LICENSEE EVENT REPORT (LER)

Facility Name (1)	Docket Number (2)	Page (3)
Zion, Unit 2	0 5 0 0 0 3 0 4	1 of 0 2

Title (4) Purge Isolation due to low temperature and high radiation signal

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 5 0 0 0
1 2	0 1	8 5	8 5	0 2 9	0 3	0 1	2 8	8 8		0 5 0 0 0

OPERATING MODE (9)	POWER LEVEL (10)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)			
5	0 0 0	___ 20.402(b)	___ 20.405(c)	X 50.73(a)(2)(iv)	___ 73.71(b)
		___ 20.405(a)(1)(i)	___ 50.36(c)(1)	___ 50.73(a)(2)(v)	___ 73.71(c)
		___ 20.405(a)(1)(ii)	___ 50.36(c)(2)	___ 50.73(a)(2)(vii)	___ Other (Specify in Abstract below and in Text)
		___ 20.405(a)(1)(iii)	___ 50.73(a)(2)(i)	___ 50.73(a)(2)(viii)(A)	
		___ 20.405(a)(1)(iv)	___ 50.73(a)(2)(ii)	___ 50.73(a)(2)(viii)(B)	
		___ 20.405(a)(1)(v)	___ 50.73(a)(2)(iii)	___ 50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

Name	TELEPHONE NUMBER
Bob Soden, Technical Staff Engineer Extension 322	AREA CODE 3 1 2 7 4 6 - 2 0 8 4

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
X	I L	R I	E 0 7 0	No					

SUPPLEMENTAL REPORT EXPECTED (14)		Expected Submission Date (15)	Month	Day	Year
___ Yes (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

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

On December 1, 1985 with Unit 2 in cold shutdown, during a Unit 2 containment purge, the running 2A Purge Supply Fan and 2A Exhaust Fan tripped, the containment purge inlet and outlet isolation valves 2AOV-RV0001, 2AOV-RV0002, 2AOV-RV0003, 2AOV-RV0004 closed, and the "Air Exhaust Stack Radiation High" annunciator alarmed.

The cause of this isolation was a spurious high radiation alarm from Containment Purge Exhaust Stack Air particulate monitor 2RT-PR09C which isolated the purge inlet and outlet valves and tripped the running purge and exhaust fans.

The root cause of this event was a spurious spike on monitor 2RT-PR09C caused by voltage spiking on the AC power feed to the monitor.

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On December 1, 1985 with Unit 2 in cold shutdown, during a Unit 2 containment purge, the running 2A Purge Supply Fan and 2A Exhaust Fan tripped, the containment purge inlet and outlet isolation valves 2AOV-RV0001, 2AOV-RV0002, 2AOV-RV0003, 2AOV-RV0004 closed, and the "Air Exhaust Stack Radiation High" annunciator alarmed. Investigation at the local purge panel by the operating department revealed a low-temperature alarm.

In accordance with the annunciator response manual, the Unit 2 operator verified that all the containment purge isolation valves were closed and that the purge fans were tripped. Radiation Protection personnel were notified after determining that the annunciator alarm was due to a high alarm on the Containment Purge Exhaust Stack Air Particulate monitor (2RT-PR09C). In accordance with Abnormal Operating Procedure AOP-5, titled "Radiation Monitoring System - High Activity Alarm", with the containment purge secured, a grab sample was pulled to determine if the high activity alarm was valid.

By design, if 2RT-PR09C's count rate exceeds its high radiation setpoint, the monitor will execute its control function. The control function will cause the purge isolation valves to close which causes the purge supply and exhaust fans to trip.

Although the high radiation alarm setpoint of 2RT-PR09C was exceeded on the radiation module, as indicated by the annunciator alarm and review of the recorder output for the monitor, the grab sample for 2RT-PR09C indicated that the high activity alarm was false. Two other monitors on the purge line, Containment Purge Exhaust Gas monitor (2RT-PR09A) and the Containment Purge Exhaust Stack Iodine monitor (2RT-PR09B), showed no indication of noble gas activity or Iodine activity at the time of this event.

Investigation revealed that low temperature alarm was valid.

Although this alarm could have tripped the purge supply and exhaust fans, there was no conclusive evidence to indicate that it did. Based on a history of purge isolations due to radiation monitor spiking, the cause of this event is being attributed to spiking on 2RT-PR09C.

While investigating the cause for the high alarm on 2RT-PR09C, it was noted that voltage spikes on the AC power to the monitor would periodically cause the monitor to go into high alarm. As a test, an AC line filter was installed on the module and tested in the Instrument Shop. This filter effectively removed the voltage spikes and was installed on the module in the field. The module was then operated with the filter installed over a period of several weeks. During this test period, operations involving starting and stopping of purge fans and operation of the purge dampers were conducted with no spurious high alarms occurring. The temporary AC line filter was then removed from the monitor after the completion of the test.

A permanent AC line filter will be installed on the power feed for monitor 2RT-PR09C to prevent recurrence of spurious high alarms due to AC spiking. The filter installation will be tracked by commitment #304-180-85-029.

The health and safety of the public was not endangered throughout this event since there was no uncontrolled release.

Commonwealth Edison
Zion Generating Station
101 Shiloh Blvd.
Zion, Illinois 60099
Telephone 312/746-2084

February 1, 1988

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

Dear Sir:

The enclosed Licensee Event Report number 85-029-03,Docket No. 50-304/DPR-48 from Zion Generating Station is being transmitted to you to include field 7, Report Date, which was inadvertently omitted on the previous revision. There are no other changes.

Very truly yours,

G. J. Pliml
Station Manager
Zion Generating Station

GJP/jlc

Enclosure: Licensee Event Report

cc: NRC Region III Administrator
NRC Resident Inspector
INPO Record Center
CECo Distribution List

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