



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I**
2100 RENAISSANCE BOULEVARD, SUITE 100
KING OF PRUSSIA, PENNSYLVANIA 19406-2713

November 2, 2012

Mr. David Heacock
President and Chief Nuclear Officer
Dominion Resources
5000 Dominion Boulevard
Glen Allen, VA 23060-6711

**SUBJECT: MILLSTONE GENERATING STATION - NRC SUPPLEMENTAL INSPECTION
REPORT 05000336/2012011 AND ASSESSMENT FOLLOW-UP LETTER**

Dear Mr. Heacock:

On September 13, 2012, the U. S. Nuclear Regulatory Commission (NRC) completed a supplemental inspection pursuant to Inspection Procedure (IP) 95001, "Inspection for One or Two White Inputs in a Strategic Performance Area," at your Millstone Power Station, Unit 2. The enclosed inspection report (IR) documents the inspection results, which were discussed on September 13, 2012, with members of your staff.

As required by the NRC Reactor Oversight Process Action Matrix, this supplemental inspection was conducted because a finding of low to moderate safety significance (White) was identified in the second quarter of 2011. This issue was documented previously in NRC Inspection Report 05000336/2011008, dated May 27, 2011, and involved the failure of Millstone Unit 2 personnel to carry out their assigned roles and responsibilities and to effectively manage reactivity during main turbine control valve testing on February 12, 2011, as well as the failure to have appropriate guidance in procedures to address multiple reactivity additions. A regulatory conference was held on July 19, 2011 and finalized the significance of this issue. The results of the regulatory conference were conveyed to you in a letter dated August 8, 2011, "FINAL SIGNIFICANCE DETERMINATION FOR A WHITE FINDING, WITH ASSESSMENT FOLLOW-UP; NOTICE OF VIOLATION; AND RESULTS OF REGULATORY CONFERENCE [NRC SPECIAL INSPECTION REPORT NO. 05000336/2011010 – MILLSTONE POWER STATION UNIT 2." (ML112200394) The NRC staff was informed on August 2, 2012, of your staff's readiness for this supplemental inspection.

The objectives of this supplemental inspection were to provide assurance that: (1) the root causes and the contributing causes for the risk-significant issues were understood; (2) the extent of condition and extent of cause of risk significant performance issues were identified; and (3) corrective actions for risk significant performance issues are sufficient to address the root and contributing causes and prevent recurrence. The inspection consisted of examination of activities conducted under your license as they related to safety, compliance with the Commission's rules and regulations, and the conditions of your operating license. The NRC concluded that, overall, the inspection objectives were met. However, one new performance issue concerning the effectiveness of your corrective actions to prevent recurrence for the event's root cause was identified and will be dispositioned in the 2012 third quarter integrated inspection report (05000336/2012004 and 05000423/2012004). In addition, several observations regarding the extent of condition and timeliness and quality of Dominion's corrective actions were noted. Taken collectively, these observations were not considered

significant weaknesses in that they did not represent a substantial inadequacy in Dominion's evaluation of the causes of the performance issue, determination of the extent of the performance issue, or actions taken or planned to correct it.

Based on the guidance in IMC 0305, "Operating Reactor Assessment Program," and the results of the inspection, the White finding will be closed and Millstone Power Station Unit 2 will transition from the Regulatory Response Column of the NRC's Action Matrix to the Licensee Response Column as of the date of this letter.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records System (PARS) component of NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Ronald R. Bellamy, Chief
Projects Branch 5
Division of Reactor Projects

Docket No.: 50-336
License No.: NPF-65

Enclosure: Inspection Report 05000336/2012011
w/Attachment: Supplementary Information

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significant weaknesses in that they did not represent a substantial inadequacy in Dominion's evaluation of the causes of the performance issue, determination of the extent of the performance issue, or actions taken or planned to correct it.

Based on the guidance in IMC 0305, "Operating Reactor Assessment Program," and the results of the inspection, the White finding will be closed and Millstone Power Station Unit 2 will transition from the Regulatory Response Column of the NRC's Action Matrix to the Licensee Response Column as of the date of this letter.

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Sincerely,

/RA/

Ronald R. Bellamy, Ph. D., Chief
 Projects Branch 5
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U.S. NUCLEAR REGULATORY COMMISSION (NRC)

REGION I

Docket No.: 50-336

License No.: DPR-65

Report No.: 05000336/2012011

Licensee: Dominion Nuclear Connecticut, Inc.

