



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

February 28, 2014

Mrs. Karen D. Fili
Site Vice-President
Northern States Power Company – Minnesota
Monticello Nuclear Generating Plant
2807 West County Road 75
Monticello, MN 55362-9637

SUBJECT: MONTICELLO NUCLEAR GENERATING PLANT – STAFF REVIEW AND
EVALUATION OF THE FIFTH 10-YEAR INSERVICE INSPECTION PROGRAM
PLAN (TAC NO. ME8186)

Dear Mrs. Fili:

In a letter dated February 28, 2012, as supplemented by letter dated July 17, 2013, Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy, provided to the U.S Nuclear Regulatory Commission (NRC) the fifth 10-year Inservice Inspection (ISI) program plan for the Monticello Nuclear Generating Plant (MNGP). The MNGP fifth 10-year ISI program plan was submitted in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR); Part 50, Section 55a.

The NRC staff evaluated the MNGP fifth 10-year ISI program plan against the requirements of Section XI of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code and specific license renewal commitments found in Appendix A of NUREG-1865, "Safety Evaluation Report Related to the License Renewal of Monticello Nuclear Generating Plant."

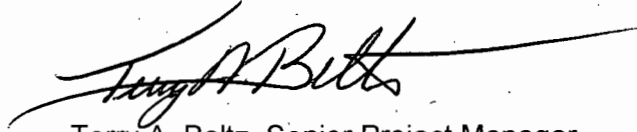
The NRC staff's evaluation is enclosed.

K. Fili

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If you have any questions regarding this matter, please contact me at (301) 415-3049 or via e-mail at Terry.Beltz@nrc.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Terry A. Beltz", with a long horizontal flourish extending to the right.

Terry A. Beltz, Senior Project Manager
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-263

Enclosure:
Staff Evaluation of the Fifth 10-Year
Inservice Inspection Program Plan

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
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OFFICE OF NUCLEAR REACTOR REGULATION

STAFF EVALUATION RELATED TO THE

MONTICELLO NUCLEAR GENERATING PLANT

FIFTH 10-YEAR INSERVICE INSPECTION PROGRAM PLAN

NORTHERN STATES POWER COMPANY

DOCKET NO. 50-263

TAC NO. ME8186

1.0 INTRODUCTION

The U.S. Nuclear Regulatory Commission (NRC) staff reviewed and evaluated information provided by Xcel Energy (the licensee) in its February 28, 2012, letter (Reference 1), as supplemented by letter dated July 17, 2013 (Reference 2), in which the licensee provided the fifth 10-year Inservice Inspection (ISI) program plan for the Monticello Nuclear Generating Plant (MNGP), and provided response to the NRC staff's requests for additional information (RAI). The MNGP fifth 10-year ISI program plan was submitted in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 55a (Reference 3). The NRC staff evaluated the MNGP fifth 10-year ISI program plan against the requirements of Section XI of the American Society of Mechanical Engineers Boiler (ASME) and Boiler and Pressure Vessel Code (B&PV Code), and against license renewal commitments 3, 5, 18, 19, 20, 21 and 22, found in Appendix A of NUREG-1865, "Safety Evaluation Report Related to the License Renewal of Monticello Nuclear Generating Plant" (Reference 4).

2.0 REGULATORY EVALUATION OF THE ASME B&PV CODE

The following General Design Criteria (GDC) found in 10 CFR Part 50, Appendix A, requires that the respective safety systems be designed such that they permit periodic inspection, pressure testing and functional testing of the system components and piping:

- GDC 32, "Inspection of reactor coolant pressure boundary"
- GDC 36, "Inspection of emergency core cooling system"
- GDC 37, "Testing of emergency core cooling system"
- GDC 39, "Inspection of containment heat removal system"
- GDC 40, "Testing of containment heat removal system"
- GDC 42, "Inspection of containment atmosphere cleanup systems"
- GDC 43, "Testing of containment atmosphere cleanup systems"
- GDC 45, "Inspection of cooling water system"
- GDC 46, "Testing of cooling water system"

Enclosure

The regulations in 10 CFR 50.55a(g)(1) require that:

For a boiling or pressurized water-cooled nuclear power facility whose construction permit was issued before January 1, 1971, components (including supports) must meet the requirements of paragraphs (g)(4) and (g)(5) of this section to the extent practical. Components which are part of the reactor coolant pressure boundary and their supports must meet the requirements applicable to components which are classified as ASME Code Class 1. Other safety-related pressure vessels, piping, pumps and valves, and their supports must meet the requirements applicable to components which are classified as ASME Code Class 2 or Class 3.

