



February 11, 1991

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U. S. Nuclear Regulatory Commission
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Washington, D. C. 20555

SUBJECT: Arkansas Nuclear One - Unit 1
Docket No. 50-313
License No. DPR-51
Licensee Event Report 50-313/91-001-00

Gentlemen:

In accordance with 10CFR50.73(a)(2)(iv), attached is the subject report concerning an automatic reactor trip due to a main turbine trip which was caused by failure of the turbine generator exciter.

Very truly yours,

James J. Fisicaro
Manager, Licensing

JJF/RHS/mmg
Attachment

cc: Regional Administrator
Region IV
U. S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 1000
Arlington, TX 76011

INPO Records Center Suite 1500
1100 Circle, 75 Parkway
Atlanta, GA 30339-3064

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Arkansas Nuclear One, Unit One

| | |
|-------------------|----------|
| DOCKET NUMBER (2) | PAGE (3) |
| 05000313 | 1 OF 3 |

TITLE (4) Automatic Reactor Trip Due To A Main Turbine Trip Which Was Caused By Failure Of The Turbine Generator Exciter

| EVENT DATE (5) | | | LER NUMBER (6) | | REPORT DATE (7) | | | OTHER FACILITIES INVOLVED (8) | |
|----------------|-----|------|-------------------|-----------------|-----------------|-----|------|-------------------------------|------------------|
| Month | Day | Year | Sequential Number | Revision Number | Month | Day | Year | Facility Names | Docket Number(s) |
| 01 | 09 | 1991 | 001 | 00 | 02 | 11 | 1991 | | 05000313 |

OPERATING MODE (9) N THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §:

(Check one or more of the following) (11)

| | | | | | |
|------------------|-------------------|------------------|-------------------------------------|----------------------|--------------------|
| POWER LEVEL (10) | 20.402(b) | 20.405(c) | <input checked="" type="checkbox"/> | 50.73(a)(2)(iv) | 73.71(b) |
| | 20.405(a)(1)(i) | 50.36(c)(1) | <input type="checkbox"/> | 50.73(a)(2)(v) | 73.71(c) |
| | 20.405(a)(1)(ii) | 50.36(c)(2) | <input type="checkbox"/> | 50.73(a)(2)(vii) | Other (Specify in |
| | 20.405(a)(1)(iii) | 50.73(a)(2)(i) | <input type="checkbox"/> | 50.73(a)(2)(viii)(A) | Abstract below and |
| | 20.405(a)(1)(iv) | 50.73(a)(2)(ii) | <input type="checkbox"/> | 50.73(a)(2)(viii)(B) | in Text, NRC Form |
| | 20.405(a)(1)(v) | 50.73(a)(2)(iii) | <input type="checkbox"/> | 50.73(a)(2)(x) | 366A) |

LICENSEE CONTACT FOR THIS LER (12)

| | |
|---|------------------------|
| Name | Telephone Number |
| Richard H. Scheide, Nuclear Safety and Licensing Specialist | Area Code: 501964-5000 |

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

| Cause | System | Component | Manufacturer | Reportable to NPRDS | Cause | System | Component | Manufacturer | Reportable to NPRDS |
|-------|--------|-----------|--------------|---------------------|-------|--------|-----------|--------------|---------------------|
| | | | | | | | | | |

SUPPLEMENT REPORT EXPECTED (14)

| | | | | | |
|---|-----------------------------|-------------------------------|-------|-----|------|
| <input checked="" type="checkbox"/> Yes (If yes, complete Expected Submission Date) | <input type="checkbox"/> No | EXPECTED SUBMISSION DATE (15) | Month | Day | Year |
| | | | 04 | 15 | 1991 |

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

On January 10, 1991, at approximately 2326, with the plant at 100 percent of rated power, a reactor trip occurred as a result of the main turbine tripping due to loss of field excitation to the main generator. An anticipatory Reactor Protection System (RPS) trip was initiated, as designed, when the main turbine tripped while reactor power was greater than 43 percent. Plant response to the trip was as expected. Reactor Coolant System (RCS) pressure decreased to 1828 psig and was quickly recovered into the post trip window. Minimum post trip RCS temperature was 553 degrees. A temporary exciter was installed while the plant remained in the hot shutdown condition and the reactor was returned to power on January 17, 1991. The temporary exciter will be replaced with a permanent exciter during mid cycle outage 1M91, which is scheduled to begin in April, 1991. An investigation to determine the root cause of the exciter failure is being conducted by the vendor (Westinghouse). The results of the completed investigation and the subsequent corrective actions to prevent recurrence of similar events will be included in a supplement to this report which will be submitted by April 30, 1991.

