

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Davis-Besse Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 3 4 6	PAGE (3) 1 OF 03
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TITLE (4)  
Control Room Emergency Ventilation System Makeup Flow Too High

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)
1	21	78	48	4	022	0	0	11			0 5 0 0 0
											0 5 0 0 0

OPERATING MODE (9) 5

POWER LEVEL (10) 0 1 0 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)

20.402(b)	20.406(c)	50.73(a)(2)(iv)	73.71(b)
20.406(a)(1)(i)	50.38(c)(1)	50.73(a)(2)(v)	73.71(c)
20.406(a)(1)(ii)	50.38(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 386A)
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)(viii)(B)	
20.406(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME Gene Pyzik	TELEPHONE NUMBER
	AREA CODE: 4 1 9    2 5 9 - 5 0 0 0

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
B	V I	C D M P	0 0 0 0	N					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)     NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

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

During the performance of the Control Room Emergency Ventilation System Refueling Test, ST 5076.03, it was found that the makeup flow of outside air was exceeding test limits on both trains. The manual modulating dampers were adjusted, and the test successfully performed. Further checking of past tests found that the previous cognizant individual had incorrectly approved tests run with this same deficiency. Therefore, this condition had existed for several years. This condition is being reported per 10CFR50.73(a)(2)(i)(B) as a condition prohibited by Technical Specifications.

The results of the review of the as-found flowrate shows that even with a 600 CFM flowrate in each train that the filters in the system would not have been damaged. Also, there would not have been a significant increase in Control Room operator doses had there been an airborne radioactivity emergency isolation. Following the postulated toxic gas accident, the Control Room would be maintained on 100 percent recirculation until the gas leak/spill could be cleaned up.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104  
EXPIRES: 8/31/85

FACILITY NAME (1)  Davis-Besse Unit 1	DOCKET NUMBER (2)  0 5   0   0   0   3   4   6	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8   4	-   0   2   2	-   0   0	0	2	0

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

Description of Occurrence: On December 18, 1984, during the performance of the Control Room Emergency Ventilation System, EVS, (VI) Refueling Test, ST 5076.03, it was noted that the outside air intake dampers were allowing greater than 300 CFM ± 10% makeup flow. The Control Room EVS consists of two (2) 100% capacity, redundant air handling, filtering, and refrigeration equipment trains. It is designed to provide cooling and ventilation to the Control Room following a total loss of normal heating, ventilation, and air conditioning systems and following toxic gas or airborne radioactivity emergency isolation. In addition, the system is designed to admit 300 CFM ± 10% outside air after the fourth day following an accident in order to maintain a breathable atmosphere. The recent test found that one train was admitting 354 CFM and the other 597 CFM. A check of previous tests found that the makeup flow had been in excess of 300 CFM ± 10% as tested since 1980. This is being reported as a violation of Technical Specification 3.7.6.1 under 10CFR50.73(a)(2)(i)(B).

Designation of Apparent Cause of Occurrence: The cause of the excessive makeup air flow was manual modulating dampers that needed adjustment. A manual damper is in series with a motor operated damper. The motor operated damper will be either full open or closed. The adjustment of the manual damper determines the air flow. The cause of this excessive flow going undetected for so long is due to an inadequate review of the test data by the system cognizant individual. The test was properly performed and the calculations properly computed. However, the numbers for the flow were outside the tolerance in the acceptance criteria for the test, and no corrective action was taken.

Analysis of Occurrence: The results of a Bechtel Associates review indicate that EVS operation using 600 CFM intake air will not damage the EVS filters. Each filter train has a nominal capacity of 4000 CFM. The EVS fans are designed to draw through their associated filters at a rate of 3300 CFM ± 10% and are rated at 5.5 inches of water gauge differential head. The filter/fan capacities ensure a low nominal face velocity precluding any possibility of filter damage.

In addition, duct and particulate loading of the HEPA and pre-filters post-accident should not be severe enough to reduce the system flow significantly. Technical Specification 4.7.6.1.e.1 requires that the pressure drop across the combined HEPA filters and charcoal adsorber banks be measured at least once every 18 months at rated flow to ensure sufficient filter removal capacity exists at all times.

