February 13, 2007

Mr. G. R. Peterson
Vice President
McGuire Nuclear Station
Duke Power Company LLC
12700 Hagers Ferry Road
Huntersville, NC 28078

SUBJECT: MCGUIRE NUCLEAR STATION, UNIT 2, REQUEST FOR RELIEF 05-MN-002, FOR THIRD 10-YEAR INTERVAL INSERVICE INSPECTION PROGRAM PLAN (TAC NOS. MD1780, MD1781 AND MD1782)

Dear Mr. Peterson:

By letter dated April 4, 2006, Duke Power Company LLC (the licensee), submitted Relief Request (RR) No. 05-MN-002, for its Third 10-Year Interval Inservice Inspection (ISI) Program Plan for McGuire Nuclear Station, Unit 2. The licensee requested relief from and proposed alternatives to the American Society of Mechanical Engineers (ASME), *Boiler and Pressure Vessel Code* (Code), 1998 edition with the 2000 addenda, for welds 2NC2F2-8C, 2NI2FW27-13, and 2NI2FW27-15. The licensee submitted the relief request as a result of limited weld coverage following ISI examinations during refueling outage 16.

The Nuclear Regulatory Commission (NRC) staff has reviewed the licensee's submittal and, based on the information provided, concludes that compliance with the specified ASME Code requirements for welds 2NC2F2-8C, 2NI2FW27-13, and 2NI2FW27-15 is impractical and that the volumetric examinations performed during refueling outage 16 provide reasonable assurance of structural integrity of the subject welds. Therefore, relief is granted pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 50.55a(g)(6)(i) for the third 10- year ISI interval at McGuire Nuclear Station, Unit 1. The staff has determined that granting relief pursuant to 10 CFR 50.55a(g)(6)(i) is authorized by law and will not endanger life or property, or the common defense and security and is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility.

The enclosed Safety Evaluation contains the NRC staff's evaluation and conclusions.

Sincerely,

/RA/

Evangelos C. Marinos, Chief
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-370

Enclosure:
Safety Evaluation

cc w/encl: See next page

February 13, 2007

The enclosed Safety Evaluation contains the NRC staff's evaluation and conclusions.

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Evangelos C. Marinos, Chief
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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

OF THIRD 10-YEAR INTERVAL INSERVICE INSPECTION

REQUEST FOR RELIEF NO. 05-MN-002

DUKE POWER COMPANY, LLC

MCGUIRE NUCLEAR STATION, UNIT 2

DOCKET NO. 50-370

1.0 INTRODUCTION

By letter dated April 4, 2006 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML061040470), Duke Power Company LLC, the licensee, submitted Request for Relief 05-MN-002 from requirements of the American Society of Mechanical Engineers (ASME), *Boiler and Pressure Vessel Code* (Code), Section XI, *Rules for Inservice Inspection of Nuclear Power Plant Components* for McGuire Nuclear Station, Unit 2 (McGuire 2). The licensee submitted the relief request as a result of limited weld coverage following inservice inspection (ISI) examinations during refueling outage 16. Table 1 below provides a list of the welds and their associated systems. The Nuclear Regulatory Commission (NRC) has reviewed and evaluated the information provided by the licensee.

2.0 REGULATORY REQUIREMENTS

Inservice inspection (ISI) of the ASME Code, Class 1, 2, and 3 components is performed in accordance with Section XI of the Code and applicable addenda as required by Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 50.55a(g), except where specific relief has been granted by the NRC pursuant to 10 CFR 50.55a(g)(6)(i). Section 50.55a(a)(3) states that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if (i) the proposed alternatives would provide an acceptable level of quality and safety, or (ii) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) shall meet the requirements, except the design and access provisions and the pre-service examination requirements, set forth in the Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require

that inservice examination of components and system pressure tests conducted during the first 10-year interval and subsequent intervals comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b) twelve months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The Code of record for the McGuire 1 Third 10-Year Interval ISI Program Plan, which began on December 1, 2001, and ends on December 1, 2011, is the 1998 edition through the 2000 addenda of Section XI of the Code.

