised and timed during cold shutdown.

## Justification for Deferral

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<b>Item Number:</b>	MC-NS-01
<b>Valve:</b>	1NS-38B, 1NS-43A 2NS-38B, 2NS-43A
<b>Flow Diagram:</b>	MCFD-1563-1.0, MCFD-2563-1.0
<b>Code Category:</b>	B
<b>ASME Class:</b>	2
<b>Function:</b>	Auxiliary Spray Nozzle header isolation.
<b>Test Requirement:</b>	Measure Full Stroke Time - Quarterly Stroke time test in accordance with OMB-2006, ISTC-3500.
<b>Basis for Deferral:</b>	Opening either of these valves during power operation renders both trains on residual heat removal inoperable. With cross-connected trains of ND, flow would be diverted from both trains through a failed-open 1, (2) NS-38B or 1, (2) NS-43A. To isolate one train of ND, it would be necessary to manually secure closed either 1, (2) ND-14 or 1, (2) ND-29, since these valves fail open on loss of air. This would be an impractical measure to perform the quarterly test.

**Test Alternative & Frequency:** Valve will be full stroke exercised and timed during cold shutdown.

# Justification for Deferral

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**Item Number:** MC-NS-05

**Valve:** 1NS-3B, 1NS-20A  
2NS-3B, 2NS-20A

**Flow Diagram:** MCFD-1563-1.0,  
MCFD-2563-1.0

**Code Category:** B

**ASME Class:** 2

**Function:** NS Pump Suction Isolation Valve

**Test Requirement:** Stroke Time - Quarterly  
Stroke time test in accordance with Omb-2006, ISTC-3500.

**Basis for Deferral:** NS pump breakers must be racked out to stroke time test these valves. This is recognized as impractical for quarterly testing in NUREG-1482 (accident would require opening breaker).

**Test Alternative & Frequency:** Valves will be full stroke exercised and timed during cold shutdown.

# Justification for Deferral

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<b>Item Number:</b>	MC-NS-06
<b>Valve:</b>	1NS-1B, 1NS-18A 2NS-1B, 2NS-18A
<b>Flow Diagram:</b>	MCFD-1563-1.0, MCFD-2563-1.0
<b>Code Category:</b>	B
<b>ASME Class:</b>	2
<b>Function:</b>	Open during swap-over to containment sump re-circulation to provide long-term borated water supply to NS pumps.
<b>Test Requirement:</b>	Stroke Time - Quarterly Stroke time test in accordance with Omb-2006, ISTC-3500.
<b>Basis for Deferral:</b>	<p>Stroke testing the valves on a quarterly frequency requires closure of the associated suction isolation valve (1/2NS-3B or 1/2NS-20A) from FWST to prevent aligning the FWST inventory to the containment sump. This requires racking out the breaker to protect the pump from damage in the event it receives a start signal during the period when the pump suction isolation valve is closed.</p> <p>This is considered sufficient justification to defer testing to a shutdown frequency.</p>

**Test Alternative & Frequency:** Valves will be full stroke exercised and timed during cold shutdown.

# Justification for Deferral

---

**Item Number:** MC-NV-01

**Valve:** 1NV-94AC, 1NV-95B  
2NV-94AC, 2NV-95B

**Flow Diagram:** MCFD-1554-1.1,  
MCFD-2554-1.1

**Code Category:** B

**ASME Class:** 2

**Function:** 1) Provides flowpath for reactor coolant pump seal water discharge line.  
2) Provides containment isolation for penetration M-256

**Test Requirement:** Measure Full Stroke Time - Quarterly  
Stroke time test in accordance with Omb-2006, ISTC-3500.

**Basis for Deferral:** Closure of one of these valves during power operation would inhibit normal seal water flow across the reactor coolant pump number 1 seal. This action could result in damage to the reactor coolant pump seals or the pump itself. Failure of this seal with NC flow out the seal would be a loss of NV system function, and is justification for deferral in accordance with NUREG-1482.

**Test Alternative & Frequency:** Valve will be full stroke exercised and timed during cold shutdown.

# Justification for Deferral

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**Item Number:** MC-NV-02

**Valve:** 1NV-7B  
2NV-7B

**Flow Diagram:** MCFD-1554-1.2,  
MCFD-2554-1.2

**Code Category:** B

**ASME Class:** 2

**Function:** 1) Provides flowpath for normal letdown.  
2) Provides containment isolation for penetration M-347.

**Test Requirement:** Measure Full Stroke Time - Quarterly  
Stroke time test in accordance with Omb-2006, ISTC-3500.

**Basis for Deferral:** Failure of this valve in a closed position would result in a significant event (letdown isolation), possibly resulting in loss of pressurizer level control, and possible Unit trip (not a normal shutdown).

**Test Alternative & Frequency:** Valve will be full stroke exercised and timed during cold shutdown

# Justification for Deferral

---

**Item Number:** MC-NV-04

**Valve:** 1NV-141A, 1NV-142B  
2NV-141A, 2NV-142B

**Flow Diagram:** MCFD-1554-2.0,  
MCFD-2554-2.0

**Code Category:** B

**ASME Class:** 2

**Function:** Provides isolation for volume control tank upon safety injection signal.

**Test Requirement:** Measure Full Stroke Time - Quarterly  
Stroke time test in accordance with OMB-2006, ISTC-3500.

**Basis for Deferral:** Closure of one of these valves during power operation would isolate the suction for the centrifugal charging pumps. This action could result in damage to the pumps. Seal water to the reactor coolant pumps would be interrupted causing damage to the seals.

**Test Alternative & Frequency:** Valve will be full stroke exercised and timed during cold shutdown.

## Justification for Deferral

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**Item Number:** MC-NV-05

**Valve:** 1NV-244A, 1NV-245B  
2NV-244A, 2NV-245B

**Flow Diagram:** MCFD-1554-3.0,  
MCFD-2554-3.0

**Code Category:** B

**ASME Class:** 2

**Function:** Isolates charging to the reactor coolant system upon safety injection.

**Test Requirement:** Measure Full Stroke Time - Quarterly  
Stroke time test in accordance with Omb-2006, ISTC-3500.

**Basis for Deferral:** If one of these valves were to fail in the closed position while testing during power operation, normal and alternate charging would be lost. Total loss of charging flow would be a significant event, resulting in a possible loss of pressurizer control, and a likely Unit trip (not a normal shutdown), as well as loss of NC pump seal flow.

**Test Alternative & Frequency:** Valves will be full stroke exercised and timed during cold shutdown.



## Justification for Deferral

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**Item Number:** MC-NV-06

**Valve:** 1NV-221A, 1NV-222B  
2NV-221A, 2NV-222B

**Flow Diagram:** MCFD-1554-3.1,  
MCFD-2554-3.1

**Code Category:** B

**ASME Class:** 2

**Function:** Flow path for refueling water storage tank to the suction of the centrifugal charging pumps.

**Test Requirement:** Measure Full Stroke Time - Quarterly  
Stroke time test in accordance with OMB-2006, ISTC-3500.

**Basis for Deferral:** Opening these valves during power operation allows the charging pumps to inject highly borated water into the reactor coolant system which could result in a unit shutdown.

**Test Alternative & Frequency:** Valves will be full stroke exercised and timed during cold shutdown.

## Justification for Deferral

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<b>Item Number:</b>	MC-NV-08
<b>Valve:</b>	1NV-150B, 1NV-151A 2NV-150B, 2NV-151A
<b>Flow Diagram:</b>	MCFD-1554-2.1, MCFD-2554-2.1
<b>Code Category:</b>	B
<b>ASME Class:</b>	2
<b>Function:</b>	Provides isolation for centrifugal charging pump mini-flow line to volume control tank.
<b>Test Requirement:</b>	Measure Full Stroke Time - Quarterly Stroke time test in accordance with OMB-2006, ISTC-3500.
<b>Basis for Deferral:</b>	If either valve were to fail closed while testing, the charging pump mini-flow protection line is isolated possibly causing damage to the pump. Closure of either of these valves would render both trains of NV inoperable, since on a spurious safety injection event (in which reactor coolant system pressure is increased above normal), this is a relief path back to the volume control tank.

**Test Alternative & Frequency:** Valve will be full stroke exercised and timed during cold shutdown.

# Justification for Deferral

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<b>Item Number:</b>	MC-NV-09
<b>Valve:</b>	1NV-265B 2NV-265B
<b>Flow Diagram:</b>	MCFD-1554-3.1, MCFD-2554-3.1
<b>Code Category:</b>	B
<b>ASME Class:</b>	2
<b>Function:</b>	Provides isolation of the boric acid tank suction from the suction of the charging pumps.
<b>Test Requirement:</b>	Measure Full Stroke Time – Quarterly Stroke time test in accordance with OMB-2006, ISTC-3500.
<b>Basis for Deferral:</b>	<p>Previous justification for deferring testing on these valves has been based on the assumption that the boric acid pumps are not secured for in-service testing. Although the BAT pumps are normally operated, securing them has been considered an acceptable method of stroking these valves after performing MOV PMs on-line (Ref. PIP M-99-5538). The annual PM generally does not require that the valve be stroked while the five year PM does require post maintenance testing.</p> <p>While it would be possible to stroke time test these valves on a quarterly frequency, this would require securing the BAT pump on a quarterly frequency in order to avoid a potential transient which could occur if the boric acid were injected into the reactor coolant system. This is considered 'not practicable' as described in ASME Code ISTC-3521 as justification for deferring testing to cold shutdown.</p>

**Test Alternative & Frequency:** Valves will be full stroke exercised and timed during cold shutdown.

## Justification for Deferral

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**Item Number:** MC-NV-19

**Valve:** 1NV-0035A, 1NV-0457A, 1NV-0458A  
2NV-0035A, 2NV-0457A, 2NV-0458A

**Flow Diagram:** MCFD-1554-1.02,  
MCFD-2554-1.02

**Code Category:** B

**ASME Class:** 2

**Function:** These valves must automatically close to isolate containment on a Phase A signal, and to isolate letdown on a pressurizer Low Level signal. They can be operated from the auxiliary shutdown panel, and cannot be opened unless valves 1(2)NV-1A and 1(2)NV-2A are both open.

**Test Requirement:** Measure Full Stroke Time - Quarterly  
Stroke time test quarterly in accordance with OMB-2006, ISTC-3500.

**Basis for Deferral:** Letdown header relief valve 1(2)NV-6 has experienced lifting and subsequent seat leakage as a result of pressure transients during orifice swaps for stroke time testing of the above valves. Although the NV operating procedure specifically addresses the potential pressure increase that could occur when swapping from the 45 gpm to the 75 gpm orifice, the increase can occur so quickly that the operator and system controls cannot respond fast enough to prevent the pressure transient. The NV operating procedure currently provides for simultaneous opening/closure of the above orifice isolation valves, and for back pressure reduction using the downstream control valve, to prevent such a pressure transient; however, procedure effectiveness is problematic with respect to repeatability due to the inability to achieve perfect coordination each time.

It is concluded that testing of these valves is impractical and non-conservative during power operation, since it results in pressure transients which have caused relief valve leakage. This leakage is reactor coolant (NC) leakage, which is reflected in higher NC leakage values.

Finally, these valves have demonstrated a favorable test history.

**Test Alternative & Frequency:** Valves will be full stroke exercised and timed during cold shutdown

# Justification for Deferral

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**Item Number:** MC-RF-02

**Valve:** 1RF-821A  
1RF-832A

**Flow Diagram:** MCFD-1599-2.2,  
MCFD-1599-2.2

**Code Category:** A

**ASME Class:** 2

**Function:** Provides containment isolation.

**Test Requirement:** Stroke Time Close - Quarterly  
  
Leak-Rate Test to Appendix J Requirements  
Stroke time test in accordance with OMB-2006, ISTC-3500.

**Basis for Deferral:** There is undue risk of spraying down containment with fire protection water (opening these valves exposes the containment sprinkler header to RF header pressure). This is impractical and is justified for deferral to cold shutdown in accordance with NUREG-1482.

**Test Alternative & Frequency:** Valve will be full stroke exercised and timed during cold shutdown.

# Justification for Deferral

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**Item Number:** MC-RN-01

**Valve:** 1RN-252B, 1RN-253A  
2RN-252B, 2RN-253A

**Flow Diagram:** MCFD-1574-4.0,  
MCFD-2574-4.0

**Code Category:** A

**ASME Class:** 2

**Function:**

- 1) Provides containment isolation for penetration M-307.
- 2) Provides flow path for cooling water to the reactor coolant pump motor air cooler.

**Test Requirement:** Measure Full Stroke Time - Quarterly  
Leak-Rate Test to Appendix J Requirements  
Stroke time test in accordance with Omb-2006, ISTC-3500.

**Basis for Deferral:** If one of these valves were to fail closed during testing, isolation of cooling water to the motor coolers could result in damage to the pumps. Closure of these valves would result in a unit trip from NC Pump motors being manually shut down due to high stator temperatures (within minutes). An abnormal (natural circulation) shutdown would be required.

**Test Alternative & Frequency:** Valves will be full stroke exercised and timed during cold shutdown.

# Justification for Deferral

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**Item Number:** MC-RN-02

**Valve:** 1RN-276A, 1RN-277B  
2RN-276A, 2RN-277B

**Flow Diagram:** MCFD-1574-4.0,  
MCFD-2574-4.0

**Code Category:** A

**ASME Class:** 2

**Function:**

- 1) Provides containment isolation for penetration M-315.
- 2) Provides flow path for cooling water to the reactor coolant pump motor air cooler.

**Test Requirement:** Measure Full Stroke Time - Quarterly  
Leak-Rate Test to Appendix J Requirements  
Stroke time test in accordance with Omb-2006, ISTC-3500.

**Basis for Deferral:** If one of these valves were to fail closed during testing, isolation of cooling water to the motor coolers could result in damage to the pumps. Closure of these valves would result in a Unit trip from NC pump motors being manually shut down due to high stator temperatures (within minutes). An abnormal (natural circulation) shutdown would be required.

**Test Alternative & Frequency:** Valves will be full stroke exercised and timed during cold shutdown.

## Justification for Deferral

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**Item Number:** MC-RV-01

**Valve:** 1RV-32A, 1RV-33B, 1RV-76A, 1RV-77B  
2RV-32A, 2RV-33B, 2RV-76A, 2RV-77B

**Flow Diagram:** MCFD-1604-3.0,  
MCFD-2604-3.0

**Code Category:** A

**ASME Class:** 2

**Function:** Provide containment isolation for penetration M-240 and M-279 respectively.

**Test Requirement:** Measure Full Stroke Time - Quarterly  
Leak-Rate Test to Appendix J Requirements  
Stroke time test in accordance with Omb-2006, ISTC-5000.

**Basis for Deferral:** Failure of one of these valves in the closed position during testing would isolate cooling flow to the Lower Containment Ventilation Units causing an increase in lower containment temperature which could exceed Tech Spec limits. Although the exact time depends on outside temperature, the Tech Spec limit would be exceeded within minutes if cooling flow was isolated to these ventilation units.

**Test Alternative & Frequency:** Valve will be full stroke exercised and timed during cold shutdown.



# Justification for Deferral

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**Item Number:** MC-SM-01

**Valve:** 1SM-1AB, 1SM-3AB, 1SM-5AB, 1SM-7AB  
2SM-1AB, 2SM-3AB, 2SM-5AB, 2SM-7AB

**Flow Diagram:** MCFD-1593-1.0, MCFD-1593-1.3,  
MCFD-2593-1.0, MCFD-2593-1.3

**Code Category:** B

**ASME Class:** 2

**Function:** Main Steam Isolation Valves

**Test Requirement:** Measure Full Stroke Time - Quarterly  
Stroke time test in accordance with OMB-2006, ISTC-3500.

**Basis for Deferral:** These valves cannot be fully cycled closed during power operation since a unit shutdown would result.

**Test Alternative & Frequency:** These valves will be full stroke exercised and timed during cold shutdown. They are no longer 90% open tested quarterly, as this only showed partial movement and increased the risk of unit trip.

