**Nebraska Public Power District**
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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

Cooper Project Manager w/attachment
USNRC - NRR Project Directorate IV-1

Senior Resident Inspector w/attachment
USNRC - CNS

SRAB Administrator w/attachment

NPG Distribution w/attachment

INPO Records Center w/attachment

SORC Chairman w/attachment

CNS Records w/attachment

IE22
NRR

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NRC FORM 366 (9-2007) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 08/31/2010

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.

# LICENSEE EVENT REPORT (LER)

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

| 1. FACILITY NAME | 2. DOCKET NUMBER | 3. PAGE |
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**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 |
| | | | | | | | | | | 05000 |
| 08 | 24 | 2010 | 2010 | - 003 - | 00 | 10 | 21 | 2010 | FACILITY NAME | DOCKET NUMBER |
| | | | | | | | | | | 05000 |

**9. OPERATING MODE**
1

**10. POWER LEVEL**
100

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

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

**12. LICENSEE CONTACT FOR THIS LER**

| FACILITY NAME | TELEPHONE NUMBER (Include Area Code) |
|---|---|
| David W. Van Der Kamp, Licensing Manager | (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 | MANU-FACTURER | REPORTABLE TO EPIX |
|---|---|---|---|---|---|---|---|---|---|
| D | EA | | | N | | | | | |

| 14. SUPPLEMENTAL REPORT EXPECTED | 15. EXPECTED SUBMISSION DATE | MONTH | DAY | YEAR |
|---|---|---|---|---|
| ☐ YES (If yes, complete EXPECTED SUBMISSION DATE). ☒ NO | | | | |

**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.

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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) [EIIS: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 [EIIS:FK] and the 345/161 kV, 300 megavolt-amp (MVA) "T2" auto-transformer [EIIS:FK/XFMR] connected to the 345 kV switchyard [EIIS:FK], and a separate Emergency Station Service Transformer (ESST) [EIIS: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 [EIIS: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 [EIIS:EA/BU] as well as their connected loads, including the critical buses. If the SSST fails to energize the critical buses [EIIS: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) [EIIS: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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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.

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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.

ATTACHMENT 3 LIST OF REGULATORY COMMITMENTS©[4]

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 | | |
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