

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)
McGuire Nuclear Station, Unit 1DOCKET NUMBER (2)
0 5 0 0 0 3 6 9 1 OF 0 3TITLE (4)
Control Area Ventilation Trains A and B 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(S) | | | | | | | | | | | | | | | |
| 0 | 6 | 0 | 4 | 8 | 4 | 0 | 1 | 8 | 0 | 0 | 0 | 7 | 0 | 5 | 8 | 4 | 0 | 5 | 0 | 0 | 0 | 3 | 7 | 1 | 0 |

| OPERATING MODE (9) | | 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) | 20.406(c) | 50.73(a)(2)(iv) | 73.71(b) | | | | | | |
| | | | | 20.406(a)(1)(i) | 50.36(c)(1) | 50.73(a)(2)(v) | 73.71(c) | | | | | | |
| | | | | 20.406(a)(1)(ii) | 50.36(c)(2) | 50.73(a)(2)(vii) | OTHER (Specify in Abstract below and in Text, NRC Form 365A) | | | | | | |
| | | | | 20.406(a)(1)(iii) | 50.73(a)(2)(i) | 50.73(a)(2)(viii)(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)(x) | | | | | | | | | | | |

LICENSEE CONTACT FOR THIS LER (12)
NAME
Phillip B. Nardoci, Licensing EngineerTELEPHONE NUMBER
AREA CODE
7 1 0 4 3 1 7 1 3 1 - 1 7 1 4 1 3 1 2

| COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13) | | | | | | | | | |
|--|--------|-----------|--------------|--------------------|-------|--------|-----------|--------------|--------------------|
| CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO NPDs | CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO NPDs |
| | | | | | | | | | |
| | | | | | | | | | |
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SUPPLEMENTAL REPORT EXPECTED (14)
☐ YES (If yes, complete EXPECTED SUBMISSION DATE) ☒ NOEXPECTED SUBMISSION DATE (15)
MONTH DAY YEAR

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

On June 4, 1984 at ~2100, the train B chiller of the control area ventilation (VC) system tripped due to low oil level and was declared inoperable (2105). Train A of VC had been previously declared inoperable because of maintenance work. The inoperability of both trains of VC, while a unit is on-line, is prohibited by Technical Specification 3.7.6. Accordingly, at 2205 the control operators started to reduce power on units one and two as required by Technical Specification 3.0.3. Units 1 and 2 were in Mode 1 at 100% power at the time of this event.

At approximately 2230, five gallons of oil were added to the chiller and the chiller restarted. With VC Train B then operable, the control operators stopped reducing power with each Unit having reached 97% power. Train B of VC was declared operable at 2255. The Units were returned to 100% power at 2312.

This event is attributed to Unusual Service Conditions, due to the cooling load of the control room area being insufficient to fully load the train B chiller. Duke Power is continuing its review of this problem to determine any further corrective actions.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/85

| FACILITY NAME (1) | DOCKET NUMBER (2) | LER NUMBER (6) | | | PAGE (3) | | |
|---------------------------------|-------------------|----------------|-------------------|-----------------|----------|----|----|
| | | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | | | |
| McGuire Nuclear Station, Unit 1 | 05000369 | 84 | 018 | 00 | 02 | OF | 03 |

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

On June 4, 1984 at ~2100, the train B chiller [EIIS:HX] of the control area ventilation (VC) system [EIIS:VI] tripped due to low oil level and was declared inoperable (2105). Train A of VC had been previously declared inoperable for maintenance work on air handling Unit #1. The inoperability of both trains of VC, while a unit is on-line, is prohibited by Technical Specification 3.7.6. Accordingly, at 2205 the control operators started to reduce power on units one and two as required by Technical Specification 3.0.3. Units 1 and 2 were in Mode 1 at 100% power at the time of this event.

At approximately 2230, five gallons of oil were added to the chiller and the chiller restarted. With VC train B then operable, the control operators stopped reducing power with each Unit having reached 97% power. Train B of VC was declared operable at 2255. The Units were returned to 100% power at 2312.

This event is attributed to Unusual Service Conditions, due to the cooling load of the control room area being insufficient to fully load the train B chiller.