## Justification for Deferral

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**Item Number:** MC-VI-04

**Valve:** 1VI-129B, 1VI-150B, 1VI-160B  
2VI-129B, 2VI-150B, 2VI-160B

**Flow Diagram:** MCFD-1605-1.14; MCFD-1605-1.17;  
MCFD-2605-1.2; MCFD-2605-1.3

**Code Category:** A

**ASME Class:** 2

**Function:** Provides containment isolation on penetrations M-220, M-317 and M-359 respectively.

**Test Requirement:** Measure Full Stroke Time - Quarterly  
Leak-Rate Test to Appendix J Requirements  
Stroke time test in accordance with Omb-2006, ISTC-3500.

**Basis for Deferral:** These valves isolate instrument air headers to the reactor building. Should these valves be closed during power operation, components inside containment would experience a loss of instrument air, resulting in unwanted transients. During cold shutdowns, personnel entry into containment may be made to manually align instrument air headers together, allowing these valves to be tested. Since this is a manual alignment, it is not possible to enter containment to make this alignment for quarterly testing.

**Test Alternative & Frequency:** These valves will be full stroke exercised and timed during cold shutdown. Leak testing will be performed as per the requirements of 10CFR50, Appendix J.

**DUKE ENERGY**

**McGUIRE NUCLEAR STATION**

**SUPPLEMENTAL TEST PROGRAM**

**Section 7.0**

**Revision 28  
March 1, 2013**

## MCGUIRE NUCLEAR STATION

### CA - AUXILIARY FEEDWATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1CA-250	MCFD-1592-01.01	MA	NA	CV	No	3			1CA-250Leak Test Non-Appendix J	No specified test frequency
1CA-251	MCFD-1592-01.01	MA	NA	CV	No	3			1CA-251Leak Test Non-Appendix J	No specified test frequency
1CA-252	MCFD-1592-01.01	MA	NA	CV	No	3			1CA-252Leak Test Non-Appendix J	No specified test frequency
2CA-250	MCFD-2592-01.01	MA	NA	CV	No	3			2CA-250Leak Test Non-Appendix J	No specified test frequency
2CA-251	MCFD-2592-01.01	MA	NA	CV	No	3			2CA-251Leak Test Non-Appendix J	No specified test frequency
2CA-252	MCFD-2592-01.01	MA	NA	CV	No	3			2CA-252Leak Test Non-Appendix J	No specified test frequency

# MCGUIRE NUCLEAR STATION

## CF - FEEDWATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1CF-151	MCFD-1591-01.01	MA	NA	GA	No	2			1CF-151 - Full Stroke (Open)	No specified test frequency
1CF-152	MCFD-1591-01.01	SA	NA	SW	No	2			1CF-152 - Full Stroke (Open)	No specified test frequency
1CF-153	MCFD-1591-01.01	MA	NA	GA	No	2			1CF-153 - Full Stroke (Open)	No specified test frequency
1CF-154	MCFD-1591-01.01	SA	NA	SW	No	2			1CF-154 - Full Stroke (Open)	No specified test frequency
1CF-155	MCFD-1591-01.01	MA	NA	GA	No	2			1CF-155 - Full Stroke (Open)	No specified test frequency
1CF-156	MCFD-1591-01.01	SA	NA	SW	No	2			1CF-156 - Full Stroke (Open)	No specified test frequency
1CF-157	MCFD-1591-01.01	MA	NA	GA	No	2			1CF-157 - Full Stroke (Open)	No specified test frequency
1CF-158	MCFD-1591-01.01	SA	NA	SW	No	2			1CF-158 - Full Stroke (Open)	No specified test frequency
1CF-183	MCFD-1591-01.01	MA	NA	GA	No	2			1CF-183 - Full Stroke (OPEN)	No specified test frequency
1CF-184	MCFD-1591-01.01	MA	NA	GA	No	2			1CF-184 - Full Stroke (Open)	No specified test frequency
1CF-185	MCFD-1591-01.01	MA	NA	GA	No	2			1CF-185 - Full Stroke (Open)	No specified test frequency
1CF-186	MCFD-1591-01.01	MA	NA	GA	No	2			1CF-186 - Full Stroke (Open)	No specified test frequency
2CF-151	MCFD-2591-01.01	MA	NA	GA	No	2			2CF-151 - Full Stroke (Open)	No specified test frequency
2CF-152	MCFD-2591-01.01	SA	NA	SW	No	2			2CF-152 - Full Stroke (Open)	No specified test frequency
2CF-153	MCFD-2591-01.01	MA	NA	GA	No	2			2CF-153 - Full Stroke (Open)	No specified test frequency
2CF-154	MCFD-2591-01.01	SA	NA	SW	No	2			2CF-154 - Full Stroke (Open)	No specified test frequency
2CF-155	MCFD-2591-01.01	MA	NA	GA	No	2			2CF-155 - Full Stroke (Open)	No specified test frequency
2CF-156	MCFD-2591-01.01	SA	NA	SW	No	2			2CF-156 - Full Stroke (Open)	No specified test frequency
2CF-157	MCFD-2591-01.01	MA	NA	GA	No	2			2CF-157 - Full Stroke (Open)	No specified test frequency
2CF-158	MCFD-2591-01.01	SA	NA	SW	No	2			2CF-158 - Full Stroke (Open)	No specified test frequency

# MCGUIRE NUCLEAR STATION

## CF - FEEDWATER SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2CF-183	MCFD-2591-01.01	MA	NA	GA	No	2			2CF-183 - Full Stroke (Open)	No specified test frequency
2CF-184	MCFD-2591-01.01	MA	NA	GA	No	2			2CF-184 - Full Stroke (Open)	No specified test frequency
2CF-185	MCFD-2591-01.01	MA	NA	GA	No	2			2CF-185 - Full Stroke (Open)	No specified test frequency
2CF-186	MCFD-2591-01.01	MA	NA	GA	No	2			2CF-186 - Full Stroke (Open)	No specified test frequency

# MCGUIRE NUCLEAR STATION

## FD - D/G ENGINE FUEL OIL SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1FD-5	MCFD-1609-03.00	SA	NA	RV	No	3			1FD-5 - Relief Valve Test (Closed to Open)	No specified test frequency
1FD-16	MCFD-1609-03.00	SA	NA	SW	No	3			1FD-16 - Exercise (Both)	No specified test frequency
1FD-28	MCFD-1609-03.01	SA	NA	RV	No	3			1FD-28 - Relief Valve Test (Closed to Open)	No specified test frequency
1FD-39	MCFD-1609-03.01	SA	NA	SW	No	3			1FD-39 - Exercise (Both)	No specified test frequency
1FD-92	MCFD-1609-03.00	SA	NA	SW	No	3			1FD-92 - Exercise (Both)	No specified test frequency
1FD-93	MCFD-1609-03.00	SA	NA	SW	No	3			1FD-93 - Exercise (Both)	No specified test frequency
1FD-104	MCFD-1609-03.01	SA	NA	SW	No	3			1FD-104 - Exercise (Both)	No specified test frequency
1FD-105	MCFD-1609-03.01	SA	NA	SW	No	3			1FD-105 - Exercise (Both)	No specified test frequency
2FD-5	MCFD-2609-03.00	SA	NA	RV	No	3			2FD-5 - Relief Valve Test (Closed to Open)	No specified test frequency
2FD-16	MCFD-2609-03.00	SA	NA	SW	No	3			2FD-16 - Exercise (Both)	No specified test frequency
2FD-28	MCFD-2609-03.01	SA	NA	RV	No	3			2FD-28 - Relief Valve Test (CIs to Opn)	No specified test frequency
2FD-39	MCFD-2609-03.01	SA	NA	SW	No	3			2FD-39 - Exercise (Both)	No specified test frequency
2FD-92	MCFD-2609-03.00	SA	NA	SW	No	3			2FD-92 - Exercise (Both)	No specified test frequency
2FD-93	MCFD-2609-03.00	SA	NA	SW	No	3			2FD-93 - Exercise (Both)	No specified test frequency
2FD-104	MCFD-2609-03.01	SA	NA	SW	No	3			2FD-104 - Exercise (Both)	No specified test frequency
2FD-105	MCFD-2609-03.01	SA	NA	SW	No	3			2FD-105 - Exercise (Both)	No specified test frequency

# MCGUIRE NUCLEAR STATION

## KC - COMPONENT COOLING SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1KC-330	MCFD-1573-03.01	SA	NA	RV	No	3			1KC-330 - Relief Valve Test (Cls to Opn)	No specified test frequency
1KC-345A	MCFD-1573-03.00	MR	NA	GL	No	2			1KC-345A - Stroke Time (Opn to Cls)	No specified test frequency
									1KC-345A - Position Indicator (Open and Closed)	No specified test frequency
1KC-349	MCFD-1573-03.00	SA	NA	RV	No	2			1KC-349 - Relief Valve Test (Cls to Opn)	No specified test frequency
1KC-364B	MCFD-1573-03.00	MR	NA	GL	No	2			1KC-364B - Stroke Time (Opn to Cls)	No specified test frequency
									1KC-364B - Position Indicator (Open and Closed)	No specified test frequency
1KC-368	MCFD-1573-03.00	SA	NA	RV	No	2			1KC-368 - Relief Valve Test (Cls to Opn)	No specified test frequency
1KC-394A	MCFD-1573-03.00	MR	NA	GL	No	2			1KC-394A - Stroke Time (Opn to Cls)	No specified test frequency
									1KC-394A - Position Indicator (Open and Closed)	No specified test frequency
1KC-398	MCFD-1573-03.00	SA	NA	RV	No	2			1KC-398 - Relief Valve Test (Cls to Opn)	No specified test frequency
1KC-413B	MCFD-1573-03.00	MR	NA	GL	No	2			1KC-413B - Stroke Time (Opn to Cls)	No specified test frequency
									1KC-413B - Position Indicator (Open and Closed)	No specified test frequency
1KC-417	MCFD-1573-03.00	SA	NA	RV	No	2			1KC-417 - Relief Valve Test (Cls to Opn)	No specified test frequency
1KC-992	MCFD-1573-03.01	SA	NA	RV	No	3			1KC-992 - Relief Valve Test (Cls to Opn)	No specified test frequency
1KC-993	MCFD-1573-03.01	SA	NA	RV	No	3			1KC-993 - Relief Valve Test (Cls to Opn)	No specified test frequency
2KC-330	MCFD-2573-03.01	SA	NA	RV	No	3			2KC-330 - Relief Valve Test (Cls to Opn)	No specified test frequency
2KC-345A	MCFD-2573-03.00	MR	NA	GL	No	2			2KC-345A - Stroke Time (Opn to Cls)	No specified test frequency
									2KC-345A - Position Indicator (Open and Closed)	No specified test frequency



# MCGUIRE NUCLEAR STATION

## KC - COMPONENT COOLING SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2KC-349	MCFD-2573-03.00	SA	NA	RV	No	2			2KC-349 - Relief Valve Test (Cls to Opn)	No specified test frequency
2KC-364B	MCFD-2573-03.00	MR	NA	GL	No	2			2KC-364B - Stroke Time (Opn to Cls)	No specified test frequency
									2KC-364B - Position Indicator (Open and Closed)	No specified test frequency
2KC-368	MCFD-2573-03.00	SA	NA	RV	No	2			2KC-368 - Relief Valve Test (Cls to Opn)	No specified test frequency
2KC-394A	MCFD-2573-03.00	MR	NA	GL	No	2			2KC-394A - Stroke Time (Opn to Cls)	No specified test frequency
									2KC-394A - Position Indicator (Open and Closed)	No specified test frequency
2KC-398	MCFD-2573-03.00	SA	NA	RV	No	2			2KC-398 - Relief Valve Test (Cls to Opn)	No specified test frequency
2KC-413B	MCFD-2573-03.00	MR	NA	GL	No	2			2KC-413B - Stroke Time (Opn to Cls)	No specified test frequency
									2KC-413B - Position Indicator (Open and Closed)	No specified test frequency
2KC-417	MCFD-2573-03.00	SA	NA	RV	No	2			2KC-417 - Relief Valve Test (Cls to Opn)	No specified test frequency

# MCGUIRE NUCLEAR STATION

## KD - D/G ENGINE COOLING WATER

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1KD-9	MCFD-1609-01.00	AO	NA	3W	No	3			1KD-9 Fail to Safe - Not Timed (Open)	No specified test frequency
1KD-16	MCFD-1609-01.00	SA	NA	SW	No	3			1KD-16 - Exercise (Both)	No specified test frequency
1KD-18	MCFD-1609-01.00	SA	NA	SW	No	3			1KD-18 - Exercise (Both)	No specified test frequency
1KD-29	MCFD-1609-01.01	AO	NA	3W	No	3			1KD-29 Fail to Safe - Not Timed (Open)	No specified test frequency
1KD-36	MCFD-1609-01.01	SA	NA	SW	No	3			1KD-36 - Exercise (Both)	No specified test frequency
1KD-38	MCFD-1609-01.01	SA	NA	SW	No	3			1KD-38 - Exercise (Both)	No specified test frequency
2KD-9	MCFD-2609-01.00	AO	NA	3W	No	3			2KD-9 Fail to Safe - Not Timed (Open)	No specified test frequency
2KD-16	MCFD-2609-01.00	SA	NA	SW	No	3			2KD-16 - Exercise (Both)	No specified test frequency
2KD-18	MCFD-2609-01.00	SA	NA	SW	No	3			2KD-18 - Exercise (Both)	No specified test frequency
2KD-29	MCFD-2609-01.01	AO	NA	3W	No	3			2KD-29 Fail to Safe - Not Timed (Open)	No specified test frequency
2KD-36	MCFD-2609-01.01	SA	NA	SW	No	3			2KD-36 - Exercise (Both)	No specified test frequency
2KD-38	MCFD-2609-01.01	SA	NA	SW	No	3			2KD-38 - Exercise (Both)	No specified test frequency

## MCGUIRE NUCLEAR STATION

### LD - D/G ENGINE LUBE OIL

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1LD-2	MCFD-1609-02.00	SA	NA	SW	No	3			1LD-2 - Exercise (Both)	No specified test frequency
1LD-5	MCFD-1609-02.00	SA	NA	SW	No	3			1LD-5 - Exercise (Both)	No specified test frequency
1LD-32	MCFD-1609-02.01	SA	NA	SW	No	3			1LD-32 - Exercise (Both)	No specified test frequency
1LD-35	MCFD-1609-02.01	SA	NA	SW	No	3			1LD-35 - Exercise (Both)	No specified test frequency
2LD-2	MCFD-2609-02.00	SA	NA	SW	No	3			2LD-2 - Exercise (Both)	No specified test frequency
2LD-5	MCFD-2609-02.00	SA	NA	SW	No	3			2LD-5 - Exercise (Both)	No specified test frequency
2LD-32	MCFD-2609-02.01	SA	NA	SW	No	3			2LD-32 - Exercise (Both)	No specified test frequency
2LD-35	MCFD-2609-02.01	SA	NA	SW	No	3			2LD-35 - Exercise (Both)	No specified test frequency

# MCGUIRE NUCLEAR STATION

## ***NB - BORON RECYCLE SYSTEM***

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2NB-438	MCFD-2556-03.00	SA	NA	LC	No	3			2NB-438 - Sample Disassembly (Both)	No specified test frequency

