UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
2443 WARRENVILLE RD. SUITE 210
LISLE, IL 60532-4352

July 23, 2015

EA-14-193

Mr. Peter A. Gardner
Site Vice President
Monticello Nuclear Generating Plant
Northern States Power Company, Minnesota
2807 West County Road 75
Monticello, MN 55362-9637

SUBJECT: MONTICELLO NUCLEAR GENERATING PLANT – NRC INSPECTION REPORT 05000263/2015008 AND 07200058/2014001 AND RESULTS OF NRC OFFICE OF INVESTIGATION REPORT NO. 3-2014-004

Dear Mr. Gardner:

This is in reference to an investigation conducted by the U.S. Nuclear Regulatory Commission's (NRC) Office of Investigations (OI). The purpose of the investigation was to determine whether two contractors failed to follow procedural requirements while performing non-destructive examinations on Dry Shielded Canister confinement boundary welds in accordance with Technical Specification requirements, and falsified non-destructive examination report forms. Based on the results of its investigation, the NRC preliminarily determined that the two contractors deliberately violated Monticello procedure requirements and falsified report forms. The OI investigation was completed on November 13, 2014, and a factual summary of the OI Investigation Report is enclosed in Enclosure 1. The results of the investigation were discussed on July 21, 2015, with Peter Gardner and other members of your staff.

Based on the results of NRC's review of the OI investigation, three apparent violations were identified. It appears to the NRC that parts of these violations were willful as described in the attached factual summary and inspection report. These apparent violations are being considered for escalated enforcement action in accordance with the NRC's Enforcement Policy. The current Enforcement Policy is included on the NRC's website at: http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html.

The first apparent violation involves the apparent deliberate failure, on the part of two technicians, to perform liquid penetrant nondestructive examinations on the dry shielded canisters in accordance with required procedures. The second apparent violation involves the apparent deliberate failure by the same technicians to accurately record the results of the liquid penetrant nondestructive examinations. The third apparent violation involves the apparent failure to assess the effectiveness of the technicians' work. Before the NRC makes its enforcement decisions, we are providing you with the opportunity to: (1) provide a

written response to the NRC; (2) request a Predecisional Enforcement Conference (PEC), or (3) request Alternative Dispute Resolution (ADR).

If you decide to submit a written response to the apparent violations, it should be clearly marked as a "Response to Apparent Violations in NRC Inspection Report 05000263/2015008 and 07200058/2014001; EA-14-193," submitted within 30 days of the date of this letter, and should include: (1) the reason for the apparent violations, or, if contested, the basis for disputing the apparent violations; (2) the corrective steps that have been taken and the results achieved; (3) the corrective steps that will be taken; and (4) the date when full compliance will be achieved. Your response may reference or include previously docketed correspondence, if the correspondence adequately addresses the required response. If an adequate response is not received within the time specified or an extension of time has not been granted by the NRC, the NRC will proceed with its enforcement decision or schedule a PEC.

If you request a PEC, it should be held within 30 days of the receipt of this letter and we encourage you to submit supporting documentation at least one week prior to the conference in an effort to make the conference more efficient and effective. If a PEC is held, the NRC will issue a press release to announce the time and date of the conference; however, it will be closed to public observation because the apparent violations are based on an NRC OI report that has not been publicly disclosed and pertains to whether individuals have committed wrongdoing. If you choose to request a PEC, the conference will afford you the opportunity to provide your perspective on the apparent violations and any other information that you believe the NRC should take into consideration before making an enforcement decision. The decision to hold a PEC does not mean that the NRC has determined that a violation has occurred or that enforcement action will be taken. This conference would be conducted to obtain information to assist the NRC in making an enforcement decision. The topics discussed during the conference may include: (1) information to determine whether the violations occurred; (2) information to determine the significance of the violations; (3) information related to the identification of the violations; and (4) information related to any corrective actions taken or planned to be taken. In presenting your corrective actions, you should be aware that the promptness and comprehensiveness of your actions will be considered in assessing any civil penalty for the apparent violations.

You may also request ADR with the NRC in an attempt to resolve the willful apparent violations. The term ADR generally encompasses various techniques for resolving conflicts using a neutral third party. The technique that the NRC has decided to employ is mediation. Mediation is a voluntary, informal process in which a trained neutral (the "mediator") works with parties to help them reach resolution. If the parties agree to use ADR, they select a mutually agreeable neutral mediator who has no stake in the outcome and no power to make decisions. Mediation gives parties an opportunity to discuss issues, clear up misunderstandings, be creative, find areas of agreement, and reach a final resolution of the issues. Additional information concerning the NRC's program can be obtained at http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html. The Institute on Conflict Resolution (ICR) at Cornell University has agreed to facilitate the NRC's program as a neutral third party. Please contact ICR at 877-733-9415 within 10 days of the date of this letter, along with notifying Mr. Orlikowski, if you are interested in pursuing resolution of this issue through ADR. The ADR mediation session is normally held within 30 to 45 days of receipt of this letter, dependent upon availability of a mediator.

Please contact Mr. Robert Orlikowski at 630-829-9834 within 10 days from the issue date of this letter to notify the NRC of how you intend to respond to the apparent violations.

Please be advised that the number and characterization of apparent violations may change as a result of further NRC review. You will be advised by separate correspondence of the results of our deliberations on this matter.

