Beaver Valley 1
4Q/2014 Plant Inspection Findings

Initiating Events

Significance: G Mar 31, 2014
Identified By: NRC
Item Type: FIN Finding
Main Transformer Failure Due to Static Electrification
A self-revealing, Green finding was identified because FirstEnergy Nuclear Operating Company (FENOC) did not evaluate technical information provided in a vendor report as required by FENOC procedures: 1/2-ADM-2017, "Control of Vendor Technical Information" and NOP-CC-1003, "Vendor Manuals and Vendor Technical Information." Specifically, FENOC did not take action to address the recommendation in the ABB Inc. "Life Assessment Report," dated September 2, 2008, to prevent the running of all the main transformer oil pumps when the oil temperature is below 50°C. As a result on January 6, 2014 the Beaver Valley main transformer failed resulting in a reactor trip. Following the trip FENOC conducted an apparent cause evaluation and determined the transformer failure resulted from static electrification caused by improper cooling system operation. FENOC subsequently performed corrective actions included a review of engineering training and updating the operating procedures for the main transformer at both units. The inspectors determined the actions to be reasonable.

The inspectors determined the performance deficiency is more than minor because it is associated with the equipment performance attribute of the Initiating Events cornerstone, and adversely impacted the cornerstone objective to limit the likelihood of events that
upset plant stability and challenge critical safety functions during shutdown as well as
power operations. Specifically, the main transformer faulted due to improper guidance on transformer cooling bank operation which resulted in a plant trip. In accordance with IMC 0609.04, "Initial Characterization of Findings," and Exhibit 1 of IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," the inspectors determined that this finding is of very low safety significance (Green) because the performance deficiency did not cause both a reactor trip and the loss of mitigating equipment. This finding has a cross-cutting aspect in the area of Human Performance, Design Margin, in that FENOC did not ensure that equipment margin was carefully guarded and changed through a systematic and rigorous process. Specifically, FENOC did not ensure that the vendor technical review process implemented main transformer operating margin guidance that resulted in the failure of the transformer.

Inspection Report# : 2014002 *(pdf)*

Mitigating Systems

Significance: G Dec 04, 2014
Identified By: NRC
Item Type: NCV NonCited Violation
Green NCV
The Commission has decided that specific information related to findings and performance indicators pertaining to

security will not be publicy 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.
Inspection Report# : 2014007 *(pdf)*

Significance: G Oct 13, 2014
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO ADEQUATELY IMPLEMENT RISK MANAGEMENT ACTIONS
The inspectors identified an NCV of 10 CFR 50.65(a)(4), "Requirements for monitoring the effectiveness of maintenance at nuclear power plants," for FENOC's failure to implement adequate risk management actions (RMAs) associated with maintenance on the alternate intake structure 'A' bay. Specifically, FENOC did not establish a contingency plan for the maintenance activity as required by FENOC's risk management procedure. FENOC entered the issue into their corrective action program as CR 2015-00267.

The performance deficiency is more than minor because it is associated with the Equipment Performance attribute of the Mitigating Systems cornerstone and adversely affected its objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, FENOC's failure to implement a contingency plan resulted in an increase in the duration of an elevated risk condition and unavailability of equipment relied upon to mitigate the consequences of a loss of the main intake structure. The finding was determined to be of very low safety significance (Green) because the incremental core damage probability (ICDP) for the event was less than 1.0 E-6. The inspectors determined that this finding had a cross-cutting aspect in the Human Performance, Work Management, because the FENOC work process failed to adequately manage the risk commensurate to the work [H.5].

Inspection Report# : 2014005 *(pdf)*

Significance: G Mar 31, 2014
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Post Maintenance Testing Procedures Resulted in TDAFW Pump Inoperability
A self-revealing, Green NCV of 10 CFR 50, Appendix B, Criterion V, Instructions, Procedures, and Drawings, was identified because FENOC did not establish appropriate post maintenance test procedures for the Turbine Driven Auxiliary Feedwater (TDAFW) pump following trip/throttle valve maintenance that required the removal and reinstallation of the governor. Specifically, FENOC identified in their apparent cause evaluation that vendor technical information regarding the verification of stable governor operating temperature following governor compensating needle valve adjustment was not incorporated into surveillance and post maintenance testing procedures. Because of this omission FENOC did not identify an incorrect governor compensating needle valve adjustment during post maintenance testing on November 1, 2103 and declared the TDAFW pump operable when it was not able to perform its safety function. As a result, the TDAFW pump tripped on overspeed following a reactor trip on January 6, 2014. Following the event, FENOC entered the issue into the corrective action program (CR-2014-0177), performed an apparent cause evaluation, and took corrective actions to update TDAFW pump surveillance and maintenance procedures to ensure the establishment of a stable governor temperature during post maintenance testing runs. The inspectors determined the actions to be reasonable.