# MCGUIRE NUCLEAR STATION

## NV - CHEMICAL AND VOLUME CONTROL

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1NV-20	MCFD-1554-01.02	SA	NA	LC	No	2			1NV-20 - Sample Disassembly (CIs to Opn)	No specified test frequency
1NV-22	MCFD-1554-01.02	SA	NA	LC	No	1			1NV-22 - Leak Test Non-Appendix J	No specified test frequency
1NV-29	MCFD-1554-01.00	SA	Category C	LC	Yes	2			1NV-29 - Leak Test Non-Appendix J	No specified test frequency
1NV-45	MCFD-1554-01.00	SA	Category C	LC	Yes	2			1NV-45 - Leak Test Non-Appendix J	No specified test frequency
1NV-61	MCFD-1554-01.01	SA	Category C	LC	Yes	2			1NV-61 - Leak Test Non-Appendix J	No specified test frequency
1NV-77	MCFD-1554-01.01	SA	Category C	LC	Yes	2			1NV-77 - Leak Test Non-Appendix J	No specified test frequency
1NV-156	MCFD-1554-02.00	SA	NA	RV	No	2			1NV-156 - Relief Valve Test (CIs to Opn)	No specified test frequency
1NV-261	MCFD-1554-03.01	SA	NA	LC	No	2			1NV-261 - Full Stroke (Closed)	No specified test frequency
1NV-840	MCFD-1554-01.02	AO	NA	GL	No	2			1NV-840 - Leak Test Non-Appendix J	No specified test frequency
1NV-841	MCFD-1554-01.02	SA	Category C	SW	Yes	2			1NV-841 - Leak Test Non-Appendix J	No specified test frequency
1NV-842AC	MCFD-1554-01.03	MR	NA	GA	No	2			1NV-842AC - Stroke Time (Opn to CIs)	No specified test frequency
									1NV-842AC - Position Indicator (Open and Closed)	No specified test frequency
1NV-844	MCFD-1554-01.03	SA	NA	LC	No	N/A			1NV-844 - Full Stroke (Open)	No specified test frequency
1NV-1007	MCFD-1554-01.03	SA	NA	LC	No	2			1NV-1007 - Full Stroke (Open)	No specified test frequency
1NV-1008	MCFD-1554-01.03	SA	NA	LC	No	2			1NV-1008 - Full Stroke (Open)	No specified test frequency
1NV-1009	MCFD-1554-01.03	SA	NA	LC	No	2			1NV-1009 - Full Stroke (Open)	No specified test frequency
1NV-1010	MCFD-1554-01.03	SA	NA	LC	No	2			1NV-1010 - Full Stroke (Open)	No specified test frequency
1NV-1012C	MCFD-1554-01.03	MR	NA	GL	No	N/A			1NV-1012C - Stroke Time (Opn to CIs)	No specified test frequency
									1NV-1012C - Position Indicator (Open and Closed)	No specified test frequency

# MCGUIRE NUCLEAR STATION

## NV - CHEMICAL AND VOLUME CONTROL

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1NV-1013C	MCFD-1554-01.03	MR	NA	GL	No	N/A			1NV-1013C - Stroke Time (Cls to Opn)	No specified test frequency
									1NV-1013C - Position Indicator (Open and Closed)	No specified test frequency
1NV-1046	MCFD-1554-03.00	SA	NA	SW	No	2			1NV-1046 - Full Stroke (Closed)	No specified test frequency
2NV-20	MCFD-2554-01.02	SA	NA	LC	No	2			2NV-20 - Sample Disassembly (Closed to Open)	No specified test frequency
2NV-22	MCFD-2554-01.02	SA	NA	LC	No	1			2NV-22 - Leak Test Non-Appendix J	No specified test frequency
2NV-29	MCFD-2554-01.00	SA	Category C	LC	Yes	2			2NV-29 - Leak Test Non-Appendix J	No specified test frequency
2NV-45	MCFD-2554-01.00	SA	Category C	LC	Yes	2			2NV-45 - Leak Test Non-Appendix J	No specified test frequency
2NV-61	MCFD-2554-01.01	SA	Category C	LC	Yes	2			2NV-61 - Leak Test Non-Appendix J	No specified test frequency
2NV-77	MCFD-2554-01.01	SA	Category C	LC	Yes	2			2NV-77 - Leak Test Non-Appendix J	No specified test frequency
2NV-156	MCFD-2554-02.00	SA	NA	RV	No	2			2NV-156 - Relief Valve Test (Cls to Opn)	No specified test frequency
2NV-261	MCFD-2554-03.01	SA	NA	LC	No	2			2NV-261 - Full Stroke (Closed)	No specified test frequency
2NV-841	MCFD-2554-01.02	SA	Category C	SW	Yes	2			2NV-841 - Leak Test Non-Appendix J	No specified test frequency
2NV-842AC	MCFD-2554-01.03	MR	NA	GA	No	2			2NV-842AC - Stroke Time (Opn to Cls)	No specified test frequency
									2NV-842AC - Position Indicator (Open and Closed)	No specified test frequency
2NV-844	MCFD-2554-01.03	SA	NA	LC	No	N/A			2NV-844 - Full Stroke (Open)	No specified test frequency
2NV-1007	MCFD-2554-01.03	SA	NA	LC	No	2			2NV-1007 - Full Stroke (Open)	No specified test frequency
2NV-1008	MCFD-2554-01.03	SA	NA	LC	No	2			2NV-1008 - Full Stroke (Open)	No specified test frequency
2NV-1009	MCFD-2554-01.03	SA	NA	LC	No	2			2NV-1009 - Full Stroke (Open)	No specified test frequency

## MCGUIRE NUCLEAR STATION

### NV - CHEMICAL AND VOLUME CONTROL

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2NV-1010	MCFD-2554-01.03	SA	NA	LC	No	2			2NV-1010 - Full Stroke (Open)	No specified test frequency
2NV-1012C	MCFD-2554-01.03	MR	NA	GL	No	N/A			2NV-1012C - Stroke Time (Opn to Cls)	No specified test frequency
									2NV-1012C - Position Indicator (Open and Closed)	No specified test frequency
2NV-1013C	MCFD-2554-01.03	MR	NA	GL	No	N/A			2NV-1013C - Stroke Time (Cls to Opn)	No specified test frequency
									2NV-1013C - Position Indicator (Open and Closed)	No specified test frequency
2NV-1046	MCFD-2554-03.00	SA	NA	CK	No	2			2NV-1046 - Full Stroke (Closed)	No specified test frequency
2NV-1053	MCFD-2554-01.02	MA	NA	GL	No	2			2NV-1053 - Leak Test Non-Appendix J	No specified test frequency

# MCGUIRE NUCLEAR STATION

## RF - FIRE PROTECTION SYSTEM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1RF-1020	MCFD-1599-02.02	SA	NA	RV	No	N/A			1RF-1020 - Relief Valve Test (Closed to Open)	No specified test frequency
1RF-1317	MCFD-1599-02.02	SA	NA	RV	No	N/A			1RF-1317 - Relief Valve Test (Closed to Open)	No specified test frequency



# MCGUIRE NUCLEAR STATION

## ***RN - NUCLEAR SERVICE WATER SYSTEM***

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1RN-1101	MCFD-1574-01.00	SA	NA	RV	No	3			1RN-1101 - Relief Valve Test (Closed to Open)	No specified test frequency
2RN-1101	MCFD-2574-04.00	SA	NA	RV	No	3			2RN-1101 - Relief Valve Test (Closed to Open)	No specified test frequency

# MCGUIRE NUCLEAR STATION

## RV - CONT VENT COOLING WATER

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1RV-154	MCFD-1604-03.00	SA	NA	RV	No	N/A			1RV-154 - Relief Valve Test (Closed to Open)	Every other refueling outage
1RV-482	MCFD-1604-03.00	SA	NA	RV	No	2			1RV-482 - Relief Valve Test (Closed to Open)	No specified test frequency
1RV-485	MCFD-1604-03.00	SA	NA	RV	No	3			1RV-485 - Relief Valve Test (Closed to Open)	No specified test frequency
2RV-154	MCFD-2604-03.00	SA	NA	RV	No	N/A			2RV-154 - Relief Valve Test (Closed to Open)	Every other refueling outage
2RV-479	MCFD-2604-03.00	SA	NA	RV	No	3			2RV-479 - Relief Valve Test (Closed to Open)	No specified test frequency
2RV-485	MCFD-2604-03.00	SA	NA	RV	No	3			2RV-485 - Relief Valve Test (Closed to Open)	No specified test frequency

## MCGUIRE NUCLEAR STATION

### SA - SM SUPPLY TO AUX EQ

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1SA-48ABC	MCFD-1593-01.02	AO	Category B	GA	Yes	2			1SA-48ABC VST Init To Not Closed	No specified test frequency
1SA-49AB	MCFD-1593-01.02	AO	Category B	GA	Yes	2			1SA-49AB VST Init To Not Closed	No specified test frequency

# MCGUIRE NUCLEAR STATION

## SB - MAIN STEAM BYPASS TO CONDENSER

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1SB-3	MCFD-1593-02.01	AO	NA	GA	No	N/A			1SB-3 - Stroke Time (Cls to Opn)	No specified test frequency
1SB-6	MCFD-1593-02.01	AO	NA	GA	No	N/A			1SB-6 - Stroke Time (Cls to Opn)	No specified test frequency
1SB-9	MCFD-1593-02.01	AO	NA	GA	No	N/A			1SB-9 - Stroke Time (Cls to Opn)	No specified test frequency
1SB-12	MCFD-1593-02.01	AO	NA	GA	No	N/A			1SB-12 - Stroke Time (Cls to Opn)	No specified test frequency
1SB-15	MCFD-1593-02.01	AO	NA	GA	No	N/A			1SB-15 - Stroke Time (Cls to Opn)	No specified test frequency
1SB-18	MCFD-1593-02.01	AO	NA	GA	No	N/A			1SB-18 - Stroke Time (Cls to Opn)	No specified test frequency
1SB-21	MCFD-1593-02.01	AO	NA	GA	No	N/A			1SB-21 - Stroke Time (Cls to Opn)	No specified test frequency
1SB-24	MCFD-1593-02.01	AO	NA	GA	No	N/A			1SB-24 - Stroke Time (Cls to Opn)	No specified test frequency
1SB-27	MCFD-1593-02.01	AO	NA	GA	No	N/A			1SB-27 - Stroke Time (Cls to Opn)	No specified test frequency
2SB-3	MCFD-2593-02.01	AO	NA	GA	No	N/A			2SB-3 - Stroke Time (Cls to Opn)	No specified test frequency
2SB-6	MCFD-2593-02.01	AO	NA	GA	No	N/A			2SB-6 - Stroke Time (Cls to Opn)	No specified test frequency
2SB-9	MCFD-2593-02.01	AO	NA	GA	No	N/A			2SB-9 - Stroke Time (Cls to Opn)	No specified test frequency
2SB-12	MCFD-2593-02.01	AO	NA	GA	No	N/A			2SB-12 - Stroke Time (Cls to Opn)	No specified test frequency
2SB-15	MCFD-2593-02.01	AO	NA	GA	No	N/A			2SB-15 - Stroke Time (Cls to Opn)	No specified test frequency
2SB-18	MCFD-2593-02.01	AO	NA	GA	No	N/A			2SB-18 - Stroke Time (Cls to Opn)	No specified test frequency
2SB-21	MCFD-2593-02.01	AO	NA	GA	No	N/A			2SB-21 - Stroke Time (Cls to Opn)	No specified test frequency
2SB-24	MCFD-2593-02.01	AO	NA	GA	No	N/A			2SB-24 - Stroke Time (Cls to Opn)	No specified test frequency
2SB-27	MCFD-2593-02.01	AO	NA	GA	No	N/A			2SB-27 - Stroke Time (Cls to Opn)	No specified test frequency

# MCGUIRE NUCLEAR STATION

## SM - MAIN STEAM

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1SM-1AB	MCFD-1593-01.03	AO	Category B	GL	Yes	2			1SM-1AB - Stroke Time (Opn to Cls)	Tested every refueling outage
1SM-3ABC	MCFD-1593-01.03	AO	Category B	GL	Yes	2			1SM-3AB - Stroke Time (Opn to Cls)	Tested every refueling outage
1SM-5AB	MCFD-1593-01.00	AO	Category B	GL	Yes	2			1SM-5AB - Stroke Time (Opn to Cls)	Tested every refueling outage
1SM-7AB	MCFD-1593-01.00	AO	Category B	GL	Yes	2			1SM-7AB - Stroke Time (Opn to Cls)	Tested every refueling outage
2SM-1AB	MCFD-2593-01.03	AO	Category B	GL	Yes	2			2SM-1AB - Stroke Time (Opn to Cls)	Tested every refueling outage
2SM-3ABC	MCFD-2593-01.03	AO	Category B	GL	Yes	2			2SM-3AB - Stroke Time (Opn to Cls)	Tested every refueling outage
2SM-5AB	MCFD-2593-01.00	AO	Category B	GL	Yes	2			2SM-5AB - Stroke Time (Opn to Cls)	Tested every refueling outage
2SM-7AB	MCFD-2593-01.00	AO	Category B	GL	Yes	2			2SM-7AB - Stroke Time (Opn to Cls)	Tested every refueling outage

# MCGUIRE NUCLEAR STATION

## VG - D/G ENGINE STARTING AIR

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1VG-33	MCFD-1609-04.00	SA	NA	RV	No	3			1VG-33 - Relief Valve Test (Cls to Opn)	No specified test frequency
1VG-34	MCFD-1609-04.00	SA	NA	RV	No	3			1VG-34 - Relief Valve Test (Cls to Opn)	No specified test frequency
1VG-35	MCFD-1609-04.00	SA	NA	RV	No	3			1VG-35 - Relief Valve Test (Cls to Opn)	No specified test frequency
1VG-36	MCFD-1609-04.00	SA	NA	RV	No	3			1VG-36 - Relief Valve Test (Cls to Opn)	No specified test frequency
1VG-61	MCFD-1609-04.00	SO	NA	SV	No	3			1VG-61 - Full Stroke (Open)	No specified test frequency
1VG-62	MCFD-1609-04.00	SO	NA	GA	No	3			1VG-62 - Full Stroke (Open)	No specified test frequency
1VG-63	MCFD-1609-04.00	SO	NA	SV	No	3			1VG-63 - Full Stroke (Open)	No specified test frequency
1VG-64	MCFD-1609-04.00	SO	NA	SV	No	3			1VG-64 - Full Stroke (Open)	No specified test frequency
1VG-65	MCFD-1609-04.00	SO	NA	SV	No	3			1VG-65 - Full Stroke (Open)	No specified test frequency
1VG-66	MCFD-1609-04.00	SO	NA	SV	No	3			1VG-66 - Full Stroke (Open)	No specified test frequency
1VG-67	MCFD-1609-04.00	SO	NA	SV	No	3			1VG-67 - Full Stroke (Open)	No specified test frequency
1VG-68	MCFD-1609-04.00	SO	NA	SV	No	3			1VG-68 - Full Stroke (Open)	No specified test frequency
1VG-79	MCFD-1609-04.00	SA	NA	RV	No	3			1VG-79 - Relief Valve Test (Cls to Opn)	No specified test frequency
1VG-80	MCFD-1609-04.00	SA	NA	RV	No	3			1VG-80 - Relief Valve Test (Cls to Opn)	No specified test frequency
1VG-83	MCFD-1609-04.00	SA	NA	RV	No	3			1VG-83 - Relief Valve Test (Cls to Opn)	No specified test frequency
1VG-84	MCFD-1609-04.00	SA	NA	RV	No	3			1VG-84 - Relief Valve Test (Cls to Opn)	No specified test frequency
1VG-115	MCFD-1609-04.00	SA	NA	SW	No	3			1VG-115 - Exercise (Both)	No specified test frequency
1VG-116	MCFD-1609-04.00	SA	NA	SW	No	3			1VG-116 - Exercise (Both)	No specified test frequency
1VG-117	MCFD-1609-04.00	SA	NA	SW	No	3			1VG-117 - Exercise (Both)	No specified test frequency
1VG-118	MCFD-1609-04.00	SA	NA	SW	No	3			1VG-118 - Exercise (Both)	No specified test frequency

