



**Commonwealth Edison**  
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Dcd

October 20, 1989

Mr. A. Bert Davis  
 Regional Administrator  
 US Nuclear Regulatory Commission  
 Region III  
 799 Roosevelt Road  
 Glen Ellyn, IL 60137

Subject: Zion Nuclear Power Station, Units 1 and 2  
 License Nos. DPR-39 and DPR 48  
 Response to Inspection Report  
 Nos. 50-295/89021 and 50-304/89019  
NRC Docket Nos. 50-295 and 50-304

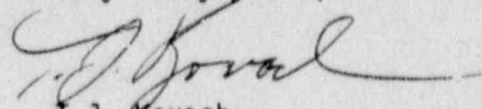
Reference: a) September 20, 1989 letter from WD Shafer  
 to Cordell Reed

Dear Mr. Davis:

The letter referenced above transmitted the results of a routine safety inspection conducted by Mr. J.D. Smith and others of your staff from June 30 through August 31, 1989, of activities at the Zion Nuclear Power Station. During the course of this inspection, it was determined that certain activities appeared to be in violation of NRC requirements. Our response to the violations is provided in the Attachment to this letter.

Please direct any questions that you may have regarding this matter to this office.

Very truly yours,

  
 T.J. Kovach  
 Nuclear Licensing Manager

OCT 23 1989

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cc: Resident Inspector-Zion  
 Chandu Patel-NRR

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## ATTACHMENT

### 1. VIOLATION

Zion Technical Specification 6.2.1.G requires that surveillance tests be conducted in accordance with written procedures. 10 CFR 50, Appendix B, Criterion V, as implemented by Commonwealth Edison Company's Quality Assurance Topical Report, CE-1-A, states that activities affecting quality shall be accomplished in accordance with instructions, procedures, or drawings.

Contrary to the above:

- a. On February 27, 1989, PT-5A, "Reactor Protection Logic, Reactor at Hot Shutdown", was not conducted in accordance with a written test procedure in that a jumper installed in ICB30 jumper terminals 4L24-7 and 4L24-B was not removed as required.
- b. On July 20, 1989, the Unit 2 N42 channel operation selector switch was not placed in the "normal" position following the completion of IMP-NR-4, "Rescaling NIS N42 Detector Currents."

This is a Severity Level IV violation with two examples (Supplement 1).  
(295/89021-05; 304/89019-04(DRP))

### 1a. RESPONSE

#### Corrective Action Taken and Results Achieved

The jumper that was installed in ICB30 between terminals 4L24-7 and 4L24-B was installed in accordance with a previously performed PT-5A surveillance. PT-5A also directs personnel to remove the jumper at the completion of the test. In this case, however, the jumper was not removed. When the jumper was discovered, an evaluation was performed to verify that the jumper could be removed without adverse impact on the plant. The evaluation concluded that the jumper could be removed and Electrical Maintenance personnel were directed to remove the jumper.

#### Corrective Action to be Taken to Prevent Further Violation

PT-5A will be changed to require independent verification of jumpers during installation and removal.

#### Date When Full Compliance will be Achieved

The revision to PT-5A will be completed by December 31, 1989.

1b. RESPONSE

Corrective Action Taken and Results Achieved

The IMP-NR4 procedure contained a step that required a signoff for returning the OPERATOR SELECTOR SWITCH to normal. This step combined two separate actions in a single step. The step had been signed off in the procedure indicating that the required actions were complete even though it appears that only one step was complete. After discovery of the incorrect switch position, the Instrument Maintenance Department placed the switch in the proper position.

Corrective Action to be Taken to Prevent Further Violation

To prevent recurrence, the following changes were made to all four "Rescaling NIS Detector Current" procedures:

- 1) A separate step for verifying the OPERATOR SELECTOR SWITCH is in the normal position.
- 2) Second verification of the position by checking the status lite on the NIS drawer as well as verifying that the main control board "NIS TEST" annunciator is not lit.

Procedure changes were underway before this event took place, with one procedure (IMP-NR3) completed. As of September 14, 1989, all four "Rescaling NIS Detector Current" procedures were changed.

Date When Full Compliance will be Achieved

The Station is in full compliance at this time.

2. VIOLATION

10 CFR 50, Appendix B, Criterion XI, as implemented by Commonwealth Edison Company's Quality Assurance Topical Report, CE-1-A, states that a test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents. The test program shall include, as appropriate, proof tests prior to installation, preoperational tests, and operational tests.

Contrary to the above, on June 24, 1989, normal power was lost to all Unit 2 Control Room annunciators (visual and audible alarms). When switched to the emergency power, all power supply fuses for the annunciators blew. The cause was verified to be a reversed emergency power supply lead which had apparently existed since the initial installation. No post installation or subsequent testing was performed which would have identified this reversed lead.

