



July 26, 2006

L-MT-06-052
10 CFR Part 50.73

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Monticello Nuclear Generating Plant
Docket No. 50-263
License No. DPR-22

LER 2006-002, "Unplanned LCO due to Loss of Cooling in the Upper 4KV Room"

A Licensee Event Report for this occurrence is attached.

This letter contains no new commitments and no revisions to existing commitments.

John T. Conway
Site Vice President, Monticello Nuclear Generating Plant
Nuclear Management Company, LLC

Enclosure

cc: Administrator, Region III, USNRC
Project Manager, Monticello, USNRC
Resident Inspector, Monticello, USNRC

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|---|--------|---|---|--|--------|---------------------------|-----|---|--------------------------------------|---------------|--|------|
| NRC FORM 366 (6-2004) | | U.S. NUCLEAR REGULATORY COMMISSION | | APPROVED BY OMB NO. 3150-0104 <small>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.</small> | | EXPIRES 6-30-2007 | | | | | | |
| LICENSEE EVENT REPORT (LER) <small>(See reverse for required number of digits/characters for each block)</small> | | | | | | | | | | | | |
| FACILITY NAME (1) Monticello Nuclear Generating Plant | | | | DOCKET NUMBER (2) 05000263 | | PAGE (3) 1 of 4 | | | | | | |
| TITLE (4) Unplanned LCO due to Loss of Cooling in the Upper 4KV Room | | | | | | | | | | | | |
| EVENT DATE (5) | | | LER NUMBER (6) | | | REPORT DATE (7) | | | OTHER FACILITIES INVOLVED (8) | | | |
| MO | DAY | YEAR | YEAR | SEQUENTIAL NUMBER | REV NO | MO | DAY | YEAR | FACILITY NAME | DOCKET NUMBER | | |
| 05 | 27 | 2006 | 2006 | - 002 - | 00 | 07 | 26 | 2006 | FACILITY NAME | DOCKET NUMBER | | |
| | | | | | | | | | | | | |
| OPERATING MODE (9) | | N | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply) (11) | | | | | | | | | |
| POWER LEVEL (10) | | 100 | | | | | | | | | | |
| | | | 20.2201(b) | | | 20.2203(a)(3)(ii) | | X | 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) | | | 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) | | X | 50.73(a)(2)(v)(B) | | OTHER Specify in Abstract below or in NRC Form 366A | |
| | | | 20.2203(a)(2)(iii) | | | 50.46(a)(3)(ii) | | | 50.73(a)(2)(v)(C) | | | |
| | | | 20.2203(a)(2)(iv) | | | 50.73(a)(2)(i)(A) | | X | 50.73(a)(2)(v)(D) | | | |
| | | | 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) | | | |
| LICENSEE CONTACT FOR THIS LER (12) | | | | | | | | | | | | |
| NAME Ron Baumer | | | | | | | | TELEPHONE NUMBER (Include Area Code) 763-295-1357 | | | | |
| COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13) | | | | | | | | | | | | |
| CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO EPIX | | | | | | | | |
| D | EA | MO | M187 | Y | | | | | | | | |
| SUPPLEMENTAL REPORT EXPECTED (14) | | | | | | | | | | | | |
| YES (If yes, complete EXPECTED SUBMISSION DATE). | | | | | X | NO | | EXPECTED SUBMISSION DATE (15) | | MONTH | DAY | YEAR |
| | | | | | | | | | | | | |
| ABSTRACT <p>On May 27, 2006, multiple trips of the 4KV switchgear room chiller (V-CH-27) resulted in the room temperature exceeding 104F in the Division II 4KV switchgear room. The Abnormal Operations Procedure, "Ventilation System Failure", requires the affected division of 4KV switchgear to be declared inoperable at temperatures greater than 104F in the switchgear area. The procedure also provides allowances for opening switchgear room High Energy Line Break (HELB) doors to promote room cooling. By design, a vital Division I motor control center, MCC 133, is not protected from the effects of a HELB in the lower feedwater pump area. Consequently with HELB doors open to the Division II switchgear room, a single postulated HELB could render portions of both electrical divisions inoperable, resulting in no safe shutdown path available for the HELB of concern.</p> <p>The causes of this event were:</p> <ul style="list-style-type: none"> • Failure of a chiller which provides cooling to the Division II 4KV switchgear room and, • Procedure guidance which allowed opening HELB boundary doors to provide room cooling, rendering the Division II switchgear vulnerable to the same HELB which would render Division I equipment inoperable. <p>Corrective actions include repairing the chiller unit and revising station procedures.</p> | | | | | | | | | | | | |

LICENSEE EVENT REPORT (LER)

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| Monticello Nuclear Generating Plant | 05000263 | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | 2 of 4 |
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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

Description

At approximately 1600 Central Daylight Time on May 27, 2006, the control room received computer alarm "TB 931' 4KV AREA HI TEMP", and dispatched a Non-Licensed Operator (NLO) to the Division II 4KV switchgear [EA] room to investigate. The operator reported the room temperature was 104F. The Balance of Plant (BOP) operator was dispatched from the control room with a calibrated temperature instrument to assist the NLO. The highest temperature monitored with the calibrated instrument was 103F. An additional NLO was dispatched to the roof to check the condition of the non safety-related chiller [CHU] which provides room cooling (V-CH-27). This operator found the chiller tripped on high pressure and reset it. Temperatures in the switchgear room immediately began to lower.

