



A Centerior Energy Company

EDISON PLAZA
300 MADISON AVENUE
TOLEDO, OHIO 43652-0001

NP-33-97-001

Docket No. 50-346

License No. NPF-3

February 21, 1997

United States Nuclear Regulatory Commission
Document Control Desk
Washington, D. C. 20555

Ladies and Gentlemen:

LER 97-001

Davis-Besse Nuclear Power Station, Unit No. 1
Date of Occurrence - January 21, 1997

Enclosed please find Licensee Event Report 97-001, which is being submitted to provide 30 days written notification of the subject occurrence. This LER is being submitted in accordance with 10CFR50.73(a)(2)(i)(B).

Very truly yours,

James H. Lash
Plant Manager
Davis-Besse Nuclear Power Station

CAK/dlc

Enclosure

cc: Mr. A. B. Beach
Regional Administrator
USNRC Region III

Mr. Stan Stasek
DB-1 NRC Sr. Resident Inspector

Utility Radiological Safety Board

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LICENSEE EVENT REPORT (LER)

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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), 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.

FACILITY NAME (1)

Davis-Besse Unit Number 1

DOCKET NUMBER (2)

05000 - 346

PAGE (3)

1 OF 3

TITLE (4)

Nuclear Instrumentation Inoperable in Excess of Technical Specification Action Statement Requirements

EVENT DATE (5)			LER NUMBER (6)		REPORT NUMBER (7)			OTHER FACILITIES INVOLVED (8)		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
01	22	97	97	-- 001 --	00	02	21	97	FACILITY NAME	DOCKET NUMBER
										05000
										05000
OPERATING MODE (9)		1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
POWER LEVEL (10)		100	20.402(b)		20.405(c)		50.73(a)(2)(iv)		73.71(b)	
			20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)		73.71(c)	
			20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)		OTHER	
			20.405(a)(1)(iii)		x 50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		(Specify in Abstract	
			20.405(a)(1)(iv)		50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)		below and in text,	
			20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)		NRC Form 366A)	

LICENSEE CONTACT FOR THIS LER (12)

NAME

Cheryl A. Kraemer, Engineer - Licensing

TELEPHONE NUMBER (Include Area Code)

(419) 321-7153

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS
X	IG	AMP	B045	Y					

SUPPLEMENTAL REPORT EXPECTED (14)

EXPECTED
SUBMISSION
DATE (15)

MONTH DAY YEAR

YES

(If yes, complete EXPECTED SUBMISSION DATE)

X NO

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

At 0100 hours on January 22, 1997, with the Unit operating in Mode 1 at approximately 100 percent power, a Potential Condition Adverse to Quality Report (PCAQR) was initiated for NI-6 (power range nuclear instrument) reactor power imbalance signal. A Reactor Operator had noticed NI-6 (IG-AMP) imbalance to be reading more negative than expected. Upon investigation of this condition, NI-6 was determined to be in a degraded condition from 2151 hours until 2309 hours on January 21, 1997, and had shifted approximately 4 percent in the negative direction. A review of the degraded condition by Plant Engineering on January 23, 1997, determined that in its degraded condition, RPS Channel 1 which receives the NI-6 imbalance signal was inoperable and incapable of performing its intended safety function with respect to tripping on positive imbalance.

The initiating condition was that a degraded bottom linear amplifier caused a small shift of the indicated NI-6 reactor power imbalance and total power signal to RPS Channel 1. The investigation revealed that the degraded condition existed for one hour and 18 minutes. Technical Specifications (TS) 3.3.1.1 allows an inoperable channel for no more than one hour. This is being reported as a condition prohibited by the TS in accordance with 10 CFR 50.73 (a)(2)(i)(B). The power range bottom linear amplifier was replaced. An enhancement, Licensed Operators will be trained to make them more aware of instrument degradation of this nature by May 31, 1997.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), 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.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
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Davis-Besse Unit Number 1	05000-346	97	--001--	00	2 OF 3

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

Description of Occurrence:

