

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)
NORTH ANNA POWER STATION UNIT 1

DOCKET NUMBER (2)

0 5 0 0 0 3 3 8

PAGE (3)

1 OF 0 4

TITLE (4)
NUCLEAR RESEARCH CORPORATION RADIATION MONITOR EXCEEDED T.S. ACTION STATEMENT

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	1	0	7	8	8	8	8	8	0	0	3
0	1	0	7	8	8	8	8	8	0	5	0

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)									
POWER LEVEL (10)	1 0 0	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)						
		20.405(a)(1)(i)	50.36(e)(1)	50.73(a)(2)(v)	73.71(c)						
		20.405(a)(1)(ii)	50.36(e)(2)	50.73(a)(2)(vi)	<input checked="" type="checkbox"/> OTHER (Specify in Abstract below and in Text, NRC Form 366A)						
		20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(vii)(A)	SPECIAL REPORT						
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(vii)(B)							
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(ix)							

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
E. Wayne Harrell, Station Manager	7 0 3 8 9 4 - 5 1 5 1

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC
				N					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
<input checked="" type="checkbox"/>	<input type="checkbox"/>				

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

At 2000 hours on January 7, 1988, with Unit 1 at 100 percent power (Mode 1) and Unit 2 at 100 percent power (Mode 1), the Nuclear Research Corporation "1A" Main Steam Line Radiation Monitor was declared inoperable because the monitor was spiking high. Action Statement 35 of Technical Specification 3.3.3.1 requires the radiation monitor be returned to operable status within 72 hours or initiate the preplanned alternate method of monitoring and prepare a Special Report. Since this Action Statement expired at 2000 hours on January 10, 1988, and the radiation monitor was still inoperable, this event is reportable pursuant to Technical Specification 6.9.2.

Investigation into the cause for the inoperability of the radiation monitor has revealed that there was a problem with the ion chamber, as well as, the lower range Geiger-Muller tube. The radiation monitor has not malfunctioned since these problems were corrected and was returned to operable status at 1230 hours on January 14, 1988.

This event posed no significant safety implications because an alternate method of calculating an increase in radioactivity was available throughout this event. The health and safety of the general public were not affected.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
NORTH ANNA POWER STATION, UNIT 1	0 5 0 0 0 3 3 8	8 8	- 0 0 3	- 0 0	0 2	OF 0 4

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

1.0 Description of Event

At 2000 hours on January 7, 1988, with Unit 1 at 100 percent power (Mode 1) and Unit 2 at 100 percent power (Mode 1), the Nuclear Research Corporation "1A" Main Steam Line Radiation Monitor, 1-MS-RI-170, (EIIS System Identifier IL, Component Identifier MON, Vendor Identifier N330) was declared inoperable. The radiation monitor was declared inoperable because it was spiking high. Technical Specification (T.S.) 3.3.3.1 requires that the Nuclear Research Corporation "1A" main steam line radiation monitor be operable throughout a measurement range of E-2 to E+7 millirem per hour. If the radiation monitoring channel is declared inoperable, Action Statement 35 becomes applicable. Action Statement 35 requires that the radiation monitor be returned to operable status within 72 hours or initiate the preplanned alternate method of monitoring and prepare a Special Report. Since the Action Statement expired at 2000 hours on January 10, 1988, with the radiation monitor still inoperable, this event is reportable pursuant to Technical Specification 6.9.2.

The Nuclear Research Corporation Main Steam Line Radiation Monitors sense the radioactivity level that might be released via the Main Steam (code) Safety and Power Operated Relief valves. 1-MS-RI-170 also provides signals to an indicator, and alarms in the control room. Since each main steam header is a possible independent release path, each safety valve riser is monitored.

