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ACCESSION NBR:8912050187 DOC.DATE: 89/11/20 NOTARIZED: NO DOCKET #
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SUBJECT: LER 89-013-00:on 891020,containment gas radiation monitor
 spikes,due to flow imbalance,causes CVI.

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November 20, 1989

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

Subject: LER 89-013, Containment Gas Radiation Monitor Spikes,
Due To Flow Imbalance, Causes Containment Ventilation
Isolation
R.E. Ginna Nuclear Power Plant
Docket No. 50-244

In accordance with 10 CFR 50.73, Licensee Event Report System, item (a)(2)(iv), which requires a report of, "any event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature (ESF) including the Reactor Protection System (RPS)", the attached Licensee Event Report LER 89-013 is hereby submitted.

This event has in no way affected the public's health and safety.

Very truly yours,

Robert C. McCreedy
Robert C. McCreedy
General Manager
Nuclear Production

xc: U.S. Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406

Ginna USNRC Senior Resident Inspector

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) R.E. Ginna Nuclear Power Plant										DOCKET NUMBER (2) 0 5 0 0 0 2 4 4				PAGE (3) 1 OF 0 8								
TITLE (4) Containment Gas Radiation Monitor Spikes, Due To Flow Imbalance, Causes Containment Ventilation Isolation																						
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	0	2	0	8	9	0	0	1	1	3	0	0	1	1	2	0	8	9	0 5 0 0 0 0			
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more of the following) (11)																				
N		20.402(b)				20.406(a)				X 50.73(a)(2)(iv)				73.71(a)								
POWER LEVEL (10)		0 9 9				20.406(a)(1)(i)				50.34(a)(1)				50.73(a)(2)(v)				73.71(a)				
		20.406(a)(1)(ii)				50.34(a)(2)				50.73(a)(2)(vi)				OTHER (Specify in Abstract below and in Test, 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)(viii)(B)												
		20.406(a)(1)(v)				50.73(a)(2)(iii)				50.73(a)(2)(ix)												
		20.406(a)(1)(vi)				50.73(a)(2)(iv)				50.73(a)(2)(x)												
LICENSEE CONTACT FOR THIS LER (12)																						
NAME Wesley H. Backus Technical Assistant to the Operations Manager										TELEPHONE NUMBER AREA CODE 3 1 5 5 2 4 - 4 4 4 6												
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												
SUPPLEMENTAL REPORT EXPECTED (14)												EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR						
YES (If yes, complete EXPECTED SUBMISSION DATE) X NO																						
ABSTRACT (Limit to 1600 spaces, i.e., approximately fifteen single-space typewritten lines) (16)																						
<p>On October 20, 1989 at 0811 EDST with the reactor at approximately 99% full power, a containment ventilation isolation occurred due to containment gas radiation monitor R-12 reaching its alarm setpoint.</p> <p>All containment ventilation isolation valves that were open, closed as designed.</p> <p>Immediate operator action was to perform the applicable alarm response procedures actions. This included verifying automatic actions, determining the cause of the containment ventilation isolation, and making appropriate notifications.</p> <p>The underlying cause of the event was determined to be flow/pressure fluctuations in the R-12 RMS monitor sensing lines that increased the R-12 RMS monitor readings to the alarm setpoint.</p> <p>Corrective action was to return the containment ventilation isolation system to service followed by a troubleshooting effort by the Instrument and Control Department.</p>																						

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

I. PRE-EVENT PLANT CONDITIONS

The plant was at approximately 99% steady state full power with no major activities in progress.

II. DESCRIPTION OF EVENT

A. DATES AND APPROXIMATE TIMES FOR MAJOR OCCURRENCES:

- o October 20, 1989, 0811 EDST: Event date and time.
- o October 20, 1989, 0811 EDST: Event discovery date and time.
- o October 20, 1989, 0812 EDST: Control Room operators verified all containment ventilation isolation functions took place.
- o October 20, 1989, 0838 EDST: Control Room operators reset containment ventilation isolation and restored system to normal.

B. EVENT:

On October 20, 1989, at 0811 EDST, with the reactor at approximately 99% full power, the following control board alarms were received: E-16 (RMS Process Monitor High Activity) and A-25 (Containment Ventilation Isolation). The Control Room operators, responding to the above alarms, observed that Containment Gas Radiation Monitor R-12 was on alarm. Subsequently (approximately one minute), after the above alarms were received, control board alarm E-20 (CNMT or Plant Vent Rad MON Pump Trip) was received. This alarm was due to the containment ventilation isolation which trips the containment radiation monitor pump and isolates the containment valves to and from this pump.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/85

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

The Control Room operators verified that all containment ventilation isolation valves that were open, closed as designed.

Subsequently, the Control Room operators determined that the apparent cause of containment gas radiation monitor R-12 alarming was due to a Health Physics Technician drawing a local containment sample which interrupted flow to the R-12 monitor causing R-12 reading to increase to the alarm setpoint.

The Health Physics Technician was requested to terminate local sampling of containment. The Control Room operators then reset containment ventilation isolation after restoring the R-12 monitor proper line-up. After performing the above, R-12 monitor stabilized at approximately 10,000 counts per minute. During this time, the monitor was discovered set to alarm at 15,000 counts per minute (CPM).

The alarm setpoint for R-12 had previously been administratively changed to 25,000 cpm, due to an increase in reactor coolant system activity which had increased containment activity, but was inadvertently reset to 15,000 cpm during testing of the radiation monitoring system. (After the October 20 occurrence, the R-12 monitor alarm setpoint was again increased to the correct setpoint of 25,000 cpm.)