LICENSE EVENT REPORT (LER) TEXT CONTINUATION

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|---|--------------------------------------|----------------|----------------------------------|---------------------------|--|--|--|------------------------|
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| | | Year 9 1 -- | Sequential Number 0 0 1 -- | Revision Number 0 0 | | | | |

TEXT (If more space is required, use additional NRC Form 366A's) (17)

A. Plant Status

At the time of this event, Arkansas Nuclear One, Unit 1 (ANO-1) was operating at approximately 100 percent of rated power. Reactor Coolant System (RCS) [AB] average temperature was 579 degrees and RCS pressure was approximately 2153 psig. No major equipment was out of service.

B. Event Description

On January 10, 1991, at approximately 2326, an automatic reactor trip occurred as a result of the main turbine [TA] tripping due to loss of field excitation to the main generator [EL]. An anticipatory Reactor Protection System (RPS) [JC] trip was initiated, as designed, when the main turbine tripped while reactor power was greater than 43 percent.

Plant response to the trip was as expected. RCS pressure decreased to 1828 psig and was quickly recovered into the post trip window. Minimum post trip RCS temperature was 553 degrees. The Integrated Control System (ICS) [JA] initiated a runback of the 'A' and 'B' main feedwater pumps (MFPs). Fifteen of the sixteen main steam safety valves (MSSVs) opened to relieve the excess steam pressure/RCS energy. All MSSVs which opened resetted properly. Forced flow was maintained with all four (4) reactor coolant pumps operating. The ability to remove heat from the RCS was maintained by the use of the turbine bypass valves.

Approximately 30 minutes after the trip, the 'B' MFP was secured and the auxiliary feedwater pump (P-75) was placed in service. After placing P-75 in service, the 'A' MFP was secured. The plant was maintained at hot shutdown conditions while an investigation was conducted to determine the cause of the exciter problem.

No equipment malfunctions or failures were noted that complicated the plant recovery effort. Additionally, no procedural or operator inadequacies were found as transient response was in a timely and professional manner.

C. Root Cause

An investigation to determine the root cause of the exciter [EXC] failure is being conducted by the vendor (Westinghouse). The results of the completed root cause investigation will be included in a supplement to this report which will be submitted by April 30, 1991.

LICENSE EVENT REPORT (LER) TEXT CONTINUATION

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| Arkansas Nuclear One, Unit One | 05000313 | 91 | -- | 001 | -- | 00 | 03 | |

TEXT (If more space is required, use additional NRC Form 366A's) (17)

D. Corrective Actions

A temporary exciter was installed and the reactor was returned to power on January 17, 1991.

The temporary exciter will be replaced with a permanent exciter during mid cycle outage 1M91, which is scheduled to begin in April, 1991.

Corrective actions which will be taken to prevent recurrence of similar events will be included in a supplement to this report which will be submitted by April 30, 1991.

E. Safety Significance

The RPS initiated a reactor trip due to the main turbine tripping while reactor power was greater than 43 percent, as designed. The plant response to the transient was as expected, with no major complications, and normal post trip parameters were maintained. Therefore, there was no safety significance associated with this event.

F. Basis For Reportability

This event is reportable pursuant to 10CFR50.73(a)(2)(iv) since an automatic reactor trip was initiated by the RPS.

This event was also reported in accordance with 10CFR50.72 at 0147 on January 11, 1991.

G. Additional Information

A similar event in which a reactor trip was caused by a main generator exciter failure was reported in LER 50-313/89-002-00.

Energy Industry Information System (EIIS) codes are indicated in the text as [XX].