

U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos: 50-413, 50-414

License Nos. NPF-35, NPF-52

Report Nos. 50-413/99-11, 50-414/99-11

Licensee: Duke Energy Corporation

Facility: Catawba Nuclear Station, Units 1 and 2

Location: 422 South Church Street
Charlotte, NC 28242

Dates: April 22 - 23, 1999 and May 3, 1999

Inspectors: D. Roberts, Senior Resident Inspector
S. Shaeffer, Senior Resident Inspector - McGuire Nuclear Station

Approved by: George A. Belisle, Chief
Maintenance Branch
Division of Reactor Safety

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Enclosure

EXECUTIVE SUMMARY

Catawba Nuclear Station, Units 1 and 2
NRC Inspection Report 50-413/99-11, 50-414/99-11

This special inspection focused on a licensee-identified frost and ice buildup which affected the Unit 1 ice condenser lower inlet doors. This report covers an inspection conducted on April 22-23, and May 3, 1999.

Maintenance

- An apparent violation was identified concerning the inoperability of ice condenser lower inlet doors due to ice and frost formation on the beam cooler glycol piping.
(Section M8.1; [2A - EEI])

Report Details

Summary of Plant Status

Unit 1 began the inspection period with a controlled reactor shutdown in progress to support the End-of-Cycle 11 refueling outage. The unit entered Modes 2, 3, and 4 on April 22, 1999, and was in cold shutdown (Mode 5) on April 23, 1999, at the end of the inspection period.

Unit 2 operated at approximately 100 percent power during this inspection period.

I. Maintenance

M8 Miscellaneous Maintenance Issues (92902)

M8.1 (Closed) Unresolved Item (URI) 50-413,414/99-01-08: Past Inoperability of Unit 1 Ice Condenser Lower Inlet Doors

(Open) Licensee Event Report (LER) 50-413/99-003-00: Violation of Technical Specifications due to Inoperable Ice Condenser Lower Inlet Doors Caused By Ice/Frost Buildup Restricting Door Movement

(Open) LER 50-414/98-005-01: Violation of Technical Specification 3.6.5.3 due to Inoperable Ice Condenser Lower Inlet Doors Caused by Ice/Frost Buildup Restricting Door Movement

(Open) Apparent Violation (EEI) 50-414/98-16-04: Failure to Maintain Ice Condenser Inlet Doors Operable

On March 5, 1999, the licensee performed at-power inspections of accessible lower inlet doors in the Unit 1 ice condenser and identified ice accumulation on the lower beam cooler glycol piping which may have impacted the operability of the ice condenser lower inlet doors. Details of the Unit 1 inspection and immediate corrective actions were included in NRC Inspection Report 50-413,414/99-01, Section M2.1. Pending further NRC review, this issue was identified as URI 50-413,414/99-01-08.

During this inspection period, the inspectors reviewed licensee corrective action program documents including Problem Investigation Process reports, work orders, and database searches to determine whether or not the lower beam cooler frosting problem may have challenged lower inlet door operability in the past. The inspectors also discussed past ice condenser maintenance practices with cognizant licensee personnel. Based on these reviews, the inspectors concluded that, other than the problems described in the subject LERs, the licensee had not previously identified frosting of the lower door beam coolers as an operability concern. Discussions with licensee personnel indicated that the removal of frost from beam coolers or glycol piping probably occurred during past refueling outages as an informal part of scheduled maintenance activities. Licensee personnel indicated that any observed frosting had likely not accumulated to an extent that challenged inlet door operability. The inspectors had concluded previously, from equipment observations and reviews of design

drawings, that some frost accumulation could occur on the beam coolers without impacting inlet door operability. However, the inspectors also noted that the rate of occurrence of beam cooler frosting would be difficult to predict over an 18-month period (Technical Specification (TS) surveillance frequency) given variations in ice condenser humidity, sublimation rates, and temperature differences. During the Unit 1 End of Cycle 11 refueling outage, the licensee was planning to install insulation on the subject lines to preclude future beam cooler frosting problems. This modification had already been completed on Unit 2.

