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2CAN031703

March 29, 2017

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

SUBJECT: Reply to a Notice of Violation; EA-16-247  
Arkansas Nuclear One - Unit 2  
Docket No. 50-368  
License No. NPF-6

- REFERENCES:
1. NRC Letter to Entergy, *Arkansas Nuclear One, Unit 2 – Final Significance Determination of a White Finding and Notice of Violation, NRC Inspection Report 05000368/2017014*, dated February 27, 2017 (2CNA021703) (ML17055A727)
  2. Entergy Letter to NRC, *Licensee Event Report 50-368/2016-001-00*, dated November 15, 2016 (2CAN111602) (ML16320A437)
  3. NRC Letter to Entergy, *Arkansas Nuclear One – NRC Inspection Report 05000368/2016011 and Preliminary White Finding*, dated January 19, 2017, (2CNA011701) (ML17019A288)

Dear Sir or Madam:

In Reference 1, the NRC transmitted a White Finding and a Notice of Violation to Entergy Operations, Inc. (Entergy). The White Finding was associated with the failure to ensure an emergency diesel generator bearing was provided with adequate lubrication. Reference 2 provided Entergy's Licensee Event Report related to this White Finding which was closed by Reference 3.

Pursuant to 10 CFR 2.201, Entergy's response to the Notice of Violation is provided in the attachment to this letter.

This letter contains no new regulatory commitments. If you have any questions concerning this submittal, please contact me.

Sincerely,

**ORIGINAL SIGNED BY STEPHENIE L. PYLE**

SLP/nbm

Attachment: Reply to a Notice of Violation EA-16-247

cc: Mr. Kriss Kennedy  
Regional Administrator  
U. S. Nuclear Regulatory Commission, Region IV  
1600 East Lamar Boulevard  
Arlington, TX 76011-4511

NRC Senior Resident Inspector  
Arkansas Nuclear One  
P.O. Box 310  
London, AR 72847

U. S. Nuclear Regulatory Commission  
Attn: Mr. Thomas Wengert  
MS O-08B1A  
One White Flint North  
11555 Rockville Pike  
Rockville, MD 20852

**Attachment to**

**2CAN031703**

**Reply to a Notice of Violation EA-16-247**

## NOTICE OF VIOLATION

Entergy Operations, Inc.  
Arkansas Nuclear One, Unit 2

Docket No.: 05-368  
License No.: NPF-6  
EA-16-247

During an NRC inspection conducted from September 16 to December 21, 2016, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

Technical Specification 6.4.1.a requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, "Quality Assurance Program Requirements," Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Appendix A, Section 9.a, states, in part, that maintenance that can affect the performance of safety-related equipment should be properly pre-planned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances.

Contrary to the above, on November 11, 2014, and on June 22, 2016, the licensee failed to properly pre-plan and perform maintenance that can affect the performance of safety-related equipment in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances. Specifically, on November 11, 2014, while performing Work Order 356569, and on June 22, 2016, while performing Work Order 52656389, the licensee failed to provide adequate documented work instructions for maintenance on the Unit 2 emergency diesel generator (EDG) A inboard generator bearing, a safety-related component, such that the minimum bearing oil level was correctly marked and maintained to ensure adequate lubrication to the bearing. As a result, the Unit 2 EDG A failed on September 16, 2016, during a 24-hour endurance test.

This violation is associated with a White significance determination process finding.

## **Reply to a Notice of Violation EA-16-247**

Entergy Operations, Inc. (Entergy) concurs with the violation as cited in the Notice of Violation regarding the failure to ensure the Arkansas Nuclear One, Unit 2 (ANO-2) EDG bearing was provided with adequate lubrication.

As documented in Reference 2 of the cover letter, the ANO-2 Licensee Event Report (LER) provided details of the EDG A bearing failure. The LER was closed by Reference 3 of the cover letter. Entergy performed a root cause evaluation (RCE), and insights from the RCE are provided in the following sections.

### (1) The reason for the violation

The direct cause of this event is the ANO-2 EDG A inboard bearing had insufficient lubrication. This cause is supported by the identified bearing damage and the Failure Modes Analysis.

The root cause of this event was determined to be inadequate Work Planning Standards associated with EDG inboard bearing sight glass maintenance. Specifically, there were no detailed instructions for performing as-left measurements following repair of the inboard bearing oil sight glass.

A contributing cause of this event was that the craft failed to identify the critical parameters of the sight glass scribe mark and, therefore, did not recognize that the work order lacked sufficient instruction to take measurements after maintenance was completed.

### (2) The corrective steps that have been taken and the results achieved

The extent-of-condition for safety-related equipment or equipment used for safe shutdown of either unit with the potential of a similar sight glass configuration issue was completed. Sight glasses were verified to have the markings at the appropriate level. Also, where available, temperature monitoring, vibration, and oil analysis, along with past equipment performance was reviewed. No equipment issues or adverse trends were identified during the review.

As part of the extent-of-condition, the ANO-1 EDGs were verified to be of dissimilar design, i.e., ANO-1 EDG bearings are greased bearings and not oil lubricated. Therefore, the ANO-1 EDG bearings do not utilize sight glasses or scribe marks.

Detailed instructions for measuring the EDG bearing sight glass elevation in support of future bearing-related work order development have been implemented to ensure that when repairs are completed on the sight glass, the as left measurements of the sight glass scribe mark are verified per the vendor technical documents.

If the sight glass is manipulated during preventative maintenance, the ANO-2 EDG maintenance procedure has been revised to verify the inboard and outboard sight glass scribe mark locations following corrective maintenance in order to ensure the scribe marks were not inadvertently altered during maintenance.

A corrective action to prevent recurrence has been completed to create information labels to be added to the end bells of the ANO-2 EDGs near the inboard and outboard bearings, stating that

the bearing oil level sight glass scribe mark is established in accordance with a site procedure, and if the sight glass or associated piping is disturbed, the scribe mark must be verified per the site procedure. In addition, procedures that allow removal of the end bells have been revised to add guidance to re-measure these scribe marks if the end bells are removed.

(3) The corrective steps that will be taken

Training is in progress for the craft and planning department. The intent of this action is to ensure that critical steps are identified in work instructions and that proper guidance is included to ensure a successful outcome.

(4) The date when full compliance will be achieved

The ANO-2 EDG was returned to operable status on October, 22, 2016. Full compliance was achieved by February 16, 2017, when the ANO-2 EDG maintenance procedure and work order instructions were revised.