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52-25/26  
52-27/28

EMD-GM-17-02

January 12, 2017

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

Curtiss-Wright Electro-Mechanical Corporation (CW-EMD) has identified a condition which is currently being evaluated to determine if a significant safety hazard exists in the casing for the AP1000 Reactor Coolant Pump (RCP). The investigation is underway, but will not be completed within the required 60 days from discovery as required by paragraph 21.21(a)(1) of the regulation. This submission constitutes CW-EMD's interim report on the condition in accordance with paragraph 21.21(a)(2) of the regulation.

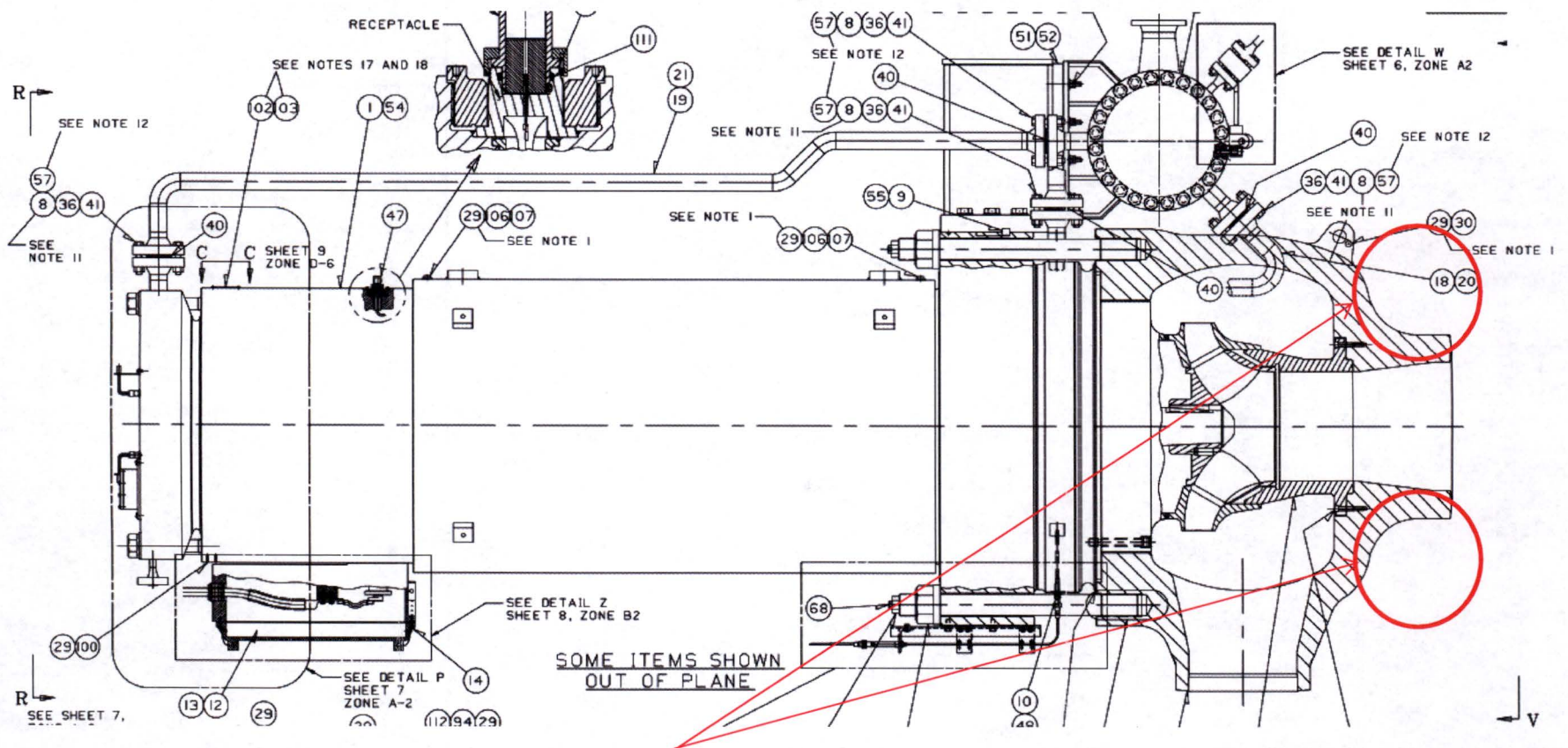
(i) Name and address of the individual or individuals informing the Commission

Brian W. Eckels, General Manager  
Curtiss-Wright Electro-Mechanical Corporation  
1000 Wright Way Cheswick, Pa 15024

