

WOLF CREEK

NUCLEAR OPERATING CORPORATION

Otto L. Maynard
Vice President Plant Operations

December 10, 1992

WO 92-0158

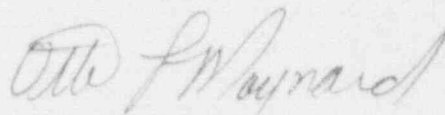
U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Station P1-137
Washington, D. C. 20555

Subject: Docket No. 50-482: Licensee Event Report 92-016-00

Gentlemen:

The attached Licensee Event Report (LER) is being submitted pursuant to 10 CFR 50.73 (a) (2) (iv) concerning an Engineering Safety Features Actuation.

Very truly yours,



Otto L. Maynard
Vice President
Plant Operations

OLM/jad

Attachment

cc: A. T. Howell (NRC), w/a
J. L. Milhoan (NRC), w/a
G. A. Pick (NRC), w/a
W. D. Reckley (NRC), w/a

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LICENSEE EVENT REPORT (LER)

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|--|--------|-----------|---|-------------------|-----------------|--------|------------------|--------------|-------------------|--|---|---|---|---------------------------------|--|---|---|---|---|---|--|--|--|--|--|--|
| FACILITY NAME (1) Wolf Creek Generating Station | | | | | | | | | | DOCKET NUMBER (2) 0 5 0 0 0 4 8 2 1 | | | | PAGE (3) 1 OF 0 3 | | | | | | | | | | | | |
| TITLE (4) Voltage Transient Caused By A Ground Fault At A Non-Nuclear Utility Substation Results In Generator Trip/Reactor Trip | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EVENT DATE (5) | | | LER NUMBER (6) | | | | REPORT DATE (7) | | | OTHER FACILITIES INVOLVED (8) | | | | | | | | | | | | | | | | |
| MONTH | DAY | YEAR | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | MONTH | DAY | YEAR | | | | | | | | | | | | | | | | | | |
| 1 | 1 | 1 | 0 | 9 | 2 | 9 | 2 | - | 0 | 1 | 6 | - | 0 | 0 | 1 | 2 | 1 | 0 | 9 | 2 | | | | | | |
| OPERATING MODE (9) 1 | | | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR (Check one or more of the following) (11) | | | | | | | | | | | | | | | | | | | | | | | |
| POWER LEVEL (10) 1 0 0 | | | 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) | | | | 50.73(a)(2)(v) | | | | 73.71(c) | | | | | | | | | | | |
| | | | 20.405(a)(1)(ii) | | | | 50.36(c)(2) | | | | 50.73(a)(2)(vii) | | | | OTHER (Specify in Abstract below and in Text, NRC Form 386A) | | | | | | | | | | | |
| | | | 20.405(a)(1)(iii) | | | | 50.73(a)(2)(i) | | | | 50.73(a)(2)(viii)(A) | | | | | | | | | | | | | | | |
| | | | 20.405(a)(1)(iv) | | | | 50.73(a)(2)(ii) | | | | 50.73(a)(2)(viii)(B) | | | | | | | | | | | | | | | |
| | | | 20.405(a)(1)(v) | | | | 50.73(a)(2)(iii) | | | | 50.73(a)(2)(x) | | | | | | | | | | | | | | | |
| LICENSEE CONTACT FOR THIS LER (12) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NAME Kevin J. Moles - Manager Regulatory Services | | | | | | | | | | TELEPHONE NUMBER | | | | | | | | | | | | | | | | |
| | | | | | | | | | | AREA CODE 3 1 6 3 6 4 8 8 3 1 | | | | | | | | | | | | | | | | |
| COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO NRC | CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO NRC | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| SUPPLEMENTAL REPORT EXPECTED (14) | | | | | | | | | | EXPECTED SUBMISSION DATE (15) | | | | | | | | | | | | | | | | |
| YES (If yes, complete EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO | | | | | | | | | | MONTH DAY YEAR | | | | | | | | | | | | | | | | |

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

On November 10, 1992, at 1105 CST, a generator trip/turbine trip occurred when a ground fault was initiated by contact between an overhead ground and the energized portion of a 138 kilovolt (kV) ring bus during clearance procedures for a 345/138 kV transformer at a non-nuclear utility substation. This was followed by a reactor trip, feedwater isolation, auxiliary feedwater actuation, and steam generator blowdown and sample isolation. Plant response to the reactor trip and engineered safety features actuation was normal.

The root cause of this event was cognitive personnel errors by two non-nuclear apprentice wiremen who created a single phase to ground fault while attempting to install protective grounds on an energized 138 kV bus. Also, a cognitive personnel error occurred when the differential protection scheme for this section of bus had been taken out of service by a senior non-nuclear control technician and had not yet been reconnected at the time the phase to ground fault condition began. Additional training will be provided to all pertinent personnel and the process for planning, scheduling and coordinating projects involving different departments performing work in the same work location will be improved by the non-nuclear utility company.