# MCGUIRE NUCLEAR STATION

## VG - D/G ENGINE STARTING AIR

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
2VG-33	MCFD-2609-04.00	SA	NA	RV	No	3			2VG-33 - Relief Valve Test (CIs to Opn)	No specified test frequency
2VG-34	MCFD-2609-04.00	SA	NA	RV	No	3			2VG-34 - Relief Valve Test (CIs to Opn)	No specified test frequency
2VG-35	MCFD-2609-04.00	SA	NA	RV	No	3			2VG-35 - Relief Valve Test (CIs to Opn)	No specified test frequency
2VG-36	MCFD-2609-04.00	SA	NA	RV	No	3			2VG-36 - Relief Valve Test (CIs to Opn)	No specified test frequency
2VG-61	MCFD-2609-04.00	SO	NA	SV	No	3			2VG-61 - Full Stroke (Open)	No specified test frequency
2VG-62	MCFD-2609-04.00	SO	NA	GA	No	3			2VG-62 - Full Stroke (Open)	No specified test frequency
2VG-63	MCFD-2609-04.00	SO	NA	SV	No	3			2VG-63 - Full Stroke (Open)	No specified test frequency
2VG-64	MCFD-2609-04.00	SO	NA	SV	No	3			2VG-64 - Full Stroke (Open)	No specified test frequency
2VG-65	MCFD-2609-04.00	SO	NA	SV	No	3			2VG-65 - Full Stroke (Open)	No specified test frequency
2VG-66	MCFD-2609-04.00	SO	NA	SV	No	3			2VG-66 - Full Stroke (Open)	No specified test frequency
2VG-67	MCFD-2609-04.00	SO	NA	SV	No	3			2VG-67 - Full Stroke (Open)	No specified test frequency
2VG-68	MCFD-2609-04.00	SO	NA	SV	No	3			2VG-68 - Full Stroke (Open)	No specified test frequency
2VG-79	MCFD-2609-04.00	SA	NA	RV	No	3			2VG-79 - Relief Valve Test (CIs to Opn)	No specified test frequency
2VG-80	MCFD-2609-04.00	SA	NA	RV	No	3			2VG-80 - Relief Valve Test (CIs to Opn)	No specified test frequency
2VG-83	MCFD-2609-04.00	SA	NA	RV	No	3			2VG-83 - Relief Valve Test (CIs to Opn)	No specified test frequency
2VG-84	MCFD-2609-04.00	SA	NA	RV	No	3			2VG-84 - Relief Valve Test (CIs to Opn)	No specified test frequency
2VG-115	MCFD-2609-04.00	SA	NA	SW	No	3			2VG-115 - Exercise (Both)	No specified test frequency
2VG-116	MCFD-2609-04.00	SA	NA	SW	No	3			2VG-116 - Exercise (Both)	No specified test frequency
2VG-117	MCFD-2609-04.00	SA	NA	SW	No	3			2VG-117 - Exercise (Both)	No specified test frequency
2VG-118	MCFD-2609-04.00	SA	NA	SW	No	3			2VG-118 - Exercise (Both)	No specified test frequency

## MCGUIRE NUCLEAR STATION

### WG - GASEOUS WASTE MANAGEMENT

Equipment ID	Flow Diagram	Actuator Design	Valve Catg.	Valve Type	IST Actv.	ASME Class	Relief Request	JOD	Test Plan	Frequency
1WG-92	MCFD-1567-02.00	SA	NA	RV	No	3			1WG-92 - Relief Valve Test (Cls to Opn)	No specified test frequency
1WG-97	MCFD-1567-02.00	SA	NA	RV	No	3			1WG-97 - Relief Valve Test (Cls to Opn)	No specified test frequency
1WG-104	MCFD-1567-02.00	SA	NA	RV	No	3			1WG-104 - Relief Valve Test (Cls to Opn)	No specified test frequency
1WG-112	MCFD-1567-02.00	SA	NA	RV	No	3			1WG-112 - Relief Valve Test (Cls to Opn)	No specified test frequency
1WG-117	MCFD-1567-02.00	SA	NA	RV	No	3			1WG-117 - Relief Valve Test (Cls to Opn)	No specified test frequency
1WG-124	MCFD-1567-02.00	SA	NA	RV	No	3			1WG-124 - Relief Valve Test (Cls to Opn)	No specified test frequency
1WG-146	MCFD-1567-02.01	SA	NA	RV	No	3			1WG-146 - Relief Valve Test (Cls to Opn)	No specified test frequency
1WG-153	MCFD-1567-02.01	SA	NA	RV	No	3			1WG-153 - Relief Valve Test (Cls to Opn)	No specified test frequency



# MCGUIRE NUCLEAR STATION

## FD - D/G ENGINE FUEL OIL SYSTEM

Equipment ID	Flow Diagram	Pump Design	Pump Group	ASME Class	Relief Request	Test Plan	Frequency
1FDPU0054	MCFD-1609-03.00	PDP	NA	3		DG Fuel Oil Transfer Pump 1A H3H Vibration Test	Tested every 6 months
						DG Fuel Oil Transfer Pump 1A V3H Vibration Test	Tested every 6 months
						DG Fuel Oil Transfer Pump 1A H4H Vibration Test	Tested every 6 months
						DG Fuel Oil Transfer Pump 1A A4H Vibration Test	Tested every 6 months
						DG Fuel Oil Transfer Pump 1A V4H Vibration Test	Tested every 6 months
						DG Fuel Oil Transfer Pump 1A Flow Test	Tested every 6 months
1FDPU0055	MCFD-1609-03.01	PDP	NA	3		DG Fuel Oil Transfer Pump 1B H3H Vibration Test	Tested every 6 months
						DG Fuel Oil Transfer Pump 1B V3H Vibration Test	Tested every 6 months
						DG Fuel Oil Transfer Pump 1B H4H Vibration Test	Tested every 6 months
						DG Fuel Oil Transfer Pump 1B V4H Vibration Test	Tested every 6 months
						DG Fuel Oil Transfer Pump 1B A4H Vibration Test	Tested every 6 months
						DG Fuel Transfer Pump 1B Flow Test	Tested every 6 months
2FDPU0054	MCFD-2609-03.00	PDP	NA	3		DG Fuel Oil Transfer Pump 2A H3H Vibration Test	Tested every 6 months
						DG Fuel Oil Transfer Pump 2A V3H Vibration Test	Tested every 6 months
						DG Fuel Oil Transfer Pump 2A H4H Vibration Test	Tested every 6 months
						DG Fuel Oil Transfer Pump 2A V4H Vibration Test	Tested every 6 months
						DG Fuel Oil Transfer Pump 2A A4H Vibration Test	Tested every 6 months
						DG Fuel Oil Transfer Pump 2A Flow Test	Tested every 6 months
2FDPU0055	MCFD-2609-03.01	PDP	NA	3		DG Fuel Oil Transfer Pump 2B H3H Vibration Test	Tested every 6 months
						DG Fuel Oil Transfer Pump 2B V3H Vibration Test	Tested every 6 months

# MCGUIRE NUCLEAR STATION

## FD - D/G ENGINE FUEL OIL SYSTEM

Equipment ID	Flow Diagram	Pump Design	Pump Group	ASME Class	Relief Request	Test Plan	Frequency
						DG Fuel Oil Transfer Pump 2B H4H Vibration Test	Tested every 6 months
						DG Fuel Oil Transfer Pump 2B V4H Vibration Test	Tested every 6 months
						DG Fuel Oil Transfer Pump 2B A4H Vibration Test	Tested every 6 months
						DG Fuel Oil Transfer Pump 2B Flow Test	Tested every 6 months

Equipment ID	Flow Diagram	Pump Design	Pump Group	ASME Class	Relief Request	Test Plan	Frequency
1NVPU0046	MCFD-1554-01.03	PDP	NA	N/A		Standby Makeup Pump 1 H3H Vibration Test	Tested once quarterly
						Standby Makeup Pump 1 V3H Vibration Test	Tested once quarterly
						Standby Makeup Pump 1 H4H Vibration Test	Tested once quarterly
						Standby Makeup Pump 1 V4H Vibration Test	Tested once quarterly
						Standby Makeup Pump 1 A4H Vibration Test	Tested once quarterly
						Standby Makeup Pump 1 Hydraulic Test	Tested once quarterly
2NVPU0046	MCFD-2554-01.03	PDP	NA	N/A		Standby Makeup Pump 2 H3H Vibration Test	Tested once quarterly
						Standby Makeup Pump 2 V3H Vibration Test	Tested once quarterly
						Standby Makeup Pump 2 H4H Vibration Test	Tested once quarterly
						Standby Makeup Pump 2 V4H Vibration Test	Tested once quarterly
						Standby Makeup Pump 2 A4H Vibration Test	Tested once quarterly
						Standby Makeup Pump 2 Hydraulic Test	Tested once quarterly

**DUKE ENERGY**  
**McGUIRE NUCLEAR STATION**

**CORRESPONDENCE**

**Section 8.0**

Revision 28  
March 1, 2013

# McGuire Fourth Interval (Revision 28)

## Unit 1 and Unit 2 IST Program Revision Summary

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### **BB (Steam Generator Blowdown Recycle) System**

- Revised JFD MC-BB-01 to update ASME Code reference and update to the Revision 28 footer.

### **CA (Auxiliary Feedwater) System**

- 1, 2 CA- 8, Changed Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)'.
- 1, 2 CA-22, Changed valve category from 'Category C' to 'Category AC'; leakage test – Non Appendix J.
- 1, 2 CA-26, Changed valve category from 'Category C' to 'Category AC'; leakage test – Non Appendix J.
- 1, 2 CA-31, Changed valve category from 'Category C' to 'Category AC'; leakage test – Non Appendix J.
- 1, 2 CA-42, Removed (deleted) Specific Relief Request MC-SRV-CA-01. Component is now tested once quarterly.
- 1, 2 CA-165, Changed Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)'.
- 1, 2 CA-166, Changed Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)'.
- 1, 2 CA-250, Changed Supplemental Test Program Valve Category to 'N/A' and removed IST Program 'Category B' (Categories not required for Supplemental testing).
- 1, 2 CA-251, Changed Supplemental Test Program Valve Category to 'N/A' and removed IST Program 'Category B' (Categories not required for Supplemental testing).
- 1, 2 CA-252, Changed Supplemental Test Program Valve Category to 'N/A' and removed IST Program 'Category B' (Categories not required for Supplemental testing).
- 1, 2 CA-161C, Deleted from the Supplemental Test Program.
- 1, 2 CA-162C, Deleted from the Supplemental Test Program.
- Revised JFD MC-CA-04 to update ASME Code reference and update to the Revision 28 footer.

### **CF (Main Feedwater) System**

- 1, 2 CF-118, Changed valve category from 'Category C' to 'Category AC'.
- 1, 2 CF-119, Changed valve category from 'Category C' to 'Category AC'.
- 1, 2 CF-120, Changed valve category from 'Category C' to 'Category AC'.
- 1, 2 CF-121, Changed valve category from 'Category C' to 'Category AC'.
- Revised JFD MC-CF-01 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-CF-02 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-CF-03 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-CF-04 to update ASME Code reference and update to the Revision 28 footer.

# McGuire Fourth Interval (Revision 28)

## Unit 1 and Unit 2 IST Program Revision Summary

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### **FW (Refueling Water) System**

- 1, 2 FW-5, Changed valve IST Active category from 'No' to 'Yes' per TAC sheet. Also revised the Test Plan requirement to add an 'Exercise Test (Both)' with addition to the check valve Condition Monitoring program.
- 1, 2 FW-52, Removed from IST Program because internals have been removed per approved design change.
- 1 FW-67, Changed valve IST Active category from 'No' to 'Yes' per TAC sheet. Also revised the Test Plan requirement to add an "Exercise Test (Both)" with addition to the check valve Condition Monitoring program.
- 2 FW-63, Changed valve IST Active category from 'No' to 'Yes' per TAC sheet. Also changed valve category from 'Category C' to 'Category AC'. Also revised the Test Plan requirement to add an 'Exercise Test (Both)' with addition to the check valve Condition Monitoring program.

### **GN (Nitrogen) System**

- Created/added valve Specific Relief Request MC-SRV-GN-01 to relax the frequency for the 'Category A' leakage test.

### **IAE (Personnel Air Lock) System**

- Editorial Corrections to flow diagrams/instrument details. Editorial correction to update reference of "Section XI" to properly state the reference to 'Category A' leakage test.

### **KC (Component Cooling) System**

- 1, 2 KC-47, Changed valve category from 'Category C' to 'Category AC'. Changed 'IST Active' to 'Yes' because of thermal expansion function added. Also revised the Test Plan requirement to add an 'Exercise Test (Both)' with addition to the check valve Condition Monitoring program.
- 1, 2 KC-279, Changed valve category from 'Category C' to 'Category AC'. Changed 'IST Active' to 'Yes' because of thermal expansion function added. Also revised the Test Plan requirement to add an 'Exercise Test (Both)' with addition to the check valve Condition Monitoring program.
- 1, 2 KC-280, Changed valve category from 'Category C' to 'Category AC'. Changed 'IST Active' to 'Yes' because of thermal expansion function added. Also revised the Test Plan requirement to add an 'Exercise Test (Both)' with addition to the check valve Condition Monitoring program.
- 1, 2 KC-281, Moved relief valve from Supplemental Test Program to IST Program. Changed 'IST Active' to 'Yes' because of thermal expansion function added. Changed valve category from 'Category C' to 'Category AC'.
- 1, 2 KC-313, Moved relief valve from Supplemental Test Program to IST Program. Changed 'IST Active' to 'Yes' because of thermal expansion function added. Changed valve category from 'Category C' to 'Category AC'.

# McGuire Fourth Interval (Revision 28)

## Unit 1 and Unit 2 IST Program Revision Summary

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### **KC (Component Cooling) System – continued**

- Revised JFD MC-KC-01 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-KC-02 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-KC-03 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-KC-04 to update ASME Code reference and update to the Revision 28 footer.

### **MI (Miscellaneous Station Instrumentation) System**

- Editorial Corrections to flow diagrams/instrument details. Editorial correction to update reference of “Section XI” to properly state the reference to ‘Category A’ leakage test.
- Added instrument valves on Penetrations 1, 2 M-239A (1, 2 MISV6870, 1, 2 MISV6890) for Appendix J leakage testing.
- Added instrument valves on Penetrations 1, 2 M-239B (1, 2 MISV6880, 1, 2 MISV6900) for Appendix J leakage testing.
- Added instrument valves on Penetrations 1, 2 M-239C (1, 2 MISV6910, 1, 2 MISV6930) for Appendix J leakage testing.
- Added instrument valves on Penetrations 1, 2 M-239D (1, 2 MISV6920, 1, 2 MISV6940) for Appendix J leakage testing.
- Added instrument valves on Penetrations 1, 2 M-255A (1, 2 MI-6980, 1, 2 MI-7010) for Appendix J leakage testing.
- Added instrument valves on Penetrations 1, 2 M-255B (1, 2 MI-6990, 1, 2 MI-7020) for Appendix J leakage testing.
- Added instrument valves on Penetrations 1, 2 M-255C (1, 2 MI-7000, 1, 2 MI-7030) for Appendix J leakage testing.

### **NB (Boron Recycle) System**

- 1, 2 NB-262, Changed exercise testing to ‘Exercise (Both)’.

### **NC (Reactor Coolant) System**

- 1, 2 NC-57, Changed valve category from ‘Category C’ to ‘Category AC’.
- 1, 2 NC-259, Changed valve category from ‘Category C’ to ‘Category AC’. Also revised the Test Plan requirement to add an “Exercise Test (Both)” with addition to the Condition Monitoring program.
- 1, 2 NC-261, Changed valve category from ‘Category C’ to ‘Category AC’. Also revised the Test Plan requirement to add an “Exercise Test (Both)” with addition to the Condition Monitoring program.
- Revised JFD MC-NC-01 to update ASME Code reference and update to the Revision 28 footer.

# McGuire Fourth Interval (Revision 28)

## Unit 1 and Unit 2 IST Program Revision Summary

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### **NC (Reactor Coolant) System – continued**

- Revised JFD MC-NC-02 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-NC-06 to update ASME Code reference and add statement regarding the quarterly testing of block valves on lines with “non-leaking” PORVs. Updated ASME Code reference and updated to the Revision 28 footer.

### **ND (Residual Heat Removal) System**

- 1, 2 ND-19A, Added new Stroke Time (Closed to Open).
- 1, 2 ND-70, Changed/revised Test Plan description to ‘Exercise (Both)’.
- 1, 2 ND-71, Changed/revised Test Plan description to ‘Exercise (Both)’.
- 1, 2 ND-120, Added new relief valve to the IST Program.
- Revised JFD MC-ND-01 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-ND-02 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-ND-03 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-ND-07 to update ASME Code reference and update to the Revision 28 footer.

### **NF (ICE Condenser Refrigeration) System**

- 1, 2 NF-229, Changed/revised Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NF-1460, Added new relief valve to the IST Program.
- 1, 2 NF-1462, Added new relief valve to the IST Program.
- 1, 2 NF-1464, Added new swing check valve to the IST Program.
- Revised JFD MC-NF-02 to update ASME Code reference and update to the Revision 28 footer.

### **NI (Safety Injection) System**

- 1, 2 NI-12, Changed/revised Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-15, Changed/revised Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-17, Changed/revised Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-19, Changed/revised Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-21, Changed/revised Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-48, Changed/revised Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.



# McGuire Fourth Interval (Revision 28)

## Unit 1 and Unit 2 IST Program Revision Summary

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### **NI (Safety Injection) System- continued**

- 1, 2 NI-59, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-60, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-101, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-114, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-116, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-124, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-125, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-126, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-128, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-129, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-134, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-143, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-148, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-156, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-157, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-159, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-160, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-165, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-167, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.

