



June 6, 2019

NG-19-0077

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555-0001

Duane Arnold Energy Center
Docket 50-331
Renewed Op. License No. DPR-49

Technical Specification 5.6.6 Post Accident Monitoring (PAM) Report

The purpose of this letter is to submit the attached report required by the Duane Arnold Energy Center Technical Specifications (TS) Section 5.6.6, Post Accident Monitoring (PAM) Report. This letter makes no new commitments or changes to any existing commitments. If you have any questions, please call Mike Davis, Licensing Manager at (319) 851-7032.

A handwritten signature in black ink, appearing to read "Dean Curtland".

Dean Curtland
Site Director, Duane Arnold Energy Center
NextEra Energy Duane Arnold, LLC

Enclosure: Technical Specification 5.6.6 Post Accident Monitoring (PAM) Report

cc: Administrator, Region III, USNRC
Project Manager, DAEC, USNRC
Resident Inspector, DAEC, USNRC

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NRR

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June 6, 2019

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SUBJECT: Technical Specifications 5.6.6 PAM 14 Day Report

Enclosure to NG-19-0077

Technical Specification 5.6.6 Post Accident Monitoring (PAM) Report

2 pages follow

Technical Specification 5.5.6 Post Accident Monitoring
(PAM) Instrumentation 14-Day Report

Background

The primary purpose of the PAM instrumentation is to display plant variables that provide information required by the control room operators during accident situations. This information provides the necessary support for the operator to determine that the actions automatically initiated by the Engineered Safety Features (ESF) equipment have successfully accomplished their safety functions for Design Basis Events.

Main Steam Isolation Valve (MSIV) position is a Type B, Category I variable provided for verification of containment integrity. In the case of MSIV position, the important information is the isolation status of the containment penetration. For the Duane Arnold Energy Center (DAEC), the Primary Containment Isolation Valve (PCIV) position PAM instrumentation consists of the individual open (i.e., red) and closed (i.e., green) position indicating lights for each active PCIV. These indicating lights are located on various control panels in the control room.

On May 4, 2019 at 2059, while operating at 100% power, the 'D' Main Steam Line Outboard Isolation Valve (MSIV), CV4421, closed indication light (green light) was found lit, with the open indicating light (red light) lit, indicating dual valve position. Operators immediately confirmed that there were no other indications that the 'D' Outboard MSIV had left its full open position. Specifically, operators verified that there were no changes in main steam flow, reactor power, or reactor pressure. Subsequent investigation determined the cause was from the failure of 'D' Outboard MSIV Closed Position Switch, ZS4421B. This failure required entry into Technical Specifications (TS) Limiting Condition for Inoperability 3.3.3.1, PAM Instrumentation, Condition A; One or more Functions with one required channel inoperable. Condition A requires restoration of the required indication channel to an Operable status within 30 days. Resolution of the issue within 30 days (June 3, 2019) was not achieved, then requiring, per TS 3.3.3.1 Condition B, that a report be submitted within the following 14 days in accordance with TS Section 5.6.6. "PAM Report".

The TS 5.6.6 PAM report requirement states the cause of the inoperability is to be discussed along with plans for restoration. The report requirement also assumes the condition has not been corrected and as such calls for outlining alternate monitoring methods and their equivalency to the lost function, or justification of non-equivalency.

Cause of the Inoperability

The cause of the inoperability is the failure of ZS4421B, Position Indicating Switch for CV4421, 'D' Main Steam Line Outboard Isolation Valve (MSIV). This limit switch is located inside the Steam Tunnel and the failure will be determined via maintenance activities during the next Forced Outage.

Preplanned Alternate Methods of Monitoring

The failed limit switch provides indication of isolation status of the 'D' Main Steam Line. Both the open and closed position indications for the 'D' Inboard MSIV remain operable. These PAM instruments provide redundant status of the isolation status of the 'D' Main Steam Line. In addition, other control room indications are available to support isolation status. These included the 'D' Main Steam line flow indications.

Degree of Equivalence of alternate indication

The 'D' Inboard MSIV position indications are a Type B, Category I variable in accordance with Regulatory Guide 1.97, and therefore, are fully equivalent indication of the isolation status of the 'D' Main Steam Line.

Plans and Schedule for Resolving the Operable but Degraded Condition

Work Order 40662931 is currently scheduled to repair limit switch (ZS4421B) during the next Forced Outage.