

ENCLOSURE 2

REVISED FINDING IN RESPONSE TO CONTESTED VIOLATION

Defective Part Results in High Pressure Coolant Injection System Pressure Control Valve Failure			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Mitigating Systems	White NOV 05000333/2020012-01 Open EA-20-138	[H.1] - Resources	71153
<p>The inspectors documented a self-revealed White finding and related violation of FitzPatrick Technical Specifications (TS 3.5.1). The finding included failures to comply with Title 10 of the <i>Code of Federal Regulations</i> (10 CFR) Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings" and Criterion XV, "Nonconforming Materials, Parts, or Components." Exelon Generation, LLC (ExGen) did not adequately implement quality-related procedures which contributed to FitzPatrick's failure to identify a nonconforming component, which was verified as acceptable for use. Subsequently, FitzPatrick's maintenance staff installed the nonconforming component which caused the inoperability of the HPCI system on April 10, 2020.</p>			
<p><u>Description:</u>                      The HPCI system at FitzPatrick provides an emergency source of water following a transient or accident. This high pressure source of coolant is delivered from two water sources using steam generated from the reactor to drive the associated turbine and pump. The HPCI system pump can deliver up to 4,250 gallons per minute and may be operated across a wide range of reactor pressures. The HPCI system pump and turbine are supported by an oil system designed to lubricate bearings and provide adequate pressure to control the steam turbine stop and control valves.</p> <p>During a HPCI maintenance window in December 2017, an emergent need arose for a replacement pressure control valve (PCV). ExGen did not have a replacement PCV on site at the time, and subsequently located a replacement PCV at Limerick. On December 16, 2017, ExGen issued purchase order (P.O.) 637326 to move the HPCI system PCV from the Limerick warehouse to FitzPatrick during a planned HPCI system maintenance window. Due to the emergent demand, the purchase order was issued in parallel with a document review by FitzPatrick. Per issue report (IR) 04348906, originated on June 6, 2020, the PCV was put on user hold at Limerick on October 20, 2017, due to the shelf-life expiring within 5 days. This IR states the valve was transferred to FitzPatrick on December 15, 2017, with an expired shelf-life annotated in Passport (the licensee's component tracking database). Additionally, the IR states that prior to releasing the PCV for installation, Fitzpatrick's quality receipt inspection identified, reviewed, and dispositioned the shelf-life issue with FitzPatrick Procurement Engineering.</p> <p>Procedure SM-AA-300-1001, Section 4.10.2, specified that when the requesting facility (FitzPatrick) is not a specific user of the procured component that the existing Catalogue Identification (CID) at the target site (Limerick) shall be reviewed by the requesting site. The purpose of this review is to ensure that quality and technical requirements of the component are adequate for the requesting facility's need; and, that the review shall be performed by a procurement engineer (PE) for a safety-related component. The CID was not in a ready state</p>			

at the time of request, as a 'user hold' existed in Passport for a shelf-life concern. The document package associated with P.O. No. 011466532 included electronic correspondence documenting that appropriate Fitzpatrick staff reviewed the document package for P.O. No. 0011466532 and found it to be acceptable. FitzPatrick's review did not identify discrepant information located within Exelon's equipment database (e.g., the CID facility-specific section in Passport panel D202).

The FitzPatrick procurement staff authorized Limerick to transfer a component in 'hold' status in the Passport system without initiating a new 'hold' upon receipt of the component at the destination site (FitzPatrick). These actions were not in accordance with the requirements of procedure SM-AA-102, Warehouse Operations, Rev. 23. Procedure SM-AA-102, specified that items released on hold shall be tracked by a respective Action Request (AR) assignment, Work Order task or Issue report with respective assignments to track the released material. Specifically, the licensee failed to ensure that a component released on hold was adequately tracked by a respective AR assignment, work order task or issue report with respective assignments to ensure requisite component quality, and the Catalogue ID (CID) for this component was set to "READY." Additionally, a hold tag was required to be attached to the component upon receipt of the transfer at the receiving site and entered into the site's hold tag log. These actions were not performed. The failure to initiate a hold upon receipt of the PCV or initiate tracking documents resulted in opportunities for FitzPatrick to identify the discrepant information located within the equipment database. The formal actions to disposition the hold, as required per SM-AA-102, provided a reasonable opportunity, under these specific circumstances, for FitzPatrick to identify that the PCV was nonconforming. Descriptive information relating to the nonconforming condition was readily available in several panels in the licensee's component tracking data base. For example, panel D202 included a readily available note which stated "need to replace diaphragm 116-00134 prior to use in plant."

The review of P.O. No. 011466532 did not identify the discrepant information located within the CID facility specific section in Passport panel D202. The document package associated with the P.O. included electronic correspondence (i.e., a one-line email) documenting that a senior procurement engineer reviewed the document package for the P.O. and found it to be acceptable. The use of panel D202 is described in Section 4.29 of SM-AA-300-1001, "Procurement Engineering Process and Responsibility," Rev 24. Specifically, the procedure states "Additional comments and the basis for site applicability may be added under the CID facility specific section in Passport panel D202, AAA route list, D201 panel OLE field, or BOM NOTES, as appropriate." The guidance in Procedure SM-AA-300-1001, combined with the failures to follow procedural requirements for applying hold tags and initiating tracking documentation further inform the agency's conclusion that reasonable opportunities existed to foresee and prevent the installation of the nonconforming PCV.