3.0 EVALUATION

The Table below is a listing of the welds and their associated systems, the licensee is requesting relief from and proposing alternatives to the Code due to limited weld examination coverage.

TABLE 1

List Number	Limited Area/Weld I.D. Number	System/Component for Which Relief is Requested: Area or Weld to be Examined	Code Requirement from Which Relief is Requested: 100% Exam Volume Coverage Exam Category Item No. Fig. No. Limitation Percentage
1.	2NC2F2-8C	Reactor Coolant System (NC) Pipe-to-Pipe Cap	Exam Category R-A Item No. R01.011.013 Fig. IWB-2500-8 87% Volume Coverage (COVERAGE LIMITATION)
2.	2NI2FW27-13	Safety Injection (NI) System Pipe Elbow	Exam Category R-A Item No. R01.011.069 Fig. IWB-2500-8 89.8% Volume Coverage (COVERAGE LIMITATION)
3.	2NI2FW27-15	NI System Tee to Reducer	Exam Category R-A Item No. R01.011.071 Fig. IWB-2500-8 89.9% Volume Coverage (COVERAGE LIMITATION)

3.1 Weld 2NC2F2-8C NC System Pipe-to-Pipe Cap

3.1.1 Code Requirements from Which Relief is Requested

Examination Category R-A, Table 4.1.1, Item Number R01.011.013 of the Westinghouse Owner's Group Topical Report, WCAP-14572 1-NPA specifies Figure Number IWB-2500-8 which applies to a nominal pipe size (NPS) of 4-inches or larger and requires examination of essentially 100% of the specified weld examination volume.

Since the risk-informed program requires a volumetric examination, this figure was used to define the examination volume of welds less than an NPS of 4-inches.

3.1.2 Impracticality Burden Caused by Compliance

The pipe-to-pipe cap material is stainless steel. The diameter of this weld is 2.00 inches with a wall thickness of 0.344 inches. During the ultrasonic examination of this weld, 100% coverage of the required examination volume could not be obtained. Coverage was limited because of the proximity of an I-beam near the weld. The amount of coverage reported represents the aggregate coverage from all scans performed on the weld and base material. The required volume was scanned using 45-degree, 60-degree, and 70-degree shear waves. The 45-degree beam had an aggregate coverage of 88% of the volume in two circumferential directions. The 60-degree beam had an axial coverage in two directions, 81.3% on the pipe side of the weld and 90.7% on the pipe cap side of the weld. The 70-degree shear wave covered 100% of the inside surface from one axial direction from the pipe cap side of the weld but was not included in the percentage of coverage calculation because of the requirements in 10 CFR 50.55a(b)(2)(xv)(A)(*2*). In order to achieve more coverage, the I-beam would have to be redesigned to allow scanning from both sides of the weld, which is impractical. There were no recordable indications found during the inspection of this weld.

3.1.3 Proposed Alternative Examinations or Testing

The scheduled 10-year code examination was performed on the referenced area/welds and it resulted in the noted limited coverage of the required ultrasonic volume. No additional examinations are planned for the area/weld during the current inspection interval.

3.1.4 Justification for Granting Relief

An ultrasonic examination of the weld for item R01.011.013 was conducted using personnel, qualified in accordance with ASME Code, Section XI, Appendix VIII, Supplements 2 and 3. The examination was performed in accordance with the requirements of ASME Code, Section VIII, Supplement 2. The 2-inch pipe-to-pipe cap weld is located on the 2B Cold Leg inside containment; this is part of the NC (Reactor Coolant System) boundary. This weld would normally see NC pressure leakage and would be noted per monitoring listed later in this paragraph. This weld is not exposed to significant neutron fluence and is not prone to negative material property changes (i.e., embrittlement) associated with neutron bombardment. If a leak were to occur at the weld in question, there are methods by which the leak could be identified for prompt engineering evaluation. The plant is designed to detect the following:

a) Increased containment humidity. This parameter is indicated in the control room and is monitored periodically by Operations and also monitored by the containment ventilation system engineer. Ventilation unit condensate drain tank (VUCDT) level, and lower containment humidity are all recorded at the start of each shift.

