

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)
Callaway Plant Unit 1

DOCKET NUMBER (2)

0 5 0 0 0 4 8 1 3 1 OF 0 3

PAGE (3)

TITLE (4)
Reactor Protection System Actuation

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER(S)	
0	1	3	1	8	5	8	5	0	0	5	0
0	1	3	1	8	5	0	0	5	0	0	0
0	1	3	1	8	5	0	0	5	0	0	0

OPERATING MODE (9)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)
1	20.402(b) <input checked="" type="checkbox"/> 20.405(c) <input checked="" type="checkbox"/> 50.73(a)(2)(iv) <input type="checkbox"/> 73.71(b) <input type="checkbox"/>
POWER LEVEL (10) 1 0 0	20.405(a)(1)(i) <input type="checkbox"/> 50.38(c)(1) <input type="checkbox"/> 50.73(a)(2)(v) <input type="checkbox"/> 73.71(c) <input type="checkbox"/>
	20.405(a)(1)(ii) <input type="checkbox"/> 50.38(c)(2) <input type="checkbox"/> 50.73(a)(2)(vii) <input type="checkbox"/> OTHER (Specify in Abstract below and in Text, NRC Form 366A) <input type="checkbox"/>
	20.405(a)(1)(iii) <input type="checkbox"/> 50.73(a)(2)(i) <input type="checkbox"/> 50.73(a)(2)(viii)(A) <input type="checkbox"/>
	20.405(a)(1)(iv) <input type="checkbox"/> 50.73(a)(2)(ii) <input type="checkbox"/> 50.73(a)(2)(viii)(B) <input type="checkbox"/>
	20.405(a)(1)(v) <input type="checkbox"/> 50.73(a)(2)(iii) <input type="checkbox"/> 50.73(a)(2)(ix) <input type="checkbox"/>

LICENSEE CONTACT FOR THIS LER (12)

NAME
William R. Campbell - Superintendent, Engineering

TELEPHONE NUMBER

AREA CODE

3 1 4 6 7 6 - 1 8 4 6 1 9

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDPS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDPS

SUPPLEMENTAL REPORT EXPECTED (14)

EXPECTED SUBMISSION DATE (15)

MONTH DAY YEAR

YES (If yes, complete EXPECTED SUBMISSION DATE)

☒ NO

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On 1/31/85 at 0635 CST with the unit operating at 100% power, a generator trip occurred due to a loss of field to the main generator. The generator trip caused a turbine trip and, as a result of the unit being above the P-9 setpoint (50%), a Reactor Trip occurred. Also initiated were a Feedwater Isolation Signal, an Auxiliary Feedwater Actuation Signal, and a Steam Generator Blowdown Isolation Signal. All Engineered Safety Features performed properly.

Due to voltage oscillations set up by this transient, the Automatic Bus Transfer (ABT) between the Unit Auxiliary Transformer and the Startup Transformer did not fast transfer causing a loss of the 13.8 kV nonsafety-related buses. Subsequently lost were the Reactor Coolant Pumps, Condensate Pumps, Circulating Water Pumps, and Heater Drain Pumps. The ABT did transfer in approximately two seconds re-energizing the 13.8 kV buses.

The operators verified indications and implemented recovery procedures. An investigation was initiated to determine the root cause of the trip. There was no damage to plant equipment or release of radioactivity as a result of this incident. At no time was the public health or safety threatened.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/95

FACILITY NAME (1)

DOCKET NUMBER (2)

LER NUMBER (6)

PAGE (3)

Callaway Plant Unit 1

0 5 0 0 0 4 8 3 8 5 - 0 0 5 - 0 0 0 2 OF 0 3

TEXT (If more space is required, use additional NRC Form 368A's) (17)

At 0635 CST on 1/31/85 with the unit operating at 100% power, a generator trip occurred as the result of a loss of field to the main generator. The generator trip caused a turbine trip and, as a result of the unit being above the P-9 setpoint (50%), a Reactor Trip occurred.