The inspectors determined the performance deficiency is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and adversely impacted the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the inadequate post maintenance testing procedure resulted in the inoperability of the

TDAFW pump. In accordance with IMC 0609.04, “Initial Characterization of Findings,” and Exhibit 1 of IMC 0609, Appendix A, “The Significance Determination Process for Findings At-Power,” the inspectors determined that a detailed risk evaluation was required because the finding represented an actual loss of function of a single train of auxiliary feedwater (AFW) for greater than its Technical Specification allowed outage time. The detailed risk evaluation determined that the finding was of very low safety significance (Green). This finding did not have a cross-cutting aspect because the most recent opportunity for FENOC to include the appropriate vendor information in the post maintenance testing procedure was in 2009 and is not indicative of current performance.

Inspection Report# : 2014002 *(pdf)*

Barrier Integrity

Significance:  Apr 17, 2014
Identified By: NRC
Item Type: NCV NonCited Violation
REMOVAL OF MISSILE BARRIER RENDERS CONTAINMENT INOPERABLE
The inspectors identified a Green non-cited violation of TS limiting condition for operation (LCO) 3.6.1, “Containment.” Specifically, the inspectors determined that FENOC removed the missile barriers for the unit 1 and unit 2 containment equipment hatches while in a mode when containment was required to be operable. As a result FENOC did not have adequate tornado protection for containment and then did not take the actions directed by the LCO action statement when the LCO was not met. FENOC entered the issue into their corrective action program, CR 2014-11878, and placed the procedures to remove the missile barriers on administrative hold.

The performance deficiency is more than minor because it adversely affected the configuration control attribute of the Barrier Integrity Cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. In accordance with IMC 0609 Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” Exhibit 3, “Barrier Integrity Screening Questions,” this finding screens to Green, very low safety significance.

This finding has a cross-cutting aspect in the area of conservative bias where individuals use decision making-practices that emphasize prudent choices over those that are simply allowable and that a proposed action is determined to be safe in order to proceed, rather than unsafe in order to stop. Specifically, FENOC did not adequately consider the containment operability implications of removing the missile barriers for the unit 1 and unit 2 containment equipment hatches while in a mode where containment is required to be operable. (H14)
Inspection Report# : 2014003 *(pdf)*

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Significance: G Dec 31, 2014
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO PROPERLY SHIP CATEGORY 2 RADIOACTIVE MATERIAL
The inspectors identified an NCV of 10 CFR 71.5, "Transportation of licensed material," and 49 CFR 172, Subpart I, "Safety and Security Plans." Specifically, FENOC personnel shipped a category 2 radioactive material of concern (RAM-QC) on public highways to a waste processor without adhering to a transportation security plan. FENOC's corrective actions included revising procedure NOP-OP-5201, "Shipment of Radioactive Material – Waste," to reflect the appropriate Department of Transportation requirements for shipment of Category 2 radioactive material. FENOC entered the issue into their corrective action program as CR 2014-17260.
The issue is more than minor because it is associated with the Program and Process attribute of the Public Radiation Safety cornerstone and adversely affected its objective to ensure the safe transport of radioactive material on public highways in accordance with regulations. The finding was determined to be of very low safety significance (Green) because FENOC had an issue involving transportation of radioactive material, but it did not involve: (1) a radiation limit that was exceeded; (2) a breach of package during transport; (3) a certificate of compliance issue; (4) a low level burial ground nonconformance; or (5) a failure to make notifications or provide emergency information. The inspectors determined that the finding did not have a cross-cutting aspect because the issue was not reflective of current plant performance. Specifically, FENOC implemented changes to the radioactive waste shipment procedure that addressed applicable requirements and implemented a formal process for reviewing pending regulatory changes for impacts to FENOC operations and support activities.

Inspection Report# : 2014005 *(pdf)*

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

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