b) Increased temperatures in lower containment, steam generator compartment, pressurizer compartment, or incore sump room. These temperatures are monitored continuously by the operator aid computer (OAC) alarm, and are periodically monitored by the system engineer. The OAC alarm is set for immediate Operations notification when an alarm set point is

exceeded.

c) Increased input into the VUCDT level. This parameter is monitored continuously by Operations via an OAC alarm and also periodically by the liquid radwaste system engineer and the reactor coolant system engineer. The OAC alarm is set for immediate Operations notification when an alarm set point is exceeded.

d) Increase in unidentified reactor coolant leakage. This parameter would be exhibited during performance of reactor coolant leakage calculation, which is required by the Technical Specifications (TSs) to be performed every 72 hours. The unidentified leakage limit in TS 3.4.13.1 is 1 gpm.

e) Increased containment floor and equipment sump levels. These levels are closely monitored by the liquid waste recycle and reactor coolant system engineer and alarmed for immediate Operations notification.

f) Change in the volume control tank level rate (a more negative rate is set to alarm to Operations at -1.0 gpm). This is closely monitored by the chemical and volume control system engineer.

3.1.5 NRC Staff's Evaluation

By letter dated April 4, 2006, the licensee requested, pursuant to 10 CFR 50.55a(g)(5)(iii), approval of Relief 05-MN-002, Request No. 1 which involved limited weld examination coverage of Weld ID Number 2NC2F2-8C at McGuire 2. The licensee sought relief from the examination requirements of ASME Code, Section XI. ASME Code, Section XI requires 100% examination coverage. During the examination 100% could not be achieved for weld 2NC2F2-8C. NRC Regulatory Guide 1.147, " Inservice Inspection Code Case Accessibility - ASME Section XI, Division 1," endorses ASME Code Case N-460, "Alternative Examination Coverage for Class 1 and Class 2 Welds." Code Case N-460 defines weld examination coverage greater than 90% to meet the essentially 100% requirement specified in ASME Code, Section XI. The proposed relief is sought for the third 10-year ISI interval. The McGuire 2 Third 10-Year ISI Program Plan meets the requirements of ASME Code, Section XI, 1998 edition with 2000 addenda and the risk-informed provisions stated in WCAP-14572, Revision 1-NPA.

The licensee stated that during the ultrasonic examination of Weld ID Number 2NC2F2-8C, 100% coverage of the required examination volume could not be obtained. Coverage was limited because of the proximity of an I-beam near the weld. The required volume was scanned using 45-degree, 60-degree, and 70-degree shear waves. As a result, 88% coverage was obtained using 45-degree scans in two circumferential directions and 81.3% of the required volume was obtained using 60-degree scans on the pipe side of the weld and 90.7% on the pipe cap side of the weld. The examination was performed using personnel, procedures and equipment qualified in accordance with ASME Code, Section XI, Appendix VIII, Supplements 2 and 3.

The licensee also stated that in order to achieve more coverage, the I-beam would have to be re-designed to allow scanning from both sides of the weld. Further, the licensee has performed the Code-required examinations to the extent practical and has achieved coverages of 88%

using 45-degree scans in two opposite circumferential directions and 81.3% of the required volume on the pipe side of the weld and 90.7% on the pipe cap side of the weld using the 60-degree scans. Therefore, any existing patterns of significant degradation should have been detected by the examinations that were completed and thus a reasonable assurance of structural integrity has been provided.