Licensee Event Report No. 50-413/99-003-00 documented the inoperability of 8 (of 48) Unit 1 ice condenser lower inlet doors, which was caused by the ice and frost buildup discussed above. The doors failed to meet TS Surveillance Requirement 3.6.13.4 which requires the licensee to verify every 18 months "by visual inspection, each inlet door is not impaired by ice, frost, or debris", in that they were impaired by ice and frost. The licensee concluded that although the ice condenser was degraded due to the partial inlet door obstructions, the system could still perform its safety function of maintaining containment pressure within design limits following an accident. Prior to the Unit 1 startup, the blockage was removed from the glycol lines to restore the inlet doors to an operable status. The Unit 1 examples of the lower inlet doors being inoperable as a result of not meeting TS surveillance requirements are identified as EEI 50-413/99-11-01: Failure to Maintain Ice Condenser Lower Inlet Doors Operable. NRC followup of this Unit 1 issue will be conducted under this EEI, hence, URI 50-413,414/99-01-08 is closed.

The licensee performed the Unit 1 inspection as a planned corrective action which was documented in LER 50-414/98005. This LER described similar problems in the Unit 2 ice condenser resulting from ice accumulation on the beam cooler glycol piping. The Unit 2 problem was previously addressed in NRC Inspection Report 50-413,414/98-16, Section E1.2.b.3. In that report, the NRC identified EEI 50-414/98-16-04, Failure to Maintain Ice Condenser Inlet Doors Operable, for not maintaining the Unit 2 lower inlet doors in an operable configuration per the requirements of TS 3.6.5.3 (now improved TS 3.6.13). Based on the current and previous reviews of this issue, the inspectors concluded that the TS inoperability of the eight Unit 1 ice condenser lower inlet doors was similar to the condition identified in Unit 2 as EEI 50-414/98-16-04.

V. Management Meetings

X1 Exit Meeting Summary

The inspector presented the inspection results to members of licensee management at the conclusion of the inspection at a meeting on April 23, 1999, and again on May 3, 1999. The licensee acknowledged the findings presented. No proprietary information was identified.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

R. Beagles, Safety Assurance Manager*
 M. Boyle, Radiation Protection Manager*
 S. Bradshaw, Safety Assurance Manager**
 G. Gilbert, Regulatory Compliance Manager**
 R. Glover, Operations Superintendent*
 P. Herran, Engineering Manager*
 R. Jones, Station Manager**
 G. Peterson, Catawba Site Vice-President**
 F. Smith, Chemistry Manager*
 R. Parker, Maintenance Manager*

NRC

D. Roberts, Senior Resident Inspector**
 S. Shaeffer, Senior Resident-Inspector - McGuire Nuclear Station***

*Attended exit on May 3, 1999

**Attended exit on April 23 and May 3, 1999

***Attended exit on April 23, 1999

INSPECTION PROCEDURES USED

IP 92902: Followup - Maintenance

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-413/99-11-01	EEI	Failure to Maintain Ice Condenser Lower Inlet Doors Operable (Section M8.1)
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Closed

50-413,414/99-01-08	URI	Past Inoperability of Unit 1 Ice Condenser Lower Inlet Doors (Section M8.1)
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Discussed

50-413/99-003-00	LER	Violation of Technical Specifications due to Inoperable Ice Condenser Lower Inlet Doors Caused By Ice/Frost Buildup Restricting Door Movement (Section M8.1)
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50-414/98-005-01	LER	Violation of Technical Specification 3.6.5.3 due to Inoperable Ice Condenser Lower Inlet Doors Caused by Ice/Frost Buildup Restricting Door Movement (Section M8.1)
50-414/98-16-04	EEI	Failure to Maintain Ice Condenser Inlet Doors Operable (Section M8.1)