In accordance with Title 10 of the *Code of Federal Regulations* (CFR) Section 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response, if you choose to provide one, will be made available electronically for public inspection in the NRC's Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC's website at http://www.nrc.gov/reading-rm/adams.htm. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction.

If you have any questions concerning this matter, please contact Mr. Robert Orlikowski of my staff at 630-829-9834.

Sincerely,

/RA/

Patrick L. Louden, Director
Division of Nuclear Materials Safety

Docket Nos: 50-263; 72-058
License No: DPR-22

Enclosures:
1. Factual Summary of NRC Investigation
2. IR 05000263/2015008; 07200058/2014001
   w/attachment: Supplemental Information

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   w/attachment: Supplemental Information

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OFFICE	RIII DNMS	E	RIII		RIII		RIII	
NAME	PLouden							
DATE	07/23/15							

* [1] **– These individuals concurred on the enclosed report; review and concurrence received via e-mail**

OFFICIAL RECORD COPY

Letter to Peter Gardner from Patrick Louden dated July 23, 2015

SUBJECT: MONTICELLO NUCLEAR GENERATING PLANT – NRC INSPECTION REPORT 05000263/2015008 AND 07200058/2014001 AND RESULTS OF NRC OFFICE OF INVESTIGATION REPORT NO. 3-2014-004

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FACTUAL SUMMARY OF OFFICE OF INVESTIGATIONS REPORT 3-2014-004

On December 18, 2013, the U.S. Nuclear Regulatory Commission's (NRC) Office of Investigations (OI), Region III Field Office, initiated an investigation to determine whether two contractor technicians at the Monticello Nuclear Generating Plant deliberately failed to perform nondestructive examinations (NDEs) on the Dry Shielded Canisters (DSCs) in accordance with procedural requirements and whether they falsified records when recording the NDE results. The NRC completed its investigation on November 13, 2014.

On October 17, 2013, an NRC inspector observed, by video display, the NDE liquid penetrant testing (PT) of the outer top cover plate weld for a DSC being conducted by a contractor technician (Technician A). The inspector believed that the technician failed to comply with procedural requirements in conducting the PT. The inspector reviewed the procedure, confirming that the PT was not being performed in accordance with the procedure and notified plant management. Monticello and the NDE contractor management reviewed the video and also concluded the PT was not performed properly. The inspector, through meetings and reviews of documents developed as part of the PTs completed on the DSCs, determined that two contractor NDE technicians were involved in performing the examinations. These individuals were involved with examining a total of 66 welds on six DSCs.

Technician A indicated in an interview with OI that he was certified by the contractor as an NDE Level II technician for the PT being done at Monticello. Technician A indicated to OI the various steps of the procedure to applying the penetrant and developer, and that he had read and understood the written procedure for PT of the DSC welds. The contractor's procedure, which was approved by Monticello staff, included tables for the minimum and maximum dwell times for the different penetrants and developers dependent on the temperature of the surface being examined. The technician stated that he did not read in the procedure that there was a 10-minute dwell time for the developer. The technician indicated that he questioned his supervisor, an NDE Level III technician, regarding the dwell times and was told the maximum dwell time for the developer was 10 minutes. The technician also stated he believed that a dwell time over 10 minutes would create a problem with cleaning the developer off of the weld. Technician A was asked by OI why he recorded dwell times of 10 minutes for the developer when the video showed that he was not completing the required time. Technician A told OI that he thought the recording of the dwell time was a formality. He further admitted that he understood that he was not completing the 10-minute dwell time and should not have recorded that he was. Technician A stated that no one told him to record the dwell time as 10 minutes when the actual time was less.

Technician B indicated in an interview with OI that he worked for the NDE contractor from July through October 2013, performing NDE testing at Monticello. The technician indicated that this was his first job working as an NDE Level II technician. The technician indicated that the Level II certification testing included the PT procedure being used at Monticello. Technician B also stated that he knew the testing was "real crucial" and understood that if a weld defect was not interpreted correctly, a leak in the DSC could occur. The technician also stated the contractor stressed the importance of following the procedure. The technician originally told OI that he thought he was performing the PT in accordance with the procedure and used a wall clock to time the dwell times. Technician B later admitted that he calculated the amount of time to complete certain steps in the PT process and used those times to determine the dwell times for the penetrant and developer. Technician B stated that he understood the contractor's written procedure for PT tests at Monticello. The technician stated that he was rushing himself

because he had heard contractor management complain about employees working too slowly on their assignments. The technician stated that he was never ordered to complete the PT quickly. Technician B also stated that he thought you could make a determination almost immediately after applying the penetrant and developer. The OI investigator asked Technician B how he recorded the penetrant and developer dwell time in the PT examination report. The technician told OI that he recorded the dwell times that were specified in the procedure even though he was not following this requirement.

Based on the evidence gathered in the OI investigation, it appears that two contractors deliberately violated NRC requirements by failing to perform NDE PT of DSCs in accordance with procedures. Specifically, contractor NDE technicians apparently violated Title 10 of the *Code of Federal Regulations* (CFR) 72.12(a)(1) by not allowing the developer to dwell for the period of time specified in the contractor's procedure 12751 QP-9.202, Rev. 1, "Color Contrast Liquid Penetrant Examination using the Solvent-Removable Method." Their actions caused the licensee to apparently be in violation of Certificate of Compliance 1004, Amendment 10, Technical Specification 1.2.5, "DSC Dye Penetrant Tests of Closure Welds," which was implemented by the contractor's procedure, and 10 CFR 72.158, as NDE testing was not accomplished in accordance with the applicable standards and requirements.

