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July 23, 2013

ULNRC-06015

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

10 CFR 50.73(a)(2)(i)(B)

Ladies and Gentlemen:

DOCKET NUMBER 50-483
CALLAWAY PLANT UNIT 1
UNION ELECTRIC CO.
FACILITY OPERATING LICENSE NPF-30
LICENSEE EVENT REPORT 2013-007-00
VIOLATION OF TS 3.8.1 DUE TO AN
INOPERABLE OFFSITE AC ELECTRICAL POWER SOURCE

The enclosed Licensee Event Report is submitted in accordance with 10CFR50.73(a)(2)(i)(B) to report a violation of Technical Specification 3.8.1 due to an inoperable offsite AC Electrical Power Source.

This letter does not contain new commitments.

Sincerely,

Fadi M Diya
Vice President Nuclear Operations

Enclosure: LER 2013-007-00

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

Senior Resident Inspector
Callaway Resident Office
U.S. Nuclear Regulatory Commission
8201 NRC Road
Steedman, MO 65077

Mr. Fred Lyon
Project Manager, Callaway Plant
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Mail Stop O-8B1
Washington, DC 20555-2738

Index and send hardcopy to QA File A160.0761

Hardcopy:

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NRC FORM 366 (10-2010) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 10/31/2013

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA/Privacy Section (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Callaway Plant Unit 1	05000483	1 OF 5

4. TITLE

Violation of TS 3.8.1 Due To An Inoperable Offsite AC Electrical Power Source

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
05	19	2013	2013	- 007 -	00	07	23	2013	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE

Mode 5

10. POWER LEVEL

0 %

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: *(Check all that apply)*

☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER
☐ 20.2203(a)(2)(vi)	☒ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER (Include Area Code)
T.B. Elwood, Supervising Engineer, Regulatory Affairs and Licensing	314-225-1905

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
A	EA	XFMR	W120	Y					

14. SUPPLEMENTAL REPORT EXPECTED

☐ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)* ☒ NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

ABSTRACT *(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)*

On 05/28/2013, oil was observed leaking from a 345-kV bushing on the Startup Transformer (XMR01) while the plant was in Mode 1. The leakage was addressed by tightening the bushing oil fill cap, and the Startup Transformer was declared operable on 05/30/2013 at 1648.

The Startup Transformer is part of one qualified preferred source of offsite AC power to the Class 1E buses, as required by the plant's Technical Specifications. Investigation determined that the oil leak on the Startup Transformer was determined to have existed from a certain point in time prior to the time of discovery and that the Startup Transformer would not have been capable of meeting its Operability mission time of 30 days while the oil leak existed. Consequently, it was concluded that the transformer had been inoperable for a period of time longer than allowed by the plant's Technical Specifications.

The cause of this event was a human performance error which occurred during a maintenance activity on the Startup Transformer during Refueling Outage 19. Work instructions will be revised to provide photos and additional instruction on which components to loosen when power factor testing the Startup Transformer.

1. DESCRIPTION OF STRUCTURE(S), SYSTEM(S) AND COMPONENT(S):

The unit Class 1E AC Electrical Power Distribution System AC sources consist of the offsite power sources (preferred power sources) and the onsite standby power sources (Train A and Train B diesel generators (DGs)). As required by 10 CFR 50, Appendix A (General Design Criterion 17), the design of the AC electrical power system provides independence and redundancy to ensure an available source of power to the Engineered Safety Feature (ESF) systems.

Offsite power is supplied to the unit switchyard from the transmission network by four transmission lines. From the switchyard [EIIS System Code: FK], two electrically and physically separated circuits provide AC power, through ESF transformers [EIIS System Code: EB], to the two 4.16-kV ESF buses [EIIS System Code: EB]. One offsite circuit consists of either Safeguards Transformer A or B [EIIS Code: XFMR], which is supplied from Switchyard Bus A or B [EIIS Code: BU], and feeds through a breaker to ESF transformer XNB01, which, in turn, powers the NB01 ESF bus through its normal feeder breaker (or the NB02 ESF bus through its alternate feeder breaker, if needed). Another offsite circuit consists of the switchyard-supplied Startup Transformer [EIIS System Code: EA] which provides power to ESF transformer XNB02 via breaker PA0201, which in turn powers the NB02 ESF bus through its normal feeder breaker (or the NB01 ESF bus through its alternate feeder breaker, if needed).

The onsite standby power source for each 4.16-kV ESF bus is a dedicated DG [EIIS System Code: EK]. DGs NE01 and NE02 are dedicated to ESF buses NB01 and NB02, respectively. A DG starts automatically on a safety injection (SI) signal (i.e., low pressurizer pressure, steam line pressure or high containment pressure signals) or on an ESF bus undervoltage signal. After the DG has started, it will automatically tie to its respective bus after offsite power is tripped as a consequence of ESF bus undervoltage or degraded voltage, independent of or coincident with an SI signal. The DGs will also start and operate in the standby mode without tying to the ESF bus on an SI signal alone. Following the trip of offsite power, a Load Shedder and Emergency Load Sequencer (LSELS) strips nonpermanent loads from the ESF bus. When the DG is tied to the ESF bus, loads are then sequentially connected to its respective ESF bus by the LSELS. The sequencing logic controls the permissive and starting signals to motor breakers to prevent overloading the DG by automatic load application.

