



An Exelon Company

Clinton Power Station
R. R. 3, Box 228
Clinton, IL 61727

10 CFR 50.73

U-603673

May 21, 2004

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

Clinton Power Station, Unit 1
Facility Operating License No. NPF-62
NRC Docket No. 50-461

Subject: Licensee Event Report 2004-001-00

Enclosed is Licensee Event Report (LER) No. 2004-001-00: Generator Over-Voltage / Lockout Leads to Reactor Scram. This report is being submitted in accordance with the requirements of 10CFR50.73.

Should you have any questions concerning this report, please contact Mr. William Iliff, Regulatory Assurance Manager, at (217)-937-2800.

Respectfully,

A handwritten signature in black ink, appearing to read "R. S. Bement". The signature is stylized with a large "R" and a cursive "Bement".

R. S. Bement
Site Vice President
Clinton Power Station

RSF/blf

Enclosure: Licensee Event Report 2004-001-00

cc: Regional Administrator – NRC Region III
NRC Senior Resident Inspector – Clinton Power Station
Office of Nuclear Facility Safety – IEMA Division of Nuclear Safety

IE22

Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@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 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

Clinton Power Station

2. DOCKET NUMBER

05000461

3. PAGE

1 OF 3

4. TITLE

Generator Neutral Over-Voltage / Lockout Leads to Reactor Scram

5. EVENT DATE

MO DAY YEAR

03 22 2004

6. LER NUMBERYEAR SEQUENTIAL
NUMBER

2004 - 001 - 00

7. REPORT DATE

MO DAY YEAR

05 21 2004

8. OTHER FACILITIES INVOLVED

FACILITY NAME

None

DOCKET NUMBER

05000

FACILITY NAME

None

DOCKET NUMBER

05000

**9. OPERATING
MODE**

1

**10. POWER
LEVEL**

093

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

20.2201(b)

20.2203(a)(3)(ii)

50.73(a)(2)(ii)(B)

50.73(a)(2)(ix)(A)

20.2201(d)

20.2203(a)(4)

50.73(a)(2)(iii)

50.73(a)(2)(x)

20.2203(a)(1)

50.36(c)(1)(i)(A)

X 50.73(a)(2)(iv)(A)

73.71(a)(4)

20.2203(a)(2)(i)

50.36(c)(1)(ii)(A)

50.73(a)(2)(v)(A)

73.71(a)(5)

20.2203(a)(2)(ii)

50.36(c)(2)

50.73(a)(2)(v)(B)

OTHER

20.2203(a)(2)(iii)

50.46(a)(3)(ii)

50.73(a)(2)(v)(C)

Specify in Abstract below or in

20.2203(a)(2)(iv)

50.73(a)(2)(i)(A)

50.73(a)(2)(v)(D)

NRC Form 366A

20.2203(a)(2)(v)

50.73(a)(2)(i)(B)

50.73(a)(2)(vii)

20.2203(a)(2)(vi)

50.73(a)(2)(i)(C)

50.73(a)(2)(viii)(A)

20.2203(a)(3)(i)

50.73(a)(2)(ii)(A)

50.73(a)(2)(viii)(B)

12. LICENSEE CONTACT FOR THIS LER

NAME

R. W. Chickering, Engineering

TELEPHONE NUMBER (Include Area Code)

(217) 937-2818

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

14. SUPPLEMENTAL REPORT EXPECTED

X YES (If yes, complete EXPECTED SUBMISSION DATE)

NO

**15. EXPECTED
SUBMISSION
DATE**

MONTH

07

DAY

30

YEAR

2004

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

On March 22, 2004, at about 1931 hours, an automatic reactor scram occurred with the plant at 93 percent power. Operators received a trouble alarm in the Main Control Room for the Hydrogen and Stator Cooling Cabinet followed by a Main Generator neutral over-voltage trip and Generator Trip System 2 Lockout. The Generator trip caused a Main Turbine trip and Turbine Control Valve fast closure, resulting in an automatic reactor scram. All control rods fully inserted. Following the reactor scram, reactor water level dropped, as expected, to the Low Level 3 trip setpoint, initiating the Reactor Protection System. Operators entered Emergency Operating Procedures due to the low reactor water level transient. The root cause for the reactor scram is still under investigation and components within the 'B' Isolated Phase Bus Duct Cooling System are a focus of the investigation. Corrective action to date for this event include inspecting all 3 Isolated Phase Bus Ducts for degradation, removing the Partial Discharge Analysis System cables from all 3 Isolated Phase Bus Ducts, and repairing an expansion link on a conductor in the 'B' Isolated Phase Bus Duct.