Based on the evidence gathered in the OI investigation, it appears that two contractors willfully violated NRC requirements by recording false information concerning developer dwell times on the PT examination report for each NDE, in violation of 10 CFR 72.12(a)(2). This caused the licensee to apparently be in violation of 10 CFR 72.11(a), which required information required to be maintained by the licensee to be complete and accurate in all material respects.

INSPECTION REPORT
U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos:	50-263; 72-058
License No:	DPR-22
Report Nos:	05000263/2015008 and 07200058/2014001
Licensee:	Northern States Power Company, Minnesota
Facility:	Monticello Nuclear Generating Plant
Location:	Monticello, Minnesota
Dates:	January 1, 2014, through July 21, 2015
Inspectors:	Matthew C. Learn, Reactor Engineer Rhex A. Edwards, Senior Health Physicist Paul J. Zurawski, Senior Resident Inspector
Approved by:	Robert J. Orlikowski, Chief Materials Control, ISFSI, and Decommissioning Branch Division of Nuclear Materials Safety

Enclosure 2

SUMMARY OF FINDINGS

Inspection Report (IR) 05000263/2015008 and 07200058/2014001, 01/1/2014 – 07/21/2015; Monticello Nuclear Generating Plant, Operation of an ISFSI at Operating Plants.

This report covers circumstances behind the failure to perform nondestructive examination (NDE) liquid penetrant testing (PT) in accordance with NRC requirements. The NRC identified three apparent violations (AV) which were processed through the traditional enforcement program because they either involved willfulness or were associated with an ISFSI. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated July 9, 2013.

The results of the investigation conducted by the NRC Office of Investigations are discussed in Enclosure 1, "Factual Summary of NRC Investigation."

A. NRC-Identified and Self-Revealed Findings

- Apparent Violation (AV): The NRC staff identified an AV that is being processed through the traditional enforcement process because it appears to involve willfulness and is associated with an Independent Spent Fuel Storage Installation (ISFSI).

  The AV involves Title 10 of the *Code of Federal Regulations* (CFR) 72.158, "Control of Special Processes," which required, in part, that the licensee establish measures to ensure that special processes, including nondestructive testing, are controlled and accomplished by qualified personnel using qualified procedures in accordance with applicable codes, standards, specifications, criteria, and other special requirements. The licensee established TriVis Procedure 12751 QP-9.202, "Color Contrast Liquid Penetrant Examination Using the Solvent-Removable Method," Revision 1, as the qualified procedure for use in Dry Shielded Canister (DSC) NDE PT. However, from approximately September 5 to October 17, 2013, the NRC determined that licensee contractors apparently willfully failed to follow the TriVis procedure for developer dwell times, while performing PT on 66 of 66 DSC closure welds examined. The NRC also determined that the licensee contractors apparently failed to follow other parts of the TriVis procedure.

- Apparent Violation: The NRC staff identified an AV that is being processed through the traditional enforcement process because it appears to involve willfulness, impacts the regulatory process, and is associated with an ISFSI.

  The AV involves 10 CFR 72.11, "Completeness and accuracy of information," which required, in part, that information required by Commission regulations be maintained by the licensee to be complete and accurate in all material respects. However, from approximately September 5 to October 17, 2013, the NRC determined that licensee contractors apparently willfully completed PT examination forms, a quality assurance record, with inaccurate developer dwell times. The NRC also determined that the licensee contractors apparently completed PT examination forms, a quality assurance record, with other inaccurate information. This information was determined to be material to the NRC because it had the potential to mislead the NRC and the licensee as to the suitability for service of the DSCs.

- Apparent Violation: The NRC staff identified an AV that is being processed through the traditional enforcement process because it appears to be associated with an ISFSI, which falls under traditional enforcement.

  The AV involves 10 CFR 72.154(c), "Control of purchased material, equipment, and services" which required, in part, that licensees assess the effectiveness of the control of quality by contractors and subcontractors at intervals consistent with the importance, complexity, and quantity of the product or services. However, from approximately September 5 to October 17, 2013, the NRC determined that the licensee apparently did not assess the effectiveness of the control of quality by contractors in that the licensee apparently did not monitor the work of contractors performing PT testing on DSCs #11 through #16.

B. Licensee-Identified Violations

- Violations of very low safety significance or Severity Level IV that were identified by the licensee have been reviewed by the NRC. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program (CAP). These violations and CAP tracking numbers are listed in Section 4OA7 of this report.

REPORT DETAILS

4OA5 Other Activities

.1 Closed Unresolved Item 07200058/2013001-01, "Dry Shielded Canister Liquid Penetrant Examination"

a. Inspection Scope

During the 2013 Independent Spent Fuel Storage Installation (ISFSI) cask loading campaign at Northern States Power – Minnesota's (NSPM) Monticello Nuclear Generating Plant (MNGP), beginning approximately on September 5, 2013, six Transnuclear NUHOMS [Nutech Horizontal Modular Storage] 61BTH Type 1 Dry Shielded Canisters (DSCs) were loaded under Certificate of Compliance (CoC) 1004, Amendment 10.

