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EMD-GM-17-32

June 29, 2017

52-27/28

Nuclear Regulatory Commission
Washington, D.C. 20555-0001


Attn: Document Control Desk

Subject: Report of Potential Substantial Safety Hazard in accordance with Title 10 Code of Federal Regulations, Part 21

Reference: a) Curtiss Wright Electro-Mechanical Corporation letter EMD-GM-17-02, dated January 12, 2017

Curtiss-Wright Electro-Mechanical Corporation (CW-EMD) submitted an interim report concerning a deviation in the AP1000 Reactor Coolant Pump casing via Reference a. This letter updates the status of the investigation.

1. Extent of condition evaluation has been completed. CW-EMD has confirmed that the discontinuous (non-tangential) axisymmetric feature between the cast bowl region and machined suction nozzle OD is limited (domestically) to the 8 AP1000 RCP casings delivered to V.C. Summer units 2 & 3.
2. AP1000 RCP casing stress and fatigue supplemental analyses have been performed to assess the excess material condition discovered on the suction nozzle OD. The deviation has been determined to still satisfactorily meet the pressure boundary stress requirements of the ASME Code and can therefore be accepted as-is.
3. The analysis included generation of a 2D axisymmetric FEA of the casing with a bounding representation of the as-built geometry, based on extraction of cross-sectional profiles from the V.C. Summer laser scan data of 2 casings. The 2D FEA was used to determine the stress concentration factor(s) associated with the as-built deviated feature, enabling a fatigue strength reduction factor to be estimated and applied to the existing 3D FEA casing fatigue (nominal design) analysis.
4. The maximum fatigue usage at the location of the deviation on the casing suction nozzle was conservatively estimated to increase from 0.287 to 0.633. This condition still satisfies the 1.0 usage limit specified in the ASME Code.
5. Therefore, this deviation does not constitute a substantial safety hazard, and the condition has been determined to be not reportable under the provisions of Title 10 Code of Federal Regulations, Part 21.


Brian W. Eckels, General Manager
Curtiss-Wright Electro-Mechanical Corporation

Copy to: Westinghouse Electric Company

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