

LICENSEE EVENT REPORT (LER)

|  |                                      |                      |
|--|--------------------------------------|----------------------|
| FACILITY NAME (1)<br>McGuire Nuclear Station, Unit 1 | DOCKET NUMBER (2)<br>0 5 0 0 0 3 6 9 | PAGE (3)<br>1 OF 0 6 |
|--|--------------------------------------|----------------------|

TITLE (4) A Required Fire Watch was not Performed When the Turbine Driven Auxiliary Feedwater Pump Halon Fire Suppression System was Inoperable

| 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 (8) |
| 0 9            | 2 2 | 8 8  | 8 8            | 0 2 2             | 0 0 1           | 0 0             | 3 8 | 8 8  | N/A                           |  |  | 0 5 0 0 0         |

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)

|                           |                   |                  |                     |  |
|---------------------------|-------------------|------------------|---------------------|--|
| OPERATING MODE (9)<br>1   | 20.402(b)         | 20.406(e)        | 50.73(a)(2)(iv)     | 73.71(b)   |
| POWER LEVEL (10)<br>1 0 0 | 20.406(a)(1)(iii) | 50.38(a)(1)      | 50.73(a)(2)(v)      | 73.71(c)   |
|                           | 20.406(a)(1)(ii)  | 50.38(a)(2)      | 50.73(a)(2)(vi)     | OTHER (Specify in Abstract below and in Text, NRC Form 366A) |
|                           | 20.406(a)(1)(iii) | X 50.73(a)(2)(i) | 50.73(a)(2)(vii)(A) |  |
|                           | 20.406(a)(1)(iv)  | 50.73(a)(2)(ii)  | 50.73(a)(2)(vii)(B) |  |
|                           | 20.406(a)(1)(v)   | 50.73(a)(2)(iii) | 50.73(a)(2)(ix)     |  |

LICENSEE CONTACT FOR THIS LER (12)

|                                    |   |
|------------------------------------|---|
| NAME<br>Steven E. LeRoy, Licensing | TELEPHONE NUMBER<br>7 1 0 4 3 1 7 3 1 - 6 1 2 3 3 |
|------------------------------------|---|

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 |
|-------|--------|-----------|--------------|-------------------|-------|--------|-----------|--------------|-------------------|
|       |        |           |              |                   |       |        |           |              |                   |
|       |        |           |              |                   |       |        |           |              |                   |

SUPPLEMENTAL REPORT EXPECTED (14)

|   |      |                               |       |     |      |
|---|------|-------------------------------|-------|-----|------|
| YES (If yes, complete EXPECTED SUBMISSION DATE) | X NO | EXPECTED SUBMISSION DATE (15) | MONTH | DAY | YEAR |
|---|------|-------------------------------|-------|-----|------|

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

On 05/28/87 at 1022, Performance began testing the Halon fire suppression system for the Unit 1 Turbine Driven Auxiliary Feedwater (TD CA) Pump. Operations (OPS) declared the Unit 1 TD CA Pump Room Halon system inoperable. During the test, the fire damper in the ventilation system exhaust duct failed to close as required. Performance notified OPS of the failed fire damper. OPS informed Performance that an hourly fire watch would need to be performed and that OPS would perform the fire watch. OPS and Performance declared the Unit 1 TD CA Pump Room Halon system operable at 1122. Instrumentation and Electrical repaired the fire damper and Performance successfully tested the fire damper by 06/03/87. In September 1988, Quality Assurance personnel were performing a routine audit of Fire Protection and discovered that an hourly fire watch was not performed between 05/28/87 and 06/03/87 for the inoperable Halon fire suppression system as required. This event is assigned a cause of Other because of a possible personnel error and/or a possible management deficiency between Performance and OPS personnel. Results of this investigation were inconclusive in determining why the TD CA Pump Halon system was declared operable without a required hourly fire watch being established.