The requirements of g(4) should be listed here. This is what drives the licensee to implement an ISI program. The licensee prepared the fifth 10-year ISI program plan for MNGP to meet the requirements of the 2007 Edition through the 2008 Addenda of the ASME B&PV Code, Section XI (Reference 5).

Pursuant to 10 CFR 50.55a(a)(3):

The regulations in 10 CFR 50.55a(a)(3) state, in part, that proposed alternatives to the ASME B&PV Code requirements may be used when authorized by the NRC. A licensee must demonstrate either that the proposed alternatives provide an acceptable level of quality and safety, or that ASME B&PV Code compliance would result in hardship or unusual difficulty without a compensating increase in safety. Pursuant to 10 CFR 50.55a(g)(5)(iii), if the licensee determines that conformance with certain ASME B&PV Code examination requirements is impractical for its facility, then it shall submit information to the NRC to support that determination. Pursuant to 10 CFR 50.55a(g)(6)(i), the NRC will evaluate the licensee's determination that ASME Code requirements are impractical. The NRC may grant relief and may impose alternative requirements that it determines to be authorized by law, will not endanger life, property, or the common defense and security, and are 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.

Information in the fifth 10-year ISI program plan for MNGP was reviewed for compliance with ASME Code Section XI requirements, as incorporated by reference in 10 CFR 50.55a. At the request of the NRC staff, this evaluation does not include the licensee's requests for relief from ASME B&PV Code, Section XI requirements. This review was performed using, as a basis, NUREG-0800, Standard Review Plan Sections 5.2.4, "Reactor Coolant Pressure Boundary (RCPB) Inservice Inspections and Testing" and 6.6, "Inservice Inspection and Testing of Class 2 and 3 Components" (Reference 6).

The NRC staff's review of the fifth 10-year ISI program plan for MNGP is documented in Section 3 of this safety evaluation (SE). The staff reviewed the MNGP fifth 10-year ISI program plan against the ASME B&PV Code, Section XI requirements, as incorporated by reference in 10 CFR 50.55a, in the following areas: (1) compliance with the appropriate edition/addenda of Section XI, (2) acceptability of ASME Code Cases, (3) acceptability of ASME Code Class 1, 2, and 3 piping, vessels, and attachment weld requirements, (4) acceptability of examination sample requirements, and (5) correctness of the application of system or component examination exemption criteria. The staff also reviewed whether the MNGP fifth 10-year ISI

examination exemption criteria. The staff also reviewed whether the MNGP fifth 10-year ISI program plan includes Augmented/Owner Elected examinations, based on commitments made in the license renewal application. Unless otherwise stated, references to the ASME B&PV Code refer to the ASME B&PV Code, Section XI, 2007 Edition through the 2008 Addenda.

The NRC staff's evaluation is provided below.

3.0 EVALUATION OF FIFTH 10-YEAR INSERVICE INSPECTION PROGRAM PLAN

The NRC staff's evaluation consists of a review of the applicable program documents to determine whether or not they are in compliance with the ASME B&PV Code requirements pertinent to ISI activities and certain license renewal commitments. This section describes the submittals reviewed and the results of the review.

3.1 Documents Reviewed

The NRC staff reviewed documents applicable to the MNGP fifth 10-year ISI program plan as listed in Section 6, "References," of this evaluation.

The NRC staff did not review Requests for Relief (RR-001 through RR-007) in this evaluation, as they were reviewed by the NRC staff in separate safety evaluations. The following documents were not evaluated by the staff unless specifically noted:

- Repair/Replacement Program is contained in Administrative Work Instruction (AWI) 4 AWI-09.04.03 "ASME Section XI Repair/Replacement Program."
- Containment Inservice Inspection Program is contained in a separate document titled "Containment Inservice Inspection Plan (IWE Plan)"
- System Pressure Testing Program is contained in 4 AWI-09.04.02 "System and Component Pressure Testing Program"
- Snubber Program is contained in EWI-08.02.01 "Snubber Program"
- Boiling Water Reactor Vessel Internals Project (BWRVIP) Program is contained in EWI-08.01.01 "Boiling Water Reactor Vessel Internals Project Administrative Manual" (Reference 7) - *Note: This document was reviewed specifically for implementation of the license renewal commitments 3, 21, and 22 listed in Appendix A of NUREG-1865, "Safety Evaluation Report Related to the License Renewal of Monticello Nuclear Generating Plant."*