# McGuire Fourth Interval (Revision 28)

## Unit 1 and Unit 2 IST Program Revision Summary

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### **NI (Safety Injection) System- continued**

- 1, 2 NI-169, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-175 Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-176, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-180, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-181, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-289, Added to IST (Class E component, but protects NI piping on CLA fill/check valve test header, including cont pen M321 via NI-436).
- 1, 2 NI-347, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-348, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-349, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-354, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-436, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NI-861, Added to IST Program for Leak Test - Appendix J (Reverse Direction).
- 1, 2 NI-862, Added to IST Program for Leak Test - Appendix J (Reverse Direction).
- 1, 2 NI-863, Added to IST Program for Leak Test - Appendix J (Reverse Direction).
- 1, 2 NI-864, Added to IST Program for Leak Test - Appendix J (Reverse Direction).
- 1, 2 NI-865, Added to IST Program for Leak Test - Appendix J (Reverse Direction).
- 1, 2 NI-866, Added to IST Program for Leak Test - Appendix J (Reverse Direction).
- 1, 2 NI-867, Added to IST Program for Leak Test - Appendix J (Reverse Direction).
- 1, 2 NI-868, Added to IST Program for Leak Test - Appendix J (Reverse Direction).
- 1, 2 NI-869, Added to IST Program for Leak Test - Appendix J (Reverse Direction).
- 1, 2 NI-870, Added to IST Program for Leak Test - Appendix J (Reverse Direction).
- 1, 2 NI-871, Added to IST Program for Leak Test - Appendix J (Reverse Direction).
- 1, 2 NI-872, Added to IST Program for Leak Test - Appendix J (Reverse Direction).
- 1, 2 NI-873, Added to IST Program for Leak Test - Appendix J (Reverse Direction).
- 1, 2 NI-874, Added to IST Program for Leak Test - Appendix J (Reverse Direction).
- 1, 2 NI-875, Added to IST Program for Leak Test - Appendix J (Reverse Direction).
- 1, 2 NI-876, Added to IST Program for Leak Test - Appendix J (Reverse Direction).

# McGuire Fourth Interval (Revision 28)

## Unit 1 and Unit 2 IST Program Revision Summary

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### **NI (Safety Injection) System- continued**

- Revised JFD MC-NI-01 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-NI-02 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-NI-03 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-NI-04 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-NI-05 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-NI-06 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-NI-07 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-NI-08 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-NI-09 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-NI-10 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-NI-11 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-NI-20 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-NI-25 to update ASME Code reference and update to the Revision 28 footer.

### **NM (Nuclear Sampling) System**

- 1, 2 NM-69, Changed the valve to IST Active 'Yes' and added to Appendix I program.
- 1, 2 NM-420, Changed/revised Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program, changed valve to IST Active 'Yes', and changed Valve Category from 'Category A' to 'Category AC'.
- 1, 2 NM-421, Changed/revised Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program, changed valve to IST Active 'Yes', and changed Valve Category from 'Category A' to 'Category AC'.
- 1, 2 NM-424, Added new check valve to the IST Program.
- 1, 2 NM-425, Added new check valve to the IST Program.
- 1, 2 NM-426, Added new check valve to the IST Program.
- 1, 2 NM-427, Added new check valve to the IST Program.
- Revised JFD MC-NM-02 to update ASME Code reference and update to the Revision 28 footer.

### **NS (Containment Spray) System**

- Deleted Specific Valve Relief Request MC-SRV-NS-01 for 1, 2 NS-13, 16, 30, 33, 41, 46; system modifications now allow IST.
- Deleted Specific Pump Relief Request MC-SRP-NS-01 – system modified for testing.
- 1, 2 NS-4, Changed/revised Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NS-13, Changed/revised Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.

# McGuire Fourth Interval (Revision 28)

## Unit 1 and Unit 2 IST Program Revision Summary

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### **NS (Containment Spray) System- continued**

- 1, 2 NS-16, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NS-21, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NS-30, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NS-33, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NS-41, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program, changed valve to IST Active 'Yes', and changed Valve Category from 'Category A' to 'Category AC'.
- 1, 2 NS-46, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1 NS-140, Changed Valve Category from 'Category AC' to 'Category C'.
- 1 NS-141, Changed Valve Category from 'Category AC' to 'Category C'.
- 1, 2 NS-161, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NS-163, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- Revised JFD MC-NS-01 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-NS-05 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-NS-06 to update ASME Code reference and update to the Revision 28 footer.

### **NV (Chemical and Volume Control) System**

- 1, 2 NV-29, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program and added a leak test in the Supplemental Test Program.
- 1, 2 NV-31, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NV-45, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program and added a leak test in the Supplemental Test Program.
- 1, 2 NV-47, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NV-61, Changed/revise Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program and added a leak test in the Supplemental Test Program.

# McGuire Fourth Interval (Revision 28)

## Unit 1 and Unit 2 IST Program Revision Summary

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### **NV (Chemical and Volume Control) System- continued**

- 1, 2 NV-63, Changed/revised Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NV-77, Changed/revised Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program and added a leak test in the Supplemental Test Program.
- 1, 2 NV-79, Changed/revised Test Plan description from 'Full Stroke (Both)' to 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 NV-96, Added new check valve to the IST Program.
- 1, 2 NV-143, Removed from the IST Program.
- 1, 2 NV-150B, Valve Stroke Time test (Closed to Open) was added.
- 1, 2 NV-151A, Valve Stroke Time test (Closed to Open) was added.
- 1, 2 NV-263, Removed from the IST Program.
- Revised JFD MC-NV-01 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-NV-02 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-NV-04 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-NV-05 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-NV-06 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-NV-08 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-NV-09 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-NV-19 to update ASME Code reference and update to the Revision 28 footer.

### **RF (Fire Protection) System**

- Revised JFD MC-RF-02 to update ASME Code reference and update to the Revision 28 footer.

### **RN (Nuclear Service Water) System**

- 1, 2 RN-16A, Changed test frequency to Cold Shutdown (reference JFD MC-RN-07).
- 1, 2 RN-18B, Changed test frequency to Cold Shutdown (reference JFD MC-RN-07).
- 1, 2 RN-21A, Added Valve Stroke Time test (Closed to Open) per Engineering Change to system.
- 1, 2 RN-22A, Removed from IST Program per Engineering Change to system.
- 1, 2 RN-25B, Added Valve Stroke Time test (Closed to Open) per Engineering Change to system.
- 1, 2 RN-26B, Removed from IST Program per Engineering Change to system.
- 1, 2 RN-401, Added valve to the IST Program with 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 RN-1102, Added relief valve to the IST Program for Appendix J leakage and testing in accordance with Appendix I.

# McGuire Fourth Interval (Revision 28)

## Unit 1 and Unit 2 IST Program Revision Summary

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### **RN (Nuclear Service Water) System- continued**

- 1, 2 RN-1103, Added relief valve to the IST Program for Appendix J leakage and testing in accordance with Appendix I.
- 1, 2 RN-1119, Added valve to the IST Program with 'Exercise (Both)' for check valve Condition Monitoring program.
- 1, 2 RN-1130, Added valve to the IST Program with 'Exercise (Both)' for check valve Condition Monitoring program.
- Revised JFD MC-RN-01 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-RN-02 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-RN-07 to update ASME Code reference and update to the Revision 28 footer.
- Revised JFD MC-RN-08 to update ASME Code reference and update to the Revision 28 footer.
- Added RN System Backwash Pumps – 1RNPU0007, 1RNPU0008, 2RNPU0007 and 2RNPU0008.

### **RV (Containment Vent Cooling Water) System**

- 1, 2 RV-445, Changed relief valve test from Supplemental to IST (Appendix I) and changed IST Active to 'Yes', and changed Valve Category from 'Category A' to 'Category AC'.
- 1, 2 RV-446, Changed relief valve test from Supplemental to IST (Appendix I) and changed IST Active to 'Yes', and changed Valve Category from 'Category A' to 'Category AC'.
- 2 RV-480, Added relief valve test to IST (Appendix I) and leak test (Appendix J).
- 1 RV-481, Added relief valve test to IST (Appendix I) and leak test (Appendix J).
- 1, 2 RV-484, Added relief valve test to IST (Appendix I) and leak test (Appendix J).
- Revised JFD MC-RV-01 to update ASME Code reference and update to the Revision 28 footer.

### **SM (Main Steam) System**

- Revised JFD MC-SM-01 to update ASME Code reference and update to the Revision 28 footer.

### **VE (Annulus Ventilation) System**

- 1, 2 VE-11, Changed valve category from 'Category C' to 'Category AC'.

### **VI (Instrument Air) System**

- 1, 2 VI-2013, Added valve (via Engineering Change) to the IST Program with 'Exercise (Both)' for check valve Condition Monitoring program and Non-Appendix J leak test.
- 1, 2 VI-2023, Added valve (via Engineering Change) to the IST Program with 'Exercise (Both)' for check valve Condition Monitoring program and Non-Appendix J leak test leak test.

# McGuire Fourth Interval (Revision 28)

## Unit 1 and Unit 2 IST Program Revision Summary

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### **VI (Instrument Air) System- continued**

- 1, 2 VI-2033, Added valve (via Engineering Change) to the IST Program with 'Exercise (Both)' for check valve Condition Monitoring program and Non-Appendix J leak test.
- 1, 2 VI-2043, Added valve (via Engineering Change) to the IST Program with 'Exercise (Both)' for check valve Condition Monitoring program and Non-Appendix J leak test.
- 1, 2 VI-2056, Added relief valve (via Engineering Change) to the IST Program (Appendix I) with a Non-Appendix J leak test.
- 1, 2 VI-2064, Added valve (via Engineering Change) to the IST Program with 'Exercise (Both)' for check valve Condition Monitoring program and Non-Appendix J leak test.
- 1, 2 VI-2070, Added valve (via Engineering Change) to the IST Program with 'Exercise (Both)' for check valve Condition Monitoring program and Non-Appendix J leak test.
- 1, 2 VI-2073, Added relief valve (via Engineering Change) to the IST Program (Appendix I) with a Non-Appendix J leak test.
- 1, 2 VI-2081, Added valve (via Engineering Change) to the IST Program with 'Exercise (Both)' for check valve Condition Monitoring program and leak test (Appendix J).
- 1, 2 VI-2087, Added valve (via Engineering Change) to the IST Program with 'Exercise (Both)' for check valve Condition Monitoring program and leak test (Appendix J).
- 1, 2 VI-2090, Added valve (via Engineering Change) to the IST Program with 'Exercise (Both)' for check valve Condition Monitoring program and leak test (Appendix J).
- 1, 2 VI-2091, Added relief valve (via Engineering Change) to the IST Program (Appendix I) with a Non-Appendix J leak test.
- 1, 2 VI-2093, Added valve (via Engineering Change) to the IST Program with 'Exercise (Both)' for check valve Condition Monitoring program and leak test (Appendix J).
- 1, 2 VI-2094, Added relief valve (via Engineering Change) to the IST Program (Appendix I) with a Non-Appendix J leak test.

### **VX (Containment Air Return Exchange & Hydrogen Skim) System**

- 1, 2 VX-30, Changed valve category from 'Category C' to 'Category AC'.

### **WL (Liquid Waste Recycle) System**

- 1, 2 WL-24, Changed valve category from 'Category C' to 'Category AC', changed IST Active to 'Yes', and added an 'Exercise Test (Both)' in the check valve Condition Monitoring program .
- 1, 2 WL-64A, Changed Appendix J test frequency from 'Option B' to 'every refueling outage'.
- 1, 2 WL-65B, Changed Appendix J test frequency from 'Option B' to 'every refueling outage'.
- 1, 2 WL-264, Changed relief valve test from Supplemental to IST (Appendix I), changed IST Active to 'Yes' and changed Valve Category from 'Category A' to 'Category AC'.

# McGuire Fourth Interval (Revision 28)

## Unit 1 and Unit 2 IST Program Revision Summary

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### **WL (Liquid Waste Recycle) System- continued**

- 1, 2 WL-385, Changed valve Category Code from 'Category A' to 'Category AC', changed IST Active 'Yes' and added an Exercise Test (Both) for check valve added to Condition Monitoring program.
- 1, 2 WL-1301B, Changed IST Active to 'No' , deleted Stroke Time test and Position Indication test.
- 1, 2 WL-1302A, Changed IST Active to 'No' , deleted Stroke Time test and Position Indication test.

### **WN (Diesel Generator Room Sump Pump) System**

- Deleted specific relief request MC-SRV-WN-01 on the basis that all the check valves are in the Condition Monitoring program (1, 2 WN-3, 5, 7, 11, 13 and 15).

### **YC (Chilled Water) System**

- 1 YC-13, Removed from IST Program because valve discs have been removed.
- 1 YC-14, Removed from IST Program because valve discs have been removed.
- 1 YC-94, Removed from IST Program because valve discs have been removed.
- 1 YC-95, Removed from IST Program because valve discs have been removed.



**McGUIRE NUCLEAR STATION  
ASME OM CODE  
In-Service Testing Program Document**

**July 31, 2012**

**REVISION 4**

SUPERCEDED

Prepared by: (Robert W. Kirk Jr) Robert W. Kirk Jr

Date: 7-31-12

Reviewed by: Edward L. Hyland E L Hyland

Date: 8/1/12

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## TABLE OF CONTENTS

<b>1.0</b>	<b>Scope of Document</b>
<b>2.0</b>	<b>References</b>
<b>3.0</b>	<b>Definitions and Terms</b>
<b>4.0</b>	<b>Valve Program</b>
4.1	In-Service Testing (IST) Program
4.2	Valve Testing Program Exemptions and Position Statements
4.3	Check Valve Testing
4.4	Relief Valve Testing
4.5	Leak Rate Testing
4.6	Testing From Remote Locations
4.7	Post-Maintenance and Modification Testing (Retest)
4.8	Fail-Safe Testing of Valves
4.9	Skid-Mounted Valves
4.10	Valve Test Acceptance Criteria
<b>5.0</b>	<b>Pump Program</b>
5.1	In-Service Testing (IST) Program
5.2	Pump Testing Program Exemption and Position Statements
5.3	Vibration Monitoring
5.4	Testing From Remote Locations
5.5	Post-Maintenance and Modification Testing (Retest)
5.6	Skid-Mounted Pumps
5.7	Pump Test Acceptance Criteria
<b>6.0</b>	<b>Relief Requests</b>
6.1	Implementation of Relief Request
6.2	Interim Relief Request
<b>7.0</b>	<b>Justification for Deferrals</b>
7.1	Testing Deferral Justifications (Practicality Determinations)
<b>8.0</b>	<b>Appendices</b>
Appendix A:	IST Program Responsibilities
Appendix B:	10CFR50, Appendix B (Supplemental) Program Guidance Document
Appendix C:	Notification of Program Changes
Appendix D:	Editorial Errors in 1998/1999/2000 Addenda
<b>9.0</b>	<b>Enclosures</b>
Enclosure 9.1:	Revising the Program Document
Enclosure 9.2:	Generic Relief Request Form
Enclosure 9.3:	Justification for Deferral Form
Enclosure 9.4:	Specific Relief Request Form
Enclosure 9.5:	System Piping Classification Correlation

## 1.0 SCOPE OF DOCUMENT

Technical Specifications require performance of pump and valve testing in accordance with ASME O&M Codes. Failure to meet the requirements of this program are a violation of Technical Specifications and 10CFR 50.55a.

The purpose of this program document is to define the McGuire Nuclear Station (or hereafter referred to as "licensee" or "MNS") In-Service Testing (IST) Program for performing valve and pump testing. This document will also outline the process for additions, changes, and deletions of pumps and valves from the MNS IST program.

### 1.1 Program Period:

Third Ten-Year Interval (120 month period beginning March 1, 2004):

Unit(s) 1 and 2 Concurrently

Supporting documentation for the above interval is in PIP M-11-9439 CA 2:

- 9-9-99 Correspondence from Duke to NRC
- 2-3-00 SER from NRC to Duke
- 8-12-04 Correspondence from Duke to NRC
- 9-6-05 SER from NRC to Duke

### 1.2 Applicable ASME Code(s) and Addenda:

ASME OM Code – 1998 Revision through 2000 Addenda

### 1.3 Program Changes:

The NRC shall be notified of IST program changes; however, component additions and deletions may be submitted and testing implemented or deleted without prior NRC approval. In the instance where a component has been added to the IST program, testing and the appropriate program changes will take place within 90 days of revising the program documents unless determined to be impractical.