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| McGuire Nuclear Station, Unit 1 | 05000369          | 88             | 022               | 002             | OF 016   |

TEXT IF MORE SPACE IS REQUIRED, USE ADDITIONAL NRC Form 305A 2/117)

INTRODUCTION:

On May 28, 1987 at 1022, Performance personnel began testing the Halon fire suppression system for the Unit 1 Turbine [EIIS:TRB] Driven Auxiliary Feedwater [EIIS:BA] (TD CA) Pump [EIIS:P]. Operations declared the Unit 1 TD CA Pump Room Halon system inoperable. During the test, the fire damper [EIIS:DMP] in the ventilation system exhaust duct failed to close as required. Performance personnel notified Operations of the failed fire damper. Operations informed Performance that an hourly fire watch would need to be performed and that Operations personnel would perform the fire watch. Operations Control Room and Performance personnel declared the Unit 1 TD CA Pump Room Halon system operable at 1122. Instrumentation and Electrical personnel repaired the fire damper by June 3, 1987, and Performance successfully tested the fire damper on June 3, 1987. In September 1988, Quality Assurance personnel were performing a routine audit of Fire Protection and discovered that an hourly fire watch was not performed between May 28 and June 3, 1987 for the inoperable Halon fire suppression system as required.

Unit 1 was in Mode 1, Power Operation, at 100% power at the time of this event.

This event is assigned a cause of Other because of a possible personnel error and/or a possible management deficiency between Performance and Operations personnel. Results of this investigation were inconclusive in determining why the TD CA Pump Halon system was declared operable with a malfunctioning fire damper and why a required hourly fire watch was not established.

EVALUATION:

Background

A Halon fire suppression system [EIIS:KG] is provided to protect the TD CA Pump. Upon detection of excessive heat or smoke in the TD CA Pump room, the Halon will automatically discharge into the room and a signal will be sent to fusible links on a fire damper in the ventilation system exhaust duct. The fusible links break when the electrical signal is present and the accordion type fire damper closes to prevent losing the Halon fire suppressant through the exhaust duct.

Technical Specification (TS) 3.7.10.3 requires the Halon fire suppression system for the TD CA Pump room to be operable in Mode 1 (Operation), Mode 2 (Startup), Mode 3 (Hot Standby), and Mode 4 (Hot Shutdown). The action for an inoperable Halon fire suppression system is to establish an hourly fire watch patrol within one hour. TS 4.7.10.3.c requires that every 18 months a test be performed to show that the ventilation system fire dampers operate properly. This test is documented by procedure PT/1/A/4400/01N, Halon 1301 System Periodic Test for Diesel Generator and Turbine Driven CA Pump Rooms.

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TEXT if more space is required, use additional NRC Form 388A (1/77)

Description of Event

On May 28, 1987 at 1022, Performance personnel began a test of the Unit 1 TD CA Pump room Halon fire suppression system according to the Halon 1301 System Periodic Test for Diesel Generator [EISS:DG] and Turbine Driven CA Pump Rooms procedure. Operations declared the Unit 1 TD CA Pump Room Halon system inoperable to perform this test. During the test a simulated actuation signal was generated to test the alarm bells, Halon system discharge solenoid [EISS:SOL] valves, and ventilation system fire dampers. Immediately following the test, Performance personnel opened the ventilation system exhaust duct access cover and found that the fusible links holding the fire damper open were properly broken but the fire damper was stuck in the open position. At approximately 1120, Performance notified Operations that the fire damper did not close during the test. Performance personnel remembered that Operations personnel stated that an hourly fire watch would be necessary until the fire damper was repaired and that Operations personnel would perform the fire watch. (The Operations personnel involved have no recollection of this incident.) At 1122, Operations declared the Unit 1 TD CA Pump Room Halon system operable as documented in the Unit 1 Technical Specification Action Item Logbook and Performance personnel initialed the "verified by" item in the logbook.