3.2 Review of ASME B&PV Code Requirements

3.2.1 Applicable ASME B&PV Code Edition and Addenda

As required in 10 CFR 50.55a(g)(4), a 10-year ISI program plan must comply with the requirements of the latest edition and addenda of the ASME Code Section XI incorporated by reference in paragraph (b) of 10 CFR 50.55a 12 months before the start of the 120-month

inspection interval. The fifth 10-year ISI program at MNGP began September 1, 2012, and will end on May 31, 2022. The latest edition and addenda of the ASME Code Section XI, in effect 12 months prior to the beginning of the MNGP fifth interval was issued in 76 *Federal Register* 36232 (Reference 8), effective July 21, 2011. This rule incorporated by reference the ASME Code, Section XI, 2007 Edition with the 2008 Addenda as the latest edition and addenda of Section XI. The licensee prepared the MNGP fifth 10-year ISI program plan, Revision 0, to meet the requirements of the 2007 Edition through the 2008 Addenda of the ASME B&PV Code. Therefore, the NRC staff finds that the licensee applied the correct Edition and Addenda for the MNGP fifth 10-year ISI program plan.

3.2.2 Applicable ASME Code Cases

In accordance with 10 CFR 50.55a(g), ASME B&PV Code Cases may be used as alternatives to ASME Code requirements. ASME B&PV Code Cases that the NRC has approved for use are listed in Regulatory Guide (RG) 1.147, Revision 16, "Inservice Inspection Code Case Acceptability, Division 1," (Reference 9) with additional conditions the NRC imposed on the use of conditionally acceptable Code Cases. When used, these ASME Code Cases must be implemented in their entirety. Published ASME Code Cases awaiting approval and subsequent listing in RG 1.147 may be adopted only if the licensee requests, and the NRC authorizes, their use on a case-by-case basis.

The licensee's fifth 10-year ISI program plan identifies that the ASME B&PV Code Cases listed below will be used in lieu of specific ASME Code Section XI requirements. These ASME Code Cases have been approved for use in RG 1.147, Revision 16, as acceptable or conditionally acceptable Code Cases. Revision 16 is the latest revision of RG 1.147. The NRC staff reviewed the fifth 10-year ISI program plan and confirmed that the licensee committed to implement the conditions listed in RG 1.147, Revision 16 for the conditionally acceptable ASME Code Cases.

ASME Code Case N-432-1 *Repair Welding Using Automatic or Machine Gas Tungsten-Arc Welding (GTAW) Temper Bead Technique, Section XI, Division 1*

ASME Code Case N-513-3 *Evaluation Criteria for Temporary Acceptance of Flaws in Moderate Energy Class 2 or 3 Piping, Section XI, Division 1*

ASME Code Case N-513-3 is conditionally accepted, as noted below, for use in RG 1.147, Revision 16:

The repair or replacement activity temporarily deferred under the provisions of this Code Case shall be performed during the next scheduled outage.

ASME Code Case N-526 *Alternative Requirements for Successive Inspections of Class 1 and 2 Vessels, Section XI, Division 1*

ASME Code Case N-586-1 *Alternative Additional Examination Requirements for Classes 1, 2, and 3 Piping, Components, and Supports, Section XI, Division 1*

ASME Code Case N-597-2 *Requirements for Analytical Evaluation of Pipe Wall Thinning, Section XI, Division 1*

ASME Code Case N-597-2 is conditionally accepted, as noted below, for use in RG 1.147, Revision 16:

(1) Code Case must be supplemented by the provisions of EPRI Nuclear Safety Analysis Center Report 202L-R2, "Recommendations for an Effective Flow Accelerated Corrosion Program" (Ref. 6), April 1999, for developing the inspection requirements, the method of predicting the rate of wall thickness loss, and the value of the predicted remaining wall thickness. As used in NSAC-202L-R2, the term "should" is to be applied as "shall" (i.e., a requirement).

(2) Components affected by flow-accelerated corrosion to which this Code Case are applied must be repaired or replaced in accordance with the construction code of record and Owner's requirements or a later NRC approved edition of Section III, "Rules for Construction of Nuclear Power Plant Components," of the ASME Code (Ref. 7) prior to the value of t_p reaching the allowable minimum wall thickness, t_{min} , as specified in -3622.1(a)(1) of this Code Case. Alternatively, use of the Code Case is subject to NRC review and approval per 10 CFR 50.55a(a)(3).

(3) For Class 1 piping not meeting the criteria of -3221, the use of evaluation methods and criteria is subject to NRC review and approval per 10 CFR 50.55a(a)(3).

(4) For those components that do not require immediate repair or replacement, the rate of wall thickness loss is to be used to determine a suitable inspection frequency so that repair or replacement occurs prior to reaching allowable minimum wall thickness, t_{min} .

(5) For corrosion phenomenon other than flow accelerated corrosion, use of the Code Case is subject to NRC review and approval. Inspection plans and wall thinning rates may be difficult to justify for certain degradation mechanisms such as MIC and pitting.

