



Commonwealth Edison

Zion Generating Station
Shiloh Blvd. & Lake Michigan
Zion, Illinois 60099
Telephone 708 / 746-2084

December 6, 1990

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

Dear Sir:

The enclosed Licensee Event Report number 90-23-00, Docket No. 50-295/DPR-39 from Zion Generating Station is being transmitted to you in accordance with the requirements of 10CFR50.73(a)(2)(i), which requires a 30 day written report for the completion of a plant shutdown required by the plant's Technical Specifications.

Very Truly yours,

W. R. Kunch
for T. P. Joyce
Station Manager
Zion Generating Station

TPJ/dmg

Enclosure: Licensee Event Report

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

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PDR ADOCK 05000295
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LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1) Zion Unit 1 Docket Number (2) 0 5 0 0 0 2 9 5 Page (3) 1 of 0 4

Title (A) Unit 1 Shutdown due to Diesel Generator Inoperability

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 6 9 0	9 0	0 2 3	0 0	1	2	0 6 9 0	N/A		

OPERATING MODE (9) 1

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)

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 in Abstract below and in Text)
20.405(a)(1)(iii)	X 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 Dave Pederson, Technical Staff ext. 2044 TELEPHONE NUMBER AREA CODE 7 0 8 7 4 6 -2 0 8 4

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
B	E K	X C V	A 3 6 8	Y	B	E K	H S	W 1 2 0	
B	E K	H C V	S 6 0 0						

SUPPLEMENTAL REPORT EXPECTED (14)

[Yes (If yes, complete EXPECTED SUBMISSION DATE)] X | NO Expected Submission Date (15)

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

At 1603 on 11/5/90, during the performance of PT-11 the '0' EDG tripped due to a leaking manual air start valve. While troubleshooting the '0' EDG failure, a Technical Staff member momentarily rolled the engine while investigating a leak in the control system. The '0' EDG was returned to service following the installation of two new manual air start valves.

At 1317 on 11/6/90, during a performance test of the 1A EDG as a result of the '0' EDG OOS, the 1A EDG tripped due to a bad contact in the control room switch. The 1A EDG was returned to service after the replacement of the control room switch.

The concurrent failure of '0' EDG and 1A EDG required Unit 1 to be placed in Hot Shutdown. This shutdown was completed on 11/6/90, at approximately 1630. This is reportable under 10CFR50.73(a)(2)(i)(A).

There were no safety consequences to this event, as all actions were taken within the time allowed by Technical Specifications. This event was thus bounded by the accident analysis in the Zion UFSAR.

LICENSE EVENT REPORT (LER) TEXT CONTINUATION

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		Year	Sequential Number	Revision	Number				
Zion Unit 1	0 5 0 0 0 2 9 5	9 0	- 0 2 3	-	0 0	0 2	OF	0 4	

TEXT Energy Industry Identification System (EIIIS) codes are identified in the text as [XX]

A. CONDITION PRIOR TO EVENT

MODE 1 - Power RX Power 95% RCS [AB] Temperature/ Pressure 559 °F/ 2235 psig

B. DESCRIPTION OF EVENT

On 11/05/90, at 1603, '0' Emergency Diesel Generator (EDG) tripped during the scheduled Periodic Test (PT)-11 being run for the PT-14 on the Unit 2 Safety Injection pump. The operator posted in the diesel room noted that the first out annunciator indicated overspeed and manual shutdown conditions. He also indicated that he heard no change in engine speed that would have indicated an actual overspeed condition.

During troubleshooting at about 1634 a member of Tech Staff inadvertently rolled the '0' EDG engine when he covered a vent in the pneumatic control system, to evaluate the magnitude of a suspected air leak.

The '0' EDG was declared inoperable and taken Out of Service. A Unit 2 Safety Injection Pump was Out of Service concurrently, and thus a Unit 2 shutdown was required. The Unit 2 shutdown was initiated at about 1700 and the NRC was notified via an ENS phone call. At 1731 the 1A EDG was started to verify operability for the '0' EDG being taken out of service. The 1B EDG was started at 1931 for the same reason. The Safety Injection Pump was repaired prior to the completion of the Unit 2 shutdown, and Unit 2 was returned to power.

On 11/06/90, at 1317, 1A EDG tripped during the PT-11 being run for the '0' EDG Out of Service (OOS). No unusual conditions were noted in the diesel room or the control room prior to or during the event by the operator. The operator noted that the first out annunciator showed overspeed and manual shutdown flags. 1A EDG was declared inoperable.