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

PLANT OPERATING CONDITIONS PRIOR TO THE EVENT

Unit: 1 Event Date: 3/22/2004 Event Time: 1931 Central Standard Time
Mode: 1 (POWER OPERATION) Reactor Power: 93 percent

DESCRIPTION OF THE EVENT

On March 22, 2004, at about 1931 hours, an automatic reactor scram occurred with the plant at 93 percent power. Operators in the Main Control Room received a trouble alarm for the Hydrogen and Stator Cooling Cabinet [TK] [TJ] [CAB] followed by a Main Generator [GEN] [TB] neutral over-voltage trip and Generator Trip System 2 Lockout. The Generator trip caused a Main Turbine [TRB] [TA] trip and Turbine Control Valve [V] fast closure, resulting in an automatic reactor scram. All control rods fully inserted. Following the reactor scram, reactor pressure vessel [RPV] water level dropped to the low level 3 trip initiating the Reactor Protection System [JC].

Following the scram, as expected, reactor pressure vessel water level dropped below the Low Level 3 trip setpoint to 0.0 inches Narrow Range, initiating the Reactor Protection System [JC]. (Low Level 3 is 8.9 inches Narrow Range indication.) At 1932 hours operators entered the actions of procedure CPS 4001.01, "Reactor Scram Off-Normal," in response to the reactor scram and the lowering RPV water level. At 1939 hours, operators completed the immediate actions of the reactor scram off-normal procedure and entered Emergency Operating Procedure (EOP) 1, "RPV Control," due to the low reactor water level transient.

At 2006, the reactor scram signal was reset.

At 2215 hours, operators exited EOP 1 and transitioned into Procedure CPS 3006.01, "Unit Shutdown," as reactor pressure was stable at 858 psig and reactor water level was stable at 34 inches Narrow Range. At 0130 hours on March 23, operators exited the reactor scram off-normal procedure.

As expected, the Low Level 3 RPV water level trip caused Primary Containment Isolation Valves [ISV] in Group 2 (Residual Heat Removal (RHR)[BO]), Group 3 (RHR), and Group 20 (miscellaneous systems) to receive signals to shut; these valves were already shut prior to the event in accordance with the normal plant lineup. Operators completed the Automatic Isolation Checklist and verified that the Primary Containment Isolation Valves responded as expected.

The reactor remained in Mode 3 (HOT SHUTDOWN) with reactor coolant pressure being controlled between 800 and 1065 psig using the Turbine Bypass Valves and steam drains [DRN], and reactor coolant level being maintained between Low Level 3 and High Level 8 using the Motor-Driven Reactor Feed Pump [MO] [P] [SJ].

No Main Steam Isolation Valves closed and no Safety Relief Valves lifted during this event.

Condition Report 210033 was initiated to track the investigation and resolution of this event.

No automatic or manually initiated safety system actuations were necessary to place the plant in a safe and stable condition. No other inoperable equipment or components directly affected this

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

CAUSE OF THE EVENT

A complex troubleshooting plan was initiated to investigate this event. The cause of the Generator neutral over-voltage trip / lockout that resulted in a reactor scram is still under investigation and components within the 'B' Isolated Phase Bus Duct Cooling System [BDUC] [EL] are a focus of the investigation. During the troubleshooting a severed Partial Discharge Analysis (PDA) System cable [CBL] and a torn conductor expansion link were both discovered in the 'B' Isolated Phase Bus Duct.

The root cause determination for this event will be provided in a supplement to this report. The expected submittal date for the supplemental report is July 30, 2004.

SAFETY ANALYSIS

There were no actual safety consequences associated with this event. The event was reviewed for analyzed transients discussed in Chapter 15 of the Clinton Power Station Updated Safety Analysis Report. The analysis determined that this event was within the design basis of the plant.

No safety system functional failures occurred during this event.

CORRECTIVE ACTIONS

Corrective actions will be established following determination of the cause of this event and will be provided in a supplement to this report. All three Isolated Phase Bus Ducts have been inspected for degradation, the Partial Discharge Analysis System cables have been removed from all three Isolated Phase Bus Ducts, and an expansion link on the conductor in the 'B' Isolated Phase Bus Duct has been repaired.

PREVIOUS OCCURRENCES

A review for previous events will be completed following the cause determination and the results of the review will be provided in the supplement to this report. Based on current information, no previous similar events are known.

COMPONENT FAILURE DATA

Component failure data will be provided in the supplemental report for this event.