

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Catawba Nuclear Station, Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 4 1 4	PAGE (3) 1 OF 0 4
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TITLE (4)
Termination Of Containment Air Release Due To A Spurious Radiation Alarm

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	1	0 4	8 6	8 6	0 4 7	1	2	0 4	N/A		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) 5	POWER LEVEL (10) 0 0 0	20.402(b)	20.406(a)(1)(i)	20.406(a)(1)(ii)	20.406(a)(1)(iii)	20.406(a)(1)(iv)	20.406(a)(1)(v)	20.406(c)	50.36(e)(1)	50.3d(c)(2)	50.73(a)(2)(i)	50.73(a)(2)(ii)	50.73(a)(2)(iii)	50.73(a)(2)(iv)	50.73(a)(2)(v)	50.73(a)(2)(vi)	50.73(a)(2)(vii)	50.73(a)(2)(viii)(A)	50.73(a)(2)(viii)(B)	50.73(a)(2)(ix)	73.71(b)	73.71(c)	OTHER (Specify in Abstract below and in Text, NRC Form 365A) 50.72(b)(2)(ii)
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LICENSEE CONTACT FOR THIS LER (12)

NAME Roger W. Ouellette, Associate Engineer - Licensing	TELEPHONE NUMBER 7 1 0 1 4 3 1 7 3 1 - 7 1 5 1 3 0
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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

SUPPLEMENTAL REPORT EXPECTED (14)

<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On November 4, 1986, at 1514:48 hours, a Containment Air Release and Addition (VQ) System release was terminated by the actuation of the Containment Gas Monitor (2EMF-39L) Trip 2 alarm. The 2EMF-38/39/40 package had initially tripped on loss of sample flow. Attempts were made to restart the 2EMF-38/39/40 package five times. Each time the package tripped on loss of sample flow. The 2EMF-38/39/40 package was declared inoperable and a new Gas Waste Release package was prepared in order to utilize the Unit Vent Gas Monitor. The VQ release was completed at 2000 hours. The Unit was in Mode 5, Cold Shutdown, at the time of this incident.

This incident is assigned Cause Code X, Other. The 2EMF-39L Trip 2 alarm was apparently caused by a spurious radiation signal. Also, the Technical Specification setpoint for 2EMF-39L Trip 2 alarm was too conservative.

This incident is reportable pursuant to 10CFR 50.73, Section (a)(2)(iv) and 10CFR 50.72, Section (b)(2)(ii).

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

BACKGROUND

The Containment Air Release and Addition (VQ) System provides the normal means of controlling containment pressure. Containment air is routed by fans through VQ filters and exhausted through the unit vent. If a slight vacuum develops inside Containment it is alleviated by purging Auxiliary Building air into Containment.

The Process Radiation Monitoring (EMF) System (EIIS:IL) is responsible for providing early warning of potential radiological hazards. The Containment Monitoring Package monitors for gas, iodine, and particulate activity. The containment Gas Monitor (EIIS:45), 2EMF-39L, monitors the radioactivity of gases inside Containment and provides two trip switches that actuate when certain radiation levels above background are reached. Trip 1 setpoint initiates an alarm, while Trip 2 actuates the Containment evacuation alarm and an Engineered Safeguards Feature (ESF) signal. The ESF signal closes the VQ Containment isolation valves thereby terminating any VQ release. The trip setpoints must be adjusted periodically to compensate for changes in background radiation levels inside Containment. Technical Specification (Tech Spec) 3.3.3.1, Table 3.3-6 requires that VQ release setpoints be adjusted to no greater than two times Containment activity plus background when releasing.

2EMF-39L is part of the 2EMF-38/39/40 vendor supplied package. The package is equipped with a sample pump that draws a sample stream through the package. A loss of sample flow will generate a Loss of Sample Flow alarm and secure the sample pump, thus tripping the package.

DESCRIPTION OF INCIDENT

On November 4, 1986, Health Physics (HP) completed the VQ grab sample at 0942 hours. At 1410 hours, HP completed the Gas Waste Release (GWR) package for VQ release. At 1510:14 hours, the Control Room Operator opened the VQ Containment Isolation Valves (EIIS:ISV) (2VQ-2A, 2VQ-3B, 2VQ-15B and 2VQ16A). The Control Room Operator then opened the VQ Fans Discharge to Unit Vent Control Valve, 2VQ-10. At approximately 1514:44 hours, the 2EMF-39L Loss of Sample Flow alarm was received. A 2EMF-39L Trip 2 alarm was received. At 1514:48 hours, the VQ Containment Isolation valves automatically closed and the 2EMF-38/39/40 package tripped. The Control Room Operator subsequently closed 2VQ-10. The Control Room Operator attempted to restart the 2EMF-38/39/40 package five times. Each time the package tripped on a Loss of Sample Flow signal. Each Trip was accompanied by a 2EMF-39L Trip 2 alarm.