Condition 1 of the CoC allows use of the Standardized NUHOMS system subject to the conditions of Title 10 of the *Code of Federal Regulations* (CFR) 72.212 and the CoC 1004 Technical Specifications (TS). TS 1.2.5 of CoC 1004 requires that all DSC closure welds not subjected to full volumetric inspection be liquid penetrant tested (PT) in accordance with the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (BPV) Code.

On October 17, 2013, the resident inspectors observed part of the non-destructive examination (NDE) PT activities for the outer top cover plate on DSC No. 16. The inspectors questioned whether the cleaning and dwell times for the penetrant and developer used by a contract NDE PT Level II examiner met procedure requirements demonstrating compliance with the ISFSI TS. The licensee initiated action request report (AR) 1402246 to document the inspectors' questions in the corrective action procedure (CAP). The AR established actions to determine if procedure requirements had been met, evaluate operability or reportability, conduct an apparent cause evaluation, and conduct an extent of condition review.

After initial evaluation of recorded video of the work location, the licensee determined that the dwell times for both the penetrant and developer for the outer top closure plate weld appeared not to be in compliance with procedure requirements. Further extensive review of previous PTs conducted on DSCs 11 – 16 revealed additional examinations may not have complied with dwell times specified by the procedure, as well as other potential discrepancies. All of the PTs for these DSCs were performed by two contract NDE PT Level II technicians. As a result, the licensee's immediate operability determination declared DSCs 11 – 16 inoperable for the failure to satisfy TS 1.2.5, which specifies all DSC closure welds, except those subjected to full volumetric inspection, be PT in accordance with the requirements of ASME BPV Code, Section III.

The continued storage of DSCs 11 – 16, which are not fully compliant with TS 1.2.5, requires either reexamination or an exemption from parts of 10 CFR Part 72 and is being pursued by the licensee. In the interim, the condition of these DSCs has been evaluated by the licensee in accordance with the CAP. In its operability assessment, the licensee concluded that there was reasonable assurance that DSCs 11 – 16 are currently safe in their current configuration. Specifically, since helium leak testing was completed, with

acceptable results, during the loading operations for each DSC by a vendor independent from the contract organization that supplied the PT technician. Licensee review concluded the helium leak testing determined each of the DSCs to be "leak tight" and consequently no concern existed with the confinement function of the DSCs.

The NRC staff required additional information to review and assess work as performed, as compared to procedural requirements. Therefore, in NRC IR 05000263/2013005 and 07200058/2013001, the NRC staff opened unresolved item (URI) 07200058/2013001-01. This URI is now closed based on the information documented in this report.

The NRC staff evaluated the actions in regard to operability, reportability, corrective actions, and extent of condition reviews. Specifically, the NRC staff reviewed the videotapes of the contractor performance and compared the videotapes with required procedure times. Additionally, the NRC reviewed the completed NDE PT examination forms and compared the documented times with the times shown on the videotapes. In parallel to the inspection effort, an NRC investigation was conducted. Documents reviewed are listed in the Attachment to this report.

b. Findings

Failure to Perform Penetrant Tests in Accordance with Procedural Requirements

Title 10 CFR 72.158, "Control of special processes" states, in part, that, "The licensee… shall establish measures to ensure that special processes, including... nondestructive testing, are controlled and accomplished by qualified personnel using qualified procedures in accordance with applicable codes, standards, specifications, criteria, and other special requirements."

Title 10 CFR 72.212(b)(3), "Conditions of general license issued under 72.210," states "The general licensee must: ensure that each cask used by the general licensee conforms to the terms, conditions, and specification of a CoC or an amended CoC listed in 72.214."

Title 10 CFR 72.214, "List of approved spent fuel storage casks," states, "The following casks are approved for storage of spent fuel under the conditions specified in their Certificate of Compliance… Certificate Number: 1004… Amendment Number 10, Effective Date: August 24, 2009."

Certificate of Compliance 1004, Amendment 10, Condition A, states "Casks authorized by this certificate are hereby approved for use by holders of 10 CFR Part 50 licenses for nuclear power reactors at reactor sites under the general license issued pursuant to 10 CFR 72.210 subject to the conditions specified by 10 CFR 72.212 and the attached Technical Specifications."

Certificate of Compliance 1004, Amendment 10, TS 1.2.5, "DSC Dye Penetrant Tests of Closure Welds," states that "All DSC closure welds except those subjected to full volumetric inspection shall be dye penetrant tested in accordance with the requirements of the ASME Boiler and Pressure Vessel Code Section III, Division 1, Article NB-5000. The liquid penetrant test acceptance standards shall be those described in Subsection NB-5350 of the Code."

ASME Boiler and Pressure Vessel Code Section III, Division 1, 1998 with Addendum through 2000, Article NB-5000, Subarticle, NB-5111, "Methods" states that, "Nondestructive examinations shall be conducted in accordance with the examination methods of Section B, except as they may be modified by the requirements of this Article…liquid penetrant examination shall be in accordance with Section V, Article 6."