At 0100 hours on January 22, 1997, with the Unit operating in Mode 1 at approximately 100 percent power, a Potential Condition Adverse to Quality Report (PCAQR) 97-0073 was initiated for power range nuclear instrument, NI-6. It was discovered during shift turnover walkthroughs that the NI-6 reactor power imbalance signal was reading more negative than expected in comparison to the other 3 power range nuclear instruments. Investigation revealed that at 2151 hours on January 21, 1997, the NI-6 reactor power imbalance signal had shifted by approximately four percent in the negative direction and returned to a normal reading at 2309 hours on January 21, 1997. The NI-6 shift also caused the RPS Channel 1 total reactor power indication to shift upward approximately one percent. At the time of discovery, Reactor Engineering was consulted who determined that the imbalance signal was not an indication of the actual core condition and the core was operating normally.

On January 23, 1997, upon review of PCAQR 97-0073, Plant Engineering issued an addendum to the PCAQR. The addendum reported that RPS Channel 1 was incapable of performing its specified safety function with respect to tripping on positive imbalance while the NI-6 reactor power imbalance signal was incorrect. Due to the indicated negative shift of imbalance, actual reactor core positive imbalance could have been greater than the Tech Spec allowable imbalance value without a corresponding trip of RPS Channel 1. As a result, RPS Channel 1 would not have performed its intended safety function and the Channel was inoperable. Technical Specification Table 3.3-1 Action 2 states that with one channel of RPS delta flux inoperable, power operation may continue provided that the inoperable channel is placed in either the bypassed or tripped condition within one hour and that the quadrant power tilt is monitored at least once per 12 hours.

It was determined that the undetected NI-6 reactor power imbalance signal read incorrectly for approximately one hour and 18 minutes during which time the channel was not declared inoperable and placed in either the bypassed or tripped condition. This represents a condition that is prohibited by the plant's Technical Specifications and is reportable in accordance with 10 CFR 50.73(a)(2)(i)(B).

On January 31, 1997 at 1154 hours, NI-6 reactor imbalance signal to RPS Channel 1 once again shifted. The plant entered TS 3.3.1.1 Action Statement 2. Troubleshooting analysis indicated that the power range NI-6 bottom linear amplifier was the faulty component. This component was replaced and TS 3.3.1.1 was exited at 0925 on February 1, 1997. Since replacement of the bottom linear amplifier, this adverse condition has not recurred.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 60.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), 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.

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

Apparent Cause of Occurrence:

The initiating condition was determined to be a degraded bottom linear amplifier. The amplifier degraded in such a manner as to cause a small shift in NI-6 indicated imbalance. This undetected condition existed for greater than the TS Action Statement Requirements.

Analysis of Occurrence:

There was minimal safety significance during this event. This degraded condition had no impact on actual core conditions or plant operations. The RPS is a four-channel system which requires only two channels to trip for initiation of a reactor trip. During the time of this event three of the four channels were operable and could have performed their intended safety function. Therefore, actual positive core imbalance would not have exceeded the Allowable Value limits of the Core Operating Limits Report (COLR). The bottom linear amplifier output shift causes both a negative shift in imbalance and indicated total power to increase which may cause the RPS channel to trip sooner than required.

Reactor core conditions are monitored by plant operators frequently during the course of shift operations. It is unlikely that the plant would have exceeded the imbalance limits given in the COLR. Operation of the plant resulting in an imbalance of the magnitude limited by the COLR would be more recognizable.

The power range nuclear instrument linear amplifiers have had acceptable reliability. Partial degradation of the linear amplifier causing a slight shift in indicated imbalance is not known to have occurred in the last nine years.

Corrective Actions:

The power range bottom linear amplifier was replaced on February 1, 1997. As an enhancement, Licensed Operators will be trained to make them more aware of instrument degradation of this nature by May 31, 1997.

Failure Data:

A review of License Event Reports (LER) submitted in the last two years disclosed no similar events that were caused by hardware degradation causing inoperability. Additionally, there were no LERs involving nuclear instrumentation in the last two years.

NP-33-97-001-0

PCAOR 97-0073