Facility: Millstone Power Station, Unit 2

Location: P.O. Box 128
Waterford, CT 06385

Dates: September 10, 2012 through September 13, 2012

Inspectors: J. Kulp, Senior Resident Inspector, Lead Inspector
T. Hedigan, Operations Engineer

Approved by: Ronald R. Bellamy, Chief
Projects Branch 5
Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000336/2012011; 9/10/2012 – 9/13/2012; Millstone Power Station, Unit 2; Supplemental Inspection – Inspection Procedure (IP) 95001

A Region I senior resident inspector and an operations engineer from Region I, Division of Reactor Safety performed this inspection. One new performance issue was identified during this inspection. In accordance with NRC IP 95001, this issue will be dispositioned in the Millstone resident inspector quarterly report using the appropriate baseline inspection.

NRC-Identified and Self-Revealed Findings

Cornerstone: Initiating Events

The NRC staff performed this supplemental inspection in accordance with IP 95001, "Inspection for One or Two White Inputs in a Strategic Performance Area," to assess Dominion's root cause evaluation and corrective actions taken in response to an unintended 8 percent reactor power transient (88 percent to 96 percent) during performance of quarterly main turbine control valve testing in Millstone Unit 2 on Saturday, February 12, 2011. The NRC staff previously characterized this issue as having low to moderate safety significance (White), as documented in NRC Inspection Report 05000336/2011008 (ML111470484). The significance determination was finalized in an August 8, 2011 letter from the NRC to Mr. D. Heacock, President and Chief Nuclear Officer of Dominion Nuclear Connecticut, Inc, "FINAL SIGNIFICANCE DETERMINATION FOR A WHITE FINDING, WITH ASSESSMENT FOLLOW-UP; NOTICE OF VIOLATION; AND RESULTS OF REGULATORY CONFERENCE [NRC SPECIAL INSPECTION REPORT NO. 05000336/2011010 – MILLSTONE UNIT 2." (ML112200394)

Dominion identified the root cause of the issue as: "The crew performance management program was ineffective in correcting observed Unit 2 crew performance deficiencies. This program was informal, not consistently implemented and did not achieve the desired results."

As documented in NRC Inspection Report 05000336/2011008 (ML111470484), the special inspection team reviewed the root cause evaluation and concluded that the root cause evaluation was thorough and the associated proposed corrective actions appeared to adequately address the underlying casual factors. In the period between the completion of the special inspection in April 2011 and the supplemental inspection in September 2012, Dominion had two additional relevant events (June 2011 and November 2011) involving human performance, that provided additional data to assess the effectiveness of corrective actions taken for the February 2011 event. The November 2011 event was determined by Dominion to be a repeat of the event of February 2011, with the exception that the event occurred in Unit 3. Based on the results of this inspection, the inspectors concluded that, in general, Dominion had adequately performed a root cause evaluation of the February 2011 event. Additionally, the inspectors concluded that the combined effect of the completed and planned corrective actions taken in regards to the three events (February, June and November 2011) were reasonable to address the related performance issues. The inspectors identified one new performance issue and several observations. These observations were not considered significant in that they did not represent a substantial inadequacy in Dominion's evaluation of the causes of the performance issue, determination of the extent of the performance issue, or actions taken or planned.

As a result of this supplemental inspection, in accordance with the guidance in IMC 0305, "Operating Reactor Assessment Program," the white finding associated with the February 2011 event is closed and Dominion will transfer to the Licensee Response Column of the NRC's action matrix as of the date of the cover letter to this report. One new performance issue was identified during this inspection. In accordance with NRC IP 95001, this issue will be dispositioned in the Millstone resident inspector quarterly report using the appropriate baseline inspection.

Other Findings

No findings were identified.

REPORT DETAILS

4. OTHER ACTIVITIES

4OA4 Supplemental Inspection (95001)

.01 Inspection Scope

The NRC staff performed this supplemental inspection in accordance with IP 95001 to assess Dominion's evaluation of a White finding, which affected the Initiating Events cornerstone in the Reactor Safety strategic performance area. The inspection objectives were:

- To provide assurance that the root causes and contributing causes of risk-significant performance issues are understood
- To provide assurance that the extent of conditions and extent of cause of risk-significant performance issues are identified
- To provide assurance that the licensee's corrective actions for risk-significant performance issues are sufficient to address the root and contributing causes and prevent recurrence

On Saturday, February 12, 2011, Millstone Unit 2 experienced an unintended 8 percent reactor power transient (88 percent to 96 percent) during performance of quarterly main turbine control valve testing. In accordance with Inspection Manual Chapter 0309, a special inspection team was chartered on February 18, 2011 to evaluate operator performance and organizational decision-making. Dominion entered this event into the corrective action program as CR413602 and performed a root cause evaluation of the event. Dominion's root cause evaluation, RCE 001044, "Unplanned 8% Reactor Power Excursion," identified one root cause, one corrective action to prevent recurrence and several contributing causes for this event.

