



**Nebraska Public Power District**

*Always there when you need us*

NLS2010093  
October 21, 2010

U.S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D.C. 20555-0001

Subject: Licensee Event Report No. 2010-003-00  
Cooper Nuclear Station, Docket No. 50-298, DPR-46

Dear Sir or Madam:

The purpose of this correspondence is to forward Licensee Event Report 2010-003-00.

Sincerely,

Demetrius L. Willis  
General Manager of Plant Operations

/bk

Attachment

cc: Regional Administrator w/attachment USNRC - Region IV	NPG Distribution w/attachment
Cooper Project Manager w/attachment USNRC - NRR Project Directorate IV-1	INPO Records Center w/attachment
Senior Resident Inspector w/attachment USNRC - CNS	SORC Chairman w/attachment
SRAB Administrator w/attachment	CNS Records w/attachment

IE22  
NRR

## LICENSEE EVENT REPORT (LER)

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

Estimated burden per response to comply with this mandatory information collection request: 80 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), 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 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.

## 1. FACILITY NAME

Cooper Nuclear Station

## 2. DOCKET NUMBER

05000298

## 3. PAGE

1 of 4

## 4. TITLE

Low Voltage on Emergency Transformer Causes Loss of Safety Function

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED																																					
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER																																				
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10. POWER LEVEL																																														
100																																														

## 12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME

David W. Van Der Kamp, Licensing Manager

TELEPHONE NUMBER (Include Area Code)

(402) 825-2904

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
D	EA			N					

## 14. SUPPLEMENTAL REPORT EXPECTED

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

## 15. EXPECTED

SUBMISSION  
DATE

MONTH

DAY

YEAR

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

On August 24, 2010, at 08:14 Central Daylight Time, a low voltage condition occurred on the offsite power supply to the Emergency Station Service Transformer (ESST) during planned maintenance on the Station Startup Service Transformer (SSST). Subsequently, ESST secondary voltage dropped below the level where essential 4160 volt alternating current buses will automatically load onto the ESST. Cooper Nuclear Station (CNS) control room operators declared the ESST inoperable and entered the Technical Specification limiting condition for operation condition for two offsite circuits inoperable. After two minutes, ESST secondary voltage was restored to the proper level. CNS control room operators returned the ESST to operable status at 08:46.

The cause of this event was that CNS' review of a revised switching order, associated with planned maintenance on the SSST, was inadequate. A change in sequence for switching activities had been made by the Nebraska Public Power District's system control center and the risk significance of the change was not recognized by CNS. To prevent recurrence of the event, CNS will revise procedures to add a precautionary note for performing offsite power source switching manipulations.

CNS reported this event per Event Notification 46201. The event has negligible safety significance.

# **LICENSEE EVENT REPORT (LER)** **CONTINUATION SHEET**

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Cooper Nuclear Station	05000298	YEAR	SEQUENTIAL NUMBER	REVISION	2 of 4
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## **17. NARRATIVE** (If more space is required, use additional copies of Form 366A)

### **PLANT STATUS**

Cooper Nuclear Station (CNS) was at 100% power in Mode 1, Power Operation, with the Startup Station Service Transformer (SSST) [EIS:EA/XFMR] inoperable for planned maintenance at the time of the event.

### **BACKGROUND**

The offsite power sources at CNS are the SSST which connects to the CNS 161 kilovolt (kV) switchyard [EIS:FK] and the 345/161 kV, 300 megavolt-amp (MVA) "T2" auto-transformer [EIS:FK/XFMR] connected to the 345 kV switchyard [EIS:FK], and a separate Emergency Station Service Transformer (ESST) [EIS:EA/XFMR] energized by a 69 kV line. The 161 kV switchyard is connected to one 161 kV line which terminates in a switchyard near Auburn, Nebraska, and the 345/161 kV, 300 MVA "T2" auto-transformer which connects to the CNS 345 kV switchyard. The 345 kV switchyard has five lines which terminate in switchyards near Tarkio, Missouri; Hallam, Nebraska; St. Joseph, Missouri; Fairport, Missouri; and Nebraska City, Nebraska. The ESST is fed by a 69 kV line which is part of a sub-transmission grid of the Omaha Public Power District.

If the Normal Station Service Transformer [EIS:EL/XFMR] (powered by the main generator) is lost, the SSST, which is normally energized, will automatically energize 4160 volt (V) buses 1A and 1B [EIS:EA/BU] as well as their connected loads, including the critical buses. If the SSST fails to energize the critical buses [EIS:EA/BU], the ESST, which is normally energized, will automatically energize both critical buses. If the ESST were also to fail, the Diesel Generators (DG) [EIS:EK] would automatically energize their respective buses to power essential loads.