ASME Code Case N-600 *Transfer of Welder, Welding Operator, Brazer, and Brazing Operator Qualifications Between Owners, Section XI, Division 1*

ASME Code Case N-606-1 *Similar and Dissimilar Metal Welding Using Ambient Temperature Machine GTAW Temper Bead Technique for BWR CRD Housing/Stub Tube Repairs, Section XI, Division 1*

ASME Code Case N-606-1 is conditionally accepted, as noted below, for use in RG 1.147, Revision 16:

Prior to welding, an examination or verification must be performed to ensure proper preparation of the base metal, and that the surface is properly contoured so that an acceptable weld can be produced. The surfaces to be welded, and

surfaces adjacent to the weld, are to be free from contaminants, such as, rust, moisture, grease, and other foreign material or any other condition that would prevent proper welding and adversely affect the quality or strength of the weld. This verification is to be required in the welding procedures.

ASME Code Case N-613-1 *Ultrasonic Examination of Penetration Nozzles in Vessels, Examination Category B-D, Item Nos. B3.10 and B3.90, Reactor Nozzle-to-Vessel Welds, Figs. IWB-2500-7(a), (b), and (c), Section XI, Division 1*

ASME Code Case N-639 *Alternative Calibration Block Material, Section XI, Division 1*

ASME Code Case N-639 is conditionally accepted, as noted below, for use in RG 1.147, Revision 16:

Chemical ranges of the calibration block may vary from the materials specification if (1) it is within the chemical range of the component specification to be inspected, and (2) the phase and grain shape are maintained in the same ranges produced by the thermal process required by the material specification

ASME Code Case N-651 *Ferritic and Dissimilar Metal Welding Using SMAW Temper Bead Technique Without Removing the Weld Bead Crown for the First Layer, Section XI, Division 1*

ASME Code Case N-705 *Evaluation Criteria for Temporary Acceptance of Degradation in Moderate Energy Class 2 or 3 Vessels and Tanks, Section XI, Division 1*

ASME Code Case N-735 *Successive Inspection of Class 1 and 2 Piping Welds, Section XI, Division 1*

In addition to the acceptable and conditionally acceptable ASME Code Cases per RG 1.147, Revision 16, listed above, the licensee has also identified in the fifth 10-year ISI program plan that MNGP intends to implement the following ASME Code Cases that are not included in RG 1.147, Revision 16. The evaluation of the use of these ASME Code Cases for the MNGP fifth 10-year ISI program plan is through requests for relief which are not part of this review.

ASME Code Case N-532-5 *Repair/Replacement Activity Documentation Requirements and Inservice Inspection Summary Report Preparation and Submission Section XI, Division 1 (Relief Request RR-006)*

ASME Code Case N-661-2 *Alternative Requirements for Wall Thickness Restoration of Class 2 and 3 Carbon Steel Piping for Raw Water Service Section XI, Division 1 (Relief Request RR-004)*

ASME Code Case N-702 *Alternative Requirements for Boiling Water Reactor (BWR) Nozzle Inner Radius and Nozzle-to-Shell Welds Section XI, Division 1 (Relief Request RR-002)*

ASME Code Case N-716 *Alternative Piping Classification and Examination Requirements
Section XI, Division 1 (Relief Request RR-003)*

ASME Code Case N-795 *Alternative Requirements for BWR Class 1 System Leakage Test
Pressure Following Repair/ Replacement Activities Section XI,
Division 1 (Relief Request RR-005)*

Based on its review of the ASME Code Cases listed in the MNGP fifth 10-year ISI program plan against the Code Cases in RG 1.147, Revision 16, and the licensee's commitment to implement the conditions in RG 1.147, Revision 16, for the conditionally acceptable Code Cases, the NRC staff concludes that use of the RG 1.147 listed Code Cases in the MNGP fifth 10-year program plan is acceptable.