At 1520 hours, HP was notified of the 2EMF-38/39/40 package trip by the Control Room Operator and the Shift Supervisor declared the 2EMF-38/39/40 package inoperable. At 1645 hours, HP completed a GWR package for VQ using the Unit Vent Gas Monitor. HP initiated a Work Request to investigate and repair the 2EMF-38/39/40 package tripping due to loss of sample flow. At 1800 hours, the Control Room Operator initiated a VQ release and secured the VQ release at 2000 hours. On November 5, 1986, at 1100 hours, the Work Request was completed. The 2EMF-38/39/40 package was then declared operable.

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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)

CONCLUSION

Routine HP samples of Containment air before and after this incident revealed activity below detectable levels. 2EMF-39L readings before and after this incident correlated with the sample results. Therefore, a false high radiation signal caused the 2EMF-39L Trip 2 switch to actuate, resulting in the VQ termination. Three previous VQ termination incidents have occurred as a result of spurious radiation alarms (see LERs 414/86-02, 414/86-08, and 414/86-27). A Temporary Station Modification (TSM) has been installed to correct electrical noise problems associated with the RC Filter Network on 2EMF-39L vacuum switches (see LER 414/86-02). A varistor has been installed via another TSM across the filter paper advance micro-switch terminals to eliminate electrical noise from the paper advance (see LER 414/86-08). Both of these TSMs are still installed and will be made permanent. A Station Problem Report (SPR) has been initiated to correct possible electromagnetic noise coming back through the ground system (see LER 414/86-27). This SPR is scheduled to be resolved by January 1, 1987. Therefore, this incident is assigned Cause Code X, Other, due to a spurious 2EMF-39L Trip 2 alarm.

It has been theorized that the 2EMF-39L Trip 2 signals generated during the attempted restarts of the EMF package may be pressure induced spikes caused by the five attempted restarts of the sample pump.

This incident is also assigned Cause Code X, Other, due to the Tech Spec setpoints for 2EMF-39L being too conservative. Tech Spec 3.3.3.1, Table 3.3-6, limits 2EMF-39L Trip 2 setpoint to twice the containment activity plus background radiation levels. A Tech Spec change request has been submitted to the NRC which would raise the setpoint for 2EMF-39L to the limits required by Tech Spec 3.11.2.1. If this Tech Spec change had been in affect at the time of this incident, the spurious radiation spike would not have actuated the 2EMF-39L Trip 1 alarm. There have been three previous incidents in which the Containment Gas Monitor tripped due to setpoints being too conservative (see LERs 413/85-54, 413/86-45, and 413/86-48).

An investigation revealed that the 2EMF-38/39/40 package Upper Containment nozzle was plugged. When personnel swapped from all three nozzles (Upper Containment, Lower Containment, and Incore Instrumentation Room) to only the Upper Containment nozzle for the VQ release, it resulted in the Loss of Sample Flow signal. The nozzle using instrument air was unplugged. It was also discovered that the sample pump was excessively worn. The sample pump was replaced and the work request was completed on November 5, 1986, at 1100 hours. Because this was not a failure of the Radiation Monitor, a NPRDS search was not performed.

CORRECTIVE ACTION

- (1) Control Room Operator closed 2VQ-10.
- (2) Control Room Operator attempted to restart the 2EMF39L package five times.
- (3) A Work Request was initiated and completed on the 2EMF-38/39/40 package.

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

SAFETY ANALYSIS

Upon the Trip 2 alarm of 2EMF-39L, all components responded as designed, isolating VQ from the Unit Vent. Prior to this release, HP took a grab sample of containment air to ensure an unexpected release of radioactive gases to the atmosphere would not occur. If 2EMF-39L had failed to provide automatic isolation, 2EMF-36, the Unit Vent Gas Monitor, would have isolated the VQ release. No unexpected release occurred during this incident.

The health and safety of the public were not affected by this incident.

DUKE POWER COMPANY

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VICE PRESIDENT
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December 4, 1986

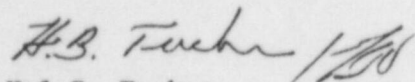
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Washington, D. C. 20555

Subject: Catawba Nuclear Station, Unit 2
Docket No. 50-414

Gentlemen:

Pursuant to 10 CFR 50.73 Section (a) (1) and (d), attached is Licensee Event Report 414/86-47 concerning the termination of a Containment air release due to a spurious radiation alarm and a conservative radiation gas monitor setpoint. This event was considered to be of no significance with respect to the health and safety of the public.

Very truly yours,



Hal B. Tucker

RWO/74/slb

Attachment

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