After the VC train B chiller tripped low oil level, five gallons of oil was added to the reservoir. The train B chiller was restarted and observed to be operating satisfactorily before being declared operable. This was not the first time oil has been needed to be added to the chillers. This occurred more frequently during the initial startup of the VC system and when the chillers were operated in series. When the chillers were no longer operated in series and as more heat loads developed in the plant, the frequency of these trips on low oil level decreased. (Ref. Previous LER RO-369/82-72 for similar events).

When the chiller package is in operation, it is normal for a portion of the oil to mix with the refrigerant and travel through the refrigerant cycle. The oil, which accumulates in the evaporator, is returned to the oil reservoir by the velocity of the refrigerant. Therefore, when the chiller is not fully loaded, the refrigerant is traveling at a slower velocity resulting in some of the oil not being returned to the reservoir. When enough oil is trapped in the evaporator, the oil level (as indicated by the sight glasses on the chiller) drops to a point where either more oil is added or the chiller trips. After the oil has been added, the chiller is restarted and loaded. The oil in the evaporator is returned to the reservoir where there is now an excess. The excess oil must be removed or the chiller will eventually trip on high bearing temperatures resulting from the compressor's transmission operating in and overheating the oil when the reservoir is over-filled. In this instance three gallons of oil were removed several hours after the oil had been added and the chiller restarted. (All of the added oil is eventually removed over a long period of time.)

The main reason for the problem with the VC chillers is that they are not fully loaded. The chillers are only loaded to about 80% of capacity, whereas, they were designed to be operated at 100% capacity. The heat load calculated during plant design was too large compared to the actual heat load; therefore, the chillers were oversized. The problem of adding oil to the chillers and then removing some occurs three to four times a year. Everytime the heat load is reduced, the possibility of a chiller trip is increased.

Duke Power Company is continuing its review of this problem to determine further corrective actions. The chilled water system will be reviewed to determine the feasibility of using components from both trains to make one train for cooling. If the review finds that this is feasible, the "Control Area Ventilation/Chilled Water System" procedure will be revised accordingly.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/85

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|---------------------------------|---------------------|----------------|-------------------|-----------------|----------|-----|--------|
| | | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | | | |
| McGuire Nuclear Station, Unit 1 | 0 5 0 0 0 3 6 9 8 4 | — | 0 1 8 | — | 0 0 | 0 3 | OF 0 3 |

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

The VC system has a dual purpose. Air temperature is maintained below a maximum point in the areas the VC serves, and it maintains control room air quality, with filters [EIIIS:FLT], in the event of an accident. In this incident, the air quality was not affected because the filters were still operable. The trip of train B chiller while the other train was down for repair caused a loss of all cooling for the control room area, resulting in an increase of temperatures in the control room. This could have eventually resulted in electronic equipment failure and/or reactor trip. The health and safety of the public was unaffected by this incident.

DUKE POWER COMPANY

P.O. BOX 33189
CHARLOTTE, N.C. 28242

HAL B. TUCKER
VICE PRESIDENT
NUCLEAR PRODUCTION

TELEPHONE
(704) 373-4531

July 5, 1984

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

Subject: McGuire Nuclear Station, Units 1 and 2
Docket Nos. 50-369 and 50-370
LER 369/84-18

Gentlemen:

Pursuant to 10 CFR 50.73 Sections (a)(1) and (d), attached is Licensee Event Report 369/84-18 concerning control area ventilation trains A and B being inoperable which is submitted in accordance with §50.73(a)(2)(iB). Initial notification of this event was made (pursuant to §50.72 Section (b)(1)(iA)) with the NRC Operations Center via the ENS on June 4, 1984. This event was considered to be of no significance with respect to the health and safety of the public.

Very truly yours,

H. B. Tucker / JBT

Hal B. Tucker

PBN:glb
Attachment

cc: Mr. James P. O'Reilly, Regional Administrator
U. S. Nuclear Regulatory Commission
Suite 2900
101 Marietta Street, NW
Atlanta, GA 30323

Records Center
Institute of Nuclear Power Operations
1100 Circle 75 Parkway, Suite 1500
Atlanta, GA 30339

Mr. W. T. Orders
NRC Resident Inspector
McGuire Nuclear Station

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

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