Historically, the actions taken to remove the SSST from service included the opening of the switchyard switch for the 161 kV Auburn line, leaving the SSST connected to the 345 kV switchyard, taking action if necessary to adjust 69 kV line voltages, then proceeding with opening the in-plant 4160 V breakers and the remaining 161 kV switchyard breakers to complete the isolation of the SSST. This order of switching assures that the SSST remains operable/available when actions could be taken, if necessary, to assure that the ESST remained operable/available.

### **EVENT DESCRIPTION**

On August 24, 2010, at 06:43 Central Daylight Time, CNS control room operators declared the SSST inoperable for planned maintenance and entered Technical Specification (TS) limiting condition for operation (LCO) 3.8.1, Condition A, for one offsite circuit inoperable. CNS personnel opened the in-plant 4160 V breakers, making the SSST inoperable and unavailable. Then, Nebraska Public Power District (NPPD) utility personnel opened the 161 kV Auburn line switchyard breaker. As a result, at 08:14, a low voltage condition occurred on the 69 kV offsite power supply to the ESST, lowering voltage below the level where the essential 4160 V buses will automatically load onto the ESST.

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**17. NARRATIVE** (If more space is required, use additional copies of Form 366A)

From 08:14 to 08:16, the CNS control room received breakers 1FS and 1GS Auto Closure Not Permitted alarms while the NPPD system control center operator switched out the auto-transformer that supplies the SSST. The secondary windings on the ESST voltage lowered to approximately 4309 V and the 69 kV line voltage lowered to 69.4 kV. The nominal setpoint for the Closure Not Permitted action is 4330 V. CNS control room operators took actions in accordance with alarm response procedures.

CNS control room operators declared the ESST inoperable as the automatic closure of the supply breakers to the 4160 V essential buses was precluded. Since the SSST was already inoperable, TS LCO 3.8.1 Condition C, two offsite circuits inoperable, was entered. NPPD system control center operators monitored voltage response and restored the ESST voltage to greater than 4330 V within two minutes.

At 08:46, CNS control room operators returned the ESST to operable status following restoration of supply voltage and meeting TS surveillance requirement 3.8.1.1 for verification of correct breaker alignment and power availability to the ESST.

## **BASIS FOR REPORT**

The loss of both offsite power sources is reportable in accordance with 10 CFR 50.73(a)(2)(v)(D) as an "event or condition that could have prevented fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident." CNS also reported this event per Event Notification 46201, an eight-hour report.

## **SAFETY SIGNIFICANCE**

This event has negligible safety significance. During the short duration in which automatic closure of offsite emergency power was impacted, both DGs were available and there was no other impact to structures, systems, or components that were needed to achieve safe shutdown, or mitigate potential accidents, transients, and special events described in the CNS Updated Safety Analysis Report. Additionally, the quick restoration of 69 kV voltage demonstrated the evolution was monitored and controlled in a way which ensured the emergency offsite power supply remained available for use if needed. This event resulted in a negligible increase to the core damage frequency reflected in the CNS Probabilistic Risk Assessment.

This event is considered a Safety System Functional Failure.

## **CAUSE**

The root cause of this event was that CNS' review of the revised switching order, issued by NPPD's system control center for the planned maintenance on the SSST, was inadequate. A change in sequence for switching activities had been made by the system control center and the risk significance of the change was not recognized by CNS personnel performing reviews of the switching order.

**LICENSEE EVENT REPORT (LER)  
CONTINUATION SHEET**

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**17. NARRATIVE** (If more space is required, use additional copies of Form 366A)

There was no equipment/component mechanistic failure or subsequent equipment damage associated with this event.

**CORRECTIVE ACTIONS**

To prevent recurrence of this event, CNS will revise Procedure 2.2.15, Startup Transformer, and Procedure 2.2.17, Emergency Station Service Transformer, to include a precautionary note that warns against removing one of the two offsite power sources from service and subsequently performing switching manipulation on the remaining offsite power source lines.

As an interim measure, until the procedures are revised, CNS implemented a standing order to ensure that at least one offsite power source is maintained while switching orders are being executed in the second offsite power source.

**PREVIOUS EVENTS**

There have been no reportable events in the past eight years related to loss of safety function for offsite power sources.

Correspondence Number: NLS2010093

The following table identifies those actions committed to by Nebraska Public Power District (NPPD) in this document. Any other actions discussed in the submittal represent intended or planned actions by NPPD. They are described for information only and are not regulatory commitments. Please notify the Licensing Manager at Cooper Nuclear Station of any questions regarding this document or any associated regulatory commitments.

COMMITMENT	COMMITMENT NUMBER	COMMITTED DATE OR OUTAGE
None		