

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 0 3

TITLE (4)
Software Error in Kaman Radiation Monitors

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)			
0	2	2	8	8	8	0	3	2	3	8	8	0 5 0 0 0		
				0	6	0	0	0	3	2	3	8	8	0 5 0 0 0

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

OPERATING MODE (9) 1	20.402(b)	20.406(c)	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10) 0 7 1 1	20.406(a)(1)(i)	50.36(e)(1)	50.73(a)(2)(v)	73.71(c)
	20.406(a)(1)(ii)	50.36(e)(2)	50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
	20.406(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(vii)(A)	
	20.406(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(vii)(B)	
	20.406(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME: J. C. Stotz, Associate Nuclear Engineer, Technical Planning

TELEPHONE NUMBER: 4 1 1 9 2 4 1 9 - 1 5 1 0 1 0

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS

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)

On February 12, 1988, Kaman Instrumentation Corporation verbally notified the Shift Supervisor of a potential defect in the particulate and iodine channels of the Kaman Radiation Monitors installed to monitor the containment atmosphere and station vent. On February 22, 1988, Kaman confirmed this defect which involved an algorithm error in the software. This error causes the indicated particulate and iodine activity to be less than the actual value if the software collection parameters are not reset every 48 hours. At Davis Besse, the software collection parameters are not reset every 48 hours, and therefore these radiation monitors would provide inaccurate information. Noble gas monitoring capabilities were not affected.

The Kaman monitors were installed in 1984.

On February 12, 1988, the station commenced resetting the collection time counter to zero on the affected radiation monitors every 48 hours. This will continue until the affected Kaman software is corrected during the refueling outage which began on March 10, 1988.

This defect was reported to NRC Region IV by Kaman on February 22, 1988 under 10CFR21.

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

Description of Occurrence:

On February 12, 1988, Kaman Instrumentation Corporation verbally notified the Shift Supervisor of a possible software defect in the particulate and iodine channels of the Kaman Radiation Monitors (IC). These radiation monitors (MON) (Kaman Instrumentation Corporation, Model KMPIG) are installed to monitor the Containment Atmosphere (RE 4597AA and RE 4597BA) and the Station Vent Stack (RE 4598AA and RE 4598BA). These Kaman monitors were installed in 1984.

On February 22, 1988 with the Reactor in Mode 1 at 71 percent Reactor Thermal power, Kaman confirmed that a defect existed in their software. This defect causes the radiation monitors to indicate less than the actual particulate and iodine activity concentration value if the software collection parameters are not reset within 48 hours. These parameters were not reset every 48 hours, and therefore these radiation monitors would provide inaccurate information.

This event is being reported under 10CFR50.73(a)(2)(vii) because the ability of the radiation monitors to mitigate the consequences of an accident was degraded.

Designation of Apparent Cause of Occurrence:

The cause of this defect was an algorithm error in the radiation monitor software supplied by Kaman Instrumentation Corporation. This defect was reported by Kaman on February 22, 1988, to NRC Region IV under 10CFR21.

Analysis of Occurrence:

The algorithm error affected the radiation monitor's measurement of the concentration of particulate and iodine activity. The error did not affect the radiation monitor's measurement of noble gases which are normally associated with a particulate or iodine release.

The Containment Atmosphere radiation monitors (RE 4597's) are used to alert the operators of increased activity within containment but do not result in automatic equipment actuations. The Station Vent radiation monitors (RE 4598's) are used to alert operators of abnormal releases via the Station Vent and to automatically shutdown the control room normal ventilation on an abnormal release.

Because the noble gas monitoring channel for the RE 4597's and RE 4598's are not affected by the algorithm error, abnormal noble gas activity in Containment and abnormal noble gas releases through the Station Vent would have been detected because high noble gas provides an alarm which is required to be responded to by initiating alternate manual sampling. The Station Vent noble gas monitors were still capable of initiating the isolation of the control room normal ventilation in response to the detection of an abnormal release.

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

Corrective Action:

On February 12, 1988, the station commenced stepping (resetting the software collection parameters) the containment atmosphere and station vent radiation monitors every 48 hours as recommended by Kaman. This filter stepping will continue until the affected software has been corrected. This will occur during the Fifth Refueling Outage which began March 10, 1988.

Failure Data:

This is the first report of a defect in the Kaman Radiation Monitoring software.

REPORT NO: NP-33-88-06

PCAQ NO(s): 88-0134

March 23, 1988



EDISON PLAZA
300 MADISON AVENUE
TOLEDO, OHIO 43652-0001

Log No: KA88-0266
NP-33-88-06

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

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

Gentlemen:

LER No. 88-006
Davis-Besse Nuclear Power Station Unit No. 1
Date of Occurrence February 22, 1988

Enclosed is Licensee Event Report 88-006, 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 'L. F. Storz' with a date '1/18/88' written below it.

Louis F. Storz
Plant Manager
Davis-Besse Nuclear Power Station

LFS/ed

cc: Mr. A. Bert Davis
Regional Administrator
USNRC Region III

Mr. Paul Byron
DB-1 NRC Resident Inspector

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