The Instrument and Control (I&C) Department was called to troubleshoot the R-12 monitor. The I&C Department, after troubleshooting the R-12 monitor, determined that the potential cause of the problem was flow/pressure fluctuations at the R-12 monitor skid. After the above troubleshooting was concluded, the containment ventilation isolation was reset and the system was restored to normal.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

C. INOPERABLE STRUCTURES, COMPONENTS, OR SYSTEMS THAT CONTRIBUTED TO THE EVENT:

None.

D. OTHER SYSTEMS OR SECONDARY FUNCTIONS AFFECTED:

With the containment ventilation isolation, the following major components were isolated:

- o R-10A, Containment Iodine RMS Monitor.
- o R-11, Containment Particulate RMS Monitor.
- o R-12, Containment Gas RMS Monitor.

E. METHOD OF DISCOVERY:

The event was immediately apparent due to control board annunciator alarms and containment ventilation isolation valve position indication in the Control Room.

F. OPERATOR ACTION:

Control Room operators responded to the event by performing the applicable actions of alarm response procedures E-16, A-25, and E-20. This included the following:

- o Verifying that all containment ventilation isolation valves that were open, closed as designed.
- o Determining the apparent cause of the R-12 monitor alarm.
- o Resetting the containment ventilation isolation signal and restarting R-10A, R-11, and R-12 sample pump and verifying sample flow was re-established.

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TEXT (If more space is required, use additional NRC Form 368A's) (17)

- o Verifying that R-10A, R-11, and R-12 RMS monitor readings returned to normal.
- o Notifying the NRC and Higher Supervision of the ESF actuation.

III. CAUSE OF EVENT

A. IMMEDIATE CAUSE:

The containment ventilation isolation was caused by R-12 RMS monitor reaching its alarm setpoint.

B. INTERMEDIATE CAUSE:

The cause of the R-12 RMS monitor reaching its alarm setpoint was apparently due to flow/pressure fluctuations at the R-12 RMS monitor skid during local containment sampling.

C. ROOT CAUSE:

The underlying cause of the flow/pressure fluctuations during local containment sampling was determined to be as follows:

- o When local containment sample was drawn from the R-12 RMS skid, it changed the flow/pressure characteristics at the R-12 RMS monitor.
- o The R-12 RMS monitor has a pressure compensation input to the R-12 electronics that amplifies the gain of the R-12 RMS monitor, depending on pressure sensed at the detector. As pressure decreases gain increases causing higher indication.

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TEXT (If more space is required, use additional NRC Form 364A's) (17)

- o When a local containment sample was drawn at the R-12 RMS monitor skid, the pressure at the detector decreased and the pressure compensation signal to the R-12 electronics increased, thus increasing the R-12 RMS monitor output readings.
- o The amplifying effect was higher, causing isolation, during these manual sampling operations because the detector readings were higher than normal.

IV. ANALYSIS OF EVENT

This event is reportable in accordance with 10 CFR 50.73, Licensee Event Report system, item (a)(2)(iv), which requires reporting of, "any event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature (ESF) including the Reactor Protection System (RPS)". The containment ventilation isolation due to the R-12 RMS monitor alarm was an automatic actuation of an ESF sub-system.

An assessment was performed considering both the safety consequences and implications of this event with the following results and conclusions:

There were no operational or safety consequences or implications attributed to the containment ventilation isolation because:

- o The containment ventilation isolation system operated as designed.
- o The components affected were capable of withstanding the isolation.
- o The containment ventilation isolation was in the conservative direction.

Based on the above, it can be concluded that the public's health and safety was assured at all times.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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TEXT (If more space is required, use additional sheets.)
CORRECTIVE ACTION**A. ACTION TAKEN TO RETURN AFFECTED SYSTEMS TO PRE-EVENT NORMAL STATUS:**

- o The Control Room operators, after determining the apparent cause of the containment ventilation isolation, had the Health Physics Technician terminate the local containment sample. Subsequently the Control Room operators reset the containment ventilation isolation signal and restored the system to pre-event status.

B. ACTION TAKEN OR PLANNED TO PREVENT RECURRENCE:

After extensive troubleshooting by the I&C and Health Physics Departments, the following conclusions have been reached and the following actions are planned or taken:

- o The R-12 RMS monitor pressure compensation does affect the output of the R-12 RMS monitor. At lower pressure, higher than actual cpm are indicated.
- o The local containment sample does affect the flow/pressure in the R-12 RMS monitor by lowering the pressure, thus increasing the monitor output cpm.
- o The power supply on R-12 RMS monitor has been changed, which stabilized the counts per minute to normal values.
- o The procedure for local containment sampling will be reviewed to see if any enhancements may prevent the R-12 RMS monitor from reaching its alarm setpoint.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

- o The local containment sampling procedure may need to be changed to indicate that during sampling a containment ventilation isolation could occur due to the upset of the R-12 RMS monitors flow/pressure characteristics. This change will be evaluated if enhancements to the procedure are not effective in preventing R-12 from reaching the alarm setpoint.
- o R-12 alarm setpoints will be evaluated for the possibility of raising the R-12 RMS monitor setpoint during sampling to a point at which the monitor would not reach, due to the flow/pressure oscillations.

VI. ADDITIONAL INFORMATION:

A. FAILED COMPONENTS:

None identified.

B. PREVIOUS LERs ON SIMILAR EVENTS:

A similar LER event historical search was conducted with the following results:

- o LER 89-014 (to be submitted prior to November 23, 1989) had the same root cause.
- o LER 87-005, LER 88-007, and LER 89-011 were similar events with undetermined or different root causes.

C. SPECIAL COMMENTS:

None.