The NRC staff finds that the licensee's proposed alternative provides reasonable assurance of structural integrity for the subject weld. This conclusion is based on the fact that the subject weld has been examined to the extent practical and 88% of the required volume was examined using 45-degree scans in two circumferential directions and 81.3% of the required volume on the pipe side of the weld and 90.7% on the pipe cap side of the weld using 60-degree scans. Therefore, significant degradation, if present, should have been detected.

3.1.6. Conclusion

The NRC staff concludes that compliance with the ASME Code coverage requirement is impractical. Furthermore, the examinations performed by the licensee provide reasonable assurance of the continued inservice structural integrity of the subject components. Therefore, Request for Relief 05-MN-002, Request No. 1 is granted pursuant to 10 CFR 50.55a(g)(6)(i). This relief is authorized by law and will not endanger life or property or common defense and security, and is otherwise in the public interest, giving due consideration to the burden upon the licensee and facility that could result if the Code requirements were imposed on the facility.

All other ASME Code, Section XI, requirements which were not specifically requested and authorized herein by the NRC staff remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

3.2 Weld 2NI2FW27-13 NI System Pipe Elbow

3.2.1 Code Requirements from Which Relief is Requested

Examination Category R-A, Table 4.1.1, Item Number R01.011.069 of the Westinghouse Owner's Group Topical Report, WCAP-14572 1-NPA specifies Figure Number IWB-2500-8 which applies to NPS as 4-inches or larger and requires examination of essentially 100% of the specified weld examination volume.

Since the risk-informed program requires a volumetric examination, this figure was used to define the examination volume of welds less than an NPS of 4-inches.

3.2.2 Impracticality Burden Caused by Compliance

The pipe-to-elbow material is stainless steel. The diameter of this weld is 3.000 inches with a wall thickness of 0.438 inches. During the ultrasonic examination of this weld, 100% coverage of the required examination volume could not be obtained. Coverage was limited because an area 3" long on the elbow configuration limited the scan surface in the throat area, which

prevented scanning from four directions. The amount of coverage reported represents the aggregate coverage from all scans performed on the weld and base material. The required volume was scanned using 45-degree, 60-degree, and 70-degree shear waves. The 45-degree

beam covered 100% of the volume in two circumferential directions. The 60-degree beam had an axial coverage in two directions, 72.7% on the elbow side of the weld and 86.4% on the pipe side of the weld. The 70-degree shear wave covered 33.3% of the volume from one axial direction from the pipe side of the weld but was not included in the percent of coverage calculation because of the requirements in 10 CFR 50.55a(b)(2)(xv)(A)(*2*). In order to achieve more coverage, the weld would have to be redesigned to allow scanning from both sides of the weld, which is impractical. There were no recordable indications found during the inspection of this weld.

3.2.3 Proposed Alternative Examinations or Testing

The scheduled 10-year code examination was performed on the referenced area/welds and it resulted in the noted limited coverage of the required ultrasonic volume. No additional examinations are planned for the area/weld during the current inspection interval.

3.2.4 Justification for Granting Relief

An ultrasonic examination of the weld for item R01.011 was conducted using personnel, qualified in accordance with ASME Code, Section XI, Appendix VIII, Supplements 2 and 3. The examination was performed in accordance with the requirements of ASME Code, Section VIII, Supplement 2. These welds are located on the outlet side of the 1A seal water injection filter outlet ioIsolation valve (1NV-494) and they are not exposed to significant neutron fluence and are not prone to negative material property changes (i.e. embrittlement) associated with neutron bombardment. The plant is designed to detect the following:

a) Abnormal volume control tank level trends and/or unexpected auto make-ups.

b) Increase in unidentified reactor coolant leakage. This parameter would be exhibited during performance of the reactor coolant leakage calculation, which is required by the TSs to be performed every 72 hours. The unidentified leakage specification in TS 3.4.13.1 is 1 gpm.

c) Increase in residual heat removal system (ND)/containment spray (NS) sump inputs. This parameter is monitored periodically by the liquid radwaste system engineer.

d) These welds are exposed to charging pump discharge pressure during refueling outage testing PT/2/A/4209/012A, and B; and leakage would be noted prior to a restart of the unit.