The content of this program document is based on recommendations stated in NUREG-1482 and is intended for the purpose of maintaining program continuity and documenting additional discussions and positions relative to ASME Code Interpretations. Therefore, changes to the IST Program Document will not require prior NRC review and/or approval unless the licensee determines a need to do so.

## 2.0 REFERENCES

The following documents were used as references in the development of this document:

ASME OM Code 1998 through Omb – 2000; sections ISTA, ISTB, ISTC, Appendix I and Appendix II

NRC Generic Letter 89-04

NRC Generic Letter 96-05

NRC Generic Letter 96-06

10 CFR 50, Appendix B

10 CFR 50.55a

Technical Specifications

Updated Final Safety Analysis Report (UFSAR)

Nuclear System Directive: 408. Testing

Reg. Guide 1.26

NRC Inspection Procedure 73756

NUREG/CP-0123, Proceedings of the NRC/ASME Symposiums on Pump and Valve Testing

NUREG-1482, Guidelines for In-service Testing at Nuclear Power Plants, April 1995

NRC Information Notice 97-90

NRC Information Notice 97-16

SUPERSEDED

### 3.0 DEFINITIONS and TERMS

Generic Letter 96 – 05	the NRC letter providing on-going requirements in testing MOVs to design basis conditions.
Generic Letter 89-04 -	the NRC letter providing supplemental guidance on developing and enhancing plant IST programs.
ASME OM Code -	the section of ASME Codes and Standards Manual that determines how to perform in-service testing of light water reactor nuclear plant components.
ASME ISTC Code -	the part of ASME OM Codes dealing with the in-service testing of valves.
ASME ISTB Code -	the part of ASME OM Codes dealing with the in-service testing of pumps.
Frequencies -	the interval of time between in-service testing of the components. These intervals are defined in MNS Technical Specifications: <ol style="list-style-type: none"><li>1) Quarterly (3 months) - 115 days maximum</li><li>2) Cold Shutdown (CSD) - Average Coolant Temperature (<math>T_{avg}</math>) <math>\leq</math> 200°F</li><li>3) Refuelling (RF) - Unit at shutdown for the purpose of replacing or rearranging all or a portion of the fuel assemblies or control rods.</li></ol>
IST Component -	components (valves and pumps) that are required to be tested per ASME OM Codes. Sections 4.1 and 5.1 of this document define the criteria.
Supplemental Components -	components (valves and pumps) tested under of 10CFR50, Appendix B.
App. J Component -	components leak tested for containment integrity under 10CFR50, Appendix J (including Option B).
Active Component -	a component that must perform a mechanical motion during the course of accomplishing a system safety function.
Passive Component -	a component that does not perform a mechanical motion during the course of accomplishing a system safety function.
System Resistance-	the hydraulic resistance to flow in a system
Trending-	a comparison of current data to previous data obtained under similar conditions for the same equipment.
Set Point -	the value for which relief valves are set to relieve pressure.
Leak Test -	testing of valves to verify seat leakage is limited to a specified maximum.
Stroke-Time -	the time interval from valve actuation to the limit switch indication light or OAC point at the end of the actuating cycle.
Limiting Stroke-Time -	the owner specified maximum time allowed for a valve to stroke before becoming immediately inoperable.
Relief Requests -	A request submitted to the NRC requesting relief from the requirements of the Code for testing a particular component or a generic group of components.
Justif. for Deferrals -	A documented explanation of why a valve can only be tested at a cold shutdown or refueling outage frequency as opposed to quarterly.

## 4.0 VALVE PROGRAM

### 4.1 In-Service Testing (IST) Program

As required by 10CFR50.55a, valves that are classified in accordance of NRC Regulatory Guide 1.26 as ISI Class A, B, or C, which corresponds to ASME Class 1, 2, or 3 respectively, under the scope of ISTA, are included in the MNS IST Program. The following defines the criteria for inclusion of equipment in the IST Program:

- a) All Category A valves that fall within the Duke ISI Class A, B, or C boundaries.
- b) All Category B and C valves that fall within the Duke ISI Class A, B, or C boundaries and are required to perform a specific function in shutting down a reactor to the safe shutdown condition, in maintaining the safe shutdown condition, or in mitigating the consequences of the Design Basis Accidents (Design Basis Accidents are defined as those described in Chapter 15 of the UFSAR).
- c) Valves in systems specifically required by Technical Specifications to be tested per ASME OM Codes.

MNS has some valves that are active in certain non-Design Basis Events, are cold shutdown valves not associated with an UFSAR Chapter 15 event, are significant to plant safety, or are of economic importance that are beyond the scope of 10CFR50.55a. Such valves may be tested in the Supplemental, (10CFR50 Appendix B) Program. See Appendix B of this document for a discussion of this program.

The scope of the OM Standards and Code has not been expanded to include all safety-related pumps and valves in the IST program. Until the scope of 10CFR50.55a is changed, the scope of the IST program will continue to be limited to only those components within the applicable ASME Code class 1, 2, or 3 systems unless otherwise determined by the licensee.

### 4.2 Valve Testing Program Exemptions and Position Statements

Valves tested under jurisdiction of this program will be tested per requirements of ISTC (OMB-2000), at the specified frequencies unless it has been determined to be impractical. This section of the program document provides MNS positions on interpretations, guidance and other options regarding testing alternatives.

- 4.2.1 Category A and A/C valves (containment and pressure isolation valves) will be leak tested in accordance with ISTC - 3600.
- 4.2.2 Valves that stroke in less than 2 seconds are exempted from reference ranges specified in ISTC - 5100 paragraphs and the maximum limiting stroke time shall be 2 seconds as provided in same paragraphs.
- 4.2.3 Stopwatches used to measure stroke times will be calibrated annually.
- 4.2.4 ISTA - 9230 requires the printed (or typed) name and signature of the person or persons responsible for conducting and analyzing the test. At MNS, the initials of the person or persons responsible for conducting and analyzing the test may be used in place of a printed or typed signature in the record of the tests.

## 4.2 Valve Testing Program Exemptions and Position Statements (continued)

- 4.2.5 It is the licensee's position that valve testing will be deferred if the normal code required test frequency or plant conditions would result in increased personnel risk or damage to plant equipment. Practicality of such deferral shall be determined by the licensee and documented in the "Justification for Deferral" section of the IST Program manual. In such cases, the licensee will not perform any type of destructive testing to determine the period of time at which damage to the equipment or risk to personnel would occur. Exercising valves on a cold shutdown or refueling outage frequency is not a deviation from the code (reference NUREG-1482, Section 2.4.5).

NOTE: For cold shutdowns less than 48 hours, valve testing does not have to be performed. For cold shutdowns expected to exceed 48 hours, valve testing may commence as soon as possible, but no later than 48 hours after reaching cold shutdown. Valve testing will proceed in a normal manner until all testing is complete or the plant is ready to return to power. A completion of all valve testing is not a prerequisite to return to power. Any testing not completed by the end of one cold shutdown will be performed during subsequent cold shutdowns, starting from the last test performed at the previous cold shutdown.

- 4.2.6 Manual valves that meet the scope requirements of ISTA or are credited in the safety analysis as capable of being repositioned to shut down the plant, to maintain the plant in a safe shutdown condition, or to mitigate the consequences of an accident will be tested in accordance with ISTC-3540. However, 10 CFR 50.55a stipulates that the exercising of such valves should not exceed a two year frequency.
- 4.2.7 Valves that are not categorized as ISI Class A, B, or C need not be included in the IST Program. However, according to GL 89-04, Position 11, "The intent of 10 CFR 50 Appendix A, GDC-1, and Appendix B, Criterion XI, is that all components, such as pumps and valves, necessary for safe operation are to be tested to demonstrate that they will perform satisfactorily in service." The licensee may opt to include valves which do not meet these criteria in the IST Program or in the Supplemental Program. In such cases, MNS will not submit Relief Requests or Justification for Deferrals for "Non-Code"- Class valves.
- 4.2.8 Thermal Relief Valves that meet the scope requirements of ISTA or are credited in the safety analysis for being capable of relieving pressure due to thermal expansion in code class 1, 2 and 3 piping systems by maintaining the plant in a safe shutdown condition, or in mitigating the consequences of an accident will be included in the IST program. However, testing of such valves will be based on exercising frequencies established by the component type and requirements of Appendix I.
- 4.2.9. Thermal Expansion Check Valves A review of piping configurations inside containment which could result in thermal expansion over pressurization was conducted to insure protection had been provided, if necessary. Thermal expansion results when an incompressible fluid trapped between two closed valves inside containment is heated to post accident containment temperatures and expands. Pressure relief is required to prevent failure of the piping between the valves. Relief for containment penetrations is accomplished by the differential pressure across the check valve in it's flow direction and does not necessarily require opening of the inside containment isolation check valve or a bypass check valve around a motor operated inside containment isolation valve. Containment penetrations equipped with Thermal Expansion Check Valves relieve this pressure back to containment. The amount of opening required to relieve possible over pressurization is small enough such that there is not a credible failure of the check valve in the open direction which would prevent this.

NOTE: Following recent discussions with the industry it has been concluded that it is no longer desirable to maintain the position that thermal expansion check valves are Passive. Effective 1EOC22 these valves will be considered Active and tested accordingly.

## 4.2 Valve Testing Program Exemptions and Position Statements (continued)

### 4.2.9. Thermal Expansion Check Valves - continued

The following valves are designated as thermal expansion check valves which protect penetrations. The active valves are exercise tested in both directions but the (currently) passive valves are not exercise tested. All of these thermal expansion check valves are part of the containment penetration boundary and accordingly are Type C leak rate tested. They are listed in Table 6-112 of the UFSAR.

#### Active Valves

KC 1(2)KC322, 1(2)KC340  
NF 1(2)NF229  
NI 1(2)NI436  
NV 1(2)NV1002  
RF 1RF823, 1RF834  
YM 1(2)YM116

#### Passive Valves (currently)

FW 1(2)FW5, 1FW87, 2FW63  
KC 1(2)KC47, 1(2)KC279, 1(2)KC280  
NB 1(2)NB262  
NF 1(2)NF-1464  
NC 1(2)NC57, 1(2)NC259, 1(2)NC261  
NM 1(2)NM420, 1(2)NM421  
WL 1(2)WL24, 1(2)WL385

The following valves are also designated as thermal expansion check valves, however these valves are not Type C tested. The open function on some of these valves may be tested, however this is not for thermal relief capability. These valves are also listed in Table 6-112 of the UFSAR.

NC 1(2)NC59, 1NC284  
NI 1(2)NI12, 1(2)NI15, 1(2)NI80, 1(2)NI82, 1(2)NI124, 1(2)NI125, 1(2)NI126, 1(2)NI156, 1(2)NI157, 1(2)NI171, 1(2)NI175, 1(2)NI180, 1(2)NI354  
NM 1(2)NM424, 1(2)NM425, 1(2)NM426, 1(2)NM427  
NS 1(2)NS13, 1(2)NS16, 1(2)NS30, 1(2)NS33, 1(2)NS41, 1(2)NS46  
NV 1(2)NV12, 1(2)NV14, 1(2)NV15, 1(2)NV20, 1(2)NV22, 1(2)NV29, 1(2)NV31, 1(2)NV45, 1(2)NV47, 1(2)NV61, 1(2)NV63, 1(2)NV77, 1(2)NV79, 1(2)NV96, 1(2)NV810, 1(2)NV811, 1(2)NV812, 1(2)NV813, 1(2)NV841, 1(2)NV1008

- 4.2.10 **Containment Purge Valves (VPs)**, which are passive in the closed direction, will be leak tested per 10 CFR 50, Appendix J but not stroke-timed for IST purposes. Containment Purge valves are "passive" in Modes 1-4. During a postulated fuel handling accident inside the containment, no credit for containment isolation or mixing in the containment is taken. System design assures a safe release path from the containment with the VP system in operation. The radiological consequences of a postulated fuel handling accident are within the exposure guideline values of 10CFR 100.



### 4.3 Check Valve Testing

Check valves tested under the jurisdiction of this program will be tested per Code requirements at the specified frequencies unless it has been determined to be impractical. This section of the program document is to provide the MNS positions concerning interpretations, guidance and other options and testing alternatives for check valves in the IST program.

- 4.3.1 Full stroke testing of check valves will not necessarily constitute the obturator contacting the back-stop. Where possible, sufficient flow will be passed through the valve to verify design basis accident flow. If full flow is not practical, then the licensee will perform correlation testing, partial stroking, or other alternatives as provided by ISTC-3500. Additionally, the code allows use of indirect evidence (such as system pressure, flow, temperature, or level) or other positive means to verify flow or pressure requirements. These indirect methods will not be subject to the range and accuracy requirements of ISTC-3800. (ref. ISTC-3530).
- 4.3.2 Seismic boundary check valves will be included in the program.
- 4.3.3 Check valves included in the sample disassembly portion of the IST program will be disassembled and inspected under the provisions and guidelines given in ISTC-5221.
- 4.3.4 Where applicable to the MNS IST program, reverse flow testing of check valves will be performed by methods as follows:
- Pump Discharge Check Valves - verified closed by meeting a parallel pump's acceptance criteria while cross-connected.
  - Appendix J Testing -
  - Measure back flow through the valve using an open vent on the backside of the valve or ultrasonic flow measurement techniques;
  - Pressure drop across a pump;
  - Pump wind-milling;
  - Observation of external indication on valve stem.
- 4.3.5 As an alternative to the testing and/or examination requirements of ISTC-3510, ISTC-3520, ISTC-3530, ISTC-3550, and ISTC-5221, the Licensee has established a condition monitoring program for check valves (Ref. Appendix D). Details of that program may be found in the program document (McGuire Check Valve Condition Monitoring Program) available upon request.
- 4.3.6 The licensee recognizes the NRC's endorsement of non-intrusive techniques (N.I.T.) for testing check valves and will randomly apply N.I.T. to the check valve test program. However, the industry's use of N.I.T. equipment is still evolving and in many cases the test equipment is not supplied from the vendor with the same elements of the Q.A. program as with other types of test equipment utilized for testing safety related components (e.g. software qualifications, calculation validity, engineering correlation, etc.). Because of this, validation of such equipment is the responsibility of the licensee. Therefore N.I.T. remains a voluntary option and will be evaluated on a individual application basis.

#### 4.4 Relief Valve Testing

Relief valves tested under the jurisdiction of this program will be tested per code requirements of Appendix I unless it has been determined to be impractical. A relief valve shall be considered for inclusion in the program if it performs a specific function or if it provides overpressure protection for portions of systems that perform a specific function in shutting down a reactor or in mitigating the consequences of an accident.

#### 4.5 Leak Rate Testing

All category A valves will be tested per ISTC-3600, except those valves which function in the course of plant operation in a manner that demonstrates adequate seat leak-tightness. In such cases (e.g., Containment Purge Isolation Valves) proper administrative controls will be implemented and the valves leak tested during refueling outages.

4.5.1 Category A containment isolation valves will be tested per 10CFR50, Appendix J (Option B) which allows testing interval extension beyond the nominal 30 months for those CIVs with acceptable performance. Where Section 4.1 lists "Option B" for frequency, a nominal frequency of RF (refueling) is specified for valves on penetrations that do not qualify for interval extension of their Appendix J leak rate test. Extension of the testing interval is evaluated prior to each refueling outage based on previous work history and acceptable as-found leak-rate test results.

Where a valve is identified as a containment isolation valve in the Technical Specification or FSAR and if it is determined to be an "active" valve with respect to this function, it will be exercised to both the closed and open positions. Containment isolation valves that are maintained closed by a manual valve or administratively controlled valve and thermal expansion check valves opposite to the system process flow direction are typically not active.

#### 4.6 Testing from Remote Location

ISTC-3700 requires valves with remote position indication to be tested at least once every 2 years to verify that the valve operation is accurately indicated. Valves that have remote operating switches and/or power supplies will be tested and verified for proper indication from the remote location. Other valve operating parameters (such as timing) may not be performed from the remote location during this testing.

#### 4.7 Post Maintenance and Modification Testing (Retest)

Reference Nuclear System Directive 408 Testing.