The generator was tied to the grid operating at 100% power. All plant conditions were normal. The Balance of Plant Operator (BOPO) was in phone contact with the Load Dispatcher (LD) making adjustments to the generator output voltage as is done each morning. On request from the LD, the BOPO was "bumping" voltage up (momentarily increasing the voltage to the auto regulator thus increasing the main generator output voltage and then allowing voltage to settle out). Three such "bumps" occurred with no abnormal indications. On the fourth "bump," the BOPO observed the generator field voltage decreasing instead of increasing. The BOPO stepped back from the panel to review indications and the lights in the Control Room went out. At this time the BOPO observed the generator trip/turbine trip and Reactor Trip. Also it was noted that the automatic bus transfer (ABT) between the Unit Auxiliary Transformer and the Startup Transformer did not fast transfer (6 cycles) causing a loss of power to PA01 and PA02, the two nonsafety-related 13.8 kV buses. Subsequently lost were the Reactor Coolant Pumps, Condensate Pumps, Circulating Water Pumps, and the Heater Drain Pumps. The ABT did make a dead bus transfer (two seconds) re-energizing buses PA01 and PA02.

The operators verified indications and went into recovery procedures. Also initiated as a result of the incident were a Feedwater Isolation Signal, an Auxiliary Feedwater Actuation Signal, and a Steam Generator Blowdown Isolation Signal. Plant equipment functioned properly and operators responded appropriately.

An investigation was initiated to determine the cause of the generator loss of field and the ABT response. Considering the ABT fast transfer circuitry the response developed because, as the generator was sagging the voltage on the grid, the voltage on the secondary of the unit auxiliary transformer was degraded. This degradation was large enough that the synch check relay had dropped out. This prevented the fast transfer from occurring and allowed the 13.8 kV buses to become de-energized. In two seconds the undervoltage relaying initiated a closure of the bus feeder breakers from the startup transformer.

The transient seen by the safety-related buses was not great enough to initiate a startup and synchronization of the diesel generators on the safety-related buses. Based on the events which occurred, the protective relaying functioned as designed and no corrective action is required.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES: 3/31/85

FACILITY NAME (1) Callaway Plant Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 4 8 3 8 5 — 0 0 5 — 0 0 0 3 OF 0 3	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			

TEXT (If more space is required, use additional NRC Form 388A's) (17)

Troubleshooting for the exciter circuitry was conducted on 1/31/85 and 2/1/85 utilizing the vendor (General Electric Company) and two engineers from Union Electric System Planning. This included a full review of the circuitry, analysis of the oscillograph charts, and an operational checkout of the auto voltage regulator by the GE representative. It was verified that an open circuit in the automatic voltage regulator rheostat would result in a loss of generator field similar to that which was experienced. No operational abnormalities were observed during checkout of the voltage regulator rheostat or during the operational checkout of the voltage regulator which occurred on 2/1/85 after the unit was brought up to speed. Prior to placing the unit in service the field windings had been meggered to verify that no damage had occurred during the transient which resulted in the trip.

After cleaning the area surrounding the voltage regulator rheostat, filter material was placed over the cabinet ventilation louvers. The cause of the loss of field is indeterminate but the circumstances surrounding the trip indicate a spurious failure in the voltage regulator circuitry.

The unit was synchronized to the grid in manual on 2/1/85 and the unit was then transferred to the automatic voltage regulator. Operations has continued without incident.

Engineered Safety Features Systems actuated properly and therefore this event did not present a significant safety concern. There was no damage to plant equipment or release of radioactivity as a result of this incident and at no time did this event pose a threat to the public health or safety.

Previous occurrences: none

UNION ELECTRIC COMPANY
CALLAWAY PLANT

MAILING ADDRESS:
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February 26, 1985

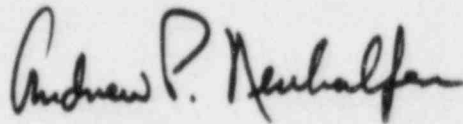
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Washington, DC 20555


ULNRC-1047

Gentlemen:

DOCKET NUMBER 50-483
CALLAWAY PLANT UNIT 1
FACILITY OPERATING LICENSE NPF-30
LICENSEE EVENT REPORT 85-005-00
REACTOR PROTECTION SYSTEM ACTUATION

The enclosed Licensee Event Report is submitted pursuant
to 10 CFR 50.73(a)(2)(iv) concerning an unplanned actuation of the
Reactor Protection System.



 S. E. Miltenberger
Manager, Callaway Plant

WRC/WRR/drs
Enclosure

cc: Distribution attached

IE22
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cc distribution for ULNRC-1047

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