3.2.3 Acceptability of ASME Code Class 1, 2, and 3 Piping, Vessels, and Component Examination Requirements

The NRC staff reviewed the MNGP fifth 10-year ISI program plan to ensure that ASME Code Class 1, 2, and 3 piping, vessels, and component that are not part of the MNGP Risk-Informed ISI (RI-ISI) program meet the ASME Code requirements and are consistent with the alternative reactor pressure vessel (RPV) weld examination requirements in RR-17 (Reference 10) that were approved by the NRC staff. The staff reviewed the fifth 10-year ISI program plan, Section 3, "Application Criteria and Code Compliance," and Appendix D, "Inspection Plan and Schedule Tables," against the requirements listed in ASME Code, Section XI, Articles IWA-2000 on General Examination and Inspection Requirements; IWB-2000 on Class 1 Component Examination and Inspection Requirements; IWC-2000 on Class 2 Component Examination and Inspection Requirements; IWD-2000 on Class 3 Component Examination and Inspection Requirements; and IWF-2000 on Class 1, 2, and 3 and MC Component Supports. The staff reviewed the program plan to determine whether it contains the correct ASME Code Examination Categories, Item Numbers, Examination Methods, and Examination Requirements in accordance with the requirements of the ASME Code, Section XI and the alternative requirements in RR-17 approved by the NRC staff for the RPV. Conformance with the Section XI Examination Requirements includes conformance with the required extent and frequency of examination, and requirements for deferral of examinations to the end of the interval. Examination sample requirements and exemption criteria are discussed in Sections 3.2.4 and 3.2.5 of this SE.

In the NRC staff's RAI-2.1, the staff requested that the licensee explain why only one of the four circumferential shell welds was listed to be examined in Appendix D, Inspection Plan Schedule Tables, of the ISI program plan. In its response (Reference 10) the licensee clarified that all four circumferential shell welds will be examined as detailed in the staff's authorization of RR-17 and that the reason there is only one of the four circumferential shell welds listed to be examined in Appendix D is that required portions of the other three welds are scheduled to be examined during adjacent longitudinal seam weld inspections and, therefore, do not have to be scheduled separately. The information provided by the licensee in Sections 3, *Application Criteria and Code Compliance*, Appendix D, *Inspection Plan and Schedule Tables*, along with the clarification in the response to RAI-2.1, confirms that the RPV circumferential shell welds will be examined in accordance with the alternative requirements authorized by the NRC staff in its approval of RR-17. Although RR-17 was authorized during the fourth 10-year ISI interval, the

alternative was authorized through the remainder of MNGP's license renewal extended period of operation. Therefore, RR-17 remains in effect for the fifth 10-year ISI interval.

In RAI-2.2, the NRC staff asked that the licensee explain the examination scheduling for Category B-K, Item B10.10, reactor vessel support skirt, as it appeared that the licensee was deferring this examination to the end of the interval which is not permissible per ASME Code, Section XI, Table IWB-2500-1. The licensee stated that MNGP is correctly following ASME Code requirements for examination of the reactor vessel support skirt. The reason the licensee scheduled the examination in the third (last) inspection period of the interval is that this examination schedule will be approximately ten years from its previous reactor vessel support skirt examination, performed in 2011. The licensee also stated that there is no requirement to perform a larger, single component examination in segments throughout the interval and that it is more efficient and in alignment with As Low As Reasonably Achievable (ALARA) principles to perform the examination in one outage. With the information provided in the licensee's response to the NRC's staff RAI-2.2, the NRC staff concludes that the schedule requirements listed for the reactor vessel support skirt in the fifth 10-year ISI program plan meet the ASME Code examination requirements listed in ASME Code, Paragraph IWB-2000.

Since no discrepancies were identified, and based on its review of the MNGP fifth 10-year ISI program plan and the licensee's response to RAIs-2.1 and 2.2, the NRC staff concludes that the examination categories, item numbers, methods, extent and frequency, and deferral requirements for components not included in the RI-ISI program are in accordance with the ASME Code and are consistent with the alternative RPV weld examination requirements authorized by the NRC staff in RR-17.

3.2.4 Acceptability of the ASME Class 1, 2, and 3 Examination Sample Requirements

Inservice volumetric, surface, and visual examinations shall be performed on ASME Code Class 1, 2, and 3 piping, vessels and components using sampling schedules described in Section XI of the ASME Code. The NRC staff reviewed the MNGP fifth ISI program plan, Sections 3 and Appendix D, for the percentage of components being examined and when they are scheduled for examination during the interval, and compared them to the requirements listed in IWB-, IWC-, IWD-, and IWF-2000. As an additional check, the staff also compared the fifth 10-year ISI program plan with MNGP's fourth 10-year ISI program plan for the number of components being sampled, since a RI-ISI plan was also in effect during the fourth 10-year interval.

The NRC staff requested that the licensee in RAI-2.4 explain the differences between the "Examination Percentage Required" column in Appendix D of the fifth 10-year ISI program plan with the requirements listed in Table IWB-, IWC-, IWD-, and IWF-2500-1 of ASME Code Section XI. In its response, the licensee stated that the tables provided in Appendix D of the ISI program plan are used for scheduling the components and the tables use the actual number of components to be examined. The licensee indicated that the tables are not a regurgitation of the IWB-, IWC-, IWD-, and IWF-2500-1 tables within ASME Section XI. The licensee typically uses notes in the tables to explain the number or percentage of welds being examined, especially when it appears to differ from the requirements listed in the ASME Code. With the clarifying information provided by the licensee, the staff determined that the sample examinations of ASME Code Class 1, 2, and 3 piping, vessels and components reflected in Appendix D of the MNGP fifth 10-year ISI program plan are consistent with the sample requirements of the ASME Code, Section XI.