#### 4.8 Fail-Safe Testing of Valves

All fail-safe valves will be tested in accordance with ISTC-3560. Valves used only for system control, are typically excluded from testing in the IST program. However, if a control valve must change position to support a safety-related function and it has a fail-safe position, then it will be included in the program and tested to verify the ability to perform that function with power and/or air removed (or simulated power and/or air removal).

#### 4.9 Skid-Mounted Valves

As specified in ISTC-1200, skid-mounted valves will be excluded from the scope of IST test requirements provided they are adequately tested as part of the 'major' component. The licensee however, may opt to include certain components contained on these skids in the IST program for testing and trending purposes. In such cases, any program changes, exceptions, exemptions, or deferrals will not be submitted to the NRC for approval, but may be documented in the program plan. FD, KD, VG and most of the LD system valves have been excluded from the scope of IST test requirements because they are all skid-mounted valves. They are included in the Supplemental Test Program.

#### 4.10 Valve Test Acceptance Criteria

All valve test acceptance criteria (IST-TAC) will be developed in accordance with the provisions specified in ISTC-3300 and ISTC-5100. Where IST-TAC other than that required by code is established for a given valve (e.g., additional N.I.T. diagnostics or GL 96-05 testing), the documentation of that criteria will be at the discretion of the licensee and not required to be part of the test record. IST-TAC should not be confused with the acceptance criteria specified in UFSAR, DBD associated TAC Sheets, or Technical Specifications (such acceptance criteria is often the most limiting values that can not be exceeded). IST-TAC are set to verify operational readiness of the valves and to identify valve degradation before the 'most limiting' acceptance criteria is exceeded. Valve IST-TAC will be evaluated to verify that other acceptance criteria specified (UFSAR, DBD, Tech. Specifications, etc.) will not be exceeded.

Leakage criteria for valves (other than those tested in accordance to 10CFR50, Appendix J, Technical Specifications, or system specific criteria) will be determined based on leakage rates specified by the licensee or using the guidance provided in ISTC3630.

Relief Valve IST-TAC will be established per Appendix I or developed using Licensee calculations as permitted per OM Code.

##### 4.10.1 Valve Stroke-Time Acceptance Criteria:

The following cases present the options available for determining valve operability based on stroke time:

- CASE 1:** The valve strokes within its acceptable stroke time. The valve is considered operable.
- CASE 2:** The valve fails to change position on the first try or exceeds the LIMITING VALUE. This valve shall be immediately declared inoperable.
- CASE 3:** The valve fails to meet the acceptance stroke time, but strokes in less than the LIMITING-VALUE. Per ISTC-5100, the valve shall be either declared inoperable or immediately stroked again to achieve an acceptable stroke time. Per the McGuire valve testing program:
- a. If the valve successfully strokes on the second stroke, the valve is considered operable. The cause of the initial deviation shall be analyzed and the results documented in the test procedure. This evaluation needs to include valves in similar applications (for example, evaluation of a Steam Generator (SG) PORV outside the reference range needs to include the other seven SG PORVs to evaluate if repetitive or common issue, and determine cause). (Ref. PIP M-12-2710) A third valve stroke may be performed to demonstrate consistent valve operation.
  - b. If the valve does not fall within the acceptable range on the second stroke, then the valve will be analyzed within 96 hours OR declared inoperable (if applicable). An evaluation must be performed to determine the cause of the failed test. The evaluation may determine that either corrective maintenance must be performed on the valve or the new stroke data is acceptable and new baselines must be established. Such results must be documented in the test procedure. This evaluation needs to include valves in similar applications (for example, evaluation of a Steam Generator (SG) PORV outside the reference range needs to include the other seven SG PORVs to evaluate if repetitive or common issue, and determine cause). (Ref. PIP M-12-2710)
  - c. In the event the initial stroke and the second test results are inconsistent, but the engineering evaluation shows the new stroke-time is acceptable, a third test may be performed to verify consistent behavior. Documentation of the third test will be optional if it shows no deviation from the second stroke.

#### 4.10.2 Valve Stroke-Time Measurements and Methods:

McGuire normally uses the OAC for stroke-timing. However, valve stroke-times may be measured with a stopwatch. The stopwatch is started when the valve is actuated and it is stopped when the testing coordinator has determined the proper signal is received indicating the valve has completed the full stroke.

#### 4.10.3 Limiting-Value Stroke-Time Acceptance Criteria:

Limiting-Values for stroke-times will be established in accordance with guidance given in Generic Letter 89-04, Position 5. It is the position of the licensee that these values will be determined as follows (with the limitations of Tech. Specs. and Safety Analysis limits being the most limiting):

<u>Valve Type</u>	<u>Limiting Value Calculation</u>
EMO (> 10secs.)	1.3R (up to the nearest 5sec. increment)
EMO ( $\leq$ 10secs.)	1.5R (up to the nearest 5sec. increment)
AOV (> 10secs.)	2.0R (up to the nearest 5sec. increment)
AOV ( $\leq$ 10secs.)	2.25R (up to the nearest 5sec. increment)

Note: Where 'R' represents the valve reference value at acceptable operation.

SUPERSEDED

## **5.0 PUMP PROGRAM**

### **5.1 In-Service Testing (IST) Program**

As required by 10CFR50.55a certain pumps that are classified in accordance of NRC Regulatory Guide 1.26 as ISI Class A, B, or C, which corresponds to ASME Class 1, 2, or 3 respectively, under the scope of ISTA, are included in the IST Program. The following defines the criteria for inclusion of equipment in the IST Program:

- a) Pumps in systems specifically required by Technical Specifications to be tested per ASME OM Code ISTB.
- b) All pumps that fall within the Duke ISI Class A, B, or C boundaries that are required to perform a specific function in shutting down a reactor to the safe shutdown condition, in maintaining the safe shutdown condition, or in mitigating the consequences of the Design Basis Accidents (Design Basis Accidents are defined as those described in Chapter 15 of the UFSAR).

### **5.2 Pump Testing Program Exemptions and Position Statements**

Pumps tested under the jurisdiction of this program will be tested per code requirements of ISTB at the specified frequencies unless it has been determined to be impractical. The purpose of this section of the program document is to provide MNS positions on interpretations, guidance and other options regarding testing alternatives.

- 5.2.1 ISTA-9230 requires the signature of the person or persons responsible for conducting and analyzing the test. The dated initials of the person or persons responsible for conducting and analyzing the test may be used in place of a signature in the record of the tests.
- 5.2.2 Pumps whose only safety function is predicated on plant shutdown and recovery from a fire per commitments made as a result of 10CFR50, Appendix R are not required to be included in the IST Program. The licensee will test these in accordance with Appendix R requirements.
- 5.2.3 Pumps that are not provided with an emergency source of power will not be required to meet IST requirements. The licensee, however, may elect to include these pumps in the IST program for testing purpose only.

### **5.3 Vibration Monitoring**

Pump vibrations monitored under the jurisdiction of this program will be performed per code requirements at the specified frequencies unless it has been determined to be impractical or a specific deviation from code is needed.

### **5.4 Testing required from Remote Locations (Not Applicable to McGuire Nuclear Station)**

### **5.5 Post Maintenance and Modification Testing (Retest)** Reference Nuclear System Directive: 408 Testing.

## 5.6 Skid-Mounted Pumps

As specified in ISTB-1200, skid-mounted pumps will be excluded from the scope of IST requirements provided they are adequately tested as part of the 'major' component. The licensee however, may opt to include certain components contained on these skids in the IST program for testing and trending purposes. In such cases, any program changes, exceptions, exemptions, or deferrals will not be submitted to the NRC for approval, but may be documented in the program plan.

## 5.7 Pump Test Acceptance Criteria

All pump test acceptance criteria (IST-TAC) will be developed in accordance with the provisions specified in ISTB. The applicable acceptance criteria will be developed when the pump is known to be performing in a satisfactory manner. Where IST-TAC other than that required by code is established for a given pump (i.e., pump curves), the documentation of that criteria will be at the discretion of the licensee and may not be part of the test record.

'IST-TAC' may not be the same acceptance criteria specified in DBDs, DBD associated TAC Sheets, Technical Specifications, or UFSAR. IST-TAC are set to verify operational readiness of the pumps and to identify pump degradation before the 'most limiting' acceptance criteria are exceeded. Pump IST-TAC will be evaluated to verify that other acceptance criteria specified (DBDs, DBD TAC Sheets, Tech. Specs., or UFSAR) will not be exceeded.

SUPERSEDED

## 6.0 RELIEF REQUESTS

The purpose of a Relief Request is to submit a request for NRC review and approval of alternative testing to those requirements of the Code that cannot be followed. If the testing on the component can not be performed due to plant configuration, plant safety, equipment limitations, type, or hazards to personnel, relief from the code will be requested. Submitted relief requests will:

- 1) Give an alternative method that ensures an acceptable level of quality and safety.
- 2) Explain the hardship with meeting the code requirement.
- 3) Provide a schedule or alternative test frequency (or duration for Interim Relief Request).

At the end of each 'Ten Year Interval', all Relief Request will be reviewed for next interval applicability. In cases where a "Specific Relief" was previously submitted to the NRC and approval granted, but the conditions and provisions do not change (i.e. no code change or modification to equipment or system) to eliminate the relief, the relief will continue to be applicable the next interval. Relief Requests will not be written for any non-Code Class components that are included in the IST Program at the licensee's discretion.

### 6.1 Implementing Relief Requests:

When a Relief Requests is submitted for those requirements which have been determined to be clearly impractical, the licensee may implement the proposed alternative testing while the NRC is reviewing the Relief Request, provided the alternative does not compromise the level of safety provided by the code testing requirement (reference from NUREG-1482, section 2.5).

### 6.2 Interim Relief Requests:

When a Relief Request is required on an interim basis, the licensee will submit the relief for review, but as with section 6.1, may implement the relief while the NRC is reviewing the request. Updates to schedules or impacts to modification implementation of the component with interim relief will be communicated to the NRC as the program is updated. Interim Relief Requests shall be withdrawn when the licensee no longer requires them.

## 7.0 JUSTIFICATIONS FOR DEFERRALS:

Justification for Deferrals (JFDs) will be written when a component can not be tested at the specified code frequency. This could be due to an impracticality of testing the component at power or due to plant safety concerns introduced by the testing configuration. The basis for determining the impracticality of testing at power and expanding the component's testing frequency to a Cold Shutdown or Refueling Outage frequency is documented in the Justification for Deferral.

In-Service Testing to be performed at Cold Shutdown shall:

- a) be performed during each cold shutdown when the planned length is of sufficient duration to establish the necessary test conditions and to perform the test, and
- b) be performed as to not impact the timely completion of the shutdown related activities and subsequent return to operation. For shutdowns when the planned length is not of sufficient duration to complete all tests, testing will start within 48 hours of reaching cold shutdown conditions, or
- c) be performed at the next available cold shutdown consistent with the above criteria if an opportunity to test the valve is not available. Completion of the IST is not a prerequisite to return to operation.

Any testing required to be performed during a refueling outage shall be completed prior to plant operation. Components tested during start-up will not delay start-up if the site Technical Specifications allow start-up with the component out of service or inoperable. Retest and corrective actions shall be performed at the first available opportunity.

## 7.1 Testing Deferral Justifications:

- 7.1.1 **Purpose:** The purpose of the Justification for Deferral form is to document the reason a pump or valve can only be tested at cold shutdown or at refueling outage.

Valid reasons could be plant configuration for testing which would jeopardize the safety of plant operation, access to the component which would be against ALARA, access to the component due to the environmental conditions endangering personnel safety, plant configuration for testing would require the plant to be in a mode not suitable for power production, or testing renders systems inoperable for extended periods of time. It is not the intent of IST to cause unwarranted plant shutdowns or to unnecessarily challenge other safety systems.

**Note:** The Justification of Deferral Form is found in Enclosure 9.3.



## 8.0 APPENDICES

### Appendix A: IST PROGRAM RESPONSIBILITIES

#### 1.0 SITE IST ENGINEER

The IST Engineer position will be filled by a qualified individual knowledgeable of plant system operation. He/she ensures the site is in compliance by its performance testing and trending methods. The IST Engineer will accomplish this by maintaining consistency among the System Engineers and overall program management.

The IST Engineer may publish an overall summary (as an annual summary), on the current status of the site performance monitoring of the valves and pumps tested under the requirements of the IST or 10CFR50, Appendix B program.

The IST Engineer will be responsible for:

- notifying Regulatory Compliance of any changes to the Valve and Pump Testing Program described in this document, including changes to the data sheet information,
- updating and maintaining the IST Database,
- ensure all IST-TAC is accurate and not in conflict with other specified TAC,
- coordinating and implementing the program update and renewal per 10CFR50 every 10 years.

#### 2.0 Fleet IST Coordinator

The Fleet IST Coordinator will be an individual responsible for overall corporate IST program management. He/she ensures corporate strategies for the IST Program align with industry and regulatory standards. This individual is knowledgeable of each site's IST programs including program administration and will be responsible for ensuring each site is in compliance with the applicable ASME Codes and IST guidelines (ISTA, ISTB, ISTC, NRC Generic Letters, and NUREG-1482 etc.).

The Fleet IST Coordinator is the technical consultant on any Code-related issues that require interpretation or involve Operability determinations (at the discretion of the IST Engineer and site management). The Fleet IST Coordinator will provide support for internal and external IST program audits.

The Fleet IST Coordinator is the Single Point of Contact on any issues that involve site-site interaction. The Fleet IST Coordinator is responsible for ensuring consistency where practical.

The Fleet IST Coordinator will represent Duke Energy's interest for Code development.

## Appendix A: IST PROGRAM RESPONSIBILITIES (Continued)

### 2.0 Fleet IST Coordinator - Continued

The Fleet IST Coordinator is responsible for assisting with review and updating the IST program per 10CFR50 each 10-year interval. He/she will assist the sites in preparing, submitting, and reviewing interim revisions to the IST program. The Fleet IST Coordinator will assist the site IST Engineer in developing position statements, Relief Requests, and Justification for Deferrals. He/she will perform periodic reviews of site Relief Requests and/or Justification for Deferrals for consistency and compliance.

The Fleet IST Coordinator will see that progress addressing technical issues will be made by the IST Working Group (ISTWG). This includes defining appropriate tasks, tracking action items, conducting periodic meetings, interface with the appropriate BEST contacts, and maintaining overall group focus.

### 3.0 SITE ENGINEERING

Site Engineering is responsible for the components within their systems which are in the program. If the status of a component changes, Site Engineering is responsible for initiating the required changes to the program (see Appendix C).

Site Engineering is responsible for the following:

- ensuring the accuracy of IST dataset information,
- defining test acceptance criteria (TAC),
- ensuring code testing requirements are met,
- documenting reasons for scope or code deviation,
- providing tech. assistance for developing test procedures,
- complete valve and pump data sheets for program revisions,
- notifying the IST Engineer of maintenance that could affect the baseline data for any IST component,
- overall administration of the relief valve testing program (Appendix I),
- administrating the check valve sample disassembly program, provide input when evaluating specific component issues (why failed test, baseline changed, etc.).

### 4.0 OPERATIONS TEST GROUP (OTG)

This group is responsible for the following:

- input data into procedure and Olympus,
- performing tests,
- accurately recording and notifying Site Engineering of any testing problems,
- initiating a PIP when a test is failed or a problem is encountered,
- documenting test discrepancies on the procedure.

5.0 OPERATIONS PROCEDURE GROUP

This group is responsible for the following:

- updating and maintaining all IST procedures,
- verifying all technical changes with the IST Engineer.

SUPERSEDED

## Appendix B:

### McGUIRE NUCLEAR STATION 10CFR50, Appendix B, Supplemental Program Guidance Document

#### 1.0 SCOPE

The Appendix B Program establishes requirements for test programs that monitor plant structures, systems, and components. The Appendix B program assures testing shall be performed in accordance with approved written test procedures that incorporate the requirements and acceptance limits contained in applicable design documents. This program shall include the following:

- Periodic test during plant operation of structures, systems, and components.
- Trending of test parameters at owner specified frequencies.

Test procedures shall include provisions for assuring that all prerequisites and acceptance criteria for the given test have been met. In addition, adequate test instrumentation shall be used and testing performed under suitable environmental conditions (as per 10 CFR 50, App B). Test frequencies will be as specified in the ASME OM Code unless otherwise documented in Section 6.0, "APPENDIX B PROGRAM POSITIONS/EXCEPTIONS."