Consequently, without identifying adverse information concerning the PCV, procurement staff verified a nonconforming component as acceptable for use. As a result of the nonconforming part installation, on April 10, 2020, at 1:15 AM, while conducting monthly technical specification surveillance testing of the HPCI auxiliary oil system, operators identified an oil leak on 23PCV-12 as a result of a tear in the subject diaphragm. Ultimately, the HPCI system was declared inoperable and placed the station into a higher licensee-established risk category (Yellow). ExGen notified the NRC of the inoperability per 10 CFR Part 50.72(b)(3)(v)(D) via Event Notification 54647. The 23PCV-12 valve was replaced and the HPCI system restored to operable status on April 10, 2020, at 8:02 PM.

Corrective Actions: ExGen performed immediate corrective actions to replace the nonconforming HPCI system PCV. ExGen also performed a fleet-wide stand down for procurement staff to conduct additional training. Additionally, ExGen created a separate action for each ExGen site to validate that a similar condition does not exist regarding other of nonconforming materials, parts, or components within their inventory tracking database. Furthermore, ExGen revised its warehouse and procurement procedures, adding steps pertaining to items subject to 10 CFR Part 21 notifications and items with holds.

Corrective Action References: IR 4334315, IR 4348906

Performance Assessment:

Performance Deficiency: The inspectors determined that FitzPatrick's did not comply with the requirements and guidance of quality-related procurement procedures, which contributed to ExGen's failure to adequately identify and control a nonconforming item.

Procedure SM-AA-102, Warehouse Operations, Rev 23, states items that are on hold at one site can be released to another site while on hold only if an action item is created at the receiving site to track resolution of the item before the transfer occurs, and the item is added to the receiving site's hold tag log. Additionally, a hold tag shall be attached to the item upon receipt of the transfer at the receiving site.

On December 16, 2017, FitzPatrick failed to follow SM-AA-102. Adherence to the requirements of this procedure, as well as using guidance provided in SM-AA-300-1001, would have presented a reasonable opportunity for FitzPatrick to identify and assess readily available information that was within the licensee's Catalogue ID database and also linked to the ExGen corrective action program. Consequently, without reviewing readily available adverse information concerning the PCV, procurement staff verified a nonconforming component as acceptable for use. Subsequently, FitzPatrick's maintenance staff installed the nonconforming component which caused the inoperability of the HPCI system.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Equipment Performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the HPCI system was unavailable to perform its safety function as a result of the failed PCV.

Significance: The performance deficiency was assessed by a Region I Senior Reactor Analyst (SRA) and NRR Senior Risk Analysis and determined that prior risk assessment was still valid for the failed HPCI system. The finding was determined to be of low to moderate safety significance (White). The risk important core damage sequences were dominated by internal events, primarily loss of condenser heat sink and loss of main feedwater. The dominant core damage sequence is loss of condenser heat sink, failure of high-pressure injection (HPI), and failure to manually depressurize the reactor. See Enclosure 1 to this final determination report and the Attachment, "HPCI Oil PCV Failure Detailed Risk Evaluation," to the preliminary determination report (ADAMS Accession Number: ML21020A108) for a detailed review of the quantitative and qualitative criteria considered in the final risk determination.

The inspectors assessed the significance of the finding using Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." The inspectors reviewed Inspection Manual Chapter (IMC) 0609, Attachment 4, "Initial Characterization of Findings," and determined the finding affects the mitigating system cornerstone. The inspectors evaluated the significance of this finding using Inspection Manual Chapter (IMC) 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at Power," Exhibit 2 – Mitigating Systems Screening Questions. The inspectors determined that the finding represented a loss of the PRA function of a single train, the HPCI system, for greater than its technical specification (TS) allowed outage time and required a detailed risk evaluation (DRE).

A Region I Senior Reactor Analyst (SRA) performed a detailed risk evaluation. The finding was determined to be of low to moderate safety significance (White). The risk important core damage sequences were dominated by internal events, primarily loss of condenser heat sink and loss of main feedwater. The dominant core damage sequence is loss of condenser heat sink, failure of high-pressure injection (HPI), and failure to manually depressurize the reactor. This final determination report and the Attachment, "HPCI Oil PCV Failure Detailed Risk Evaluation," to the preliminary determination report provide a detailed review of the quantitative and qualitative criteria considered in the final risk determination (ADAMS Accession Number: ML21020A108).

**Cross-Cutting Aspect: H.1 - Resources:** Leaders ensure that personnel, equipment, procedures, and other resources are available and adequate to support nuclear safety. The cause of the finding was determined to be associated with a cross-cutting aspect of Resources in the Human Performance area because ExGen staff failed to identify and address a nonconformance during verification of the quality of the HPCI system PCV. Specifically, the inspectors determined there were multiple ways for ExGen to reasonably identify a nonconformance associated with the PCV diaphragm which had not been addressed. Furthermore, procurement implementing procedures did not provide adequate guidance to ensure that procedure users would identify and resolve this issue. Having comprehensive steps within the relevant procedure would likely have prevented installation of the defective part at FitzPatrick.