ASME Boiler and Pressure Vessel Code Section V, 1998 with Addendum through 2000, Article 6, Subarticle T-621.1, "Initial Procedure" states that, "Liquid penetrant examination shall be performed in accordance with a procedure. Such a procedure shall consider at least the following information: (a) the materials, shapes, or sizes to be examined, and the extent of the examination; (b) type (number or letter designation if available) of each penetrant, penetrant remover, emulsifier, and developer; (c) processing details for pre-examination cleaning and drying, including the cleaning materials used and minimum time allowed for drying; (d) processing details for applying the penetrant: the length of time that the penetrant will remain on the surface (dwell time), and the temperature of the surface and penetrant during the examination if outside 50°F to 125°F range; (e) processing details for removing excess penetrant from the surface, and for drying the surface before applying the developer; (f) processing details for applying the developer, and length of developing time before interpretation; (g) processing details for post-examination cleaning."

TriVis Procedure 12751 QP-9.202, Revision 1, "Color Contrast Liquid Penetrant Examination Using the Solvent-Removable Method," specifies procedural guidance for performing PT in accordance with ASME BPV Code Section III, Division 1, Article NB-5000 and ASME BPV, Article 6.

Specifically TriVis Procedure 12751 QP-9.202, Revision 1 specifies the following requirements, and NRC inspectors identified the following apparent procedural non-compliances:

- Step 6.1.2 states, in part, "Pre-cleaning shall be performed ... Wipe with dry, absorbent, lint free product. Perform a final wipe with demineralized water and absorbent lint free towels. Allow to dry for at least 2 minutes before proceeding."

  The inspectors determined that the contractor NDE technicians apparently did not perform a final wipe with demineralized water and an absorbent lint free towel on 66 welds.

  The inspectors determined that the contractor NDE technicians apparently did not allow 19 welds to dry for at least two minutes before proceeding.

- Step 6.2.3 states "Apply penetrant by spraying, brushing, or dipping."

  The inspectors determined that the contractor NDE technicians apparently failed to apply penetrant to one weld.

- Step 6.2.5 states, in part, “Ensure that the surface remains wet with penetrant for the minimum dwell times for each temperature range as designated below.”

Surface Temperature Range	Dwell Time Minimum
76°F to 125°F	10 Minutes
126°F to 200°F	3 Minutes
201°F to 325°F	1 Minute

The inspectors determined that the contractor NDE technicians apparently failed to ensure the surface of 34 welds remained wet with penetrant for the minimum dwell times, with times as low as 1 minute when a 3-minute dwell was required.

- Step 6.3.1 states “Remove as much excess penetrant as possible with a dry, absorbent, lint free product repeating the operation until most traces of penetrant have been removed.”

  The inspectors determined that the contractor NDE technicians apparently only used a moistened cloth while removing excess penetrant from 38 welds.

- Step 6.3.2 states, in part, to “Remove remaining traces of penetrant by lightly wiping the surface with a lint free product moistened with the cleaner/remover.”

  The inspectors determined that the contractor NDE technicians apparently only used a dry cloth while removing remaining penetrant from 26 welds.

- Step 6.4.2 states “For examinations above 125°F allow a minimum of 1 minute and a maximum of 15 minutes drying time after final wipe and before developer application.”

  The inspectors determined that the contractor NDE technicians apparently failed to allow a minimum of 1 minute drying time after final wipe and before developer application on 26 welds (16 wet wiped, 10 dry wiped). The drying times ranged from 9 to 43 seconds.

- Step 6.5.2, “Developer Application” states “Begin observing for indications as the developer dries. Evaluate examination results for the purpose of acceptance within the minimum and maximum developing times for each temperature range as specified in the following table, beginning after the developer coating is dry.”

Surface Temperature Range	Dwell Time Minimum	Dwell Time Maximum
72°F to 325°F	10 Minutes	15 Minutes

The inspectors determined that the contractor NDE technicians apparently failed to allow a minimum of 10 minutes on all 66 welds before evaluating examination results for the purpose of acceptance (i.e., moving to the final cleaning). Specifically, the developer dwell times ranged from 23 seconds to a few seconds over 9 minutes.

The inspectors identified that in 66 welds, the licensee apparently failed to evaluate examination results within the minimum and maximum developing times.

The above issues describe an apparent violation (AV) of NRC requirements. The licensee documented the AV in its CAP as AR 1402246 and AR 01486887 (AV 05000263/2015008-01; 07200058/2014001-01 Failure to Perform Penetrant Tests in Accordance with Procedural Requirements).

Inaccurate and Incomplete Information Documented on Liquid Penetrant Test Form

During review of the issue, the inspectors determined that the NDE contract technicians apparently did not correctly document the actual dwell times. The procedure required reporting of the penetrant dwell time, the post cleaning drying time, and the developer dwell time in whole minutes. However, instead of recording a time, in minutes, that reflected the actual time spent, the NDE technicians appeared to record the procedural required times. The NRC determined that the recorded times appeared for the majority of the cases to be greater than actually spent, although there were some instances that the recorded times appeared to be less than actually spent and a few occasions where the recorded times appeared to reflect the actual time spent.

10 CFR 72.11, “Completeness and accuracy of information,” requires, in part, that information required by the Commission's Regulations to be maintained by the licensee shall be complete and accurate in all material respects. 10 CFR Part 72.174, “Quality assurance records,” requires, in part, that sufficient records be maintained to furnish evidence of activities affecting quality. Records include closely-related data such as qualifications of personnel, procedures, and equipment.

CoC 1004, TS 1.2.5, “DSC Dye Penetrant Tests of Closure Welds,” states that “All DSC closure welds except those subjected to full volumetric inspection shall be dye penetrant tested in accordance with the requirements of the ASME BPV Code Section III, Division 1, Article NB-5000. The liquid penetrant test acceptance standards shall be those described in Subsection NB-5350 of the Code.”