The special inspection took place from February 22, 2011 through April 14, 2011 and the results were documented in Inspection Report 05000336/2011008 (ML111470484). A self-revealing finding with a preliminary low to moderate safety significance (preliminary White) was identified. The finding was associated with the failure of Millstone Unit 2 personnel, including licensed Reactor Operators and Senior Reactor Operators, to carry out their assigned roles and responsibilities and to effectively manage reactivity during main turbine control valve testing on February 12, 2011. Additionally, Dominion had not established written procedures for the reactor protection system variable high-power trip, and for power operation and transients involving multiple reactivity additions. The finding was characterized as having low to moderate (White) safety significance based on the criteria contained in IMC 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria."

At Dominion's request, a regulatory conference was held on July 19, 2011, at the NRC's Region I office in King of Prussia, Pennsylvania. The results of the regulatory conference were documented in an August 8, 2011 letter from the NRC to Mr. D. Heacock, President and Chief Nuclear Officer of Dominion Nuclear Connecticut, Inc, "FINAL SIGNIFICANCE DETERMINATION FOR A WHITE FINDING, WITH ASSESSMENT FOLLOW-UP; NOTICE OF VIOLATION; AND RESULTS OF REGULATORY CONFERENCE [NRC SPECIAL INSPECTION REPORT NO. 05000336/2011010] – MILLSTONE UNIT 2." (ML112200394). The final significance of the preliminary White finding from the special inspection was confirmed to

be White. Additionally, Millstone Unit 2 entered the Regulatory Response Column of the NRC's Action Matrix on August 8, 2011 as a result of one inspection finding of low to moderate (White) safety significance.

Although not the subject of this supplemental inspection, Millstone Power Station experienced two other events that are pertinent to this inspection. On June 20, 2011, during a planned start of the second steam generator feed pump at Unit 2, a low suction pressure trip of the running steam generator feed pump occurred, resulting in a reactor trip due to low steam generator water level. This event was entered into Dominion's corrective action program as CR431754 and root cause evaluation RCE 001057 was performed to determine the root and contributing causes of this event. On November 23, 2011, Millstone Unit 3 experienced an unintended 6 percent reactor power transient (25 percent to 33 percent) during performance of main turbine control valve testing. This event was entered into Dominion's corrective action program as CR435799 and root cause evaluation RCE 001073 was performed to determine the root and contributing causes of this event. The inspectors reviewed these root cause evaluations to look for trends in operator performance and as an input to assess the adequacy of the corrective actions taken in response to the February 2011 event in Millstone Unit 2.

Dominion performed a readiness review in December 2011 to assess the station's readiness for a 95001 inspection for the February 2011 event. The results were documented in SAR001631, "Formal Self Assessment, 95001 Readiness Review, RCE0001044 Unplanned 8% Reactor Power Excursion at Millstone Unit 2." The review identified that in some cases the corrective actions associated with the February 2011 event were not complete and/or had not been effective in improving operator performance. The review identified areas for improvement to prepare Dominion for a 95001 inspection. Dominion entered the results of the review into the corrective action program as CRs 474770, 475078 and 476298.

Dominion conducted a root cause evaluation effectiveness review for the February 2011 event in May 2012. The results of the effectiveness review were documented in ERF000343. The results concluded that, following the November 2011 event, the corrective actions for the February 2011 event were effective. However, the review also concluded that additional time was required for Dominion's operations staff to demonstrate sustained performance improvement and recommended that another readiness review be conducted in 6 to 9 months to confirm effectiveness of the corrective actions identified for the February 2011 event.

Dominion Nuclear Oversight performed an assessment of the station's readiness for a 95001 inspection in June 2012. The results were documented in Nuclear Oversight Assessment 12-42-M, "NRC 95001 Inspection Readiness." The report concluded that the readiness for the 95001 inspection was improving, that the crew performance monitoring program was not fully implemented as described in the corrective actions to the February 2011 event, and recommended several actions to improve readiness.

Dominion staff informed the NRC staff on August 2, 2012 that they were ready for the supplemental inspection.

The inspectors reviewed Dominion's root cause evaluations for the three events, reviewed applicable corrective action program documents, interviewed operations crew personnel, observed a crew performance review meeting, and reviewed crew performance indicators. The inspectors also held discussions with licensing and operations management personnel to

ensure that the root and contributing causes were understood and corrective actions taken or in progress were appropriate to address the identified causes and to prevent recurrence of the original issue.