In the event of a loss of preferred power, the ESF electrical loads are automatically connected to the DGs in sufficient time to provide for safe reactor shutdown and to mitigate the consequences of a Design Basis Accident (DBA) such as a loss of coolant accident (LOCA).

Two qualified circuits between the offsite transmission network and the onsite Class 1E Electrical Power System, along with separate and independent DGs for the two ESF buses, ensure availability of required power to shut down the reactor and maintain it in a safe shutdown condition after an anticipated operational occurrence (AOO) or a postulated DBA.

2. INITIAL PLANT CONDITIONS:

On 05/19/2013, the plant was preparing for startup from a refueling outage and in Mode 5, Cold Shutdown. The Startup Transformer was subsequently rendered inoperable per the condition described in this LER; no other significant equipment was concurrently inoperable.

3. EVENT DESCRIPTION:

On 05/19/2013, maintenance was conducted on Startup Transformer XMR01, during which the 345-kV B-phase bushing oil fill cap was loosened for the purpose of power factor testing. It was then determined that the oil fill cap was the incorrect device to loosen for the intended testing, and that the correct power factor termination cap was located at a lower location (less than 12" away) on the bushing. The testing was completed, but the bushing oil fill cap was inadvertently left in a loosened condition. The transformer was subsequently returned to service (with the bushing oil cap loosened) on 05/22/2013 at 0835.

On 05/22/2013 the plant entered Mode 4 at 2033, at which time two qualified offsite sources were required to be Operable per Technical Specification (TS) 3.8.1, "AC Sources – Operating." On 05/28/2013, the oil leak was discovered on the Startup Transformer B-phase bushing by an Operations Technician. It was confirmed that the oil leak was from the bushing oil fill cap. A job to address the leakage and to tighten the bushing fill cap was completed, and the Startup Transformer was declared operable on 05/30/2013 at 1648.

4. ASSESSMENT OF SAFETY CONSEQUENCES:

The AC electrical power sources (onsite and offsite sources) ensure the availability of necessary power to ESF systems (i.e., the ESF safety buses), thereby supporting the capability to shut down the reactor and maintain it in a safe shutdown condition after an anticipated operational occurrence (AOO) or a postulated DBA.

The offsite AC electrical power sources are divided into two electrically and physically separated circuits such that each circuit is 100% capable of performing or supporting the required safety functions. With one offsite AC circuit inoperable due to the condition described in this LER, the other offsite AC circuit remained operable and capable of transmitting power from the offsite transmission network to its associated Class 1E ESF bus (or to the other ESF bus via the alternate feeder breaker). Additionally, both DGs were operable at the time the plant entered Mode 4 (and subsequent Modes) with the noted oil leak in effect. In light of the availability of these power sources, the event is not considered to be safety significant.

5. REPORTING REQUIREMENTS:

This LER is submitted pursuant to 10 CFR 50.73(a)(2)(i)(B) to report a condition prohibited by the plant's Technical Specifications.

The Startup Transformer is subject to the requirements of Callaway Technical Specification (TS) 3.8.1, "AC Sources – Operating." Per the Limiting Condition for Operation (LCO) of this Technical Specification, two qualified circuits between the offsite transmission network and the onsite Class 1E AC Electrical Power Distribution System must be OPERABLE during Modes 1, 2, 3, and 4. With one offsite circuit inoperable, Condition A applies and associated Required Actions A.1, A.2, and A.3 must be entered, the latter of which requires restoring the inoperable offsite circuit to Operable status within the specified Completion Time of 72 hours. With Required Action A.3 and its associated Completion Time of 72 hours of Condition A not met, Condition G applies and associated Required Actions G.1 and G.2 must be entered, which require the plant to be in Mode 3 in 6 hours and Mode 5 in 36 hours, respectively.

For the event addressed in this LER, Required Action A.3 became applicable when the plant reached Mode 4 on 05/22/2013 at 2033. The noted oil leak had not yet been identified at that time. The leak was eventually identified on 05/28/2013, and after quantifying the leakage on 5/29/2013, it was determined that the leak rendered the Startup Transformer inoperable on the basis that such a leak would prevent the Startup Transformer from fulfilling its assumed 30-day mission time.

Based on the difference in time between when the plant entered Mode 4 and when the oil leak was discovered, it was concluded that the period of inoperability for the affected offsite circuit exceeded the time allowed by Technical Specifications (i.e., longer than the 78-hour period of plant operation allowed by LCO 3.8.1). The condition is thus reportable as a condition or operation prohibited by Technical Specifications.

6. CAUSE OF THE EVENT:

The cause of this event was a human performance error committed during maintenance activities on the Startup Transformer which involved the following two critical errors:

1. Personnel loosened the bushing oil fill cap which turned out to be the incorrect component to loosen for the relay test work activity to power factor the transformer.

2. Personnel did not ensure the cap was tightened once loosened.

7. CORRECTIVE ACTIONS:

To address the immediate issue of the leak, a job to tighten the bushing fill cap was completed. Coaching was provided to personnel involved in the maintenance activity. In addition, work instructions will be revised to provide photos of the correct components to loosen when power factor testing the Startup Transformer.

8. PREVIOUS SIMILAR EVENTS:

A review of internal Operating Experience was performed and no previous events were identified in which a human performance error occurred during execution of testing on transformers.