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April 7, 2000

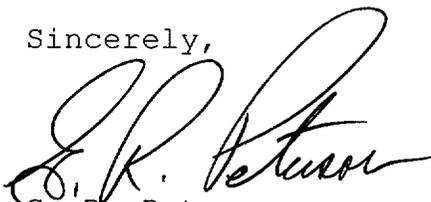
U. S. Nuclear Regulatory Commission  
ATTENTION: Document Control Desk  
Washington, DC 20555-0001

SUBJECT: Duke Energy Corporation  
Catawba Nuclear Station Unit 1 and 2  
Docket Nos. 50-413, 50-414  
Licensee Event Report 413/00-003-00

Attached please find the Licensee Event Report 413/00-003-00 entitled "Use of the Control Room Pressure Boundary Compensatory Action Caused Control Room Ventilation System to be Inoperable". The causes of this event have been determined to be that personnel failed to recognize the entry into an action statement was required whenever the TS surveillance requirement for control room pressurization was not met. Appropriate action was not taken within the time required by Technical Specifications. The planned corrective actions section of this LER contains the only commitments in this report.

Questions regarding this Licensee Event Report should be directed to M. S. Purser at (803) 831-4015.

Sincerely,



G. R. Peterson

Attachment

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xc:

L. A. Reyes  
Regional Administrator, Region II

C. P. Patel  
NRC Senior Project Manager (CNS)

D. J. Roberts  
Senior Resident Inspector (CNS)

**LICENSEE EVENT REPORT (LER)**

(See reverse for required number of  
digits/characters for each block)

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If an 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

<b>FACILITY NAME (1)</b> Catawba Nuclear Station Unit 1	<b>DOCKET NUMBER (2)</b> 05000413	<b>PAGE (3)</b> 1 OF 6
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**TITLE (4)**  
Use of Control Room Pressure Boundary Compensatory Action Caused Control Room Ventilation System to be 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 NAME	DOCKET NUMBER
03	08	00	2000	003	00	04	07	00	Catawba Unit 2	05000414
<b>OPERATING MODE (9)</b>		1	<b>THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)</b>							
<b>POWER LEVEL (10)</b>		100	20.2201(b)	20.2203(a)(2)(v)		X		50.73(a)(2)(i)	50.73(a)(2)(viii)	
			20.2203(a)(1)	20.2203(a)(3)(i)				50.73(a)(2)(ii)	50.73(a)(2)(x)	
			20.2203(a)(2)(i)	20.2203(a)(3)(ii)				50.73(a)(2)(iii)	73.71	
			20.2203(a)(2)(ii)	20.2203(a)(4)				50.73(a)(2)(iv)	OTHER	
			20.2203(a)(2)(iii)	50.36(c)(1)				50.73(a)(2)(v)		
			20.2203(a)(2)(iv)	50.36(c)(2)				50.73(a)(2)(vii)		

**LICENSEE CONTACT FOR THIS LER (12)**

<b>NAME</b> M. S. Purser, Regulatory Compliance	<b>TELEPHONE NUMBER (Include Area Code)</b> (803) 831-4015
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**COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)**

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

**SUPPLEMENTAL REPORT EXPECTED (14)**

<b>YES</b> (If yes, complete EXPECTED SUBMISSION DATE).	X	<b>NO</b>	<b>EXPECTED</b> N/A	<b>MONTH</b>	<b>DAY</b>	<b>YEAR</b>
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**ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)**  
 In February 1998, the NRC questioned the use of a control room pressure boundary compensatory action to maintain Control Room Ventilation System (VC) operability. The compensatory action was developed to maintain the VC system operable during the performance of maintenance activities that compromised the control room pressure boundary. The compensatory action document specified that measures would be taken to restore the control room area pressure boundary within five minutes of a condition that could potentially challenge control room habitability. The compensatory action was based on engineering calculations for an operability evaluation of the time required to restore control room pressure. The compensatory action was deleted on May 21, 1999.  
  
 On March 8, 2000 the NRC determined that reliance on the compensatory action (in lieu of declaring the VC system inoperable) was a violation of Pre-Improved Technical Specifications (Pre-ITS) 3.7.6 and 3.0.3.  
  
