

North Anna 2 2Q/2014 Plant Inspection Findings

Initiating Events

Significance: G Jun 30, 2014

Identified By: Self-Revealing

Item Type: FIN Finding

Unit 2 Manual Reactor Trip After Loss of Main Feedwater Pump

A self-revealing finding was identified for failure to follow procedure after a feedwater transient that resulted in a Unit 2 manual trip. Specifically, the licensee failed to use diverse or alternate indications, such as motor amps, feedwater pump discharge pressure, feedwater flow, or steam generator levels as required by both OP-AA-100, "Conduct of Operations," Revision 25, and OP-AA-1800, "Operator Fundamentals," Revision 7, after the loss of 'A' main feedwater pump and the 'C' main feedwater pump motor breaker closed 'red' light failed to light.

The inspectors determined that the failure of the licensee to use diverse or alternate indications, as required by plant procedures, when deciding to trip the Unit 2 reactor was a performance deficiency. The performance deficiency was more than minor because it was associated with the Initiating Events cornerstone attribute of human performance and adversely affected the associated cornerstone objective to limit the likelihood of events that upset plant stability. Specifically, the human error associated with not using diverse or alternate indications resulted in an unnecessary plant trip. Using IMC 0609, Attachment 4, Initial Characterization of Findings, issued June 19, 2012, the finding was determined to be of very low safety significance (Green) because it was a transient initiator, but did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. In addition, this finding involved the cross cutting area of human performance and the aspect of teamwork, H.4, because the licensee failed to communicate and coordinate actions when verifying the proper operation of the 'C' main feedwater pump after auto start. The licensee is tracking this issue in their corrective action system as Condition Report (CR) 538653. (Section 4OA2.3)

Inspection Report# : [2014003](#) (*pdf*)

Significance: G Sep 30, 2013

Identified By: Self-Revealing

Item Type: FIN Finding

Failure to provide vendor oversight results in a manual reactor trip

A Green self revealing finding was identified for the failure to properly provide oversight over supplemental (vendor) personnel during the replacement of the Unit 2 turbine and exciter rotors during the spring of 2010 in accordance with Dominion procedure MA-AA-1001, "Supplemental Personnel," Revision 9.

The failure to properly provide oversight over supplemental (vendor) personnel in accordance with Dominion procedure MA-AA-1001, "Supplemental Personnel," section 3.8.1, during the spring 2010 replacement of the Unit 2 turbine and exciter rotors was a performance deficiency. The performance deficiency was more than minor because it adversely affected the Initiating Events cornerstone objective of reliability because the failure to properly conduct procedure MA-AA-1001 directly resulted in the upset of plant stability by tripping the unit and the challenge of critical plant safety functions. Using IMC 0609, Appendix A, The Significance Determination Process for Findings at

Power, issued June 19, 2012, the finding screens to green because although a reactor trip occurred, the loss of mitigating equipment for transitioning the plant to a safe shutdown condition did not occur. There is no cross cutting aspect for this finding because the initial cause of the finding occurred more than 3 years ago following turbine and exciter rotor replacement. (Section 4OA2.2)

Inspection Report# : [2013004](#) (pdf)

Significance:  Sep 30, 2013

Identified By: Self-Revealing

Item Type: FIN Finding

Failure to establish and implement adequate preventative maintenance causes a reactor trip

A Green self-revealing finding was identified for failure to establish and implement adequate preventative maintenance for the mechanism operated cell (MOC) switches. Specifically the licensee failed to recognize and recommend proper maintenance for these components on the ‘C’ main feedwater pump motor circuit breakers.

The inspectors determined that the licensee’s failure to establish and implement adequate preventive maintenance for MOC switches in accordance with industry guidance through EPRI, the vendor, ABB, and operating experience was a performance deficiency. The performance deficiency was more than minor because it was associated with the Initiating Events cornerstone attribute of equipment performance and adversely affected the associated cornerstone objective in that loss of conductivity across contacts 25 and 26 in the upper MOC switch for circuit breaker 2-EP-BKR-25C5 caused the spurious closure of the ‘C’ main feed pump discharge valve (2-FW-MOV-250C) and indirectly resulted in a manual reactor trip. Using Inspection Manual Chapter 0609, Attachment 4, Initial Characterization of Findings, issued June 19, 2012, the finding was determined to be of very low safety significance (Green) because it was a transient initiator, but did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. In addition, this finding involved the cross cutting area of human performance, the component of decision making, and the aspect of systematic process for decision, H.1(a), because the licensee did not make risk-significant decisions using a systematic process for preventative maintenance activities when they failed to recognize and recommend proper maintenance for the MOC switches. (Section 4OA2.3)