Deviations from 'guidelines' will be documented in Section 6.0, "APPENDIX B PROGRAM POSITIONS/EXCEPTIONS."

#### 2.0 PUMP AND VALVE TEST SELECTION CRITERIA

The pumps and valves in this program shall be limited to those pumps and valves not covered in the scope of ASME OM Code.

#### 3.0 PROGRAM ELEMENTS

**Pump and Valve Selection** - This task involves identifying all components that fall within the scope of 10 CFR Part 50, Appendix B scope.

**Testing Support** - Develop acceptance criteria, necessary test procedures, and establish the correct frequencies for performing operational tests.

**Demonstrate Operability** - Perform base-line testing (if applicable) of components to ensure functionality of the component and to obtain data for future surveillance activities.

**Documentation and Trending** -

- Establish documentation and trending system for all Appendix B components.
- Establish monitoring system for periodic surveillance testing and performance parameters.
- Establish feedback mechanism to ensure that results and failures influence the frequency and extent of future testing.

## **Appendix B: 10CFR50, Program Guidance Document - Continued**

### **4.0 PROGRAM ORGANIZATION AND RESPONSIBILITIES**

**Fleet IST Coordinator** - This is the individual responsible for the following:

- General direction for program elements.
- Program oversight and liaison.
- Assistance in site program implementation.
- Industry, regulatory, and corporate interface.
- Assist stations in resolving generic issues.
- Provide lead, coordinate and/or interface with other groups to ensure consistent implementation.

**Site IST/Engineering Contact** - This is the site engineering support responsible for the following:

- Pump and Valve Selection.
- Categorizing for analysis and testing.
- Resolution of operability concerns.
- Station modifications which affect components in the Appendix B program.
- Operability testing of components.
- Maintaining Appendix B engineering documents in an auditable format and condition.
- Maintain working procedures, guidelines, and other documents.
- Final review and trending of component test data and acceptance criteria.
- Implement test program changes in response to any corporate and industry direction.

5.0 DEFINITIONS

active: a valve that must perform a mechanical motion during the course of accomplishing a system safety function.

passive: a valve that does not perform a mechanical motion during the course of accomplishing system safety function.

safety-related: required to mitigate the consequences of an accident, shutdown, or maintain shutdown of the reactor.

component: an item in a nuclear power plant such as a vessel, pump, valve, or piping system.

cold shutdown: (see plant technical specifications).

engineering evaluation: an evaluation of indications that exceed allowable acceptance standards to determine if the margins required by the design specifications and construction code are maintained.

exercising (of a valve): the demonstration based on direct or indirect visual or other positive indication that the moving parts function satisfactorily.

full-stroke time: that time interval from initiation of the actuation signal to the end of the actuation cycle.

test: a procedure to obtain information (through measurement or observation) to determine the operational readiness of a component or system while under controlled conditions.

hot standby: (see plant technical specifications).

operational readiness: the ability of a component or system to perform its intended function when required.

owner: the organization legally responsible for the operation, maintenance, safety, and power generation of the nuclear power plant.

normal plant operating conditions: the operating conditions during reactor startup, operation at power, hot standby, and reactor shutdown conditions. (Note: test conditions are excluded).

obturator: valve closure member (disk, gate, plug, ball, etc.)

reference values: one or more values of test parameters measured or determined when the equipment is known to be operating acceptably.

**Appendix B: 10CFR50, Program Guidance Document - Continued**

**6.0 APPENDIX B PROGRAM POSITIONS/EXCEPTIONS**

- 6.1 The MNS 10CFR50, Appendix B Program may be administered using the ASME IST Code as guidance for testing and trending.
- 6.2 Relief Requests and Justification for Deferrals will not be submitted for Appendix B components.
- 6.3 Per McGuire's GL 89-04 response, 10 CFR 50, Appendix B manual valves are only stroked at a refueling frequency.
- 6.4 Deviations from standard test practices will be allowed only if substantiated in writing per the methods outlined in approved site directives and procedures.

SUPERCEDED

### Appendix C: NOTIFICATION OF PROGRAM CHANGES

The System Engineer shall initiate program changes as changes are made to the respective system, DBDs, or active/passive valve calculations. Notification of external customers (e.g. Regulatory Compliance Group) of such changes to the program will occur by issuing the appropriate administrative mechanism (i.e. PIP, Minor Modification Request, etc.).

To ensure Code compliance for the MNS Pump and Valve Testing Program, the IST Engineer should be notified of any of the following changes:

- changing the active/passive status of a component,
- changing the leakage requirements of the component,
- changing the piping classification of the component (Duke Class and ISI Class),
- something changes with how the component may be tested,
- a commitment is made or changed for testing or operation of a component,
- taking credit for a new function, flow path, etc.,
- a modification to the component is planned which can/will significantly affect the components baseline TAC.

SUPERCEDED



**Appendix D:  
Editorial Errors in 1998/1999/2000 Addenda  
(Ref. PIP M-12-3683)**

The following formatting/editorial errors in the applicable Code are correct in a subsequent edition.

Code Paragraph	Reference(s)	Code Paragraph	Reference(s)	Comments
2000 Addenda/ Table ISTC-3500-1, Note 1	ISTC-3500	2006 Addenda/ Table ISTC-3500-1, Note 1	ISTC-3560	ISTC-3560 applies to fail-safe valves: correct reference is in 2006 Addenda
2000 Addenda/ ISTC-3510	ISTC-3560	2006 Addenda/ ISTC-3510	ISTC-3570	ISTC-3560 applies to fail-safe valves, not exercising frequency requirements: correct reference is in 2006 Addenda
2000 Addenda/ ISTC-3630(b)(4)	"valve"	2006 Addenda/ ISTC-3630(b)(4)	"value"	Misspelled work in 2000 Addenda: correct spelling is in 2006 Addenda
2000 Addenda/ ISTC-5114(c)	ISTC-5115(b)	2006 Addenda/ ISTC-5114(c)	ISTC-5114(b)	2000 Addenda exception for fast acting PORVs inconsistent with same for other type valves, and should apply to ISTC-5114(b) (50% change in stroke time) not ISTC-5115(b) (immediately retest or declare inoperable): correct reference is in 2006 Addenda
2000 Addenda/ ISTC-5115(a)	ISTC-5114(b)	2006 Addenda/ ISTC-5115(a)	ISTC-5113(b)	ISTC-5115(a) for exceeding limiting value specified by owner in ISTC-5113(b) not ISTC-5114(b) which is for 50% change from reference: correct reference is in 2006 Addenda
2000 Addenda/ ISTC-5115(b)	ISTC-5114(b)	2006 Addenda/ ISTC-5115(b)	ISTC-5114	ISTC-5115(b) immediately retest or declare inoperable applies to all valves in ISTC-5114 not just those with reference times less than or equal to 10 seconds: correct reference is in 2006 Addenda (Note: the maximum limiting value for fast acting valves is 2 seconds, per ISTC-5114(c))
2000 Addenda/ ISTC-5222	ISTC-3540 (& only ISTC-5221 if discontinue CM)	2004 Addenda/ ISTC-5222	ISTC-3530 ISTC-3550 (includes above and ISTC-3510, -3520, -5221 if discontinue CM)	ISTC-5222 (Condition Monitoring Program) omitted valve obturator movement requirements for check valve testing (ISTC-3530) & allowance for valves in regular use (ISTC-3550), & should not include manual valve exercise test (ISTC-3540). Also it only requires ISTC-5221 if CM discontinued (should list all applicable refs). 2004 Addenda has correct refs in both locations of ISTC-5222.
2000 Addenda/ ISTC-9110(d)	--	2005 Addenda/ ISTC-9110(d)	ISTC-5113(b)	ISTC-9110(d) omitted reference to PORV limiting stroke time (ISTC-5113(b)) in Owner records: added reference is in 2005 Addenda
2000 Addenda/ ISTC-9200(d)	ISTC-5222	2005 Addenda/ ISTC-9200(d)	ISTC-5223	ISTC-9200(d) (bases for testing check valve pairs as a unit) addresses condition monitoring paragraph (ISTC-5222) rather than check valve pair testing paragraph (ISTC-5223): correct reference is in 2005 Addenda
1999 Addenda/ Appendix I, I-7300	--	2004 Addenda/ Appendix I, I-7300	I-1370, I-1390	I-7300 does not include test freq for all types of press relief devices: added refs are in 2004 Addenda (I-1370, Class 2&3 Primary Contmt Vac Relief Vlvs & I-1390, Class 2&3 Thermal Reliefs). I-1380 in '98 Code equiv to I-1370 above.
1999 Addenda/ Appendix I, I-7370	I-1360	2004 Addenda, Appendix I, I-7370	I-1360	I-7370 references I-1360 (Class 2,3 reliefs) rather than the applicable non-reclosing relief device paragraph I-1370: I-1360 in the 2004 Addenda, like I-1370 in the 1999 Addenda, applies to Class 2 & 3 non-closing relief devices and is a correct reference
1999 Addenda/ Appendix I, I-7470	I-1360	2004 Addenda, Appendix I, I-7470	I-1360	I-7470 references I-1360 (Class 2,3 reliefs) rather than the applicable non-reclosing relief device paragraph I-1370: I-1360 in the 2004 Addenda, like I-1470 in the 1999 Addenda, applies to Class 2 & 3 non-closing relief devices and is a correct reference
1998 Addenda/ Appendix I, I-8320(a)	I-1350(c)	2004 Addenda, Appendix I, I-8320(a)	I-1350(c)	I-8320(a) references I-1350(c) instead of I-1360(c) for Class 2 & 3 additional valves: 2004 Addenda is correct (paragraph numbers differ in 2004 Addenda).

## 9.0 ENCLOSURES:

### Enclosure 9.1 (RESERVED FOR "REVISING THE PROGRAM DOCUMENT")

- Revision 1 (4/27/01):** Changed thermal expansion check valve "1(2)NI165" to "1(2)NI-171" in section 4.2.9 to be consistent with the other Loop A check valve 1(2)NI60 which is listed for overpressure protection from thermal expansion of penetration 1(2)M-352. (Reference PIP M-00-1870 CA#2).  
Revised the format under section 4.3.7.  
Pages 1, 8, 9 and 24 revised.
- Revision 2 (8/1/01):** Added ASME OM Code - 1995, Subsections ISTC and Appendix II to Applicable Codes  
Added 1995 Code and Information Notice 97-16 to Non-Mandatory References  
Revised description of containment penetration thermal expansion check valve opening requirements and reclassified that as a non-active function in section 4.2.9.  
Added section 4.3.8 to describe Check Valve Condition Monitoring Program  
Revised description of non-intrusive testing in section 4.3.9.  
Revised description of section 4.9 Skid Mounted Valves to incorporate adoption of position by ASME Omb-1977  
Deleted header 4.10.4 for future revision "Engineering Evaluations"  
Deleted header 5.3 for future revision "Miniflow and Full-Flow Pump Testing"  
Revised description of section 5.6 Skid Mounted Pumps to incorporate adoption of position by ASME Omb-1977  
Deleted header for future revision "Pump Hydraulic Acceptance Criteria"  
Deleted Enclosure 9.7 "Summary of IST Program Submittal Changes"
- Revision 3 (3/1/04):** Updated all several references to OM Code - 1998 (including Omb-2000 Addenda).  
Added ISTA references to several sections.  
Updated program period to third ten-year interval.  
Revised section 4.3.5 which describes the Check Valve Condition Monitoring Program.  
Revised description of section 4.9 Skid Mounted Valves to incorporate adoption of position by ASME Omb-2000.  
Revised description of section 5.6 Skid Mounted Pumps to incorporate adoption of position by ASME Omb-2000.  
Revised list of thermal expansion check valves in section 4.2.9 to separate active and passive classification.  
Revised section 4.6.1 to include discussion of 10CFR50 Appendix J Option B.  
Revised sections of 4.3 that exempted reverse flow testing for applicable check valves.  
Updated Appendix A to reflect recent organization changes.
- Revision 4 (7/31/12)** Revised Section 1.1 (Program Period) to include reference to PIP M-11-9439 (and supporting documentation for the current interval date)  
Revised Section 4.2.9: added new Note & noted passive list as "currently"  
In Section 4.2.9 added 1(2)NF-1464  
In 4.10.1 Case 3 'b', changed "the root cause" to "the cause"  
In 4.10.1 Case 3 'a' and 'b', added evaluation of similar valves for PIP M-12-2710  
Added new Appendix D for PIP M-12-3683 (1998/1999/2000 Code editorial/format errors subsequently corrected in the Code), and related references to Code in 4.3.5  
Revised for position titles (due to organizational changes)  
Revised App. A, 4.0 (OTG) from "IST Administrator" to "Olympus" data entry

**Generic Relief Request**

Item Number:

Component Number (s):

Flow Diagram (s):

Function (s):

ISI Class/Duke Class:

Code Category:

Test Requirement (s):

Basis for Relief:

Code Alternative:

SUPERSEDED

**Justification for Deferral**

Item Number:

Component Number (s):

Flow Diagram (s):

Code Category:

ASME Class:

Function (s):

Test Requirement:

Basis for Deferral:

Test Alternative & Frequency:

SUPERSEDED

**Specific Relief Request**

Item Number:

Component Number (s):

Flow Diagram (s):

Function:

ASME Class:

Code Category:

Test Requirement:

Basis for Relief:

Alternate Testing:

SUPERSEDED

**Enclosure 9.5**

**System Piping Classification Correlation**

<u>Duke System Piping Classification</u>	<u>(1) Safety Related</u>	<u>NRC Quality Group</u>	<u>Duke QA Condition</u>	<u>ANSI Safety Class</u>	<u>Code Des. Criteria (6)</u>	<u>Seismic Pressure Boundary Integrity</u>	<u>Seismic Category</u>	<u>Normally Contains Radioactive Material</u>
A	YES	A	1	1	Class 1, ASME Sect. III	YES	SC-1	YES
B	YES	B	1	2	Class 2, ASME Sect. III	YES	SC-1	YES
C	YES	C	1	3	Class 3, ASME Sect. III	YES	SC-1	YES
E	NO	D(3)	2(4)	NNS(2)	ANSI B31.1.0	NO	N/A	YES
F	YES	-	(4)	NNS(2)	ANSI B31.1.0	YES	SC-1	NO
G	NO	-	(4)	-	ANSI B31.1.0	NO	N/A	NO
H	NO	-	(4)	-	Duke Energy Spec.	NO	N/A	NO
H (HVAC)	YES	-	(6)	-	Duke Energy Spec	YES	SC-1	NO

**NOTES:**

- (1) Safety Related as used herein is in accordance with 10CFR50 Appendix A General Design Criteria for Nuclear Power Plants and is applicable to function only, i.e., structures, systems, and components required to function such that the facility can be operated without undue risk to the health and safety of the public are safety related.
- (2) NNS = Non-Nuclear Safety
- (3) Class E piping is equivalent to NRC Quality Group D; i.e., the system is designed to normally carry a radioactive fluid; however, is considered NNS as a component failure would not result in a calculated potential exposure in excess of the limits established by 10 CFR PART 20.
- (4) Class E, G, and H piping systems may also be assigned QA Condition 3 and/or 4 to denote additional requirements for fire protection of safety related components and/ or seismic structural integrity (except pressure boundary) to preclude adverse interactions with safety related structures, systems and components, respectively; refer to Duke Nuclear Guide 1.29.
- (5) Code and Standards Applicability: Duke Energy establishes an "effective code date" in accordance with 10CFR50, par. 50.55a for McGuire Nuclear Station. Due to the numerous code and standards references applicable to each station, no attempt is made to specifically identify these references as they are amended, superseded, or substituted. Duke reviews and complies with all or portions of the latest versions of the above Codes and Standards unless materials and/ or design commitments have progressed to a stage that it is not practical to make a change. When only portions of addenda to Codes and Standards are utilized, the appropriate engineering review of the entire agenda assures that the overall intent of the Code Standard is still maintained.
- (6) HVAC Duct Systems may be constructed of either sheet metal or piping materials depending upon the design function and requirements. Non-Safety Related HVAC may be assigned QA Condition 4, SC-11 Support Restraints to preclude adverse interactions with safety related structures, systems, and components. Refer to Duke Nuclear Guide 1.29.
- (7) Seismic Category II hangers may be use on Class E, G, or H piping systems when pressure boundary integrity is not required. See Duke Guide 1.29.