Three additional ultrasonic examinations were performed on 3-inch, 0.438 wall thickness pipe welds in the NI System. The results from these examinations were acceptable with 100% coverage.

3.2.5 NRC Staff's Evaluation

By letter dated April 4, 2006, the licensee requested, pursuant to 10 CFR 50.55a(g)(5)(iii), approval of Relief 05-MN-002, Request No. 2 which involved limited weld examination coverage

of Weld ID Number 2NI2FW27-13 at McGuire 2. The licensee sought relief from the examination requirements of ASME Code, Section XI because the ASME Code, Section XI

required 100% examination coverage could not be achieved for weld 2NI2FW27-13. NRC Regulatory Guide 1.147, " Inservice Inspection Code Case Accessibility - ASME Section XI, Division 1," endorses ASME Code Case N-460, "Alternative Examination Coverage for Class 1 and Class 2 Welds." Code Case N-460 defines weld examination coverage greater than 90% to meet the essentially 100% requirement specified in ASME Code, Section XI. The proposed relief is sought for the third 10-year ISI interval. The McGuire 2 Third 10-Year ISI Program Plan meets the requirements of ASME Code, Section XI, 1998 edition with 2000 addenda and the risk-informed provisions stated in WCAP-14572, Revision 1-NPA.

The licensee stated that during the ultrasonic examination of Weld ID Number 2NI2FW27-13, 100% coverage of the required examination volume could not be obtained. Examination coverage was limited because an area 3-inches long on the elbow configuration limited the scan surface in the throat area, which prevented scanning from four directions. The required volume was scanned using 45-degree, 60-degree, and 70-degree shear waves. As a result, 100% coverage was obtained using 45-degree scans in two circumferential directions. The 60-degree beam had an axial coverage in two directions, 72.7% on the elbow side of the weld and 86.4% on the pipe side of the weld. The examination was performed using personnel, procedures and equipment qualified in accordance with ASME Code, Section XI, Appendix VIII, Supplements 2 and 3.

The licensee also stated that in order to achieve more coverage, the weld needs to be redesigned to allow scanning from both sides of the weld. Further, the licensee has performed the Code-required examinations to the extent practical and has achieved coverages of 100% using 45-degree scans in two opposite circumferential directions and 72.7% of the required volume on the elbow side of the weld and 86.4% on the pipe side of the weld using the 60-degree scans. Three additional ultrasonic examinations were performed on 3-inch, 0.438 wall thickness pipe welds in the NI System. The results from these examinations were acceptable with 100% coverage. Therefore, any existing patterns of significant degradation should have been detected by the examinations that were completed and thus a reasonable assurance of structural integrity has been provided.

The NRC staff finds that the licensee's proposed alternative provides reasonable assurance of structural integrity for the subject weld. This conclusion is based on the fact that the subject weld has been examined to the extent practical and 100% of the required volume was examined using 45-degree scans in two circumferential directions and 72.7% of the required volume on the pipe elbow side of the weld and 86.4% on the pipe side of the weld using 60-degree scans. In addition, three additional ultrasonic examinations were performed on 3-inch, 0.438 wall thickness pipe welds in the NI System. The results from these examinations were acceptable with 100% coverage. Therefore, significant degradation, if present, should have been detected.

3.2.6 Conclusion

The NRC staff concludes that compliance with the ASME Code coverage requirement is impractical. Furthermore, the examinations performed by the licensee provide reasonable assurance of the continued inservice structural integrity of the subject components. Therefore, Request for Relief 05-MN-002, Request No. 2 is granted pursuant to 10 CFR 50.55a(g)(6)(i). This relief is authorized by law and will not endanger life or property or common defense and security, and is otherwise in the public interest, giving due consideration to the burden upon the licensee and facility that could result if the Code requirements were imposed on the facility.