The licensee utilized TriVis Procedure 12751 QP-9.202, Revision 1, “Color Contrast Liquid Penetrant Examination Using the Solvent-Removable Method” in order to accomplish this activity affecting quality in accordance with CoC 1004 TS 1.2.5.

TriVis Procedure 12751 QP-9.202, Revision 1, Section 9.0, “Documentation,” required that the licensee “record the results of the inspection, and all pertinent information, on the VT[visual testing]/PT examination report form.” The VT/PT Examination Report required penetrant dwell time, dry time, and developer dwell time be recorded.

An AV has been identified, in that, from September 5, 2013 to October 17, 2013, the completed VT/PT Examination Report form, a Quality Assurance record required by CoC 1004, TS 1.2.5 and TriVis Procedure 12751 QP-9.202, Revision 1, did not appear to be complete and accurate in all material respects. Specifically, the completed VT/PT Examination Report form required penetrant dwell time, dry time, and developer dwell time be recorded. The information appeared to not be accurate because, in comparison with the time shown on the videotapes, of the 66 welds examined:

- 30 penetrant dwell times appeared to be over-reported, 23 penetrant dwell times appeared to be under-reported, 11 appeared to be roughly on time, 1 was not visible on tape, and 1 appeared to have no penetrant applied.

- 42 dry times appeared to be over-reported, 22 of which did not appear to meet the procedural required minimum. There appeared to be 11 under-reports and 6 cases that were roughly on time.

- 66 developer dwell times appeared to be over-reported.

This information was material to the NRC because the completed VT/PT Examination Report forms were a quality record that indicated that the PTs were performed in accordance with the procedure. As the licensee was not required to maintain the video recordings, these quality records would have become the official record of what had been done had the NRC inspector not identified the issue.

The licensee documented the AV in its CAP as AR 1402246 and AR 01486891 (AV 05000263/2015008-02; 07200058/2014001-02; Inaccurate and Incomplete Information Documented on VT/PT Report Forms).

Failure to Assess Contractor Control of Quality

During review of the issue, the inspectors determined that both the licensee and the contractor apparently failed to provide adequate assessment of the quality of the NDE PT being performed. The licensee provided advance video recording of the NDE PT being performed. However, the NRC determined that the contractor supervisor apparently was not routinely on site, and did not review the videotapes. Additionally, the licensee apparently did not perform adequate oversight of the contractor performing the PT, including review of the videotapes.

10 CFR 72.154(c), “Control of purchased material, equipment, and services” requires, in part, that licensees assess the effectiveness of the control of quality by contractors and subcontractors at intervals consistent with the importance, complexity, and quantity of the product or services.

An AV has been identified, in that, from September 5, 2013 to October 17, 2013, the licensee apparently did not adequately assess the effectiveness of the control of quality by contractors in that the licensee apparently failed to monitor the contractors performing PT on the DSCs. The lack of adequate assessment of the quality of the PT being performed on the important, complex, and large number of DSC welds resulted in the DSC’s being left in an indeterminate state, due to the consecutive layers of welding.

The licensee documented the AV in its CAP as AR 1402246 and AR 01486892 (AV 05000263/2015008-03; 07200058/2014001-03; Inaccurate and Incomplete Information Documented on VT/PT Report Forms).

4OA6 Management Meetings

.1 Exit Meeting Summary

On June 21, 2015, the NRC staff presented the inspection results to Mr. Peter Gardner and other members of the licensee staff. The licensee acknowledged the issues presented. The NRC staff confirmed that none of the potential report input discussed was considered proprietary.

4OA7 Licensee-Identified Violations

The following violation of very low significance was identified by the licensee and is a violation of NRC requirements which meets the criteria of the NRC Enforcement Policy for being dispositioned as an NCV:

- Title 10 CFR 72.158, "Control of special processes," requires, in part, that licensees "establish measures to ensure that special processes, including welding... and nondestructive testing, are controlled and accomplished by qualified personnel using qualified procedures in accordance with applicable codes, standards, specifications, criteria, and other special requirements."

  Contrary to the above, the licensee identified on May 10, 2014, the licensee failed to perform verifications of a calibrated leak test instrument used on DSC lid to shell welds in accordance with Procedure TN 61BT-61BTH-HSMLD, "Helium Leak Testing for NUHOMS Systems," Revision 1. Procedure TN 61BT-61BTH-HSMLD, Revision 1, performs helium leak tests to demonstrate compliance with TS 1.2.4.a, "61BTH DSC Helium Leak rate of Inner Seal Weld."

  Additionally, contrary to 10 CFR 72.158, on April 2, 2014, the licensee failed to ensure enough filler material was deposited to achieve the minimum depth of the shell to outer top cover plate weld on DSC 16 in accordance with Procedure 12751-MNGP-OPS, "Spent Fuel Cask Welding: 61BT/BTH NUHOMS Canisters," Revision 0. Instructions for welding operations are provided in Procedure 12751 MNGP-OPS, Revision 0, to ensure in field fabrication is performed in accordance with the Final Safety Analysis Report design basis drawings.