During the review of the ISI program plan, it was noted that the licensee is examining a very low number of integrally welded attachments to piping, vessels, pumps and valves in Tables IWB- and IWC-2500-1, Categories B-K and C-C. For example, the licensee is only including two integrally welded attachments for all ASME Code, Class 1 piping supports (Item B10.20) for examination during the entire fifth year ISI interval. It was noted that there are approximately 144 ASME Code, Class 1 piping supports at Monticello, of which 39 have integrally welded attachments. Similar issues reflecting very low numbers of planned examinations exist with integrally welded attachments to Class 1 pumps (Item B10.30), and Class 2 piping and pumps (Items C3.20 and C3.30, respectively).

In RAI-2.3, the NRC staff asked why these planned examination numbers for integrally welded attachments were so low. The licensee explained that they were following ASME Code requirements. For the Class 1 piping example cited above, Note 5 of ASME Code, Table IWB-2500-1, Category B-K, Item B10.20, requires that either surface or volumetric examinations, as applicable, be performed for selected integrally welded attachments. Further, Note 5 of the Table states that 10 percent of all welded attachments associated with the component supports selected for examination under IWF-2510, shall be examined. In the case of Monticello, of the 39 component supports having integrally welded attachments, 12 have been selected under IWF-2510; thus 10 percent of 12 is 1.2, which the licensee has rounded up to 2 examinations. Class 1 pumps (Item B10.30) and Class 2 piping and pumps (Items C3.20 and C3.30, respectively), are similar in that low numbers of planned examinations are planned due to Note 5 mentioned above. The ASME Code requirement for these welds is not a direct 10 percent of the welded attachments; rather it is only 10 percent of the welded attachments associated with components selected for examination under IWF-2510. The NRC staff determined that the welded attachment sample sizes in the MNGP ISI program plan are following the requirements of ASME Section XI, 2007 Edition through the 2008 Addenda.

No discrepancies were identified by the NRC staff. The staff concludes, based on its review of the MNGP fifth 10-year ISI program plan and the licensee's response to RAI-2.3, that the examination percentages and sampling schedules for components not included in the RI-ISI program are in accordance with the ASME Code requirements.

3.2.5 Exemption Criteria

Paragraphs IWB-1220, IWC-1220, IWD-1220, IWF-1230, and 10 CFR 50.55a(b) contain the requirements for exempting components and supports from examination. In Section 3.0 and Appendix D of the submittal, the licensee stated that examinations of Class 1, 2, 3 components, including welded attachments and supports, are based on the requirements as defined in ASME Code, Section XI, Sections IWB-, IWC-, IWD-, and IWF-2000. In the NRC staff's request for additional information, RAI-1, the staff requested that the licensee confirm that the requirements of ASME Code, Section XI, Sections IWB-, IWC-, and IWD-1220, "Components Exempt from Examination," and IWF-1230, "Supports Exempt from Examination" have been satisfied. In its response the licensee verified that there are no components being examined under ASME, Section XI provisions that are exempted by paragraphs IWB-, IWC-, IWD-1220, or IWF-1230. The licensee has indicated that the criteria for exempting examinations have been applied in accordance with the ASME B&PV Code, as discussed in the fifth 10-year ISI program plan and the licensee's response to the NRC staff's RAI-1. The NRC staff did not identify any deviations between the MNGP fifth 10-year ISI program plan and the requirements of the ASME Code, and

concludes that the exemption criteria being followed in the program plan are consistent with the ASME Code requirements.

3.2.6 Licensee Renewal Aging Management Programs and Commitments

The NRC staff reviewed the MNGP fifth 10-year ISI program plan to determine whether commitments 3, 5, 18, 19, 20, 21, and 22 from Appendix A of NUREG-1865, "Safety Evaluation Report Related to the License Renewal of Monticello Nuclear Generating Plant," were specifically addressed in the licensee's MNGP fifth 10-year ISI program plan.

Commitment 3 pertains to the inspection of the steam dryer being accomplished using the guidelines in the approved topical report for steam dryer inspection. Page 1 of the MNGP fifth 10-year ISI program plan indicates that Boiling Water Reactor Vessel Internals Project (BWRVIP) program is contained in EWI-08.01.01, "Boiling Water Reactor Vessel Internals Project Administrative Manual." The staff reviewed EWI-08.01.01 which indicates that the steam dryer inspection is being conducted using BWRVIP-139. The MNGP fifth 10-year ISI program plan does not indicate that it supports BWRVIP-139. Therefore, the NRC staff concludes that Commitment 3 is addressed in EWI-08.01.01, rather than in the MNGP fifth 10-year ISI program plan.