.02 Evaluation of the Inspection Requirements

02.01 Problem Identification

- a. *IP 95001 requires that the inspection staff determine that the licensee's evaluation of the issue documents who identified the issue (i.e., licensee-identified, self-revealing, or NRC-identified) and the conditions under which the issue was identified.*

The inspectors noted that while Dominion's root cause evaluation did not explicitly identify who identified the issue, it does provide sufficient detail on how the issue developed to determine that the issue was self-revealing. NRC IP 612, paragraph 3.17 defines self revealing and states, in-part:

"Self revealing findings or violations are those developed from issues that become self-evident and require no active and deliberate observation by the licensee or NRC inspectors to determine whether a change in process or equipment capability or function has occurred. Self revealing issues become readily apparent to either NRC or licensee personnel through a readily detectable degradation in the material condition, capability, or functionality of equipment or plant operations and require minimal analysis to detect. Examples of self revealing findings and violations include those revealed through: reactor trips and secondary plant transients...."

Specifically, section 2.2.1, "Event Investigation" of the root cause evaluation describes and presents graphical representations of reactor power that show a clear power excursion due to a secondary plant transient.

Overall, the inspectors determined that Dominion's root cause evaluation effectively documents who identified the issue and the conditions under which the issue was identified.

- b. *IP 95001 requires that the inspection staff determine that the licensee's evaluation of the issue documents how long the issue existed and prior opportunities for identification.*

Dominion does not explicitly state how long the operator performance issue existed. The root cause evaluation documents a "repeat event review" and a review of internal and external operating experience. A similar event in 2007, concerning a power increase during turbine throttle valve testing was identified, but the cause was identified to be a material failure and not an operator performance issue. No other similar issues were identified. One internal operating experience document, RCE0001937 "Reactor Trip Due to Circ Pump Operation," was identified as documenting similar operator behavior issues such as those being evaluated in the February 2011 event. Section 2.3, "Extent of Condition" documents that a 2009 Six Sigma project identified "significant advocacy issues" with Unit 2 operations personnel which corroborates the root cause of the February 2011 event.

Overall, the inspectors determined that Dominion's root cause evaluation effectively documents that the operator performance issue had existed for several years and documented prior opportunities for identification.

- c. *IP 95001 requires that the inspection staff determine that the licensee's evaluation documents the plant specific risk consequences, as applicable, and compliance concerns associated with the issue(s).*

Dominion's root cause evaluation documents the safety consequences of this event. The licensee concluded that in this case the actual core flux distribution remained bounded by the safety analysis and the actual safety consequences are negligible. However, resetting the variable high power trip offset and manually withdrawing control element assemblies have the potential to result in an event outside the bounds of the existing Final Safety Analysis Report Chapter 14 accident analysis.

Overall, the inspectors determined that Dominion's evaluation documented the plant specific risk consequences and compliance concerns associated with the issue.

- d. Findings

No findings were identified

02.02 Root Cause, Extent of Condition, and Extent of Cause Evaluation

- a. *IP 95001 requires that the inspection staff determine that the licensee evaluated the issue using a systematic methodology to identify the root and contributing causes*

Dominion used the following systematic methods to complete the root cause evaluation: Comparative Timeline, Barrier Analysis and Why Staircase. Dominion identified one root cause, and eight contributing causes. Dominion determined the root cause of the event to be:

"The crew performance management program was ineffective in correcting observed Unit 2 crew performance deficiencies. The program was informal, not consistently implemented and did not achieve the desired results."

The inspectors determined that Dominion had evaluated the issue using a systematic methodology to identify root and contributing causes.

- b. *IP 95001 requires that the inspection staff determine that the licensee's root cause evaluation was conducted to a level of detail commensurate with the significance of the issue.*

Dominion's root cause evaluation included the use of a combination of root cause assessment methods that are complimentary. A collective review of the root and contributing causes did not result in the identification of any additional fundamental issues.

The inspectors observed that, in several cases, an identified cause of an issue was general and not specific and did not reflect an effective use of the "why staircase" method. In the use of the "why staircase", the evaluation team should continue to ask "why" until a cause beyond Dominion's control was reached. The following two examples illustrate where the "Why" staircase could have been continued to determine a more definitive cause.

- Root cause. The Dominion root cause evaluation team identified the root cause of the February 2011 event as:

“The crew performance management program was ineffective in correcting observed Unit 2 crew performance deficiencies. The program was informal, not consistently implemented and did not achieve the desired results.”

If the Dominion root cause evaluation team asked why “the crew performance management program was ineffective,” they may have identified that “operations supervision has been ineffective in demonstrating, communicating and holding personnel accountable to the importance of using required standards to perform operational activities.” This is the root cause of the November 2011 event, which was a repeat of the February 2011 event (the subject of this inspection). This, in turn, may have led to an earlier start in correcting operator behaviors and prevented the recurrence of the February 2011 event in November 2011.

- Contributing cause. Contributing cause 8 is identified, in part, as:

“Procedure SP 2615N did not identify termination criteria, or 1st stage press manipulation.”