At 1415 a Unit 1 shutdown was initiated due to the 1A and '0' EDG failures. The Unit 1 shutdown was complete at about 1630. At that time 1A EDG was started locally for a troubleshooting run during which time no unusual conditions were noted that would cause a shutdown. At 1745 a second troubleshooting run was initiated remotely to check the electrical circuit between the control room and the diesel. Again the troubleshooting run showed no unusual conditions.

At about 2120 Tech Staff initiated the performance of Tech Staff General Procedure (TSGP)-38 on 1A EDG to test all portions of the EDG control system. During this test, Tech Staff discovered that the AMOT master shutdown valve had failed in the "no-trip" position. This failure was not the cause of the engine trip because it failed in a manner such that an overspeed trip could not have occurred. Tech Staff wrote a work request to have the failed parts replaced.

The TSGP-38 also revealed that the first out annunciator had six of the eight windows stuck in the "no-trip" position. This failure also would not have caused the engine to trip, because it only affected the annunciation system.

On 11/07/90, at about 1356, the Instrument Maintenance (IM) department had completed the repairs to the 1A EDG overspeed device and the first out annunciator. The Electrical Maintenance (EM) department also rebuilt the emergency shutdown solenoid as a precautionary measure suggested by Tech Staff.

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DESCRIPTION OF EVENT (con't):

At about 1500 the replacement manual start valves for 0 EDG arrived on site and the Mechanical Maintenance (MM) department was able to install them by 1730. At 1830 the MM dept. got a partial clear on the 0 EDG to allow a maintenance run to check for leaks. On 11/08/90, following two maintenance runs, the '0' EDG successfully completed PT-11 and was returned to service at 0037.

At 1900 on 11/07/90, Technical Staff continued with TSGP-38 on the 1A EDG with a chart recorder added to monitor several contacts in the electrical portion of the control system. During this test Tech Staff was unable to detect any electrical or pneumatic failures.

Following completion of this test, an overspeed test was run by Technical Staff to adjust the setpoint on the new overspeed governor.

At 0615 on 11/08/90, the 1A EDG was started for a PT-11 in an attempt to return the EDG to service. During the start, the EDG tripped on the same symptoms as before. Chart recorder instrumentation installed as a precautionary measure detected a problem with the electrical portion of the control system about twenty seven seconds after a start signal was initiated. TSGP-38 was again initiated by Technical Staff while simulating remote start conditions. Four of the simulated starts indicated momentary voltage spikes through the control switch with two of the spikes causing trips. The spike was occurring when the operator released the pistol grip handle in the control room. The control board switch was replaced at 1830 on 11/08/90 by the EM Department. It should be noted that this failure did not affect the diesels' ability to start on a Safeguards signal. It only affected the remote start capability.

At approximately 0500 on 11/09/90 the 1A EDG successfully passed a PT-11 and was returned to service.

C. APPARENT CAUSE OF EVENT

The apparent cause of the 0 EDG trip was degradation of the "O" rings in the two engine mounted manual air start valves. This degradation was caused by contamination of the pressurized air used in the control system and the elevated ambient temperatures (approx. 105 degrees F) of the diesel room.

The apparent cause of the 1A EDG trip was corrosion of the contact surfaces in the "slip-close" portion of the control room switch.

D. SAFETY ANALYSIS OF EVENT

During the course of this event, two Unit 1 EDGs were out of service simultaneously for approximately 32.5 hours (11/06/90, 1600 to 11/08/90, 0037). During the time that both EDG sets were out of service, the Unit Aux. Transformer and the System Aux. Transformer were both available to provide power during a Safety Injection event. If this event had occurred during a simultaneous Loss Of Offsite Power and a Safety Injection (SI) signal the ability to safely shutdown the unit would have been affected. However, all corrective actions for this event were taken within the time allowed by the Technical Specification Limiting Condition for Operation. This event is therefore bounded by the accident analysis in the Zion UFSAR, and the safety significance is minimal.

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E. CORRECTIVE ACTIONS

The '0' EDG manual air start valves were replaced along with the associated pilot valve. A Preventative Maintenance program is being initiated to replace these components on a 5 year interval. (295-180-90-15201)

The 1A EDG control board switch, overspeed linkage, and AMOT trip device were replaced. The pneumatic first out annunciator panel was overhauled and successfully tested. Additionally, the 20S solenoid was replaced as a precautionary measure. Testing will be performed on the remaining switches to identify any other switches in a degraded condition. (295-180-90-15202)

F. PREVIOUS EVENTS

LER 1-90-008 documents a dual unit shutdown due to diesel generator inoperability. Corrective actions taken would not have prevented this event.

G. COMPONENT FAILURE DATA

- AMOT Valve - AMOT Controls Corp.
- Manual Air Start Valve - Schrader Bellows
- W-2 Control Switch - Westinghouse