This is a Severity Level IV violation (Supplement I). (304/89019-01(DRP))

2a. RESPONSE

Corrective Actions Taken and Results Achieved

LER 89-008, Loss of NSSS Annunciation Due to Blown Power Supply Fuses, identified that the polarity of the DC Emergency Feed to NSSS Annunciation was reversed. The Apparent Cause of Event for this LER attributes the reversed polarity to a discrepancy between the vendor manual drawings and the plant electrical drawings. The NSSS Annunciator cabinet was wired by the manufacturer in accordance with the vendor manual and the wires from the station that connect into this cabinet were wired according to the plant electrical drawings.

The polarity of the NSSS Emergency Feed was corrected under Work Request Z84208 and electrical drawing 22E-2-4650 was corrected under ECN #Z89E-005.

Corrective Action to be Taken to Avoid Further Violation

A Station Action Plan was initiated to verify the polarities of the remaining Emergency DC Feeds. The following is the final list of the Emergency DC Feeds that were verified under Work Requests Z83232 and Z83233. No other discrepancies in wiring were identified during this verification.

I. VERIFIED EMERGENCY FEEDS

A. DC Bus 111

1. 125V Distribution Cabinet 112
2. 4KV Nonessential Bus 144
3. 4KV Essential Bus 148
4. 480V Nonessential Buses 132 and 135
5. NSSS Annunciator Cabinet 1CB74
6. 480V Essential Bus 138
7. 4KV Nonessential Bus 141
8. BOP Annunciator Cabinet 1CB50
9. 4KV Nonessential Bus 145
10. Generator "86" Relay and Transformer Protection Relays Primary
11. Generator "86" Relay and Transformer Protection Relays Backup System Cabinet 1CB52
12. Diesel Generator 1A Control Panel 1LP09
13. Hydrogen and Stator Cooling Panel 1LP01

B. DC Bus 112

1. Main Control Board Panel 1CB01
2. 125V Distribution Cabinet 113
3. 125V Distribution Cabinet 114
4. 4KV Essential Bus 149
5. 4KV Nonessential Bus 142
6. 480V Essential Bus 139
7. 480V Nonessential Bus 133
8. 480V Nonessential Bus 134
9. 4kV Nonessential Bus 143
10. Diesel Generator 1B Control Panel 1LP11

C. DC Bus 211

1. 125V Distribution Cabinet 212
2. 4KV Nonessential Bus 244
3. 4KV Essential Bus 248
4. 480V Nonessential Buses 232 and 235
5. NSSS Annunciator Cabinet 2CB74
6. 480V Essential Bus 238
7. 4KV Nonessential Bus 241
8. BOP Annunciator Cabinet 2CB50
9. 4KV Nonessential Bus 245
10. Generator "86" Relay and Transformer Protection Relays Primary System Cabinet 2CB52
11. Generator "86" Relay and Transformer Protection Relays Backup System Cabinet 2CB52
12. Diesel Generator 2A Control Panel 2LP09
13. Carbon Dioxide Fire Protection Control Cabinet 0LP38
14. Hydrogen and Stator Cooling Panel 2LP01

D. DC Bus 212

1. Main Control Board Panel 2CB01
2. 125V Distribution Cabinet 213
3. 125V Distribution Cabinet 214
4. 4KV Essential Bus 249
5. 4KV Nonessential Bus 242
6. 480V Essential Bus 239
7. 480V Nonessential Bus 234
8. 480V Nonessential Bus 233
9. 4KV Nonessential Bus 243
10. Diesel Generator 2B Control Panel 2LP11
11. Carbon Dioxide and Halon Fire Protection Control Cabinet OLP89

E. DC Bus 011-1

1. 125V Distribution Cabinet 111
2. 4KV Essential Bus 147
3. 480V Essential Bus 137

F. DC Bus 011-2

1. 125V Distribution Cabinet 211
2. Diesel Generator O Control Panel
3. 4KV Essential Bus 247
4. 480 Essential Bus 237

Date When Full Compliance Will Be Achieved

The Station is in full compliance at this time.

### 3. VIOLATION

Zion Technical Specification, Administrative Controls Section 6.2.1 states that written procedures including applicable checkoff lists covering items listed below shall be prepared, implemented and maintained: Actions to be taken to correct specific and foreseen potential malfunctions of systems or components including responses to alarms, suspected primary system leaks, and abnormal reactivity changes.

