Ameren MISSOURI

Callaway Plant

October 31, 2017

ULNRC-06393

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

10 CFR 21.21(d)(3)(ii)

Ladies and Gentlemen:

DOCKET NUMBER 50-483
CALLAWAY PLANT UNIT 1
UNION ELECTRIC CO.
RENEWED FACILITY OPERATING LICENSE NPF-30
10 CFR PART 21 WRITTEN NOTIFICATION REGARDING CAMERON BARTON MODEL 752B DIFFERENTIAL PRESSURE TRANSMITTERS

The enclosed report is being made in accordance with 10 CFR 21.21, "Notification of failure to comply or existence of a defect and its evaluation," in regard to the subject differential pressure transmitters. This notification is being sent to inform you of a condition that could create a substantial safety hazard if one of the susceptible transmitters, discussed in the enclosed report, were installed in a Reactor Trip System or Engineered Safety Features Actuation System.

This letter does not contain new commitments.

If there are any questions, please contact David S. Turley, Supervising Engineer at (314) 225-1779.

Sincerely,

Keith A. Mills
Director, Engineering Systems

Enclosure
1) 10 CFR 21.21(d)(3)(ii) Report

cc: Mr. Kriss M. Kennedy
Regional Administrator
U. S. Nuclear Regulatory Commission
Region IV
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Senior Resident Inspector
Callaway Resident Office
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Index and send hardcopy to QA File A160.0761

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10 CFR 21.21(d)(3)(ii) Report

This report is being made in accordance with 10 CFR 21.21, "Notification of failure to comply or existence of a defect and its evaluation," particularly sections 10 CFR 21.21(d)(3)(ii) and 10 CFR 21.21(4). This written notification is being sent within thirty days of an initial notification that was made by telephone call and email to the NRC Operations Center on October 3, 2017. The initial notification may be referenced as EN# 52998.

Name and address of individual informing the NRC:

Alexis Hunt
(573) 310-7435
Ameren Missouri
P.O. Box 620
Fulton, MO 65251

Identification of Facility:

Callaway Plant Unit 1, Ameren Missouri

Basic components which contain a defect:

Cameron Barton Model 752B Differential Pressure Transmitters

Firms supplying basic component which contain a defect:

Cameron Measurement Systems
Westinghouse Electric Corporation

Nature of defect:

If one of the susceptible transmitters were installed in a most limiting or challenging application, e.g., for reactor coolant system flow measurement/indication (low flow reactor trip function), the allowed sensor drift to accommodate changes in transmitter performance would be required to be limited to 1% of instrument span per an 18-month operating period. Current margin available within the set point uncertainty analysis for this reactor trip function is 0.62% of instrument span. The observed shift in output of 10-20% of instrument span for the Cameron Barton Model 752B differential pressure transmitter would thus exceed the available margin for the protective function in this application. Therefore, the safety function for this device may not be assured for all transmitter configurations. This condition could create a substantial safety hazard due to the loss of safety function of a basic component, which meets the criterion of a major degradation of essential safety-related equipment.

Date on which information of the defect was obtained:

By letter dated August 31, 2017, Westinghouse notified Callaway Plant that they were unable to complete a 10 CFR 21.21(a) evaluation for a product advisory which was issued by Cameron Measurement Systems for a concern with the model 752B transmitter product line.

Location of basic components containing a defect:

On October 2, 2017 Callaway personnel completed the 10 CFR Part 21 evaluation. Of the transmitters identified, only one is currently installed at Callaway in location BNLT0930, Refueling Water Storage Tank Protection A Level Transmitter.

Corrective action which has been taken, is being taken, or will be taken:

The Callaway Engineering department is responsible for coordinating the three corrective actions, identified below, to completion.

Corrective Action 1, tracked by Condition Report 201703998-001, will return all model 752B transmitters located in the Callaway storeroom for repair in accordance with the Cameron product advisory. Expected completion is May 2018.

Corrective Action 2, tracked by Condition Report 201703998-002, will verify units repaired offsite are corrected prior to being placed back into Callaway inventory. Expected completion is May 2018.

Corrective Action 3, tracked by Condition Report 201703998-003, will replace the transmitter installed in BNLT0930. No instabilities (oscillations) have been observed in the installed transmitter, but it will be replaced with a repaired model 752B transmitter. This is expected to be completed by May 2018.

Advice related to the defect:

Other affected customers have been notified via the Nuclear Product Advisory distributed by Cameron and Westinghouse. The product advisory identified the potential for instability in the transmitter output signal under certain grounding conditions. Callaway was supplied transmitters that could be affected, under Westinghouse part numbers 8765D64G03, 8765D64G04, and 8765D64G05. The Westinghouse notification letter served as the transfer of reporting responsibilities for this concern from Westinghouse to Callaway in accordance with 10 CFR 21.21(b).

The 10 CFR Part 21 evaluation is based on the technical information provided by Westinghouse. The notification letter describes that shifts up to 10-20% of instrument scale (1.6-3.2 mA) can be observed within the transmitter output under grounding conditions such as those introduced by the original equipment manufacturer during testing. Westinghouse evaluations concluded that such instabilities would be self-revealing within plant applications for which the transmitter output signal was supplied to a Westinghouse 7300 system, assuming the transmitter stanchion was grounded. Not all transmitters within this product line were subject to this concern.

Two transmitters from Callaway's affected population were subject to bench testing, similar to that performed by the original equipment manufacturer, in order to understand the conditions that created the instability in the transmitter output. The concerns identified in the Nuclear Product Advisory were not able to be replicated using the information provided by Cameron and Westinghouse. As noted in the advisory, the concern did not manifest itself in all transmitters subjected to testing. The inability to reproduce the unstable output limited the 10 CFR Part 21 evaluation to the technical information provided in Westinghouse letter SCP-17-30.

NOTE: Westinghouse's correspondence letter and the Cameron Product Advisory are marked proprietary Class 2 documents, so they are not provided with this notification.