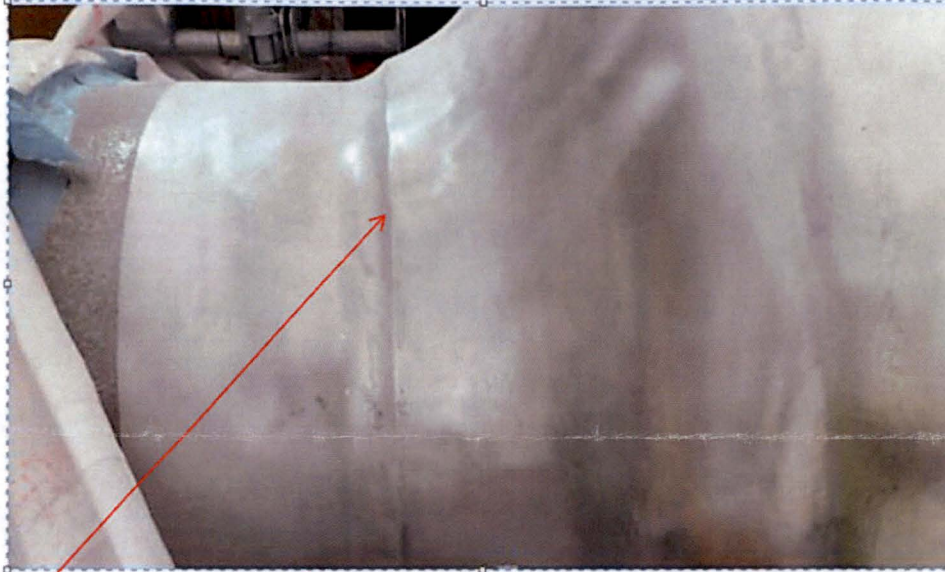
(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

Casings for the AP1000 Reactor Coolant Pump. The casings have an excess material condition in the transition region between the cast bowl and the suction nozzle. The condition is a discontinuous (non-tangential) axisymmetric feature between the cast bowl region and machined suction nozzle OD. The as-built transition feature on the casings has not been analyzed and is not included in CW-EMD Engineering Memorandum 7242, Revision 1, Volume 1, which is the applicable generic design report for the AP1000 RCP casing and main closure. (See photograph and drawing below)

IE19  
NRD



**Region of excess material is at the transition between the cast bowl section and the machined suction nozzle OD on the casting exterior surface**



**Photograph showing discontinuous excess material at the transition between the cast bowl section and the machined suction nozzle OD on the casing exterior surface**

- (iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

Curtiss Wright Electro-Mechanical Corporation  
1000 Wright Way Cheswick, Pa 15024

- (iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

There is a non-tangential zone of excess material in the transition between the suction nozzle and the cast casing bowl which has the potential to act as a stress riser and impact fatigue life of the component. The as-built transition feature on the casings has not been analyzed and is not included in CW-EMD Engineering Memorandum 7242, Revision 1, Volume 1, which is the applicable generic design report for the AP1000 RCP casing and main closure.

- (v) The date on which the information of such defect or failure to comply was obtained.

November 15, 2016

- (vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

At present, the following domestic deliveries have been made:

8 casings have been provided to V.C. Summer Units 2 and 3 (from supplier #1)  
8 casings have been provided to Vogtle Units 3 and 4 (from supplier #2)

Casings have been fabricated by two suppliers. Additional information has been requested from each supplier to further define extent of condition.

CW-EMD is providing instructions to customers for photographing the casings which have been delivered so that definitive extent of condition can be determined.

- (vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has been or will be taken to complete the action.

CW-EMD issued corrective action number CAR-2016-00262 and opened Part 21 investigation 16-014 to document the investigation, deviation cause(s), and actions necessary to address the deviation.

A visit to the V.C. Summer site to gather the necessary dimensional data is planned for February 2017.

Preliminary analysis has been completed; however, detailed dimensional data is needed to complete a thorough stress analysis of the casing.

Final analysis of the excess material condition, based upon detailed dimensional data to be collected in February 2017, and determination whether this condition poses a significant safety hazard are dependent upon the complexity of the analysis, but are expected to be completed by June 30, 2017.

CW-EMD is coordinating with Westinghouse Electric Company, owner of the AP1000 plant design.

- (viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

CW-EMD does not have any recommendations pending completion of our investigation.

- (viii) In the case of an early site permit, the entities to whom an early site permit was transferred.

Not applicable.



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

Copy to: Westinghouse Electric Company