Commitment 5 pertains to the procedures and training used to limit RPV cold overpressure events and to approval of the BWRVIP-05 technical alternative for examination of the RPV circumferential shell welds. Procedures and training used to limit RPV cold overpressure events are outside the scope of an ISI program plan. Appendix B to the MNGP fifth 10-year ISI program plan indicates that this alternative for examination of the RPV circumferential shell welds is contained in Relief Request RR-001. RR-001 is the same relief request as RR-017 for the MNGP fourth 10-year ISI program plan, which was approved by the NRC staff by letter dated February 8, 2011. This letter indicates that the alternative examination of the RPV circumferential shell welds per BWRVIP-05 are authorized pursuant to 10 CFR 50.55a(a)(3)(i) through the remainder of MNGP's license renewal extended period of operation. Therefore, the NRC staff concludes that that the portion of Commitment 5 pertaining to approval of alternative requirements for inspection of the RPV circumferential shell welds is addressed by the MNGP fifth 10-year ISI program plan.

Commitments 18, 19, and 20 pertain to enhancements to the BWR Feedwater Nozzle Program and are evaluated in Section 3.0.3.2.7, BWR Feedwater Nozzle Program of NUREG-1865. The MNGP fifth 10-year ISI program plan indicates in Section 7.0, License Renewal Plans and Commitments, that the fifth 10-year ISI program plan supports the implementation of the BWR Feedwater Nozzle Program. Therefore, the NRC staff concludes that Commitments 18, 19, and 20 are addressed by the MNGP fifth 10-year ISI program plan.

Commitment 21 pertains to the repair/replacement guidelines in BWRVIP-16, 19, 44, 45, 50, 51, 52, 57, and 58 being added, as applicable, to the of MNGP BWR Vessel Internals Program. As noted above, the BWR Vessel Internals Project Program administrative manual is EWI-08.01.01, which addresses various components, including vessel internals. Pacific Northwest National Laboratory (PNNL) reviewed EWI-08.01.01 and determined that the licensee is using topical reports BWRVIP-16, 19, 44, 45, 50, 51, 52, 57, and 58 for repair and replacement guidelines for BWR vessel internals. The repair/replacement guidelines in these BWRVIP topical reports are not discussed in the MNGP fifth 10-year ISI program plan. Therefore, the

NRC staff concludes that Commitment 21 is addressed in EWI-08.01.01, rather than in the MNGP fifth 10-year ISI program plan.

Commitment 22 pertains to the locations, methods, sample size, and frequency for top guide grid inspections. Top guides are part of BWR vessel internals. PNNL reviewed EWI-08.01.01 and determined that it addresses the specific provisions of Commitment 22 with respect to the locations, methods, sample size, and frequency for top guide grid inspections. Top guide grid inspections are not discussed in the MNGP fifth 10-year ISI program plan. Therefore, the NRC staff concludes that Commitment 22 is addressed in EWI-08.01.01, rather than in the MNGP fifth 10-year ISI program plan.

In summary, based on this review, the NRC staff concludes that Commitments 5, 18, 19, and 20 are addressed by the MNGP fifth 10-year ISI program plan, and that Commitments 3, 21, and 22 are addressed in EWI-08.01.01, rather than in the MNGP fifth 10-year ISI program plan.

3.2.7. Augmented Examination and Owner Elected Examinations

The NRC staff reviewed the licensee's MNGP fifth 10-year ISI program plan to verify that the licensee's augmented or owner-elected examination programs were performed as committed to in the MNGP license renewal application.

In addition to the requirements specified in the ASME B&PV Code, Section XI, the licensee committed in the MNGP fifth 10-year ISI program plan, Section 6, to perform the following augmented and owner elected examinations:

Augmented Examinations

- NUREG-0619 - "BWR Control Rod Drive Return Line Nozzle Cracking Post Modification"
- Modification 79Z029 - "RWCU Return Line Modification"
- High Energy Line Break

Owner-Elected Examinations

- OE23699 - "Standby Liquid Control Tank"

Based on information provided in the MNGP fifth 10-year ISI program plan, the four programs in Section 6 of the MNGP fifth 10-year Interval ISI program are not being carried out on the basis of the MNGP Licensee Renewal Program. However, the NRC staff confirmed that the subject four inspection programs are augmented through owner-elected examinations through a review of programs and commitments discussed in NUREG-1865.