Investigation into the cause for the inoperability of 1-MS-RI-170 revealed that there was a problem with the ion chamber, as well as, the lower range Geiger-Muller tube (EIIS System Identifier IL, Component Identifier DET). On January 8, 1988, the detector was removed from the "1A" main steam line and tested. Testing was performed in the Unit 1 Control Room to isolate the problem by connecting the field detector directly to the control module. During testing, instrument personnel discovered that by tapping on the detector's ion chamber, the radiation monitor would spike high. Although the ion chamber screws were tightened and the output leads were re-soldered, the radiation monitor continued to spike high. A new ion chamber was ordered and at 1700 hours on January 10, 1988, it was installed and a complete calibration was performed. The radiation monitor appeared to be functioning normally at this time. At 1730 hours, the radiation monitor was again intermittently spiking high. A re-check of the calibration was performed, and all instrumentation was found to be operating correctly. At this time, station instrument personnel changed out both the microprocessor computer card and Input/Output (I/O) computer card. The monitor continued to spike high with the new cards in place, indicating that there were no problems with the original microprocessor and I/O computer cards. The original cards were re-installed. No further action was taken on January 10, 1988. On January 11, 1988, instrument personnel noted that the radiation monitor had discontinued spiking high but it was still indicating abnormally high readings. On January 12, 1988, the lower range Geiger-Muller tube was replaced. This tube is sensitive in the range of

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
NORTH ANNA POWER STATION, UNIT 1	0 5 0 0 0 3 3 8	8 8	— 0 0 3	— 0 0	0 3	OF 0 4

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

0.01 to 10 millirem per hour. Previous experience with Geiger-Muller tubes in Westinghouse radiation monitors (EIS System Identifier IL, Component Identifier MON, Vendor Identifier W120) has revealed that as the tubes age, they tend to become over-sensitive. After replacing this tube, the radiation monitor readings improved, and it was returned to operable status at 1230 hours on January 14, 1988.

2.0 Safety Consequences and Implications

No significant safety implications resulted from this event. Although there is no specified pre-planned alternate method to continuously monitor the Main Steam Lines, there is a method that can be used to monitor and quantify a potential release to the environment. In the event of a release, a grab sample is taken from the affected steam generator and is analyzed. In addition, the mass of release is determined. Using the grab sample analysis and the mass of release, calculations are performed to determine the amount of radioactivity released to the atmosphere. These methods are described in Health Physics Procedure 3.2.13, and Chemistry Procedures CAP-4.0 and 1-PT-72.1.

Throughout this event, the steam generator blowdown radiation monitor and the condenser air ejector radiation monitor were operable. Both of these monitors provide an automatic indication in the control room of any primary to secondary side leakage.

3.0 Cause of the Event

A bad ion chamber and an over-sensitive lower Geiger-Muller tube are both believed to have contributed to the cause of the radiation monitor failure.

4.0 Immediate Corrective Action

As an immediate corrective action, Action Statement 35 of Technical Specification 3.3.3.1 was entered.

5.0 Additional Corrective Action

Initially, health physics technicians performed a local survey and took grab samples to ensure that there was no increase in radiation in the "1A" Main Steam line.

Later, the ion chamber and the lower range Geiger-Muller tube were replaced.

6.0 Actions to Prevent Recurrence

No further action is required to prevent recurrence.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
NORTH ANNA POWER STATION, UNIT 1	0 5 0 0 0 3 3 8 8 8	—	0 0 3	—	0 0	0 4 OF 0 4

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7.0 Similar Events

No similar reportable events involving a failed Nuclear Research Corporation radiation monitor have occurred at either North Anna Unit 1 or North Anna Unit 2.

Vepco

VIRGINIA ELECTRIC AND POWER COMPANY

NORTH ANNA POWER STATION

P. O. BOX 402

MINERAL, VIRGINIA 23117

January 21, 1988

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

Serial No. N-88-003
NO/MLT: nih
Docket No. 50-338

License No. NPF-4

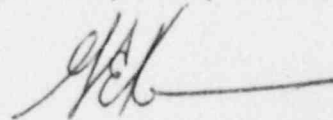
Dear Sirs:

The Virginia Electric and Power Company hereby submits the following
Licensee Event Report applicable to North Anna Unit 1.

Report No. LER 88-003-00

This report has been reviewed by the Station Nuclear Safety and Operating
Committee and will be forwarded to Safety Evaluation and Control for their
review.

Very Truly Yours,



E. Wayne Harrell
for Station Manager

Enclosure

cc: U. S. Nuclear Regulatory Commission
101 Marietta Street, N. W.
Suite 2900
Atlanta, Georgia 30323

Mr. J. L. Caldwell
NRC Senior Resident Inspector
North Anna Power Station

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11