Zion Administrative Procedure (ZAP)-0, Rev. 2, "Conduct of Operations", states that briefings shall be conducted by the Shift Engineer or his designee for individuals involved in an evolution that is to be performed. The detail of the briefing is dependent on the degree of complexity, routineness, logistics, and number of people involved.

Contrary to the above, on August 12, 1989, a containment entry was made to unisulate 2 PCV RC06 and isolate 2 PCV RC07, the pressurizer spray valves, without written guidance nor an adequate briefing. This resulted in both spray valves being isolated when the personnel left the containment. The operator had to use pressurizer heaters to control reactor coolant system pressure.

This is a Severity Level IV violation (Supplement I). (304/89019-02(DRP))

#### 3a. RESPONSE

##### Corrective Action Taken and Results Achieved

On August 12, 1989 at approximately 1620 the Unit 2 Operator noticed that the Pressurizer Relief Tank (PRT) level was up. The Operator pumped the PRT down. He also noticed that the Volume Control Tank (VCT) level had been on a downward trend for approximately one hour. The operator informed the Shift Engineer and the SCRE that he had a leak rate of approximately 2.3 GPM. After taking into consideration the increase of level, pressure and temperature in the PRT, it was determined that either 2PCV RC06, 2PCV RC07 or their associated isolation valves had developed a packing leak.

At 1635 a call was made to the Load Dispatcher stating the problem and the need to commence a load reduction on Unit 2, to less than 60% power to perform a leak check inside containment.

At approximately 1640 the Unit 2 operator started ramping down Unit 2. The Station Duty Officer was notified and made aware of the events that had happened. The Station Duty Officer informed the Shift Engineer that he had to declare a GSEP condition.

At 1811 the Shift Engineer declared a GSEP. A red phone call was made to the NRC at 1830 and the NRC Senior Resident was also informed.

Prior to entry into the containment the Shift Engineer briefed the Shift Foreman that he wanted 2PCV RC06 unisolated and 2PCV RC07 isolated in that sequence. Before the unit reached 60% power the Shift Foreman briefed the two "B" men and reviewed the P&ID's on what was to be done. If both pressurizer spray valves were leaking a unit shutdown would have to be initiated. Because the Shift Foreman was not entirely familiar with the exact location of valves to be manipulated, a SCRE who had previously performed the task then volunteered to help. This SCRE was not part of the pre-job planning meeting. The SCRE turned the control room supervisors duties over to a relief SCRE who came in four hours early. The Shift Engineer did not designate the SCRE or the Shift Foreman as the person in charge. He assumed that they would work together and that the Shift Foreman would brief the SCRE.

The Shift Engineer did not notice anything unusual until the Unit 2 HIGH/LOW pressure and the pressurizer deviation alarms came in. The Operator not knowing whether 2PCV RC06 was unisolated left the control station for 2PCV RC06 in the closed position and controlled pressure with the pressurizer heaters. The Shift Engineer sent another "B" man into containment to inform the crew to call the control room.

The SCRE called a few minutes later from outside the containment and informed the shift that 2PCV RC06 was unisolated and 2PCV RC07 was isolated. The Operator then tried to control pressure with 2PCV RC06 without success.

The SCRE and the Shift Foreman returned to the Shift Engineer's office to talk about communications. The Shift Engineer questioned the SCRE and Shift Foreman of what they had done, specifically asking if both upstream and downstream isolation valves on 2PCV RC06 were opened. The SCRE was unsure and said that possibly only one of the isolation valves had been opened.

The Shift Engineer then called Rad Protection to notify them that another containment entry had to be made. The relief SCRE and two "B" men were sent to containment to fully unisolate 2PCV RC06. This was completed at approximately 2330 and a call was made to the Shift Engineer confirming these actions. A standing order was issued on August 13, 1989 informing the operators of the expectations for complete and comprehensive pre-job briefings.

The root cause of the problem is inadequate pre-job briefing in that specific duties prior to containment entry were not assigned.



Corrective Action To Be Taken To Prevent Further Violation

ZAP-0 Section 5.3.2.2. SHIFT/EVOLUTION BRIEFING will be revised to describe requirements for complete and comprehensive pre-job briefings.

Each operating crew will receive training on pre-job briefings. As a minimum, the following topics will be discussed.

- 1) Establishing the means for proper communication between the Shift Engineer and the crew prior to entry into confined spaces such as containment.
- 2) Development of contingency plans.
- 3) Establishing the means for proper communication between crew members when work is to be conducted in a noisy environment.
- 4) Development of written instructions prior to performance of tasks in areas where verbal communication is expected to be a problem.

Date When Full Compliance Will Be Achieved

ZAP-0 Section 5.3.2.2 will be revised by 12/29/89. Training requirements will be completed during the first quarter of 1990.