Between May 28 and June 2, 1987, Instrumentation and Electrical (IAE) and Design Engineering personnel redesigned the metal plate that attaches to the fusible links that hold the fire damper open.

On June 3, 1987, IAE completed repair of the fire damper by modifying the metal plate that holds the fire damper open. Performance successfully retested the fire dampers on June 3, 1987.

On August 22, 1988, Quality Assurance personnel were conducting a routine audit of Fire Protection and discovered that during the period from May 28, 1988 to June 3, 1987 there was no documentation of an hourly fire watch for the inoperable Halon fire suppression system in the Unit 1 TD CA Pump room.

Conclusion

This event is assigned a cause of Other because of a possible personnel error and/or a possible management deficiency between Performance and Operations personnel that failed to establish an hourly fire watch as required by TS 3.7.10.3. During the investigation for this report, no documentation could be found of an hourly fire watch for the Unit 1 TD CA Pump room. Performance personnel remembered being informed by Operations personnel that an hourly fire watch was required until the fire damper was repaired and that Operations personnel would perform the hourly fire watch. Operations personnel did not recollect this incident and one of the Operations personnel involved is no longer employed by Duke Power Company. The exact reason why they failed to establish the hourly fire watch could not be determined.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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TEXT: If more space is required, use additional NRC Form 366A (1/77)

Performance and Operations personnel signed the Technical Specification Action Item Logbook entry that declared the Unit 1 TD CA Pump Room Halon system operable. The fire damper failed the test; therefore, the Halon system was inoperable and should not have been declared operable. One possibility for this apparent error may be a miscommunication between Operations and Performance personnel that led Operations personnel to believe the Halon system was operable. However, the Performance personnel involved have stated that they did inform Operations personnel that the damper was not functioning properly. Another possibility is that the Operations personnel involved had some other reason to believe that the Halon system was operable at this time. This reason may be that the fire damper was closed and a work request was being written to repair the fire damper. The closed fire damper would make the Halon system operable until work began. However, after a search of the work request database, no work request could be found documenting the repair of the fire damper. A work request may not have been used for this work or the work request may have been listed with an equipment number that could not be found in the database. Therefore, this possibility is inconclusive.

The fire damper was repaired by IAE and successfully retested by Performance. IAE determined that the metal plate that holds the fire damper open and connects to the fusible links was improperly designed and would catch on the damper and prevent the damper from closing after the fusible links broke. IAE and Design Engineering personnel redesigned the metal plate between May 28 and June 2, 1987, and IAE installed the new metal plate on June 3, 1987. The new design should prevent any interference to the damper and allow the damper to close when necessary. The original metal plate was designed and fabricated during original installation of the ventilation system by Pahnson Inc. Procedure IP/O/B/3090/36, Re-installation Procedure for Roll-up Type Fire Dampers, details the steps necessary to reset the fire dampers after they close and also shows a drawing of the correctly designed metal plate. The fire dampers for the Unit 2 TD CA Pump room exhaust ventilation duct were also modified at this time to prevent any problems with the Unit 2 fire dampers. Operability of these fire dampers prior to this incident is questionable because of the improper design. Past operability tests have successfully shown proper functioning but Design Engineering personnel believe the fire dampers may not have worked properly in all circumstances. These are the only fire dampers at McGuire with this design and this resolution should improve their reliability.

A review of McGuire Licensee Event Reports (LER) did not reveal any reportable LERs that documented a missed TS required fire watch because of a possible Personnel Error or possible Management Deficiency. Therefore, this event is considered not recurring. There has been one reportable event of a missed fire watch that has occurred in 1988. There have been numerous reportable events of missed fire watches in 1987 and before that were attributed to other causes. The corrective actions for these past events have included training of all station personnel on fire watch requirements and changes to Station Directives and Procedures.

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TEXT (if more space is required, use additional NRC Form 388A #1 (1))

It can be concluded that corrective actions for these past events has resulted in an increased awareness of fire barrier and fire watch requirements among plant personnel because there is a noticeable decreasing trend of missed fire watches.