Post-accident operation of the Control Room EVS is initiated manually from Control Room handswitch HIS 5261/5262. The system starts in the recirculation mode of operation and an additional operator action is required (opening of HV-5261A/5262A) to initiate the outside air intake and recirculation mode of operation. (NOTE: Following the postulated toxic gas accident, the Control Room would be maintained on 100 percent recirculation until the gas leak/spill could be cleaned up).

As stated in USAR Chapter 15, Section 15.4.6.4, assumptions e and g, the effects of the Maximum Hypothetical Accident (MHA) were calculated based on operation of the Control Room EVS in the intake and recirculation mode, utilizing 300 CFM outside air, beginning four days after the accident and continuing through day 30.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		

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It was assumed, based on calculation, that by the fourth day following the accident, the Control Room carbon dioxide concentration would be approaching the recommended upper limit and that initiation of the Control Room EVS intake and recirculation mode of operation would be required to eliminate further carbon dioxide buildup.

USAR Table 15.4.6-2 lists the resultant Control Room operator doses following the MHA. Increasing the intake air flow rate from 300 to 600 CFM increases the "inside the Control Room" portion of the Control Room operators' doses during the five to thirty day period following the MHA. The "inside the Control Room" portion of the Control Room operators' doses received during days 0 through 4 are due to the assumed unfiltered inleakage to the Control Room of 25 CFM. After day 4, the assumed unfiltered inleakage is reduced to 10 CFM (Control Room door openings), due to initiation of the intake and recirculation mode of EVS operation and subsequent Control Room pressurization. The intake air flow is filtered through the EVS HEPA filters and charcoal adsorbers which were conservatively assumed to have removal efficiencies of 95% for iodines and particulates.

Based on our review of the MHA Control Room Dose Calculation, we have determined that the majority of the dose to the Control Room operators is received in the first four days following the MHA. Thus, the effect of the increased air intake flow rate on the total dose is minor. Our review revealed that the 5 through 30 day contribution to the "inside the Control Room" dose in USAR Table 15.4.6-2 accounts for only 3.6 percent of the thyroid dose; 5.1 percent of the beta-skin dose; and 3.1 percent of the gamma-whole body dose.

Based on the above, we believe that operation of the Control Room EVS post-accident, utilizing 600 CFM intake air, would not have resulted in Control Room operator doses significantly higher than those reported in Chapter 15 of the USAR, nor above the limits specified in 10CFR50, Appendix A, Criterion 19.

Corrective Action: Under Maintenance Work Orders 1-84-3734-00 and 1-84-3734-01 the dampers were adjusted. Surveillance Test ST 5076.03 was successfully rerun on December 27, 1984. The test procedures that the previous cognizant individual was responsible for have been conducted by another individual and reviewed by a third party and any deficiencies properly documented and resolved.

In addition, a Special Order is being prepared which will require a review of completed tests by a person independent of the one who performed the test.

Failure Data: There have been no previous reports of failures of test reviews.

Report No: NP-33-84-24

DVR No(s): 84-189



January 17, 1985

Log No. K85-174  
File: RR 2 (NP-33-84-24)

Docket No. 50-346  
License No. NPF-3

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

Gentlemen:

LER No. 84-022  
Davis-Besse Nuclear Power Station Unit 1  
Date of Occurrence: December 17, 1984

Enclosed is Licensee Event Report 84-022 which is being submitted in accordance with 10CFR50.73, to provide 30 day written notification of the subject occurrence.

Yours truly,

A handwritten signature in cursive script that reads "Stephen M. Quennoz".

Stephen M. Quennoz  
Plant Manager  
Davis-Besse Nuclear Power Station

SMQ/ljk

Enclosure

cc: Mr. James G. Keppler,  
Regional Administrator,  
USNRC Region III

Mr. Walt Rogers  
DB-1 NRC Resident Inspector

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