  During a nuclear oversight review of 2013 dry cask storage loading operations, the licensee identified that the helium mass spectrometer leak detection, calibrated leak instrument verification stabilizations, were not performed in accordance with TN 61BT-61BTH-HSMLD, Revision 1. Specifically TN 61BT-61BTH-HSMLD, Revision 1, Steps 8.3 and 8.4, require the user to determine the final instrument indicated leakage rate with the calibrated standard open and closed. The procedure step requires the user to ensure the system stabilizes while determining these results. TN 61BT-61BTH-HSMLD, Revision 1, Note 2, defines a stable signal as no more than a 1.0 *E-8* std cm3/sec deviation in the indicated signal in 60 seconds. The licensee determined that for DSC 11, 12, 14, 15 and 16, stabilization times were less than 60 seconds. Specifically for DSC 12, stabilization times with the calibrated standard open were performed in 24 seconds, and stabilization times with the calibrated standard closed were performed in 22 seconds.

The licensee entered this issue into its CAP as AR 01430236 and AR 01486895, and initiated actions to evaluate the condition. The licensee determined that these procedural errors did not affect the helium leak test performance.

Following identification of weld concerns on DSC 16, further weld examinations were performed on the outer top cover plate weld of DSC 16. The weld depth was originally measured during the placement of the weld in October 2013, with all weld depths verified to be greater than the procedural minimum requirement of 0.500". The licensee identified during the new weld examinations that in 13 of 21 areas measured, the weld depth was less than 0.500" with a minimum depth of 0.463".

The licensee entered this issue into its CAP as AR 01425235 and AR 01486895, and initiated actions to evaluate the condition. The weld depth was repaired by adding additional weld material to approximately 3/4 of the circumference of the outer top cover plate weld. After the repair was completed, satisfactory non-destructive examinations were performed.

The inspectors determined that these issues were more than minor in significance using Inspection Manual Chapter 0612, Appendix E, "Examples of Minor Issues," example 3h. Specifically, multiple examples were identified of a failure to ensure control of a special process.

The inspectors determined that the violation was a Severity Level IV violation and similar to example 6.5.d.1 of the NRC's Enforcement Policy in that the licensee failed to meet a regulatory requirement, including one quality assurance criteria, that has more than minor safety significance. The licensee identified violation is being processed through the traditional enforcement process because it is associated with an ISFSI, which falls under traditional enforcement.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

* Peter Gardner, Site Vice President
* Harlan Hanson, Plant Manager
* Mark Lingenfelter, Engineering Director
  Michael Baumann, Nuclear Fuels Director
* Sandra O'Connor, Regulatory Affairs Analyst

Nuclear Regulatory Commission

* M. Learn, Reactor Engineer
  R. Edwards, Senior Health Physicist
* P. Zurawski, Senior Resident Inspector

Attachment

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

05000263/2015008-01; 07200058/2014001-01	AV	Failure to Perform Penetrant Tests in Accordance with Procedural Requirements
05000263/2015008-02; 07200058/2014001-02	AV	Inaccurate and Incomplete Information Documented on VT/PT Report Forms
05000263/2015008-03; 07200058/2014001-03	AV	Failure to Assess Contractor Control of Quality

Closed

07200058/2013001-01	URI	Dry Shielded Canister Liquid Penetrant Examination

LIST OF DOCUMENTS REVIEWED

The following is a partial list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspector reviewed the documents in their entirety, but rather that selected sections or portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

40A5 Other Activities

0000-H; Operations Daily Log-Part H; Revision 96
12751-MNGP-OPS-01; Spent Fuel Cask Welding: 61BT/BTH NUHOMS Canisters; Revision 0
12751-MNGP-OPS-01; Spent Fuel Cask Welding: 61BT/BTH NUHOMS Canisters; Revision 0; Weld Depths and VT/ PT Examination Reports for DSC 11
12751-MNGP-OPS-01; Spent Fuel Cask Welding: 61BT/BTH NUHOMS Canisters; Revision 0; Weld Depths and VT/ PT Examination Reports for DSC 12
12751-MNGP-OPS-01; Spent Fuel Cask Welding: 61BT/BTH NUHOMS Canisters; Revision 0; Weld Depths and VT/ PT Examination Reports for DSC 13
12751-MNGP-OPS-01; Spent Fuel Cask Welding: 61BT/BTH NUHOMS Canisters; Revision 0; Weld Depths and VT/ PT Examination Reports for DSC 14
12751-MNGP-OPS-01; Spent Fuel Cask Welding: 61BT/BTH NUHOMS Canisters; Revision 0; Weld Depths and VT/ PT Examination Reports for DSC 15
12751-MNGP-OPS-01; Spent Fuel Cask Welding: 61BT/BTH NUHOMS Canisters; Revision 0; Weld Depths and VT/ PT Examination Reports for DSC 16
12751-MNGP-QP-9.20; Color Contrast Liquid Penetrant Examination Using the Solvent Removable Method, Revision 1; Completed form for DSC 11
12751-MNGP-QP-9.20; Color Contrast Liquid Penetrant Examination Using the Solvent Removable Method, Revision 1; Completed form for DSC 12
12751-MNGP-QP-9.20; Color Contrast Liquid Penetrant Examination Using the Solvent Removable Method, Revision 1; Completed form for DSC 13
12751-MNGP-QP-9.20; Color Contrast Liquid Penetrant Examination Using the Solvent Removable Method, Revision 1; Completed form for DSC 14
12751-MNGP-QP-9.20; Color Contrast Liquid Penetrant Examination Using the Solvent Removable Method, Revision 1; Completed form for DSC 15
12751-MNGP-QP-9.20; Color Contrast Liquid Penetrant Examination Using the Solvent Removable Method, Revision 1; Completed form for DSC 16
12751-MNGP-QP-9.20; Color Contrast Liquid Penetrant Examination Using the Solvent Removable Method, Revision
12751-MNGP-QP-9.201; Visual Weld Examination; Revision 0
12751-MNGP-QP-9.202; Color Contrast Liquid Penetrant (PT) Examination Using the Solvent Removable Method; Revision 1
9506; Dry Shielded Canister Sealing; Revision 8
9506; Dry Shielded Canister Sealing; Revision 8; DSC 11
9506; Dry Shielded Canister Sealing; Revision 8; DSC 12
9506; Dry Shielded Canister Sealing; Revision 8; DSC 13
9506; Dry Shielded Canister Sealing; Revision 8; DSC 14
9506; Dry Shielded Canister Sealing; Revision 8; DSC 15
9506; Dry Shielded Canister Sealing; Revision 8; DSC 16
Agreement Issued to TriVis Incorporated, Project Name: Monticello Nuclear Generating Plant 2013 Pool to Pad Loading Campaign; Effective Date March 18, 2013