This event is not reportable to the Nuclear Plant Reliability Data System (NPRDS).

CORRECTIVE ACTIONS:

Immediate: None

- Subsequent:
- 1) IAE and Design Engineering personnel redesigned the fire damper metal plate and IAE personnel installed the new fire damper metal plate.
  - 2) Performance personnel successfully retested the operation of the fire damper.
  - 3) Performance Management personnel have communicated during a crew meeting to all Performance technicians the importance of informing Operations personnel of any problems encountered during testing and also to not sign verifying operability of equipment in the Technical Specification Action Item Logbook if operability is in question.

Planned: None

SAFETY ANALYSIS:

The TD CA Pump is required to provide feedwater flow to all four Steam Generators [EIIS:SG] when normal feedwater flow is lost. The Halon fire suppression system functions to mitigate the consequences of a fire in the TD CA Pump room which might damage the TD CA Pump. If a fire were to occur, the fire detection system [EIIS:KP] would have detected the fire, alarmed in the Control Room, and Halon would be discharged as designed. The Halon concentration in the room may not have achieved the proper concentration to extinguish the fire because the exhaust damper was open, but the presence of some Halon in the room would have suppressed the fire and Operations personnel would have dispatched the fire brigade to extinguish the fire. The fire brigade could reach the TD CA Pump room in approximately 5 to 10 minutes and damage to the pump should be minimal within this time. During the time of this event, both Unit 1 Motor Driven CA Pumps and the Unit 1 TD CA Pump room and Motor Driven CA Pump room fire detector systems were operable. No fires occurred and the CA system was not needed to perform its safety function.

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TEXT (if more space is required, use additional NRC Form 366A 2/117)

There were no personnel injuries, radiation overexposures, or releases of radioactive material as a result of this event.

This event is considered to be of no significance with respect to the health and safety of the public.



**DUKE POWER**

October 3, 1988

U.S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, D.C. 20555

Subject: McGuire Nuclear Station  
Docket No. 50-369  
Licensee Event Report 369/88-22

Gentlemen:

Pursuant to 10CFR 50.73 Sections (a)(1) and (d), attached is Licensee Event Report (LER) 369/88-22 concerning a failure to perform a required fire watch. This report is being submitted in accordance with 10CFR 50.73(a)(2)(i)(B). This event is considered to be of no significance with respect to the health and safety of the public.

Very truly yours,

Hal B. Tucker

SEL/340/mmf

Attachment

xc: Dr. J. Nelson Grace  
Regional Administrator, Region II  
U.S. Nuclear Regulatory Commission  
101 Marietta St., NW, Suite 2900  
Atlanta, GA 30323

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

M&M Nuclear Consultants  
1221 Avenue of the Americas  
New York, NY 10020

American Nuclear Insurers  
c/o Dottie Sherman, ANI Library  
The Exchange, Suite 245  
270 Farmington Avenue  
Farmington, CT 06032

Darl Hood  
U.S. Nuclear Regulatory Commission  
Office of Nuclear Reactor Regulation  
Washington, D.C. 20555

Mr. K. Van Doorn  
NRC Resident Inspector  
McGuire Nuclear Station

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Document Control Desk

October 3, 1988

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bx: P.M. Abraham  
B.W. Bline  
D.R. Bradshaw  
R.M. Dulin  
R.C. Futrell  
R.M. Glover (CNS)  
G.W. Hallman  
C.L. Harlin (ONS)  
A.D. Harrington (PSD)  
J.J. Maher  
R.P. Ruth (MNS)  
A.R. Sipe (MNS)  
R.O. Sharpe (MNS)  
J.E. Thomas  
V.B. Turner  
R.L. Weber  
QA Tech. Services NRC Coordinator (EC 12/55)  
S.S. Kilborn (W)  
R.L. Gill  
S.A. Gewehr  
P.B. Nardoci  
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