Inspection Report# : [2013004](#) (pdf)

Mitigating Systems

Significance:  Jun 30, 2014

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Maintain the Diesel Driven Fire Pump

A self-revealing NCV was identified for the licensee’s failure to meet the requirements of NAPS Renewed Operating License Conditions 2.D, and the approved FPP for NAPS, Units 1 and 2. Specifically, the licensee failed to maintain the diesel driven fire pump water pump with established procedures that incorporated the equipment manufacturer’s recommended maintenance.

Failure to maintain the diesel-driven fire pump water pump with established procedures that incorporated the equipment manufacturer’s recommended maintenance is a performance deficiency. This finding was determined to be more than minor because it was associated with the reactor safety mitigating systems cornerstone attribute of

protection against external events (i.e. fire), and it adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the finding impacted the availability of the diesel driven fire pump which adversely impacted the fire protection programs defense-in-depth in the event of a fire. The finding was screened in accordance with NRC Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP), dated June 2, 2011, Attachment 4, "Initial Characterization of Findings," dated June 19, 2012, which determined that an IMC 0609 Appendix F, "Fire Protection Significance Determination Process," dated September 20, 2013, review was required as the finding affected fire water supply. The inspectors evaluated this finding using the guidance in IMC 0609, Appendix F. The pump failed on November 8, 2013, and the last successful test was performed on November 7, 2013. The review determined that the unaffected motor driven fire pump was available to provide at least 50 percent of the required fire water capacity (flow at required pressure) and therefore the finding screened as very low safety significance (Green). The inspectors determined that there was no cross-cutting aspect associated with this finding because it was not reflective of current licensee performance. The violation was entered into the licensee's corrective action program (CAP) as CR532383. (Section 1R05)

Inspection Report# : [2014003](#) (*pdf*)

Significance:  Mar 31, 2014

Identified By: Self-Revealing

Item Type: FIN Finding

Failure to mark a foreign material exclusion closure devise results in non-funcionality of the alternate AC diesel

A self-revealing finding was identified for the licensee's failure to mark a foreign material exclusion (FME) closure device, as required by licensee procedure MA-AA-102, "Foreign Material Exclusion," Revision 14. This resulted in the non-functionality of the alternate AC (AAC) diesel.

The inspectors reviewed the issue of concern in accordance with IMC 0612, Appendix B, "Issue Screening." The inspectors determined that the licensee's failure to mark the #4 lifter side cover as an FME closure device as required by licensee procedure MA-AA-102 was a performance deficiency (PD). The PD is more than minor, and therefore a finding, because it adversely affected the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and the related attribute of equipment performance. Specifically, the resultant improper installation of the #4 lifter side cover caused the non-functionality of the AAC diesel. The inspectors evaluated the finding using IMC 0609, Appendix A, "The Significance Determination Process For Findings At-Power", issued June 19, 2012, and determined that Exhibit 2, "Mitigating Systems Screening Question" was applicable since the AAC diesel is a mitigating system component. The inspectors determined that a Detailed Risk Evaluation was required because the finding represented an actual loss of function of one or more non-Technical Specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hrs. A detailed risk evaluation of the PD was performed by a regional senior reactor analyst (SRA) using the guidance of NRC Inspection Manual Chapter (IMC) 0609 Appendix A, and the latest NRC North Anna SPAR model. The resultant increase in core damage frequency from the PD was $1E-6$/year, a GREEN finding of very low safety significance. In addition, this finding involved the cross-cutting area of Human Performance and the aspect of Avoid Complacency, H.12, because the licensee failed to recognize and plan for the possibility of mistakes caused by not labeling the FME closure device during the AAC diesel maintenance. (Section 1R19)

Inspection Report# : [2014002](#) (*pdf*)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Security

Although the Security Cornerstone is included in the Reactor Oversight Process assessment program, the Commission has decided that specific information related to findings and performance indicators pertaining to the Security Cornerstone will not be publicly available to ensure that security information is not provided to a possible adversary. Other than the fact that a finding or performance indicator is Green or Greater-Than-Green, security related information will not be displayed on the public web page. Therefore, the [cover letters](#) to security inspection reports may be viewed.

Miscellaneous

Last modified : August 29, 2014