That is where the why staircase ends, and this is contributing cause eight. If Dominion asked why the procedure did not have termination criteria, they may have found other causes, such as gaps in procedural or technical review processes that were not identified. Continuing to ask why until the causes are beyond the licensee’s control gives more confidence that all of the root and contributing causes have been found.

Despite these observations, the inspectors determined that the licensees’ root cause evaluation was generally conducted to a level of detail commensurate with the significance of the issue.

- c. *IP 95001 requires that the inspection staff determine that the licensee’s root cause evaluation included a consideration of prior occurrences of the issue and knowledge of Operating Experience.*

Dominion’s root cause evaluation included an evaluation of internal and external operating experience. Dominion also did a review for similar occurrences of this event at Millstone and did not identify any events that had the same causal factors.

Overall, the inspectors determined that Dominion’s root cause evaluation included a consideration of prior occurrences of the issue and knowledge of operating experience.

- d. *IP 95001 requires that the inspection staff determine that the licensee’s root cause evaluation addresses the extent of condition and extent of cause of the issue.*

Extent of condition. Dominion’s root cause evaluation addressed the extent of condition for the event. The condition identified was:

“Operator actions added positive reactivity during the transient. Operators increased turbine load, lowered condenser steam dump set point, withdrew control rods, and reset the variable high power trip set point during the transient.”

The object of the condition was initially identified as Unit 2 Control Room Delta Crew. The root cause evaluation team further determined that, based upon analysis of the data reviewed, the condition extended to all Unit 2 crews. They also stated that initial reviews of Unit 3 training data did not reveal the same level of weakness. They recommended that a more detailed review of training and observation data was needed; and created a contributing cause corrective action (CCCA11) to perform an extent of condition review of unit 3 crew performance using available observation and training information, and initiate actions as needed, to address identified shortfalls. By creating a contributing cause corrective action to perform this assessment, the performance analysis of the Unit 3 crews was not captured as part of the root cause evaluation process and was transferred to the corrective action program. Further corrective actions were taken in response to the Unit 3 crew performance analysis. Ultimately, all corrective actions are being performed for both Unit 2 and Unit 3; therefore the inspectors determined that the extent of condition for the operator performance issues was adequate.

An objective of IP 95001 is to provide assurance that the extent of condition and extent of cause of risk significant performance issues are identified. The Notice of Violation contained two violations associated with the White finding. The first violation is contained in paragraph A of the Notice of Violation and details the performance issues associated with the February 2011 event. Millstone determined that the extent of condition for this violation was at both Unit 2 and Unit 3.

The second violation is contained in paragraph B of the Notice of Violation and details a violation of technical specification 6.8 "Procedures" for not having written procedures as recommended in Appendix A of Regulatory Guide 1.33, "Quality Assurance." The root cause evaluation extent of condition did not specifically address the extent of condition for not having adequate procedures. This violation cited two specific examples.

- First, Millstone had no procedural guidance for resetting the variable high power trip. The variable high powered trip is a unique design feature of Unit 2 and is not a feature of Unit 3. However, there was no extent of condition that questioned whether there are other activities that Millstone performs at either unit without procedural guidance that should have procedural guidance.
- Second, Millstone's procedures lacked guidance for multiple concurrent additions of positive reactivity. Although the extent of condition did not address which procedures needed this guidance, two corrective actions were generated which revised the corporate procedure for reactivity management and did a review of all secondary side procedures that affected reactivity to add precautions concerning multiple reactivity additions. The extent of condition concerning the reactivity issue was adequately addressed through these corrective actions.

Overall, the inspectors determined that the initial extent of condition was generally weak, due to not explicitly addressing the extent of condition for all risk significant performance issues that were identified in the notice of violation. The corrective actions generated by Dominion's root cause evaluation offset the weaknesses observed in the extent of condition evaluation and ultimately the extent of condition was adequate.

Extent of Cause. The root cause evaluation team considered the extent of cause associated with the root cause and determined that the cause was potentially applicable to

the Station Emergency Response and Security organizations. Both organizations rely heavily on crews working effectively together during a wide variety of circumstances. The root cause evaluation team also did an extent of cause for contributing cause 8; "Control valve test procedure needs improvement," which resulted in a corrective action to revise the Unit 3 control valve test procedure based on the extent of cause review. Overall, the inspectors determined that Millstone's root cause evaluation addressed the extent of cause of the issue.

- e. *IP 95001 requires that the inspection staff determine that the licensee's root cause, extent of condition, and extent of cause evaluations appropriately considered the safety culture components as described in IMC 0305.*

Dominion considered the safety culture aspects of Decision Making, Resources, Work Practices, Operating Experience, Self and Independent Assessments and Organizational Change Management to be applicable to this issue. Corrective actions have been completed taking into consideration the input of the safety culture aspects.