All other ASME Code, Section XI, requirements which were not specifically requested and authorized herein by the NRC staff remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

3.3 Weld 2NI2FW27-15 NI System Tee to Reducer

3.3.1 Code Requirements from Which Relief is Requested

Examination Category R-A, Table 4.1.1, Item Number R01.011.071 of the Westinghouse Owner's Group (WOG) Topical Report, WCAP-14572 1-NPA specifies Figure Number IWB-2500-8 which applies to a nominal pipe size (NPS) of 4-inches or larger and requires examination of essentially 100% of the specified weld examination volume.

Since the risk-informed program requires a volumetric examination, this figure was used to define the examination volume of welds less than an NPS of 4-inches.

3.3.2 Impracticality Burden Caused by Compliance

The tee-to-reducer weld material is stainless steel. The diameter of this weld is 3.000 inches with a wall thickness of 0.438 inches. During the ultrasonic examination of this weld, 100% coverage of the required examination volume could not be obtained. Coverage was limited to the examination volume because of an area 3-inches long on the tee side of the weld due to the tee configuration. This prevented scanning from four directions. The amount of coverage reported represents the aggregate coverage from all scans performed on the weld and base material. The required volume was scanned using 45-degree, 60-degree, and 70-degree shear waves. The 45-degree beam covered 100% of the volume in two circumferential directions. The 60-degree beam had an axial coverage in two directions, 72.7% on the tee side of the weld and 86.4% on the reducer side of the weld. The 70-degree shear wave covered 33.3% of the volume from one axial direction from the reducer side of the weld but was not included in the percent of coverage calculation because of the requirements in 10 CFR 50.55a(b)(2)(xv)(A)(2). In order to achieve more coverage, the weld would have to be redesigned to allow scanning from both sides of the weld, which is impractical. There were no recordable indications found during the inspection of this weld.

3.3.3 Proposed Alternative Examinations or Testing

The scheduled 10-year code examination was performed on the referenced area/welds and it resulted in the noted limited coverage of the required ultrasonic volume. No additional examinations are planned for the area/weld during the current inspection interval.

3.3.4 Justification for Granting Relief

An ultrasonic examination of the weld for item R01.011 was conducted using personnel, qualified in accordance with ASME Code, Section XI, Appendix VIII, Supplements 2 and 3. The examination was performed in accordance with the requirements of ASME Code, Section VIII, Supplement 2. These welds are located on the outlet side of the 1A seal water injection filter outlet isolation valve (1NV-494) and they are not exposed to significant neutron fluence and are not prone to negative material property changes (i.e., embrittlement) associated with neutron bombardment. The plant is designed to detect the following:

a) Abnormal volume control tank level trends and/or unexpected auto make-ups.

b) Increase in unidentified reactor coolant leakage. This parameter would be exhibited during performance of the reactor coolant leakage calculation, which is required by the T to be performed every 72 hours. The unidentified leakage specification in TS 3.4.13.1 is 1 gpm.

c) Increase in ND/NS Sump inputs. This parameter is monitored periodically by the liquid radwaste system engineer.

d) These welds are exposed to charging pump discharge pressure during outage testing PT/2/A/4209/012A, and B; and leakage would be noted prior to restart of the unit during a containment walk down.

Three additional ultrasonic examinations were performed on 3-inch, 0.438 wall thickness pipe welds in the NI System. The results from these examinations were acceptable with 100% coverage.