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

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| | | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | | |
| Wolf Creek Generating Station | 0 5 0 0 0 4 8 2 9 2 | - | 0 1 6 | - | 0 0 | 0 2 OF 0 3 |

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

INTRODUCTION

On November 10, 1992, at 1105 CST, a generator [TB-GEN] trip/turbine [TA-TG] trip occurred when a ground fault was initiated by contact between an overhead ground and the energized portion of a 138 kilovolt (kV) ring bus during clearance procedures for a 345/138 kV transformer at a non-nuclear utility substation. This was followed by a reactor [AB-RCT] trip, feedwater [SJ] isolation, auxiliary feedwater [BA] actuation, and steam generator [AB-SG] blowdown and sample isolation. This event is being reported pursuant to 10 CFR 50.73(a)(2)(iv) as a condition resulting in automatic actuations of the reactor protection system [JC] and engineered safety features [JE] equipment.

DESCRIPTION OF EVENT

Prior to this event, the unit was operating in Mode 1, Power Operation, at approximately 100 percent reactor power. Utility technicians (non-nuclear) had isolated one of two 345/138 kV transformers at the Rose Hill substation in preparation for maintenance activities. As part of the maintenance activities the transformer protective relaying was also disconnected. As grounds were being applied to the transformer, for personnel protection, a phase to ground fault resulted which then flashed over to the other two phases. This three-phase fault did not immediately clear because the reconnection of protective relaying had not yet been completed. A second 345/138 kV transformer continued to feed the fault which resulted in a voltage transient that subsequently tripped the generator protection system on exciter current limit at 1105 CST. This caused a main turbine trip and, because the unit was operating above 50 percent reactor power, resulted in a reactor trip. The fault condition was cleared after approximately 21 seconds when the transformer protection relaying was reconnected by a senior non-nuclear control technician at the Rose Hill substation.

Plant response to the reactor trip and engineered safety features actuation was normal. Power operated atmospheric relief valves [SB-RV] "A", "B", "C", and "D" lifted briefly to control main steam system pressure. As expected a feedwater isolation signal occurred, and a motor driven and turbine driven auxiliary feedwater actuation signal (TDAFAS) occurred because of lo-lo steam generator water level. Also, a steam generator blowdown and sample isolation signal occurred because of the lo-lo steam generator water level. At approximately 1139 CST, the TDAFAS was reset and the turbine driven auxiliary feedwater pump was secured. At approximately 1200 CST, the unit was stabilized in Mode 3, Hot Standby, at an average Reactor Coolant System [AB] temperature of 558 degrees Fahrenheit and the control room operators commenced restoration of plant systems to normal configuration in accordance with plant procedures. Motor driven auxiliary feedwater pump "A" was

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

secured at approximately 1252 CST and motor driven auxiliary feedwater pump "B" was secured at approximately 1425 CST. At approximately 1750 CST, steam generator blowdown was reestablished. On November 13, 1992, at 1310 CST, the unit was returned to approximately 100 percent reactor power after the appropriate post trip reviews were accomplished and required forced outage maintenance and surveillances were performed.

ROOT CAUSE AND CORRECTIVE ACTIONS

The root cause of this event was cognitive personnel errors by two non-nuclear apprentice wiremen who created a single phase to ground fault while attempting to install protective grounds on an energized 138 kV bus. Also, a cognitive personnel error occurred when the differential protection scheme for this section of bus had been taken out of service by a senior non-nuclear control technician and had not yet been reconnected at the time the phase to ground fault condition began. A review of the existing safety rules and procedures used by the personnel involved in this event were determined to be adequate to have prevented this incident.

The non-nuclear utility company informed Wolf Creek Generating Station (WCGS) that additional training will be provided to all pertinent personnel emphasizing the company's commitment to safety and reinforcing the obligation of all technical operations personnel to follow established safety procedures and practices, especially as they relate to supervision of workmen, coordination of multiple crew operations, proper definition and marking of clearance areas, and grounding procedures. Also, the process for planning, scheduling and coordinating projects involving different departments performing work in the same work location will be improved by the non-nuclear utility company. The non-nuclear utility company informed WCGS that it is expected that these improvements will be incorporated and training of all pertinent personnel will be completed by March 1, 1993.

ADDITIONAL INFORMATION

Prior to this event, there were no safety related systems out-of-service or safety related components being tested which could have impacted the ability of the operators to safely respond to the subsequent transient. During the transient discussed in this report, the unit was placed in a stable, shutdown condition. All plant safety systems responded as designed. At no time did conditions develop that may have posed a threat to the safety of the plant or a threat to the health and safety of the public.

There have been no previous similar occurrences in which a fault at a non-nuclear utility substation caused automatic actuations of the reactor protection system or engineered safety features system.