Overall, the inspectors determined the root cause evaluation included a proper consideration of whether the root cause, extent of condition, and extent of cause evaluations appropriately considered the safety culture components.

f. Findings

No findings were identified.

02.03 Corrective Actions

- a. *IP 95001 requires that the inspection staff determine that (1) the licensee specified appropriate corrective actions for each root and/or contributing cause, or (2) an evaluation that states no actions are necessary is adequate.*

The root cause evaluation documents corrective actions for the root cause, contributing causes and corrective actions for other issues. The inspectors reviewed all of the corrective actions to ensure that they addressed the identified causes. The inspectors found the completed and proposed corrective actions to be reasonable with regard to addressing the performance deficiencies identified with this event.

Overall, the inspectors found that Dominion specified appropriate corrective actions for the root cause, contributing causes, extent of condition, and extent of cause.

- b. *IP 95001 requires that the inspection staff determine that the licensee prioritized corrective actions with consideration of risk significance and regulatory compliance.*

The inspectors reviewed the prioritization of the corrective actions and verified that the prioritization was based on consideration of risk significance and regulatory compliance. At the time of this inspection, all corrective actions were closed with one exception. The corrective action to revise Millstone 3 operating procedures to incorporate specific reactivity management guidance has not been completed and is awaiting implementation of the revised guidance into the existing procedures.

Paragraph B of the Notice of Violation states, in part, "...Specifically, during the unplanned reactor power increase, Millstone Unit 2 operators implemented three additional positive reactivity additions..., and there was no procedural guidance regarding the concurrent execution of these activities."

To address this portion of the Notice of Violation, Millstone generated two corrective actions and both were assigned a low priority. The first corrective action was to develop guidance in OP-AP-300, "Reactivity Management" for control of multiple reactivity additions during steady state operations. This corrective action was completed in a timely manner on September 26, 2011, when the corporate reactivity management procedure was put into effect. The second corrective action was to review secondary plant equipment guidance and revise the guidance to provide stronger reactivity management guidance where applicable. The second corrective action is only partially complete at the time of this inspection. The majority of Unit 2 procedures were revised in July of 2012 and none of the Unit 3 procedures have been completed.

Overall the inspectors determined that Dominion had established an appropriate schedule for implementing and completing the majority of the corrective actions with the exception of the procedures for addressing multiple reactivity additions.

- c. *IP 95001 requires that the inspection staff determine that the licensee established a schedule for implementing and completing the corrective actions.*

Dominion's corrective actions and proposed corrective action plan provided dates for completion of actions as described in the root cause evaluation. Overall, the inspectors determined that the dates were reasonable with the exception of revising the operating procedures addressing the multiple reactivity additions, which is discussed in paragraph b. above.

- d. *IP 95001 requires that the inspection staff determine that the licensee developed quantitative and/or qualitative measures of success for determining the effectiveness of the corrective actions to prevent recurrence.*

The inspectors determined that the root cause evaluation included an effectiveness review for the corrective action to prevent recurrence. The effectiveness review was completed in May, 2012. In November 2011, a repeat event of the February 2011 event occurred in Unit 3. Dominion performed a root cause evaluation for the November 2011 event (RCE 1073, MP3 Allowable Temperature Low out of Band on Reactor Startup) which documented as a contributing cause the fact that operations failed to effectively implement the corrective action to prevent recurrence of the February 2011 event. During the performance of the May 2012 effectiveness review, Dominion acknowledged that the corrective actions were not effective prior to November 2011 and used the time period of December 2011 to May 2012 as basis for determining effectiveness. The effectiveness review using qualitative indicators determined that the combined corrective actions have been effective.

Overall, the inspectors determined that after implementing the corrective actions from events occurring in February, June and November 2011, the licensee has successfully performed an effectiveness review of the corrective actions.

The inspectors identified a new performance issue concerning the adequacy of the corrective actions to prevent recurrence for the February 2011 event and the actual occurrence of a repeat event in Unit 3 in November 2011. The guidance in IP 95001 directs new performance issues be inspected using appropriate baseline inspection procedures. This issue will be dispositioned

in the NRC integrated inspection report for the third quarter of 2012 (05000336/2012004 and 05000423/2012004).