The NRC staff reviewed Table 3.0.3-1 in the MNGP Aging Management Program, which contains a list of aging management programs credited by MNGP in its license renewal application. The staff reviewed the description of each of these programs to determine programs that pertain to inspection of ASME Code pressure boundary components being performed to guidelines or commitments beyond the requirements of the ASME Code, Section XI. Such examinations are often referred to as augmented examinations. The staff identified two programs that appear to fall under this description, namely, the Flow-Accelerated Corrosion

Program and the Buried Piping and Tank Inspection Program. Both of these programs typically include both ASME Code and non-Code components. The NRC staff also identified that the One-Time Inspection Program and the Selective Leaching of Materials Program may involve inspection of ASME Code pressure boundary components to commitments beyond ASME Code, Section XI, requirements. However, such programs would not normally be included in Augmented Inspection Programs due to the one-time nature of the One-Time Inspection Program and the Selective Leaching of Materials Program inspections.

Therefore, the NRC staff concludes that commitments associated with the MNGP license renewal application are managed independent of the MNGP ISI program. Since the location of these programs is an administrative decision, the licensee could have chosen, but is not required, to support the Flow-Accelerated Corrosion Program and the Buried Piping and Tank Inspection Program under the MNGP fifth 10-year ISI program plan.

4.0 CONCLUSION

The NRC staff reviewed the MNGP fifth 10-year interval ISI program plan for components outside the licensee's RI-ISI program, and the licensee's response to the NRC staff's RAIs, for: 1) compliance with the appropriate edition/addenda of ASME Code, Section XI; 2) acceptability of ASME Code Cases; 3) acceptability of ASME Code Class 1, 2, and 3 piping, vessels, and component examination requirements; 4) acceptability of examination sample requirements; and 5) correctness of the application of component examination exemption criteria. The staff also reviewed whether the MNGP fifth 10-year ISI program plan includes Augmented/Owner Elected examinations committed to in the license renewal application and whether the MNGP fifth 10-year ISI program plan addressed certain specific commitments identified in the NRC staff's evaluation of the license renewal application.

The NRC staff concludes that the licensee's MNGP fifth 10-year Interval ISI program plan addresses the regulatory requirements set forth in 10 CFR 50.55a and, based on the review of the documents listed in Section 6 of this SE, no deviations from regulatory requirements or commitments were identified.

5.0 EVALUATION OF PROPOSED ALTERNATIVES AND REQUESTS FOR RELIEF

The proposed alternatives and requests for relief listed in Appendix B, Table B.1-1, of the licensee's MNGP fifth 10-year ISI program plan submittal were not included within the scope of the NRC staff's review and were reviewed in separate safety evaluations.

6.0 REFERENCES

1. Letter from Timothy J. O'Connor to the NRC Document Control Desk, "fifth 10- Inservice Inspection plan," dated February 28, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12060A298).
2. Letter from Mark A. Schimmel to the NRC Document Control Desk, "Response to Request for Additional Information Regarding fifth 10-year Inservice Inspection program plan Review (TAC ME8186)," dated July 17, 2013 (ADAMS Accession No. ML13198A387).

3. Title 10 of the *Code of Federal Regulations*, Section 50.55a, "Title Code and Standards"
4. NUREG-1865, "Safety Evaluation Report Related to the License Renewal of Monticello Nuclear Generating Plant," dated October 2006 (ADAMS Accession No. ML063050414).
5. American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section XI, Division 1, 2007 Edition through the 2008 Addenda. July 1, 2008. New York, NY.
6. NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," Section 5.2.4, "Reactor Coolant Boundary Inservice Inspection and Testing," and Section 6.6, "Inservice Inspection of Class 2 and 3 Components," dated March 2007.
7. EWI-08.01.01, "Monticello Nuclear Generating Plant, Boiling Water Reactor Vessel Internal Project (BWRVIP) Administrative Manual", Revision 15.
8. 76 FR 36232, dated June 21, 2011, "American Society of Mechanical Engineers (ASME) Codes and New and Revised ASME Code Cases." *Federal Register* 76(119): 36232-36279.
9. Regulatory Guide 1.147, Revision 16, "Inservice Inspection Code Case Acceptability." October 2010 (ADAMS Accession No. ML101800536).
10. Letter from Robert J. Pascarelli to Timothy J. O'Connor, "NRC Safety Evaluation Report, fourth 10-year Interval Inservice Inspection program plan Request for Relief No. 17 for Monticello Nuclear Generating Plant," dated February 8, 2011 (ADAMS Accession No. ML110200700).

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Sincerely,

/RA

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Docket No. 50-263

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