 Corrective actions will include a TS change to allow the VC System to remain operable with a compromised pressure boundary for maintenance activities up to 24 hours.

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### Background

Catawba Nuclear Station, Units 1 (U1) and 2 (U2), are four loop Westinghouse pressurized water reactors. The Control Room Area Ventilation System (VC) [EIIS:VI] is designed to maintain the environment in the control room and the control room area within acceptable limits for operation of the unit controls, for maintenance and testing of the controls as required, and for uninterrupted occupancy of the control room during post-accident shutdown. This function is accomplished by pressurizing the control room to greater than or equal to 1/8 inch water gauge with respect to all surrounding areas, by filtering the outside air used for pressurization, by filtering a portion of the return air from the control room to cleanup the control room environment, and by maintaining the control room temperature less than or equal to 90 degrees F. The system is comprised of two redundant trains.

A control room pressure boundary compensatory action was created to allow maintenance activities that required the control room boundary to be breached. The compensatory action included administrative controls to ensure the boundary could be secured and the control room pressure restored within five minutes in the event of a design basis accident. A safety evaluation was completed in support of the compensatory action per the requirements of 10CFR50.59. Restoring the control room pressure boundary within 5 minutes allowed the system to meet its design basis, since the current dose analysis assumed the control room would be unpressurized for 5 minutes. However, the safety evaluation for the compensatory action was determined to be in error according to the NRC per Task Interface Agreement (TIA) 98008 response communicated to the licensee on July 1, 1999. The resulting TIA described the NRC concerns that the licensee does not have the authority to implement the VC compensatory action affecting the control room pressure boundary. The technical specification surveillance requirement shall always be met or the action statement shall be entered.

A review of the incidences where the control room pressure boundary compensatory action was being used indicates that there was a non-compliance with Pre-Improved Technical Specifications (Pre-ITS) 3.7.6 and 3.0.3. Therefore, the plant was in a condition prohibited by TS and this event is being reported pursuant to 10 CFR 50.73 (a)(2)(i).

During the periods of TS non-compliance, one unit would have been at 100 percent power and the other unit would have been at zero percent power in a scheduled outage, except for the February 4, 1998 and October 1, 1998 incidents where both units were at 100% power.

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Event Description

7-5-1996	0955	During the U2 Operator-Aided Computer (OAC) replacement, the VC compensatory action was entered for U1. Unit status: U1 at 100%; U2 in an outage.
7-7-1996	0240	VC compensatory action was exited for U1.
7-11-1996	0821	During the U2 Operator-Aided Computer (OAC) replacement, the VC compensatory action was entered for U1. Unit status: U1 at 100%; U2 in an outage.
7-13-1996	0400	VC compensatory action was exited for U1.
3-24-1997	1400	During the U1 Operator-Aided Computer (OAC) replacement, the VC compensatory action was entered for U2. Unit status: U2 at 100%; U1 in an outage.
3-29-1997	2330	VC compensatory action was exited for U2.
March 1997		VC compensatory action was in use during core alterations on U2. U1 was at 100% power at the time.
2-4-1998		The control room pressure boundary was breached which resulted in a brief dual unit entry into TS 3.0.3. The control room pressure was restored and the VC system was determined operable based on the compensatory action that allowed five minutes to restore the pressure. (ref. LER 413/98-001)
10-1-1998	1350	VC compensatory action was entered. Unit status: Both Units at 100% power.
10-1-1998	1700	VC compensatory action was exited.

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3-31-1999

NRR responds to Region II concerning Task Interface Agreement (TIA) 98008. In the TIA response the NRR staff concluded that the use of the compensatory action was a violation of Technical Specifications (TS).

5-21-1999

Use of the control room pressure boundary compensatory action was suspended. All remaining compensatory actions were reviewed for TS compliance.

7-1-1999

Inspection Report IR 99-03 shared the information of TIA 98008 position with the licensee. It described the NRC's concern with the use of the compensatory action.