- e. *IP 95001 requires that the inspection staff determine that the licensee's planned or taken corrective actions adequately address a Notice of Violation (NOV) that was the basis for the supplemental inspection, if applicable.*

The results of the regulatory conference and the Notice of Violation are documented in an August 8, 2011 letter from the NRC to Mr. D. Heacock, President and Chief Nuclear Officer of Dominion Nuclear Connecticut, Inc, "FINAL SIGNIFICANCE DETERMINATION FOR A WHITE FINDING, WITH ASSESSMENT FOLLOW-UP; NOTICE OF VIOLATION; AND RESULTS OF REGULATORY CONFERENCE [NRC SPECIAL INSPECTION REPORT NO. 05000336/2011010] – MILLSTONE UNIT 2." (ML112200394). The letter concluded that information regarding: (1) the reason for the violations; (2) the actions planned or already taken to correct the violations and prevent recurrence; and (3) the date when full compliance was achieved, were already adequately addressed on the docket in NRC Inspection Report 05000336/2011008 and in the information Dominion provided at a regulatory conference conducted on July 19, 2011.

- f. Findings

No findings were identified.

02.04 Evaluation of IMC 0305 Criteria for Treatment of Old Design Issues

This part of IP 95001 was not implemented as Dominion did not request credit for self-identification of an old design issue and the finding did not meet the requirements of IMC 0305 paragraph 04.18 for consideration as an old design issue.

4OA6 Exit Meeting

On September 13, 2012, the inspectors presented the inspection results to Mr. M. Adams, Plant Manager, and other members of his staff, who acknowledged the results.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION**KEY POINTS OF CONTACT**Licensee Personnel

M. Adams, Plant Manager
 R. MacManus (Director of Licensing)
 K. Grover (Ops Manager)
 A. Bassham (Manager Organizational Effectiveness)
 J. Semancik (Engineering Director)
 T. Cleary, Licensing
 H. McKenney, Operations
 J. Brown, Senior Reactor Operator
 M. Gagnon, Reactor Operator
 S. Kwan, Senior Reactor Operator
 R. Schmidt, Reactor Operator
 B. Gayneir, Shift Manager
 T. Berger, Shift Manager

LIST OF ITEMS OPENED, CLOSED AND DISCUSSEDClosed

05000336/2011008-01	NOV	Multiple Examples of Procedural Violations and Inadequate procedures Relating to Control Room Crew Performance During a Plant Transient
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LIST OF DOCUMENTS REVIEWEDProcedures

OSSI-12-004, Crew Performance Discussions at Mid-Shift Briefs, Revision 0
 MPS-12-001, On-Shift Mentoring, Revision 2
 MPS-12-003, Quarterly Shift Manager Meeting, Revision 0
 PI-AA-100, Performance Monitoring, Revision 4
 PI-AA-100-1003, Self Evaluation, Revision 10
 PI-AA-5002, Observation and Coaching, Revision 2
 OP-AA-10, Conduct of Operations, Revision 0
 OP-AA-100, Conduct of Operations, Revision 21
 AD-AA-10, Administrative Controls Program, Revision 1
 OP-AA-1800, Operator Fundamentals, Revision 4
 PI-AA-5000, Human Performance, Revision 7
 OP-AA-500, Conduct of Shift Technical Advisor, Revision 4
 PI-AA-200-2002, Effectiveness Reviews, Revision 5
 PI-AA-5001, Human Performance (HU) Event-Free Day Clocks, Revision 6
 OP-AP-300, Reactivity Management, Revision 14
 DOM-QA-1, Dominion Nuclear Facility Quality Assurance Program Description, Revision 13
 PI-AA-200, Corrective Action, Revision 20
 AOP 2584, Turbine valve Failure, Revision 000-01

ARP 2590D-022, Atmospheric Dump Valve Not Closed, Revision 000-04
 ARP2590D-023, Condenser Steam Dump Valve Not Closed, Revision 000-02
 ARP2590D-024, Condenser Bypass Valve Not Closed, Revision 000-03
 ARP2590C-110, CEA Withdraw Prohibit, Revision 000
 ARP2590C-148, Tavg-Tref HI/LO, Revision 000-02
 OP2380, RPS and NI Safety Channel Operation, Revision 009-03
 OP2203, Plant Startup, Revision 019-04
 OP2204, Load Changes, Revision 023-10
 OP2320, Feedwater Heater Drains and Vents, Revision 018-03
 SP2651N, Main Control Valve Operability Test, Revision 004-05

Issue Reports (* indicates NRC-identified Issue Report)

