

LICENSEE EVENT REPORT (LER)

Facility Name (1) <div style="text-align: center;">Zion, Unit 1</div>										Docket Number (2) <div style="text-align: center;">0 5 0 0 0 2 9 5</div>				Page (3) <div style="text-align: center;">1 of 0 2</div>					
Title (4) Failure of Lake Discharge Tank Isolation Valve to Close on High 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 0	1 2	8 5	8 5	---	0 3 7	---	0 1	0 2	2 0	8 6					0 5 0 0 0				
OPERATING MODE (9)				THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)															
POWER LEVEL (10) <div style="text-align: center;">0 9 9</div>				20.402(b)				20.405(c)				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			
				20.405(a)(1)(iii) X				50.73(a)(2)(i)				50.73(a)(2)(viii)(A)				in Abstract below			
				20.405(a)(1)(iv)				50.73(a)(2)(ii)				50.73(a)(2)(viii)(B)				and in Text)			
20.405(a)(1)(v)				50.73(a)(2)(iii)				50.73(a)(2)(x)											
LICENSEE CONTACT FOR THIS LER (12)																			
Name <div style="text-align: center;">Christopher Kuechle, Health Physicist Extension 563</div>										TELEPHONE NUMBER AREA CODE <div style="text-align: center;">3 1 2 7 4 6 - 2 0 8 4</div>									
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																			
CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS										
X	I L	D E T	R 1 2 0	N															
X	W H	F C V	M 1 2 0	N															
SUPPLEMENTAL REPORT EXPECTED (14)										Expected Submission Date (15)									
Yes (If yes, complete EXPECTED SUBMISSION DATE) X NO																			
ABSTRACT (Limit to 1400 spaces, i.e, approximately fifteen single-space typewritten lines) (16)																			

At 21:15 on 10/12/85, during a release of the OB Lake Discharge Tank into the No. 2 Discharge Canal, a high alarm was received from the OA Lake Discharge Tank Radiation Monitor (ORT-PR04), which monitors discharges to the No. 2 canal. Auto-closure of the associated valve to secure flow to the No. 2 canal (OFCV-WD08) failed to occur, and the valve was secured manually. Resampling of tank contents to confirm the validity of the high alarm show no significant increases above previous levels and were well within release limits. The total volume released was 25 gallons. There were no safety implications. The high alarm resulted from a failed detector tube. The cause of the failure of the valve to close could not be determined. The valve was tested prior to the release and following repair of the instrument and was found to be operating correctly. The solenoid operator associated with the valve was later tested and also found to be operating correctly. No further action is required.

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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					
Zion, Unit 1	0 5 0 0 0 2 9 5	8 5	-	0 3 7	-	0 1	0 2	OF	0 2		
TEXT											

At 21:15 on 10/12/85, during a release of the OB Lake Discharge Tank into the No. 2 Discharge Canal (Release No. 85-343), a high alarm was received from the OA Lake Discharge Tank Radiation Monitor (ORT-PR04), which monitors discharges to the No. 2 canal. The licensed operator on duty, adhering to Abnormal Operating Procedure 5 (Radiation Monitoring System - High Activity Alarm), noted that the expected automatic closure of the OA Lake Discharge Isolation Valve (OFCV-WD08) had not occurred. This is a violation of Tech. Spec. 3.11.3.C, which requires the valve to close when a high alarm condition exists. This function had been tested and verified operational by a non-licensed operator performing the Lake Discharge Tank Isolation Valve Operability Test (PT-26) approximately 30 minutes prior to the release. A Rad Waste Operator was notified and the valve was secured manually. The Rad Chem department was then notified to resample the tank contents for verification of alarm authenticity. Analysis results showed no significant differences from earlier samples and well within the limits for release. The total volume of effluent released was 25 gallons. There were no safety implications.

Following manual closure of OFCV-WD08, operators suspected the alarm to be the result of the instrument's check source being inserted and having failed to withdraw. The check source control was then toggled several times in an attempt to cause it to retract. All attempts were unsuccessful, and a top priority work request (No. Z45457) was written.

Investigation by Instrument maintenance (IM) shop personnel led to the discovery that the check source had broken from the drive cable and was adjacent to the detector. From examination of the monitor's associated strip chart record for the period, this is thought to have occurred when operators were attempting to clear the alarm. The source was driven past its normal extended position in the guide tube from the repeated actuation of the check source drive motor and had cleared the end of the tube. When the drive motor reversed direction to retract the check source, the source caught the edge of the guide tube and was broken off. IM personnel replaced the check source drive mechanism, but then noted that the monitor still indicated a reading in excess of full scale (pegged high). The monitor was then flushed in an effort to remove any high activity sediment that may have been trapped in the monitor, causing the reading. The monitor remained pegged high. The control room instrument module was then tested and found to be operating correctly. At this time, the detector tube was replaced. The monitor briefly gave an on-scale reading, but soon failed low. A second tube was then installed and the monitor was recalibrated. Alarm and control functions were then tested, including control room annunciation and auto-closure of OFCV-WD08, and were found to be operating correctly. The instrument was then returned to service.

The cause of the monitor high alarm is attributed to failure of the associated detector tube. The cause of the failure of OFCV-WD08 to close as a result of this alarm is unknown, due to the fact that it performed correctly prior to the release, during subsequent testing by IM shop personnel and as part of the normal PT-26 performed for subsequent releases. As a precaution, a second work request (Z46081) was initiated to verify the operability of the solenoid operator associated with the valve, as this was believed to be the single remaining source of potential failure. Investigation by Electrical Maintenance shop personnel showed the valve operator to be functioning correctly.

While this monitor has failed in the past, this is the first time the associated Lake Discharge Isolation Valve has failed to close as a result of a high alarm. In August, 1979, the companion Lake Discharge Tank monitor (ORT-PR05) failed to cause isolation of its associated valve in response to a high alarm. The cause of that event was determined to be a faulty relay in the instrument module.

The corrective actions for this event have been noted above.
No further action is required.



Commonwealth Edison

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

February 20, 1986

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

References: 10CFR50

Dear Sir:

The enclosed Supplemental Licensee Event Report from Zion Generating Station is being transmitted to you to bring you up to date on the results of the root cause investigation.

This report is number 85-037-01, Docket No. 50-295/D. 39.

Very Truly yours,

J.A. Reick

for

G.J. Pliml
Station Manager
Zion Generating Station

Enclosure: Licensee Event Report No. 85-037-01

Attachment

cc: J.G. Keppler, NRC Region III Administrator
M. Holzmer, NRC Resident Inspector
INPO Record Center
CECO distribution List

IE22
11