An Independent Review of Liquid Penetrant Inspection Activities for Xcel Energy at Monticello Nuclear Generating Plant; Curtiss Wright Flow Control Company; October 30, 2013
AR01402246; NRC Question on DSC PT Examination Times; October 17, 2013
AR01419279; PT Exam on DSC-16 – Linear Indication Found on Re-Exam; February 17, 2014
AR01425235; Weld Depth Measurements on DSC 16 OTCP Weld Less than Design; April 2, 2014
AR01430236; DSC Helium Test Calibration Not Met; May 9, 2014
ASNT NDT Level III Certificate for Level III Individual
Assessment of Field Closure Weld Liquid Penetrant Examination Performed on Dry Shielded Canisters 11 – 16during the 2013 MNGP ISFIS Loading Campaign; Trivis Inc.; December 17, 2013
Assessment of Monticello Spent Fuel Canister Closure Plate Welds based on Welding Video Records; Structural Integrity Associates, Inc.; May 22, 2014
Designation of the TriVis NDT Level III; August 1, 2013
DWG NUH61BTH-4008; NUHOMS 61BTH Type 1 & 2 Transportable Canister for BWR Fuel Field Welding; Revision 1
EC-18624; DSC-16 Weld 4 Minor and if Required Major Weld Repairs; Revision 2,3,4
Email from MNGP Level III to MNGP PM Documenting Review of TriVis and RRL NDE Procedures for Use at MNGP; June 10, 2013
FP-MA-COM-02; Oversight and Control of Supplemental Personnel; Revision 0.
Liquid Penetrant and Visual Examination; Followup on DSC 16; February 17, 2014
L-MT-14-016; Exemption Request for Dry Shielded Canisters 11-16 Due to Nonconforming Dye Penetrant Examinations; July 16, 2014
Presentation – Monticello DSC-16 Weld Remediation Technical Approach; January 2014
QA 2.02; Qualification of Inspection and Testing Personnel; Revision 4
QP 9.200; Written Practice for the Qualification and Certification of Nondestructive Examination (NDE) Personnel; Revision 7; Certification Record and Qualification Summary for Level II Examiner I
QP 9.200; Written Practice for the Qualification and Certification of Nondestructive Examination (NDE) Personnel; Revision 7; Certification Record and Qualification Summary for LEVEL II Examiner II
QP9.200; Written Practice for the Qualification and Certification of Nondestructive Examination (NDE) Personnel; Revision 7
Results of TriVis Inc. Penetrant Qualification Test; October 30, 2013
Sherwinn HI-TEMP Penetrant Inspection System Product Information
SS-8-A-TN; Welding Procedure Specification; Revision 8
SS-8-M-TN; Welding Procedure Specification; Revision 10
TN 61BT-61BTH HMSLD; Helium Leak Testing for NUHOMS System; Revision 1
TriVis Inc. Penetrant Qualification Test; November 21, 2013
Video Review of Liquid Penetrant Testing Compliance for DSC 11-16 by MNGP Level III; November 4, 2013
WAP-3; Welding Administrative Procedure Control of Filler Metal; Revision 4
Welder Qualification History and Continuity Log; Issued June 28, 2013

LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
ADR	Alternate Dispute Resolution
AR	Action Request Report
ASME	American Society of Mechanical Engineers
AV	Apparent Violation
BPV	Boiler and Pressure Vessel
CAP	Corrective Action Program
CFR	Code of Federal Regulation
CoC	Certificate of Compliance
CR	Condition Report
DSC	Dry Shielded Canister
ICR	Institute of Conflict Resolution
IMC	Inspection Manual Chapter
IR	Inspection Report
ISFSI	Independent Spent Fuel Storage Installation
MNGP	Monticello Nuclear Generating Plant
NDE	Non-Destructive Examinations
NRC	U.S. Nuclear Regulatory Commission
NSPM	Northern States Power – Minnesota
NUHOMS	Nutech Horizontal Modular Storage
OI	Office of Investigations
PEC	Predecisional Enforcement Conference
PT	Liquid Penetrant Test(ing)
QP	Quality Procedure
URI	Unresolved Item
VT	Visual Test