3.3.5 NRC Staff's Evaluation

By letter dated April 4, 2006, the licensee requested, pursuant to 10 CFR 50.55a(g)(5)(iii), approval of Relief 05-MN-002, Request No. 3 which involved limited weld examination coverage of Weld ID Number 2NI2FW27-15 at McGuire 2. The licensee sought relief from the examination requirements of ASME Code, Section XI because the ASME Code, Section XI required 100% examination coverage could not be achieved for weld 2NI2FW27-15. NRC Regulatory Guide 1.147, " Inservice Inspection Code Case Accessibility - ASME Section XI, Division 1" endorses ASME Code Case N-460, "Alternative Examination Coverage for Class 1 and Class 2 Welds." Code Case N-460 defines weld examination coverage greater than 90% to meet the essentially 100% requirement specified in ASME Code, Section XI. The proposed relief is sought for the third 10-year ISI interval. The McGuire 2 Third 10-Year ISI Program Plan meets the requirements of ASME Code, Section XI, 1998 edition with 2000 addenda and the risk-informed provisions stated in WCAP-14572, Revision 1-NPA.

The licensee stated that during the ultrasonic examination of Weld ID Number 2NI2FW27-15, 100% coverage of the required examination volume could not be obtained. Examination

coverage was limited because of an area 3-inches long on the tee side of the weld prevented scanning from four directions. The required volume was scanned using 45-degree, 60-degree, and 70-degree shear waves. As a result, 100% coverage was obtained using 45-degree scans in two circumferential directions. The 60-degree beam had axial coverage in two directions, 72.7% on the tee side of the weld and 86.4% on the reducer side of the weld. The examination was performed using personnel, procedures and equipment qualified in accordance with ASME Code, Section XI, Appendix VIII, Supplements 2 and 3.

The licensee also stated that in order to achieve more coverage, the weld needs to be redesigned to allow scanning from both sides of the weld. Further, the licensee has performed the Code-required examinations to the extent practical and has achieved coverages of 100% using 45-degree scans in two opposite circumferential directions and 72.7% of the required volume on the tee side of the weld and 86.4% on the reducer side of the weld using the 60-degree scans. Three additional ultrasonic examinations were performed on 3-inch, 0.438 wall thickness pipe welds in the NI System. The results from these examinations were acceptable with 100% coverage. Therefore, any existing patterns of significant degradation should have been detected by the examinations that were completed and thus a reasonable assurance of structural integrity has been provided.

The NRC staff finds that the licensee's proposed alternative provides reasonable assurance of structural integrity for the subject weld. This conclusion is based on the fact that the subject weld has been examined to the extent practical and 100% of the required volume was examined using 45-degree scans in two circumferential directions and 72.7% of the required volume on the tee side of the weld and 86.4% on the reducer side of the weld using 60-degree scans. In addition, three additional ultrasonic examinations were performed on 3-inch, 0.438 wall thickness pipe welds in the NI System. The results from these examinations were acceptable with 100% coverage. Therefore, significant degradation, if present, should have been detected.

3.3.6. Conclusion

The NRC staff concludes that compliance with the ASME Code coverage requirement is impractical. Furthermore, the examinations performed by the licensee provide reasonable assurance of the continued inservice structural integrity of the subject components. Therefore, Request for Relief 05-MN-002, Request No. 3 is granted pursuant to 10 CFR 50.55a(g)(6)(i). This relief is authorized by law and will not endanger life or property or common defense and security, and is otherwise in the public interest, giving due consideration to the burden upon the licensee and facility that could result if the Code requirements were imposed on the facility.

All other ASME Code, Section XI, requirements which were not specifically requested and authorized herein by the NRC staff remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

4.0 CONCLUSIONS

The NRC staff has reviewed the licensee's submittal and, based on the information provided, the NRC staff concludes that compliance with the specified Code requirements is impractical and that the volumetric examinations performed provide reasonable assurance of structural integrity of the subject welds. Therefore, relief is granted pursuant to 10 CFR 50.55a(g)(6)(i) for the third 10- year ISI interval at McGuire 2. The NRC staff has determined that granting relief pursuant to 10 CFR 50.55a(g)(6)(i) is authorized by law and will not endanger life or property, or the common defense and security and is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility.

All other requirements of ASME Code, Section XI for which relief has not been specifically requested remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

Principal Contributor: G. Georgiev

Date: February 13, 2007

McGuire Nuclear Station, Units 1 & 2

cc:

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