After the chiller was reset and 4KV room temperatures began to lower, the following actions occurred.

- The crew reviewed the Ventilation System Failure procedure for guidance should the ventilation system fail again. At this time, the crew identified that per the procedure, if the temperature in the room reached 104F, the affected switchgear would be considered inoperable.
- The crew briefed the Turbine Building NLO on the need to monitor room temperature every 15 minutes.

At 1714, the Turbine Building Operator notified the control room of a rising trend in the Division II 4KV switchgear room temperature. Ambient temperature in the Division II 4KV switchgear room was determined to be 105F. The Ventilation System Failure procedure was entered and the Division II 4KV switchgear was declared inoperable. A 24-hour shutdown LCO was declared. Investigation by Operators found that the chiller had tripped again. This time, per Control Room Supervisor (CRS) direction, the chiller hand switch was placed to the off position to reposition dampers and draw cooler outside air (81F) into the room. The CRS also directed, as allowed by the procedure, opening room doors and placing portable fans in the switchgear area to aid in cooling the room. As described in the procedure, opening the doors also directed Division I 4KV switchgear to be declared inoperable. This created a condition where both electrical divisions were potentially susceptible to failure from a single HELB. This was not initially recognized by the shift operating crew, but was later recognized by the next shift operating crew.

At approximately 1715, doors into the Division II 4KV room were opened and a continuous fire watch was established.

At 1745, the temperature in the Division II 4KV room was reported as 101F and stable. At approximately 1803 the doors were closed, the LCO exited, and the continuous fire watch secured.

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An event notification to the NRC was made at 0055 on May 28, 2006 for a condition that existed that could have "Prevented the Fulfillment of the Safety Function of Systems that are needed to Remove Residual Heat" and "Mitigate the Consequences of an Accident" because both divisions of 4KV switchgear had been declared simultaneously inoperable.

It was subsequently determined that the procedural guidance for opening HELB doors to the Division II 4KV switchgear room was incorrect. By design, a vital Division I motor control center, MCC 133, is not protected from the effects of a HELB in the feedwater system. Consequently, a single HELB could render portions of both electrical divisions inoperable with Division II 4KV switchgear area doors open.

Event Analysis

In accordance with 10 CFR 50.72 (b)(3)(v)(B and D), "Event or Condition that could have Prevented Fulfillment of a Safety Function," an eight-hour event notification was made to the USNRC. The event notification was completed because both divisions of 4KV switchgear were declared inoperable and the potential existed to lose residual heat removal and accident mitigation capability. Per 10 CFR 50.73 (a)(2)(v)(B and D), a Licensee Event report is required for this event. This event is also reportable pursuant to 10 CFR 50.73 (a)(2)(ii)(B), "The nuclear power plant being in an unanalyzed condition that significantly degraded plant safety."

The event is classified as a safety system functional failure.

Safety Significance

As a result of actions taken to address the high temperature in the Division II 4KV room, the Division II 4KV switchgear and supported equipment were rendered vulnerable to the effects of a HELB. Because a vital Division I MCC is not HELB protected, a single postulated HELB could have rendered portions of both divisions of electrical distribution inoperable, affecting the ability to safely shut down and remove residual heat.

For Monticello, a HELB is considered an initiating event with a less than 1 per 10⁵ year frequency. In addition, the 4KV switchgear was exposed to the additional vulnerability from a HELB event for a limited time (less than one hour). Based on the limited time the Division II switchgear room doors were opened and the additional exposure to a postulated HELB event, no significant increase in plant risk occurred.

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Cause

Two factors contributed to this event. The first was the failure of the chiller which supplies cooling to the Division II 4KV switchgear room. The second was the abnormal operating procedure which incorrectly allowed opening the room doors as a compensatory measure for loss of room cooling. The cause of the failure of the chiller was a failure of the fan [FAN] motor [MO].

Corrective Action

The following actions have been completed or are in progress:

1. Temperature in the Upper (Division II) 4KV Room was returned to within specification, and the HELB doors were closed. All affected 4KV equipment was declared operable. The shutdown LCO was exited.
2. The compressor fan motor on the chiller was replaced and the condensing coils were cleaned.
3. An analysis was completed which determined that the temperature limit in the 4KV switchgear rooms could be raised to 111F. The Abnormal Operating procedure, "Ventilation System Failure," has been revised to reflect the modified temperature limit.
4. A review was performed of other ventilation procedures to determine if similar procedural errors existed. No other errors were discovered.
5. The Abnormal Operating procedure will be further revised to provide alternate means of room cooling and provide clear guidance on the effects of opening HELB boundary doors.

Failed Component Identification

V-CH-27 4KV Switchgear Room Chiller Manufacturer: McQuay, Model # - ALP027C

Previous Similar Events

No previous similar events were identified.