July 1999 -  
March 2000

Duke Energy communicated its position that the Design Bases were met and thus the intent of the TS surveillance was met to the NRC. During this period correspondence was exchanged between the licensee and the NRC and meetings held to resolve the issue.

3-8-2000

A non-cited violation was issued for failure to comply with Pre-ITS 3.7.6 and 3.0.3 by using the control room pressure boundary compensatory action. The NCV is listed in the March 8, 2000 NRC Integrated Inspection Report 50-413/00-01 and 50-414/00-01.

#### Causal Factors

Pre-ITS 3.7.6 states: "Two independent Control Room Area Ventilation Systems shall be operable" with applicability in modes 1-6. ACTION 3.7.6.a. (ALL MODES) allows one Control Room Area Ventilation System to be inoperable for up to 7 days. ACTION 3.7.6.b. (MODES 5 and 6) requires core alterations to be suspended with both Control Room Area Ventilation Systems inoperable. Surveillance Requirement (SR)4.7.6(e)3 states: "Verifying that the system maintains the control room at a positive pressure of greater than or equal to 1/8 inch of Water Gauge relative to adjacent areas at less than or equal to pressurization flow of 4000 cfm to the control room during the system operation." Pre-ITS 3.0.3 States: "When a Limiting Condition for Operation is not met, except as provided in the associated ACTION requirements, within one hour action shall be initiated to place the unit in a MODE in which the

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specification does not apply..." Use of the control room boundary compensatory action caused both Control Room Area Ventilation Systems to be considered inoperable.

The cause of the violation was the failure of site personnel to recognize that implementation of the compensatory action would not maintain the VC system operable in lieu of ensuring pressure boundary integrity since the surveillance could not be met. Compliance with Pre-ITS 3.0.3 and 3.7.6 were challenged due to core alterations, movement of irradiated fuel, and continued full power operation. Personnel failed to recognize the entry into the action statement was required whenever the TS surveillance requirement for control room pressurization was not met and take appropriate action within the time required by TS. Other related compensatory actions were reviewed for TS compliance.

There were no EPIX reportable failures associated with this event.

Operating Experience was reviewed for the past 24 months to determine if this is a recurring event. One similar event was identified (LER 98/414-001) in which an annulus pressure boundary door was secured open without the proper compensatory action in place. The root cause of that event was determined to be a less than adequate process for determining proper compensatory action requirements for the work related to that event. The event reported in this LER involves a compensatory action which was used and implemented properly as written. However, the compensatory action was inadequate and did not ensure, when used, the Control Room pressure boundary remained operable. Due to the differences in these two events, this LER is not recurring.

#### Corrective Actions

Immediate

None

Subsequent

1. The Control Room Pressure Boundary compensatory action was deleted on May 21, 1999 and the other ventilation compensatory actions were then reviewed to ensure TS compliance.

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Planned

1. A Technical Specification Amendment request is being prepared to allow the VC System to remain operable with a compromised pressure boundary up to 24 hours.

Safety Analysis

This compensatory action provided provisions to ensure the pressure boundary would be restored within 5 minutes of a safety injection signal, a radiation release within the plant, a high chlorine alarm at a VC intake, or the sensing of chlorine in the work area. These provisions would allow the system to perform its design basis function within the time assumed in the plant's accident analysis.

The VC compensatory action was primarily used during the OAC Replacement on both units. Therefore, for most of the activities, one unit was operating at 100 percent rated thermal power and the other unit was in an outage. For Unit 1, the greatest period of time the VC system was inoperable was approximately 43 hours and 39 minutes. For Unit 2, the greatest period of time the VC system was inoperable was approximately 129 hours and 30 minutes. Records show that contrary to Pre-ITS 3.7.6, fuel movement and core alterations were in progress in March 1997 on Unit 2 for approximately 22 hours while the VC system was inoperable. For each of these examples, personnel failed to comply with the action statements for Pre-ITS 3.7.6 and 3.0.3. However, the simplicity of the compensatory action, the specificity of the compensatory action, and the formal accountability of a designated maintenance technician to implement the compensatory actions and a cognizant operations shift manager mitigated the safety significance of these situations. At no time was the health and safety of the public at risk.