CR437224	CR488587*	CR413602	CR487493	CR487797	CR-07-12538
CR474770	CR475078	CR456365	CR476298		

Miscellaneous

RCE 001044, Root Cause Evaluation: Unplanned 8% Reactor Power Excursion, Millstone Power Station Unit 2 (CR413602)
 RCE 001057, Root Cause Evaluation: Unit 2 Trip Due to Low Suction Pressure Trip of B-SGFP, Millstone Power Station Unit 2 (CR431754)
 RCE 001073, Root Cause Evaluation: MP3 Allowable Temperature Low Out of Band on Reactor Startup, Millstone Power Station Unit 3 (CR453799)
 NRC Inspection Report: Millstone Power Station Unit 2 – NRC Special Inspection Report 05000336/2011008; Preliminary White Finding (ML11470484)
 NRC Letter EA-11-047, "FINAL SIGNIFICANCE DETERMINATION FOR A WHITE FINDING, WITH ASSESSMENT FOLLOW-UP; NOTICE OF VIOLATION; AND RESULTS OF REGULATORY CONFERENCE [NRC SPECIAL INSPECTION REPORT NO. 055000336/2011010] – MILLSTONE POWER STATION UNIT 2" (ML112200394), dated August 8, 2011
 ERF000343, Root Cause Effectiveness Review for RCE001044, Unplanned 8% Reactor Power Excursion, Millstone Power Station Unit 2
 SAR001631, Formal Self Assessment, 95001 Readiness Review: RCE0001044 Unplanned 8% Reactor Power Excursion at Millstone Unit 2, dated December 15, 2011
 Nuclear Oversight Assessment No. 12-42-M, Millstone NRC 95001 Inspection Readiness, dated June 13.2012
 List of outstanding procedure revisions, dated September 12, 2012
 Millstone Unit 2 Technical Specification Table 2.2-1, Reactor Protection Instrumentation Trip Setpoint Limits, Amendment 282
 Millstone Unit 2 Technical Specification Table 3.3-1, Reactor Protective Instrumentation, Amendment 301
 MPS-2 FSAR section 14.1.3, Increase in Steam Flow, Revision 26.2
 SAR00136, Formal Self Assessment, 2012 Reactivity Management Dominion Fleet Self Assessment, dated February 26, 2012
 Regulatory Guide 1.149, Nuclear Power Plant Simulation Facilities for Use in Operator Training, License Examinations, and Applicant Experience Requirements, Revision 4
 Regulatory Guide 1.33, Quality Assurant Program Requirements (Operation), Revision 2
 C11401C, Ops Manager Standards Cycle 11-4, Revision 0 Ch-1
 S11401, LOAF with Condensate Feed Success Path, Revision 0
 S11401L, Cycle 11-04 Sim #1, Revision 1
 S12105L, Cycle 12-1, Simulator Session #5, Revision 0
 S12103, LORT Cycle 12-1, Revision 0

Training Presentation, SOER 10-2 Case Study 1st Quarter 2012, “Unplanned 8% Reactor Power Excursion” Millstone Power Station Unit 2, February 12, 11

Training Review Board Meeting Agenda and Minutes, dated August 25, 2011

Millstone Station Pre Job Brief, Task 1054, Main Control Valve Operability Test, dated October 11, 2011

Leadership Forum 2012-3 presentation, “Analyzing Station Performance and Emergent Issue Response”

Dominion Formal Self-Assessment Report, INPO IER 11-03 Fleet Wide Operator Fundamentals Self Assessment, dated September 12, 2011

2012 Millstone Power Station Operations Department Human Performance Clock Resets, dated September 12, 2012

2012 Millstone Configuration Control Clock Resets, dated September 12, 2012

Listing of Human Error Condition Reports February 2011 – September 2012

Listing of Condition Reports with Operation Hot Buttons, February 2011 – September 2012

Operations Performance Summary, July 2012

Millstone Power Station, Operations Department – All Indicators, July 2012

Observation Form, Operator Field Rounds, dated September 12, 2012

Observation Form, Reactivity Management & Manipulations, dated September 12, 2012

Observation Form, THINK – High Standards for Controlling Plant Evolutions, dated September 12, 2012

Observation Form, THINK- Indications and Plant Conditions Monitored Closely, dated September 12, 2012

Observation Form, THINK- Natural Bias for conservative Approach to Plant Operations, dated September 12, 2012

Observation Form, THINK- Knowledge of Plant Design and Theory, dated September 12, 2012

Observation Form, THINK- Teamwork Effectiveness, dated September 12, 2012

Observation Form, Critical Parameter Monitoring, dated September 12, 2012

Observation Form, SOER 10-2, dated September 12, 2012

Work Observation System (WOBS) User Guide, Application Release 1.0, May 2012

Self-Evaluation/DSEM Performance Improvement Meeting Summary, Millstone Operations Department, dated July 18, 2012

Work Observation System listing of Observations for August, 2012

Crew Performance Review Meeting for “B” Crew Summary Slides, September 12, 2012

Crew Performance Review Meeting for “C” Crew Summary Slides, May 18, 2012

Crew Performance Review Meeting for “C” Crew Summary Slides, April 13, 2012

Post-Training Memo, Ops “A” Cycle 12-03, May 1-4, 2012